COMPENDIUM OF GUIDELINES, INSTRUCTION AND STANDARD OPERATIVE PROCEDURES FOR COVID-19

Medical Education and Drugs Department
Government of Maharashtra

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FOREWORD

As you are aware, COVID – 19 is widely spreading across the country, rising beyond 375000 positive cases in the 21st week. In order to manage and contain the spread of COVID – 19 any further, both Centre and State Government and associated departments have come out with Guidelines to be adopted across the country and in each state.

This book is a compilation of instructions issued by Ministry of Health & Family Welfare, National Centre for Disease Control & Indian Council of Medical Research of the Government of India and instructions issued by Public Health Department and Medical Education and Drugs Department of Government of Maharashtra. All the information provided in this Compendium is available in publicly available sources.

We hope that this compilation helps Practitioners, Administrators and all people involved in management of COVID – 19 cases.

This compilation is updated with the relevant information issued till 25th June, 2020. The Editorial Board shall be updating this on a regular basis.

We thank you all.

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National Centre for Disease Control
Directorate General of Health Services
MoHFW, GOI, New Delhi

The updated case definitions and contact-categorisation

It has been observed that WHO has recently updated the case definitions based on the current information available and will be revised as new information accumulates. India may also need to adapt case definitions depending on current epidemiological situation. Based on the available information on COVID-19, the following case definitions are put forth for approval:

Suspect Case:
A patient with acute respiratory illness {fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness of breath)}, **AND** a history of travel to or residence in a country/area or territory reporting local transmission (See NCDC website for updated list) of COVID-19 disease during the 14 days prior to symptom onset;

OR

A patient/Health care worker with any acute respiratory illness **AND** having been in *contact* with a confirmed COVID-19 case in the last 14 days prior to onset of symptoms;

OR

A patient with severe acute respiratory infection {fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness breath)} **AND** requiring hospitalization **AND** with no other etiology that fully explains the clinical presentation;

OR

A case for whom testing for COVID-19 is inconclusive.

Laboratory Confirmed case:
A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

Updated definition of contact:
A contact is a person that is involved in any of the following:

- Providing direct care without proper personal protective equipment (PPE) for COVID-19 patients
- Staying in the same close environment of a COVID-19 patient (including workplace, classroom, household, gatherings).
- Traveling together in close proximity (1 m) with a symptomatic person who later tested positive for COVID-19.

High Risk Contact:

- Touched body fluids of the patient (Respiratory tract secretions, blood, vomit, saliva, urine, faeces)
- Had direct physical contact with the body of the patient including physical examination without PPE.

- Touched or cleaned the linens, clothes, or dishes of the patient.
- Lives in the same household as the patient.
- Anyone in close proximity (within 3 ft) of the confirmed case without precautions.
- Passenger in close proximity (within 3 ft) of a conveyance with a symptomatic person who later tested positive for COVID-19 for more than 6 hours.

Low Risk Contact:

- Shared the same space (Same class for school/worked in same room/similar and not having a high risk exposure to confirmed or suspect case of COVID-19).
- Travelled in same environment (bus/train/flight/any mode of transit) but not having a high-risk exposure.

Government of India
Ministry of Health & Family Welfare
Directorate General of Health Services
(EMR Division)

Revised Guidelines on Clinical Management of COVID – 19

This document is intended for clinicians taking care of hospitalised adult and paediatric patients of COVID – 19. It is not meant to replace clinical judgment or specialist consultation but rather to strengthen clinical management of these patients and provide to up-to-date guidance. Best practices for COVID - 19 including IPC and optimized supportive care for severely ill patients as considered essential. This document aims to provide clinicians with updated interim guidance on timely, effective, and safe supportive management of patients with COVID - 19, particularly those with severe acute respiratory illness and critically ill.

31st March 2020

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1. Case definition

When to suspect

- All symptomatic individuals who have undertaken international travel in the last 14 days

  or

- All symptomatic contacts of laboratory confirmed cases

  or

- All symptomatic healthcare personnel (HCP)

  or

- All hospitalized patients with severe acute respiratory illness (SARI) (fever AND cough and/or shortness of breath)

  or

- Asymptomatic direct and high risk contacts of a confirmed case (should be tested once between day 5 and day 14 after contact)

Symptomatic refers to fever/cough/shortness of breath.

Direct and high-risk contacts include those who live in the same household with a confirmed case and HCP who examined a confirmed case.

Confirmed case

A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms

2. Clinical features

COVID–19 may present with mild, moderate, or severe illness; the latter includes severe pneumonia, ARDS, sepsis and septic shock. Early recognition of suspected patients allows for timely initiation of IPC (see Table 1). Early identification of those with severe manifestations (see Table 1) allows for immediate optimized supportive care treatments and safe, rapid admission (or referral) to intensive care unit .

Table 1: Clinical syndromes associated with COVID - 19 infection

Uncomplicated illness	**Patients with uncomplicated upper respiratory tract viral infection, may have non-specific symptoms such as fever, cough, sore throat, nasal congestion, malaise, headache. The elderly and immunosuppressed may present with atypical symptoms.**
Mild pneumonia	Patient with pneumonia and no signs of severe pneumonia. Child with non-severe pneumonia has cough or difficulty in breathing/ fast breathing: (fast breathing - in breaths/min): <2 months, ≥60; 2–11 months, ≥50; 1–5 years, ≥40 and no signs of severe pneumonia
Severe pneumonia	Adolescent or adult: fever or suspected respiratory infection, plus one of the following; respiratory rate >30 breaths/min, severe respiratory distress, SpO2 <90% on room air Child with cough or difficulty in breathing, plus at least one of the following: central cyanosis or SpO2 <90%; severe respiratory distress (e.g. grunting, chest in-drawing); signs of pneumonia with any of the following danger signs: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions. Other signs of pneumonia may be present: chest indrawing, fast breathing (in breaths/min): <2 months ≥60; 2–11 months ≥50; 1–5 years ≥40. The diagnosis is clinical; chest imaging can exclude complications.
Acute Respiratory Distress Syndrome	**Onset**: new or worsening respiratory symptoms within one week of known clinical insult. **Chest imaging (radiograph, CT scan, or lung ultrasound)**: bilateral opacities, not fully explained by effusions, lobar or lung collapse, or nodules.

	Origin of oedema: respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (e.g. echocardiography) to exclude hydrostatic cause of oedema if no risk factor present. **Oxygenation (adults)**: • Mild ARDS: 200 mmHg < PaO2/FiO2 ≤ 300 mmHg (with PEEP or CPAP ≥5 cm H_2O, or non-ventilated) • Moderate ARDS: 100 mmHg < PaO2/FiO2 ≤200 mmHg with PEEP ≥5 cm H_2O, or non-ventilated) • Severe ARDS: PaO2/FiO2 ≤ 100 mmHg with PEEP ≥5 cm H2O, or non-ventilated) • When PaO_2 is not available, SpO_2/FiO_2 ≤315 suggests ARDS (including in non-ventilated patients) Oxygenation (children; note OI = Oxygenation Index and OSI = Oxygenation Index using SpO_2) • Bilevel NIV or CPAP ≥5 cm H2O via full face mask: PaO_2/FiO_2 ≤ 300 mmHg or SpO_2/FiO_2 ≤264 • Mild ARDS (invasively ventilated): 4 ≤ OI < 8 or 5 ≤ OSI < 7.5 • Moderate ARDS (invasively ventilated): 8 ≤ OI < 16 or 7.5 ≤ OSI < 12.3 • Severe ARDS (invasively ventilated): OI ≥ 16 or OSI ≥ 12.3
Sepsis	**Adults**: life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection, with organ dysfunction. Signs of organ dysfunction include: altered mental status, difficult or fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate or hyperbilirubinemia. **Children**: suspected or proven infection and ≥2 SIRS criteria, of which one must be abnormal temperature or white blood cell count
Septic Shock	**Adults**: persisting hypotension despite volume resuscitation, requiring vasopressors to maintain MAP ≥65 mmHg and serum lactate level < 2 mmol/L **Children**: any hypotension (SBP <5th centile or >2 SD below normal for age) or 2-3 of the following: altered mental state; bradycardia or tachycardia (HR <90 bpm or >160 bpm in infants and HR <70 bpm or >150 bpm in children); prolonged

	capillary refill (>2 sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia

3. Immediate implementation of appropriate IPC measures

Infection prevention control (IPC) is a critical and integral part of clinical management of patients and should be initiated at the point of entry of the patient to hospital (typically the Emergency Department). Standard precautions should always be routinely applied in all areas of health care facilities. Standard precautions include hand hygiene; use of PPE to avoid direct contact with patients' blood, body fluids, secretions (including respiratory secretions) and non-intact skin. Standard precautions also include prevention of needle-stick or sharps injury; safe waste management; cleaning and disinfection of equipment; and cleaning of the environment.

Table 2: How to implement infection prevention and control measures for patients with suspected or confirmed COVID - 19 infection

At triage	• Give suspect patient a triple layer surgical mask and direct patient to separate area, an isolation room if available. Keep at least 1meter distance between suspected patients and other patients. Instruct all patients to cover nose and mouth during coughing or sneezing with tissue or flexed elbow for others. Perform hand hygiene after contact with respiratory secretions
Apply droplet precautions	• Droplet precautions prevent large droplet transmission of respiratory viruses. Use a triple layer surgical mask if working within 1-2 metres of the patient. Place patients in single rooms, or group together those with the same etiological diagnosis. If an etiological diagnosis is not possible, group patients with similar clinical diagnosis and based on epidemiological risk factors, with a spatial separation. When providing care in close contact with a patient with respiratory symptoms (e.g. coughing or sneezing), use eye protection (face-mask or goggles), because sprays of secretions may occur. Limit patient movement within the institution and ensure that patients wear triple layer surgical masks when outside their rooms

Apply contact precautions	• Droplet and contact precautions prevent direct or indirect transmission from contact with contaminated surfaces or equipment (i.e. contact with contaminated oxygen tubing/interfaces). Use PPE (triple layer surgical mask, eye protection, gloves and gown) when entering room and remove PPE when leaving. If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect between each patient use. Ensure that health care workers refrain from touching their eyes, nose, and mouth with potentially contaminated gloved or ungloved hands. Avoid contaminating environmental surfaces that are not directly related to patient care (e.g. door handles and light switches). Ensure adequate room ventilation. Avoid movement of patients or transport. Perform hand hygiene.
Apply airborne precautions when performing an aerosol generating procedure	• Ensure that healthcare workers performing aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation) use PPE, including gloves, long-sleeved gowns, eye protection, and fit-tested particulate respirators (N95). (The scheduled fit test should not be confused with user seal check before each use.) Whenever possible, use adequately ventilated single rooms when performing aerosol-generating procedures, meaning negative pressure rooms with minimum of 12 air changes per hour or at least 160 litres/second/patient in facilities with natural ventilation. Avoid the presence of unnecessary individuals in the room. Care for the patient in the same type of room after mechanical ventilation commences

Abbreviations: ARI, acute respiratory infection; PPE, personal protective equipment

4. Laboratory diagnosis

Guidance on specimen collection, processing, transportation, including related biosafety procedures, is available on **https://mohfw.gov.in/media/disease-alerts**.

As per directive from MoHFW, Government of India, all suspected cases are to be reported to district and state surveillance officers.

Figure 1: Helpline for COVID-19 (MOHFW, GOI)

Sample collection:

Preferred sample: Throat and nasal swab in viral transport media (VTM) and transported on ice

Alternate: Nasopharyngeal swab, BAL or endotracheal aspirate which has to be mixed with the viral transport medium and transported on ice

General guidelines:

- Trained health care professionals to wear appropriate PPE with latex free purple nitrile gloves while collecting the sample from the patient. Maintain proper infection control when collecting specimens
- Restricted entry to visitors or attendants during sample collection
- Complete the requisition form for each specimen submitted
- Proper disposal of all waste generated

Respiratory specimen collection methods:

A. Lower respiratory tract
    - Bronchoalveolar lavage, tracheal aspirate, sputum
    - Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container.

B. Upper respiratory tract

- Nasopharyngeal swab AND oropharyngeal swab

Oropharyngeal swab (e.g. throat swab): Tilt patient's head back 70 degrees. Rub swab over both tonsillar pillars and posterior oropharynx and avoid touching the tongue, teeth, and gums. Use only synthetic fiber swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden shafts. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media.

Combined nasal & throat swab: Tilt patient's head back 70 degrees. While gently rotating the swab, insert swab less than one inch into nostril (until resistance is met at turbinates). Rotate the swab several times against nasal wall and repeat in other nostril using the same swab. Place tip of the swab into sterile viral transport media tube and cut off the applicator stick. For throat swab, take a second dry polyester swab, insert into mouth, and swab the posterior pharynx and tonsillar areas (avoid the tongue). Place tip of swab into the same tube and cut off the applicator tip.

Nasopharyngeal swab: Tilt patient's head back 70 degrees. Insert flexible swab through the nares parallel to the palate (not upwards) until resistance is encountered or the distance is equivalent to that from the ear to the nostril of the patient. Gently, rub and roll the swab. Leave the swab in place for several seconds to absorb secretions before removing.

Clinicians may also collect lower respiratory tract samples when these are readily available (for example, in mechanically ventilated patients). In hospitalized patients with confirmed COVID - 19 infection, repeat upper respiratory tract samples should be collected to demonstrate viral clearance.

5. Early supportive therapy and monitoring

a. Give supplemental oxygen therapy immediately to patients with SARI and respiratory distress, hypoxaemia, or shock: Initiate oxygen therapy at 5 L/min and titrate flow rates to reach target SpO_2 ≥90% in non-pregnant adults and SpO_2 ≥92-95 % in pregnant patients. Children with emergency signs (obstructed or absent breathing, severe respiratory distress, central cyanosis, shock, coma or convulsions) should receive oxygen therapy during resuscitation to target SpO_2 ≥94%; otherwise, the target SpO_2 is ≥90%. All areas where patients with SARI are cared for should be equipped with pulse oximeters, functioning oxygen systems and disposable, single-use, oxygen-delivering interfaces (nasal cannula, simple face mask, and mask with reservoir bag). Use contact precautions when handling contaminated oxygen interfaces of patients with COVID – 19.

b. Use conservative fluid management in patients with SARI when there is no evidence of shock: Patients with SARI should be treated cautiously with intravenous fluids, because aggressive fluid resuscitation may worsen oxygenation, especially in settings where there is limited availability of mechanical ventilation.

c. Give empiric antimicrobials to treat all likely pathogens causing SARI. Give antimicrobials within one hour of initial patient assessment for patients with sepsis: Although the patient may be suspected to have COVID - 19, Administer appropriate empiric antimicrobials within ONE hour of identification of sepsis. Empirical antibiotic treatment should be based on the clinical diagnosis (community-acquired pneumonia, health care-associated pneumonia [if infection was acquired in healthcare setting], or sepsis), local epidemiology and susceptibility data, and treatment guidelines. Empirical therapy includes a neuraminidase inhibitor for treatment of influenza when there is local circulation or other risk factors, including travel history or exposure to animal influenza viruses. Empirical therapy should be de-escalated on the basis of microbiology results and clinical judgment

d. Do not routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS outside of clinical trials unless they are indicated for another reason: A systematic review of observational studies of corticosteroids administered to patients with SARS reported no survival benefit and possible harms (avascular necrosis, psychosis, diabetes, and delayed viral clearance). A systematic review of observational studies in influenza found a higher risk of mortality and secondary infections with corticosteroids; the evidence was judged as very low

to low quality due to confounding by indication. A subsequent study that addressed this limitation by adjusting for time-varying confounders found no effect on mortality. Finally, a recent study of patients receiving corticosteroids for MERS used a similar statistical approach and found no effect of corticosteroids on mortality but delayed lower respiratory tract (LRT) clearance of MERS-CoV. Given lack of effectiveness and possible harm, routine corticosteroids should be avoided unless they are indicated for another reason. See section F for the use of corticosteroids in sepsis.

e. Closely monitor patients with SARI for signs of clinical deterioration, such as rapidly progressive respiratory failure and sepsis, and apply supportive care interventions immediately: Application of timely, effective, and safe supportive therapies is the cornerstone of therapy for patients that develop severe manifestations of COVID – 19.

f. Understand the patient's co-morbid condition(s) to tailor the management of critical illness and appreciate the prognosis: During intensive care management of SARI, determine which chronic therapies should be continued and which therapies should be stopped temporarily.

g. Communicate early with patient and family: Communicate pro-actively with patients and families and provide support and prognostic information. Understand the patient's values and preferences regarding life-sustaining interventions.

6. Management of hypoxemic respiratory failure and ARDS

- Recognize severe hypoxemic respiratory failure when a patient with respiratory distress is failing standard oxygen therapy. Patients may continue to have increased work of breathing or hypoxemia even when oxygen is delivered via a face mask with reservoir bag (flow rates of 10-15 L/min, which is typically the minimum flow required to maintain bag inflation; FiO_2 0.60-0.95). Hypoxemic respiratory failure in ARDS commonly results from intrapulmonary ventilation-perfusion mismatch or shunt and usually requires mechanical ventilation.
- High – flow nasal catheter oxygenation or non – invasive mechanical ventilation: When respiratory distress and/or hypoxemia of the patient cannot be alleviated after receiving standard oxygen therapy, high – flow nasal cannula oxygen therapy or non – invasive ventilation can be considered. If conditions do not improve or even get worse within a short time (1 – 2 hours), tracheal intubation and invasive mechanical ventilation should be used in a timely manner. Compared to standard oxygen therapy, HFNO reduces the need for intubation. Patients with hypercapnia (exacerbation of obstructive lung disease, cardiogenic pulmonary oedema), hemodynamic instability, multi-organ failure, or abnormal mental status should generally not receive HFNO, although emerging data suggest that HFNO may be safe in patients with mild-moderate and non-worsening hypercapnia[25]. Patients receiving HFNO should be in a monitored setting and cared for by experienced personnel capable of endotracheal intubation in case the patient acutely deteriorates or does not improve after a short trial (about 1 hr).
- NIV guidelines make no recommendation on use in hypoxemic respiratory failure (apart from cardiogenic pulmonary oedema and post-operative respiratory failure) or pandemic viral illness (referring to studies of SARS and pandemic influenza). Risks include delayed intubation, large tidal volumes, and injurious transpulmonary pressures. Limited data suggest a high failure rate when MERS patients received NIV. Patients receiving a trial of NIV should be in a monitored setting and cared for by experienced personnel capable of endotracheal intubation in case the patient acutely deteriorates or does not improve after a short trial (about 1 hr). Patients with hemodynamic instability, multiorgan failure, or abnormal mental status should not receive NIV.

- Recent publications suggest that newer HFNO and NIV systems with good interface fitting do not create widespread dispersion of exhaled air and therefore should be associated with low risk of airborne transmission.
- Endotracheal intubation should be performed by a trained and experienced provider using airborne precautions. Patients with ARDS, especially young children or those who are obese or pregnant, may de-saturate quickly during intubation. Pre-oxygenate with 100% FiO_2 for 5 minutes, via a face mask with reservoir bag, bag-valve mask, HFNO, or NIV. Rapid sequence intubation is appropriate after an airway assessment that identifies no signs of difficult intubation.
- Implement mechanical ventilation using lower tidal volumes (4–8 ml/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure <30 cmH_2O). This is a strong recommendation from a clinical guideline for patients with ARDS, and is suggested for patients with sepsis-induced respiratory failure. The initial tidal volume is 6 ml/kg PBW; tidal volume up to 8 ml/kg PBW is allowed if undesirable side effects occur (e.g. dyssynchrony, pH <7.15). Hypercapnia is permitted if meeting the pH goal of 7.30-7.45. Ventilator protocols are available. The use of deep sedation may be required to control respiratory drive and achieve tidal volume targets.
- In patients with severe ARDS, prone ventilation for >12 hours per day is recommended. Application of prone ventilation is strongly recommended for adult and paediatric patients with severe ARDS but requires sufficient human resources and expertise to be performed safely.
- Use a conservative fluid management strategy for ARDS patients without tissue hypoperfusion.
- In patients with moderate or severe ARDS, higher PEEP instead of lower PEEP is suggested.PEEP titration requires consideration of benefits (reducing atelectrauma and improving alveolar recruitment) vs. risks (end-inspiratory overdistension leading to lung injury and higher pulmonary vascular resistance). Tables are available to guide PEEP titration based on the FiO_2 required to maintain SpO_2. A related intervention of recruitment manoeuvres (RMs) is delivered as episodic periods of high continuous positive airway pressure [30–40 cm H_2O], progressive incremental increases in PEEP with constant driving pressure, or high driving pressure; considerations of benefits vs. risks are similar. Higher PEEP and RMs were both conditionally recommended in a clinical practice guideline. In patients with moderate-

severe ARDS (PaO_2/FiO_2<150), neuromuscular blockade by continuous infusion should not be routinely used.

- In settings with access to expertise in extracorporeal life support (ECLS), consider referral of patients with refractory hypoxemia despite lung protective ventilation. ECLS should only be offered in expert centres with a sufficient case volume to maintain expertise and that can apply the IPC measures required for COVID – 19 patients
- Avoid disconnecting the patient from the ventilator, which results in loss of PEEP and atelectasis. Use in-line catheters for airway suctioning and clamp endotracheal tube when disconnection is required (for example, transfer to a transport ventilator)

7. Management of septic shock

- Recognize septic shock in adults when infection is suspected or confirmed AND vasopressors are needed to maintain mean arterial pressure (MAP) ≥65 mmHg AND lactate is < 2 mmol/L, in absence of hypovolemia. Recognize septic shock in children with any hypotension (systolic blood pressure [SBP] <5th centile or >2 SD below normal for age) or 2-3 of the following: altered mental state; tachycardia or bradycardia (HR <90 bpm or >160 bpm in infants and HR <70 bpm or >150 bpm in children); prolonged capillary refill (>2 sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia.
- In the absence of a lactate measurement, use MAP and clinical signs of perfusion to define shock. Standard care includes early recognition and the following treatments within 1 hour of recognition: antimicrobial therapy and fluid loading and vasopressors for hypotension. The use of central venous and arterial catheters should be based on resource availability and individual patient needs. Detailed guidelines are available for the management of septic shock in adults and children.
- In resuscitation from septic shock in adults, give at least 30 ml/kg of isotonic crystalloid in adults in the first 3 hours. In resuscitation from septic shock in children in well-resourced settings, give 20 ml/kg as a rapid bolus and up to 40-60 ml/kg in the first 1 hr. Do not use hypotonic crystalloids, starches, or gelatins for resuscitation.
- Fluid resuscitation may lead to volume overload, including respiratory failure. If there is no response to fluid loading and signs of volume overload appear (for example, jugular venous distension, crackles on lung auscultation, pulmonary oedema on imaging, or hepatomegaly in children), then reduce or discontinue fluid administration. This step is particularly important where mechanical ventilation is not available. Alternate fluid regimens are suggested when caring for children in resource-limited settings.
- Crystalloids include normal saline and Ringer's lactate. Determine need for additional fluid boluses (250-1000 ml in adults or 10-20 ml/kg in children) based on clinical response and improvement of perfusion targets. Perfusion targets include MAP (>65 mmHg or age-appropriate targets in children), urine output (>0.5 ml/kg/hr in adults, 1 ml/kg/hr in children), and improvement of skin mottling, capillary refill, level of consciousness, and lactate. Consider

dynamic indices of volume responsiveness to guide volume administration beyond initial resuscitation based on local resources and experience. These indices include passive leg raises, fluid challenges with serial stroke volume measurements, or variations in systolic pressure, pulse pressure, inferior vena cava size, or stroke volume in response to changes in intrathoracic pressure during mechanical ventilation.

- **Administer vasopressors when shock persists during or after fluid resuscitation. The initial blood pressure target is MAP ≥65 mmHg in adults and age-appropriate targets in children.**
- If central venous catheters are not available, vasopressors can be given through a peripheral IV, but use a large vein and closely monitor for signs of extravasation and local tissue necrosis. If extravasation occurs, stop infusion. Vasopressors can also be administered through intraosseous needles.
- If signs of poor perfusion and cardiac dysfunction persist despite achieving MAP target with fluids and vasopressors, consider an inotrope such as dobutamine

8. Other therapeutic measures:

For patients with progressive deterioration of oxygenation indicators, rapid worsening on imaging and excessive activation of the body's inflammatory response, glucocorticoids can be used for a short period of time (3 to 5 days). It is recommended that dose should not exceed the equivalent of methylprednisolone 1 – 2mg/kg/day. Note that a larger dose of glucocorticoid will delay the removal of coronavirus due to immunosuppressive effects. For pregnant severe and critical cases, pregnancy should be preferably terminated. Consultations with obstetric, neonatal, and intensive care specialists (depending on the condition of the mother) are essential. Patients often suffer from anxiety and fear and they should be supported by psychological counseling.

9. Prevention of complications

Implement the following interventions (Table 3) to prevent complications associated with critical illness. These interventions are based on Surviving Sepsis or other guidelines, and are generally limited to feasible recommendations based on high quality evidence.

Table 3: Prevention of complications

Anticipated Outcome	Interventions
Reduce days of invasive mechanical ventilation	• Use weaning protocols that include daily assessment for readiness to breathe spontaneously • Minimize continuous or intermittent sedation, targeting specific titration endpoints (light sedation unless contraindicated) or with daily interruption of continuous sedative infusions
Reduce incidence of ventilator associated pneumonia	• Oral intubation is preferable to nasal intubation in adolescents and adults • Keep patient in semi-recumbent position (head of bed elevation 30-45º) • Use a closed suctioning system; periodically drain and discard condensate in tubing • Use a new ventilator circuit for each patient; once patient is ventilated, change circuit if it is soiled or damaged but not routinely • Change heat moisture exchanger when it malfunctions, when soiled, or every 5–7 days
Reduce incidence of venous thromboembolism	• Use pharmacological prophylaxis (low molecular-weight heparin [preferred if available] or heparin 5000 units subcutaneously twice daily) in adolescents and adults without contraindications. For those with contraindications, use mechanical prophylaxis (intermittent pneumatic compression devices).
Reduce incidence of catheter related bloodstream infection	• Use a checklist with completion verified by a real-time observer as reminder of each step needed for sterile insertion and as a daily reminder to remove catheter if no longer needed
Reduce incidence of pressure	• Turn patient every two hours

Ulcers	
Reduce incidence of stress ulcers and gastrointestinal bleeding	• Give early enteral nutrition (within 24–48 hours of admission) • Administer histamine-2 receptor blockers or proton-pump inhibitors in patients with risk factors for GI bleeding. Risk factors for gastrointestinal bleeding include mechanical ventilation for ≥48 hours, coagulopathy, renal replacement therapy, liver disease, multiple co-morbidities, and higher organ failure score
Reduce incidence of ICU-related weakness	• Actively mobilize the patient early in the course of illness when safe to do so

10. Specific therapy

NO SPECIFIC ANTIVIRALS have been proven to be effective as per currently available data. However, based on the available information (uncontrolled clinical trials), the following drugs may be considered as an off – label indication **in patients with severe disease and requiring ICU management:**

- Hydroxychloroquine (Dose 400mg BD – for 1 day followed by 200mg BD for 4 days)

In combination with

- Azithromycin (500 mg OD for 5 days)

These drugs should be administered under close medical supervision, with monitoring for side effects including QTc interval.

The above medication is presently not recommended for children less than 12 years, pregnant and lactating women.

These guidelines are based on currently available information and would be reviewed from time to time as new evidence emerges.

Support to Treating Physicians: AIIMS, New Delhi is running a 24x7 helpline to provide support to the treating physicians on clinical management. The helpline number is 9971876591. The identified nodal doctor of the State, appointed for clinical management of COVID – 19 should only contact AIIMS Call Centre.

Advisory for Hospitals and Medical Education Institutions

The medical infrastructure in the country needs to be prepared for any possible influx of patients on account of COVID 19. In this context, the following interventions are proposed up to 31st March 2020. They will be reviewed as per the evolving situation.

Indoor Facilities:

1. Non-essential elective surgeries should be postponed.
2. Some beds should be set apart and prepared for creating isolation facilities in every public and private hospital.
3. All hospitals should mobilize additional resources including masks, gloves and personal protection equipment. Healthcare personnel should be trained for dealing with any foreseeable emergencies.
4. All doctors, nurses and support staff in different specialities, including pre and para clinical departments, should be mobilized and trained in infection prevention and control practices.
5. Hospitals must procure sufficient numbers of ventilators and high flow oxygen masks in preparation for future requirements.
6. All hospitals must ensure that they have adequate trained manpower and resource pools for ventilator/ ICU care.
7. Hospitals may ensure that stable patients are discharged as early as possible while further new admissions (of stable patients) are also restricted.
8. Number of patient attendants should be strictly restricted to 'one' only.

IEC Activities:

9. Patients must be educated about cough etiquette, Do's and Don'ts, proper use of masks instead of using them indiscriminately and inefficiently; and personal hygiene. Hospitals should put up posters etc. to increase awareness amongst patients on Do's and Don'ts regarding COVID 19.
10. Patients must be counselled against attaching any kind of stigma to Corona virus patients or to facilities where such patients are admitted. They must be made aware that

quick disclosure of symptoms and undergoing testing if advised is the surest way of battling COVID 19.

Administrative:

11. All hospitals should carry out a preparedness drill on Sunday, 22nd March 2020. Guidelines for this drill will be made available on the Health Ministry website.
12. Non-essential audits of hospitals by various regulators and accreditation agencies may be postponed.
13. All hospitals must provide treatment free of cost to any medical personnel who pick up infection while treating patients.
14. No suspected COVID 19 patient should be turned away from any hospital and the admission of any such patient should be notified to NCDC or IDSP immediately.
15. Similarly, all pneumonia patients must also be notified to NCDC or IDSP so that they can be tested for COVID 19.
16. Hospitals to ensure social distancing in their premises.
17. All ongoing examinations may be rescheduled after 31.03.2020.
18. All evaluation work may be rescheduled after 31.03.2020.
19. All Educational Institutions and Examination Boards are requested to maintain regular communication with the students and teachers through electronic means and keep them fully informed so that there is no anxiety amongst the students, teachers and parents.
20. Institutions are also requested to notify help-line numbers/e-mails which students can access for their queries.
21. All unauthorized/ authorized shops (excluding pharmacies) and eateries in the vicinity of hospitals should be compulsorily shut.
22. Leave of all kinds (except under emergency and unavoidable circumstances) may be cancelled immediately.

OPD:

23. All patients may be advised not to come for routine visits to the OPD if it can be avoided or postponed.
24. OPDs may be organised in such a manner that patients exhibiting flu like symptoms are attended separately from other patients and spaced out so as to avoid overcrowding.

25. Patients suffering from chronic diseases and minor elements may be advised to utilise OPDs in primary/ secondary care facilities rather than crowding tertiary care centres.
26. Pharmacy counters may be increased and queue management systems to be followed by engaging Indian Red Cross/ NDRF volunteers.

SOP for reallocation of residents/ PG students and nursing students as part of hospital management of COVID

Deployment of Residents in Various Facilities Designated for Screening and Management of Patients with COVID-19 and the non covid area of the hospital (in this SOP, the term "resident" includes DNB and CPS students)

The hospital may be divided into 3 broad zones; i) non covid area, ii) covid area looking after patients with mild to moderate illness and iii) critical area like the ICU. In addition a triage area needs to be developed in the emergency where patients with acute severe respiratory illness will be coming.

1. Residents/ DNB/ CPS students will be categorized based on their parent departments, primarily keeping in mind their current engagement in managing critically ill patients. (See Annexure 1). In brief the categories will be as follows:

    a. Category A: Core Departments
    b. Category B: Clinical specialties already running ICU/HDU under their care
    c. Category C: Other specialties with clinical post-graduates, but not running ICU/HDU under their care
    d. Category D: All other clinical specialties with limited or no responsibility for critically ill patients
    e. Category E: Medically trained (MBBS) residents from pre-clinical and para-clinical departments
    f. Category F: Interns

2. Facilities will be categorized based on the characteristics of the patients who will be attended there, and the management decisions which will need to be implemented. In brief, the three levels of health facilities will be:

    a. Level A: Screening areas
    b. Level B: Facility for non-critically ill hospitalized patients
    c. Level C: Facility for critically ill hospitalized patients

3. Team constitution for each level of health facility will be as follows:

    a. Level A (Screening Facility): Team Leader from B or C Category of Resident; Teams to include residents primarily from C, D and F
    b. Level B (Facility for non-critically ill hospitalized patient: Team Leader from A or B; Teams to include residents primarily from C and D.
    c. Level C (Facility for critically ill hospitalized patients): Residents only from Category A and B to be posted here.

It has been also decided that Category E residents can be posted at any Level of health facility, primarily for coordination activities.

It is pertinent to note that roles and responsibilities must be made clear by the Team Leaders and / or the supervising faculty at each level of facility.

4. The total number of individuals required per team / shift and the duration of a shift (depending on the need to wear PPE) will be decided by the COVID-19 Task Force and the Faculty-in-charge for the various levels of facilities. The total number of individuals per team can be modified based on patient load in a facility and / or the proportion of critically ill patients. It is however suggested, that the numbers can be arrived on after the experience of the first few days of management at these facilities, and then serve as a template for future planning.

5. Shift durations should be adjusted such that the start and end of shifts will not be at a time when it is inconvenient to travel. The internal working arrangements of a shift can be at the discretion of the Faculty-in-charge of the facilities, taking into account various aspects, including, but not restricted to the duration of wearing PPE.

6. The total duration wherein an individual can be posted at any level of facility should be worked out to prevent burn out. This duration can be varied according to the level of facility.

Training of residents:

It is also important to ensure linkage between the team providing training and the COVID-19 Task Force which is responsible for deployment of residents. No resident should be posted at any COVID-19 facility without undergoing an essential training module, as is being conducted by hospital infection control team.

Additional training must be given at the facility where the resident is posted – keeping the three levels of facility in mind. Hence, if there are two locations where screening takes place, the content of the facility level training must be the same, even if it is being delivered by different team leaders at the different physical locations. This will ensure that all key aspects of training are covered, irrespective of site of delivery and trainer. The respective Faculty-in-charge of these facilities will need to coordinate to ensure that this uniform level of training is devised and delivered.

Training about COVID-19, and other aspects of clinical evaluation of patients should also be made available for residents, especially those drawn from departments where there is either no regular patient-care activity (pre- and para- clinical departments) or if they so desire, even those with a limited engagement with sick patients. It would be appropriate that this module(s) is developed by the COVID-19 Task Force.

We may consider including psychologists to be part of the training, to enhance motivation of participating residents.

Faculty Deployment:

The same general principles of Category of Department (based on clinical exposure and participation in the management of critically ill patients) and Level of Facility should be used for deployment of faculty for this purpose.

Private hospitals/ colleges:
The same principles may be applied to private institutions also.

Dental students:

A similar broad guideline shall be issued for dental doctors if the need arises. They must be trained in infection control from now onwards.

Annexure -1

Categorization of Residents based on parent departments

Category A: Core Departments

1. Department of Anaesthesiology and Critical care: all departments of anaesthesia (main hospital and centres).
2. Department of Medicine
3. Department of Pulmonary Medicine
4. Department of Geriatric Medicine
5. Department of Emergency Medicine

Category B: Clinical Specialities who are already running ICU/HDU

A. Medical Specialities

1. Department of Cardiology
2. Department of Gastroenterology
3. Department of Neurology
4. Department of Nephrology
5. Department of Paediatrics
6. Department of Medical Oncology
7. Department of Hematology

B. Surgical Specialities

1. Department of GI Surgery
2. Department of Neurosurgery
3. Department of CTVS
4. Department of ENT
5. Department of Paediatric Surgery
6. Department of Surgical Disciplines
7. Department of Surgical Oncology
8. Department of Burns and Plastic Surgery

Category C: Other Clinical Specialities with a clinical post-graduation but not currently running ICU/HDU

A. Medical Specialities

1. Department of Endocrinology
2. Department of Rheumatology
3. Department of Obstetrics and Gynaecology
4. Department of Radiotherapy / Radiation Oncology

B. Surgical Specialities

1. Department of Orthopedics
2. Department of Urology

Category D: All Other Clinical Specialities with limited responsibility for critically sick patients

1. Department of Dermatology
2. Department of Ophthalmology
3. Department of PMR
4. Department of Psychiatry
5. Centre for Community Medicine
6. Department of Transfusion Medicine

Category E: All medically trained (MBBS) residents from Pre- and Para-Clinical departments

1. Anatomy
2. Physiology
3. Biochemistry
4. Biophysics
5. Pathology
6. Microbiology
7. Forensic Medicine
8. Pharmacology
9. Lab Medicine
10. Nuclear Medicine
11. Radio-diagnosis

Nursing Student allocation to handle manpower shortage for COVID-19

As our country is facing an unprecedented public health emergency with the COVID-19 pandemic affecting several parts of the nation. The cases of COVID - 19 are increasing the need for more manpower is essential to handle the pandemic situation.

If the need arises, students can be roped in to handle the crisis, as per their level of skills and training. The table below shows how students of Nursing Colleges can be allocated in order to handle manpower shortage.

NON COVID -19 patients (Screening)	**Mild to Moderate COVID -19 patients**	**Critical COVID- 19 patients**
*B.Sc (Hons)2nd year Nursing students	**B.Sc (Hons) 4th year Nursing students	***M.Sc. Nursing students (Both 1st and 2nd year)
*B.Sc (Hons) 1st year Nursing students	**B.Sc (Hons) 3rd year Nursing students	***B.Sc.(PB)nursing students (Both 1st and 2nd year)

*B.Sc (Hons)1st and 2nd year nursing students are the novices, hence can be utilized in the caring for Non COVID-19 patients. The faculties of college of nursing college can accompany them while they are in the clinicals.

**B.Sc (Hons)3rd and 4th year nursing students are more skilled and experienced, so they can be utilized to take care of mild to moderate COVID-19 patients.

***M.Sc. Nursing students and B.Sc. (PB)nursing students are Registered Nursing Officers and can be utilized to take care of severe COVID- 19 patients.

Ministry of Health and Family Welfare
Directorate General of Health Services
[Emergency Medical Relief]

Novel Coronavirus Disease 2019 (COVID-19): Guidelines on rational use of Personal Protective Equipment

1. About this guideline

This guideline is for health care workers and others working in points of entries (POEs), quarantine centers, hospital, laboratory and primary health care / community settings. The guideline uses setting approach to guide on the type of personal protective equipment to be used in different settings.

2. Introduction

Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats and bats. Rarely, animal coronaviruses can evolve and infect people and then spread between people such as has been seen with MERS and SARS.

The outbreak of Novel coronavirus disease (now named COVID-19) was initially noticed from a seafood market in Wuhan city in Hubei Province of China in mid-December, 2019, has spread to more than 185 countries/territories worldwide including India.

The causative agent for COVID-19, earlier termed provisionally as novel Coronavirus has been officially named as SARS-CoV-2.

3. Mode of transmission

There is clear evidence of human-to-human transmission of SARS-CoV-2. It is thought to be transmitted mainly through respiratory droplets that get generated when people cough, sneeze, or exhale. SARS-CoV-2 also gets transmitted by touching, by direct touch and through contaminated surfaces or objects and then touching their own mouth, nose, or possibly their eyes. Healthcare associated infection by SARS-CoV-2 virus has been documented among healthcare workers in many countries.

The people most at risk of COVID-19 infection are those who are in close contact with a suspect/confirmed COVID-19 patient or who care for such patients.

4. Personal Protective Equipment (PPE)

Personal Protective Equipments (PPEs) are protective gears designed to safeguard the health of workers by minimizing the exposure to a biological agent.

4.1 Components of PPE

Components of PPE are goggles, face-shield, mask, gloves, coverall/gowns (with or without aprons), head cover and shoe cover. Each component and rationale for its use is given in the following paragraphs:

4.1.1 Face shield and goggles

Contamination of mucous membranes of the eyes, nose and mouth is likely in a scenario of droplets generated by cough, sneeze of an infected person or during aerosol generating procedures carried out in a clinical setting. Inadvertently touching the eyes/nose/mouth with a contaminated hand is another likely scenario. Hence protection of the mucous membranes of the eyes/nose/mouth by using face shields/ goggles is an integral part of standard and contact precautions. The flexible frame of goggles should provide good seal with the skin of the face, covering the eyes and the surrounding areas and even accommodating for prescription glasses.

4.1.2 Masks

Respiratory viruses that includes Coronaviruses target mainly the upper and lower respiratory tracts. Hence protecting the airway from the particulate matter generated by droplets / aerosols prevents human infection. Contamination of mucous membranes of the mouth and nose by infective droplets or through a contaminated hand also allows the virus to enter the host. Hence the droplet precautions/airborne precautions using masks are crucial while dealing with a suspect or confirmed case of COVID-19/performing aerosol generating procedures.

Masks are of different types. The type of mask to be used is related to particular risk profile of the category of personnel and his/her work. There are two types of masks which are recommended for various categories of personnel working in hospital or community settings, depending upon the work environment:

1. Triple layer medical mask
2. N-95 Respirator mask

4.1.2.1 Triple layer medical mask

A triple layer medical mask is a disposable mask, fluid-resistant, provide protection to the wearer from droplets of infectious material emitted during coughing/sneezing/talking.

4.1.2.2. N-95 Respirator mask

An N-95 respirator mask is a respiratory protective device with high filtration efficiency to airborne particles. To provide the requisite air seal to the wearer, such masks are designed to achieve a very close facial fit.

Such mask should have high fluid resistance, good breathability (preferably with an expiratory valve), clearly identifiable internal and external faces, duckbill/cup-shaped structured design that does not collapse against the mouth.

If correctly worn, the filtration capacity of these masks exceeds those of triple layer medical masks. Since these provide a much tighter air seal than triple layer medical masks, they are designed to protect the wearer from inhaling airborne particles.

4.1.3 Gloves

When a person touches an object/surface contaminated by COVID-19 infected person, and then touches his own eyes, nose, or mouth, he may get exposed to the virus. Although this is not thought

to be a predominant mode of transmission, care should be exercised while handling objects/surface potentially contaminated by suspect/confirmed cases of COVID-19.

Nitrile gloves are preferred over latex gloves because they resist chemicals, including certain disinfectants such as chlorine. There is a high rate of allergies to latex and contact allergic dermatitis among health workers. However, if nitrile gloves are not available, latex gloves can be used. Non-powdered gloves are preferred to powdered gloves.

4.1.4 Coverall/Gowns

Coverall/gowns are designed to protect torso of healthcare providers from exposure to virus. Although coveralls typically provide 360-degree protection because they are designed to cover the whole body, including back and lower legs and sometimes head and feet as well, the design of medical/isolation gowns do not provide continuous whole-body protection (e.g., possible openings in the back, coverage to the mid-calf only).

By using appropriate protective clothing, it is possible to create a barrier to eliminate or reduce contact and droplet exposure, both known to transmit COVID-19, thus protecting healthcare workers working in close proximity (within 1 meter) of suspect/confirmed COVID-19 cases or their secretions.

Coveralls and gowns are deemed equally acceptable as there is a lack of comparative evidence to show whether one is more effective than the other in reducing transmission to health workers. Gowns are considerably easier to put on and for removal. An apron can also be worn over the gown for the entire time the health worker is in the treatment area. Coveralls/gowns have stringent standards that extend from preventing exposure to biologically contaminated solid particles to protecting from chemical hazards.

4.1.5 Shoe covers

Shoe covers should be made up of impermeable fabric to be used over shoes to facilitate personal protection and decontamination.

4.1.6. Head covers

Coveralls usually cover the head. Those using gowns, should use a head cover that covers the head and neck while providing clinical care for patients. Hair and hair extensions should fit inside the head cover.

The specifications for all the PPEs are at **Annexure-A.**

5. Rational use of PPE

The PPEs are to be used based on the risk profile of the health care worker. The document describes the PPEs to be used in different settings.

5.1. Point of Entry

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Health Desk	Provide information to travellers	Low risk	Triple layer medical mask Gloves	Minimum distance of one meter needs to be maintained.
2	Immigration counters, customs and airport security	Provide services to the passengers	Low risk	Triple layer medical mask Gloves	Minimum distance of one meter needs to be maintained.
3	Temperature recording station	Record Temperature with hand held thermal recorder.	Low risk	Triple layer medical mask Gloves	
4	Holding area/ Isolation facility of APHO/ PHO	Interview & Clinical examination by doctors/ nurses	Moderate Risk	N-95 masks Gloves	
5	Isolation facility of APHO	Clinical management (doctors, nurses)	Moderate Risk	N-95 masks Gloves	
		Attending to severely ill passenger	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
5	Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate risk	N-95 mask Gloves	
6	Administrative staff	Providing administrative support	No risk	No PPE	No contact with patients of COVID-19. They should not venture into areas where suspect COVID-19 cases are being managed.

5.2. Hospital Setting

5.2.1. Out Patient Department (Respiratory Clinic / Separate screening area)[#]

S. No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Triage area	Triaging patients Provide triple layer mask to patient.	Moderate risk	N 95 mask Gloves	Patients get masked.
2	Screening area help desk/ Registration counter	Provide information to patients	Moderate risk	N-95 mask Gloves	
3	Temperature recording station	Record temperature with hand held thermal recorder	Moderate Risk	N 95 mask Gloves	
4	Holding area/ waiting area	Nurses / paramedic interacting with patients	Moderate Risk	N 95 mask Gloves	Minimum distance of one meter needs to be maintained.
5	Doctors chamber	Clinical management (doctors, nurses)	Moderate Risk	N 95 mask Gloves	No aerosol generating procedures should be allowed.
6	Sanitary staff	Cleaning frequently touched surfaces/ Floor/ cleaning linen	Moderate risk	N-95 mask Gloves	
7	Visitors accompanying young children and elderlies	Support in navigating various service areas	Low risk	Triple layer medical mask	No other visitors should be allowed to accompany patients in OPD settings. The visitors thus allowed should practice hand hygiene

All hospitals should identify a separate triage and holding area for patients with Influenza like illness. If there is no triage area / holding area for patients due to resource constraints, such hospitals will follow the above guidance for general OPD.

5.2.2. In-patient Services

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Individual isolation rooms/ cohorted isolation rooms	Clinical management	Moderate risk	N 95 mask Gloves	Patient masked. Patients stable. No aerosol generating activity.
2	ICU/ Critical	Critical care	High risk	Full complement of	Aerosol generating

	care	management		PPE	activities performed.
3	ICU /critical care	Dead body packing	High risk	Full complement of PPE	
4	ICU/ Critical care	Dead body transport to mortuary	Low Risk	Triple Layer medical mask Gloves	
5	Sanitation	Cleaning frequently touched surfaces/ floor/ changing linen	Moderate risk	N-95 mask Gloves	
6	Other Non-COVID treatment areas of hospital	Attending to infectious and non-infectious patients	Risk as per assessed profile of patients	PPE as per hospital infection prevention control practices.	No possibility of exposure to COVID patients. They should not venture into COVID-19 treatment areas.
7	Caretaker accompanying the admitted patient	Taking care of the admitted patient	Low risk	Triple layer medical mask	The caretaker thus allowed should practice hand hygiene, maintain a distance of 1 meter

5.2.3. Emergency Department

S.No	Setting	Activity	Risk	Recommended PPE	Remarks
1	Emergency	Attending emergency cases	Moderate risk	N 95 mask Gloves	When aerosol generating procedures are anticipated
2		Attending to severely ill patients of SARI	High risk	Full complement of PPE	Aerosol generating activities performed.

5.2.4. Pre-hospital (Ambulance) Services

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Ambulance Transfer to designated hospital	Transporting patients not on any assisted ventilation	Moderate risk	N-95 mask Gloves	
		Management of SARI patient while transporting	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
		Driving the ambulance	Low risk	Triple layer medical mask Gloves	Driver helps in shifting patients to the emergency

5.2.5. Other Supportive/ Ancillary Services

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1.	Laboratory	Sample collection and transportation	High risk	Full complement of PPE	
		Sample testing	High risk	Full complement of PPE	
2	Mortuary	Dead body handling	Moderate Risk	N 95 mask Gloves	No aerosol generating procedures should be allowed. No embalming.
		While performing autopsy	High Risk	Full complement of PPE	No post-mortem unless until specified.
3	Sanitation	Cleaning frequently touched surfaces/ Floor/ cleaning linen in COVID treatment areas	Moderate risk	N-95 mask Gloves	
4	CSSD/Laundry	Handling linen of COVID patients	Moderate risk	N-95 mask Gloves	
5	Other supportive services	Administrative Financial Engineering Security, etc.	No risk	No PPE	No possibility of exposure to COVID patients. They should not venture into COVID-19 treatment areas.

5.3. Health Workers in Community Setting

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	ASHAs/ Anganwadi and other field staff	Field Surveillance	Low Risk	Triple layer mask Gloves	Maintain distance of one meter. Surveillance team to carry adequate triple layer masks to distribute to suspect cases detected on field surveillance
2	Doctors at supervisory level conducting field investigation	Field surveillance Clinical examination.	Medium risk	N 95 mask Gloves.	

5.4 Quarantine facility

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Persons being quarantined		Low Risk	Triple layer mask	
2	Healthcare staff working at quarantine facility	Health monitoring and temperature recording	Low Risk	Triple layer mask Gloves	
		Clinical examination of symptomatic persons	Moderate Risk	N-95 masks Gloves	
3	Support staff		Low Risk	Triple layer mask Gloves	

5.5 Home Quarantine

S. No.	Setting	Activity	Risk	Recommended PPE	Remarks
1	Persons being quarantined		Low Risk	Triple layer mask	
2	Designated family member	Taking care of person being quarantined	Low Risk	Gloves	While cleaning commonly touched surfaces or handling soiled linen
3	Other family		No Risk	No PPE required	Maintain a distance of at least 1 meter from person under home quarantine. Senior citizens in the household should stay away from such persons under home quarantine.

Points to remember while using PPE

1. PPEs are not alternative to basic preventive public health measures such as hand hygiene, respiratory etiquettes which must be followed at all times.
2. Always (if possible) maintain a distance of at least 1 meter from contacts/suspect/confirmed COVID-19 cases
3. Always follow the laid down protocol for disposing off PPEs as detailed in infection prevention and control guideline available on website of MoHFW.

Annexure A

Personal Protection Equipment (PPE) -Specifications

(for Contact & Airborneprecautions)

1. PPE Kit

1.1 Gloves

- Nitrile
- Non-sterile
- Powder free
- Outer gloves preferably reach mid-forearm (minimum 280 mm total length)
- Different sizes (6.5 & 7)
- Quality compliant with the below standards, or equivalent:
    a. EU standard directive 93/42/EEC Class I, EN 455
    b. EU standard directive 89/686/EEC Category Ill, EN 374
    c. ANSI/SEA 105-2011
    d. ASTM D6319-10

1.2 Coverall (medium and large)*

- Impermeable to blood and body fluids
- Single use
- Avoid culturally unacceptable colors e.g. black
- Light colors are preferable to better detect possible contamination
- Thumb/finger loops to anchor sleeves in place
- Quality compliant with following standard
    a. Meets or exceeds ISO 16603 class 3 exposure pressure, or equivalent

1.3 Goggles

- With transparent glasses, zero power, well fitting, covered from all sides with elastic band/or adjustable holder.
- Good seal with the skin of the face
- Flexible frame to easily fit all face contours without too much pressure
- Covers the eyes and the surrounding areas and accommodates for prescription glasses
- Fog and scratch resistant
- Adjustable band to secure firmly so as not to become loose during clinical activity
- Indirect venting to reduce fogging
- May be re-usable (provided appropriate arrangements for decontamination are in place) or disposable
- Quality compliant with the below standards, or equivalent:
    a. EU standard directive 86/686/EEC, EN 166/2002
    b. ANSI/SEA Z87.1-2010

1.4. N-95 Masks

- Shape that will not collapse easily
- High filtration efficiency
- Good breathability, with expiratory valve
- Quality compliant with standards for medical N95 respirator:
    a. NIOSH N95, EN 149 FFP2, or equivalent
- Fluid resistance: minimum 80 mmHg pressure based on ASTM F1862, ISO 22609, or equivalent
- Quality compliant with standards for particulate respirator that can be worn with full- face shield

1.5. Shoe Covers

- Made up of the same fabric as of coverall
- Should cover the entire shoe and reach above ankles

1.6. Face Shield

- Made of clear plastic and provides good visibility to both the wearer and the patient
- Adjustable band to attach firmly around the head and fit snuggly against the forehead
- Fog resistant (preferable)
- Completely covers the sides and length of the face
- May be re-usable (made of material which can be cleaned and disinfected) or disposable
- Quality compliant with the below standards, or equivalent:
    a. EU standard directive 86/686/EEC, EN 166/2002
    b. ANSI/SEA Z87.1-2010

3. Triple Layer Medical Mask

- Three layered medical mask of non-woven material with nose piece, having filter efficiency of 99% for 3 micron particle size.
    a. ISI specifications or equivalent

4. Gloves

- Nitrile
- Non-sterile
- Powder free
- Outer gloves preferably reach mid-forearm (minimum 280mm total length)
- Different sizes (6.5 & 7)
- Quality compliant with the below standards, or equivalent:
    1. EU standard directive 93/42/EEC Class I, EN 455
    2. EU standard directive 89/686/EEC Category Ill, EN 374
    3. ANSI/SEA 105-2011
    4. ASTM D6319-10

5. **Body Bags - Specifications**

1) Impermeable
2) Leak proof
3) Air sealed
4) Double sealed
5) Disposable
6) Opaque
7) White
8) U shape with Zip
9) 4/6 grips
10) Size: 2.2 x 1.2 Mts
11) Standards:
    a) ISO 16602:2007
    b) ISO 16603:2004
    c) IS016604:2004
    d) ISO/DIS 22611:2003

All items to be supplied need to be accompanied with certificate of analysis from national/ international organizations/labs indicating conformity to standards

All items: Expiry 5 years

* Due to scarcity of coveralls, and risk versus benefit, that as an emergency temporary measure in larger public interest, in present given circumstances, the fabric that cleared/passed 'Synthetic Blood Penetration Resistance Test' (ISO 16603) and the garment that passed 'Resistance to penetration by biologically contaminated solid particles (ISO 22612:2005) may be considered as the benchmark specification to manufacture Coveralls." The Coveralls should be taped at the seams to prevent fluid/droplets/aerosol entry.

The test for these two standards (ISO 16603 and ISO 22612:2005), which can be performed in Indian laboratories are as per WHO Disease Commodity Package (Version 4.0)

Advisory for Hospitals/Clinics for management of Suspect COVID-19 case

- Medical Officer/treating physician to keep the differential diagnosis of COVID-19 in mind while encountering a patient falling in suspect case definition of COVID-19 (Check https://www.ncdc.gov.in/index4.php?lang=1&level=0&linkid=127&lid=432 for updated case definitions)
- Give surgical mask to the patient and advise to follow cough etiquettes.
- Refer the patient to designated health facility and inform District surveillance Officer or at National Helpline Number **01123978046**
- Follow Infection Prevention and Control guidelines. Details available at https://www.ncdc.gov.in/index4.php?lang=1&level=0&linkid=127&lid=432
- Display IEC material in hospital premises.
- Conduct CME for Respiratory Medicine & Medicine faculty

Ministry of Health and Family Welfare
Government of India

NATIONAL GUIDELINES
FOR INFECTION PREVENTION AND CONTROL IN HEALTHCARE FACILITIES

National Guidelines for Infection Prevention and Control in Healthcare Facilities

National Centre for Disease Control, Directorate General of Health Services
Ministry of Health and Family Welfare, Government of India
January 2020

Contents

Acronyms

ABHR	alcohol-based hand rub
AIIMS	All India Institute of Medical Sciences
AMR	antimicrobial resistance
AMSP	antibiotic stewardship programme
ARI	acute respiratory infection
BAL	bronchoalveolar lavage
BARC	Bhabha Atomic Research Centre
BMW	biomedical waste
BSI	bloodstream infection
CAUTI	catheter-associated urinary tract infection
CDC	Centers for Disease Control and Prevention
CFU	colony-forming unit
CHG	chlorhexidine gluconate
CLABSI	central line-associated bloodstream infection
CME	continuing medical education
CMV	cytomegalovirus
CRBSI	catheter-related bloodstream infection
CRP	C-reactive protein
CSSD	central sterile supply department
CVC	central venous catheter
DGHS	Directorate General of Health Services
DVT	deep venous thrombosis
EtO	ethylene oxide
EVD	Ebola virus disease
FSSAI	Food Safety and Standards Authority of India

GBS	group B Streptococcus
GLP	good laboratory practices
GoI	Government of India
HAI	healthcare-associated infection
HAP	healthcare-associated pneumonia
HBV	hepatitis B virus
HCF	healthcare facility
HCV	hepatitis C virus
HCW	healthcare worker
HD	haemodialysis
HDU	high-dependency unit
HEPA	high-efficiency particulate air
HICC	hospital infection control committee
HIV/AIDS	human immunodeficiency virus/acquired immunodeficiency syndrome
HLD	high-level disinfectant
HVAC	heating ventilation and air-conditioning system
ICMR	Indian Council of Medical Research
ICN	infection (prevention and) control nurse
ICU	intensive care unit
IDSA	Infectious Disease Society of America
IPC	infection prevention and control
IPHS	Indian Public Health Standard
JCI	Joint Commission International
LAI	laboratory-associated infection
LMICs	low- and middle-income countries
MDRO	multidrug-resistant organism
MDR-TB	multidrug-resistant tuberculosis
MERS-CoV	Middile East respiratory syndrome coronavirus
MRSA	methicillin-resistant Staphylococcus aureus
MSU	mid-stream urine
NABH	National Accreditation Board for Hospitals and Healthcare Providers

NACO	National AIDS Control Organization
NCDC	National Centre for Disease Control
NDM	New Delhi metallo-β-lactamase
NHSN	National Healthcare Safety Network (US)
NICU	neonatal ICU
OPA	orthophthaldehyde
OPD	outpatient department
OT	operation theatre
PAPR	powered air-purifying respirator
PCT	procalcitonin
PEEP	positive end-expiratory pressure
PEP	post-exposure prophylaxis
PMN	polymorphonuclear
PPE	personal protective equipment
PUD	peptic ulcer disease
RA-RM	risk assessment and risk management
RO	reverse osmosis
RSV	respiratory syncytial virus
SAP	surgical antimicrobial prophylaxis
SARS	severe acute respiratory syndrome
SARS-CoV	SARS coronavirus
SOP	standard operating procedure
SSD	sterile supply department
SSI	surgical-site infection
STG	standard treatment guideline
TB	tuberculosis
UTI	urinary tract infection
VAC	ventilator-associated condition
VAE	ventilator-associated event
VAP	ventilator-associated pneumonia
VHF	viral haemorrhagic fever

VRE	vancomycin-resistant Enterococcus
WASH	water, sanitation and hygiene
WHO	World Health Organization
XDR-TB	extensively drug-resistant tuberculosis

1. Introduction

Healthcare-associated infection (HAI), previously referred to as “nosocomial” or “hospital” infection, occurs in a patient during the process of care in a hospital or other healthcare facility (HCF), but was not present or incubating at the time of admission. HAIs include occupational infections among healthcare providers.

HAIs are one of the most common adverse events during healthcare delivery and a major public health issue affecting morbidity, mortality and quality of life. At any time, up to 7% of patients in developed and 10% in developing countries will acquire at least one HAI,[1] causing a considerable economic burden to the society. However, HAIs are largely preventable through effective infection prevention and control (IPC) measures.

It is evident that HAIs result in prolonged hospital stays, long-term disability, increased resistance of microorganisms to antimicrobials, additional cost on health systems, high cost for patients and their family, and preventable deaths.

HCFs are high-risk environments for the development and spread of drug resistance bacteria and frequently have the highest burden of multidrug-resistant organisms (MDROs). IPC measures reduce the opportunities for resistant pathogens to spread in HCFs and contribute to the containment of antimicrobial resistance (AMR).

Global pandemics of severe acute respiratory syndrome (SARS), influenza and Ebola, and the role of the HCF as an epicentre and amplifier of outbreaks, have emphasized the importance of IPC. The 2018 Nipah virus outbreak in Kerala, and the death of a nurse who cared for an infected patient, has brought to the fore the urgent need to improve IPC practices and put in place effective IPC programmes both at the national as well as HCF levels.

Rising trends of AMR are a major concern. New Delhi metallo-β-lactamase (NDM) producing bacteria first reported in 2008, are now found worldwide.[2] From 2008 to 2013, *Escherichia coli* resistance to third-generation cephalosporins increased from 70% to 83%, and resistance to fluoroquinolones increased from 78% to 85%. Ten percent of *E. coli* isolates were resistant to carbapenems in 2008, increasing to 13% in 2013.[3] In one tertiary-care hospital in New Delhi, resistance to carbapenem among *Klebsiella pneumoniae* increased from 2% in 2002 to 52% in 2009.[4] Antibiotic

Box 1.1. Global and national initiatives for infection prevention and control

Global action

- International Health Regulations, 2005[6]
  - containment of AMR, a strategic priority
- United Nations Sustainable Development Goals
  - emphasis on safe water, sanitation and hygiene (WASH)[7]
- World Alliance for Patient Safety[8]
- WHO Patient Safety Programme[9]
  - "clean care is safer care"
- Regional Strategy for Patient Safety (2016–2025), WHO South-East Asia Region[10]
- WHO Guidelines on Core Components of Infection Control Programmes[11]

National initiatives

- Biomedical Waste Management Rules in 1998 (revised in 2016 and 2018) by Ministry of Environment and Forests[12,13]
- The "Kayakalp" programme by the Government of India, 2015[14]
- National Guidelines on Clean Hospitals (Swacchhta Guidelines), 2015[15]
- National Quality Assurance Standards for Public Health Facilities, 2017[16]
- National Patient Safety Implementation Framework, 2018–2025[17]

use is a major driver of AMR. In 2010, India was the world's largest consumer of antibiotics for human health at 12.9×10^9 units (10.7 units per person).[5]

The key global and national initiatives for IPC are given in Box 1.1. The WHO Guidelines on Core Components of Infection Control Programmes[11] have been formulated to help countries develop strategies to improve and strengthen IPC programmes (Box 1.2). The guidelines provide evidence- and consensus-based recommendations on the core components that are required to be in place at the national and acute facility level to prevent HAI, and to combat current and future infection threats and AMR through IPC good practices. The guideline document is supported by a practical manual for implementation.[18]

The development of national and facility level IPC guidelines and their implementation has been identified as an essential and core component of an IPC programme. These national IPC guidelines have been developed to fulfil this need.

The worldwide concern over the growing resistance to antimicrobials has emphasized the importance of IPC, making it one of the strategic priorities of the National Action

Box 1.2. The core components of IPC[11]

- IPC programme at the national and health facility level
- National and facility level evidence-based guidelines on IPC
- Education and training
- HAI surveillance
- Multimodal strategies
- Monitoring and audit of IPC practices and feedback
- Workload, staffing and bed occupancy
- Built environment, materials and equipment for IPC

Plan on AMR.[19] The National Centre for Disease Control (NCDC) and Indian Council of Medical Research (ICMR) have created a network of laboratories for AMR surveillance in the country. Many private hospitals and autonomous institutes have their own infection control systems. Network laboratories have been identified for the surveillance of common bacterial pathogens of public health importance to determine the magnitude and trends of AMR in different geographical regions of India.

Standards for IPC have been defined for accreditation of HCFs by the National Accreditation Board for Hospitals and Healthcare Providers (NABH).[20] A system of surveillance for HAI has been established but it is limited only to NABH-accredited hospitals.

The All India Institute of Medical Sciences (AIIMS) and ICMR have jointly established an HAI surveillance network of 35 centres from the public and private sectors. It has developed a software to track HAIs.[21]

This document on the National Guidelines for IPC has been developed after due process of review by experts from across the country and keeping in view the guidelines developed by institutions/ under various programmes, e.g. ICMR,[22] National Health Mission (NHM),[23] the Hospital Manual by the Directorate General of Health Services (DGHS)[24] and National AIDS Control Organization (NACO).[25]

Scope and purpose

This document integrates evidence-based, standard, internationally accepted IPC practices for HCFs in India. Its key purpose is to support improvement in IPC at the HCF level and control HAIs.

These guidelines are in alignment with the National Patient Safety Implementation Framework and the National Action Plan on AMR, which identify IPC and HAI control as priority areas to improve patient safety, healthcare quality and containment of AMR in the country.

At the facility level, these guidelines are intended to enable hospital administrators, clinical managers, doctors, nurses and allied professionals across the country to practise IPC and develop their own policies and standard operating procedures (SOPs).

The IPC methods and practice presented in these guidelines aim to control the development of AMR and prevent the spread of resistant organisms in HCFs. An important purpose of these guidelines is to serve as a resource for the development of training programmes, training modules and IEC (information, education and communication) materials for all levels of healthcare staff, as well as for patients as partners in care.

These are relevant for both private as well as public sector HCFs. Although the principal focus is on secondary and tertiary HCFs, the principles and practice of IPC are common to all healthcare settings and with suitable adaptation can be applied to primary care and community health centres.

At the national level, this document can serve as guidance to policy-makers responsible for developing and monitoring IPC activities in various national programmes, establishing HAI surveillance and framing national action plans for IPC and AMR. It is also relevant for national and facility level healthcare quality managers, regulatory and accreditation bodies, academic institutions and professional societies.

2. Fundamentals of healthcare-associated infections

Healthcare-associated infections (HAIs) are neither present nor incubating at the time of admission of a patient to the healthcare facility (HCF). The majority of HAIs manifest after 48 hours of admission.

HAIs should be identified on the basis of both clinical as well as laboratory criteria. Infection acquired in the hospital but not evident until after discharge is also considered as HAI. Infection in a newborn in a health facility may also be considered as HAI. It is important to understand the mode of transmission of disease in an HCF so that appropriate measures can be taken to control the spread of infection. Figure 2.1 shows the chain of infection.

A variety of microorganisms – including bacteria, viruses, fungi and parasites – can either colonize or cause infection, depending on the susceptibility of the host. The ability of a microorganism to invade, establish and multiply in the cells and tissues of a host and produce signs and symptoms of disease depends upon the following factors.

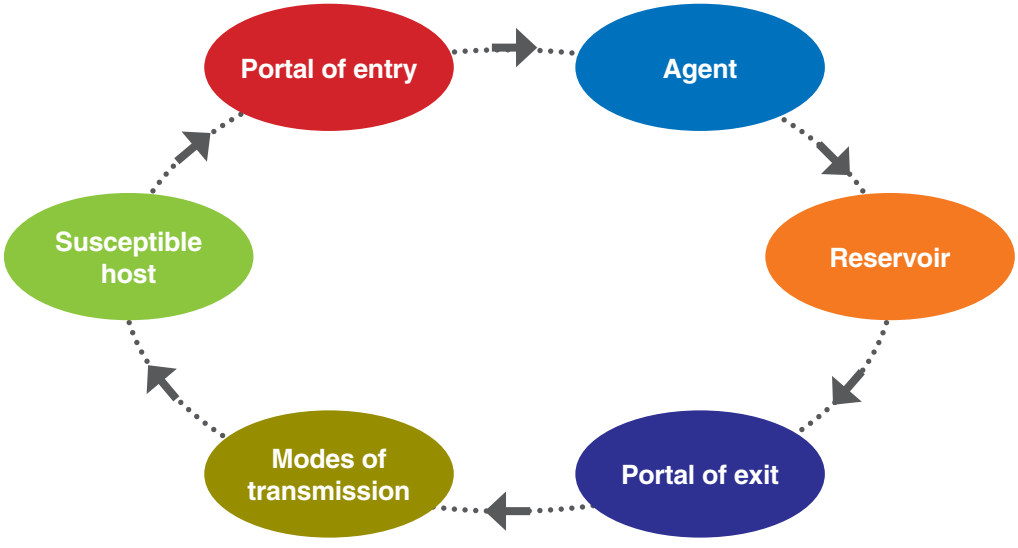


Fig. 2.1. Chain of infection

Agent

The microorganism capable of causing the infection is known as the infective agent. Infective agents include bacteria, viruses, fungi, protozoa, helminths and prions. The ability of a microorganism to cause infection depends upon its ability to invade, proficiency in overcoming the host defences, its pathogenicity, degree of virulence, and the infectious dose. Equally important is the agent's capability to survive in the environment, and its resistance to antimicrobials.

Reservoir

A reservoir is the source of the infectious agent where it lives and multiplies. These can be animate (humans, animals) or inanimate (the environment, contaminated food and water).

Human reservoirs can be symptomatic (exhibiting signs and symptoms of the disease) or asymptomatic (without signs and symptoms) or they can be carriers (presence of organisms for varying periods without signs or symptoms).

Asymptomatic cases and carriers are more likely to transmit the disease as precautions may not be taken since it is not known that the person is harbouring the organisms. Thus, standard precautions should be taken in all situations while dealing with patients even when the diagnosis is not known.

Portal of exit

Portals of exit are necessary for the organism to exit the body of one person and be transmitted to another person. The portal of exit can be the excretions/secretions of the respiratory tract, gastrointestinal tract, genital tract, blood or any other body fluid.

Modes of transmission

This is the way an agent is transmitted from a reservoir to a susceptible host. Transmission can occur by:

- *Portal of contact* – direct contact through hands or indirectly through an inanimate object;
- *Droplets* – large-sized droplets released by sneezing, coughing or even talking;
- *Airborne route* – through very small particles which can travel from room to room via air currents;
- *Common vehicle* – where a contaminated vehicle serves as the means of spreading infection to several persons such as food in a salmonella epidemic or blood in a blood-borne epidemic (hepatitis B); and

- *Inoculation* – a percutaneous injury with a contaminated needle or other sharp resulting in direct inoculation of the organism into the bloodstream.

Portal of entry

Similar to the portal of exit, it is the site of entry of the organism into the body such as the mucous membrane of the respiratory, genital, gastrointestinal or urinary tract, conjunctiva and skin.

Susceptible host

A susceptible host is a person who is susceptible to the infection or lacking in resistance to the infective organism. Host factors that influence susceptibility to infection are:

- *Age* – individuals at extremes of age are more susceptible to infection, e.g. neonates and old people;
- *Socioeconomic status* such as health literacy, nutritional status;
- *Comorbidities* such as diabetes, cancer;
- *Immunization status;*
- *Medications* such as immunosuppressive agents and chemotherapeutic agents
- *Pregnancy;*
- *Interventions and devices* – surgery, intubation, mechanical ventilation, urinary catheterization, vascular catheterization;
- *Host factors* – related to the host that prevent the entry and establishment of infective agents including:
  - endogenous organisms inhabiting body sites such as the gastrointestinal tract, skin, respiratory tract, genital tract that prevent the establishment of pathogenic organisms at that site;
  - natural antibodies;
  - natural barriers such as intact skin, mucous membranes, fascial planes, cough reflex and gastric acid secretion.

Colonization and infection

Colonization refers to the presence of organisms in the body without causing any cellular damage or any response on the part of the host. Infection occurs when the organism causes cellular damage and a host response. Colonization with one organism may prevent the establishment of another more virulent organism at that body site. Colonizing organisms can be a part of the normal flora for a particular body site but cause infection at another body site, for example, *E. coli* is a normal flora of the intestinal tract but it can cause infection in the urinary tract.

Removal of the normal flora can cause abnormal organisms to colonize a body site, e.g. antibiotics kill organisms such as drug-sensitive *E. coli* and allow drug-resistant organisms to colonize. Colonization can precede infection if the host defences are altered or impaired in some way, which can happen if the patient is on immunosuppressive drugs, has undergone surgery or interventions such as catheterization and intubation.

Types of healthcare-associated infections

Some common types of HAIs are:

- Bloodstream infection (Box 2.1)
- Urinary tract infection
- Pneumonia
- Surgical-site infection
- Gastrointestinal infection

Box 2.1. Common organisms causing bloodstream infections

Escherichia coli, Enterococcus spp., *Staphylococcus aureus, Klebsiella* spp., *Salmonella* spp., *Candida* spp., *Pseudomonas* spp., *Corynebacteria* spp., Acinetobacter spp., Coagulase Negative Staphylococcus (CNS)

Healthcare-associated bloodstream infections

Healthcare-associated bloodstream infections are serious infections that can be associated with high mortality, which may be more than 50% for some microorganisms. These infections are often associated with intravascular catheters. Infection can occur at the entry site of the catheter or along the subcutaneous tract of the catheter (line), known as tunnel infection. This type of infection is largely dependent on the care taken during insertion and handling of the intravascular catheter. The duration for which catheters are in place is also important. Both central and peripheral lines can be a source of infection.

(For the definition criteria of catheter-related bloodstream infections, see Chapter 7 on surveillance of HAI and Chapter 6 on bloodstream infections in the ICU.)

Diagnosis is made by blood culture and semi-quantitative culture of the catheter tip and catheter lumen.

Healthcare-associated pneumonia

Pneumonia is one of the most serious of HAIs. Ventilator-associated pneumonia

(VAP) is the most important infection in patients on ventilators in intensive care units. It has a high case fatality rate and is often associated with serious comorbidities.

It is defined as a lower respiratory tract infection that appears during or after hospitalization of a patient who was not incubating the infection on admission.The diagnostic criteria are:

- Fever;
- Cough with purulent sputum;
- New infiltrate on radiology; and
- Gram-staining of sputum/ET aspirate and bacteria.

Healthcare-associated pneumonia is acquired by the inhalation of respiratory droplets or aerosols, or aspiration of colonized oropharyngeal and gastric secretions in conditions of low gastric acidity. Infection can also be acquired through the oropharynx during suction procedures, due to inadequate hand washing and inappropriate disinfection of respiratory devices.

Risk factors

- Age: very young or very old
- Coronary bypass surgery
- Abdominal surgery
- Existing pulmonary, neurological disease
- Decreased clearance of respiratory secretions due to coma, sedation, etc.
- Invasive devices bypassing natural defences as in mechanical ventilation, intubation, tracheostomy, enteral feeding
- Medications such as antibiotics, antacids, immunosuppressive agents and chemotherapy

Urinary tract infection

Urinary tract infections (UTIs) are the most common and account for 35–45% of all HAIs.[26,27] The majority of these infections are associated with the use of an indwelling urinary catheter.

Diagnosis is based on the clinical symptoms of fever, suprapubic tenderness, frequency of urination and dysuria along with the presence of bacteria in the urine in significant quantity. The urine culture of the patient shows no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml.[28] The presence of an indwelling catheter in the urinary tract may give rise to bacteriuria or mild infection or may even result in severe infections such as pyelonephritis and septicaemia. The source of organisms can be the patient's own flora (endogenous

infection) or exogenous through the hands of staff or contaminated instruments (Box 2.2). Contamination of the drainage bag and retrograde flow of contaminated urine into the bladder can also cause UTI.

It is important that the urine specimen for culture be collected using aseptic precautions.[29] The urine specimen should be obtained aseptically from a sample port in the catheter tubing or by aseptic aspiration of the tubing. For non-catheterized patients, a clean voided specimen is acceptable. Catheter tips and specimen from the urine bag should not be cultured.

Box 2.2. Common organisms causing UTI

E. coli, Klebsiella spp., *Proteus* spp., *Enterococci* spp., *Pseudomonas aeruginosa, Serratia marcescens, Candida* spp., *Staph. aureus, Staph. epidermidis*

Risk factors

- Indwelling urinary catheter
- Instrumentation of the urinary tract
- Poor aseptic preparation during insertion of catheter
- Poor catheter maintenance
- Advanced age
- Female gender
- Severe underlying illness

Surgical-site infection

This is the infection of the site of surgery, earlier called wound infection. The incidence of surgical-site infections (SSIs) varies from 0.5% to 15% depending on the type of operation and underlying status of the patient. The main risk factor is the extent of contamination during the procedure (clean, clean contaminated, contaminated, dirty), which is largely dependent on the site of surgery, length of the operation, and the patient's general condition.

SSI usually occurs within 30 days of the operative procedure. In some types of surgery, infection can appear even after 30 days of the operation. Since infection may occur late, all deep infections related to the operative site and to the implant within 1 year of an operation should be considered postoperative infections.[30] (For details and surveillance definitions see Chapter 7.)

SSI can be superficial, incisional, deep incisional or organ/space.

- Superficial SSI
  - Drainage of pus from the superficial incision
  - Pain, tenderness, localized swelling, redness or heat
- Deep/organ space SSI
  - Infection appears within 30 days of the procedure or within one year in the case of an implant or foreign body such as prosthetic heart valve, joint prosthesis
  - Pus discharge from deep incision
  - Spontaneous dehiscence or "gaping" of wound
  - Fever >38 °C, localized pain or tenderness

Specimens for culture include pus, wound swabs, drainage fluid and exudate (Box 2.3).

Box 2.3. Common organisms causing SSIs

Staph. aureus, E. coli, Klebsiella spp., *Enterococcus faecalis, Pseudomonas* spp., anaerobic bacteria such as *Bacteroides* spp.

Risk factors

The non-modifiable variables include age and gender. A systematic review of 57 studies from both high-income countries and low- and middle-income countries (LMICs) identified the following factors associated with an increased risk of SSI in adjusted analysis.[31]

- High body mass index
- Severity score classification of wound
- Diabetes
- Prolonged duration of surgery

The following are other potential factors that can be improved to increase the likelihood of a positive surgical outcome.

- Nutritional status
- Cessation of tobacco use
- Correct use of surgical prophylaxis
- Intraoperative technique

Other potential sites of infection

- Skin and soft tissue
- Brain and meninges

- Eye and ear (sinusitis, conjunctivitis)
- Reproductive organs (endometrial and other infections following childbirth)

Gastrointestinal infections

These are common infections in paediatric wards and in the community. Introduced in the hospital through an infected patient, such infections can spread rapidly in the paediatric unit through contaminated environment, toilets and inadequate hand washing.

Infectious diarrhoea is confirmed when a bacterial or viral aetiology is demonstrated. Diarrhoea may also occur due to non-infectious causes such as medications. In many cases the cause of diarrhoea cannot be diagnosed (for definition criteria, see Chapter 7).

The infection is transmitted through the faeco-oral route. It may be acquired from contaminated food or water, infected patients or staff, contact with environment contaminated with organisms or instruments entering the alimentary tract such as endoscopes. Box 2.4 gives some common organisms that cause gastrointestinal infections.

Healthcare-associated diarrhoea often presents as an outbreak. The index case or asymptomatic carrier introduces the infection in the ward which then leads to person-to-person spread.

Box 2.4. Common organisms causing gastrointestinal infections

Salmonella spp., *Shigella* spp., *Campylobacter* spp., *Clostridium difficile, E. coli, Aeromonas* and *Plesiomonas* spp., *Vibrio* spp., *Cryptosporidium* spp., *Giardia lamblia, Entamoeba histolytica, Rotavirus, Norwalk (Noro)* and similar viruses (e.g. *Astrovirus), Adenoviruses*

Risk factors

- Extremes of age, achlorhydria, antibiotic therapy oral or systemic, decrease in normal flora, overgrowth of resistant or sensitive pathogens, gastrointestinal procedures such as insertion of nasogastric tube, endoscopy
- Factors conducive to person-to-person spread such as overcrowding of unit, understaffing, inadequate hand washing facilities

Routes of transmission

Contact transmission

Contact is the most common mode of transmission, and usually involves transmission by touch or via contact with blood or body fluids or secretions. Contact may be direct or indirect.

- **Direct transmission** occurs when infectious agents are transferred from one person to another, e.g. a patient's blood entering a healthcare worker's (HCW's) body through an unprotected cut in the skin.
- **Indirect transmission** involves the transfer of an infectious agent through a contaminated intermediate object or person, e.g. a HCW's hands transmitting infectious agents after touching an infected body site on one patient without performing hand hygiene before touching another patient, or an HCW coming into contact with fomites (e.g. bedding) or faeces and then with a patient.

Examples of infectious agents transmitted by contact include MDROs such as methicillin-resistant *Staph. aureus* (MRSA) and carbapenem-resistant Gram-negative bacteria, *C. difficile*, Norovirus, Ebola virus, HIV, hepatitis B and C viruses, and highly contagious skin infections/infestations (e.g. impetigo, scabies), etc.

Droplet transmission

Droplet transmission occurs when an infected person coughs, sneezes or talks, or during certain procedures. Droplets are infectious particles >5 microns in size. The droplet distribution range is limited by the force of expulsion and gravity and is usually <1 metre.[25] Droplets can also be transmitted indirectly to mucosal surfaces (e.g. via hands). Examples of infectious agents that are transmitted via droplets include influenza virus, *Bordetella pertussis* and meningococcus.

Airborne transmission

Airborne dissemination may occur via particles containing infectious agents that remain suspended in air over time and distance. Small-particle aerosols (<5 microns) are created during breathing, talking, coughing or sneezing and secondarily by evaporation of larger droplets in conditions of low humidity.

Certain procedures, particularly those that induce coughing, can promote airborne transmission. These include diagnostic sputum induction, bronchoscopy, airway suctioning, endotracheal intubation, positive pressure ventilation via facemask and high-frequency oscillatory ventilation.

Aerosols containing infectious agents can be dispersed over long distances by air currents (e.g. ventilation or air-conditioning systems) and inhaled by susceptible individuals who have not had any contact with the infectious person. Examples of infectious agents that are transmitted via the airborne route include measles virus, chickenpox (varicella) virus and *M. tuberculosis.*

Vector-borne transmission

Vector-borne transmission refers to transmission of microorganisms by vectors such as mosquitoes and can be prevented by appropriate construction and maintenance of an HCF, having closed or screened windows, and proper housekeeping. Examples of vector-borne diseases include malaria, dengue and chikungunya.

Basic concepts of prevention of HAI

HAIs can be prevented by breaking the epidemiological triad. The most effective way to prevent HAI is by introducing a barrier between the susceptible host and the infecting organism. Most HAIs can be prevented through readily available and relatively inexpensive strategies such as compliance with recommended infection prevention practices such as:

- Hand hygiene (see Chapter 4)
- Appropriate use of personal protective equipment (PPE) (see Chapter 4)
- Following aseptic techniques stringently (see Chapters 4 and 6)
- Paying attention to established practices for cleaning and decontamination of soiled instruments, followed by either sterilization or high-level disinfection (see Chapter 4)
- Appropriate disposal of biomedical waste (BMW) (see Chapter 5)
- Appropriate cleaning and disinfection of the environment (see Chapter 5)
- Improving safety in operating rooms and other high-risk areas where the most vulnerable patients are housed and there is a high risk of exposure to infectious agents (see Chapter 6)
- Maintaining a safe working environment and safe work practice (see Chapters 4 and 8)

Bundle approach for prevention and control of HAI

Care bundles include a set of evidence-based measures that need to be implemented together, to show a significant improvement in patient care. Together they have a greater effect on the outcome than the isolated implementation of individual

measures. Adherence to bundles helps to deliver consistent and reliable patient care. Care bundles that have shown significant impact on the prevention of HAI include sets of bundles for the prevention of central line-associated bloodstream infections (CLABSIs), bundle for the prevention of catheter-associated urinary tract infections (CAUTIs), bundle for the prevention of VAP, and bundle for the prevention of SSIs.

Bundles need to be simple, clear and precise so that they can be followed easily and appropriately. The measures included in a bundle also have to be adapted to the local setting and suited to the patient care culture of the hospital. Adherence to the bundle should be recorded and evaluated to ensure compliance by all members of the involved healthcare team.

For details of bundles for the prevention of specific types of HAI, see Chapter 6.

3. Infection prevention and control programme

IPC and quality standards of healthcare are essential for the well-being and safety of patients, their families, health workers and the community. A well-organized IPC programme is a basic requirement in every HCF to assist HCWs in the provision of quality healthcare.

In 2016, WHO issued evidence-based guidelines incorporated in an implementation manual on the core components of IPC. The first step towards implementation is the establishment of an IPC programme at the HCF level.[18]

Objectives of the IPC programme

The objective is to minimize the risk of HAIs to patients, HCWs and visitors. This is achieved by:

- enabling and assisting all categories of HCWs to adhere to comprehensive IPC practices at all levels of care; and
- providing safe and quality healthcare and improving outcomes by reducing morbidity and mortality.

Structure of IPC programme

The head of the HCF or lead administrator should establish a hospital infection control committee (HICC) with well-defined composition, roles and responsibilities; and provide adequate resources for the effective functioning of the IPC programme.[32]

Hospital infection control committee

The HICC is an integral component of the IPC programme of the HCF. It is responsible for establishing and maintaining the IPC programme and its various functions of monitoring, surveillance, reporting, research and education. The HICC

should have wide representation from all relevant disciplines or departments in the facility. The proposed structure and responsibilities of the HICC are given below.

Structure

- Chairperson: head of the institute
- Member-secretary/infection control officer
- Members
  - Representation from management/administration: Dean/Director of hospital; nursing services; medical services; operations
  - Representation from relevant medical and surgical disciplines
  - Representation from support services: operation theatre (OT), central sterile supply department (CSSD), housekeeping/sanitation, laundry, engineering, pharmacology/pharmacy, stores/materials department
  - Infection control nurse (ICN)

Responsibilities

1. Establish the IPC programme in the HCF and ensure the following.
   - Develop an action plan for strengthening IPC measures for the facility and individual units within the facility with priorities based on the risk matrix for that unit and appropriate review.
   - Constitute an infection control team.
   - Review and revise annually infection control guidelines with policies, recommendations and working protocols, including activities and practices under the programme, with standard precautions and hand hygiene as key components.
   - Organize training programmes on recommendations of the guidelines and IPC practices for staff and other HCWs.
   - Develop an antibiotic policy and antibiotic stewardship programme.
   - Conduct surveillance of AMR and HAI.
2. Analyse the surveillance data for HAI (including identification of common sources and routes of entry of infectious microorganisms) on a monthly basis (or more frequently in case an outbreak is suspected) and identify at-risk patients. Take appropriate action and implement recommendations where necessary.
   - Monitor the trends of HAI regularly and compare the rates of infections within the HCF and with other facilities wherever feasible.
   - Monitor and assess, on a regular basis, compliance with recommended practices such as hand hygiene, cleaning and decontamination, disinfection and sterilization through audits and quality control of IPC activities.

- Investigate outbreaks of HAIs in collaboration with medical, nursing and other staff.
- Evaluate the effectiveness of interventions for IPC.
- Participate in the selection of equipment and material and provide advice and focus on IPC measures.
- Help control environmental risks for infection by liaising with appropriate departments such as healthcare waste management, CSSD, provision of safe water (testing of water sources), pharmacy, housekeeping services, laundry and kitchen services.
- Establish links with related health programmes in the HCF such as injection safety programme, TB control programme and control of HIV/AIDS.
    - Ensure a multimodal approach for implementation of IPC, integrate 3–5 different activities for behaviour change.
    - Introduce system change (equipment/infrastructure), education, monitoring, communication as well as culture change (through champions/leaders).
    - Use tools such as care bundles or checklists.

3. Prepare an annual IPC plan with a detailed budget.
4. Organize periodic (monthly/quarterly) meetings of HICC and take minutes with clear action points to delegate responsibilities for implementation.
5. Appoint an IPC team responsible for day-to-day activities with the following members:
    - Infection control officer: usually a clinical microbiologist/clinical epidemiologist, infectious disease physician, who is the team leader;
    - ICN(s): a minimum ratio of one full-time ICN per 250 beds; and
    - One link nurse from every unit.

Roles and responsibilities

Infection control officer

The infection (prevention and) control officer is usually a clinical microbiologist or a clinical epidemiologist or physician specializing in infectious diseases or any other physician with training in IPC. The infection control officer should be the member-secretary of the HICC. As the leader of the IPC team she/he is responsible for monitoring day-to-day activities of the IPC programme. She/he should have direct access to the head of the HCF.

Responsibilities of the infection control officer

- Develop policies, guidelines and standard operating procedures (SOPs) on

IPC in collaboration with other members of the HICC and the IPC team.
- Initiate and maintain activities for HAI surveillance and analyse surveillance data.
- Provide trends of HAI to different patient care units.
- Advise staff on all aspects of IPC and maintain a safe environment for patients and staff.
- Liaise with microbiology department for analysis of antibiograms (data regarding organisms isolated and their resistance pattern.
- Monitor rational use of antimicrobials.
- Oversee sterilization and disinfection.
- Investigate an outbreak, and advise on control measures and isolation procedures.
- Coordinate microbiological surveillance as decided by the HICC (testing of drinking water, dialysis water, biological monitoring of sterilization, and investigation of sources and modes of transmission in outbreak situations).
- Organize and conduct regular IPC educational and training activities for HCWs.
- Audit infection control procedures, worker safety and antimicrobial usage.
- Organize regular HICC meetings.

Infection control nurse

A full-time nursing staff should be appointed as the ICN. She/he should have training in IPC, preferably through an accredited course. The duties of ICNs are primarily associated with ensuring the practice of IPC by HCWs. She/he is a member of the IPC team and is responsible for liaising between the microbiology laboratory and the wards, ICU, OTs, etc. to identify problems and implement solutions. She/he is enabled by specifically designated link nurses in each ward, ICU, OT or unit of the HCF.

Responsibilities

- Visit the microbiology laboratory and conduct infection control rounds daily and tracks all infected cases and maintain surveillance data.
- Monitor implementation of IPC practices and SOPs, including hand hygiene, preventive bundles, sterilization and disinfection and antimicrobial stewardship.
- Impart education and training to HCWs under the supervision of the infection control officer.
- Ensure compliance with hospital's biomedical waste (BMW) management policy.
- Maintain data of sharps/needle-stick injuries and post-exposure prophylaxis (PEP).

- Initiate and facilitate immunization for hepatitis B virus (immunoglobulin use if needed after exposure, and hepatitis B vaccine), and vaccination for the staff, especially in high-risk areas.
- Facilitate provision of first aid and appropriate consultation in case of suspected exposure of any hospital worker.

Head of the healthcare facility/hospital administrator

The head of the hospital administration and/or management of the HCF is the chairperson of the HICC and provides leadership and support to the IPC programme.

Responsibilities

- Establish and support a multidisciplinary HICC and chair the committee.
- Identify appropriate resources for the IPC programme.
- Ensure availability of appropriate infrastructure, financial and human resources.
- Ensure implementation of the HAI surveillance system, and periodically review the status of HAI and effectiveness of interventions.
- Approve and review policies and guidelines for IPC.
- Support educational and training activities for all categories of staff.
- Establish an antibiotic stewardship programme.
- Establish a safety programme for HCWs – immunization, PPE and PEP.
- Ensure availability of safe food and drinking water, and sound waste management according to the BMW rules 2016, 2018.[13]

Microbiologist and microbiology department

The microbiologist manages the microbiology laboratory and plays a key role in the IPC programme. She/he is responsible for the identification and characterization of the causative agent responsible for an infection and provides guidance for appropriate antimicrobial treatment. The aim is to improve patient outcomes and limit the spread of infection and AMR.

Responsibilities

The microbiology laboratory contributes to the IPC programme by fulfilling its technical responsibilities and performing quality microbiology investigations through:[30,33]

- Handling clinical specimens to maximize the likelihood of a microbiological diagnosis;
- Developing guidelines for clinical departments for appropriate selection, collection, handling and transport of specimens;

- Ensuring safe laboratory practices to prevent infections among laboratory staff;
- Ensuring rapid diagnosis of infections, identification of pathogens and antimicrobial susceptibility testing of isolated pathogens by standardized procedures;
- Communicating promptly about suspected cases of HAI to the HICC;
- Analysing and reporting the antibiogram of relevant pathogens in different units and in different specimens; and
- In accordance with the microbiological surveillance policy of the HICC, microbiological testing of drinking water, dialysis water, biological testing of sterilizers, and epidemiologically investigating outbreaks including the typing of organisms to detect the source, reservoirs and transmission of infection.

The laboratory should watch for clusters of pathogens that may indicate an outbreak, the emergence of multidrug-resistant organisms, and the isolation of highly infectious, unusual or virulent pathogens. These unusual events or trends must be reported early to the HICC.

Environmental cultures

The microbiology laboratory must not conduct random, undirected microbiological sampling of air, water and environmental surfaces in HCFs. Such culturing must be coordinated with the IPC programme to ensure that it is performed only when indicated and that the specimens are processed appropriately.

Environmental cultures, including personnel cultures, should be done only when clear epidemiological evidence indicates an environmental source of the pathogen.

Microbiological sampling and testing of the environment should follow existing standards.[34]

Storage of isolates of epidemiological importance

In collaboration with the IPC programme, the laboratory should develop a system for storing epidemiologically important strains of HAI pathogens. The collection should be reviewed frequently, and isolates should be discarded when no longer needed.

Doctors

Physicians and surgeons have a natural leadership role in the HCF and in the community, especially in infection control.

Responsibilities

- Provide quality patient-care services to minimize infection in accordance with the recommended IPC practices as per HCF policy and guidelines (e.g. hand hygiene, standard precautions, aseptic procedures, isolation).
- Serve on the HICC.
- Support the IPC team.
- Ensure collection of appropriate microbiological specimens when an infection is suspected.
- Notify infected/HAI cases to the IPC team.
- Comply with the antibiotic policy and support the antibiotic stewardship programme.
- Advise patients, visitors and staff on measures to prevent the transmission of infection.

Pharmacist and pharmacology department

Hospital pharmacists are responsible for dispensing and procurement of medical products and supplies used in the hospital. The pharmacist should be an active member of the HICC and play a major role in the antimicrobial stewardship programme.

Responsibilities

- Dispense antiseptics and disinfectants and maintain relevant records (potency, incompatibility, conditions of storage and deterioration).
- Obtain and store vaccines or sera, and make them available as appropriate.
- Maintain records of antibiotics distributed to all departments, and the analysis of antibiotic consumption.
- Provide the HICC with summary reports and trends of antimicrobial use.
- Provide information on activity and side-effects of disinfectants and antiseptics.

Nursing staff

IPC practices for infection, prevention and control are mostly implemented by the nursing staff. Nurses should be familiar with the practices to prevent the occurrence and spread of infection, and maintain appropriate practices for various types of patients in their care.

Responsibilities of the nursing administrator

- Participate in the meetings of the HICC.
- Promote the development and improvement of nursing techniques, and

ongoing review of aseptic nursing policies, approved by the HICC.
- Develop and mandate continuing medical education (CME) and training programmes for members of the nursing staff.
- Supervise the implementation of nursing compliance with ICP policies and practices.
- Document, report and maintain suspected HAI cases based on records and information collected in routine visits and discussions with the staff.
- Empower the nurse in-charge of ward/unit/OT for implementation, monitoring and adherence to HICC practices in the ward/unit/OT.

Responsibilities of the nurse in-charge of ward/unit

- Maintain hygiene, consistent with hospital policies and good nursing practices.
- Monitor aseptic techniques, including hand hygiene, standard precautions and other precautions.
- Report promptly any evidence of infection in patients to the attending physician.
- Initiate patient isolation and order culture specimens from any patient showing signs of a communicable disease, when the physician is not immediately available.
- Limit patient exposure to infections from visitors, hospital staff, other patients or devices/equipment used for diagnosis or treatment.
- Maintain adequate supply of ward equipment, drugs and patient-care supplies.
- Ensure safe storage of medicines and blood products in the ward. Such refrigerators should not be used for storing food and drinks.
- Participate in the training of HCWs and patient education and awareness programmes.
- Participate in investigation of outbreaks.

A nurse in every patient-care unit is designated as an infection control liaison or "link nurse".[35] She/he is a useful adjunct to the ICN to implement infection control practices in the ward and to assist in surveillance of HAI by informing the ICN about suspected cases. The link nurse does not replace an ICN as the link nurse's primary responsibility and area of work are the patients under her care in the ward.

Responsibilities of the link nurse

- Implement IPC practices in the ward and assist HAI surveillance by informing the ICN about suspected cases.
- Increase awareness about infection control at the unit level.
- Implement IPC practice in the ward.
- Receive training in basic infection control and be in regular touch with the ICN.
- Maintain primary role as a ward nurse in the unit.

Central sterile supply department/ sterile supply department

The central sterile supply department/ sterile supply department (CSSD/ SSD) serves all hospital areas, including the OT. It has a major role in IPC and patient safety.

Responsibilities of the CSSD/ SSD

- Receive clean, decontaminated packages, sterilize and distribute medical devices.
- Work in collaboration with the HICC and other relevant departments in the facility to develop and monitor policies on cleaning, decontamination and sterilization of reusable and contaminated devices for patient care including:
  - wrapping procedures, according to the type of sterilization;
  - sterilization methods, according to the type of device/equipment;
  - sterilization conditions (e.g. temperature, duration, pressure, humidity); and
  - monitoring of sterilization procedures.

An appropriately qualified individual must be responsible for managing the CSSD. The responsibility for day-to-day management may be delegated to an individual with appropriate qualifications or experience, and knowledge of medical device sterilization.

Responsibilities of the CSSD manager

- Develop a procedure manual to document SOPs for all processes carried out in the CSSD. The manual should be approved by the HICC and reviewed at regular intervals.
- Oversee the various processes carried out in the department, namely cleaning, decontamination, disinfection, wrapping, sterilization, storage and distribution.
- Monitor the processes by use of different methods such as physical, chemical and bacteriological according to the policy of the HCF.
- Ensure technical maintenance of the equipment according to national standards and manufacturers' recommendations.
- Report any defect to the administration, maintenance, infection control and other appropriate personnel.
- Ensure appropriate separation of "clean" and "dirty" areas.
- Maintain complete records of each sterilizer run and preserve records as per standard recommendations.
- Organize collection of all outdated sterile units at regular intervals.
- Communicate, as needed, with the IPC team, the nursing service, the OT,

the hospital transport service, pharmacy service, maintenance and other appropriate services.

Laundry service

With the approval of the HICC and in accordance with policies of the HCF, the laundry is responsible for:

- Selection of fabrics for use in different hospital areas, working clothes for staff in different areas, and maintaining appropriate supplies;
- Distribution of working clothes and, if necessary, managing changing rooms
- Collection and transport of soiled/dirty linen;
- Providing appropriate containers/bags to the wards for segregation of used and dirty/soiled linen;
- Disinfection of soiled linen, either before it is taken to the laundry or in the laundry itself;
- Protection of clean linen from contamination during transport from the laundry to the area of use;
- Ensuring appropriate flow of linen, separation of “clean” and “dirty” areas;
- Maintaining and monitoring the recommended washing conditions (e.g. temperature, duration); and
- Ensuring safety of the laundry staff through prevention of exposure to sharps or laundry contaminated with potential pathogens.

Housekeeping service

The housekeeping service is responsible for the regular and routine cleaning of all surfaces and maintaining a high level of hygiene in the facility in accordance with the policies defined by the HICC and HCF. The policies include the collection and transportation, treatment and disposal of waste generated in the facility. The policy for waste management should be in compliance with environmental protection rules, and the Biomedical Waste Management and Handling rules, 2016 and 2018, and the Kayakalp programme. The housekeeping service manager, in collaboration with the IPC team, should develop a manual for all housekeeping procedures. The manual should be reviewed by the HICC and updated regularly.

Responsibilities of the housekeeping services manager

- Identify the varying needs for cleaning in different hospital areas.
- Implement the appropriate cleaning techniques as defined in the policy.
- Organize the collection, transport (treatment and disposal) of different types of waste according to the waste management policy.

- Ensure availability of soap and towel at all times.
- Inform the maintenance service of any building problems requiring repair.
- Organize pest control in the facility.
- Provide appropriate training for all new housekeeping staff and, periodically, for other employees, and specific training when a new technique is introduced. Training should stress on personal hygiene and adherence to SOPs.
- Report to the concerned authority if any cleaning staff has illness of respiratory tract, digestive tract or skin infection including wounds and cuts.

Facility/building maintenance committee/agency

Responsibilities of the maintenance manager

- Ensure regular building maintenance including plumbing, heating, refrigeration equipment, electrical fittings, heating ventilation and air-conditioning systems (HVAC) and high-efficiency particulate air (HEPA) filters; and record-keeping of the same.
- Collaborate with the HICC, housekeeping, nursing staff or other appropriate groups in selecting equipment and ensuring their uninterrupted operation.
- Ensure environmental safety of the community from hospital activities such as waste disposal and protection of water sources.

Additional duties

- Participate in the choice of equipment, if maintenance of the equipment requires technical assistance.
- Inspect, clean and regularly replace filters of all appliances for ventilation and humidifiers; records to be shared with the HICC.
- Regularly inspect all surfaces of walls, floors, ceilings to ensure they are kept smooth and washable and monitor repairs of any opening or crack in partition walls or window frames.

Infection prevention and control manual

The IPC manual at the facility level should be developed by the IPC team, based on the IPC policy (as defined by the HICC) with inputs from the relevant departments followed by review and approval by the HICC. These national guidelines should from the basis of the IPC manual and can be adapted according to local conditions, type of facility, services provided, infrastructure and availability of human resources. The IPC manual should be widely distributed in the HCF and should be available in all relevant areas. The training programmes for all level of staff should be based

on procedures and practices described in the IPC manual. It should be regularly reviewed and updated, preferably annually.

The IPC manual should include the following facility-specific protocols, policies, guidelines, SOPs and recommendations.

- IPC practices
- Control of environment
- Surveillance of HAIs and management of outbreaks
- Guidelines for IPC in special areas/ situations (depending upon the services provided by the facility)
- Preventing infections among HCWs
- Monitoring and evaluation

Antimicrobial use and management

Appropriate antimicrobial use and management is an integral part of the IPC programme. Every HCF should establish an antimicrobial stewardship programme (AMSP), which aims to facilitate the establishment of effective and rational antibiotic use.[36] Antimicrobial stewardship includes the appropriate selection, dosing, route of administration, and duration of antimicrobial therapy to provide quality patient care, reduce AMR, and prevent development and transmission of MDRO.

Appropriate antimicrobial use may be achieved through the following:

- Formulate standard treatment guidelines (STGs)[37] or hospital antibiotic policy with a multidisciplinary approach using the local antibiogram.
- Provide ongoing education on rational use of antibiotics to clinicians and ensuring implementation of antibiotic policies.
- Restrict use of selected antibiotics.
- Before initiating antibiotic treatment, submit appropriate specimens for bacteriological examination to the laboratory and select an antibiotic based on the clinical spectrum of disease, sensitivity pattern, patient tolerance and cost.
- Based on culture results, use an agent with as narrow a spectrum as possible with appropriate dosage, frequency, administration time and duration of antimicrobial therapy.
- Discontinue antimicrobial therapy based on predefined criteria.
- Monitor surveillance of AMR and antimicrobial use.
- Carry out periodic prescription audits.
- Create hospital formulary through pharmacy and revise periodically.
- Develop strategic interventions through a collaborative approach to improve

infection control and rational antibiotic use.
- Use antimicrobial prophylaxis only when the benefits outweigh the risks. Some indications are: selected surgical prophylaxis, prophylaxis of bacterial endocarditis. Note that antibiotic prophylaxis is not a substitute for appropriate aseptic surgical technique and other infection control measures.

Role of the microbiology laboratory

The microbiology laboratory has a major role in the containment of AMR, which include:

- Performing antibiotic susceptibility testing of significant microbial isolates as per SOPs, including the antimicrobials to be tested and following cascade reporting;
- Supporting the AMSP committee/drugs and therapeutic committee;
- Monitoring and reporting trends in prevalence of bacterial resistance to antimicrobial agents in a hospital antibiogram; and
- Providing microbiological support for IPC (role of microbiology laboratory in IPC) including prompt notification to the IPC team of any unusual AMR patterns in organisms isolated from relevant clinical specimens.

Specimen collection and transportation

Poor specimen collection and transportation is a major cause for wrong diagnosis and over-consumption of antibiotics. The following measures must be taken:

- Microbiologists must train nurses and phlebotomists to collect specimens properly and transport them rapidly to the laboratory. This requires the support of the hospital administration. Microbiologists must do periodic audits to give a feedback to the chief of nursing, head of laboratory and quality manager.
- Microbiology laboratories must follow strict sample rejection criteria for inappropriately collected samples, e.g. respiratory samples contaminated with saliva/oral secretions are inappropriate and must be rejected.
- Urine samples contaminated with vaginal or urethral commensal flora should be rejected. Only mid-stream urine (MSU) samples should be accepted.
- For clinical reporting the microbiology laboratory should report only significant pathogens (not colonizers and contaminants). Clinicians should correlate laboratory reports clinically before starting treatment.
- The laboratory should communicate results to the clinicians at the earliest.

Role of biomarkers in infections

- Biomarkers play a useful role in the managements of infections.[38] Use

biomarkers and point-of-care tests if feasible and cost-effective, and interpret in the clinical context.

- C-reactive protein (CRP) and procalcitonin (PCT) are useful biomarkers that are often used in the management of infections, especially in children under-5 years and critically ill patients.[39]
- Elevated serum lactate levels (>2.0 mmol/L) are a good risk stratification for mortality. Serial levels correlate with septic shock and multiorgan failure. This test is generally available as part of the routine arterial blood gas analysis done in ICUs.
- Absolute polymorphonuclear (PMN) count, immature vs mature PMN (shift to the left) and toxic granules in neutrophils in peripheral smear are relatively low-cost methods to detect sepsis, but need trained human resources.

Educational programmes and strategies

- Appropriate educational material on IPC should be made available to all HCWs, patients and visitors.
- Continuing educational interactive programmes and awareness drives should be conducted periodically.
- Awareness programmes should be organized on the prevention and control of specific infectious diseases for different levels of staff of the HCF and for the community.

Risk assessment and risk management

A risk-based approach should be used in formulating the annual action plan. Procedures and processes associated with risk of infection to patient and staff should be evaluated to assess the risk in the HCF (Table 3.1). The general approach to risk assessment and risk management (RA-RM) is as follows:

- The system for RA-RM needs to be divided into individual functional, structural and operational components.
- The hypothetical frequency of occurrence of a given event needs to be semi-quantified, e.g. unlikely, extremely rare, infrequent, frequent or imminent.
- Semi-quantification of the magnitude of impact of a given event needs to be done, e.g. mild, moderate, severe or catastrophic.
- The scales used in the semi-quantification of the frequency of occurrence and magnitude of impact are arbitrary and generally are 3-point or 5-point scales.
- The annual IPC implementation plan of an HCF should be based on the

Table 3.1. Example of RA-RM for IPC in a healthcare facility in a district hospital or medical college

	Frequency	Impact	Cumulative effect/ score	Action plan
IPC system not in place	Imminent (present)	Severe	Present/severe	Constitute HICC within 1 month; organize meeting within 2 months
Fire	Rare	Catastrophic	Rare/catastrophic	Mandatory fire safety audit and fire safety training
Flood	Rare	Catastrophic	Rare/catastrophic	Strategic plan for evacuation of staff, patient, visitors; mock drill
Inadequate microbiology laboratory support	Frequent	Severe	Frequent/severe	Better funding application; better inventory management; use of low-cost tests
Inadequate number of human resources for IPC	Frequent	Severe	Frequent/severe	Multi-tasking; application for HR planning/ recruitment
Inadequate supply of PPE	Frequent	Severe	Frequent/severe	Better inventory management; staff education about appropriate use of PPE; PPE wastage audit; application for funding
Inadequate supply of essential medicines (e.g. antibiotics)	Frequent	Severe	Frequent/severe	Hospital formulary development; AMSP; emphasis on IPC; staff training
Inadequate training for IPC	Frequent	Severe	Frequent/severe	Training of trainers programme; mandatory training in IPC; staff promotion/incentives based on IPC compliance

cumulative effect of frequency of occurrence and magnitude of impact of a hypothetical event, e.g.
- o *Imminent and catastrophic:* something needs to be done immediately;
- o *Rare and mild:* a strategic long-term plan needs to be in place;
- o *Frequent but mild:* root cause analysis needs to be done; and
- o *Infrequent but severe:* strategic long-term planning needs to be in place.

Planning, monitoring, audit and feedback

Based on the risk assessment, an annual plan of action should be charted out at the end of the current year and ratified by the HICC. Targets to be achieved on the lines of aims and objectives of the programme and strategies to be implemented to achieve these should be emphasized.

The main purpose of audit/monitoring practices and feedback is to achieve behavioural change or other process modifications to improve the quality of care and practices with aims of reducing risk of HAI and spread of AMR.

Regular monitoring/audit of IPC practices and feedback (individual/team/unit) is effective to increase adherence to IPC practices. Examples of indicators include:

- Compliance with processes such as hand hygiene, checklists, care bundles;
- Results of knowledge attitude and practice (KAP) studies to indicate behaviour change;
- Compliance with rules and regulations such as the BMW management rules; and
- HAI rates obtained through the surveillance system.

Implementation strategies

WHO recommends a multimodal strategy for IPC activities to improve practices and reduce HAI and AMR.[11]

The multimodal approach consists of three or more components implemented in an integrated way with the aim of improving outcomes (bundle approach), and includes tools (bundles and checklist) developed by multidisciplinary teams based on local conditions. An example of an effective multimodal strategy, which has shown to bring about significant improvement in IPC practices and reduce the risk of HAI.[40]

- *System change* with appropriate infrastructures and supplies to enable IPC practice
- Education and training of relevant staff

- Monitoring of the infrastructure, practices, processes, outcomes and providing feedback
- Reminders in the workplace and communication
- Culture change within the establishment and strengthening safety climate

Box 3.1 summarizes the prerequisites for an effective IPC programme.

Evaluation and feedback of the programme

- Evalute the IPC programme periodically to assess the extent to which the objectives have been met.
- Ascertain whether the activities are being performed in accordance with the requirements.
- Identify aspects that need improvement.

Evaluation can be done using indicators, e.g.

- *Process indicators:* compliance with hand hygiene, care bundles;
- *Outcome indicators:* HAI rates, mortality and morbidity.

The results of the evaluation should be shared with the HICC.

Box 3.1. Prerequisites for an effective IPC programme

- Policies and guidelines including best practices and standard operating procedures (SOPs)
- Adequately trained and motivated human resources
- Continuous and adequate supply of personal protective equipment (PPE)
- Antimicrobial use policy and links with the antimicrobial stewardship programme (AMSP)
- Integration with activities of the quality and safety department
- HAI surveillance and outbreak investigation
- Microbiology laboratory support
- Environmental protection
- Links with other patient safety programmes in the healthcare facility (HCF)
- Evaluation of the programme activities: monitoring and feedback
- Budget allocation for all the above
- Implementation through a multimodal approach

4. Procedures and practices for infection prevention and control

A two-tiered approach to precautions is used to interrupt the mode of transmission of infectious agents.

- **Standard precautions:** these refer to work practices that are applied to all patients receiving care in health facilities, regardless of their diagnosis or presumed infectious status so as to minimize the risk of transmission of infectious agents in all situations. Standard precautions minimize the likelihood of transmission of infectious agents between HCWs and patients, and from patient to patient.
- **Transmission-based precautions:** Transmission-based precautions are precautions required to be taken based on the route of transmission of organisms like contact precautions, airborne precautions, etc.

If successfully implemented, standard and transmission-based precautions prevent any infection from being transmitted. IPC precautions pending confirmation of diagnosis are given in Annex 2.

Standard precautions

The use of standard precautions is the primary strategy for minimizing the risk of transmission of microorganisms in healthcare facilities.

Standard precautions are to be followed for all patients, irrespective of their infection status. These are to be used to avoid contact with blood, body fluids, secretions and excretions regardless of whether contaminated grossly with blood or not; non-intact skin; and mucous membrane. The key components of standard precautions are:[41]

1. Hand hygiene
2. Personal protective equipment
3. Respiratory hygiene and cough etiquette
4. Prevention of injuries from sharps
5. Safe handling of patient-care equipment

6. Principles of asepsis
7. Environmental infection control
   a. Patient placement
   b. Environmental cleaning
   c. Linen and laundry
   d. Waste disposal

1. Hand hygiene

The WHO guidelines on hand hygiene in healthcare (2009) suggest that[42] hand hygiene is the single most important measure for prevention of infection. Hands can become contaminated with infectious agents through contact with a patient, patient surroundings, the environment, or other HCWs. Hand hygiene removes dust/soil, organic material and transient microorganisms from the skin and reduces the risk of cross-contamination. Evidence suggests that the hands of the HCWs are the most common vehicle for the transmission of healthcare-associated pathogens from patient to patient and within the healthcare environment (Box 4.1). Studies show a direct correlation between an increase in adherence to hand hygiene with decrease in HAIs.

Box 4.1. Hand decontamination

- Routine hand hygiene
  - Hand washing with soap and water is preferred when hands are visibly dirty or soiled with blood or other body fluids or after using the toilet.
  - Hand rubbing with an alcohol-based preparation is the preferred method for routine hygienic antisepsis if hands are not visibly soiled.
- Surgical hand scrub

Hand washing with soap and water

Indications: when there is visibly heavy contamination, e.g. with proteinaceous material, blood or body fluids (Fig. 4.1).

- After attending to a patient with suspected/confirmed *C. difficile* infection
- After using toilet
- Before and after having food
- Adequate number of sinks with running water and soap should be available in the haemodialysis unit to facilitate hand washing.

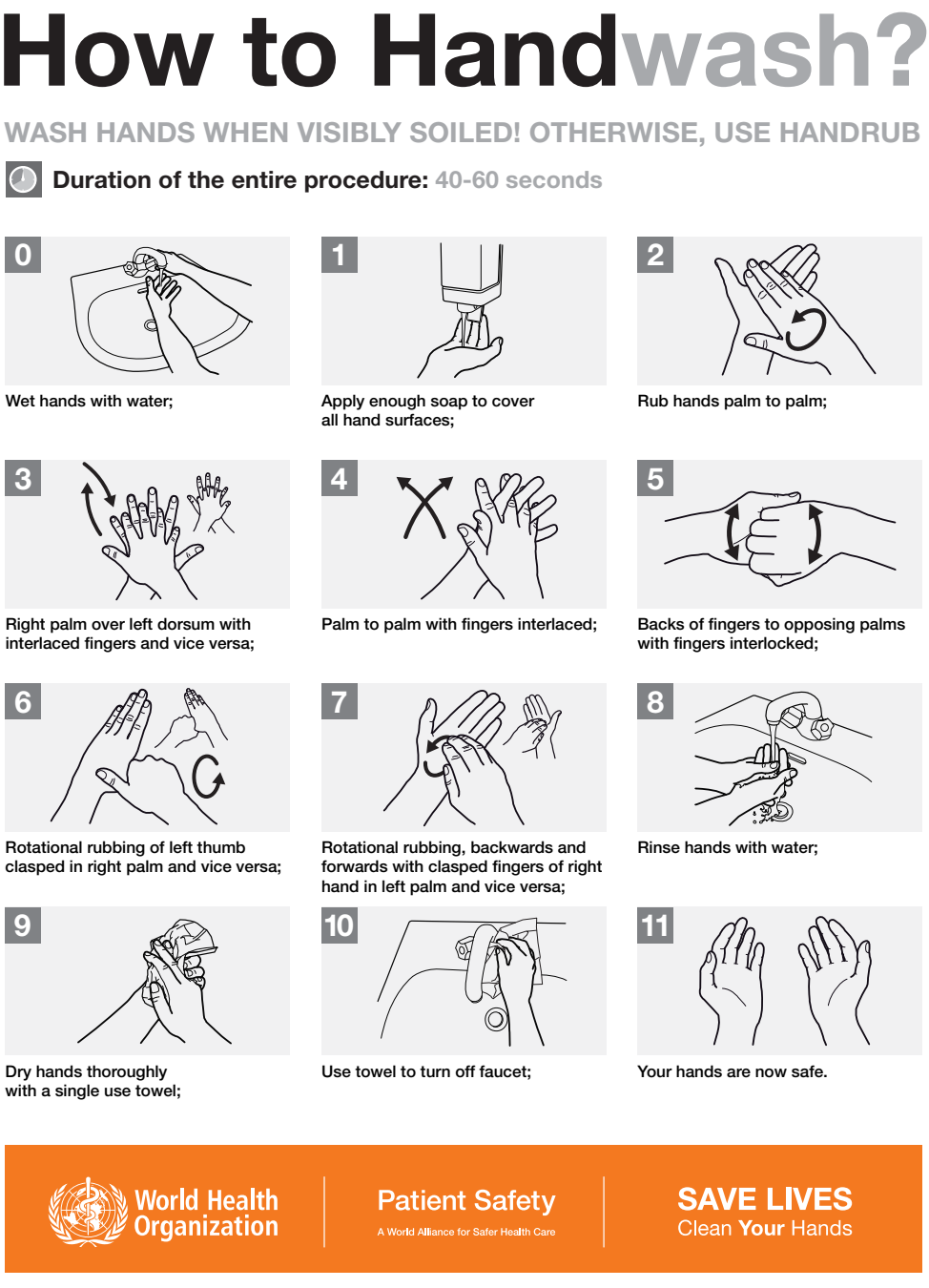


Fig. 4.1. Steps of hand washing[43]

Hand rubbing using alcohol-based preparation

Use alcohol-based hand rubs (ABHR), when hands are not visibly soiled or tap and running water is not available (Fig. 4.2).[44]

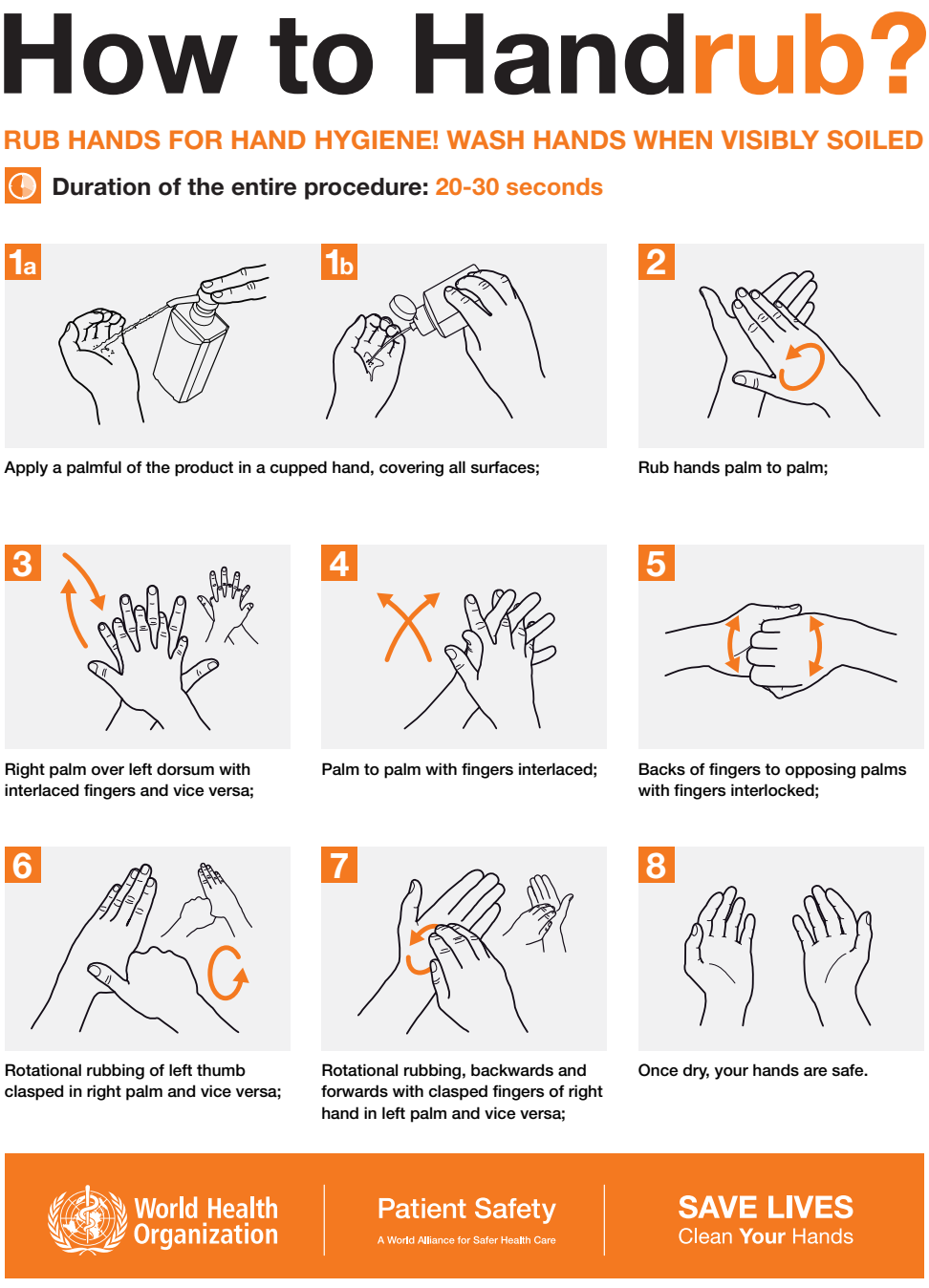


Fig. 4.2. Steps of hand rubbing[45]

- Advantages of ABHR
  - Easily accessible at point of care
  - Excellent antimicrobial activity against Gram-positive and Gram-negative vegetative bacteria, *M. tuberculosis* and a wide range of fungi

- Generally good antimicrobial activity against enveloped viruses
- Disadvantages of ABHR
  - Lesser and/or variable antimicrobial activity against non-enveloped viruses (such as norovirus)
  - No activity against protozoan oocysts and bacterial spores (such as *Clostridium difficile*)

Surgical hand scrub

Hand scrubbing with an antiseptic agent before beginning a surgical procedure reduces the number of microorganisms, and inhibits the growth of microorganisms on hands under the gloves. Chlorhexidine or povidone-iodine-containing soaps are the most commonly used products for surgical hand scrub. The antimicrobial efficacy of alcohol-based formulations is superior to that of all other currently available methods of preoperative surgical hand preparation.[46]

Improving the implementation of hand hygiene

Hand hygiene can be improved through a multimodal strategy suggested by WHO.[47] The key components are:

- **System change:** ensuring that the necessary infrastructure is in place to allow HCWs to practise hand hygiene. This has two essential elements:
  - Access to a safe, continuous water supply as well as to soap and towels;
  - Readily accessible alcohol-based hand rub at the point of care.
- **Training/education:** providing regular training on the importance of hand hygiene, based on the "My 5 moments for hand hygiene" approach (Fig. 4.3), and the correct steps for hand rubbing and handwashing, to all HCWs.
- **Evaluation and feedback:** monitoring hand hygiene practices and infrastructure, along with related perceptions and knowledge among HCWs, while providing performance and results feedback to staff.
- **Reminders at the workplace:** prompting and reminding HCWs about the importance of hand hygiene and about the appropriate indications and procedures for performing it.
- **Institutional safety climate:** creating an environment and perceptions that facilitate raising awareness about patient safety issues while guaranteeing improvement of hand hygiene as a high priority at all levels, including
  - active participation at both the institutional and individual levels;
  - awareness of individual and institutional capacity to change and improve (self-efficacy); and
  - partnership with patients and patient organizations.

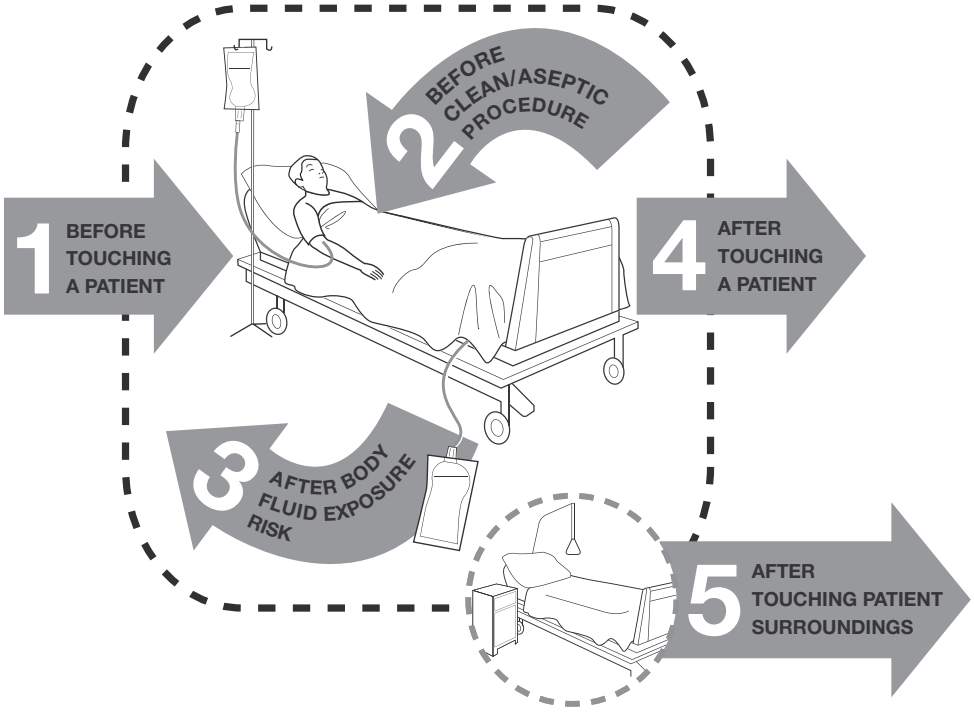


Fig. 4.3. Five moments for hand hygiene in clinical settings[48]

The WHO hand hygiene direct observation audit tool is given in Annex 3. HCFs may adapt and use this tool locally for hand hygiene audits.[48]

2. Personal protective equipment

Personal protective equipment (PPE) refers to physical barriers, which are used alone or in combination, to protect mucous membranes, airways, skin and clothing from contact with infectious agents. PPE should be used by:

- HCWs who provide direct care to patients and who may come in contact with blood, body fluids, excretions, and secretions;
- Support staff including cleaners, and laundry staff in situations where they may have contact with blood, body fluids, secretions, and excretions.
- Laboratory staff, who handle patient specimens;
- Family members who provide care to patients and are in a situation where they may have contact with blood, body fluids, secretions and excretions;
- HCWs in a haemodialysis unit, because of the high risk of transmission of blood-borne infections during the various activities associated with haemodialysis and handling of equipment; and

- Patients in a haemodialysis unit, in the form of a barrier over clothing during cannulation and decannulation, central line connection, disconnection/dressing change.

PPE includes gloves, aprons and gowns, facial protection, footwear and hair cover or cap.

Gloves[49]

- Gloves should be worn as an additional measure, not as a substitute for handwashing.
- Gloves are not required for routine care activities in which contact is limited to a patient's intact skin.
- Wear gloves when touching blood, body fluids, secretions, excretions, mucous membranes, non-intact skin.
- Change gloves between tasks and procedures on the same patient after contact with potentially infectious material.
- If gloves become torn or heavily soiled and additional patient care tasks must be performed, then change them before starting the next task.
- Remove gloves immediately after completion of care or a specified task, at point of use before touching non-contaminated items and clean environmental surfaces and before moving to another patient or using a mobile phone.
- Perform hand hygiene immediately after removing gloves.

Types and indications for wearing gloves

There are three types of gloves:

1. Clean, non-sterile gloves should be worn:
   - For examinations and non-surgical procedures;
   - For handling items visibly soiled with blood, body fluids, secretions or excretions when the HCW has open skin lesions on the hands; and
   - When the HCW has non-intact skin on the hands.
2. Sterile, single-use gloves should be used for aseptic procedures.
3. Heavy duty/utility gloves should be used for decontamination of large equipment, cleaning of floors, walls, HCF furniture such as beds, etc. These gloves can be reused after cleaning.

Gloves in haemodialysis units

1. Clean disposable gloves should be available for routine use.
2. Gloves must be worn in haemodialysis facilities whenever caring for a patient or touching the patient's medical equipment, handling lab specimens or used

dialysers, cleaning machines, cleaning stations, and wiping up blood or other body fluid spills.
3. They must be changed whenever moving from one patient or machine to another.
4. They must be changed after cannulation.
5. Sterile gloves must be available and used during procedures requiring aseptic technique such as central line insertion.
6. Remove gloves after caring for a patient. Do not wear the same gloves for the care of more than one patient, and do not wash gloves between use with different patients.
7. Perform hand hygiene after removing gloves.

Glove pyramid

The glove pyramid in Fig 4.4 shows indications for sterile gloves, examination (clean) gloves and where gloves are not indicated.

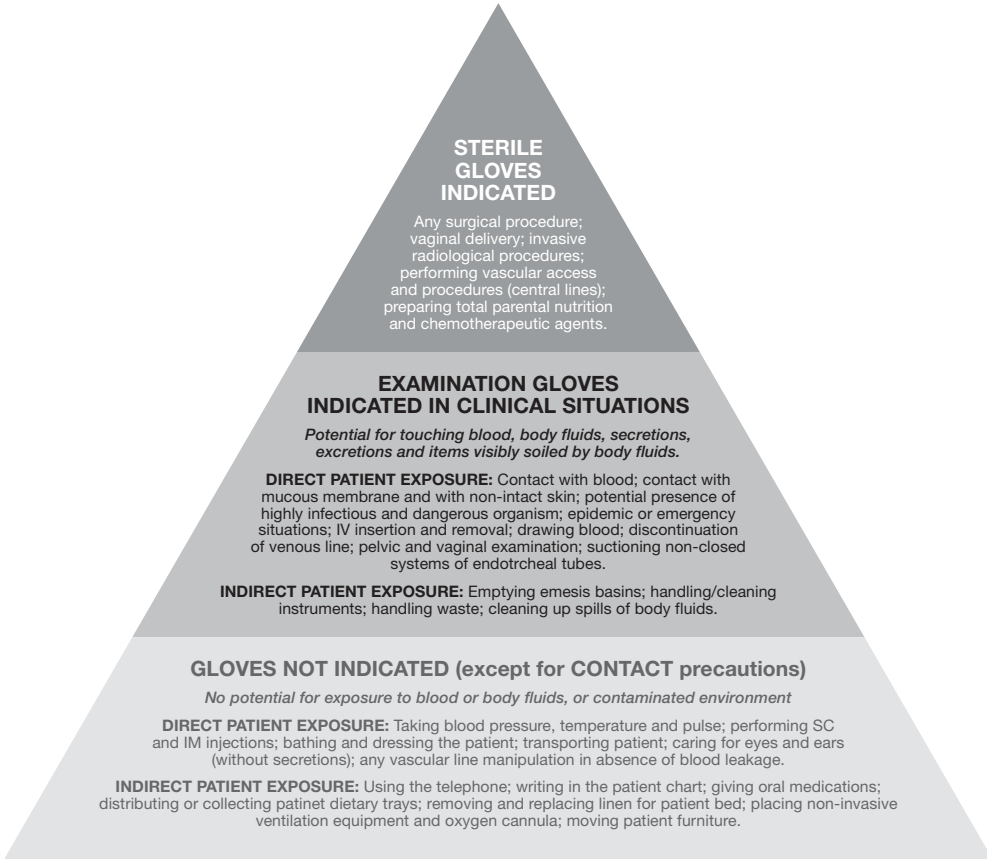


Fig. 4.4. Indications for using and not using gloves[49]

Aprons and gowns

International guidelines recommend that protective clothing (apron or gown) should be worn by all HCWs when:

- there is close contact with the patient, materials or equipment that may lead to contamination of skin, uniforms or other clothing with infectious agents; and
- there is a risk of contamination with blood, body substances, secretions or excretions (except sweat).

The type of apron or gown required depends on the degree of risk, including the anticipated degree of contact with infectious material and the potential for blood and body substances to penetrate through to clothes or skin.

- A clean non-sterile apron or gown is generally adequate to protect skin and prevent soiling of clothing during procedures and/or patient-care activities that are likely to bring contact with blood, body substances, secretions or excretions (except sweat).
- A fluid-resistant apron or gown should be worn when procedures are likely to generate splashing or sprays of blood or body substances and there is a risk that clothing may become contaminated with blood and body substances.
- Gowns and aprons preferably must be changed between patients.

Table 4.1 gives detailed characteristics of aprons and gowns.

Facial protection

Indications

Usual facial protection includes a medical/surgical mask (triple-layer surgical mask) and eye protection (face shield or goggles), to protect the conjunctivae and the mucous membranes of the nose, eyes and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions or excretions. Eye protection should also be used while providing care to patients with respiratory symptoms such as coughing and sneezing, since sprays of secretions may occur.

Types of facial protection

- Eye protection goggles protect the eyes. These should fit snuggly over and around eyes and personal prescription glasses – personal glasses are not a substitute for goggles.
- Face shield – when skin protection, in addition to mouth, nose and eye protection is needed; for example, when irrigating a wound or suctioning copious secretions, a face shield can be used as a substitute for a mask or

goggles. The face shield should cover the forehead, extend below the chin, and wrap around the side of the face.

- Masks are worn where appropriate to protect the mucous membranes of the nose and mouth during procedures and patient-care activities likely to generate droplets and splashes or sprays of blood, body fluids, secretions and excretions. Masks should fully cover nose and mouth and prevent fluid penetration.Triple-layer surgical masks fitted tightly to the face should be worn, and discarded immediately after use. If the mask gets wet or dirty with secretions, it must be changed immediately.

Table 4.1. Characteristics of aprons and gowns

Plastic apron	• Impervious/fluid-resistant • Single-use, for one procedure or episode of patient care • Disposable • Worn when there is a risk that clothing may become exposed to blood or body substances (usually from the environment) during low-risk procedures and where there is low risk of contamination to the HCW's arms • Worn when contact with the patient or the patient environment is likely to occur
Gown	• Single-use* • Disposable • Worn to protect skin and prevent soiling of clothing during procedures and/or patient-care activities that are likely to generate splashing or sprays of blood or body substances • Choice of sleeve length depends on the procedure being undertaken and the extent of risk of exposure of the HCW's arms
Full-body gown	• Fluid-resistant • Single-use* • Long-sleeved • Worn when there is a risk of contact of the HCW's skin with a patient's broken skin, extensive skin to skin contact (e.g. lifting a patient with scabies or non-intact skin), or a risk of contact with blood and body substances which are not contained (e.g. uncontrolled vomiting or passage of stools) • Worn when there is the possibility of extensive splashing of blood and body substances • Worn when there is a risk of exposure to large amounts of body substances, e.g. in some operative procedures
Sterile gown	• Pre-packaged • Used for procedures requiring an aseptic field

* Reusable gowns can be laundered and sterilized as required before reuse. However, if handling risk group 4 organisms (see Annex 12) then single-use gowns are necessary. Single-use gowns should be disposed appropriately in accordance with the Biomedical Waste Handling and Management Rules 2016, 2018.

A surgical mask becomes ineffective as a barrier if its integrity is damaged or if it becomes wet (i.e. from perspiration, or if splashed with blood or other potentially infectious material). If this occurs, remove the mask and replace with another.

Respirators: These protect from inhalation of infectious aerosols (e.g. *M. tuberculosis*). Some types are: particulate respirators, half- or full-face elastomeric respirators, and powered air-purifying respirators (PAPRs).[50]

The most commonly used respirators in healthcare settings are N95 particulate respirators. The device filters particles more than 0.3 microns in diameter.

Indications for use

Particulate respirators should be used:

- by care-providers of patients with obligate and preferentially airborne-transmitted diseases such as TB;
- while performing aerosol-generating procedures that have been consistently associated with increased risk of pathogen transmission;
- if an aerosol-generating procedure such as bronchoscopy is performed on a patient with active TB; and
- if a particulate respirator is not available, whenever possible, avoid performance of aerosol-generating procedures associated with an increased risk of transmission of pathogens in patients with acute respiratory infections.

Training

Ensure that users of particulate respirators receive training on:

- How to put on a particulate respirator (e.g. N95 respirator);
- The need to perform the seal check every time the respirator is worn;
- Avoide contamination during use, and removing and disposing of the respirator; and
- Changing the mask immediately if the respirator gets wet or dirty with secretions.

If patients with known or suspected airborne infections (e.g. pulmonary TB) are cohorted in a common area, and if multiple patients are to be visited sequentially, it may be advisable to wear a single particulate respirator for the duration of the activity. This type of use requires that the respirator should not be removed at any time during the activity, and that the user does not touch the respirator.

Footwear

- A closed footwear, which can be easily cleaned and disinfected, must be used whenever work processes or environments could cause foot injuries or spillage of blood or body fluids.
- Personal footwear should be changed when entering clean areas such as OTs, labour rooms, ICU.
- Shoe covers may be used over street shoes to protect clean areas from soil and dirt brought in by shoes.

Hair covers

- Long hair must be secured with a rubber band and hair cover worn to protect the hair and to protect the patient from falling hair.

Selection and safe use of PPE

The type of PPE should be selected on the basis of estimated risk of contamination of the HCW's hands, clothing or other areas of the body by blood, body fluid, excretions or secretions of the patient. The route of transmission of the infectious agent is an important factor in selecting the PPE.

Although PPE is the most visible control used to prevent transmission of infection, it must be used in conjunction with administrative and engineering controls. PPE must be correctly selected and used in a safe manner, and must be available and accessible to HCWs and visitors.

Ensure sufficient supplies of appropriate PPE

If resources are limited and disposable PPE items are not available, use reusable items (e.g. cotton gowns) and disinfect properly after each use. To avoid wastage, critically evaluate situations in which PPE is indicated, and maximize the provision of clinical care during each entry to the patient's room. However, use disposable PPE only while handling risk group 4 organisms or infection due to the same.

Before putting on PPE

- HCWs should be trained on the use of PPE as part of the IPC training.
- The training should address the protocols adopted by a specific facility and include practising both putting on and taking off procedures and performing care-related activities while wearing PPE.
- The competency of the HCWs in using PPE should be assessed and tested and, ideally, properly documented.

- Adequate resources (human, material and financial) must be made available.
- Management of the resources should include stock management, availability of different sizes and shapes of PPE, placement of items for easy access, quality of items purchased and line management for reporting shortages.
- Written protocols should be in place for step-wise procedures in putting on and taking off PPE, management of used and potentially contaminated PPE and associated medical devices, including safe discard and decontamination.
- Appropriate spaces should be designated so that PPE can be put on and taken off in separate areas.
- The use of trained observers to monitor the procedures for putting on and taking off of PPE correctly is essential.
- PPE use should be restricted to areas where it is necessary and has a specific purpose.
- Any protective clothing worn by HCWs in an area with high risk of contamination such as laboratory or OT must be removed when leaving that area.
- Protective clothing or PPE which has been in contact with patients should not be worn outside the patient-care area.

When putting on PPE

- PPE must be put on in the proper order as it cannot be modified while in the patient-care area. An observer should check the integrity of the PPE, making sure it is well adjusted, and write the name and role of the person as well as the time of entry into the high-risk zone on the apron.
- The sequence of removal of PPE should be in the reverse order of putting on the PPE. Eye protection should be put on in a way that it can be taken off as late as possible during the PPE removal process.[51]
- Information and posters about PPE, demonstrating the sequence for wearing and removing PPE should be posted in all patient-care areas.

PPE should be put on and taken off in correct sequence and disposed in accordance with the Biomedical Waste Management and Handing Rules 2016, 2018.

3. Respiratory hygiene and cough etiquette[52]

Respiratory hygiene and cough etiquette means the measures taken by a person having signs and symptoms of respiratory infection to contain respiratory secretions and prevent the transmission of the infection to other persons. The following measures are recommended:

- Cover mouth and nose with a tissue when coughing or sneezing.
- Dispose the tissue after use in the nearest waste container.
- Perform hand hygiene after contact with respiratory secretions and contaminated objects or materials.
- If resources permit, HCFs should ensure the availability of materials such as tissues and foot-operated waste bins for adhering to respiratory hygiene and cough etiquette in waiting areas for patients and visitors.
- In the absence of handkerchief or tissues, patients should be instructed to cover their nose and mouth with their arm during coughing and sneezing.
- Provide conveniently located dispensers of ABHR.
- Where sinks are available, ensure that water and soap for hand washing are available at all times.
- Posters elaborating cough etiquette and hand hygiene must be displayed. Posters in the local language should be put up at appropriate locations such as the OPD entrance, emergency department and doctors' clinics with instructions for patients and their attendants to inform the healthcare staff if they have symptoms of respiratory infection and on how to practise respiratory hygiene and cough etiquette.

The following information must be displayed in patient-care areas for educating patients, staff and visitors:

- Respiratory infections, such as influenza (flu), whooping cough and severe acute respiratory syndrome (SARS), are spread by cough, sneezing or unclean hands.
- To help stop the spread of germs:
  - Avoid close contact with people who are sick.
  - Stay at home when you are sick.
  - Cover your mouth and nose with a tissue or handkerchief when you cough or sneeze.
  - In the absence of handkerchief or tissues, cover your nose and mouth with your arm during coughing and sneezing.
  - Wash your hands often with soap and water. If soap and water are not available, use an ABHR.
  - Avoid touching your eyes, nose or mouth.
  - Practise other good health habits. Clean and disinfect frequently touched surfaces at home, work or school, especially when someone is ill. Get plenty of sleep, be physically active, manage your stress, drink plenty of fluids and eat nutritious food.

4. Prevention of injuries from sharps

Handling sharps

Handling sharps (needles, scalpels, etc.) is one of the most hazardous activities carried out by HCWs in the course of their duties. Sharps should be handled with extreme caution to avoid injuries during use, disposal or reprocessing.

- Used needles must not be recapped by hand; if necessary, use the single hand "scoop" method.
- Used needles should not be bent or broken after use.
- Used sharps should be disposed of immediately in designated puncture-proof containers (labelled with a biohazard symbol) located in the area where the items were used, for transport to the incinerator or pit or as per HCF policy for waste disposal, given in Chapter 5. These containers must not be located in areas which are easily accessible to the public (see Annex 8.4).
- Sharps should be used only once. A handful of sharp instruments must not be picked up simultaneously.
- While handling sharps, the sharp end of instruments shall be positioned away from oneself and others.
- If injured by sharps, contact the ward, clinic or unit supervisor immediately for further management.
- Sharps should be disposed of in a puncture proof container, as recommended by BMW guidelines.

5. Safe handling of patient-care equipment

Equipment that has been in contact with a patient should be disinfected or sterilized as appropriate before use for another patient.

- Equipment that has been soiled with blood or body fluids should be decontaminated and cleaned to prevent transfer of microorganisms to other patients and the environment.
- Cleaning of patient-care areas and equipment should be carried out by a team of dedicated personnel trained in the appropriate cleaning procedures. Responsibility and accountability for cleaning should be assigned.
- A hospital disinfection policy should be prepared for appropriate cleaning, disinfection and sterilization of patient-care devices that come in contact with mucous membranes and access sterile tissues. The policy should be strictly followed and monitored. Accountability and responsibility should be assigned.

- A new equipment or serviced and repaired equipment should be cleaned and disinfected before patient use as per hospital policy.
- Heavy duty or strong utility gloves must be worn during decontamination, cleaning and disinfection of instruments.
- Soiled patient-care equipment should be handled in a manner that prevents exposure of skin and mucous membranes and contamination of clothing and environment.
- Disposable patient-care equipment should not be reused and must be discarded into an appropriate container in accordance with the hospital waste management policy and the Biomedical Waste Management and Handling Rules 2016, 2018.
- Patient-care supplies (e.g. lotion, cream, soap) shall not be shared by patients.

Injection safety[53]

Injection safety is an important component of standard precautions.

Use of injection devices

Practical guidance on the use of injection devices is given below:

- Use a new injection device for each procedure, including for the reconstitution of a unit of medication or vaccine.
- Inspect the packaging of the injection device to ensure that the protective barrier has not been breached.

Discard the device if the package has been punctured, torn or damaged by exposure to moisture, or if the expiry date has passed.

Single-dose and multi-dose vials

- Whenever possible, use a single-dose vial for each patient, to reduce cross-contamination between patients.
- Open only one vial of a particular medication at a time in each patient-care area.
- If possible, keep one multi-dose vial for each patient, and store it with the patient's name on the vial in a separate treatment or medication room.
- Do not store multi-dose vials in the open ward or general patient-care area, where they could be inadvertently contaminated.
- Before use, examine the vial for turbidity, particulate matter or discolouration, and discard if any are present.
- Never leave a needle or cannula inserted into a medication vial via the rubber stopper.

- Discard a multi-dose vial:
  - if sterility of contents is compromised;
  - if the expiry date or time has passed;
  - if found to be without a specific date or time, improperly stored or contaminated regardless of the expiry date.
- The date of discard from the opening of a multi-dose vial should be decided by the HICC of the facility. Normally, it is 28 days from the date of opening, even if it is within the expiry date.
- Single-dose vials for reconstitution should be used instead of fluid or solution bags for routine injection.

Labelling

After reconstitution of a multi-dose vial, label the final medication container with:

- date and time of preparation;
- final concentration;
- expiry date and time; and
- name and signature of the person reconstituting the drug.

For multi-dose medications that DO NOT require reconstitution, add a label with:

- date and time of first piercing the vial;
- name and signature of the person first piercing the vial.

Injection preparation and administration

Injections should be prepared in a designated clean area where contamination by blood and body fluids is unlikely.

Practical guidance on preparing injections

The steps to be followed when preparing injections are:[54]

- Before starting the injection session, and whenever there is contamination with blood or body fluids, clean the preparation surfaces with 70% alcohol (isopropyl alcohol or ethanol) and allow to dry.
- Assemble all equipment needed for the injection: sterile single-use needles and syringes, reconstitution solution such as sterile water or specific diluent, alcohol swab or cotton wool, sharps container.
- Do not use alcohol skin disinfection for administration of live attenuated vaccines.
- Do not pre-soak cotton wool in a container as these can become contaminated.

Box 4.2. Injection safety in haemodialysis units

- Parenteral medications should be prepared in a designated clean area away from patient-treatment stations.
- Do not carry medication vials, syringes, alcohol swabs, or supplies in pockets. If trays are used to deliver medications to individual patients, they must be cleaned between patients.
- Single-dose vials should be dedicated to one patient only and should not be re-entered.
- Always use a sterile syringe and needle/cannula when entering a vial. Cleanse the access diaphragm of vials using friction and 70% alcohol. Allow to dry before inserting a device into the vial.
- Never pool or combine leftover contents of vials for later use.
- Use aseptic technique during all aspects of preparing, handling and administration of parenteral medication administration, medication vial use, injections, and glucose monitoring procedures.
- *Scrub the hub* of intravenous (IV) tubing and medication vials prior to accessing using friction and 70% alcohol, iodophor, or chlorhexidine/alcohol agent. Allow to dry prior to accessing.
- Never use infusion supplies such as needles, syringes, flush solutions, administration sets, or IV fluids on more than one patient. Never use IV solution containers (e.g. bags or bottles) for the purpose of IV flush solutions (or other purposes) for more than one patient.

Procedure for septum vials

- Wipe the access diaphragm (septum) with 70% alcohol on a swab before piercing the vial, and allow to air dry before inserting a device into the bottle.
- Use a sterile syringe and needle for each insertion into a multi-dose vial.
- Never leave a needle in a multi-dose vial.

Practical guidance on administering injections

Aseptic techniques should be followed for all injections.

General

When administering an injection:

- perform hand hygiene;
- wipe the top of the vial with 70% alcohol (isopropyl alcohol or ethanol) using a swab or cotton-wool ball; and

Box 4.3. Don'ts for injection safety

DO NOT:

- allow the needle to touch any contaminated surface;
- reuse a syringe, even if the needle is changed;
- touch the diaphragm after disinfection with 70% alcohol (isopropyl alcohol or ethanol);
- use the same needle and syringe for several multi-dose vials;
- use the same mixing syringe to reconstitute several vials;
- use bags or bottles of intravenous solution as a common source of supply for multiple patients (except in pharmacies using laminar flow cabinets);
- use a single loaded syringe to administer medication to several patients (i.e. ensure one needle, one syringe, one patient!);
- change the needle to reuse the syringe; and
- store leftover medications for later use.

- use a sterile syringe and needle, withdraw the medication from the ampoule or vial.

Reconstitution

- If reconstitution is necessary, withdraw the reconstitution solution from the ampoule or vial using a sterile syringe, insert the needle into the rubber septum in the single or multi-dose vial and inject the necessary amount of reconstitution fluid.
- Remove the needle and syringe and discard them immediately as a single unit into a sharps container.
- Mix the contents of the vial thoroughly until all visible particles have dissolved.

Needle-free system

- Wipe the rubber septum of the multi-dose vial with an alcohol swab.
- Insert the spike into the multi-dose vial.
- Wipe the port of the needle-free system with an alcohol swab.
- Remove a sterile syringe from its packaging.
- Insert the nozzle of the syringe into the port.
- Withdraw the reconstituted drug.

Delay in administration

- If the dose cannot be administered immediately for any reason, cover the needle with the cap using a one-hand scoop technique.
- Store the device safely in a dry kidney dish or similar container.

6. Principles of asepsis

These are discussed in detail in Chapter 6.

7. Environmental infection control

a. Patient placement

Appropriate placement of patients is important in preventing the transmission of infections in the hospital setting.

General principles

- **Spacing between beds**
  In open plan wards, there should be adequate space between each bed to reduce the risk of cross-contamination/infection occurring from direct or indirect contact or droplet transmission. Space between beds should be 1–2 metres.
- **Single rooms**
  Single rooms reduce the risk of transmission of infection from the source patient to others by reducing direct or indirect contact transmission. Single rooms should have:
  - hand-washing facilities
  - toilet and bathroom facilities.
- **Anterooms**
  Single rooms used for isolation purposes may include an anteroom to support the use of PPE.

Placement with regular admissions

- A room should be cleaned before admitting a patient. There should be a policy for cleaning the room (i) after patient discharge (terminal cleaning) and (ii) before admission.
- All patient-care items used by the previous patient should be removed and replaced with clean items, e.g. bed linen, waterproof covering, oxygen humidifiers, face mask, etc. as per the housekeeping policy.
- Patient-care equipment and articles should be cleaned, disinfected or sterilized according to the disinfection policy (see Annex 5.1).

Transport of patients

Movement and transportation of patients from the isolation room or area should be restricted to essential purposes only. This will reduce the possibility of transmission of microorganisms in other areas of the HCF.

Appropriate precautions should be taken during transportation to reduce the risk of transmission of microorganisms to other patients, HCWs or the hospital environment (surfaces or equipment).

Infection control precautions during transport of patients[55]

- It is appropriate to place a surgical mask on the face of a patient with pulmonary tuberculosis during transit.
- Care should be taken of drainage and shunts and IV lines as these are potential sources for contamination of the environment, trolleys, etc. during transportation, also a source of infection for the patient. Closed sterile drainage is to be maintained at all times. Shunts and IV lines should be covered with sterile dressing during transportation. A trolley should have the facility for hanging IV bottles, tying of urine bags below bladder level which helps in proper draining of urine and prevents stagnation of urine.
- Change trolley cover between patients.
- Spills of blood and body fluid should be taken care of immediately.
- Routine cleaning schedules for trolleys and wheel-chairs should be maintained.

Policy for visitors

The HCF should have a visitors' policy depending upon the type of services and the type of patients in the hospital[56] (see Annex 6 for "Policy for visitors and attendants").

b. Environmental cleaning; c. Linen and laundry; d. Waste management

The above three are discussed in detail in Chapter 5.

Box 4.4. Measures to improve adherence to standard precautions

- Staff education in hand hygiene, standard precautions
- Ready access to PPE
- Visual reminders at the patient bedside in the form of posters, along with verbal reminders from supervising staff
- Bundling of supplies in designated supply carts or pre-organized packs to provide immediate access to PPE and facilitate their use in resuscitation settings
- Monitoring of adherence through "safety" rounds
- Possible disciplinary action if there are repeated lapses in adherence

Transmission-based precautions

These precautions for aseptic techniques and device management for clinical procedures are applied in addition to standard precautions, depending upon the epidemiology and route of transmission of the agent/disease. These precautions are relevant to high-risk procedures (e.g. use of indwelling catheters and other devices, surgery, and other invasive procedures) and special settings (e.g. OTs, ICUs, neonatal wards, haemodialysis units and central reprocessing units). The following modes of transmission and appropriate transmission-based precautions should be adopted in HCFs (see Annex 7).

Airborne precautions

The airborne route of infection occurs through droplet nuclei of 1–5 micron that are disseminated through the air. These droplet nuclei can remain suspended in the air for varying periods of time and can travel long distances (>1 metre) and from room to room. Droplet nuclei arise from the drying of suspended droplets carrying the infectious agent.

Diseases that spread by the airborne route include: pulmonary or laryngeal tuberculosis, measles, chicken pox, pulmonary plague and viral haemorrhagic fever with pneumonia. Transmission of droplet nuclei at a short range may occur with SARS-CoV, human influenza, and other viral respiratory infections, during performance of aerosol-generating procedures.

Persons caring for patients with airborne infections should take the following precautions besides those related to patient placement and transport:

- **Respiratory protection:** persons entering the airborne infection isolation room should wear a particulate respirator, e.g. a N95 mask with a proper fit.
- **Restricted entry:** susceptible healthcare personnel should be restricted from entering the room of patients known or suspected to have airborne infections.
- **Immunize susceptible persons:** susceptible persons should be immunized as soon as possible following unprotected contact with vaccine-preventable infections.
- **Protection during aerosol-generating procedures:** for aerosol-generating procedures associated with pathogen transmission, appropriate PPE should be used in an airborne infection isolation room. N95 masks should be worn by persons performing aerosol-generating procedures (such as endotracheal suction and bronchoscopy) on patients with respiratory infections.

Droplet precautions

Droplet transmission occurs through large respiratory droplets >5 microns in size. Transmission occurs when infectious respiratory droplets are expelled by coughing, sneezing or talking, and come into contact with another person's mucosa (eyes, nose or mouth), either directly or via contaminated hands. Since these microorganisms do not travel over long distances, special air handling and ventilation are not required.

Infections transmitted through droplets include pneumonia, meningitis, group A streptococcal disease, pertussis, diphtheria and influenza, mumps.

During an influenza pandemic, the circulating human virus is expected to be transmitted in the same manner as seasonal influenza viruses. Hence droplet precautions should be applied in addition to standard precautions.

Droplet precautions include:

- Patient placement: keep a minimum of 1–2 metre inter-bed distance.
- Cough etiquette: explain the importance of respiratory hygiene and cough etiquette to patients.
- Personal protective equipment: wear a triple-layered surgical mask within 1–2 metres of the patient. For practical purposes, it is advisable to use the mask when entering the patient's room. For aerosol-generating procedures, N95 masks should be used.
- Patient transport: the patient should wear a triple-layered surgical mask.

Contact precautions

Contact transmission of microorganisms during patient care is responsible for the majority of HAIs in patients and healthcare staff. Contact transmission can be direct or indirect.

Direct transmission

This occurs when infectious agents are transferred from one person to another without a contaminated intermediate object or person. For example, blood or other body substances from an infectious person may come into contact with a mucous membrane or breaks in the skin of another person.

Indirect transmission

This involves the transfer of an infectious agent through a contaminated intermediate object (fomite) or person. These include:

- hands of HCWs;
- clothing after care of a patient colonized or infected with an infectious agent, which can then be transmitted to subsequent patients;
- patient-care devices that are shared between patients without cleaning and disinfection; and
- environmental surfaces that are inadequately disinfected.

Diseases transmitted through contact

- colonization or infection with multidrug-resistant organisms, enteric infections and skin infections
- Hand hygiene is important since contact transmission can occur in respiratory viral infections when respiratory secretions or droplets contaminate surfaces, which can contaminate hands of HCWs.

Combination of contact, droplet and airborne precautions

Contact, droplet and airborne precautions may be combined for diseases that have multiple routes of transmission or in case of epidemiologically important organisms, risk group 4 organisms or where transmission routes are unknown. Combined precautions are recommended in case of Ebola and Nipah virus disease. They are always to be used in addition to standard precautions and should be applied to all suspects, probable and confirmed cases.

Triage and patient placement

A high index of suspicion is needed to identify potentially infectious individuals (including colonization of MDRO) in order to ensure their safe and timely placement.[57,58]

Specific triage policies such as provision of visual alert to remind patient to inform staff of fever or respiratory symptoms should be developed for early detection and isolation, so as to minimize transmitting communicable diseases to other patients and HCWs in the outpatient setting. During triage, the following should be observed:

- Patients should be assessed for conditions that require transmission-based precautions to prioritize those who may require urgent care and isolation.
- Patients with high suspicion of transmissible infection should be accommodated in designated areas to minimize transmission of infection to other patients.
- Patients with respiratory symptoms should be provided a medical/surgical mask and educated in cough etiquette.

- Minimize the stay of infectious patients in OPD by decreasing the waiting time before consultation and facilitate early departure from clinics.[59]

Decision for patient placement

A decision on the placement of a patient suffering from a transmissible disease needs to be based on the transmissibility, route of transmission, condition of the patient, that is whether the patient needs intensive care or end-of-life support.[60]

Factors to be considered for decision on patient placement are:

- mode and route of disease transmission;
- clinical factors
  - e.g. diarrhoea, cough, exudates, broken skin, mental impairment, incontinence
  - immune status of the patient or cohorts
- room availability;
- requirement as per public health advisory
  - e.g. pandemic influenza, Ebola and Nipah.

Placement in protective environment and isolation

A protective environment with ultra clean unidirectional air may be required for neutropenic patients and in some units such as transplant and oncology according to the level of immunosuppression of the patients.[61]

To minimize airborne particles, air must be circulated in the room with a velocity of at least 0.25 m/s through a HEPA filter. The HEPA filter removes particles of up to a certain defined size. If particles >0.3 microns in diameter are removed, the air entering the room can be classified as being clean and free of bacterial contamination.

Other ways of protecting patients with severely lowered immune systems are:

- Visitors should avoid contact with the patient if they have infections (e.g. upper respiratory tract infections or herpes simplex blisters).
- Where appropriate, staff and visitors should wear PPE to protect the patient from microorganisms.
- Flowers or plants should not be put in the patient's room and a clean environment must be ensured.
- Environmental cleaning should be done twice daily and should consist of damp dusting and floor mopping to avoid creating aerosols.
- Strict aseptic techniques must be used for all clinical procedures.

Placement of patient with transmissible disease

Appropriate patient placement is a significant component of isolation precaution. A patient with a highly transmissible disease (e.g. chicken pox, TB, measles) should be placed in a single room with hand washing and toilet facility and airborne isolation.[62]

- Cohorting patients: When a single room is not available, an infected patient is placed with another patient infected with the same microorganism. Only assigned HCWs must take care of those patients, especially during outbreaks.
- If a single room is not available, then arrangements can be made for isolating such patients at the corner of a ward where ventilation is adequate.
- Patient's relatives/attendants should be educated on mode of transmission, hand hygiene and PPE.

5. Control of environment

Air and ventilation

Introduction

Air is the source of airborne infections of which TB is the most common and endemic in India. Other airborne infections are measles and chicken pox. SARS and other serious respiratory viral infections can be transmitted through the air during aerosol-generating procedures such as intubation and bronchoscopy. Varicella (including disseminated zoster), highly pathogenic influenza, and smallpox may also be transmitted through the air route. Airborne infection occurs through droplet nuclei of less than 5 microns. These particles remain suspended in air through various lengths of time and can travel over distances greater than 1 metre and at times even from room to room.

Ventilation can reduce the risk of infection through dilution and removal of infectious particles through air exchange. Improved ventilation in HCFs is essential in preventing transmission of TB and other airborne infections.

Ventilation systems

Table 5.1 gives a summary of the advantages and disadvantages of different types of ventilation systems for healthcare settings.[63]

Natural ventilation

- Refers to fresh air that enters and leaves a room or other area through openings such as windows or doors.
- Natural ventilation is “controlled” when openings are fixed and unrestricted to maintain air flow at all times.
- Unrestricted openings (i.e. those that cannot be closed) on opposite sides of a room provide the most effective natural ventilation.
- In existing HCFs that have natural ventilation, when possible, effective ventilation should be achieved by proper operation and maintenance of openings, and by regular checks to see that openings remain free of obstruction at all times.

Table 5.1. Advantages and disadvantages of different ventilation systems

	Mechanical ventilation	Natural ventilation	Hybrid (mixed mode) ventilation
Advantages	Suitable for all climates and weather	Suitable for warm and temperate climates	Suitable for most climates and weather
	More controlled and comfortable environment	Lower capital, operational, maintenance costs for simple implementations	Energy saving, relative to mechanical ventilation
	Occupants have limited control to affect ventilation	Capable of achieving very high ventilation rates	More flexible
Disadvantages	Expensive to instal and maintain	Easily affected by outdoor climate and occupant's behaviour	May be more costly or difficult to design
	Can fail to deliver required ventilation rates through faulty design, maintenance or operation	May be difficult to plan, design, and predict performance	
	Noise from equipment	Reduced comfort level of occupants in extreme weather	
		Cannot achieve directional control of airflow, if required	

Source: Guidelines on Airborne Infection Control in Healthcare and Other Settings[63]

- Simple natural ventilation can be optimized by maximizing the size of the windows, opening up fixed window panes and locating windows on opposite walls.
- Ventilation can also be optimized by the use of "mixing fans". Types of mixing fans include ceiling fans, stand/desk mounted fans, or window/exhaust fans located in open windows.

Mixing of air can disperse pockets of high concentration of infectious particles, such as in the vicinity of patients.

The total number of infectious particles in the room will not change with mixing. Unless adequate ventilation is present, mixing fans will not be useful in dispersing infectious particles and reducing the risk of transmission.

A common problem with reliance on natural ventilation is that patients or staff close windows during cold weather or at night. Further, there is likely to be variability of airflow patterns due to varying weather. In colder climates where rooms are closed to keep the temperature adequately high even in winter, natural ventilation can be implemented by airing via windows at frequent intervals. If natural ventilation is inadequate, additional mechanical ventilation or other measures may be needed, especially in areas where the risk of transmission of TB is high.

Mechanical ventilation

Mechanical ventilation uses fans to drive the airflow through a building.

- Mechanical ventilation can be fully controlled and combined with air-conditioning and filtration systems as is normally done in some office buildings.
- Mechanical ventilation includes “mixed mode ventilation”, in which exhaust and/or supply fans are used in combination with natural ventilation to obtain adequate dilution when a sufficient ventilation rate cannot be achieved by natural ventilation alone.
- Mechanical ventilation with or without climate control may be appropriate where natural ventilation cannot be implemented effectively, or where such systems are inadequate given local conditions (e.g. building structure, climate, regulations, culture, cost and outdoor air quality).

Exhaust fans

The simplest form of mechanical ventilation is the use of exhaust fans, placed for instance in windows, to move air from inside a room to the outdoors.

- Exhaust fans may also be more acceptable to staff and patients than keeping windows consistently open.
- If exhaust fans are used, it is important to ensure that airflow is adequate, that air flows across the room (not in and out the same window or vent), and that exhaust fans and air intake (windows or vents) are not located so that short-circuiting may occur.

Challenges of achieving adequate ventilation and climate control

- Effective ventilation is often at odds with efforts to make indoor climate more comfortable. In practice, air cooling or heating with re-circulation of air is more energy efficient.
- The implication of installing a split air-conditioning and closing the doors and windows is, however, complete lack of air exchange.
- It is possible for rooms with air conditioning or heaters to have adequate ventilation. Careful attention must be given to ensuring adequate ventilation when installing climate control.

Minimum air-changes per hour

HCFs should maintain a minimum amount of ventilation during all climatic conditions. These recommendations are based on the minimum ventilation rate estimated to reduce the probability of infection in an enclosed room to less than 5% with an hour of exposure to an infectious source case.

Table 5.2 gives the minimum air-changes per hour (ACH) required for various healthcare settings.

Standards for natural ventilation

Where it is not possible to measure ACH, as is usually the case in rooms with

Table 5.2. Minimum air-changes per hour for various healthcare settings

Type of healthcare setting	Minimum air changes per hour	Minimum hourly averaged ventilation rates (litres/second/patient)
Registration areas	>6 ACH	> 40 litres/second/patient
Outpatient departments and waiting areas	>6 ACH	>40 litres/second/patient
Inpatient departments	>6 ACH	>40 litres/second/patient
High-risk settings and their waiting areas, ART centres, TB/chest departments (outpatient and inpatient bronchoscopy procedure room MDR-TB wards and clinics,) Airborne precaution rooms	>12 ACH	80–160 litres/second/patient

natural ventilation, the following standards for ventilation ensure that air exchange is safely >12 ACH under all climactic conditions:

- Natural ventilation should be "controlled", with fixed, unrestricted openings that are insensitive to climactic conditions.
- Openings should constitute >20% of floor area.
- Openings should be on two sides, preferably opposite sides, for example, a 100 sq. feet room should have >10 sq. feet fixed, unrestricted openings on two sites, for a total of 20 sq. feet.

Considerations for hot climates

Climatic extremes may require some adjustments to ensure that minimum ventilation standards are achieved. In the case of hot climatic conditions, the following design considerations should be kept in mind.

- Air conditioners must be avoided, or used very cautiously in patient care areas. If air conditioners are used, it must be acknowledged that the need to maintain adequate ventilation for airborne infection control may to some degree necessarily compromise the comfort of the occupants and the efficiency of the air conditioner.
- Solar heat gain must be minimized through proper use of sunshades or external shading.
- Outdoor shaded waiting areas must be used to the greatest extent possible.
- Where augmentation of ventilation is required, the use of air supply fans may help improve thermal comfort, compared to exhaust fans.
- The use of evaporative coolers (“desert coolers”) may be an effective solution to achieve both comfort and adequate ventilation, as these tend to have powerful fans. Proper maintenance, however, is essential. An online tool for estimating the total fan rating for a given room can be found at http://www.csgnetwork.com/airexchangecalc.html. This reference is provided for convenience, and is not an endorsement of the site.
- The installation of “whirlybirds” (also known as whirligigs or wind turbines) that do not use electricity and provide a roof exhaust system can greatly increase both ventilation and comfort.

Considerations for cold climates

In cold climates, high ventilation rates may adversely affect thermal comfort, and are difficult to achieve as windows may be closed to keep the building warm. Even if normal heating is introduced, high ventilation rates usually mean low energy efficiency. Therefore, ventilation and heating strategies must be planned carefully.

- The building design should seek to capture solar heat and minimize conduction loss through the wall. Proper insulation of walls and the use of double glazing on windows are desirable.
- Where augmentation of ventilation is required, the use of air exhaust fans may help maintain adequate ventilation, even where windows or doors are closed.
- Targeted radiant or direct near-body heating methods are more effective than common convective radiators. This includes modern electric coil heaters and heated blankets/ mattresses.

Directional control of air flow

- Directional control of air flow is recommended in specific high-risk settings where infectious patients with drug-resistant TB or other acute respiratory diseases of potential concern are likely to be managed – i.e. airborne precaution rooms, MDR-TB wards and clinics, and bronchoscopy suites.
- There should be a system in place for minimizing the chance of airflow from the room to other parts of the facility. In a room relying on natural ventilation that is situated away from other patient care areas, no additional changes would be required. However, it would be important to keep the doors to the corridor or other rooms closed, to prevent the escape of infectious aerosols to other parts of the facility.
- Assessment of the direction of air movement can be done easily using smoke tubes, strips of ribbon, or by observing the directionality of dense smoke from “dhoop” or incense stick.
- Directional control of airflow can be achieved in mixed mode ventilation by paying proper attention to adequate exhaust and supply ventilation.

Optimal arrangement of patients and staff in relation to the direction of air flow

- Healthcare staff should be mindful of the direction of airflow to ensure they are closest to the clean air source, and that patients are closest to the exhaust. This involves arranging patients and staff so that contaminated air is not likely to cross directly into staff/patient spaces.
- The natural direction of air flow should be between patients and staff, and not across patients and staff. This is especially important for settings such as DOT centres, OPD examination rooms, and smear microscopy laboratories.

Seating arrangement in a naturally ventilated room is given in Fig. 5.1. The healthcare worker is marked with a red cross. Seating “B” is better than seating “A” as the potentially infected air from the patient with airborne disease does not cross the healthcare worker.

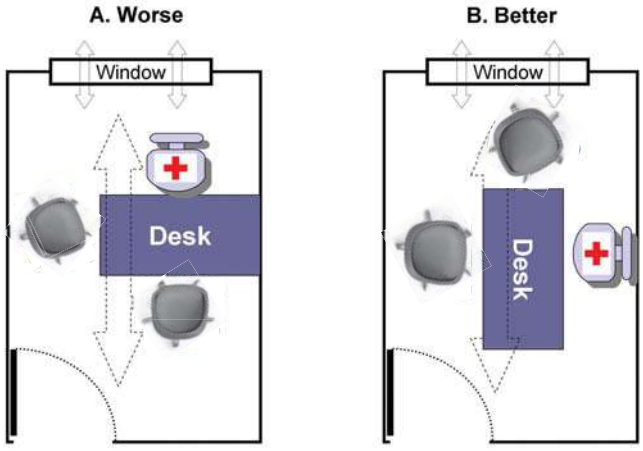


Fig. 5.1. Seating arrangement in a naturally ventilated room[63]

A diagrammatical representation of a mechanically ventilated room with optimum directional airflow control is shown in Fig. 5.2. In “A” the supply of air is on one side and exhaust on the other; whereas in “B”, the supply is from the top and exhaust near the patients’ head and foot end.

Filtration (HEPA filters)

Filtration is another option to remove infectious particles from the air. Filtration may be considered where:

- sustainable resources for membrane replacement and maintenance are assured;
- natural ventilation is not possible; and
- risk of airborne transmission and morbidity are high such as bronchoscopy suites, laboratories and individual rooms for patients with TB.

Filtration devices perform poorly in high-dust conditions, as the effectiveness in terms of equivalent air exchange can diminish rapidly. Attention should be given to the equivalent air exchanges per hour that the filter requires. If filters are chosen, only true-HEPA membrane filters (rated to remove 99.97% of 1-micron particles) should be entertained.

Other filtration mechanisms, such as ionizers, have not been adequately studied.

The use of single rooms with HEPA filtration may reduce the risk of HAI by airborne fungi, in particular *Aspergillus* spp. This is particularly important where renovation, building or demolition are in progress in the hospital or nearby.

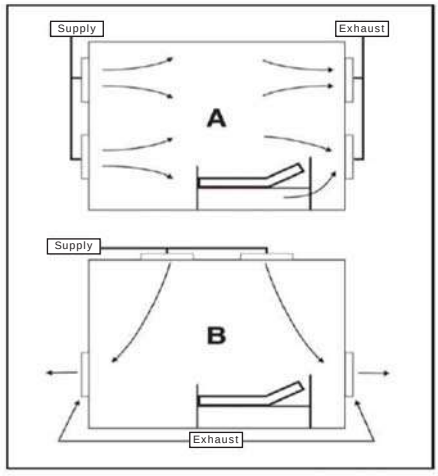


Fig. 5.2. Diagram of mechanical ventilated room with optimum directional airflow control[63]

Heating ventilation and air-conditioning systems

In modern hospitals, heating, ventilation and air-conditioning (HVAC) systems control the concentration of airborne particulates in high-risk areas such as transplant units, operation theatres, intensive care units, and burn units to minimize the risk of infection by means of air pressure, flow control and air filtration (the physical removal of particulates from air). The three types of filtration used in central airconditioning are (i) coarse or pre-filters for large particles; (ii) micro-fine filters which filter up to 5 microns; and (iii) HEPA filters which keep out up to 0.3 microns with 99.97% efficiency.

There is evidence that there is a lower incidence of infection when immune-compromised and other high-acuity patients are housed in HEPA-filtered isolation rooms.

Laminar air flow[64,65]

This is HEPA-filtered air blown in a unidirectional pattern with 100–400 ACH. LAF systems are thought to minimize contamination of the surgical field with airborne microbes and thus to contribute to reducing SSIs. LAF systems should be available for prolonged procedures such as transplant and replacement surgery, neurosurgery, orthopaediac and implant surgery.

Airborne precaution room

Airborne precaution rooms can be naturally ventilated or mechanically ventilated. It is acknowledged that mechanical ventilation is expensive to instal and maintain

in precaution rooms, often does not deliver the recommended ventilation rate, and may fail to maintain negative pressure.

Recommended specifications and procedures for airborne precaution rooms are:

1. Room layout

- Post signage on the door.
- Ensure appropriate hand-washing facilities.
- Ensure appropriate room ventilation (>12 ACH).
- Ensure directional control of airflow, with air flow entering the room only when the door is open, and exhausted outside safely.
- In naturally ventilated airborne precaution rooms, the air flow should be directed to areas free of transit, or safely outside where it may be diluted.
- In mechanically ventilated airborne precaution rooms, to control the direction of air flow the pressure of the room should be maintained slightly less than the pressure of the entry area (i.e. “negative pressure”), so that air flows into the room when doors are open:
  - clean-to-dirty airflow;
  - a negative pressure differential of >2.5 Pa (0.01-inch water gauge);
  - an airflow differential >125-cfm (56 L/s) exhaust relative to supply;
  - sealing of the room, allowing approximately 0.5 square feet (0.046 sq. metre) leakage; and
  - an exhaust to the outside, or a HEPA-filter if room air is re-circulated.

2. Room setup

- Remove all non-essential furniture; the rest should be easy to clean, and should not conceal or retain dirt or moisture within or around it.
- Set up a trolley outside the door to hold PPE.
- Stock PPE supply and linen outside the precaution room/area (e.g. in the changing room).
- Stock the sink area with suitable supplies for hand washing, and with ABHR near the point-of-care and room door.
- Place appropriate waste bags in a bin. If possible, use a touch-free bin. Dirty bins should remain inside the precaution rooms.
- Place a puncture-proof container for sharps disposal inside the precaution room/area.
- Place an appropriate container with a lid outside the door for equipment that requires disinfection or sterilization.

3. Procedures

- Before being allowed into the airborne precaution areas, visitors should consult

the nurse in charge, who is also responsible for keeping a visitor record. A roster of all staff working in the airborne precaution areas should also be kept for possible outbreak investigation and contact tracing.
- Patient-care equipment that is required for use by other patients should be thoroughly cleaned and disinfected before use.
- Ensure scrupulous daily cleaning of the airborne precaution room/area.

Cleaning and sanitation

Need for cleaning and sanitation

Dry conditions favour the persistence of gram-positive cocci (e.g. coagulase-negative *Staphylococcus* spp.) in dust and on surfaces, whereas moist, soiled environments favour the growth and persistence of gram-negative bacilli. Fungal spores are present in dust and fungi can proliferate in moist, fibrous material.

Pathogenic organisms that survive in the environment can be a source of infection to patients admitted in the hospital. Therefore, it is important to clean the environment thoroughly on a regular basis. This will reduce the bacterial load, get rid of soil and make the environment unsuitable for growth of microorganisms.

Hospitals need to practice and maintain the highest standards of hygiene and an environment conducive for speedy patient recovery.

General principles of cleaning and sanitation[66]

Regardless of the agent used for cleaning, the following protocol must be followed:

- Staff should be properly trained on the practices of cleaning and decontamination of hospital surfaces.
- Appropriate PPE should be worn and a log of all cleaning procedures must be maintained.
- Housekeeping surfaces can be divided into two groups – those with minimal hand-contact (e.g. floors, and ceilings) and those with frequent hand-contact or “high touch surfaces” (e.g. doorknobs, bedrails, light switches, wall areas around the toilet in the patient’s room, and the edges of privacy curtains).
- All housekeeping surfaces (floors/table tops/counters) should be cleaned on a regular basis, when visibly soiled and when spills occur. Either hot water or a neutral detergent may be used or a detergent/disinfectant may be used.
- Housekeeping surfaces should be cleaned with a detergent/disinfectant solution on daily basis or more frequently in specific high-risk areas (ICUs, transplant units, isolation rooms, burns wards, OTs, emergency rooms, or

when there are suspected spills of blood/body fluids) and in areas that have patients with known transmissible infectious diseases.
- All horizontal surfaces and all toilet areas including washbasins and commodes should be cleaned daily.
- Administrative and office areas with no patient contact require normal domestic cleaning.
- Fresh detergent/disinfectant solutions must be prepared every day according to manufacturers' instructions. These solutions must be replaced with fresh solutions frequently.
- Diluted disinfectant solutions may become contaminated with resistant pathogens. Therefore, after the day's use, remaining solutions must be discarded and containers must be cleaned with detergent before being dried.
- High-touch surfaces must be cleaned and disinfected more frequently than minimal-touch surfaces.
- The methods of cleaning floors include wet mopping, and vacuum cleaning with filters attached. Avoid dry mopping with brooms, as this generates dust aerosols.
- Horizontal surfaces must be wet dusted with a cloth moistened with a hospital disinfectant (or detergent).
- Contamination of cleaning solutions and mops must be minimized. For wet mopping, a two-bucket method should be used. When a single bucket is used, the solutions should be changed more frequently. Used cleaning solutions must be discarded in the sluice. The buckets should be cleaned with detergent and kept inverted to assist drying.
- Mop heads must be changed after cleaning spills and at the beginning of the day.
- Mop heads and cleaning cloths must be decontaminated regularly by laundering (heat disinfection) with detergent and drying at 80 °C.
- Walls, blinds and window curtains must be cleaned when visibly soiled or contaminated.
- Disinfectant fogging is not recommended for routine patient care areas.
- Bacteriological testing of the environment is NOT RECOMMENDED as a routine unless seeking a potential source of an outbreak.

Blood and body substance spill management

Splashes of body fluids on walls and surfaces can be cleaned by using a high-level disinfectant.

- Use PPE (gloves, face masks and fluid-resistant gowns) for cleaning blood spills. Wear protective shoe covers/boots when cleaning large spills.

- For decontamination of small spills (<10 ml), if sodium hypochlorite solution is selected, use a 1:100 dilution (525–615 ppm of available chlorine) (Table 5.3). If spills involve larger amounts of blood, or involve a spill of microbiology cultures in the laboratory, a 1:10 dilution of hypochlorite solution for first application (before cleaning) reduces the risk of infection during cleaning. After the first application, remove the visible organic matter with absorbent material (e.g. disposable paper towels), discard into leak-proof, labelled bag/container and then dispose of as per waste management guidelines.

Cleaning agents and disinfectants for environmental use

A neutral detergent and warm water solution should be used for all routine and general cleaning. When a disinfectant is required for surface cleaning, e.g. after spillage or contamination with blood or body fluids, or in special areas such as the surgical unit, dialysis unit and ICU, the manufacturer's recommendations for use and occupational health and safety instructions should be followed. Table 5.4 lists the disinfectants used for the environment, their recommended use and precautions.

Table 5.3. Preparation of hypochlorite solution of 0.5%, 1% and 2%

Product	Chlorine available	0.5%	1%	2%
Sodium hypochlorite – liquid bleach	3.5%	1 part bleach to 6 parts water	1 part bleach to 2.5 parts water	1 part bleach to 0.7 parts water
Sodium hypochlorite – liquid	5%	1 part bleach to 9 parts water	1 part bleach to 4 parts water	1 part bleach to 1.5 parts water
NaDCC (sodium dichloro-isocyanurate) – powder	60%	8.5 grams to 1 litre water	17 grams to 1 litre water	34 grams to 1 litre water
NaDCC (1.5 g/tablet) – tablets	60%	6 tablets to 1 litre water	11 tablets to 1 litre water	23 tablets to 1 litre water
Chloramine – powder	25%	20 g to 1 litre water	40 g to 1 litre water	80 g to 1 litre water

Bleach solution becomes unstable rapidly, hence it needs to be freshly prepared daily or changed on becoming dirty/turbid. Chlorine bleach can be corrosive. Protect metal instruments by thoroughly rinsing them with water after soaking for 10 minutes.

Policy for cleaning, sanitation and disinfection

The healthcare facility should develop a policy for cleaning, sanitation and disinfection of environmental surfaces.

Table 5.4. Common cleaning agents and disinfectants for environmental cleaning

Disinfectants	Recommended use	Precautions
Sodium hypochlorite 1% in-use dilution; 5% solution to be diluted 1:5 in clean water	Disinfection of material contaminated with blood and body fluids	• Should be used in well-ventilated areas • Protective clothing required while handling and using undiluted • Do not mix with strong acids to avoid release of chlorine gas • Corrosive to metals
Bleaching powder 7g/L with 70% available chlorine	Toilets/bathrooms – may be used in place of liquid bleach if this is unavailable	Same as above
Alcohol (70%) isopropyl, ethyl alcohol, methylated spirit	Smooth metal surfaces, table tops and other surfaces on which bleach cannot be used	• Flammable, toxic – to be used in well-ventilated area, avoid inhalation • Keep away from heat source, electrical equipment, flames, hot surfaces • Allow it to dry completely, and avoid diathermy burns
Detergent with enzyme	Cleaning endoscopes, surgical instruments before disinfection is essential	

Source: Practical guidelines for infection control in healthcare facilities

The key elements are:

- The interiors and external areas and premises of the hospital should be kept clean and odour free.
- Solid waste and garbage should be removed and disposed of hygienically.
- A hospital cleaning manual should be developed to provide detailed guidelines for procedures and practices.
- There should be a cleaning schedule for daily, weekly and terminal cleaning. The cleaning process, be it for a single room, or ward, must be coordinated with the nurse in-charge.

An example of a cleaning and sanitation policy including methods and procedures for cleaning various areas in the hospital is provided in Annex 5.2.

Safety of cleaning and sanitation staff

- Housekeeping staff should be enrolled in the hospitals occupational health programme and provided immunization against Hepatitis B and tetanus.
- Appropriate and adequate PPE should be provided and staff trained in its use.
- Training should be provided in safe work practice, IPC policies and procedures relevant to their work and biomedical waste management.
- If commercial/outsourced housekeeping is used then contract housekeeping must comply with the infection prevention and control policies and guidelines.

Accidental exposure to blood or body substances

Inoculation injuries, such as needle-stick, other sharps injuries, bites, scratches and splash contamination of broken skin require immediate action:

- The area should be washed with soap and running water and bleeding should be encouraged. The wound should not be sucked.
- A waterproof dressing should be applied.

Splashes to intact skin: The affected area should be washed immediately with warm soapy water.

Splashes to the mouth: The mouth should be rinsed with large quantities of water.

Splashes to the eyes: Eyes should be irrigated immediately with water or, if available, with sterile saline.

Reporting

Inoculation injuries, splashes to mouth, eyes and mucous membranes should be

reported to the department manager and to the occupational health department or the emergency department for further advice, whichever is specified by the hospital policy.

For protection of the healthcare worker, see Chapter 8 and Annex 4.

Safe water and food

Provision of safe water

HCFs should have adequate and continuous supply of safe water. Safe water should be available for drinking, hand washing, food preparation, personal hygiene, medical activities, cleaning and laundry. The requirement of water for hospitals with a bed strength of less than 100 is 340 litres/bed/day, whereas for hospitals with bed strength over 100 beds, it is 400 litres/bed/day.

Water in healthcare facilities should be of drinking water quality and meet the national standards for drinking water. The institution is responsible for the quality of water once it enters the building. Drinking water should be safe for oral ingestion. Tap water may not be safe for drinking in our country and requires treatment to be safe for oral ingestion and to meet the standards for drinking water. Contaminated water from the water system can be a source of infection. Biofilms are slimy layers consisting of a community of microorganisms that form on surfaces immersed in water. Biofilms in storage tanks, tap water and showers have been linked to nosocomial outbreaks. Faecal contamination of water can also occur and unless adequate treatment is provided, contamination may be sufficient to cause infection through hand washing, food preparation, bathing, and during the general care of patients.

The criteria for drinking water are not adequate for medical uses of water.[67] Medical uses of water requires additional treatment. Some of the medical uses of water are: purified water for the preparation of injections which must be sterile, water required for haemodialysis which should be purified and free from contaminants and has its own standards. Bacterial and endotoxin limits for dialysis fluids are given in Chapter 6.

Reducing water-borne transmission

Waste water from healthcare facilities may lead to the contamination of the municipal water system, surface water or ground water of the community and therefore should be adequately treated.[68]

Waste water from a hospital needs to be treated by an effluent treatment plant as

directed by the Biomedical Waste Management and Handling Rules 2016, 2018 (see Chapter 5 and Annex 8.4).

Water supply system

- It should be designed and maintained with proper temperature and adequate pressure.
- Stagnation and back flow should be minimized and dead-end pipes should be avoided.
- Growth of *Pseudomonas* spp. and other bacteria can be prevented if the water system maintains water at the right temperatures, i.e. cold water at a temperature below 20 °C, stored hot water above 60 °C, and circulated hot water with a minimum return temperature of 51°C.
- Clean water pipes should not run alongside waste water pipes as this may lead to waste water being sucked into the clean water pipes through leaking cracks and joints.
- When the water system cannot supply water of the recommended standards for drinking, measures such as boiling, chlorine treatment, and filtration or reverse osmosis are recommended at the point of use.

Point-of-use fixtures

- Water fixtures such as sinks, faucets, aerators, showers, and toilets have been identified as potential reservoirs for pathogenic microorganisms.
- Regular cleaning, disinfection and preventive maintenance protocols should be followed, especially in areas housing immuno-compromised patients.

Water storage tanks

Due to the lack of continuous running water, many hospitals have to use stored water. These storage tanks can be large overhead tanks or smaller tanks at the ward level. Overhead storage tanks should have the capacity to store 48 hours of water requirement.

Large overhead water tanks

Water storage tanks should be covered with appropriate sealed lids and need to be under lock and key. The tanks should be thoroughly cleaned at regular intervals.

Water storage tanks at ward level

- The cleaning of potable water storage tank at the ward level should be done daily and the tank must be provided with a tap or stop cock.
- The tank should be kept securely covered at all times.

- Water provided for drinking must be adequately filtered or treated by reverse osmosis. Boiled and cooled water should be provided to immune-compromised patients. Water should be boiled in a covered container to 100 °C for 20 minutes, cooled, covered and then used. Boiled water standing for over 8 hours should not be used for drinking.
- Disposable plastic water bottles should not be used. Traditional stainless steel jugs and cup/glass should be provided and daily cleaning should be ensured.
- Water filters/RO systems should be regularly maintained. Their efficacy should be checked regularly and records maintained. Random sampling of water for microbiological analysis should be done periodically.
- Patients and their relatives should be educated about the importance of safe drinking water.

Procedure and schedule for water tank cleaning

- The tanks must be emptied completely by using pumps, followed by thoroughly cleaning water tanks from inside including all walls, floor, beams and ceiling and any other parts.
- Water must be bailed out manually or by pumping, draining out and removing all the residual water and silt.
- Cleaning should be done manually first and then mechanically by using stiff wire brushes and then removing all fungus/algae. by using soda bicarbonate/bleaching powder of approved grade and quantity, followed by flushing thoroughly with water.
- All corners and joints must be heated with hot air to kill germs, and then rinsed thoroughly twice by clean water.
- The workers should wear clean gloves, masks and gum boots for safety.
- The work should be organized so as not to disturb the routine.
- Cleaning should be carried out over the weekend/holiday after office hours of the hospital and in consultation with the engineer in-charge.
- Refilling of tanks should be started only after due inspection is carried out by the engineer in-charge.
- All tools such as ladders, brushes, pump, hot air guns, buckets and drums required for this work should be as specified by the engineer in-charge.

Plumbing job guidelines

- The hospital water supply system must not be connected to any other piping system or fixtures that could allow contamination without the use of adequate air gaps or approved back flow preventers or vacuum breakers.
- When using implements to unstop faulty drains, rubber gloves should be worn.

- When cleaning out main sewer lines, or when exposed to gross contaminated wastes, protective gear such as rubber boots and rubber gloves, goggles and mask must be worn. Equipment and machines must be used as per regulations for cleaning sewer lines.
- After exposure to sewer lines or gross contaminated waste, the exposed areas of the body should be cleaned with soap and water. Change uniform if necessary. Do not return to patient care areas before cleaning up.

Microbiological testing of water[69]

Water used for drinking, handwashing, cleaning and disinfection should be tested as decided by the HICC. The suggested frequency is every three months and additionally if the source of water is changed, or after major repairs of the water supply system, or when a water-borne outbreak is suspected. Suggested sites of collection of water for testing are: hand wash/scrub sinks in OT, ICUs, OPD/emergency, ward that caters to maximum number of patients, RO/filtered water, drinking water sources. The samples should show absence of coliform organisms.

Disinfection of water sources

Water sources and tanks may be disinfected by adding chlorine in the form of bleaching powder, high strength calcium hypochlorite or liquid bleach. The quantity of the chemicals needed to disinfect water for drinking can be calculated, the dose being approximately 0.7 mg of applied chlorine per litre of water.

The testing of water sources for free chlorine is done to measure the potability of water. The presence of free chlorine should be at 0.2 ppm, which indicates that adequate amount of chlorine was added to inactivate the contaminating bacteria and viruses and that the water will be free from contamination during storage.

Provision of safe food and kitchen hygiene

The quality and quantity of food are key factors for patient convalescence. Ensuring safe food is an important service delivery in healthcare.[70]

The dietary department ensures that food prepared and served to patients, visitors and employees is received, stored, prepared and served in a manner that avoids contamination. The aim is to prevent food- and water-borne infections. The dietary department should have a manual in which all the procedures for preparation and handling of food are available.

The guidance document by the FSSAI (Food Safety and Standards Authority of India) on food management system must be followed.[71]

Risk factors in hospital kitchens

These are mainly due to contamination of food, stale food, storing food at room temperature or inadequate refrigeration, unhygienic preparation of enteral or baby feeds, with food-handlers being carriers. Food contamination can be prevented by:

- reliable and good quality supplies;
- adequate storage facilities;
- hygienic precautions;
- personal hygiene, hand hygiene;
- use of uniform including hair covering and gloves;
- screening of food handlers for infectious diseases (enteric, respiratory or skin infections).

Kitchen procedures

Pre-preparation

The pre-preparation area must be well segregated into dry and wet zones. All contact surfaces must be pre-sanitized. Vegetarian cutting boards must be sanitized with 50 ppm chlorine and non-vegetarian cutting boards with 100 ppm chlorine, with a minimum contact of 2–3 hours.

Storage facilities

- There must be adequate storage facilities for all items including food ingredients, equipment, and non-food materials such as utensils, linen, single-service and single-use articles, packaging and chemical agents. During storage, food items must be protected from contamination such as water leakage, pest infestation or any other insanitary condition. Adequate off-the-floor shelves and racks must be used for storing food. Floors should not be used for storing food.
- The storage area must be cleanable and in a dry location to prevent deterioration. It should be protected from pests and should be away from locker rooms, toilets, sewer lines, stores of chemicals/pesticides.
- The storage facilities should be designed and constructed to avoid cross-contamination.
- Cold storage at 4 °C–8 °C and freezer at –18 °C should be provided for foods that need refrigeration and for frozen foods, with a separate refrigerator and freezer for vegetarian and non-vegetarian products.
- Separate storage sections should be provided for raw, processed, packaging, rejected, returned or recalled food items. Allergen material or foods like groundnuts must be distinguishably marked.
- Cleaning agents should have prominent labels and stored separately.

Food temperature

Cold food items are refrigerated and maintained at 4 °C–8 °C or below.

Walk-in storage facilities are maintained at the following temperatures and the temperatures are checked daily and a log is maintained of the temperatures.

Foods prepared to be served cold are cooled from their preparation temperature to 4 °C or below. The cooling period should not exceed 4 hours. Hot foods are held at an internal temperature of 63 °C or above. Both hot and cold food items should be transported in food trolleys in such a manner that appropriate temperatures are maintained during the transportation of the food.

Food type	Temperature
Frozen food	–18 °C
Cooked food	Above 60 °C
Cold food	Below 5 °C
Dry stores	At room temperature

Special formula food

Infant formulas and other formulas prepared by the dietary department and ward pantry are subject to specific preparation and storage policies and procedures that may be found in the dietary department manual. These are microbiologically checked only when epidemics occur.

Food for immune-compromised patients

The food for this set of patients should be double cooked. Food should be cooked again in a pressure cooker just before serving.

Food distribution

- Food trays are placed in food trolleys which are brought to the ward from the kitchen. The trays are dispensed in the ward. Food should be handled in a hygienic manner throughout this process. Trays should be kept covered when food is served in the ward.
- Dietary workers should be taught to observe standard precautions to protect themselves and patients.

Cleaning of utensils

- The returned trays should be heat treated to render the items sanitized (wash temperature 65 °C–70 °C, rinse temperature 85 °C–95 °C).

- If a utensil is cleaned in a pantry at the ward level, hot water connection should be provided for effective cleaning and disinfection.

Kitchen staff hygiene

Dietary personnel should be taught to protect food consumers from their body substances. Barriers (see uniform below) should be provided to dietary personnel, and hygienic practices should be taught and supervised as per the guidance in the catering section of the guideline of FSSAI.

Uniform

Uniform must be changed daily and provision must be made to supply clean uniform daily.

- Aprons
- Hair covering and caps
- Gloves
- Footwear: dedicated footwear is to be used in kitchens.

Screening for infectious diseases (enteric, respiratory or skin infection)

All food handlers must undergo medical examination by a registered medical practitioner and must be free from infectious and transmissible diseases.

Employees should report the following conditions to the supervisor for possible exclusion from food handling areas—jaundice, vomiting, diarrhoea, fever, sore throat with fever, visibly infected lesions, boils, cuts, sores and discharge from ears/eyes/nose, etc. (Personnel with open cuts, wounds or burns shall be required to cover them with suitably waterproof dressings before starting operation.)

Food handlers must maintain a high degree of personal hygiene.

Hair, nails, and moustache/beard must be properly trimmed and hair must be tied and gloves worn at all times.

Hand hygiene

Hands should be washed after handling non-food chemicals and incompatible food products (such as raw versus cooked food) or contaminated material.

Hand washing should be mandatory and repeated after using the toilet, eating or drinking, arranging or combing the hair, touching the face, nose or eyes, contact with unclean equipment and work surfaces and after handling raw food. Placement of liquid soap and single use towel in the toilets is mandatory.

Personnel should wash exposed portions of their arms and hands with soap and water before starting work.

Personal habits

Staff should keep short nails and not wear religious bands, wrist bands, rings, bracelets and nail polish on duty.

- Keep clothing free from obvious dirt and food spills.
- Use hair nets (hair restraints) while on duty.
- Use serving tools/utensils to handle food whenever possible.
- Do not consume food or drinks in the food preparation or serving areas.
- Do not use tobacco product in any form while engaged in the preparation or serving of food.

Environmental hygiene and sanitation

- Kitchen design should be appropriate. This includes areas for receiving raw material, storage of material, facility for storing perishable items, i.e. cold storage, facility for "first in first out" particularly for raw food such as onion and potato. Adequate supply of clean (potable) water should be ensured.
- Raw material cutting surfaces should be segregated because raw material such as spinach and vegetables with roots bring in soil and dirt.
- Food should be served as soon as possible after preparation.

Water

Uninterrupted potable water and hot water supply in kitchen should be available.

Cleaning schedule

- All surfaces should be cleaned with detergent and hot water followed by drying which is mandatory.
- Chopping boards should be cleaned and disinfected after cutting.
- Kitchen should be kept dry. Separate area should be provided for washing. Utensils and vessels should be washed in a sink.
- Cleaning activities should be recorded.
- Cleaning of areas where special meals are prepared should be done using separate and dedicated cleaning equipment.

Maintenance of refrigerators and cold storage

Regular temperature check and cleaning of refrigerators should be done according to a schedule, which should be recorded.

Disposal of waste from the kitchen

Food returned to the kitchen should be discarded. These and other dietary wastes should be kept in bins lined by black plastic bags outside the dietary department, which are removed regularly.

Raw kitchen material after cutting vegetables, fruits, etc. can be composted if place is available.

Waste stores and dustbins must be kept appropriately clean, free of pests and in closed conditions and should be disposed of as per local rules and regulations including those for plastic and other non-environment-friendly materials.

Environment Control

This includes maintenance of ventilation, lighting, plumbing, drainage system, floors, walls, ceilings, doors and windows, service lift cleaning schedule and maintenance.

Weekly thorough cleaning of kitchen should be carried out and recorded.

Ventilation

Natural/ mechanical ventilation systems including air filters and exhaust fans should be provided. They should prevent grease or condensation from collecting on the walls and ceiling, and must be easy to clean. Maintaining good ventilation system in the kitchen is necessary. Regular cleaning of all vents/ AC filters must be carried out in a systematic manner at least once a week; record to be maintained by the engineering department.

Hygienic transportation of food

- The conveyance must be clean, maintained and repaired so that there is no food contamination.
- Adequate temperature must be maintained for all types of foods and must be protected from pests, foreign matter and environmental pollution.
- The conveyance must be used only to carry food and for no other purpose.

Outbreaks

Bacterial food poisoning (acute gastroenteritis) is an infection or intoxication manifested by abdominal pain and diarrhoea, with or without vomiting or fever. The onset of symptoms may range from less than one hour to more than 48 hours after eating contaminated food. Usually, large numbers of organisms actively growing in food are required to initiate symptoms of infection or intoxication. Water, milk, and solid foods are all vehicles for transmission.

When a food-borne illness is suspected, the HICC is notified. The Microbiology department will obtain specimens from the symptomatic individuals and from suspected food. The HICC will be responsible for obtaining significant histories and conducting the investigation of a suspected food-borne illness.

Biomedical waste

The modern hospital is a complex multidisciplinary system which consumes several types of items for the delivery of patient care. All these products consumed in the hospital have some unusable leftovers which are called healthcare/clinical waste as they are generated as a result of some clinical activity. Biomedical waste is a broader term applied to waste generated in the diagnosis, treatment or immunization of humans and animals, in research or in the production and testing of biological products.[72] It also includes the waste coming out of medical treatment given at home or in health camps.

Infectious waste

Infectious waste includes all healthcare/clinical waste which has the potential to transmit viral, bacterial, fungal or parasitic disease. It includes both human and animal waste, waste generated in laboratories and veterinary practice. Hazardous waste is any waste with a potential to pose a threat to human health and life. Infectious waste is a part of hazardous waste.

Any waste contaminated with blood, body fluids, excretions and secretions is potentially infectious. One of the most hazardous waste is contaminated sharp waste which is a part of infectious waste and can also cause injury. The most common documented transmission of infection from waste to HCWs is through contaminated needles. Laboratory waste is a major potential reservoir of pathogenic microorganisms and requires appropriate handling.

Effect on human health and environment

Along with the effect on hospital personnel and patients within the hospital, the impact on human health and environment outside the hospital is also important. Infectious waste can transmit numerous diseases in the community and also to those who handle waste. Besides, the increasing use of disposables in healthcare is also posing an additional burden on the waste management facility. It is extremely important that the unscrupulous reuse of these disposable items is prevented.

Health hazards associated with poor healthcare waste management are:

- Injuries from sharps to all categories of hospital staff and waste handlers;
- HAIs in patients because of poor IPC and poor waste management;
- Risks of infections outside hospitals for waste handlers, scavengers, and eventually the general public, changes in microbial ecology, spread of antimicrobial resistance; and
- Risks associated with handling of hazardous chemicals and drugs at all levels.

National Rules for biomedical waste management

The Ministry of Environment, Forest and Climate Change published the Biomedical Waste Management Rules on 28 March 2016. These rules superseded the Biomedical Waste (Management and Handling) Rules, 1998. The 2016 Rules have been amended in 2018 and 2019.

- These Rules apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle biomedical waste in any form including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, Ayush hospitals, clinical establishments, research or educational institutions, health camps, medical or surgical camps, vaccination camps, blood donation camps, first-aid rooms of schools, forensic laboratories and research laboratories.
- Safe and proper identification, handling, storage, and disposal of biomedical waste from laboratories and related facilities is the responsibility of every occupier. "Occupier" means a person having administrative control over the institution and the premises generating biomedical waste, which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, HCF and clinical establishment, irrespective of their system of medicine and by whatever name they are called. Duties of the Occupier/HCF are given in Annex 8.1.

Box 5.1. Categories of waste*

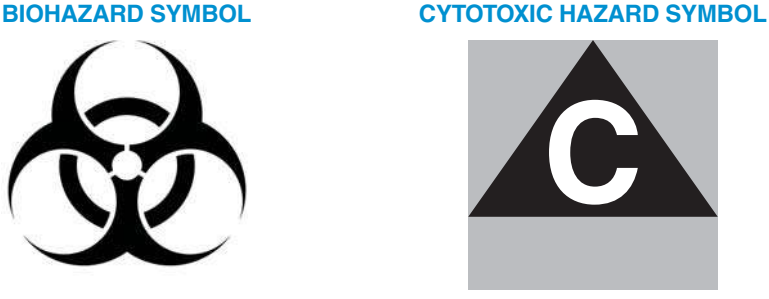
- **Yellow:** for human anatomical waste, animal anatomical waste, soiled waste, expired or discarded medicines, chemical waste, chemical liquid waste, discarded contaminated beddings and microbiology, biotechnology and other clinical waste;
- **Red:** for contaminated plastic waste;
- **White sharps bin:** for metallic sharps; and
- **Blue sharps bin:** for glass sharps.

*As per the categories mentioned in Schedule I (see Annex 8.2)

Management of biomedical waste

Waste segregation at point of generation

- HCF/laboratory waste requires management at every step from generation, segregation, collection, transportation, storage, and treatment to final disposal.
- Of the waste generated in healthcare settings, approximately 10% to 25% is hazardous but if not segregated properly, the entire waste becomes infectious thereby escalating the overall cost of waste management. The most practical approach to the management of biomedical waste is to identify and segregate infectious waste, which would in turn drastically reduce the cost of waste disposal in healthcare settings.
- Biomedical waste should be segregated into containers or bags at the point of generation in accordance with Annex 8.2. This includes placing different types of waste in different colour-coded-bags and containers at the site of generation.
- Proper segregation should identify waste according to type of waste and type of disposal/disinfection (Annex 8.2).
- Colour-coded bags as per national norms (Annex 8.2) need to be placed in appropriate containers with the appropriate label/ logo. For example, using a biohazard symbol for infectious waste (Fig. 5.3).
- Puncture-proof containers made of plastic or metal with a biohazard symbol, in blood collection areas, injection trolleys, nursing stations and OTs should be made available for collecting metallic wastes.
- Syringes should be either mutilated or needles should be cut and/or stored in tamper-proof, leak-proof and puncture-proof containers for sharps storage.
- Ensure segregation of liquid chemical waste at source and ensure pre-treatment or neutralization before mixing with other effluent generated from HCFs.



Note: Label shall be non-washable and prominently visible.

Fig. 5.3. Label for biomedical waste containers or bags

Collection bags

Solid waste is collected in leak-resistant heavy-duty bags. Coloured bags made of non-chlorinated plastic with biohazard sign and labels mentioning date and details of waste are to be used. The bags are tied tightly after they are three-fourths full.

Pre-treatment, packing, storage and transport

Laboratory waste, microbiological waste, blood samples and blood bags must be pre-treated through disinfection or sterilization on site in the manner as prescribed by the WHO guidelines on safe management of wastes from healthcare activities and then sent to a common biomedical waste treatment facility for final disposal. Standards for autoclaving are as given in Schedule II of the Biomedical Waste Management Rules 2016 (Annex 8.4). The bags or containers used for waste segregation shall be labelled as per Schedule IV of the Rules (Figs 5.3 and 5.4).

Provision must be made within the premises of an HCF for a safe, ventilated and secured location for storage of segregated biomedical waste in coloured bags or containers, inaccessible to scavengers and protected against insects, birds, animals and rain, to ensure that there is no secondary handling, pilferage of recyclables, or inadvertent scattering or spillage by animals. The biomedical waste from such places or premises should be directly transported to the authorized common biomedical waste treatment facility for the appropriate treatment and disposal.

Transport of biomedical waste to common biomedical waste treatment facility will be done only in vehicles having appropriate label as provided in Part A of Schedule

Waste category Number ..... Waste quantity……..... Sender's Name and Address Phone Number ..... Fax Number ..... Contact Person ..... In case of emergency please contact Name and Address: Phone Number:	Day .....Month ..... Year ..... Date of generation ..... Receiver's Name and Address Phone Number ..... Fax Number ..... Contact Person .....

Fig. 5.4. Label for transporting biomedical waste bags or containers (Part B Schedule IV of Biomedical Waste Management Rules, 2016)

IV of the Biomedical Waste Management Rules 2016 (Fig. 5.3), along with necessary information as specified in part B of the Schedule IV of the Biomedical Waste Management Rules 2016 (Fig. 5.4). Label shall be non-washable and prominently visible.

The vehicles used for transportation must comply with conditions, if any, stipulated by the State Pollution Control Board or Pollution Control Committee in addition to the requirement contained in the Motor Vehicles Act, 1988, if any, or the rules for transportation of such infectious waste.

Untreated human anatomical waste, animal waste, soiled waste and biotechnology waste shall not be stored beyond a period of 48 hours.

Treatment and disposal

- The HCF shall hand over segregated waste as per Schedule I (Annex 8.2) to the common biomedical waste treatment facility for treatment, processing and final disposal: provided that the laboratory and highly infectious biomedical waste generated shall be pre-treated by equipment such as autoclave or microwave.
- The HCF shall treat and dispose the biomedical waste in accordance with Schedule I (Annex 8.2), and in compliance with the standards provided in Schedule II of the Biomedical Waste Management Rules 2016 (Annex 8.4).
- On-site biomedical waste treatment and disposal facilities are not to be established unless a common biomedical waste treatment facility is not available within a distance of 75 km.
- The duties of the common biomedical waste treatment facilities are given in Annex 8.3.
- In cases where service of a common biomedical waste treatment facility is not available, the HCF shall set up requisite biomedical waste treatment equipment such as an incinerator, autoclave or microwave, shredder before commencement of its operation, as per the authorization given by the prescribed authority.
- Every operator of the common biomedical waste treatment facility shall set up requisite biomedical waste treatment equipment such as an incinerator, autoclave or microwave, shredder and effluent treatment plant as a part of treatment before commencement of its operation. The standards for treatment and disposal of biomedical wastes in Schedule III of Biomedical Waste Management Rules 2016 must be complied with.
- Every HCF shall phase out the use of chlorinated plastic bags within two years

from the date of publication of the Biomedical Waste Management Rules 2016. Bags used for storing and transporting biomedical waste shall be in compliance with the Bureau of Indian Standards. Till the Standards are published, the carry bags shall be as per the Plastic Waste Management Rules, 2016.
- The handling and disposal of all the mercury waste and lead waste is to be done in accordance with respective rules and regulations.

Biomedical waste handlers

- Immunize all HCWs and others, involved in handling of biomedical waste for protection against diseases including hepatitis B and tetanus which are likely to be transmitted by handling of biomedical waste, in a manner as prescribed in the National Immunization Policy or the guidelines of the Ministry of Health and Family Welfare issued from time to time.
- Ensure occupational safety of all HCWs and others involved in handling of biomedical waste by providing appropriate and adequate PPE.
- Conduct health check-up at the time of induction and at least once in a year for all HCWs and others involved in handling of biomedical waste and maintain the records for the same.

Annual report

- Every HCF has to submit an annual report to the prescribed authority in Form-IV (Annex 8.5), every year on or before the 30 June. The prescribed authority is the state pollution control board for states and pollution control committees for Union Territories. For establishments under the Ministry of Defence, the prescribing authority is Director General, Armed Forces Medical Services.

Maintenance of records

- Maintain and update on day-to-day basis the register for biomedical waste management and display on the website the monthly record of the biomedical waste generated in terms of category and colour coding.
- Records related to the generation, collection, reception, storage, transportation, treatment, disposal or any other form of handling of biomedical waste must be maintained for a period of 5 years.
- All records must be available for inspection and verification by the prescribed authority or the Ministry of Environment, Forest and Climate Change at any time.
- Maintain all records for operation of incineration, autoclaving, etc. for a period of 5 years.

Reporting of accidents

- Any major accident at any institution or facility or any other site while handling biomedical waste must be intimated immediately to the prescribed authority and a report forwarded within 24 hours in writing regarding the remedial steps taken in Form I of the Biomedical Waste Management Rules 2016.
- Information regarding all other accidents and remedial steps taken shall be provided in the annual report.

Training

- All workers involved in handling of biomedical waste must be provided training at the time of induction and at least once a year thereafter.
- Records of the training programmes conducted, number of personnel trained and number of personnel who have not undergone any training must be maintained.

6. Infection prevention and control in special units or situations

A. IPC in surgical units

Aseptic protocols

Personnel

Hand/forearm antisepsis for surgical team members is of crucial importance.

- Nails should be kept short and all jewellery, artificial nails or nail polish should be removed before surgical hand preparation.
- Hands should be washed and debris should be removed from underneath fingernails using a nail cleaner (not brushes), preferably under running water. Sinks should be designed to reduce the risk of splashes.
- Surgical hand antisepsis should be performed using either a suitable antimicrobial soap or ABHR, before donning sterile gloves.
- A preoperative surgical hand scrub should be done for at least 5 minutes using an appropriate antiseptic scrub. Hands and forearms should be cleaned up to the elbows.
- After performing the surgical hand scrub, hands should be kept up and away from the body (elbows in flexed position) so that water runs from the tips of the fingers toward the elbows and not vice versa.
- If running water is not available, clean stored water can be used. Water should be stored in a bucket with a tap at one side to dispense water. If such a bucket is not available, clean water can be poured on the hands with the help of a container with a long handle. Another person should pour the water.
- If the quality of water is not assured in the OT, surgical hand antisepsis using ABHR is recommended. A sufficient amount of ABHR should be applied to dry hands and forearms for the length of time recommended by the manufacturer, typically 1.5 minutes, and hands and forearms allowed to dry before donning sterile gloves. (Steps for performing the surgical hand scrub are given in Annex 9.1.)

Scrubs

Microorganisms are constantly shed from the hair and skin of persons and also from their clothes. Microorganisms are also expelled through respiratory secretions while breathing, talking, coughing and laughing.

“Scrubs” refers to the sanitary clothing worn by the OT staff, usually comprising a short-sleeve, v-neck shirt and loose-fitting, drawstring pants. The design of scrubs minimizes places where contaminants can hide, and they are easy to launder. They should be changed after a likely contamination and should always be cleaned in a healthcare laundering facility.

Surgical attire

The surgical attire includes gloves, gowns, caps, mask, eye protection, waterproof aprons and footwear. It protects the patient from risk of infection from the hair, skin, clothes and respiratory secretions of the surgical team. The surgical attire also protects the surgical team from risk of exposure to blood and tissues of the patient during operation. (Steps for wearing the surgical attire are given in Annex 9.1.)

The sterile field

It is important to maintain a sterile field to prevent contamination of surgical incision.

- A sterile field is the area prepared around the surgical procedure site and where the sterile instruments and other items needed during the operation are placed.
- It is created by placing sterile towels or sterile drapes on the prepared procedure site on the patient and includes a stand nearby.
- Only sterile objects and persons in surgical attire (scrubbed team) are allowed within this field.
- Areas above the chest and below the waist of the scrubbed team are considered non-sterile. Items outside and below the draped area are considered non-sterile.
- The field is considered non-sterile if a non-sterile object or non-scrubbed person comes within the sterile field.

Cleaning and disinfection

A clean operating environment is essential to prevent SSI. The OT is cleaned and disinfected to prevent microbial contamination. Exogenous sources of infection in the OT are: people, anaesthesia equipment, surfaces such as walls floors and

Box 6.1. Maintenance of the sterile field

- Place only sterile items within the sterile field.
- Open, transfer and dispense items without contaminating them.
- The outer cover of sterile items is considered unsterile and should not be placed within the sterile field.
- Scrubbed persons should not touch non-sterile objects.
- Non-sterile items or personnel should not enter the sterile field.
- Never touch a sterile item with bare hands.
- If a sterile barrier has been made wet, is cut or torn, it is considered non-sterile.
- If there is a doubt whether the sterile field has been breached, consider it non-sterile.

furniture, air and dust, instruments supplies and medications.

There should be no dust in the OT; dust settling on the sterile field can carry microorganisms particularly in operations of long duration. Dust may be acquired from the outside environment due to defective filtration of air. Lint-containing textiles can be a source of dust as also floor mops. Dust particles can be reduced by good laundry practices to reduce the formation of lint and by the use of wet vacuum on the floor.

General principles

- Surfaces must be routinely cleaned first with detergent to remove any foreign and organic matter. Disinfection should follow cleaning. Do not apply disinfectant without cleaning as organic matter such as pus, blood urine, amniotic fluid, etc. inhibits the action of the disinfectant by protecting microorganisms. A detergent disinfectant combination solution if available can be used for convenience.
- Spills must be cleaned immediately. Apply higher concentration of disinfectant to the spill, then clean with detergent.
- Disposable or freshly laundered washable cloths or mops should be used with freshly prepared solution for each task.
- OTs must be cleaned daily. This includes furniture, lights, equipment, windowsills, ledges, scrub rooms and sinks. Thorough cleaning of the entire OT should be done once a week.
- Wet vacuuming is the preferred method to clean the floors, wet mopping can be done if wet vacuum is not available.
- Collections of water should be dried immediately. Leaking faucets and sinks

should be fixed as wet areas encourage microbial growth and can be a source of infection.
(Cleaning procedures for OTs are given in Annex 9.2.)

Infrastructure of OTs

Location

To ensure a clean and uncontaminated environment, the OT should be located away from patient care areas and patient traffic. For this reason, the OT is located at a higher level, preferably on the top floor.

Components of the OT

The OT is a multifunctional area. In this area patients are received and prepared for surgery, the operation team prepares for surgery and the actual surgical procedures are carried out. In many hospitals in the developing world, which do not have a CSSD, the OT may also include equipment cleaning, processing and sterilization

Box 6.2. Zones

Concept of zoning

The features of the different zones in order of their cleanliness are:

- Zone 3 is the cleanest or ultra-clean zone. It is also called the aseptic zone and includes the OT and areas where the operation team and patient are prepared for surgery. The areas for packaging and sterilizing surgical instruments are also included in this zone. The different areas in this zone are physically separated from each other. Within this zone, the cleanest is the OT where the patient's tissues are exposed during surgery.
- Zone 2 is the restricted zone where entry is restricted. It is the transitional area between the outer zone and the aseptic zone. Persons entering this zone have to change to protective clothing and footwear to prevent contamination of the surroundings.
- Zone 1 is also called the outer zone and has similar level of cleanliness as other patient-care areas in the hospital. It is the zone where patients are received and administrative functions are carried out. Toilets are located in this zone.
- Zone 4 or disposal zone is a relatively dirty zone. Staff working in this area need to wear special protective wear for their protection. There should be no movement of staff or equipment from this zone to cleaner zones of the OT. This zone is connected by a separate corridor (also called "dirty corridor") leading out of the OT.

areas. In addition, there are areas for administrative functions, sluicing and waste disposal. The OT areas are distributed into zones depending upon the level of sterility and cleanliness required.

Surgical antimicrobial prophylaxis

- Surgical antimicrobial prophylaxis (SAP) should be administered before the surgical incision when indicated (depending on the type of operation). This should be based on the hospital antibiotic policy.
- The initial dose of prophylactic antimicrobial agent should be administered by the intravenous route, timed such that a bactericidal concentration of the drug is established in serum and tissues when the incision is made.
- Administration of SAP should be within 120 minutes of incision, while considering the half-life of the antibiotic.
- Clinicians should consider the half-life and protein binding as the most important pharmacokinetic parameters of any single SAP agent in order to ensure adequate serum and tissue concentration at the time of incision and during the entire surgical procedure.
- SAP should not be prolonged after the completion of the operation and is not recommended in the presence of a wound drain for the purpose of preventing SSI.

To reduce the stay in hospital, patients are discharged before incision has healed. The patient should be educated as to how to take care of the incision site, personal hygiene, about signs and symptoms of infection and whom to contact if infection occurs (see Chapter 7 for details of SSI).

B. IPC in ICUs

Intensive care units (ICUs) house patients that are particularly vulnerable and at five- to ten-times at higher risk of HAI. With defences compromised due to various invasive devices such as peripheral and central lines, urinary catheters and mechanical ventilators, they are particularly prone to device-related infections. Intrinsic factors such as immunosuppression and comorbidities compound their vulnerabilities. Patients in the ICU are also exposed to broad-spectrum antibiotics and are susceptible to multidrug-resistant organisms such as *Acinetobacter* spp. and *Pseudomonas* spp. It is estimated that:[73]

- In high-income countries, approximately 30% of patients in ICU are affected by at least one HAI.

- In LMICs the frequency of ICU-acquired infection is at least 2–3 fold higher than that in high-income countries; device-associated infection densities are up to 13 times higher than those in the USA.
- Similarly, newborns admitted in NICUs are at higher risk of acquiring HAI in developing countries, with infection rates 3 to 20 times higher than those in high-income countries.

Patients at risk of HAI

Patient, therapy and environment-related risk factors for the development of HAI are:[74]

- Age >70 years
- Shock, major trauma, acute renal failure, coma
- Prior antibiotics
- Mechanical ventilation
- Indwelling catheters
- Immunocomromised patients on steroids or chemotherapy
- Prolonged ICU stay (>3 days)

IPC practices

Standard precautions should be applied for all patients in the ICU. In addition, transmission-based precautions should be applied to standard precautions to prevent infections where route of transmission is known (see also Chapter 4).

Skin preparation and use of antiseptic agents

- Gross contamination at the site of incision should be removed before the antiseptic skin preparation.
- Antiseptic skin preparation should be applied in concentric circles moving away from the proposed incision site to the periphery; allowing sufficient prepared area to be included.

ICU footwear

- Special well-fitting footwear with impervious soles should be worn in the ICU. Shoes should be preferred over slippers.
- Footwear should be regularly cleaned to remove splashes of blood and body fluids.

- The ICU footwear must not be taken out of the ICU to other areas of the hospital.

Bundle approach to prevent device-associated infections

Since device-associated infections form a major burden of HAIs, a bundled care approach has proven to achieve high levels of compliance with better outcomes.

What is a care bundle?

A care bundle identifies a set of key interventions deriving from evidence-based guidelines that, when implemented, are expected to improve health outcomes of patients. The aim of care bundles is to improve health outcomes by facilitating and promoting changes in patient care and to encourage compliance to guidelines.[75–77]

Implementation of care bundles creates an important opportunity to deliver evidence-based and safe healthcare to patients using a multimodal or multidisciplinary approach. Training of staff is one of the most important components of a care bundle for prevention of HAI.

Care bundles for prevention of device-associated infections are:

- Ventilator-associated pneumonia (VAP) bundle
- Central line-associated bloodstream infection bundle
- Catheter-associated urinary tract infection bundle

Ventilator-associated pneumonia

Pneumonia is the second most common HAI reported in the world and is associated with substantial morbidity and mortality. Most patients with healthcare-associated pneumonia are those with extremes of age, severe underlying disease, immunosuppression, depressed sensorium and cardiopulmonary disease, and those who have had thoraco-abdominal surgery. Most bacterial healthcare-associated pneumonia occur by aspiration of bacteria colonizing the oropharynx or upper gastrointestinal tract of the patient. Intubation and mechanical ventilation greatly increase the risk of bacterial pneumonia because they alter first-line patient defences. Pneumonia due to infective causes occurring in a patient on mechanical ventilation is termed ventilator-associated pneumonia or VAP. (See Chapter 7 for the current definition of VAP for surveillance.)

Prevention of VAP

Preventive measures for VAP include decreasing aspiration by the patient, preventing cross-contamination or colonization via hands of personnel, the correct use and appropriate disinfection or sterilization of respiratory therapy devices and staff education.

Strategies to prevent VAP are:[78]

1. Maintenance of in-use respiratory therapy equipment

- Fluids, nebulized or used in a humidifier should be sterile and dispensed aseptically.
- Fluid reservoirs should be filled immediately before use. Fluid should not be added to replenish partially filled reservoirs. Residual fluid should be discarded and the reservoir filled with fresh fluid.
- Water that has condensed in tubing should be discarded and not allowed to drain back into the reservoir.
- Disposable supplies such as nasal prongs, tubing, masks, ventilator and breathing circuits are for single patient use only.
- When a respiratory therapy machine is used to treat multiple patients, the breathing circuit must be changed between patients.
- Maintain ventilator circuits
  - Change the ventilator circuit only if visibly soiled or malfunctioning.
  - Changing the ventilator circuit as needed rather than on a fixed schedule has no impact on VAP rates or patient outcomes but decreases costs.

2. Processing reusable equipment

- All equipment to be sterilized or disinfected should be thoroughly cleaned first to remove organic material such as blood, secretions or other residue/soil.
- Respiratory therapy equipment that touches mucous membranes or is a non-disposable part of a breathing circuit should receive high-level disinfection or be sterilized.
- Coolant chambers for ultrasonic nebulizers are difficult to disinfect adequately and should have at least 30 minutes contact with a high-level disinfectant or be gas-sterilized (ethylene oxide). This is not necessary if a disposable chamber is used.
- Hand-powered resuscitation bags that have been used for a patient should receive high-level disinfection or be sterilized (unless disposable).

3. Suctioning of the respiratory tract

- Frequent suctioning causes excessive trauma and risk of cross-contamination. Suctioning should be done only when needed to reduce excessive secretions.
- Suctioning should be performed using gloves on both hands and protective eyewear and mask.
- A sterile catheter should be used for each series of suctioning (defined as a single suctioning or repeated suctioning done with only brief periods intervening to clear or flush the catheter).
- Catheter should be flushed with sterile fluid in case flushing is required. Fluid that has been used for one series of suctioning should be discarded.
- Suction connecting tubing and suction canisters should be changed between patients, and daily for ongoing patients.
- Unless disposable, suction canisters should be thoroughly cleaned to remove organic material, then receive high-level disinfection or be sterilized.

Bundle of care for prevention of VAP[79]

- Elevation of the head of the bed between 30 and 45 degrees
- Peptic ulcer disease prophylaxis
- Deep venous thrombosis (DVT) prophylaxis unless contraindicated
- Daily mouth care with chlorhexidine

Catheter-related bloodstream infection and CLABSI

Intravascular catheters are an indispensable part of modern healthcare, but their use puts patients at risk of local and systemic infections: local site infection, bloodstream infection (BSI), septic thrombophlebitis, endocarditis, and other metastatic infections.[80]

Central line-associated bloodstream infection (CLABSI) may be caused by cutaneous microorganisms that contaminate the catheter during insertion or migrate along the catheter track or by microorganisms from the hands of HCWs during interventions. The most frequently implicated organisms are: *Coagulase-negative staphylococci*, particularly *Staph. epidermidis.* Other organisms are *Staph. aureus*, *Candida* spp., *Enterococci* and *Gram-negative* organisms. It is essential that the best evidence-based practices be followed for prevention of catheter related or associated bloodstream infections (BSIs).[81]

Routes of contamination of catheters

There are four recognized routes for contamination of catheters:

- Migration of skin organisms at the insertion site into the cutaneous catheter tract and along the surface of the catheter with colonization of the catheter tip (most common route of infection for short-term catheters)
- Direct contamination of the catheter or catheter hub by contact with hands or contaminated fluids or devices
- Through the bloodstream from another focus of infection
- Contaminated infusate

Types of vascular catheters

Table 6.1 gives details of various types of catheters used for venous and arterial access.

Selection of catheter type

Central venous catheters may be made from different materials, single or multi-lumen, medically impregnated, e.g. antimicrobial, antiseptic or heparin bonded, cuffed and designed to be tunnelled or having totally implantable ports.

- Polytetrafluoroethylene or polyurethane catheters have been associated with fewer infectious complications than catheters made of polyvinyl chloride or polyethylene but there is no evidence that demonstrates conclusively that CLABSI rates vary with different materials.
- Generally polyurethane is considered suitable for short-term use, and silicone for long-term use.

Prevention of catheter-related infections

Strategies to prevent CLABSI are:

Education, training and staffing

- Educate HCWs regarding the indications for intravascular catheter use, proper procedures for the insertion and maintenance of intravascular catheters, and appropriate infection control measures to prevent intravascular catheter-related infections.
- Periodically assess knowledge of and adherence to guidelines for all personnel involved in the insertion and maintenance of intravascular catheters.
- Designate only trained personnel who demonstrate competence for the insertion and maintenance of peripheral and central intravascular catheters.
- Ensure appropriate nursing staff levels in ICUs.

Selecting the best insertion site: peripheral catheters and midline catheters

- Use an upper extremity instead of a lower-extremity site for catheter insertion.

Table 6.1. Catheters used for venous and arterial access

Catheter type	Entry site	Length	Comments
Peripheral venous catheters	Usually inserted in veins of forearm or hand	<7.5 cm	Phlebitis with prolonged use; rarely associated with bloodstream infection (BSI)
Peripheral arterial catheters	Usually inserted in radial artery; can be placed in femoral, axillary, brachial, posterior tibial arteries	<7.5 cm	Low infection risk; rarely associated with BSI
Midline catheters	Inserted via the antecubital fossa into the proximal basilic or cephalic veins; does not enter central veins, peripheral catheters	7.5–20 cm	Anaphylactoid reactions have been reported with catheters made of elastomeric hydrogel; lower rates of phlebitis than short peripheral catheters
Non-tunnelled central venous catheters (CVCs)	Percutaneously inserted into central veins (subclavian, internal jugular or femoral)	≥8 cm depending on patient size	Account for majority of CLABSI
Pulmonary artery catheters	Inserted through an introducer in a central vein (subclavian, internal jugular or femoral)	≥30 cm depending on patient size	Usually heparin bonded; similar rates of BSI as CVCs; subclavian site preferred to reduce risk of infection
Peripherally inserted central venous catheters (PICC)	Inserted into basilic, cephalic, or brachial veins and enter the superior vena cava	≥20 cm depending on patient size	Lower rate of infection than non-tunnelled CVCs
Tunnelled CVCs	Implanted into subclavian, internal jugular or femoral veins	≥8 cm depending on patient size	Cuff inhibits migration of organisms into catheter tract; lower rate of infection than non-tunnelled CVC
Totally implantable	Tunnelled beneath skin and have subcutaneous port accessed with a needle; implanted in subclavian or internal jugular vein	≥8 cm depending on patient size	Lowest risk for CLABSI; improved patient self-image; no need for local catheter-site care; surgery required for catheter removal

Table 6.1. Catheters used for venous and arterial access (*continued*)

Catheter type	Entry site	Length	Comments
Umbilical catheters	Inserted into either umbilical vein or umbilical artery	≤6 cm depending on patient size	Risk for CRBSI similar with catheters placed in umbilical vein versus artery

Source: CDC Guidelines for the prevention of intravascular catheter-related infections

Replace a catheter inserted in a lower-extremity site to an upper-extremity site as soon as possible.

- In paediatric patients, the upper or lower extremities or the scalp (in neonates or young infants) can be used as the catheter insertion site.

Aseptic technique during catheter (CVC/umbilical) insertion

- Aseptic technique during CVC placement significantly reduces the risk of infection.
- Strict adherence to hand decontamination and aseptic technique shall be practised.
- Maximal sterile barrier precautions shall be used, regardless of whether the placement takes place in the OT or ward. This should include the use of a sterile gown, gloves, cap, mask and a sterile full body drape for insertion of CVCs or PICCs.
- Use sterile sleeve to protect pulmonary catheters during insertion.

Skin preparation

- Prepare clean skin with an antiseptic (70% alcohol, tincture of iodine, an iodophor or chlorhexidine gluconate) before insertion of a peripheral venous catheter.
- Prepare clean skin with a >0.5% chlorhexidine preparation with alcohol before insertion of a central venous catheter or peripheral arterial catheter and during dressing changes. If there is a contraindication to chlorhexidine, use tincture of iodine, an iodophor or 70% alcohol.
- Antiseptics should be allowed to dry according to the manufacturer's recommendation before placing the catheter.

Antibiotic prophylaxis

- Systemic antimicrobials should not be routinely administered before insertion or during use of a central venous catheter to prevent catheter colonization or CLABSI.

Care of pressure monitoring systems

- Keep all components of the pressure monitoring system (including calibration devices and flush solution) sterile.
- Minimize the number of manipulations of and entries into the pressure monitoring system. Use a closed-flush system (i.e. continuous flush), rather than an open system (i.e. one that requires a syringe and stopcock) to maintain the patency of the pressure monitoring catheters.
- When the pressure monitoring system is accessed through a diaphragm rather than a stopcock, wipe the diaphragm with an appropriate antiseptic before accessing the system.
- Do not administer dextrose-containing solutions or parenteral nutrition fluids through the pressure monitoring circuit.

Types of gloves

Table 6.2 gives the types of gloves that should be used for procedures and for catheter care.

Bundle of care for prevention of CLABSI

Insertion bundle

- Maximal sterile barrier precautions (surgical mask, sterile gloves, cap, sterile gown, and large sterile drape).
- Skin cleaning with alcohol-based chlorhexidine (rather than iodine).
- Avoidance of the femoral vein for central venous access in adult patients; use of subclavian rather than jugular veins.
- Dedicated staff for central line insertion and competency training/assessment.
- Standardized insertion packs.
- Availability of insertion guidelines (including indications for central line use) and use of checklists with trained observers.
- Use of ultrasound guidance for insertion of internal jugular lines.

Maintenance bundle

- Daily review of central line necessity
- Prompt removal of unnecessary lines
- Disinfection before manipulation of the line
- Daily chlorhexidine washes (in ICU, patients >2 months)
- Disinfect catheter hubs, ports, connectors, etc. before using the catheter
- Change dressings and disinfect site with alcohol-based chlorhexidine every 5–7 days (change earlier if soiled)

Table 6.2. Characteristics of gloves

Clean gloves	Peripheral intravascular catheter (if access site not touched after application of skin antisepsis)
Sterile gloves	Arterial catheter Central catheter Midline catheter
Sterile gloves	Guide-wire exchange
Clean or sterile gloves	Changing dressing on intravascular catheter

- Replace administration sets within 96 hours (immediately if used for blood products or lipids)
- Ensure appropriate nurse-to-patient ratio in ICU (1:2 or 1:1)

Catheter-associated urinary tract infection

Catheter-associated urinary tract infection (CAUTI) is usually defined as a UTI (significant bacteriuria plus symptoms and/or signs attributable to the urinary tract with no other identifiable source) in a patient with current urinary tract catheterization or who has been catheterized in the past 48 hours.

Guidelines from the Infectious Diseases Society of America (IDSA) define CAUTI "in patients with indwelling urethral, indwelling suprapubic, or intermittent catheterization . . . by the presence of symptoms or signs compatible with UTI with no other identified source of infection along with $\geq 10^3$ colony-forming units (cfu)/ml of ≥1 bacterial species in a single catheter urine specimen or in a midstream voided urine specimen from a patient whose urethral, suprapubic, or condom catheter has been removed within the previous 48 hours."[82] (See also Chapter 7 on surveillance.)

Risk factors for CAUTI

Table 6.3 gives the risk factors for symptomatic UTI and asymptomatic bacteriuria.[83]

Strategies for prevention of CAUTI

Catheter indications[84]

- Urinary catheters shall be inserted only when necessary and left in place for as long as necessary. They should not be used solely for the convenience of patient-care personnel.

Table 6.3. Risk factors for symptomatic UTI and asymptomatic bacteriuria

Symptomatic UTI	Bacteriuria
Prolonged catheterization Female gender Older age Impaired immunity	Disconnection of drainage system Lower professional training of inserter Placement of catheter outside of OT Incontinence Diabetes Meatal colonization Renal dysfunction Orthopaedic/ neurology services

- Avoid use of urinary catheters for the management of urinary incontinence.
- Use urinary catheters in operative patients only when necessary rather than routinely.
- For operative patients who have an indication for an indwelling catheter, remove the catheter as soon as possible postoperatively, preferably within 24 hours, unless there are appropriate indications for continued use.

Catheter Insertion

- Thoroughly wash hands or use ABHR before inserting the catheter.
- Catheters should be inserted using aseptic technique and sterile gloves and equipment.
- Sterile gloves, drapes, sponges, an appropriate antiseptic solution for periurethral cleansing, and a single-use packet of lubricant jelly should be used for insertion. The patient should be appropriately draped and sterile personal protective equipment shall be worn by the HCW inserting the catheter
- Indwelling catheters should be properly secured after insertion to prevent movement and urethral traction.

Urinary catheter maintenance

- Maintain a closed drainage system
- If breaks in aseptic technique, disconnection or leakage occur, the catheter and the collecting system should be replaced using aseptic technique.
- Keep the catheter and collecting tube free from kinking. The collecting bag should be kept below the level of bladder at all times. The collecting bag should be emptied regularly using a separate, clean, collecting container for each patient. Never place the drainage bag in a place that can contaminate it, e.g. the floor

- Indwelling catheters or drainage bags should not be changed at routine/fixed intervals.
- Unless clinical conditions exist (e.g. in patients with bacteriuria on catheter removal post-urological surgery), systemic antimicrobials should not be administered to prevent CAUTI.
- The periurethral area should not be cleaned with antiseptics to prevent CAUTI. Routine hygiene (e.g. cleansing of meatal surface during daily bathing or showering) is appropriate.
- Irrigation should be avoided unless obstruction is anticipated (e.g. as might occur with bleeding after prostatic or bladder surgery); closed continuous irrigation may be used to prevent obstruction.
- Intermittent irrigation should only be used to relieve obstruction due to clots, mucus or other causes. A large-volume sterile syringe and sterile irrigate should be used and then discarded. Aseptic technique shall be used. The catheter–tubing junction should be disinfected before disconnection.
- If the catheter becomes obstructed, it should be changed if it is likely that the catheter is contributing to the obstruction (e.g. formation of concretions).
- Small volumes of fresh urine for examination can be obtained from the sampling port. The port should be disinfected and urine aspirated with a sterile needle and syringe or other collection device (e.g. vacutainer).
- Larger volumes of urine for special analyses (not culture) should be obtained aseptically from the drainage bag.

Other issues[85]

- Change the drainage bag when inserting a new catheter. Also, change the drainage bag when it becomes stained, clouded by sediment or leaks.
- Encourage fluids within limits the patient can medically tolerate. Flush the urinary system from the inside out, the so-called "natural flush". Normal fluid intake should be around 2000 ml daily.
- Avoid clamping before catheter removal.

Bundle of care for prevention of CAUTI

CAUTI insertion bundle

- Verification of need prior to insertion
  - Urinary retention/obstruction
  - Severely ill/immobility
  - Lack bladder control
  - Patient request/end of life

- Perioperative – selected surgical procedure
- Assisting with pressure ulcer healing for incontinent patients

- Insert urinary catheter using aseptic technique
  - Hand hygiene
  - Catheter insertion kit with sterile gloves, drape, cleaning supplies
  - Sterile lubricant
  - Sterile urinary catheter attached to a drainage bag
- Maintain urinary catheter based on recommended guidelines
  - Secure catheter to prevent irritation of the urethra
  - Maintain an unobstructed flow
  - Maintain the drainage bag below the level of the bladder and off the floor
  - Perform hand hygiene before and after each patient contact
  - Provide individual labelled collection container at the bedside
  - Review urinary catheter necessity daily, remove catheter promptly when not needed

CAUTI maintenance bundle

- Daily documented assessment of need
- Catheter secured – device to secure catheter in place
- Hand hygiene performed for patient contact
- Daily meatal hygiene performed with soap and water
- Drainage bag emptied using a clean container
- Unobstructed flow maintained

C. IPC in maternal and neonatal units

Maternal and neonatal infections

Maternal “peripartum infection” includes:

- Intrapartum (intra-amniotic infection occurring before birth) and
- Postpartum (or puerperal) bacterial infections related to childbirth

The clinical presentations of maternal infections are:

Endometritis: Infection of the endometrium (lining of the uterus) and may extend to the myometrium (smooth muscle of the uterus). Presents as fever, pain in abdomen, uterine tenderness, foul smelling vaginal discharge and signs of peritonitis in women who have had caesarean section. Caesarean section is the most important factor contributing to postpartum endometritis

SSI: Infection of the surgical site after caesarean section. May be superficial, deep or organ-space. Postpartum SSI, wound infection and endometritis is a major cause of prolonged hospital stay and poses a burden to the healthcare system.

Septic pelvic thrombophlebitis: Thrombosis of the deep pelvic veins due to inflammation and blood clots. It can occur after prolonged labour, premature rupture of membranes and difficult labour.

Infected episiotomy: This is an infection in the surgical cut which is made in the perineum to facilitate delivery

Heathcare-associated UTIs: Usually occur after caesarean delivery

Intra-amniotic infection syndrome also referred to as amnionitis or chorioamnionitis. This is an acute infection of the uterus and its contents (foetus, placenta and amniotic fluid) during pregnancy. It occurs after prolonged rupture of membranes and due to organisms present in the cervix and vagina.

Prevention of newborn and maternal infections during deliveries

Prevention of maternal and neonatal infections during vaginal delivery

Vaginal deliveries do not require sterile conditions of the OT but cleanliness is of utmost importance. Particular attention should be given to having clean hands, clean perineal area and clean umbilicus.

Factors that increase risk of infection during vaginal delivery

- Prolonged rupture of membranes (>24 hours)
- Trauma to the birth canal: lacerations of the vagina or perineum or urethral tear
- Retained placenta, necessitating manual removal of placenta or placental fragments
- Episiotomy
- Mid-forceps delivery
- Multiple vaginal examinations (particularly by medical and nursing students)

Prevention of infection during vaginal examination

- Digital vaginal examination at intervals of four hours is recommended for routine assessment of active first stage of labour in low-risk women.

- Clean pair of gloves should be used for each examination. Sterile gloves are not necessary.
- The tip of the examining finger should not enter the cervical os unless the decision has been made to induce labour.
- Student training should be limited to cases that are in active labour.

Prevention of infection before delivery

- Use clean examination gloves, wash the perineal area (vulva, perineum and anal region) with soap and clean water.
- Use downward and backward motion while cleaning so that faecal organisms are not introduced into the vagina.
- The anal area should be cleaned last and the wash towel discarded in a yellow-coded container. Disinfect gloved hands by immersing in 0.5% chlorine solution, wash gloved hands and remove gloves by inverting and discard in the yellow-coded container.
- Perineal/pubic hair should not be shaved, hair clipper should be used if required. Routine shaving is not recommended by WHO. Shaving has been shown to increase the risk of infection after delivery.[86]

Prevention of infection during delivery

- Hand hygiene by ABHR or washing with antiseptic soap and water meticulously up to the elbows and adhering to the seven steps of hand hygiene
- PPE: High exposure to blood and body fluid as splashes of blood and blood tinged amniotic fluid is expected
  - Gloves
    - Sterile surgical gloves
    - To provide protection up to the elbow, normal length gloves can be augmented by sterile surgical sleeves that come up to the elbow (these sleeves can be made by cutting off the fingers of a pair of sterile gloves with a sterile scissors). The sterile sleeve can be worn on each forearm before wearing the sterile surgical glove. Clean examination gloves for washing the perineum.
  - Sterile water-resistant gown, rubber/plastic apron
  - Mask with eye shield
  - Boots
- Instruments used during delivery (scissors, cord clamp, needle holder, forceps, tissue forceps, urinary catheter, sutures, etc. should be sterile or high level disinfected)
- The HCW receiving the baby should clean their hands by performing hand

hygiene and wear clean examination gloves. Baby should be received in a clean towel.
- If resuscitation of the baby is required it should be done by mechanical suction. If mouth suction is done a trap should be placed in the line.
- If manual removal of placenta is required, a fresh pair of sterile gloves should be worn augmented by a sterile sleeve up to the elbow to avoid contaminating the forearm with blood.

Prevention of infection after delivery

- Before removing gloves, put the placenta in a clean basin and place all blood-stained waste in the appropriate yellow-colour coded container with lid.
- Place suture needles after use in puncture-proof sharps container.
- Before disposal of syringe and needle, flush out the syringe with 0.5% chlorine solution and then place in puncture-proof sharps container.
- Immerse both gloved hands in 0.5% chlorine solution, rinse with water, remove gloves by inverting. Wash hands with soap and water after removing gloves.

Prevention of infection during caesarean section

Caesarean section should be performed using all the precautions and procedures as for surgical procedure described in Chapter 6. The WHO surgical checklist to prevent surgical complications should be applied.

Similar to the implementation of surgical bundles to prevent SSI in non-obstetric patients, creating patient care bundles comprising evidence-based elements in patients who undergo caesarean section may decrease the incidence of SSI. Each hospital has the opportunity to create its own caesarian section surgical bundle to reduce SSI.

Procedures to prevent infection in patients undergoing caesarean section include:

- The abdomen should not be shaved prior to surgery. If required, hair clipper should be used instead.
- The surgeon and assistant should wear a face shield or mask and goggles, a plastic or rubber apron over the scrub-suit since splashing with blood and blood-tinged amniotic fluid is expected.
- If there has been prolonged rupture of membranes or the caesarean section is non-elective, then a single shot of first-generation cephalosporin or penicillin is given intravenously, preferably just before incision rather than after the chord is clamped. WHO recommendations regarding antibiotic prophylaxis are given in Table 6.4.

- The HCW receiving the infant should clean their hands by the hand hygiene procedureas detailed in Chapter 4 and wear clean examination gloves before handling the baby.
- The baby should be placed in a clean towel.
- Surgical gloves should be changed before manually removing the placenta, elbow length sterile surgical gloves should be worn or use a sterile sleeve with the normal sterile surgical glove as described above.
- If there is prolonged rupture of membranes or chorio-amnionitis is present:
  - Avoid spillage of amniotic fluid into the abdominal cavity.
  - Place sterile moistened pads in the paracolic gutters to absorb as much of the amniotic fluid as possible.
  - If there are large amounts of amniotic fluid spill into the abdominal cavity, lavage the cavity with sterile isotonic saline solution.
  - Avoid exploring uterine cavity unless absolutely necessary and only after closing the uterine incision.
- In elective caesarean section, if cervix is closed and membranes were not ruptured then dilate the cervix through vagina to allow the outflow of blood and fluid from within the uterus after delivering the baby and removing the placenta. Dilate the cervix with a gloved finger only once. When dilatation is completed, change the gloves and wear a new pair of sterile surgical gloves.[87]

Postpartum care of the mother

- Gloves should be worn when handling perineal pads, touching vaginal discharge or touching the episiotomy.
- Check whether the mother is voiding urine without difficulty.
- The mother should be taught to wash the perineal area with boiled water after changing the pad or passing stool.
- It the mother is breastfeeding, she should be taught how to care for her breasts and nipples to avoid mastitis.
- If delivery was by caesarean section, care should be taken to avoid pulmonary problems during the postoperative period.
- Patient should be encouraged to move about frequently in bed and encouraged to walk within 12 hours.
- If indwelling urinary catheter is inserted, precautions to prevent urinary infection should be followed. Remove the catheter as soon as possible.

Postnatal care of the neonate

- Gloves and plastic/rubber apron should be worn while handling the neonate

Table 6.4. Summary of WHO recommendations for prevention and treatment of maternal peripartum infections[88]

Context	Recommendation
Prevention of peripartum infections	1. Routine perineal/pubic shaving prior to giving vaginal birth is not recommended.
	2. Digital vaginal examination at intervals of four hours is recommended for routine assessment of active first stage of labour in low-risk women.
	3. Routine vaginal cleansing with chlorhexidine during labour for the purpose of preventing infectious morbidities is not recommended.
	4. Routine vaginal cleansing with chlorhexidine during labour in women with group B Streptococcus (GBS) colonization is not recommended for prevention of early neonatal GBS infection.
	5. Intrapartum antibiotic administration to women with GBS colonization is recommended for prevention of early neonatal GBS infection.
	6. Routine antibiotic prophylaxis during the second or third trimester for all women with the aim of reducing infectious morbidity is not recommended.
	7. Routine antibiotic administration is not recommended for women in preterm labour with intact amniotic membranes.
	8. Antibiotic administration is recommended for women with preterm pre-labour rupture of membranes.
	9. Routine antibiotic administration is not recommended for women with pre-labour rupture of membranes at (or near) term.
	10. Routine antibiotic administration is not recommended for women with meconium-stained amniotic fluid.
	11. Routine antibiotic prophylaxis is recommended for women undergoing manual removal of the placenta.
	12. Routine antibiotic prophylaxis is not recommended for women undergoing operative vaginal birth (caesarean section).
	13. Routine antibiotic prophylaxis is recommended for women with a third- or fourth-degree perineal tear.
	14. Routine antibiotic prophylaxis is not recommended for women with episiotomy.

Context	Recommendation
Prevention of peripartum infections	15. Routine antibiotic prophylaxis is not recommended for women with uncomplicated vaginal birth.
	16. Vaginal cleansing with povidone-iodine immediately before caesarean section is recommended.
	17. The choice of an antiseptic agent (povidone-iodine or chlorhexidine) and its method of application for skin preparation prior to caesarean section should be based primarily on the clinician's experience with that particular antiseptic agent and method of application, its cost and local availability.
	18. Routine antibiotic prophylaxis is recommended for women undergoing elective or emergency caesarean section. • For caesarean section, prophylactic antibiotics should be given prior to skin incision, rather than intra-operatively after umbilical cord clamping. • For antibiotic prophylaxis for caesarean section, a single dose of first-generation cephalosporin or penicillin should be used in preference to other classes of antibiotics.
Treatment of peripartum infection	19. A simple regimen such as ampicillin and once-daily gentamicin is recommended as first-line antibiotics for the treatment of chorioamnionitis.
	20. A combination of clindamycin and gentamicin is recommended as first-line antibiotics for the treatment of postpartum endometritis.

until, blood, meconium or amniotic fluid has been removed from the neonate's skin.

- The removal of blood and body fluids from neonate's skin should be done carefully using cotton swabs/soft cotton soaked in boiled warm water, followed by drying the skin to avoid infection.
- Hand hygiene (hand washing or ABHR) should be performed before handling the neonate.
- Bathing or washing the neonate should be done once the temperature of the neonate has stabilized (usually by 6 hours of birth). The perineal area and buttocks should be kept clean, by washing with soft cloth, cotton swabs soaked in warm water after every diaper change. Using fresh swabs and separate bowl for each wash occasion. Perform hand hygiene before and after diaper change.

- Cord care:
  - Perform hand hygiene before and after cord care
  - Keep cord stump clean and dry
  - Do not cover the cord stump with dressing or bandage
  - Educate the mother to examine the stump for redness or presence of pus/ blood and to report to the clinic as soon as possible if this happens

Prevention of infection during procedures in neonatal unit

Preparation of intravenous fluids

- Intravenous (IV) administration of fluids and drugs are a potent source of infection for the vulnerable neonate. Outbreaks of sepsis have often implicated IV fluids as either the source or vehicles of transmission between neonates. Strict attention to aseptic technique is essential in the preparation and administration of IV fluids.
- As far as possible procure base solutions such as IV glucose, saline solutions in paediatric packings/small amounts rather than use adult packaging and transfer into smaller aliquots. Avoid procurement of multi-dose vials as far as possible; single use ampoules/vials are preferred.
- Have a designated area to prepare IV infusions. Clean area with a disinfectant before a procedure.
- Gather the necessary materials (IV fluids, drugs, syringes, needles, swabs, 70% alcohol, etc.).
- Examine the IV fluid containers, ampoules and vials for expiry date, cracks, leaks, cloudy consistency, flakes, etc.
- Perform hand hygiene either by hand washing using medicated soap followed by drying with a single-use towel, or ABHR (it is important that hands are dry before starting the procedure).
- Disinfect the port of IV bottles/bags with 70% alcohol immediately before removing/adding fluids.
- Wear sterile gloves.
- Use sterile, needle/syringe for each IV fluid bottle and ampoule/ vial using the no-touch technique during mixing of IV fluids and medications.
- Never enter IV fluids and bottles with a needle, except through a designated port.
- Label the prepared bottle with patient's name, registration number, date and time of preparation.
- If need to be stored in fridge, do not refrigerate for more than 24 hours. Discard after 24 hours in fridge and after 8 hours at room temperature.

- The improper use of multi-dose vials can be a cause and source of infection in the neonate. (Recommendations for the use of multi-dose vials are given in Chapter 4.)
- Strict aseptic technique to be followed during administration of IV fluids, and closed system to be maintained at all times.

IV therapy and umbilical catheter care

Umbilical vessel catheters are frequently used in the initial management of the sick neonate. There is increased potential of bacterial colonization as this site is non-sterile and there is presence of devitalized cord tissue. Umbilical catheters should be replaced by percutaneous peripheral or central venous catheters in neonates requiring long-term access.

- Umbilical catheters should be inserted using sterile techniques.
- Umbilical catheters should only be replaced if catheter site is infected or catheter malfunctions.
- Do not replace umbilical catheter if there are signs of CRBSI or thrombosis. In addition, for the umbilical artery catheter, do not replace if there are signs of vascular insufficiency.
- Clean umbilical site before insertion with appropriate disinfectant avoiding tincture of iodine due to its potential effect on neonatal thyroid. Povidone-iodine can be used.
- Do not use topical antibiotic or creams due to potential for fungal infection and AMR.
- Low-dose heparin can be added to the fluid infused through umbilical arterial catheter.
- Umbilical arterial catheters should be removed as soon as possible and not be left in place for more than 5 days. Remove the catheter if there are signs of vascular insufficiency in the lower limbs.
- Umbilical venous catheters should be removed as soon as possible and left in place for not more than 14 days.

D. IPC in outpatient and emergency care

Outpatient department

Registration desk

The first point of contact for an ill patient seeking hospital care is the registration desk

of the outpatient department (OPD). Recognition of transmissible illness and moving the infectious patients to the appropriate examination room as quickly as possible is important. Frontline staff at the registration desk should be trained to recognize patients showing signs and symptoms of transmissible diseases. Visual alerts and posters indicating the signs and symptoms of transmissible diseases should be displayed at the entrance. A short (3–5 questions)and simple questionnaire can be given to patients at registration to facilitate rapid identification and isolation if required. This is particular important in epidemic/pandemic situations.

Pandemic preparedness

Time and again emerging and re-emerging diseases have caused epidemic and pandemic situations. The major international outbreaks in the last decade have been: Swine Flu in 2009, MERS in 2012, Ebola in 2014 and Zika in 2016 and Nipah in India (2018). In outbreaks of public health importance, the first point of contact in an HCF is the OPD or the emergency department. Staff at the frontline must be prepared to identify and transfer cases safely without disease transmission. Preparation for all diseases should include screening and isolating potentially infectious persons, PPE use, cleaning and disinfection and drill exercises.

- Individuals who meet criteria for highly communicable diseases requiring isolation such as novel influenza or other emerging infections must be placed in a private examination room as soon as possible.
- PPE kits should be available. Staff should be trained on the correct steps and techniques to wear and remove PPE. PPE assessment includes competency validation to ensure that participants are using PPE correctly.
- To maintain the level of competency and awareness, staff should participate in drills. PPE skill maintenance can be included in annual competency trainings.

IPC in emergency care

The emergency department is a busy place subject to rapid patient turnover and overcrowding; half of all admissions to the hospital are from the emergency. The emergency department, such as the OPD, is also the frontline in response to public health emergencies and disasters. Patients admitted through the emergency are sicker than those who report to the OPD.

Infection prevention is a major challenge in the emergency department due to the following:[89]

- High-volume of patients, many needing rapid intervention
- Patients present with undifferentiated illnesses of various types and the condition ranges from the otherwise healthy to the critically ill.

- Acutely ill and injured patients undergoing evaluation and treatment in the emergency department have the potential to spread communicable infectious diseases to HCWs and other patients.
- Risk recognition and decision-making are often based on limited and changing data
- Patients await diagnosis, intervention and decisions about further management or discharge in close proximity of one another

IPC in emergency care has two aspects:

- Preventing the transmission of infectious diseases from ill patients to HCWs and to other patients, and
- Reducing the risk of infection associated with receiving emergency care.

The basics of standard precautions including hand hygiene PPE, etc. should be strictly adhered to.

E. IPC in dialysis units

Infection is the most common cause of hospitalization and the second most common cause of mortality among haemodialysis (HD) patients, after cardiovascular disease. HD patients are exposed to different types of infection, which include BSI and localized infections of the vascular access, blood-borne infections (HBV, HCV and/ or HIV) and airborne infections such as tuberculosis.[90–92]

Outbreaks of HCV infections in HD facilities, which occur frequently, have often been due to poor infection control practices. Sources of infections could be contaminated water, equipment and environmental surfaces in the treatment area and patients with infections who pose a risk to other nearby patients.

IPC programme in the dialysis unit

Patients undergoing haemodialysis are at increased risk of HAIs. Therefore, the IPC programme is essential for HD units. It includes multiple interventions which are designed to reduce the risk of infection.

A doctor or a senior nurse working in the unit should be given responsibilities of IPC activities. The role of this link person includes

- Monitoring of IPC practices
- training of new staff and ongoing training of all staff

- Periodic surveillance to assess risk
- Implementation of preventive bundles

It is important that this link person communicates and networks with the facility IPC team and all members of the HD team including nurses, technicians, physicians, housekeeping staff, and the patient/family. It is important that all members of the HD team understand their role and are held accountable for compliance with IPC practices.

Measures to reduce risk of infection in HD patients

In the haemodialysis setting, contact transmission plays a major role in transmission of blood-borne pathogens. Transmission occurs via hands of HCWs, contaminated with infected blood directly or indirectly from contaminated surfaces and equipment.[93]

- Standard precautions are to be used routinely on all patients and include use of gloves, disposable plastic aprons or gown, mask (whenever needed), to prevent contact of HCWs with blood, secretions, excretions or contaminated items.
- Respiratory etiquette should be observed routinely.
- Patient identified with an airborne illness should be masked immediately and separated from other patients in a single room which is preferably under negative pressure.
- Details of standard and transmission-based precautions are given in Chapter 4. Patients and staff should be vaccinated as per the recommendations of the national immunization programme.
- The patient and nurse must wear a mask when a catheter (not fistula or graft) is connected or disconnected from the blood lines during dialysis.

Specific measures for IPC in dialysis units are given in Annex 5.3.

IPC for patients with blood-borne infections

Besides standard precautions, the following points should be kept in mind.

- HBsAg-positive patients should undergo dialysis in a separate room using separate machines, equipment, instruments and supplies.
- Dialysers are discarded in biomedical waste after treatment and cannot be reprocessed or reused.
- Staff caring for HBV patients should be HBV-immune, and cannot care for HBV-positive and -negative patients at the same time.

Care of patients with HCV and HIV requires strict adherence to environmental IPC practices including equipment disinfection.

Dialysis water

The patient is exposed to more than 100 litres of water during each session of dialysis. Therefore, water must be purified and filtered. Contaminants must be removed by deionization and reverse osmosis.

Perform bacterial culture and endotoxin assay on dialysate and reverse osmosis water at least monthly and during outbreaks using standard quantitative methods, as per available guidelines. Dialysate should be tested at the end of the treatment day.

Reprocessing and reuse of dialyser sets

- Reprocessing is performed outside of the dialysis treatment area in a dedicated room. It is the act of cleaning, testing and filling the dialyser with disinfectant solution.
- Reuse is performed in the treatment area. It refers to verification of disinfection, rinsing and testing to ensure the complete removal of all disinfectants, and "reusing" the reprocessed dialyser for the designated (same) patient. Reuse and reprocessing must follow all applicable standards.

F. IPC in immunocompromised patients

Emergence of new clinical syndromes and infections due to organisms with antimicrobial resistance have altered the pattern of opportunistic infections. The range of organisms that can cause infection is very broad and the infection can progress rapidly.

The recognition of infection in immunocompromised patients particularly transplant recipients is a challenge as the signs and symptoms of infection are suppressed and may even be absent. Moreover, fever may be caused by non-infectious conditions such as graft rejection, reaction to drugs which makes the diagnosis of infection difficult.

Transplant recipients are at increased risk of HAIs, which can occur due to inadequate engineering controls, improper systems or procedures, breaks in established procedures, lack of monitoring for known contaminants, or inadequately trained and educated staff. In addition to other HAIs, transplant patients may have intra-

abdominal infection among liver, small bowel, or other visceral transplant recipients.

Given the high risk of infection in transplant patients, meticulous adherence to IPC practices is an essential requirement for the transplant unit. The unit should have knowledgeable, well-trained staff that understands the implications of deviating from established infection control procedures.

G. IPC practices in HCFs during epidemics/ pandemics

Hospitals and other HCFs play a critical role in national and local responses to emergencies, such as communicable disease epidemics. Primarily, there is a sudden surge of sick persons seeking care resulting in serious challenge to HCFs in maintaining their services to the community and for the staff. Diagnosis and management of patients may also be challenging as the epidemic may be due to a new/emerging or re-emerging disease. The focus of this guidance is on IPC and preparedness during these epidemics.

Challenges during epidemics

- **Amplification of the epidemic.** If the HCF has not put in place adequate measures to prevent and control infection, it may amplify an epidemic by spreading the infection to patients, staff and visitors. On leaving the hospital these infected individuals may boost transmission in the community.
- **Overwhelming demand for healthcare resources.** Human and material resources, including hospital space and medicines, may not be adequate to meet the demand, particularly in the case of an epidemic lasting several weeks or months.
- **The health facility has to alter its priorities** and adapt its work routines to mount a coordinated, systemic response to a rapidly evolving, potentially complex situation.
- **Limited time to form links or strengthen partnerships.** Managing an epidemic or other emergency call for linkages between the hospital and local health authorities, service providers and other stakeholders in the health sector and the community. Thus, well in advance of the actual emergency, existing partnerships should be reviewed and, if necessary, new partnerships should be made.

Preparing HCFs for an epidemic[94]

- **Identify the hospital's role** in the overall national and local community response. Some hospitals may be designated by the health authorities to receive only suspected or only confirmed cases of an epidemic disease.
- **Implement IPC measures.** Appropriate measures should be taken to prevent the spread of infection to hospital staff, patients and visitors. The HICC and the hospital management should review and, if required, revise the hospital's IPC protocols. Additional prevention and control measures may be required to cope with the specific nature of an epidemic (see Annex 2).

An effective infection control programme and the ability of an HCF to implement appropriate IPC measures in normal, routine circumstances will strengthen the HCF's capacity to put them into practice during an epidemic situation.

- **Train hospital staff.** All staff members, irrespective of their individual routine duties, need training in implementing procedures and protocols described in the Hospital Emergency Response Plan. They must also participate in regular drills and exercises needed to maintain a state of readiness for fulfilling their role in the emergency.
- **Develop a hospital emergency response plan**
  - Set up of a Hospital Emergency Coordination Centre for holding meetings and managing the emergency response (including information and communication)
  - Develop an SOP for emergencies
  - Develop protocols for patient triage (including the designation of triage areas) and for patient traffic flow within and in the vicinity of the hospital
  - Define measures to ensure the safety of hospital staff
  - Maintain continuity of essential services and routine procedures
  - Develop capacity needed to cope with information and communication activities, human resource issues and logistics
- **Establish an epidemic response group and action plan**
  - Develop an Epidemic Action Plan adapted to the specific nature of the epidemic
  - Implement measures to ensure that the hospital has the capacity to meet a sudden increase ("surge") in the demand for specific services, equipment or supplies created by the emergency/epidemic
  - Define the roles and responsibilities of the key departments and individuals involved in the response

- Define the nature and magnitude of the epidemic and its likely impact on the health system
- Identify the number and competencies of staff present or available for recall, with emphasis on requirements for infection control and treatment of cases
- Organization of frontline services (e.g. emergency department) for triage of patients
- Identify patient referral pathways within the hospital: reception → triage → emergency → ward/ICU/isolation
- Mechanism of referral to other HCFs
- Mechanism of communication with and reporting to public health authorities

Annex 11 gives an outline of an Epidemic Action Plan for high-risk pathogenesis.

IPC practices

- Establish screening/surveillance for the early detection and investigation of cases.
- Job action sheets: For all staff members describing their roles and tasks for IPC in the epidemic situation.
- Training: Ensure that staff receive training in IPC to enhance their ability to fulfil their roles in implementing the hospital's emergency response.
- Define infection control precautions for triage, flow and placement of patients, early reporting and treatment, specimen collection and transport.
- Identify the requirement of minimum supplies and infrastructure to implement IPC measures.

Response

- Ensure that mechanisms are in place to receive and respond to operational directions from the epidemic response group.
- Assess IPC staffing needs for the emergency (at least, a doctor and a nurse) and work with administration to secure additional staff as required.
- Once an epidemic has started, establish active surveillance of cases (among both in-coming patients and patients already admitted). Check case definition on a daily basis from the public health authority.
- Monitor number of cases and clinical outcome on a daily basis.
- Ensure that the IPC policies are consistent with locally available resources.
- Reinforce standard IPC precautions and establish additional precautions if required by the specific nature of the epidemic.
- Establish patient flow based on transmission risks and patient clinical status. Defer or limit procedures that could facilitate spread of the infection.

- Identify mechanisms of patient referral, sample transport – ambulance, sample packaging, reference laboratories.
- Ensure adequate protection of the hospital staff against infection and monitor staff health status continuously. Undertake staff vaccination and prophylaxis, training in IPC.
- Monitor IPC practices and modify policies as necessary.
- Ensure communication of messages aimed at reinforcing IPC efforts among hospital staff, patients and visitors, and the community.
- Report and communicate with local public health authorities.

For IPC guidance on specific pandemic diseases refer to WHO documents (influenza, Ebola).[95,96]

Recovery tasks

- Assess the HCF's performance in implementing IPC plans during the emergency and update these plans on the basis of lessons learnt.
- Implement measures to address the welfare needs of IPC staff such as leave and psychosocial support.
- Replenish stocks of PPE and pharmaceutical products to enable the hospital to maintain or restore routine IPC services.

Communication

Information issued by the hospital regarding risk reduction should be consistent with the information provided by health authorities. Develop a risk communication policy for:

- **Communication within the hospital.** Information about the epidemic and the risks should be communicated to all staff as soon as an alert of an impending emergency has been declared.
- **Communication with media and general public.** Information for the media and the general public should be communicated through a single source.
- **Coordination of communication activities.** Communications activities undertaken in response to an emergency should be coordinated through the hospital's epidemic response group and senior hospital staff.

H. IPC in clinical laboratory

The clinical laboratory is a workplace where many potential pathogens are encountered on a daily basis. However, the laboratory can be a safe place to work if

possible risks are identified and safety and infection control protocols are followed. Laboratory workers can minimize the risks associated with work involving these infectious agents through the application of appropriate biosafety and containment principles and practices.

While safe practices in the laboratory are primarily intended to prevent morbidity due to infections in laboratory workers, laboratory-associated infections may impact public health, leading to secondary cases in the community. For example, household-transmission of pathogens (e.g. influenza A) is well documented. Therefore prevention of laboratory-associated infections has an individual as well public health impact.

General laboratory safety practices

Good personal habits, housekeeping practices and laboratory techniques can all help ensure that the laboratory is a safe place to work.

Laboratory design and facilities

In designing a laboratory, special attention should be paid to conditions that are known to pose safety problems. Overcrowding and too much equipment must be avoided. Infestation with rodents and arthropods must be prevented.

Design features for biosafety

- There should be a designated area for collecting blood and other clinical samples, physically separated from the patient waiting room and specimen processing area.
- Hand-washing basins, with running water if possible, should be provided in each laboratory room, preferably near the exit door.
- Ample space must be provided for the safe conduct of laboratory work and for cleaning and maintenance.
- Walls, ceilings and floors should be coved and slip-resistant, which allow easy cleaning, impermeable to liquids and resistant to the chemicals and disinfectants normally used in the laboratory.
- Floors should be slip-resistant.
    - Bench tops should be impervious to water and resistant to disinfectants, acids, alkalis, organic solvents and moderate heat.
- Illumination should be adequate for all activities. Undesirable reflections and glare should be avoided.

- Laboratory furniture should be sturdy open spaces between and under benches, cabinets and equipment should be accessible for cleaning.
- Storage space must be adequate to hold supplies for immediate use and thus prevent clutter on bench tops and in aisles. Additional long-term storage space, conveniently located outside the laboratory working areas, should also be provided.
- Space and facilities should be provided for safe handling and storage of solvents, radioactive materials, and compressed and liquefied gases.
- Facilities for storing outer garments and personal items should be provided outside the laboratory working area.
- Facilities for eating and drinking and for rest should be provided outside the laboratory working area.
- Doors should have vision panels, appropriate fire ratings, and preferably be self-closing.
- At biosafety level 2, an autoclave or other means of decontamination should be available in appropriate proximity to the laboratory.
- Safety systems should cover fire, electrical emergencies, and emergency shower and eyewash facilities.
- First-aid areas or rooms suitably equipped and readily accessible should be available.

Laboratory dress code

- Laboratory coats should be fully buttoned, and must be worn by all laboratory staff at all times in the laboratory. These coats should be left in the laboratory when going out for lunch or breaks and when leaving the laboratory.
- Laboratory coats should be decontaminated and laundered regularly (never taken home for laundering).
- Comfortable, water repellent closed shoes with non-skid soles should be worn and must enclose the entire foot.
- Long, dangling jewellery is not permitted in the laboratory.
- Long hair and beards must be tied back to avoid contamination and interference with laboratory work.
- A spare, clean laboratory coat must be available in case of a spill or an emergency.

Good personal habits

- Wear proper attire and protective clothing as described above.
- Wash hands after entering and before leaving the laboratory.

- Never eat, smoke, drink, chew gum, apply cosmetics, or adjust contact lenses while in the laboratory.
- Mouth pipetting is prohibited, instead use pipetting bulbs.
- Keep hands away from the mouth, nose, and eyes to prevent self-inoculation with infectious agents.
- Do not put objects in mouth (such as pens, pencils or pipettes).
- Wear gloves when working with biological specimens. Change gloves when contaminated.
- In preparing specimens, prevent aerosols and the resultant possible spread of infectious agents by
  - capping all tubes to be centrifuged prior to centrifugation;
  - never open the lids of centrifuges until the centrifuge has come to a complete stop; and
  - only open specimen tubes by gently twisting the stoppers and lifting them (sometimes holding a lint-free tissue over the stopper may prevent aerosolization).
- Keep test request forms, registers and other paper work separate from specimen containers since the outer surface of specimen containers may be contaminated.
- Wipe outer surface of containers with suitable disinfectant before handling.
- Keep smear preparation area separate from other laboratory activities.
- Open containers carefully to minimize production of aerosols.
- Keep the container open only long enough to remove a portion for direct smear preparation if not processing for culture.

Risk assessment

Risk assessment of all activities being performed in the laboratory is mandatory to be able to manage and reduce the risks to those working in the laboratory. Risk must be assessed taking into account the adequacy of any existing controls and whether or not the risk is acceptable. Risk assessment involves systematically reviewing the work to see:

- which biological agents may be present;
- identifying the hazardous characteristics of known infectious or potentially infectious agent or material (see the classification of infective microorganism by risk groups);
- activities in the laboratory that can result in a person's exposure to an agent (Table 6.5); and
- likelihood that such an exposure will cause a laboratory-associated infection and probable consequences of such an infection.

Risk assessment guides the selection of appropriate biosafety levels and required microbiological practices and safety equipment (primary barriers) and facility level safeguards (secondary barriers) that can prevent laboratory-associated infections. Table 6.6 gives detailed information on biosafety levels.

The risk assessment process should be integrated within the overall management of laboratory services. Risk assessment can be simplified into the following steps.

Approach to risk assessment

- Identify hazards and who might be harmed (agent risk group, procedure, facility, staff, animals).
- Evaluate the risk (agent and procedure), consider the existing controls and assess the extent of the risks which remain.
- Mitigate the risk.
- Conduct a trial run using nonvirulent strains or simulants.
- Reassess the risk (any incidents/deviations).
- Remove gloves before handling phones, instruments or computers.
- Wear goggles and masks or face shields when splashing or spattering of specimens is expected.
- Never store food or drinks in refrigerators or freezers containing microorganisms or clinical specimens.
- Hand hygiene must be strictly followed especially after removing gloves and other protective wear, before leaving the laboratory, before eating or drinking, after using the lavatory, and when hands are visibly contaminated.

Good housekeeping practices

- Work areas should be kept free of clutter, dirty glassware and contaminated articles such as paper towels or lint-free tissues.
- Decontaminate equipment and work benches upon entering the laboratory and before leaving the work area with a freshly made 1:10 dilution of household bleach.
- Clean up spills immediately and properly as per laboratory policy.
- Do not submit worksheets that have become contaminated; transfer results and data to new worksheets before submission.

Good laboratory practices (GLP)

- Use appropriate PPE.
- Do not operate new or unfamiliar equipment until proper training and authorization have been given.

Table 6.5. Possible routes of exposure to infectious agents in the clinical laboratory

Route	Situation
Ingestion	Mouth pipetting Splashed infectious material Contaminated clothing, devices, fingers or gloves Contaminated pens or pencils inserted into the mouth Consumed food/drink
Inoculation	Needle-stick accident Cuts from sharp objects
Skin and mucous membrane contamination	Splashes into eyes, mouth, nose membrane Spills or splashes on intact or non-intact skin
Inhaled infectious aerosol	Streaking media Flaming or cooling inoculating loop Mixing microbial suspensions by pipette Expelling air from a syringe Withdrawing needle from rubber stopper Separating needle from syringe Centrifuging specimens Mixing instruments such as blenders or shakers Pouring or decanting fluids Opening culture containers or blood tubes Spilling infectious material

Source: Laboratory safety manual, Medical Laboratory Science Program, University of Utah

- The international biohazard warning symbol and sign must be displayed on the doors of the rooms where microorganisms of risk Group 2 or higher risk groups are handled.
- All persons entering the laboratory must have approval of laboratory in-charge.
- Minimize use of sharps. Sharps should be discarded in biohazard sharps containers that are tamper-proof, puncture-proof and leak-proof, labelled and colour-coded appropriately.
- Stocks and other cultures must be stored in a leak-proof container when work is complete. A sealed, leak-proof container, labelled with a biohazard symbol (Fig. 6.1), must be used to transport stocks and cultures from one room to another.
- Cultures should be disinfected/ inactivated prior to disposal, either by chemical disinfection or autoclaving.
- Broken glass must be handled using a forceps/tongs, not to be picked

Table 6.6. Summary of recommended biosafety levels for infectious agents

BSL	Agents	Practices	Primary barriers	Facilities (secondary barriers)
1	Not known to consistently cause diseases in healthy adults	Standard microbiological practices	• No primary barriers required. • PPE: laboratory coats and gloves; eye, face protection, as needed	Laboratory bench and sink required
2	• Agents associated with human disease • Routes of transmission include percutaneous injury, ingestion, mucous membrane exposure	BSL-1 practice plus: • Limited access • Biohazard warning signs • "Sharps" precautions • Biosafety manual defining any needed waste decontamination or medical surveillance policies	Primary barriers: • Biosafety cabinets or other physical containment devices used for all manipulations of agents that cause splashes or aerosols of infectious materials • PPE: Laboratory coats, gloves, face and eye protection, as needed	BSL-1 plus: Autoclave available

Table 6.6. Summary of recommended biosafety levels for infectious agents (*continued*)

BSL	Agents	Practices	Primary barriers	Facilities (secondary barriers)
3	Indigenous or exotic agents that may cause serious or potentially lethal disease through the inhalation route of exposure	BSL-2 practice plus: • Controlled access • Decontamination of all waste • Decontamination of laboratory clothing before laundering	Primary barriers: • Biosafety cabinets or other physical containment devices used for all open manipulations of agents • PPE: Protective laboratory clothing, gloves, face, eye and respiratory protection, as needed	BSL-2 plus: • Physical separation from access corridors • Self-closing, double-door access • Exhausted air not recirculated • Negative airflow into laboratory • Entry through airlock or anteroom • Hand washing sink near laboratory exit
4	• Dangerous/exotic agents which pose high individual risk of aerosol-transmitted laboratory infections that are frequently fatal, for which there are no vaccines or treatments	BSL-3 practices plus: • Clothing change before entering • Shower on exit • All material decontaminated on exit from facility	Primary barriers: • All procedures conducted in Class III biosafety cabinets or Class I or II biosafety cabinets in combination with full-body, air-supplied, positive pressure suit	BSL-3 plus: • Separate building or isolated zone • Dedicated supply and exhaust, vacuum and decontamination systems • Other requirements outlined in the text

Table 6.6. Summary of recommended biosafety levels for infectious agents (*continued*)

BSL	Agents	Practices	Primary barriers	Facilities (secondary barriers)
	• Agents with a close or identical antigenic relationship to an agent requiring BSL-4 until data are available to redesignate the level • Related agents with unknown risk of transmission			

Source: Biosafety in microbiological and biomedical laboratories,CDC

The above table relates but does not "equate" risk groups to the biosafety level of laboratories designed to work with organisms in each risk group. Some hazard group 2 biological agents, such as *Neisseria meningitides*, are seen as higher risk to laboratory workers on the basis that they are transmitted by the airborne route. If an accident involving such agents was to occur in a BSL-2 laboratory, it would not be possible to seal the laboratory for fumigation, or maintain an inward airflow to prevent escape of the agent. It is important that such eventualities are considered as part of a risk assessment exercise and selection of appropriate control measures. Laboratory SOPs need to specify how the work may be conducted safely.

up by laboratory personnel by hand. Broken glass must be disposed of in appropriately colour-coded puncture-proof boxes with the biohazard symbol.
- Staff must be aware of the location of eyewash stations and showers and must be trained on biosafety including spill management.

Procedures for taking blood specimens

- All blood should be considered potentially infectious. The following precautions are needed when taking specimens:
  - blood specimens from all patients should be collected in a separate area;
  - blood should not be taken in any room normally used as a laboratory or office; and
  - protective clothing should be worn, which include a clean laboratory coat or gown and gloves.

Handling specimens submitted to the laboratory[97]

- All specimens are to be received in a closed container labelled with appropriate patient information along with duly filled specimen referral form.
- Test tube racks or trays must be used to transport specimens in the laboratory.
- Review, revise and modify the assessment – particularly if the nature of the work changes or if developments suggest that it may no longer be valid.

In evaluating the risks, the key points to consider are the following.

- Listing of risk groups for microbiological agents that are involved (see Annex 12 for classification of risk groups);
- Pathogenicity of the agent and infectious dose;
- Potential outcome of exposure;
- Natural route of infection;
- Other routes of infection, resulting from laboratory manipulations (parenteral, airborne, ingestion);
- Stability of the agent in the environment;
- Concentration of the agent and volume of concentrated material to be manipulated;
- Prevalence of particular infections in the local community;
- Information available from animal studies and reports of laboratory-acquired infections or clinical reports;
- Laboratory activity planned (sonication, aerosolization, centrifugation, etc.);
- Likelihood of infection occurring (including during normal work and in the event of an accident);
- Risks to laboratory staff and others such as visitors, cleaners, maintenance staff, contractors;

Fig. 6.1. Biohazard warning sign for laboratory doors

- Competency of laboratory staff in handling the pathogen, whether the staff is trained to handle the pathogen/procedure in a safe manner; and
- Local availability of effective prophylaxis or therapeutic interventions.

Risks must be assessed at all sites where diagnostic testing is carried out, including hospital wards, clinics, health centres and surgeries. If the assessments show that risks cannot be adequately controlled, either appropriate arrangement must be made or the specimens may be sent elsewhere for processing. SOPs must be in place in the laboratory for any anticipated accidents or contamination. Laboratory must also keep a record of occurrence of any accidents in the laboratory, staff exposures, action taken and procedures put in place to prevent future occurrences.

Biosafety levels

Laboratory facilities are designated as Biosafety levels 1 to 4 based on a composite of design features, construction, containment facilities, equipment, practices and operational procedures required for working with agents from various risk groups.[98]

The principal hazardous characteristics of an agent are: its capability to infect and cause disease in a susceptible human or animal host, its virulence as measured by the severity of disease, and the availability of preventive measures and effective treatments for the disease.

- Biosafety level 1 (BSL-1) is the basic level of protection and is appropriate for agents that are not known to cause disease in normal, healthy humans.
- Biosafety level 2 (BSL-2) is appropriate for handling moderate-risk agents that cause human disease of varying severity by ingestion or through percutaneous or mucous membrane exposure.
- Biosafety level 3 (BSL-3) is appropriate for agents with a known potential for aerosol transmission, for agents that may cause serious and potentially lethal infections and that are indigenous or exotic in origin.
- Exotic agents that pose a high individual risk of life-threatening disease by infectious aerosols, and for which no treatment is available, are restricted to high containment laboratories that meet biosafety level 4 (BSL-4) standards (Table 6.6).

Safety equipment

Biosafety cabinets or safety centrifuge cups must be used to minimize aerosol hazards.[99]

Biosafety cabinets

These are to be used when performing procedures with high potential for producing infectious aerosols. These include:

- Open-fronted Class I and Class II biosafety cabinets are primary barriers that offer significant levels of protection to laboratory personnel and to the environment when used with good microbiological techniques.
- The Class II biological safety cabinet also provides protection from external contamination of the materials (e.g. cell cultures, microbiological stocks) being manipulated inside the cabinet.
- The gas-tight Class III biological safety cabinet provides the highest attainable level of protection to personnel and the environment.

- Biological safety cabinets must be validated with appropriate methods before being taken into use.
- Recertification should take place at regular intervals, at least once a year or more frequently when required.

Safety centrifuge cups

These are enclosed containers designed to prevent aerosols from being released during centrifugation.

Decontamination

Steam autoclaving is the preferred method for all decontamination processes. Materials for decontamination and disposal should be placed in containers, e.g. autoclavable plastic bags that are colour-coded according to the Biomedical Waste Management Rules, 2016 (amended 2018, 2019).

Handling laboratory waste

A well-managed and monitored biomedical waste management system must be in place in the laboratory in accordance with the Biomedical Waste Management Rules, 2016 (amended 2018, 2019).[100,101] (See also Chapter 5 and Annex 8.)

7. Healthcare-associated infections and their surveillance

A. Surveillance of healthcare-associated infections

Introduction

Surveillance of HAIs allows the health system to (i) estimate the burden of diseases in terms of cases reported, deaths occurred and costs incurred; (ii) detect outbreaks and emerging pathogens and pattern of resistance; and (iii) monitor the quality of IPC measures/ strategies.

Surveillance of HAIs is a basic requirement for organizing and maintaining an effective IPC programme and to substantially reduce morbidity and mortality.[102]

Routine HAI surveillance in HCFs should be conducted by an infection control officer or ICN by systematically collecting patient-based, prospective, priority-directed data that yield risk-adjusted rates of incidence. Risk-adjusted rates are controlled for variations in the distribution of major risk factors associated with the occurrence of an HAI event. Such rates enable comparison between units within an HCF and between HCFs.

Types of surveillance appropriate for HAIs[103]

- **Active surveillance.** This involves systematic collection of data by a designated trained hospital infection control professional/nurse. Information is accumulated by using a variety of data sources within and beyond the wards. (Passive surveillance consists of reporting of any occurrence of suspected HAI by clinicians or ward staff nurses, and is not an efficient method to track HAIs.)
- **Process and outcome surveillance.** This is an audit of a practice or process of IPC such as hand hygiene or care bundles. Outcome surveillance aims to detect an HAI event such as BSI, UTI, etc.

- **Clinical/patient-based surveillance.** This involves counting of HAIs, assessing risk factors, and monitoring patient care procedures and practices for adherence to the principles of IPC. This also requires ward rounds and discussion with caregivers.
- **Laboratory-based surveillance.** This surveillance is based solely on the findings of laboratory studies of clinical specimens. The microbiology laboratory also carries out studies on patterns of AMR for common isolates and new or emerging pathogens and patterns of resistance. This information is reported to the HICC and various clinical units of the HCF.
- **Priority-directed and comprehensive surveillance.** Priority-directed surveillance, also called targeted, focused or surveillance by objectives, focuses on specific events, processes, organisms and/or patient populations. On the other hand, comprehensive surveillance is resource-intensive, continuous monitoring of all patients for all HAI events and/or processes.

HAI surveillance with limited resources

In situations where no data exist and resources are limited, efforts of surveillance should be focused on those areas which have vulnerable patients and on procedures that are more prone to HAIs, such as surgical units, ICU, NICU, burns unit, etc.[104]

HCFs with limited resources and minimal trained staff should carry out the following basic surveillance.

Process surveillance

This involves auditing certain IPC practices (e.g. hand hygiene) against a standard such as an evidence-based practice, guideline or policy. This guidance or policy should be available to the staff and they must have received the training according to their role in the HCF (doctor, nurse, attendant, housekeeping, etc.).

The practices to be monitored include the following.

- Hand hygiene
- Urinary catheter insertion
- Using multi-dose vials
- Safe injection practice
- Preparation of surgical incision site
- Insertion of vascular catheter
- Waste segregation
- Handling of sharps

Observational forms or checklists should be developed for each IPC practice that is subjected to process surveillance (see Annex 13).

Outcome surveillance

This includes surveillance for HAI rates for the following common types of HAIs.

- Surgical site infection
- Urinary tract infection
- Respiratory infection
- Bloodstream infection
- Gastrointestinal infection

Prevalence survey

HCFs that have not started outcome surveillance, have limited resources and do not have any data on HAI rates in their facility, can undertake a prevalence survey. The staff carrying out the prevalence survey should be trained to identify existing cases of HAIs based on signs and symptoms of infection and simplified surveillance criteria.[105]

On any one day (or during a period decided by the HICC), the designated staff should carry out a prevalence survey in a designated area of the HCF depending upon the size of the hospital and available resources.

Data to be collected

- Clinical chart review for patients having fever and on antimicrobial therapy (which is a sensitive indicator of HAIs).
- Review the microbiology reports if available.
- Data collected for a probable case includes patient number, age, gender, location, associated comorbidity such as diabetes, type of infection, site and severity of infection, investigations done for infection.
- In case of an SSI, whether surgery was performed at the hospital within the preceding 30 days (or within 1 year if an implant was in place), the date of surgery and type of surgery are recorded.

Denominators

- Number of patients present/admitted in the ward on that day
- For device-related HAIs: total device days of the existing patients in the ward
- Reporting and feedback

Reporting to the HICC and feedback to the wards/units is essential. This gives:

- an estimate of the burden of HAIs in the hospital;
- comparison between wards and units;
- the interventions that are needed; and
- priority for interventions.

Prevalence surveys should be repeated at specified intervals for trends and effectiveness of interventions.

Incidence surveys

The minimum outcome incidence rates that should be calculated on a continuing basis are SSI and device-related infections in the ICU.

Minimum requirements

- Administrative support
- Surveillance coordinator: Infection control physician/doctor or ICN in collaboration with the link nurse from the unit/department and other clinical members.
- Data entry and analysis. It is helpful to have a hospital information system. At least a computer system is required to enter and analyse data.
- Microbiology laboratory: This is one of the core components of an IPC programme. Besides an adjunct to diagnosis and treatment, the microbiology laboratory is essential for the detection of the source and mode of transmission of infection. This is possible only through microbiology culture and identification and further characterization at the minimum through an antibiogram. The laboratory also detects emerging pathogens and resistance.

Data sources

Clinical ward

- Patients who have devices inserted and undergone procedures which have risk of infection such as indwelling vascular or urinary catheters, surgical operations
- Record of fever and other clinical signs consistent with infection
- Antimicrobial therapy
- Laboratory tests such as microbiology cultures
- Medical and nursing chart reviews

Laboratory reports

Daily review of laboratory reports may be helpful in identifying HAIs.

- Review of patients who have isolation of organisms potentially associated with infection.
- Patterns of AMR can help in identifying issues of emerging resistance.

Laboratory reports alone cannot be relied upon for the following reasons.

- Specimens may not be appropriate
- Some pathogens may be difficult to isolate
- Isolation of an organism may represent colonization and not infection

Laboratory reports are necessary for the diagnosis of UTI, BSI and MDRO surveillance.

Data to be collected

- Patient number, date of admission to hospital
- Demographic details and risk factors: age, gender, severity of underlying illness, diabetes and any primary diagnosis, indwelling devices, operative procedure, other treatments such as chemotherapy, date, type of HAI event, microorganisms isolated and antimicrobial susceptibility.

The infections should meet the basic definition of HAI, i.e. should be detected after 48 hours (>2 calender days) of hospitalization.

Surgical site infections

SSIs are potential complications associated with any type of surgical procedure. Although SSIs are among the most preventable HAIs, they still represent a significant burden in terms of patient morbidity, mortality and additional costs to health systems. SSIs are both the most frequently studied and the leading HAIs reported from hospitals in LMICs.

The WHO report on the global burden of endemic HAI provided SSI data from LMICs. The pooled SSI incidence was 11.8 per 100 surgical patients undergoing surgical procedures (95% CI 8.6–16.0) and 5.6 per 100 surgical procedures (95% CI 2.9–10.5).

Definition

SSI refers to an infection that occurs after surgery in the part of the body where the surgery took place. SSIs can sometimes be superficial infections involving the skin only. Other SSIs are more serious and can involve tissues under the skin, organs, or implanted material.

SSI is also defined as an infection that occurs within 30 days after the operation and involves the skin and subcutaneous tissue of the incision (superficial incisional) and/or the deep soft tissue (for example, fascia, muscle) of the incision (deep incisional) and/or any part of the anatomy (for example, organs and spaces) other than the incision that was opened or manipulated during an operation (organ/space).

In some cases, SSI may appear up to 90 days after surgery. These are operations involving surgical implants and these conditions are listed at the end of this chapter.

Superficial incisional SSI

- Drainage of pus from the superficial incision
- Pain, tenderness, localized swelling, redness or heat
- Positive culture from aseptically collected specimen

Deep incisional SSI

Infection appears within 30 days* of the procedure or within one year if there is an implant or foreign body, such as prosthetic heart valve or joint prosthesis.[106]

- Pus discharge from the deep incision (muscle and fascial layers)
- Spontaneous dehiscence or “gaping” of wound
- Fever >38 °C, localized pain or tenderness
- Positive culture from aseptically collected specimen

Organ/space SSI

Infection appears in an organ or space within 30 days* of the procedure in the organ/space that is opened or manipulated during the operative procedure

- Purulent drainage from a drain that is placed into the organ/space.
- Organisms are identified from fluid or tissue in the organ/space by a culture.
- An abscess or other evidence of infection involving the organ/space that is detected on gross anatomical or histopathological examination, or imaging test evidence suggestive of infection.

*According to the National Healthcare Safety Network (NHSN), 30–90 days are taken as the duration after surgical operation for the detection of deep incisional and organ space SSI. This is dependent upon the type of operative procedure. The NHSN list of operative procedures for which either a 30-day or 90-day duration is considered for detection of SSI as given in Annex 13.5.

The criteria required to diagnose infection have to be uniform to accurately identify any increase or decrease in infection. Correct identification of SSI helps us to find out if an intervention to reduce the occurrence of SSI is effective. Uniformity also assists in comparing SSI rates between facilities (Box 7.1).

Box 7.1. Calculation of SSI rates

- SSI rates per 100 operative procedures are calculated by dividing the number of SSIs by the number of specific operative procedures and multiplying the result by 100.
- SSIs will be included in the numerator of a rate based on the date of procedure, not the date of the HAI event.
- SSI rates can be calculated separately for different types of operative procedures and stratified by the wound classification (clean, clean contaminated, contaminated, dirty).

Classification of the surgical wound

All surgical wounds are not uniformly prone to infection.

- The type of wound influences the risk of infection.
- It also aids in finding the source of infection.
- It permits the diagnosis of infection even if culture facilities are not available.
- It helps in determining whether antibiotics are necessary.

Table 7.1 gives the classification of surgical wounds into various types based on contamination with microorganisms and risk of infection.

Risk factors for SSI

Many factors influence surgical wound healing and determine the potential for infection. These include patient-related and process/procedural-related variables that affect a patient's risk of developing an SSI.[107]

Risk factors for SSI are:

Table 7.1. Classification of surgical wounds

Class	Classification	Definition
Class I	Clean	Uninfected operative wound in which no inflammation is encountered and the respiratory, alimentary, genital or uninfected urinary tracts are not entered. In addition, clean wounds are primarily closed and, if necessary, drained with closed drainage. Operative incisional wounds that follow non-penetrating (blunt) trauma should be included in this category if they meet the criteria.
Class II	Clean-contaminated	Operative wounds in which the respiratory, alimentary, genital or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, operations involving the biliary tract, appendix, vagina and oropharynx are included in this category, provided no evidence of infection or major break in technique is encountered.
Class III	Contaminated	Open, fresh, accidental wounds. In addition, operations with major breaks in sterile technique (for example, open cardiac massage) or gross spillage from the gastrointestinal tract, and incisions in which acute, non-purulent inflammation is encountered, including necrotic tissue without evidence of purulent drainage (e.g. dry gangrene), are included in this category.
Class IV	Dirty-infected	Old traumatic wounds with retained devitalized tissue and those that involve existing clinical infection or perforated viscera. This definition suggests that the organisms causing postoperative infection were present in the operative field before the operation.

- Host factors
  - Extremes of age
  - Concurrent disease, malnutrition
  - Underlying clinical condition
  - Skin infections
- Surgical procedure
  - Surgical category: clean, clean contaminated or dirty
  - Implant or prosthesis
  - Poor surgical technique
  - Excessive use of diathermy
  - Duration of surgical procedure

  - Haemorrhage, necrosis, haematoma
  - Presence of drains
- Preoperative preparation
  - Inadequate skin preparation – e.g. inappropriate skin disinfectant
  - Shaving the day before surgery
  - Inappropriate antibiotic prophylaxis – inappropriate choice, inadequate dose, inappropriate timing (not within 60 minutes of incision)
- OT – design, discipline, staff
  - Increased traffic and movement of staff
  - Inappropriate clothing
  - Inadequate ventilation
  - Inadequate sterilization and disinfection
  - Open containers of sterile solutions
  - Inadequate cleaning and “breathing time”

Data to be collected[108–113]

- Patient details: age, gender and location
- The severity and the extent of the infection in the patient
- The type of operation and location of the operation (surgical OT, emergency, gynae OT, etc.)
- Classification of operation: clean, clean contaminated, contaminated, dirty
- The time period between the operation and the development of the infection (the beginning of the operation is the time the surgical incision is made and the end of operation is when the sponge counts are made after wound closure).
- Underlying patient status whether diabetic, infection elsewhere in the body, other comorbidities.
- Microbiological culture: type of specimen, date, organism, antimicrobial susceptibility.

Operated patients should be followed up for at least 30 days after the procedure.

Recommendations for the prevention of SSIs

The following recommendations are important for preparing SSIs and are based on WHO global guidelines on the prevention of SSIs.[114,115]

Preoperative recommendations

- Whenever possible, efforts shall be made to identify and treat all infections

remote to the surgical site before elective operation and postpone elective operations on patients with remote site infections until the infection has resolved.
- Ensure adequate control of serum blood glucose levels in all diabetic patients.
- Preoperative bathing of patient by a plain or antimicrobial/medicated soap.
- Administration of surgical antimicrobial prophylaxis (SAP) is prior to the surgical incision when indicated (depending on the type of operation). Various antimicrobials have different half-lives. The timing of administration should be within 120 minutes before incision, while considering the half-life of the antimicrobial.
- Mechanical bowel preparation alone (without the administration of oral antibiotics) should NOT be used in adult patients undergoing elective colorectal surgery.
- In patients undergoing any surgical procedure, hair should either NOT be removed or, if absolutely necessary, should only be removed with a clipper. Shaving is strongly discouraged at all times, whether preoperatively or in the OT.
- Patients undergoing cardiothoracic and orthopaedic surgery with known nasal carriage of *Staph. aureus* should receive perioperative intranasal applications of mupirocin 2% ointment with or without a combination of chlorhexidine (CHG) body wash.[116]
- Preparation of the surgical site: alcohol-based antiseptic solutions based on CHG for surgical site skin preparation in patients undergoing surgical procedures (CHG is a better choice than povidone-iodine because of rapid onset and persistent antimicrobial activity).
- Antimicrobial sealants should not be used after surgical site skin preparation for reducing SSI.
- Enhance nutritional support for underweight patients who undergo major surgical operations by administration of oral or enteral multiple nutrient-enhanced nutritional formulas.

UTI

Positive urine culture limited to one-two species of organisms with 10^5 CFU/ml, with or without clinical symptoms.

At least one of following factors with no other recognized cause:

- Fever (>38 °C)
- Suprapubic tenderness
- Urgency

- Frequency
- Dysuria

Indwelling urinary catheter (IUC): A drainage tube, which is inserted into the urinary bladder through the urethra, is left in place, and connected to a drainage bag. This is also called a Foley catheter.

Catheter-associated urinary tract infection

CAUTI criteria: A UTI where an IUC was in place for >2 calendar days on the date of infection, with day of catheter insertion being day 1.

Calculation of incidence

Patient-days and urinary catheter days are the denominators used to determine incidence rates for UTI and CAUTI, respectively.

Urinary catheter days is the number of patients with a using catheter in the ICU under surveillance each day.

Patient-day denominator is calculated as the total number of patients per day in the ICU under surveillance.

NICUs may collect the denominator data stratified by categories of birth weight

- <1000 g;
- <1001–1500 g;
- <1501–2500 g; and
- > 2500 g.

Calculation of incidence

Data should be analysed for all UTIs combined and stratified by device association (e.g. CAUTI vs. non-CAUTI). Incidence rates should be calculated for both total UTIs and CAUTI, as described below.

UTI incidence rate (UTI per 1000 patient-days): divide the number of reported UTI by the number of patient-days and then multiply by 1000.

CAUTI rate (CAUTI per 1000 urinary catheter days): divide the number of reported CAUTI by the number of urinary catheter days and then multiply by 1000.

Respiratory infection

Respiratory symptoms with at least two of the following signs appearing during hospitalization:

- Cough
- Purulent sputum
- New infiltrate on chest radiograph consistent with infection

Ventilator-associated pneumonia (VAP)

If the patient is on mechanical ventilation and signs of infection appear after 2 days of stability/improvement on ventilator, VAP is recognized by the following criteria:[117]

- Worsening oxygenation
- Temperature >38 °C or <36 °C, or white blood cell count ≥12 000 cells/mm^3 or ≤4000 cells/mm^3
- Purulent respiratory secretions (>25 neutrophils and <10 squamous cells/low power field) and positive microbiology culture of either sputum, endotracheal aspirate, bronchoalveolar lavage, lung tissue, protective specimen brush.

Role of quantitative microbiology culture

In the absence of purulence, quantitative or semi-quantitative microbiology culture of respiratory secretions are required. The significant counts of organisms in the various specimens are:

- Endotracheal aspirate >10^5 CFU/ml
- Bronchoalveolar lavage >10^4 CFU/ml
- Lung tissue >10^4 CFU/ml
- Protected specimen brush >10^3 CFU/ml

Ventilator-associated pneumonia

The definition criteria for VAP has many limitations in its differentiation from other complications that occur in mechanically ventilated patients.

Calculation of incidence

- Device days and patient-days are used for denominators.
- Ventilator days, which are the number of patients managed with a ventilatory device, are collected daily, at the same time each day, according to the chosen location.

The VAP rate per 1000 ventilator days is calculated by dividing the number of VAPs by the number of ventilator days and multiplying the result by 1000.[118]

Septicaemia

Bloodstream Infection (BSI) – criteria

- A recognized pathogen isolated from blood culture and pathogen not related to infection at another site.
- Symptoms and signs of septicaemia
- In patients >12 months of age: fever >38 °C, chills or hypotension
- In patients <12 months of age, fever (>38 °C), hypotension, hypothermia (<36 °C), apnoea, bradycardia
- And one of the following:
  - Common skin commensal (coagulase-negative staphylococci, diphtheroids) isolated from two blood cultures drawn on separate occasions on the same day or next consecutive day.
  - Common skin commensal isolated from a patient with intravascular access device*.
  - In the absence of culture positivity, positive antigen test on blood for *N. meningitidis*, pneumococci, *H. influenzae*, group B streptococci.

*Catheter tip cultures should not be used to determine whether a patient meets the case definition for BSI.

Vascular catheter infection

Signs of inflammation, lymphangitis or purulent discharge from the site of catheter. Most intravascular catheters are inserted into peripheral veins for venous access and are called peripheral vascular catheters.

CLABSI

Central lines are intravascular catheters that terminate at (or open at) the heart or close to the heart in one of the great vessels. Central lines can be temporary or permanent.

Temporary central lines are non-tunnelled, non-implanted lines, e.g lines which are commonly used for acute management in ICU, peripherally inserted central catheter lines for parenteral nutrition, etc.

Permanent central lines can be tunnelled catheters (including long-term dialysis catheters) or implanted catheters (including ports for chemotherapy).

The following are the great vessels that define a central line:

- Aorta
- Pulmonary artery

Box 7.2. Rules for two matching blood cultures

Samples taken at the same time:

- Should be from different sites (e.g. one from right arm and other from the left arm) using a separate sterile needle and syringe for each blood draw

  OR

- If samples taken from the same site, there must be: (i) two separate blood draws, each using a separate sterile needle and syringe; (ii) site disinfection between draws

Samples taken at different times:

- Second sample collection must be on the same day or next day (consecutive days)

- Superior or inferior vena cava
- Brachiocephalic vein
- Internal jugular vein
- Subclavian vein
- External and common iliac vein
- Femoral vein
- Umbilical artery/vein (in neonates)

Recognized pathogen: An organism recognized as a cause of BSI

Common commensal: An organism that can commonly exist on body surfaces without causing disease. It is often referred to as a "contaminant" when isolated in blood culture, e.g. coagulase-negative staphylococci and diphtheroids (Box 7.2).

Calculation of incidence rate

- Central line days: the denominator is calculated as the number of patients with one or more temporary central lines on each unit under surveillance, each day. Surveillance staff should record the number of patients in the surveillance unit who have at least one central line in place. If a patient has more than one central line in place, itis still countedonly as one central line day.
- Patient-days: the denominator is calculated as the total number of patients per day in the unit under surveillance. Patient-days should be collected at the same time as central linedays.
- NICU patient-days: the denominator may be stratified by categories of birth weight:[119]
  - <1000 g;

- <1001–1500 g;
- <1501–2500 g; and
- > 2500 g.

Calculation of incidence

BSI rate (BSI per 1000 patient-days): divide the total number of reported BSI by the number of patient-days and then multiply by 1000.

CLABSI rate (CLABSI per 1000 central line days): divide the total number of reported CLABSI by the number of central line days and then multiply by 1000.

Device utilization rates: the device utilization rates for central lines and ventilators are calculated by dividing the number of days of device use by the number of patient-days.

Gastrointestinal infection

Infectious gastroenteritis is common in paediatric and geriatric units. Diarrhoea is defined as the passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual).

Diarrhoea occurring in a patient after 48 hours of admission is designated as an HAI. There are three clinical types of diarrhoea:

- Acute watery diarrhoea – lasts several hours or days, and includes cholera
- Acute bloody diarrhoea – also called dysentery
- Persistent diarrhoea – lasts 14 days or longer

Diarrhoea in neonatal patients

Infection can begin as gastroenteritis in neonatal patients but then spread to the bloodstream and present as septicaemia or BSI. If two sites of infection are present in one patient it will be considered as two infections.

The rate of infectious diarrhoea is calculated as

- Number of HAI patients with diarrhoea divided by the number patient-days; then multiply by 1000.
- Neonatal patients can be categorized according to birth weight:
  - <1000 g;
  - <1001–1500 g;
  - <1501–2500 g; and
  - > 2500 g.

Patients with multidrug-resistant organisms

Contact precautions need to be initiated in patients that present with MDRO, including MRSA, VRE, multidrug-resistant Gram-negative organisms. With the exception of patients presenting with diarrhoea or bowel incontinence who can be identified without difficulty, it may be difficult to identify patients for whom contact precautions need to be initiated. Identification of infection/colonization with MDRO can be attempted by:

- Identifying patients with established history of infection or colonization with MDRO through health records
- Possible selective microbiological screening for MDRO

Environmental controls to prevent transmission of MDRO

Environmental cleaning and disinfection are very important in the emergency department as there are multiple opportunities for contamination of environment and patient care equipment in the emergency department.

- Patients colonized or infected with MDRO can transfer microorganisms to their clothes, linens, guard rails, over-bed tables, blood pressure cuffs, the floor, and many other sites in their immediate vicinity.
- Environmental contamination with MDRO can contaminate HCWs' hands during patient care.
- Patients can also acquire MDRO when placed in a room previously occupied by a MDRO colonized patient due to environmental contamination.
- Frequently touched items in the emergency department such as computer keyboards, telephones, and door handles, stethoscopes are frequently contaminated and have the potential to transmit the contaminating MDRO, and should be routinely disinfected.
- Non-critical* equipment (e.g. blood pressure cuffs) and environmental surfaces (e.g. bed rails, patient furniture, floors) should be routinely cleaned and disinfected
- Semi-critical and critical items should be high level disinfected or sterilized as required in the CSSD or dedicated area

*See Chapter 4 for Spaulding's classification of patient care items into non-critical, semi-critical and critical.

Prevention of infection related to vascular access

Care bundles should be applied for prevention of catheter related infections

Insertion bundle

- Hand Hygiene
- Use of the femoral vein should be avoided in adults
- Maximal sterile barrier precautions (including mask, cap, sterile gown, and sterile gloves) should be used by the catheter inserter
- The patient should be covered with a large sterile drape. For patients older than 2 months, a skin preparation solution containing greater than 0.5% chlorhexidine gluconate and 70% isopropyl alcohol should be applied to the insertion site and allowed to dry before the skin is punctured.
- Checklists should be used to ensure that all steps have been followed.

Catheter care (maintenance)

- Aseptic technique should be used to prevent contamination of the catheter system, including the use of a surgical mask for staff and patient and clean gloves for all catheter system connect, disconnect and dressing procedures.
- The hub of the catheters can be soaked in povidone-iodine solution or wrapped with gauze saturated with povidone-iodine solution for 5 minutes before removing the caps.
- A fresh pair of disposable gloves should be worn for the connection procedure (dialysis session initiation).
- After removing the cap, the hub should be wiped with CHG, alcohol or povidone-iodine.
- The catheter hub should be connected immediately to limit exposure to air. This procedure should also be followed at the time the patient is disconnected at the end of dialysis session or for any other reason. Catheter manipulation should be kept to an absolute minimum; if there are flow problems they must be definitively addressed as quickly as possible.

Exit-site care

- The catheter exit-site dressing should be changed every 3 days (after each HD session) if gauze/ tape, or every 7 days if transparent dressing is used in addition to whenever the dressing is wet or soiled.
- The catheter insertion site should be cleaned/ disinfected at the time of the dressing change with CHG/ alcohol or povidone-iodine solution; ointment should be applied (povidone-iodine or triple antibiotics).

Intraoperative factors

Site preparation

- Thoroughly wash and clean the surgical site to remove gross contamination

before performing antiseptic skin preparation.
- Use an appropriate chlorhexidine-alcohol based antiseptic agent for skin preparation.
- Apply preoperative antiseptic skin preparation in concentric circles moving toward the periphery. The prepared area must be large enough to extend the incision or create new incisions or drain sites, if necessary.

Other intraoperative interventions

- Drapes and gowns: Both sterile disposable non-woven or sterile, reusable woven drapes and gowns can be used during surgical operations for the purpose of preventing SSI. Plastic adhesive incise drapes with or without antimicrobial properties for the purpose of preventing SSI are not recommended.
- Use of protocols for intensive perioperative blood glucose control for both diabetic and non-diabetic adult patients undergoing surgical procedures to reduce the risk of SSI is suggested
- Maintenance of adequate circulating volume control/normovolaemia. Fluid therapy should be goal directed.
- Triclosan-coated sutures are suggested independent of the type of surgery.
- Use of warming devices in the OT and during the surgical procedure for patient body warming for reducing SSI.
- Wound protector devices are suggested in clean-contaminated, contaminated and dirty abdominal surgical procedures for reducing SSI.
- Irrigation of the incisional wound with an aqueous PVP-I solution before closure for preventing SSI, particularly in clean and clean-contaminated wounds. Saline irrigation is not recommended. Antibiotic incisional wound irrigation should not be used for preventing SSI.
- laminar airflow ventilation systems should not be used to reduce the risk of SSI for patients undergoing total arthroplasty surgery

Postoperative factors

- A surgical incision that has been closed by primary closure should be covered with a sterile dressing till 48 hours. An incision with delayed primary closure or healing by second intention, the incision should be packed with a sterile dressing. Use of an advanced dressing over a standard dressing on primarily closed surgical wounds is not recommended.
- The wound drain should be removed when clinically indicated.

National HAI surveillance network

HCFs with adequate capacity and resources can opt to join the National HAI Surveillance Network.[120] Data collection formats for surveillance of BSI and CAUTI and a checklist for VAP are given in Annex 13.1–13.4.

B. Management of HAI outbreaks

An outbreak is defined as an occurrence of disease at a rate greater than that expected within a specific geographical area over a defined time period.[121] In the context of HAIs, the geographical area may be a hospital, ward, intensive care units (ICU) or operation rooms. When there are more cases of infection with the same organism than would normally be expected in one area or period, this constitutes an outbreak. It is important to investigate a HAI outbreak immediately, as the availability and quality of microbiological evidence and epidemiological data diminishes rapidly with time between illness and investigation.

"Outbreaks" vs. "Clusters"

Sometimes small outbreaks are referred to as clusters (e.g. HBV and HCV). A cluster is an aggregation of cases grouped with respect to person, place and time that are suspected to be greater than the number expected.[122] Functionally, there is no major difference since both outbreaks and clusters need to be investigated to uncover the factor(s) responsible and to guide implementation of infection prevention and control measures (Box 7.3).

Box 7.3. "Outbreak" vs. "Pseudo-outbreak"

An "outbreak" is generally, an increase in clinical disease or clinically relevant lab reports (e.g. dengue or HIV serology or flu PCR). A "pseudo-outbreak" is generally an increase in reports or positive cultures without evidence of disease.

This may be a surveillance or laboratory artifact due to:

- New definitions
- Improved surveillance
- New practitioners
- New lab tests or change in testing frequency
- Poor sample collection
- Laboratory error or contamination

Box. 7.4. Modes of transmission of outbreak pathogens[123]

- Common source
- Human reservoir
- Cross-infection (person to person)
- Airborne
- Other environmental (e.g. fomite or medical device)
- Zoonotic and vector-borne
- Uncertain

Commonly detected organisms in HAI outbreaks

- Methicillin-resistant staphylococcus aureus (MRSA)
- Carbapenem resistant Enterobacteriaceae (CRE)
- Multi-resistant *Klebsiella* sp., or *Pseudomonas* sp.
- Diarrhoeal pathogens (e.g. *Salmonella* sp., *Shigella* sp., *Campylobacter* sp., norovirus)
- Respiratory pathogens (e.g. influenza, RSV)

There are also reports of HAI outbreaks caused due to *M. tuberculosis*, HBV, HCV, HIV, HAV, HEV, etc.

Identifying a potential outbreak

An outbreak can be identified by regular reviews of surveillance and laboratory data. Clinician reports of notifiable diseases can provide an alert to an unusual increase in a disease. In many outbreaks due to common encountered pathogens, comparison is made with previous occurrence of the same infection.

Some outbreaks are easy to investigate, e.g. unusual or important organisms. Others are not that easy, e.g. a 50% increase in SSIs for one quarter or doubling of MRSA BSIs for one month. Occurrence of any unusual organism needs to be investigated.

There might be various modes of transmission of outbreak pathogens in healthcare facilities (Box.7.4). Sometimes outbreaks occur in the community and the hospital acts as an amplifier, e.g. the sick patient admitted to the hospital (index case) transmits the infection to other patients and staff and the number of cases with infection increase. This has happened in the outbreaks of SARS, influenza, Ebola and Nipah virus outbreaks.

Outbreaks should be investigated to:

- To define the magnitude of the outbreak interms of time, place and person
- Identify the cause of the outbreak and mode of transmission
- Control the outbreak
- Prevent similar outbreaks in the future
- Evaluate existing infection prevention and control strategies

Steps involved in HAI outbreak investigation

These steps are very useful when investigating an outbreak, it is important to remember that they are provided as a guideline. Although the steps are listed sequentially the process of outbreak investigation may occur in a different order, often simultaneously or repeated many times as new information is received.

1. Verification of diagnosis
2. Confirmation of the outbreak existence
3. Inform key stakeholders about the investigation
4. Construct a case definition
5. Identifying and count the number of cases and collect information
6. Examine descriptive epidemiological features of cases
7. Observations and review of patient care
8. Generate hypotheses and test hypotheses
9. Collect and test environmental samples
10. Implement control and prevention measures
11. Follow-up and communicate results (staff, patients, press, public)

Before investigating an outbreak, a thorough literature review must be done to get a good understanding of the suspected disease and where and how to start the investigation.

Investigating HAI outbreak may vary based on type the setting, site of infection/ disease, type of pathogen involved, etc. For example, a respiratory infection outbreak in an intensive care unit of a hospital may require a better understanding of a patient's location within the hospital, history of ventilation, and receipt of respiratory treatments/medications. In contrast, an outbreak of infections associated with an inpatient facility may require a better understanding of vascular access type or details about procedures/infusions received in that facility, etc.[124,125]

1. Verification of diagnosis

Verification of diagnosis is the first step in an outbreak investigation as sometimes

that the spurious or misinterpreted reports might give a false alarm. It is therefore necessary to have on the spot verification of diagnosis as quickly as possible. Commonsteps involved in verification of diagnosis in a HAI are

- Evaluating the clues
- Evaluating signs and symptoms
- Laboratory findings
- Duration of symptoms
- Suspected exposure
- Suspected virus, bacteria or toxin
- Hospital onset

2. Confirmation of the outbreak existence

Next step is to confirm if outbreak exists.This is done by review of surveillance data or reports from clinical departments and the laboratory. Confirm that the cases have the same disease. Confirm that the number of cases exceeds what would be expected for the population over the specific time period (Fig. 7.1).

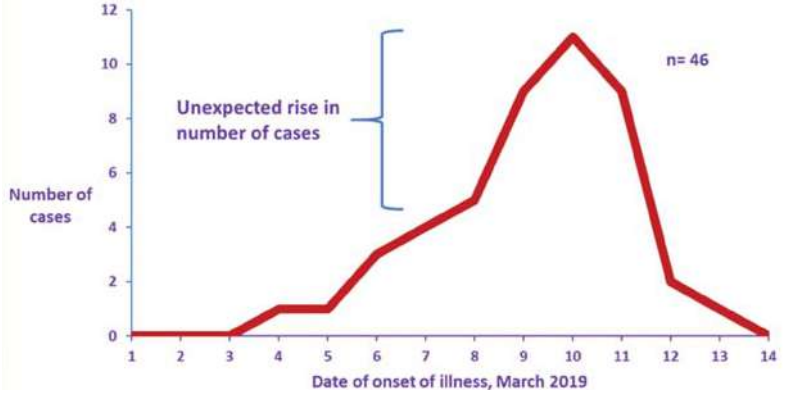


Fig. 7.1. Distribution of cases from a surveillance system confirming an outbreak

Laboratory confirmation

- Laboratory confirmation is required to have a definite diagnosis.
  - o Identifying the pathogen will help identify the potential incubation period, which will pinpoint at what time the exposure took place.
  - o It is essential to test clinical specimens such as blood, urine, etc. to determine the agent causing the illness.
  - o Sometimes the investigation must move forward before a definitive diagnosis is reached.

- Since laboratory results can take time, do not wait for laboratory diagnosis.
- Once an agent is identified, the laboratory may be able to conduct further tests, to "fingerprint" the agent and verify that all cases/patients are related to the outbreak.

3. Inform key stakeholders about the investigation

- Appropriate health facility staff (clinicians, nurses, etc.)
- Hospital Infection Control Committee (HICC)
- Infection control staff
- Hospital administration
- Laboratory staff with request to save all isolates that might be part of outbreak
- Notify local and national public health officials at NCDC as appropriate

4. Construct a case definition

This is one of the most important steps in identifying the cases in outbreak investigation. Before counting cases, the investigating team must decide what to count, that is, what to call a case by using set of standard criteria for classifying whether a person has a particular disease, syndrome, or other health condition called as case definition. Some case definitions, particularly those used for national surveillance, have been developed and adopted as national standards that ensure comparability. Using an agreed upon standard case definition ensures that every case is equivalent, regardless of when or where it occurred, or who identified it.

Elements of a case definition include:

- Clinical criteria (signs and symptoms)
- Person, place and time criteria
- Laboratory test

Classification of case definition:[126]

- The suspected case. A patient with compatible clinical symptoms, but maybe not all symptoms, and a likely epidemiological link has not yet been confirmed.
- The probable case. This means that the clinical symptoms and epidemiology are compatible with the case definition.
- A confirmed case. This is the strongest level of certainty. A suspected or probable case who has had a positive laboratory test for the disease. Laboratory confirmation may not always be possible and often unavailable early on in an investigation.

5. Identifying and count the number of cases and collect information

With every case detected, one can gather more information about potential exposures, personal characteristics, and the geographical extent of the potential outbreak.

Active case finding

Case finding helps in providing more information about an outbreak and define the exposed population. The following sources can help in case finding:[127]

- Microbiology data
- Infection control or surveillance records
- Discussion with clinician
- Medical records, operative notes
- Pathology reports
- Pharmacy records, such as antimicrobial usage
- Central service/supply records, CSSD registers
- Occupational health records (NSI register, vaccination records)
- Log books
- Hospital billing records

Potential risk factors or exposures

- Medications
- Procedures
- Dates of admission and discharge
- Facility locations or units
- Healthcare providers
- Host factors (age, gender, immunity)

Data collection

The data should be confidential. Any written materials containing personal identifiers should be stored in a secure, locked location.

- Demographic information identifies who is at risk. Demographic information that may be collected are age, gender, occupation, place of occupation and travel history.
- Clinical information should be collected to verify that the case definition has been met, to characterize the disease and to create an epidemic curve. This includes the symptoms, the date of symptom onset, the severity of illness, and lab test results.

- Risk factor information is dependent upon the specific outbreak and allows the investigating team to accordingly focus on the investigation. Since it is done in the preliminary stages of an investigation, risk factor information is usually confined to general potential risk factors and well-established risk factors.

Data collection tool/ form

The data of each individual should be collected in a standard data collection form/ tool. These forms should be designed specifically for investigation to describe cases and potential risk factors depending on type of infection. The tool should be administered only by a trained investigator/ or team involved in the outbreak investigation.

6. Examine descriptive epidemiological features of cases

Descriptive epidemiology is a very important part of the investigation since it drives all the investigation efforts and include following details:[128]

Who is at risk?

- Describe data by person, place and time
- Characterizes the outbreak
- Identifies the population at risk
- Provides clues about the agent, source or mode of transmission
- Provides information to begin control measures

Line-list

This is created from case data.

- Each row is a case
- Each column is a variable of interest
- Signs and symptoms, onset date
- Medications, intravenous solutions
- Invasive procedures, surgery
- Staff contact
- Host factors (e.g. age, underlying disease?)
- Lab results

Table 7.2 shows a sample line-list of cases during an HAI outbreak in a paediatric ICU.

Table 7.2. Sample line-list from XYZ hospital during an outbreak in paediatric ICU

Case ID	Hospital name	Unit Type	Age	Gender	Date of Admission	Location prior to admission	Outcome	Organism	Date of Sample collection
19.2 A	XYZ hospital	Paediatric ICU	11	F	18/08/19	Home	Died	*Elizabethkingia meningoseptica*	21/08/19
19.2 B	XYZ hospital	Paediatric ICU	4	F	20/08/18	Home	Undergoing treatment	*Elizabethkingia meningoseptica*	20/08/19
19.2 C	XYZ hospital	Paediatric ICU	3	M	20/08/18	Home	Transferred to ward 21	*Elizabethkingia meningoseptica*	22/08/19
19.2 D	XYZ hospital	Paediatric ICU	2	F	20/08/18	Home	Discharged	*Elizabethkingia meningoseptica*	20/08/19

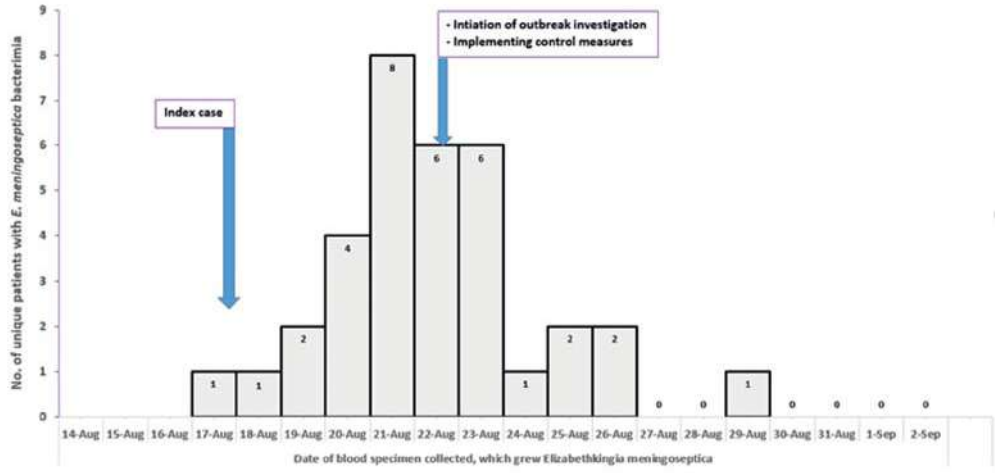


Fig. 7.2. Distribution of bloodstream infection cases in a HAI outbreak reported through surveillance in hospital "XYZ" August 2019 (N=34)

Epidemic curve

Epidemic curve is a graphic representation of the distribution of cases by time of onset of illness.

In an epidemic

- Y-axis: Number of cases of illness
- X-axis: Date or time of illness onset
- Unit of time often based on incubation period

The epidemic curve should distinguish between confirmed and probable cases. The shape of the epidemic curve may suggest a single point source, ongoing transmission or an intermittent source.

The epidemic curve helps us to:

- understand the magnitude of the outbreak;
- show the time trend of the outbreak;
- define the incubation period or exposure period; and
- show the pattern of spread and highlight outliers.

Figure 7.2 shows a sample epidemic curve with distribution of cases during an imaginary outbreak in a paediatric ICU. Observe how the outbreak investigation and concurrent control measures help in reducing the number of new infections.

Outliers in an outbreak

This may be an early case or a late case. It may represent unrelated incident worth examining carefully and may point directly to the source.

Describe the data by "place"

A spot map will help in identifying clustering of cases in an around a particular area of the hospital. Before beginning the investigation, it is advisable to have a detailed and current map of the health facility with patient flow mechanisms. If this is not available it may be necessary to prepare such a map for the health facility/inpatient wards or ICU.

Calculating the attack rates

These data allow the calculation of an attack rate, defined by:

- The number of people who are infected divided by the total number of people at risk; and
- The attack rate can also be calculated stratified by relevant characteristics such as sex, age, location or specific exposure (ventilation, catheterization, OTs and occupational exposure).

Descriptive analysis results

At the end of descriptive analysis, It should be possible to:

- Identify group at risk: number of people affected, time of onset and place of onset and personal characteristics.
- Tentatively identify the source and route of infection:
- This information will help to suggest the intervention so as to control the outbreak or chances of occurrence of new cases and to take initial precautionary measures suggested by the IPC team or HICC, such as
    - Suggest and implement immediate control measures
    - Review and augment standard work precautions as a rapid response measure
    - Increase frequency and efficiency of environmental cleaning
    - Antibiotic restrictions
    - Exclusion of cases from high risk activities
    - Isolation and/or cohorting (charting and grouping) of patients
    - Restricting movement of patients, staff and visitors
    - Screening of patients with isolation of patients and cohorting of contacts
    - Prophylactic treatment/immunization

- Provision of health information and advice
- Formulate a hypothesis on the type of infection (exogenous, endogenous).

7. Observations and review of patient care

Initial observations can be useful in facilitating the creation of a standard observation tool, if needed. Clinical observations for who and what to observe are generally driven by the line-list and may include:[129]

- Medication details
- Vascular access care
- Hand hygiene practices
- Adherence to isolation precautions
- Surgical practices
- Sterilization practices
- Respiratory care practices

8. Generate a hypothesis and test hypothesis

A hypothesis in the context of an outbreak investigation is an educated guess about an association between an exposure and the outcome of interest or disease which can be tested. Descriptive data collected in the previous step of the investigation provide information that is very useful in the development of hypotheses.[130]

Any hypotheses that are generated by investigators will need to be tested to confirm the association. Hypotheses can be tested in an analytical study, such as a case–control study that compares exposures among case patients to hospital-matched controls.

Comparing hypotheses with established facts such as laboratory evidence, clinical evidence, environmental and epidemiological evidence can be helpful in guiding more investigation when the source remains unclear or to support a hypothesis.

9. Collect and test environmental samples

Outbreaks are one of the reasons for performing environment surface sampling. This can be a powerful and definitive aspect of an investigation. However, environmental testing can have the following fallacies. A negative culture may mean that,

- the right samples may not have been collected;
- the methodologies may not be standardized (there may be overgrowth of other organisms, some samples require neutralization steps to get rid of disinfectants, etc.);

- even using the best methods, the yield can still be low;
- the organism may have been present but is not there now;
- environmental pathogens may have adapted to low nutrition environments and need special media to grow;
- there may be limited bacterial yield in getting the bacteria off the surface onto the swab; and
- there may be limited yield getting the bacteria off the swab into the media.

Guidance for collection of environmental samples

- Culture should be done after the data have been received from the line-list and observations.
- Culture should be done only of things that are likely routes of transmission (high-touch surfaces).
- Cultureshould be guided by the epidemiology of the organism (e.g. *Serratia* spp. – fluids, VRE objects/surfaces)
- Epidemiological typing of the organisms isolated using phenotypic and genotypic methods may be performed to identify the characteristics pathogen causing the outbreak.

10. Implement control and prevention measures

The primary goal is to stop transmission, not necessarily to find the source. Thus, a variety of control measures should be implemented targeting various possibilities based on initial observations.[131] Few of the immediate control measures to be implemented are given in Table 7.3.

Table 7.3. Immediate control measures for outbreak management

Type of transmission suspected	Suggested action
Cross-transmission (transmission between individuals)	Patient isolation and barrier precautions determined by infectious agent(s)
Hand transmission	Improvements in hand washing; cohorting
Airborne agent	Patient isolation with appropriate ventilation
Agent present in water, water-borne agent	Checking of water supply and all liquid containers; use of disposable devices
Food-borne agent	Elimination of the food at risk
Vector-borne agent	Vector control

Examples of HAI outbreak control measures

- Reinforcing hand hygiene
- Establishing barrier between infected/colonized patients and non-infected/colonized patients
- Enhanced cleaning
- Review disinfection of environment, equipment
- Remove suspected common source(s)
- Isolation, cohorting of patients in ward/ICU
- Multi-dose medications, antiseptics, etc.
- Restrict use of antibiotics to which organism is resistant
- Close unit to new admissions till issue is resolved

11. Follow-up and communicate findings

Many times, we may have to conduct a follow-up or "definitive" investigation by refining the case definition on initial findings to make it possible to detect the real cases and continue surveillance efforts based on the refined case definition. If required, modify the preventive and control measures of your findings from ongoing surveillance or follow-up investigation to provide better epidemiological evidence about source and mode of transmission.

Ongoing case finding and surveillance – If active surveillance is being done it should continue, and if not, it should be initiated. Ongoing surveillance is needed to monitor the outbreak to determine if the IPC activities are working and target areas where they need to be directed. Another reason to conduct surveillance is to ensure that the outbreak has not spread to new areas.

Assess infection control measures – Review the infection control measures to determine if they need to be continued, changed or reduced.

Communicate findings

A final report of the outbreak investigation should be shared with all the key stakeholders and HICC, which describe the outbreak, interventions and effectiveness of measures taken, and summarize the learnings. It should also make recommendations to prevent future occurrence.

Outbreaks are sentinel events that help us understand and confront emerging challenges in implementing quality healthcare services. They can play an important role in developing recommendations that improve overall patient care and provide important opportunities for education.

8. Preventing infections among healthcare workers

Healthcare workers (HCWs) perform a wide range of activities in varying environments that can put their health and well-being at risk of harm. The administration of an HCF has the responsibility for the safety and health of its employees (Box 8.1). At the same time, HCWs are also responsible for adopting safe work practices and taking necessary precautions to mitigate the risk during the course of their work.

Workers at risk in the healthcare environment

- Hospital staff
  - Medical staff
  - Cleaning staff
  - Laboratory technicians
- Employees of healthcare (contractual) services
  - Cleaning services
  - Property management
  - Environmental hygiene services: collection and disposal of healthcare waste

Box 8.1. Hazards in the healthcare environment

- Physical: e.g. injuries while lifting, shifting patients
- Chemical: e.g. exposure to toxic chemicals such as disinfectants
- Biological: e.g. infections transmitted in the healthcare environment
- Radiation: e.g. radiation in X-ray and radiotherapy units
- Psychological: e.g. stress due to understaffing, night shifts
- Ergonomic: e.g. backache or neck ache or eye strain due to poorly designed seats, computer workstations
- Accidents/falls due to lack of patient safety arrangements

Biological hazards

These hazards refer to organisms or organic material produced by these organisms that are harmful to human health. These include parasites, viruses, bacteria, fungi and protein.

Major biological hazards are:

- Blood-borne infections: e.g. HBV, HCV, HIV
- Respiratory infections: e.g. influenza, TB
- Others: e.g. viral haemorrhagic fevers (VHFs) such as Ebola virus disease (EVD)

The infections can be transmitted by:

- Percutaneous and mucocutaneous route
- Contact with body fluids or contaminated objects
- Respiratory route

Adherence to standard precautions and transmission-based precautions help in protecting HCWs as well as patients from transmission of infection in HCFs (see Chapter 4).

Safe work practices help in preventing exposure to hazards in the workplace. (For special precautions during pandemic-prone diseases, see Chapter 7.)

Blood-borne infections in healthcare settings

Of the 35 million HCWs worldwide, three million experience percutaneous exposure to blood-borne pathogens every year. Of these, there are two million exposures to HBV, 0.9 million to HCV and 170 000 to HIV. This results in 70 000 HBV, 15 000 HCV and 1000 HIV infections. More than 90% of these infections occur in developing countries.[132]

The challenges faced in preventing these infections are:

- Limited knowledge on transmission of infections in the workplace
- Common unsafe practices
- Lack of standardized procedures
- Inadequate supplies and use of PPE
- Lack of regulation and policy to protect HCWs from exposure

Needle-stick injury

Needle-stick injury is a cutaneous cut, scratch or puncture from a needle that was contaminated with patient's blood, whether or not the injury drew blood. According

to CDC, the risk of transmission for blood-borne infections after needle-stick injury contaminated with infected blood is on average 6–30% for HBV, 2.7–10% for HCV and 0.3% for HIV.[132]

Worldwide, the most common causes for needle-stick injury in healthcare settings are two-handed capping of the needle after use, and unsafe collection and disposal of sharps waste. Unsafe collection and disposal can affect not only those directly dealing with sharps but a wide range of persons including patients, cleaning services, visitors and the community at large.

Needle-stick injuries that carry the maximum risk of exposure to blood-borne infections are the hollow bore needles, which is directly related to the quantity of blood that they can carry in the lumen.

Human factors effecting safety

A number of individual factors affect a person's performance, thus predisposing them to error. Two factors with the greatest impact are fatigue and stress. Strong scientific evidence links fatigue and impaired performance, making it a known risk factor in safe practice. It is important to recognize that low levels of stress are also counterproductive, as they can lead to boredom and failure to attend to a task with appropriate vigilance.[133]

Training and education of HCWs

Training and education should be provided to all HCWs in IPC including supervisory, managerial staff and contractual housekeeping staff. They should be taught IPC principles, policies and procedures relevant to their work. Emphasis should be put on safety of the worker as well as the patient. The aim is to inform and educate HCWs about the infectious hazards they will face during their employment and their role in minimizing the spread to others. Special attention should be given to hand hygiene. The training should be participatory, and based on skills and competency of HCWs.[134,135]

Components of education and training

Training and education should include:

- Information on modes of transmission of infectious diseases, level of occupational risk (to reduce fear of contact with infected patients) prevention and control

- Safe work practices
- Handling of PPE and clothing
- Reporting of exposure incident
- Techniques on stress management, provision of appropriate staffing levels, shift, rotation, counselling, support and communication skills
- Regulations and policies

Safe work practice

Some key features of safe work practice are:

- Standard precautions
- Transmission-based precautions
- Hand hygiene
- PPE
- Safe injection practice

In the event of an epidemic, special isolation precautions as per directives from public health authorities and PPE are required.

Occupational health programme

An occupational health programme is essential for an effective IPC programme and has implications for patient safety. The components of such a programme are:

- Evaluation for general health of employees including infectious diseases at entry, periodically as required
- Screening for vaccination for childhood communicable diseases (measles, rubella, chickenpox, diphtheria, pertussis, tetanus)
- Hepatitis B status and immunization
- Influenza vaccine, TST status
- Screening for tuberculosis
- Surveillance and management of exposure risk: hazard identification, risk assessment and control, post-exposure management
- Education and training

Pre-employment assessment

Before being allowed to work in high-risk areas, all staff should be assessed and offered testing and/or vaccination for specific infectious diseases. Details of medical history, particularly for infectious diseases such as rubella, measles, mumps, chickenpox (varicella), hepatitis B, immune disorders and skin conditions, and for prior exposure to tuberculosis should be recorded.

Laboratory and other testing this should include a routine TST.

Except in cases of outbreaks, routine screening of HCWs for carrier state is not recommended. Besides following safe work practice, HCWs can be protected from HAIs by preventive health checkups once a year, immunization, and PEP after accidental occupational exposure to patient's blood and body fluids.

Occupational vaccination programme

- A vaccination policy (also for contractual staff)
- Maintenance of vaccination records
- Providing information about vaccine-preventable diseases and offering vaccination for the same
- Modification of duties if an HCW has an infection that has a risk of transmission during exposure-prone procedures
- Explaining the consequences of vaccine refusal
- Vaccine refusal, contraindication to vaccination and vaccine non-response may be managed by ensuring appropriate work placements, work adjustments and work restrictions. This should be documented.

Vaccination requirements based on risk stratification

Based on their work activities and risk of exposure to blood and body substances, HCWs can be categorized into risk category A, B and C and pre-employment vaccination requirements are worked out accordingly:[136]

Category A: High risk (direct contact with blood or body substances): doctors, nurses, medical and nursing students, dentists, laboratory staff, maintenance engineers who service medical equipment, CSSD staff, cleaning staff, staff responsible for biomedical waste management.

Category B: Low risk (indirect contact with blood and body substances): at risk of infection by airborne or droplet routes but rarely have direct contact with blood or body substances (e.g. catering staff and ancillary staff).

Category C: Minimal risk (minimal patient contact): similar risk of exposure to blood and body fluids as the general public, e.g. office clerical staff, gardening staff and kitchen staff. Immunization requirements can be considered based on their actual job requirement.

Based on this categorization, immunization requirements are considered as follows:

Hepatitis B

- HBV vaccine to risk category A, B and C

- To be considered immune test for anti-HBs
- Anti-HBs >10 at any stage after vaccination indicates lifelong immunity to hepatitis

Influenza: Provide seasonal influenza vaccine annually to risk categories A and B.

Tetanus toxoid: Can be given to risk categories A and B if no vaccination was provided in past 6 months.

Rabies: PEP to be considered for HCWs handling rabies cases, risk category A.

Chickenpox (varicella)

- Provide vaccination to risk categories A and B, to staff working in infectious disease (ID) wards
- HCWs can be considered immune if they have a documented medical history of chickenpox or shingles.

Staff records

Healthcare management should maintain records of screening results and immunizations provided, including history of vaccine-preventable disease, date and results of serology, record of vaccine refusal. Date of giving the vaccine and batch number, type and brand name of vaccine. Records need to be secure and maintained in accordance with confidentiality.

Post-exposure management programme

Post-exposure management is an essential component of the IPC programme and a policy must be in place to prevent and manage infections in HCWs.

Components of post-exposure management

- Create awareness about the reporting facility regarding sharp injuries/ exposure among the staff[137]
- Conduct orientation of new employees to IPC policies of the facility
- Develop specific post-exposure policies, and ensure their compliance
- Educate and train the staff on standard work precautions, risk associated with exposure, vaccination and prophylaxis/treatment options available
- Prompt reporting and record-keeping of all occupational exposures
- Evaluation of type of exposure and risk of seroconversion involved
- Counselling and treatment of exposures, post-exposure vaccination/drugs/ immunoglobulin
- Follow-up testing

Steps of post-exposure management to blood-borne infections[138,139]

- Exposure site should be washed with soap and water
- Prompt reporting of exposure
- Type and severity of exposure should be assessed and recorded (skin/percutaneous/mucous membrane exposure; depth of injury, volume of blood/body fluid/body secretions)
- Exposure source, whether known case of infection with HIV, HBV or HCV
- Vaccination status of exposed person
- Investigations for the infection status of the exposed person and the source
- Treatment/vaccination of the exposed person if required

See Annex 4 for details of post-exposure management for blood-borne infections.

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Annexes

Annex 1: Acknowledgements

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Annex 2: IPC precautions pending confirmation of diagnosis

Clinical syndrome or condition±	Suspected pathogens‡	Empirical precautions (always includes standard precautions)
Diarrhoea		
Acute diarrhoea with a likely infectious cause (incontinent or diapered patient)	Enteric pathogens§	Contact precautions (paediatrics and adult)
Meningitis		
	Neisseria meningitidis	Droplet precautions for first 24 hours of antimicrobial therapy; mask and face protection for intubation
	Enteroviruses	Contact precautions for infants and children
	Mycobacterium tuberculosis	Airborne precautions if pulmonary infiltrate present
		Airborne precautions plus contact precautions if potentially infectious draining body fluid present
Rash or exanthema, generalized, aetiology unknown		
Positive history of travel to an area with an ongoing outbreak of VHF in the 10 days before onset of fever	Ebola, Lassa, Marburg viruses	Droplet precautions plus contact precautions, with face/eye protection, emphasizing safety sharps and barrier precautions when blood exposure likely. N95 or higher-level respiratory protection when aerosol-generating procedure performed
Vesicular	Varicella–zoster, herpes simplex, variola, vaccinia viruses	Airborne plus contact precautions
	Vaccinia virus	Contact precautions only if herpes simplex, localized zoster in an immunocompetent host, or vaccinia virus likely
Maculopapular with cough, coryza and fever	Rubeola (measles) virus	Airborne precautions
Respiratory infections		
Cough/fever/upper lobe pulmonary infiltrate in an HIV-negative patient or a patient at low risk for HIV infection	*M. tuberculosis*, respiratory viruses, *S. pneumoniae, Staph. aureus*	Airborne precautions plus contact precautions

Clinical syndrome or condition±	Suspected pathogens‡	Empirical precautions (always includes standard precautions)
Cough/fever/pulmonary infiltrate in any lung location in an HIV-infected patient or a patient at high risk for HIV infection	*M. tuberculosis*, respiratory viruses, *S. pneumoniae, Staph. aureus* (MSSA or MRSA)	Airborne precautions plus contact precautions; eye/face protection if aerosol-generating procedure performed or contact with respiratory secretions anticipated; droplet precautions instead of airborne precautions if tuberculosis unlikely and airborne infection isolation room and/or respirator unavailable (tuberculosis more likely in HIV-infected than in HIV-negative individuals)
Cough/fever/pulmonary infiltrate in any lung location in a patient with a history of recent travel (10–21 days) to countries with active outbreaks of SARS, avian influenza	Severe acute respiratory syndrome virus (SARS-CoV), avian influenza, novel coronavirus, *M. tuberculosis*	Airborne plus contact precautions plus eye protection; droplet precautions instead of airborne precautions if tuberculosis unlikely
Respiratory infections, particularly bronchiolitis and pneumonia, in infants and young children	Respiratory syncytial virus, parainfluenza virus, adenovirus, influenza virus, human metapneumovirus	Contact plus droplet precautions; discontinue droplet precautions if adenovirus and influenza ruled out
Skin or wound infection		
Abscess or draining wound that cannot be covered	*Staph. aureus* (MSSA or MRSA), group A	Contact precautions plus droplet precautions for the first 24 hours of appropriate antimicrobial therapy if invasive group A streptococcal disease suspected

Source: Adapted from Guideline for Isolation Precautions: preventing transmission of infectious agents in healthcare settings

Infection control professionals should modify or adapt this table according to local conditions. To ensure that appropriate empiric precautions are always implemented, hospitals must have systems in place to evaluate patients routinely according to these criteria as part of their preadmission and admission care.

± Patients with the syndromes or conditions listed below may present with atypical signs or symptoms (e.g. neonates and adults with pertussis may not have paroxysmal or severe cough). The clinician's index of suspicion should be guided by the prevalence of specific conditions in the community, as well as clinical judgement.

‡ The organisms listed under the column “Potential pathogens” are not intended to represent the complete, or even most likely, diagnoses, but rather possible aetiological agents that require additional precautions beyond Standard Precautions until they can be ruled out.

§ These pathogens include enterohaemorrhagic *E. coli* O157:H7, *Shigella* spp., hepatitis A virus, noroviruses, rotavirus, and *C. difficile*.

Annex 3: Observation forms for audit of hand hygiene compliance

Observation Form

Facility:		**Period Number*:**		**Session Number*:**	
Service:		**Date:** (dd/mm/yy)	/ /	**Observer:** (initials)	
Ward:		**Start/End time:** (hh:mm)	: / :	**Page N°:**	
Department:		**Session duration:** (mm)		**City**:**	

Prof.cat		Prof.cat		Prof.cat		Prof.cat	
Code		Code		Code		Code	
N°		N°		N°		N°	

Opp.	Indication	HH Action	Opp.	Indication	HH Action	Opp.	Indication	HH Action	Opp.	Indication	HH Action
1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	1	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	2	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	3	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
4	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	4	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	4	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	4	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
5	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	5	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	5	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	5	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
6	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	6	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	6	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	6	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	7	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves
8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves	8	☐ bef-pat. ☐ bef-asept. ☐ aft-b.f. ☐ aft-pat. ☐ aft.p.surr.	☐ HR ☐ HW ○ missed ○ gloves

* To be completed by the data manager.
** **Optional**, to be used if appropriate, according to the local needs and regulations.

General Recommendations

(refer to the Hand Hygiene Technical Reference Manual)

1. In the context of open and direct observations, the observer introduces him/herself to the health-care worker and to the patient when appropriate, explains his/her task and proposes immediate informal feed back.
2. The health-care worker, belonging to one of the main four following professional categories (see below), is observed during the delivery of health-care activities to patients.
3. Detected and observed data should be recorded with a pencil in order to be immediately corrected if needed.
4. The top of the form (header) is completed before starting data collection (excepted end time and session duration).
5. The session should last no more than 20 minutes (± 10 minutes according to the observed activity); the end time and the session duration are to be completed at the end of the observation session.
6. The observer may observe up to three health-care workers simultaneously, if the density of hand hygiene opportunities permits.
7. Each column of the grid to record hand hygiene practices is intended to be dedicated to a specific professional category. Therefore numerous health-care workers may be sequentially included during one session in the column dedicated to their category. Alternatively each column may be dedicated to a single health-care worker only of whom the professional category should be indicated.
8. As soon as you detect an indication for hand hygiene, count an opportunity in the appropriate column and cross the square corresponding to the indication(s) you detected. Then complete all the indications that apply and the related hand hygiene actions observed or missed.
9. Each opportunity refers to one line in each column; each line is independent from one column to another.
10. Cross items in squares (several may apply for one opportunity) or circles (only a single item may apply at one moment).
11. When several indications fall in one opportunity, each one must be recorded by crossing the squares.
12. Performed or missed actions must always be registered within the context of an opportunity.
13. Glove use may be recorded only when the hand hygiene action is missed while the health-care worker is wearing gloves.

Short description of items

Facility:	to complete according to the local nomenclature	
Service:	to complete according to the local nomenclature	
Ward:	to complete according to the local nomenclature	
Department:	to complete according to the following standardized nomenclature:	
	medical, including dermatology, neurology, haematology, oncology, etc.	surgery, including neurosurgery, urology, EENT, ophthalmology, etc.
	mixed (medical & surgical), including gynaecology	obstetrics, including related surgery
	paediatrics, including related surgery	intensive care & resuscitation
	emergency unit	long term care & rehabilitation
	ambulatory care, including related surgery	other (to specify)
Period N°:	1) pre- / 2) post-intervention; and then according to the institutional counter.	
Date:	day (dd) / month (mm) / year (yy)	
Start/end time:	hour (hh) / minute (mm).	
Session duration:	difference between start and end time, resulting in minutes of observation.	
Session N°:	attributed at the moment of data entry for analysis.	
Observer:	observer's initials (the observer is responsible for the data collection and for checking their accuracy before submitting the form for analysis.	
Page N°:	to write only when more than one form is used for one session.	
Prof.cat:	according to the following classification:	
	1. nurse / midwife	1.1 nurse, 1.2 midwife, 1.3 student.
	2. auxiliary	
	3. medical doctor	3.1 in internal medicine, 3.2 surgeon, 3.3 anaesthetist / resuscitator / emergency physician, 3.4 paediatrician, 3.5 gynaecologist, 3.6 consultant, 3.7 medical student.
	4. other health-care worker	4.1 therapist (physiotherapist, occupational therapist, audiologist, speech therapist), 4.2 technician (radiologist, cardiology technician, operating room technician, laboratory technician, etc), 4.3 other (dietician, dentist, social worker and any other health-related professional involved in patient care), 4.4 student.
Number:	number of observed health-care workers belonging to the same professional category (same code) as they enter the field of observation and you detect opportunities.	
Opp(ortunity):	defined by one indication at least	
Indication:	reason(s) that motivate(s) hand hygiene action; all indications that apply at one moment must be recorded	
	bef.pat: before touching a patient	aft.b.f: after body fluid exposure risk
	bef.asept: before clean/aseptic procedure	aft.pat: after touching a patient
		aft.p.surr: after touching patient surroundings
HH action:	response to the hand hygiene indication(s); it can be either a positive action by performing handrub or handwash, or a negative action by missing handrub or handwash	
	HR: hand hygiene action by handrubbing with an alcohol-based formula HW: hand hygiene action by handwashing with soap and water	Missed: no hand hygiene action performed

Observation Form – Basic Compliance Calculation

	Facility:						Period:			Setting:					
	Prof.cat.			Prof.cat.			Prof.cat.			Prof.cat.			Total per session		
Session N°	Opp (n)	HW (n)	HR (n)	Opp (n)	HW (n)	HR (n)	Opp (n)	HW (n)	HR (n)	Opp (n)	HW (n)	HR (n)	Opp (n)	HW (n)	HR (n)
1															
2															
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18															
19															
20															
Total															
Calculation	Act (n) = / Opp (n) =			Act (n) = / Opp (n) =			Act (n) = / Opp (n) =			Act (n) = / Opp (n) =			Act (n) = / Opp (n) =		
Compliance															

Compliance (%) = $\frac{\text{Actions}}{\text{Opportunities}}$ x 100

Instructions for use

1. Define the setting outlining the scope for analysis and report related data according to the chosen setting.
2. Check data in the observation form. Hand hygiene actions not related to an indication should not be taken into account and vice versa.
3. Report the session number and the related observation data in the same line. This attribution of session number validates the fact that data has been taken into count for compliance calculation.
4. Results per professional category and per session (vertical):
   - 4.1 Sum up recorded opportunities (opp) in the case report form per professional category: report the sum in the corresponding cell in the calculation form.
   - 4.2 Sum up the positive hand hygiene actions related to the total of opportunities above, making difference between handwash (HW) and handrub (HR): report the sum in the corresponding cell in the calculation form.
   - 4.3 Proceed in the same way for each session (data record form).
   - 4.4 Add up all sums per each professional category and put the calculation to calculate the compliance rate (given in percent)
5. The addition of results of each line permits to get the global compliance at the end of the last right column.

Observation Form – Optional Calculation Form

(Indication-related compliance with hand hygiene)

	Facility:					Period:				Setting:					
	Before touching a patient			Before clean/ aseptic procedure			After body fluid exposure risk			After touching a patient			After touching patient surroundings		
Session N°	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)	Indic (n)	HW (n)	HR (n)
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20															
Total															
Calculation	Act (n) = Indic1 (n) =			Act (n) = Indic2 (n) =			Act (n) = Indic3 (n) =			Act (n) = Indic4 (n) =			Act (n) = Indic5 (n) =		
Ratio act / indic*															

Instructions for use

1. Define the setting outlining the scope for analysis and report related data according to the chosen setting.
2. Check data in the observation form. Hand hygiene actions not related to an indication should not be taken into account and vice versa.
3. If several indications occur within the same opportunity, each one should be considered separately as well as the related action.
4. Report the session number and the related observation data in the same line. This attribution of session number validates the fact that data has been taken into count for compliance calculation.
5. Results per indication (indic) and per session (vertical):
   - 4.1 Sum up indications per indication in the observation form: report the sum in the corresponding cell in the calculation form.
   - 4.2 Sum up positive hand hygiene actions related to the total of indications above, making the difference between handwash (HW) and handrub (HR): report the sum in the corresponding cell in the calculation form.
   - 4.3 Proceed in the same way for each session (observation form).
   - 4.4 Add up all sums per each indication and put the calculation to calculate the ratio (given in percent)

*Note: This calculation is not exactly a compliance result, as the denominator of the calculation is an indication instead of an opportunity. Action is artificially overestimated according to each indication. However, the result gives an overall idea of health-care worker's behaviour towards each type of indication.

Annex 4: Post-exposure management for blood-borne infections, HIV, HBV and HCV

Definitions[a]

Occupational exposure refers to exposure to potential blood-borne infections (HIV, HBV and HCV) that may occur in healthcare settings during performance of work activities.

Post-exposure prophylaxis (PEP) refers to comprehensive medical management to minimize the risk of infection among healthcare workers (HCWs) following potential exposure to blood-borne pathogens (HIV, HBV, HCV). This includes counselling, risk assessment, relevant laboratory investigations based on informed consent of the source and exposed person, first aid and depending on the risk assessment, the provision of short term (four weeks) of antiretroviral drugs, with follow up and support.

Post-exposure prophylaxis (PEP) for HIV[b]

Eligibility for PEP

- PEP should be offered, and initiated as early as possible, to all individuals with exposure that has the potential for HIV transmission, and ideally within 2 hours (but certainly within the first 72 hours) of exposure and the risk evaluated as soon as possible.
- Exposures that may warrant occupational PEP include:
  - Parenteral or mucous membrane exposure (splashes to the eye, nose or oral cavity)
  - The following bodily fluids may pose a risk of HIV infection: blood, blood-stained saliva, breast-milk, genital secretions and cerebrospinal, amniotic, rectal, peritoneal, synovial, pericardial or pleural fluids.

Exposures that do not require PEP include:

- When the exposed individual is already HIV-positive
- When the source is established to be HIV-negative
- Exposure to bodily fluids that does not pose a significant risk: tears, non-blood-stained saliva, urine and sweat.

Post-exposure prophylaxis regimen for HIV

In contrast to the earlier recommendation of two antiretroviral drugs, recent guidelines including WHO 2014[c], WHO 2018[d], DHHS 2013[e], BHIVA[f] and NACO[g] prefer three antiretroviral drugs for PEP, irrespective of the degree of exposure (irrespective of

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[a] naco.gov.in

[b] Recommendations based on WHO guideline for post-exposure prophylaxis, http://www.who.int/hiv/pub/guidelines/arv2013/December2014-ARVsupplement-chap5.pdf

[c] WHO guideline for post-exposure prophylaxis, http://www.who.int/hiv/pub/guidelines/arv2013/December2014-ARVsupplement-chap5.pdf

[d] WHO, 2018. Updated recommendations on first-line and second-line antiretroviral regimens and post-exposure prophylaxis and recommendations on early infant diagnosis of HIV: interim guidelines. Supplement to the 2016 consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection. Geneva: https://www.who.int/hiv/pub/guidelines/ARV2018update/en/

[e] Updated U.S. Public Health Service guidelines for the management of occupational exposures to HIV and recommendations for post-exposure prophylaxis.2013 https://stacks.cdc.gov/view/cdc/20711

[f] EAGA guidance on HIV post-exposure prophylaxis Update 2015 https://www.gov.uk/government/publications/eaga-guidance-on-hiv-post-exposure-prophylaxis

[g] http://naco.gov.in/sites/default/files/NACO%20-%20National%20Technical%20Guidelines%20on%20ART_October%202018%20%281%29.pdf

percutaneous or mucous membrane exposure and irrespective of mild, moderate or severe exposure).

This change was aimed at simplification of the recommendation to improve uptake and completion rates for PEP. This shift towards recommending a three-drug regimen for everyone was based on the availability of less toxic and better-tolerated medications, the difficulty in evaluating the risk of drug resistance and need to simplify prescribing.

Follow up

HIV antibody testing should be done for at least 6 months post-exposure (e.g. at baseline, 6 weeks, 3 months, and 6 months) to ensure no transmission has occurred.

Prophylaxis for HBV

- HCWs have a higher risk of exposure to HBV infection than the general population, hence routine vaccination against HBV is necessary for personnel who are likely to come in contact with blood, body fluids or sharps.
- The HBV vaccine in generally administered in a three-dose vaccine series at 0-, 1- and 6-month schedules. The vaccine should be administered intramuscularly in the deltoid muscle because gluteal injection leads to poor immunogenicity.
- The efficacy of the vaccine is >90% after the third dose in terms of formation of a protective antibody titre.
- Test for anti-HBs titres after 1–2 months of completion of 3 doses of vaccine. A sero-protective (adequate) level of anti-HBs is defined as ≥10 mIU/ml.
- Those whose anti-HBs titres are below protective titre of 10 mIU/ml should repeat the 3-dose vaccine series or be evaluated for hepatitis B surface antigen (HBsAg) positivity.
- Approximately 50% of individuals who did not respond to the first series of the HBV vaccine respond to the second series of the vaccine. If the HCW does not respond to the second series, he/she should be labelled as a non-responder.

Post-exposure prophylaxis for HBV[h]

- If the source is HBV-positive: Appropriate and timely prophylaxis can prevent HBV infection and subsequent development of chronic infection or liver disease. The mainstay of PEP is hepatitis B vaccine, but in certain circumstances, hepatitis B immune globulin is recommended in addition to vaccine for added protection.
- If the source is known or shown to be positive for HBsAg, the level of anti-HBs antibodies in the HCW is important. If the injured HCW is immunized (anti-HBs antibodies >10 IU/ml) – whether from vaccination or past infection they are protected, and there is no need for hepatitis B immunoglobulin after a potential or confirmed exposure to hepatitis B.
- When a source patient is unknown, the exposed HCW should be managed as if the source patient were HBsAg-positive.
- When indicated, immune prophylaxis should be initiated as soon as possible, preferably within 24 hours.
- If the HCW is unimmunized or a non-responder (did not seroconvert to the vaccine) or has antibody levels to HBsAg <10 IU/ml), and sustains a needle-stick injury from a patient with evidence of chronic HBV (HBsAg-positive), they should be given HBIG (hepatitis B hyper-

[h] CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering post-exposure Management MMWR 2013;62(RR10):1–19.

immune globulin) 0.06 ml/kg as soon as possible, preferably within 24 hours and should simultaneously start/reinitiate the course of HBV immunization with three doses of hepatitis B vaccine at a different site for unimmunized/previously unfinished second hepatitis B series. The second and third doses should be separated by at least 2 months' interval.

- If the HCW has had two series of the HBV vaccine and was still a non-responder, they should receive a second dose of HBIG, 1 month after the first dose.
- Following completion of three-dose vaccination series, the level of immunity (antibodies to surface antigen, i.e. anti-HBs titres) should be checked 1–2 months later. Those whose anti-HBs titres are <10 mIU/ml should complete a second three-dose vaccine series or be evaluated for HBsAg positivity. If HBsAg is positive after exposure, the person should be counselled regarding the modes of prevention of HBV transmission to others and to seek treatment for HBV.

Table 1. Post-exposure prophylaxis for percutaneous or per mucosal exposure to hepatitis B virus

Vaccination/serostatus	Source		
	HBsAg-positive	**HBsAg-negative**	**Unknown**
Unvaccinated	Hepatitis B immunoglobulin (HBIG) single dose and initiate vaccination	Initiate vaccination	Initiate vaccination
Responder to vaccine (protected)	No treatment	No treatment	No treatment
Non-responder			
After one series (3-dose) of vaccination	HBIG single dose and initiate revaccination	No treatment	If source known to be high-risk: treat as if source were HBsAg-positive (HBIG single dose and initiate revaccination)
After 2 series (6 doses) of vaccination	HBIG two doses (separated by 1 month)	No treatment	If source known to be high-risk: (treat as if source were HBsAg-positive) HBIG single dose and initiate revaccination
Antibody response unknown	Test exposed person for anti-HBs: • If ≥10 mIU/ml: no treatment • If <10 mIU/ml: HBIG single dose and vaccine booster	No treatment	Test exposed person for anti-HBs • If ≥10 mIU/ml: no treatment • If <10 mIU/ml: initiate revaccination

Source: Adapted from Immunization of Health-Care Personnel: Recommendations of the Advisory Committee on Immunization Practices (ACIP) MMWR 2011 /60(RR07)

Table 2. Post-exposure management of healthcare personnel after occupational percutaneous and mucosal exposure to blood and body fluids, by hepatitis B vaccination and response status of the individual

Healthcare personnel status	Post-exposure testing		Post-exposure prophylaxis		Post-vaccination serological testing
	Source patient (HbsAg)	HCP testing (anti-HBs)	HBIG	Vaccination	
Documented responder (after ≥3 doses)	No action needed				
Documented non-responder (after 6 doses)	Positive/ Unknown		HBIG x 2 1 month apart		No
	Negative	No action needed			
Response unknown (after 3 doses)	Positive/ Unknown	<10 mIU/ml	HBIG x 1	Initiate re-vaccination	Yes
	Negative	<10 mIU/ml	None		
	Any result	≥10 mIU/ml	No action needed		
Unvaccinated/incompletely vaccinated or vaccine refusers	Positive/ Unknown		HBIG x 1	Complete vaccination	Yes
	Negative		None	Complete vaccination	Yes

Exposure to hepatitis C virus

- Over 60% of persons infected with HCV may develop chronic liver disease.
- Depending on whether active viral replication is occurring for HCV, the risk of transmission after a sharps injury from an HCV-infected person varies from 3% to 10%. The routes of infection are similar to HBV infection.
- No post-exposure therapy is available for HCV, but seroconversion (if any) must be documented.
- The exposed HCW should be retested for HCV antibodies at 3 and 6 months with monitoring of clinical signs and symptoms. Preferably the exposed HCW should be under the care of a hepatologist/physician so that HCV infection if happens is detected at the earliest (liver enzymes monitored and in case these increase that may indicate infection) and treatment for HCV can be instituted.
- No recommendations exist regarding restriction of professional activities of HCWs with an HCV infection. Standard precautions and other infection control practices should be followed.
- As for HBV infection, the source person must be tested for HCV infection.
- For any occupational exposure to blood-borne pathogens, counselling and appropriate clinical and serological follow-up must be provided.

Standard guidelines for pre-test counselling or pre-test discussions for HIV, HBV and HCV must be followed when testing the source and the HCW.

Annex 5.1: Procedures for cleaning, disinfection and sterilization based on infection risk

A. Procedures for non-critical patient-care items

Article	Standard procedure
Ambu bag and mask (Disposable preferred; change mask after each patient)	Clean with detergent and water and dry Preferably get autoclave ones, now available and autoclave after each use in CSSD
Ampoules	Wipe neck with 70% alcohol
Aprons (Disposable recommended)	If reusable, clean with detergent and water, dry and disinfect with 70% alcohol
Baths	Clean after each use with detergent and water In case of baths by infected patients/open wound, disinfect with sodium hypochlorite (5.25–6.15% household bleach diluted 1:500 to provide >100 ppm available chlorine)
Baby baths	Clean with detergent and water
Baby equipment (feeding bottles and teats) (Disposable preferred)	If reusable, return to CSSD for heat sterilization or Wash in hot water and detergent and rinse followed by immersion in 1% hypochlorite solution (freshly made)
Baby-weighing scale/ changing table	Fresh liner should be used for each baby Clean tray with detergent and water after use If visibly soiled, clean first with friction and then wipe down with LLD
Bed pans and urine bottles (Disposable preferred; wash hands thoroughly after handling)	Preferably wash in machine with heat disinfection cycle Alternatively, clean and disinfect with 0.5% sodium hypochlorite or phenolic germicide (used according to the manufacturers' instructions) Dry completely before reuse
Bed and couch frames	Clean with detergent and water between patients; wipe with LLD like 70% alcohol/phenolic germicide if disinfection is necessary.* For isolation rooms, after cleaning, wipe with disinfectant (sodium hypochlorite or phenolic germicide).*
Blood pressure apparatus and cuff (Disposable preferred; after use in isolation facility, lauder cuffs in washing machine)	Clean cuffs, tubing, bulb (if manual) with 70% alcohol/ other LLD after each use. If visibly soiled, wash in soap/detergent and water, rinse and hang to dry.
Brushes (nail, avoid use) (Disposable nail brushes preferred)	If reusable, heat-sterilize
Boots	Clean with detergent water. If visibly soiled, disinfect with LLD.

Article	Standard procedure
Canes, walkers, crutches, wheel chairs and rehabilitation equipment	Clean with detergent and water If soiled, clean patient contact surfaces by wiping with sodium hypochlorite (>100 ppm available chlorine)/ 70–90% alcohol or phenolic germicide at a concentration recommended for low-level disinfection
Cloth appliances (neck and arm traction, etc.)	Wash after each use with detergent in hot water, rinse well and dry before reuse.
Denture pots (Disposable may be used)	To be cleaned by patient themselves with detergent and water
Drainage bottles (Disposable preferred; after use in isolation, wipe with sodium hypochlorite (1–2%) and dry)	If reusable, rinse and return to CSSD for heat disinfection Clean with detergent and water and disinfect with 0.5% hypochlorite and dry
Duvets (Disinfect with sodium hypochlorite (>100 ppm available chlorine) if contaminated)	Heat disinfect or wash with detergent and dry
Doppler (fetal/vascular)	Wipe head of Doppler after each use with 70% IPA
Earpieces for otoscopes (To be returned to CSSD after use in isolation)	Clean with detergent and water and dry
High-touch surfaces (door knobs, phones, keyboards, light, switches, bedside tables, drawer pulls and other “hand-touch” items) (Choice dependent on material)	Clean at least twice daily and when soiled. Clean with 70% alcohol/sodium hypochlorite/some iodophors/ quaternary ammonium compounds If visibly soiled, clean with soap/detergent first.
IV monitoring pumps and feed pumps (After use, in isolation, wipe with sodium hypochlorite 2%.)	Clean with detergent and water and dry Disinfect with LLD (70% alcohol or sodium hypochlorite)
IV stands	Clean with detergent and water; dry before use
Incubator Infant incubators (Avoid using phenolic disinfectants)	Clean with detergent and water and thoroughly dry; disinfect (if needed) with chlorine-releasing agent (125 ppm) or 70% alcohol
Leads and monitors	Disassemble, clean with detergent and water and dry
Mattresses and pillows	Clean with detergent and water between patients and as required
Metal basin/Kidney tray (Disposable preferred)	Wash after each use with enzymatic detergent and rinse well; then autoclave
Otoscope handle	Wipe all surfaces with 70% alcohol/any other LLD
Otoscope speculum (Disposable preferred)	If reusable, wash and disinfect after each use Soak for 20 minutes in IPA (70%)
Pressure-relieving devices	Clean with detergent and water and dry

Article	Standard procedure
Pulse oximeter probe (Disposable preferred)	Wipe inside and outside with 70% IPA or any other LLD
Reflex hammer	Wipe handle and head after each use with IPA or LLD
Soap dispensers and dishes Spillage (Avoid use of soap dishes; use liquid soap dispensers)	Clean nozzle and outside daily and dry Clean inside of the container with detergent before refilling Do not top-up soap
Sputum pots/containers	Use disposable only, with close filling lid Discard into clinical waste for incineration If reusable, empty with extreme caution and steam sterilize
Stethoscopes	Clean with detergent and water and dry Wipe with 70% alcohol Wipe bell and tubing after each use with 70% IPA or LLD
Suction bottles	If disposable, seal when 75% full and place in yellow plastic bag If reusable, clean with sodium hypochlorite and dry Must be heat disinfected/sterilized. Change daily and in between each patient. Store dry when not in use.
Telephone/ Mobile	Disinfect with 70% alcohol
Thermometer (Use individual thermometers; do not mix oral and rectal thermometers)	Cover with disposable sleeve before use and store dry in individual holder (inverted) Clean and wipe with 70% alcohol after every use
Trolleys (dressing)	Clean daily with detergent and water. After each use, wipe with 70% alcohol/sodium hypochlorite (>100 ppm available chlorine)
Urine-measuring jugs	Heat disinfect after each use in bed pan washer
Vomit bowls	Empty contents into sluice, rinse, wash and disinfect with hot water and detergent
Wheel chairs	Clean between patients with detergent and water
X-ray equipment (Wipe with 70–90% alcohol/any other LLD)	Clean with cloth dampened dust with detergent and water

* used according to the manufacturers' instructions

B. Procedures for semi-critical items

Item	Method
Anaesthesia equipment (airways, endotracheal tubes, etc.)	Preferably sterilize by heat
Applanators (tonometer prisms)	Wipe tips clean. Immerse in sodium hypochlorite (500 ppm available chlorine) up to 10 mm Disinfect with 3% H_2O_2/70% isopropyl alcohol Prepare fresh solution of hypochlorite at the start of clinic After disinfection, rinse thoroughly in tap water and dry
Breast pumps	Wash with detergent and water, immerse in sodium hypochlorite (>100 ppm available chlorine). Dry before use.
Breast pump accessories	Disinfect by boiling for 5 minutes Long-handled tongs that have been disinfected Dry on a paper towel
Cervical caps	Wash with soap and hot water; dry. Soak in 70% alcohol for 20 minutes/1:10 dilution of household bleach, rinse with water and dry. Store in clear plastic bags at a cool, dry place
Cryosurgical probes	Autoclave if possible If heat labile, use low-temperature sterilization or ethylene oxide Less acceptable alternative: immerse in 2% glutaraldehyde
Diagnostic ultrasound transducers (transvaginal/transrectal/ transoesophageal/endobronchial)	Sterilization with H_2O_2/PAA-based systems (if compatible with them)/ EO/ high-level disinfection with compatible, instrument grade disinfectant according to the manufacturers' instructions Transducer heads may be disinfected with 70% alcohol Store to prevent recontamination *Note:* Activity of alcohol against HPV is unknown
Diaphragm fittings Rings and pessaries Ear suction tips	Wash with soap and water, followed by immersion in 70% alcohol for 15 minutes Heat/sterilize/boil Immerse in 2% glutaraldehyde
Syringe nozzle and ear speculum, ear suction tip	Sterilize with heat, boil/immerse in 2% glutaraldehyde (if plastic), iodophors or alcohol Sterilize by heat/immerse in glutaraldehyde (2%)
Laryngeal mirror	High-level disinfection/sterilization with heat or immerse in glutaraldehyde

Annex 5.2: Procedures for cleaning and sanitation of environment

Procedures for cleaning and sanitation various areas/ items in the hospital

Area/Items	Process	Item/ equipment	Method/ procedure
General clinical areas	Dust mops Mop (No broom will be used for sweeping)	Sweeping	Sweep with the dust mop or damp mop to remove surface dust. Sweep under the furniture and remove dust from corners. Gathered dust must be removed using a hearth brush and shovel. • The sweep tool should be cleaned or replaced after use.
Ceiling and walls	Sweeping tool Duster Bowl/ small bucket of soap solution Plain water	Damp dusting	• Damp dusting with a long handled tool for the walls and ceiling done with very little moisture, just enough to collect the dust. • Damp dusting should be done in straight lines that overlap one another. • Change the mop head/ cover when soiled.
Floors (clinical areas) – daily mopping	Detergent/ sanitizer–hot water Three buckets (one with plain water and one with solution; one bucket for hypochlorite (1:50 dilution)	Cleaning Daily mopping	• Prepare cleaning solution using cleaning agent with warm water (detergent/ sanitizer). • Use the three-bucket technique for mopping the floor, one bucket with plain water and one with the detergent solution. • First mop the area with the warm water and detergent solution. • After mopping clean the mop in plain water and squeeze it. • Repeat this procedure for the remaining area. • Mop area again using hypochlorite 1:50 dilution after drying the area. • In between mopping if solution or water is dirty change it frequently. • Mop the floor starting at the far corner of the room and work towards the door. • Clean articles between cleaning. *Note:* Mopping should be done thrice a day, in each shift
	Care of mop	Hot water Detergent Hypochlorite 1:1000	• Clean with hot water and deterrent solution, disinfect it with hypochlorite and keep for drying upside down.

Area/Items	Process	Item/ equipment	Method/procedure
Walls and doors, door knobs	Damp cloth or Sponge squeeze mop Detergent	Thorough washing	• The walls and doors are to be washed with a brush, using detergent and water once a week (usually on Sundays); gently apply cloth to soiled area, taking care not to remove paint, then wipe wall with warm water to remove excess cleaning agent. • Door knobs and other frequently touched surfaces should be cleaned daily.
Floors	Scrubbers Hot water Detergent Mop	Thorough washing	• Scrub floors with the hot water and detergent with using minimal water. (Do not pour the water.) • Clean with plain water • Mop area, and allow to dry • Hypochlorite 1:100 mopping can be done.
Isolation room	Detergent/ Sanitizer–warm water Three buckets (one with plain water and one with solution); separate bucket for hypochlorite (1:50 dilution)	Terminal cleaning	• Before cleaning an isolation room, liaise with infection control team for details of any special requirements. Staff will be instructed on specific cleaning procedures required with reference to – Safety uniform to be worn. – Chemicals or disinfectants to be used. – Also, if bed screen and shower screen are to be cleaned or changed, refer cleaning in isolation rooms.
All clinical areas/ Laboratories	Hypochlorite 1:100 (1%) Rag piece Absorbent paper Unsterile gloves Spill care kit Mop Hot water	Blood and body fluid spill care	• Wear non-sterile gloves. • Cover the spill with hypochlorite (1:100). • For large spills, cover with rag piece/ absorbent paper for 10–20 minutes contact time. • Clean up spill and discard into infectious waste bin, and mop area. with soap and hot water. • Clean the mop and mop area with 1% hypochlorite. • Wash mop with detergent and hot water and allow it to dry.
Book case, files, lockers, tables, cupboard, wardrobes, benches, shelves and cots	Damp duster Warm water Detergent Dry duster	Damp dusting	• Damp dust with warm water and detergent.

Area/Items	Process	Item/ equipment	Method/procedure
Cots, railings and lockers	Detergent/ Sanitizer–hot water Three small buckets/or big bowls One with plain water One with solution One for hypochlorite 1:100 dilution	Daily dusting	• Damp dust with warm water and detergent followed by disinfection with hypochlorite or as per hospital policy.
Bathroom showers	Warm water Detergent powder Nylon Scrubber Hypochlorite 1:100 dilution	Cleaning	• Thoroughly scrub the basin/ tiles with warm water and detergent inside and outside. • Special attention to soap runs under the basin. • Tap fittings to be washed and dried. *Note:* Do not use powder cleanser dry as it can scratch the chrome on the taps. If required disinfection to be done.
Taps and fittings	Warm water Detergent powder Nylon scrubber	Cleaning	• Wipe over taps and fittings with a damp cloth and detergent. • If heavily soiled, sprinkle a little powder cleanser onto a wet cloth, fold cloth over and rub into a paste and polish. *Note:* Do not use powder cleanser dry as it can scratch the chrome on the taps. • Care should be taken to clean the underside of taps and fittings. • Taps should be dried after cleaning
Mirrors and Glass	Warm water Detergent water/ cleaning solution Damp cloth Wiper	Cleaning	• Using warm water and a small quantity of detergent and using a damp cloth, wipe over the mirror and surround, then using a dry lint-free cloth, buff the mirror and glass to a clean dry finish.
Sluice room Stainless steel/ Any other sink	Powder cleanser Detergent powder Wiper Cloth	Cleaning	• Sinks are to be cleaned with a powder cleanser. • First wet the sink. Sprinkle on a little powder cleanser and work around the surface with a cloth, include the plug hole. • Do not use the powder cleanser on dry sink. • After removing spillage and any stains, flush away with running water. Wipe down the surface of the sink.

Area/Items	Process	Item/ equipment	Method/procedure
Bed pans, urinals kidney trays, sputum mugs, urine measuring jugs	Detergent water Brush scrubber Hypochlorite (1:50)	Cleaning and disinfection	• After washing with soap and water immerse in 1:50 dilution of hypochlorite for 20 minutes. • Keep it for air dry in a stand in such a way that water will drain downward.
Suction bottles	Soap and water Hypochlorite 1%	Cleaning and Disinfection	• Should be emptied in sluice room. If soiled with blood and body fluids they should be decontaminated with 1% hypochlorite. • Wash with detergent and disinfect with hypochlorite for 20 minutes. • Must be cleaned daily and in between each patient. • To be stored dry when not in use.
Suction tubing	Tap water Detergent	Cleaning	• After each use should be cleaned under running water and with a detergent. • Should be sent to CSSD for further cleaning and sterilization. • For each patient separate sterile suction tubing should be used.
Suction catheters (rubber and plastics)	Tap water Steel basin with Chlorhexidine-cetrimide solution for onsite rubber catheters cleaning (if they are reused)	Cleaning	• Use sterile suction catheter for tracheotomy suctioning each time. • After use of suction catheter suck catheter with the plain water and discard catheters in soap solution and sent to the CSSD. • Collect rubber catheters in chlorhexidine-cetrimide solution. • Clean it under running water. • Send it to CSSD for further cleaning and sterilization as disposal.
Pantry furniture	Duster	Dusting	• Damp dust
Telephone	Warm water detergent solution Duster	General cleaning	• Damp dust with warm water and detergent. • Paying special attention to the ear and mouth piece and dry it properly.
Desks	Damp cloth Furniture polish	Dusting	• Wipe top sides and draw handles with a damp cloth. Wooden desks should be cleaned with furniture polish and buffed to clear glows. Pen holder etc. to be cleaned or dusted.
Chairs (Vinyl)	Warm water and detergent	Cleaning	• Wipe down with warm water and detergent. Remove any marks under arms and seat. Check for damage to stoppers, if stopper require replacement, report to maintenance department.

Area/Items	Process	Item/ equipment	Method/procedure
Fabric chairs	Vacuum cleaner Warm water and detergent Stain remover	Cleaning	• Vacuum the cloth area of the chair and wipe down remainder of the chair with warm water and detergent. Remove stains from fabric with stain remover.
Furniture and fittings	Warm water and detergent Rag piece	Dusting	• Using warm water and detergent, damp dust all furniture and fittings, including chairs, sofas, stools, beds, tables, cupboards, wardrobes, lockers, trolleys, benches, shelves and storage racks, waste/bins, fire extinguishers, oxygen cylinders, televisions window sills and dry properly.
Bed tables, bedside lockers	Warm water and detergent Wiper Duster	Cleaning	• Wipe down over bed table. Wipe top and underneath base and stand, using warm water and detergent. Dry on completion. • Wipe down the bedside. Remove marks from fronts of draws and sides. Using warm water and detergent, wash the top to remove any sticky marks and dust.
Light switches and over-bed lights	Damp cloth (never wet) Detergent Warm water	Cleaning	• Light switches to be cleaned of dust, spots and finger marks. Clean with a damp cloth (never wet) and detergent. • Over-bed lighting to be damp dusted. Light housing to be wiped down with warm water and detergent.
Screens and Screen rails	Damp	Dusting	• Screen rails should be damp dusted using warm water and detergent. This includes rail supports. • Screens to be replaced on a set rotation basis or as soon as they are visibly soiled.
Curtains, blinds and drapes	Vacuum cleaner Soft clothes Water Mild soap solution	Cleaning	• Curtains blinds should be vacuumed, then wiped down with moist, soft cloth. • Always start at the top and work down • Solution for cleaning blinds should not contain strong detergents. Cloth should not be wet or these conditions could stain the blind. • Always use fresh cleaning solution and replace if it becomes soiled. • Rinse cleaning cloth regularly.

Area/Items	Process	Item/ equipment	Method/procedure
Air-vents and filters	Vacuum cleaner Duster Detergent solution	Cleaning	• Vents are vacuumed to remove any dust and wipe out with a cloth and detergent. • Some vents require removal to wash the back and entrance of the ducting. • Metal vents and filters are washed under running water and dried with a lint-free cloth to remove stubborn soil age. It should be done in collaboration with the engineering department.
Stethoscope	Detergent and water Alcohol-based rub	Cleaning	• Should be cleaning with detergent and water. • Should be wiped with hand rub before each patient contact.
Thermometer	Detergent and water Alcohol rub Individual thermometer holder	Cleaning	• Should be stored dry in individual holder. • Clean with detergent and tepid water and wipe with alcohol rub in between patient use. • Store in individual holder inverted. • Preferably one thermometer for each patient.
Injection and dressing trolley	Detergent and water Duster Disinfectant (70% alcohol)	Cleaning	• To be cleaned daily with detergent and water. • After each use should be wiped with disinfectant.
Refrigerators	Detergent and water Absorbent paper or clean cloth	Cleaning (weekly)	• Empty the fridge and store things appropriately. • Defrost, decontaminate and clean with detergent. • Dry it properly and replace the things. • Weekly cleaning is recommended. `
Linen Coloured clothes	Linen disinfectant	Washing	• Linen contaminated with blood and body fluids should be immersed in compatible (linen-friendly) disinfectant as per recommendation or detergent disinfectant. • Bag it in leak-proof bags and send to the laundry for washing. *Note:* During washing soiled linen, the washing person should be given PPE.
White clothes	Sodium hypochlorite 1% Tap water	Washing	• Should be washed under running water and soaked in 1:100% sodium hypochlorite for 20 minutes. *Note:* PPE should be worn while washing soiled linen.

Area/Items	Process	Item/ equipment	Method/procedure
Mattress and pillow cover	Sodium hypochlorite 1% Tap water	Washing	• Mattress and pillows should be covered with a reusable mattress cover. • It should be changed for each patient and when soiled sent to the laundry according to schedule.
BP cuffs and covers	Detergent Hot water	Washing	• Cuffs should be wiped with alcohol-based disinfectant and regular laundering is recommended for the cover.
Hair removal clippers	Soap and water Disinfectant	Disinfection	• Safety – single use disposable blades • Electric razors should be disinfected between use.
Soap dispensers	Detergent and water	Cleaning	• Daily dusting • Should be cleaned weekly with detergent and water and dried.
ICU HEPA Air-conditioner	Soap and water	Cleaning	• Regular maintenance air-conditioners according to norms. • Regular (twice a week) cleaning of AC filters with the soap and water or according to engineering department's policy. • Dry and replace.
Footwear	Detergent and water	Cleaning	• Bone marrow transplant unit footwear should be cleaned with detergent on a daily basis. • After washing, dry properly and keep it in shoe racks.
Water jars	Vim powder Soap and water	Cleaning	• Recommended boiled water for drinking • Water jars should be scrubbed/ cleaned with soap and water and boiled water before filling with water.
Kidney trays, sputum mugs, bed pans, urine measuring mugs	Detergent and water Hypochlorite	Cleaning	• After washing with soap and water immerse in 1:50 dilution of hypochlorite for 20 minutes (each use) • Dry in a stand such that water will drain downwards. • Hypochlorite should be prepared fresh daily in tap water
Suction bottles, tubing, catheters	Refer to general clinical areas		

Area/Items	Process	Item/ equipment	Method/procedure
General cleaning	Detergent and warm water Mop Two buckets Clean utility gloves Hand mops	Daily moping Floors Thorough washing	• Two-hourly moping with hypochlorite with the two-bucket technique is recommended. • Scrub floors with hot water and detergent with using minimal water. (Do not pour the water.) • Clean with plain water. • Allow to dry • Hypochlorite 1:50 mopping can be done. *Note:* Recommend general cleaning procedure
Stethoscope	Alcohol-based hand rub, spirit swab	Disinfection	• Refer to general clinical areas
Thermometer			• Refer to general clinical areas
Ventilators Ventilator tubing	Alcohol-based disinfectant Detergent and water	Disinfection	• Should be cleaned with an alcoholic disinfectant. • Change of circuit after every patient as per policy and when necessary, if the circuit is reusable, it can be sent to CSSD for sterilization after detergent and water cleaning.
Humidifiers	Detergent and water	Cleaning	• Should be cleaned with detergent and water and allow to dry. • If an HME humidifier is used, it should be disposed of within 24 hours or according to need.
Infusion pumps	Detergent and water Alcoholic disinfectant	Daily cleaning	• Should be damp dusted with detergent and water and dried after each use. • Wiping with the alcoholic disinfectant can be done.
Resuscitation bag with mask	Chlorhexidine-cetrimide	Sterilization	• After use on a patient, it should be kept in the disinfectant for 30 minutes, washed sent to CSSD.
Laryngoscope Magill's forceps	Detergent and water Chlorhexidine-cetrimide High-level disinfection		• After use, wash it under running tap water after removal of the bulb and blade. • Wipe bulb with disinfectant or detergent and water. • Blade should be washed under running water and immersed in high-level disinfectant as per recommendation. • Wash and dry it • Wipe with alcohol-based rub.

Area/Items	Process	Item/ equipment	Method/procedure
Pressure bags	Detergent and water	Cleaning	• Should be cleaned with detergent and water and dried.

Cleaning of toilets

Areas	Agents / Toilet cleaner	Procedure
Toilet pot/ commode	Hypochlorite/ Soap powder / long handle angular brush	Inside of toilet pot/commode: Scrub with the recommended agents and the long handle angular brush. Outside: Clean with recommended agents; use a nylon scrubber.
Lid/commode	Nylon scrubber and soap powder	Wet and srub with soap powder and the nylon scrubber inside and outside
Toilet floor	Soap powder and scrubbing brush/ nylon broom	Scrub floor with soap powder and the scrubbing brush Wash with water Use hypochlorite 1:50 dilution
Tap	Nylon scrubber and soap powder	Wet and scrub with soap powder and the nylon scrubber.
Outside sink	Soap powder and nylon scrubber	Scrub with the nylon scrubber.

Note: Dry the floors with a separate drying mop.

General

- Lint-free dusters/mops should be used; and washed with soap and water after every use, and dried.
- Brooms are not to be used in the hospital.
- The three-bucket technique should be used on every floor to facilitate hygienic cleaning of environment.

Housekeeping in the isolation room

- Before admission
  The admitting physician should inform the sister in-charge of isolation ward at least one hour before admission, mentioning the diagnosis, sex and the general state of the patient.
- Prerequisites for isolation
  - A hand washing sink and running water should be available at the entrance of each room to facilitate hand washing.
  - Cover the mattress and pillows with an impervious cover such as Mackintosh so that it can easily be damp dusted. Clean gowns should always be available.
  - Separate urinals, bedpans and thermometers/BP apparatus are to be used for each patient.
  - Bins lined with the appropriate colour-coded plastic liner should be available in each room for disposal of biomedical waste.
  - Rooms should be well lit, and isolated according to disease conditions.
- Cleaning procedure for isolation room

  - Linen should be stripped from the bed with care taken not to shake the linen during this action. Linen should be soaked in disinfectant, i.e. hypochlorite 1:50 for 20 minutes for white clothes and coloured linen as per hospital policy suitable high-level disinfectant to be used and then sent to the laundry.
  - All other articles such as IV stands and furniture should be cleaned with detergent and disinfected followed by high-level disinfectant.
  - Walls should be cleaned with detergent and mopped with a high-level disinfectant.
  - The bathrooms should be cleaned with detergent and water followed by disinfection with hypochlorite 1:50 dilution.
- At discharge (terminal disinfection):
  - The pillows and mattress covers are to be cleaned with detergent, disinfected with a high-level disinfectant and sent to the laundry.
  - Bed sheets, curtains, gowns and dusters must be removed, soaked in with a high-level disinfectant for one hour and then sent to laundry.
  - After disinfection, wash the room, wall, window, doors, bathroom, sink and furniture with soap solution after doing thorough high dusting in that cubicle.
  - Soak bed pan, urinal, kidney basin in with a high-level disinfectant for one hour, wash with detergent and dry it under sunlight.
  - Bath basin, multi-bin, bucket, jugs, mugs are washed with soap solution and dried in sunlight.
  - Rubber sheets (Mackintosh) are to be cleaned with detergent and water, dried, powdered and replaced.

Cleaning in special areas

- Operation theatre: See IPC in Surgical Unit in Chapter 6 and Annex 9.1
- Dialysis unit: See IPC in Dialysis Unit in Chapter 6

Annex 5.3: Specific measures for environmental and equipment cleaning/disinfection in haemodialysis units

Environmental and equipment cleaning has a major role in the prevention of infection in the HD unit.

Environmental cleaning

Thorough cleaning and disinfection of surfaces in the patient zone (chair, armrests, bedside table top/counter, and drawer/cupboard handles) and high touch surfaces (the exterior surfaces of the HD machine, computer screens, and keyboards) should be performed between all patient treatments. Enough time should be provided between treatments so that this can be done.

Details of cleaning methodology for environmental surfaces in the dialysis unit can be obtained from APIC Guide to the Elimination of Infections in Haemodialysis.[a]

Equipment cleaning

Dialysis Unit equipment includes HD machines, dialysers, water supply/treatment/distribution systems, component parts such as tubing and filters, acid and bicarbonate concentrate solutions, and instruments including blood pressure cuff, stethoscope, haemostats, scissors and clamps.

Infections can be caused by contamination of supplies/equipment with bloodborne viruses and pathogenic bacteria. Cleaning and disinfection of equipment and proper handling of reusable and disposable supplies is critical to the safety of patients in this high-risk area.

There should be written protocols for cleaning and disinfecting surfaces and equipment in the dialysis unit. Instructions should includethe steps for careful mechanical cleaning before disinfection. For equipment where the manufacturer has provided instructions for disinfection and sterilization, manufacturer's instructions should be followed.

Details on cleaning and disinfection of dialysis equipment can be obtained from APIC Guide to the Elimination of Infections in Haemodialysis[a] and CDC Recommendations for prevention of infections among chronic haemodialysis patients.[b]

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[a] APIC Guide to the Elimination of Infections in Hemodialysis https://apic.org/wp-content/uploads/2019/02/APIC-Hemodialysis.pdf

[b] Anitha Vijayan, John M. Boyce. What We Learned from Ebola Preparing Dialysis Units for the Next Outbreak. Clin J Am Soc Nephrol. 2018;13:1–3.

Annex 6: Policy for visitors and attendants

The following points should be considered for visitors and attendants.

1. Limit visitors to persons necessary for patient's emotional well-being and care. Visitor restrictions apply to all visitors, including staff members and their families. Visitors should limit their movement within the facility. Visitors should not sit on hospital beds or put their feet on beds.
2. Visitors should clean their hands with hand rub before entering and when leaving the room. An alcohol hand rub should be available at the entrance of the facility/unit/ward, along with a poster displaying instructions for using the hand rub.
3. Before entering the room, visitors must enquire at the nursing station for instructions and for gown and mask, if indicated. Visitors' bags and other belongings should be left outside the patient area.
4. Flowers/bouquet should not be allowed in patient room.
5. The patient and the relatives must be educated about the cause, spread and prevention of infection, if any. The need for isolation and restriction of visitors should be discussed with them.
6. The ward nursing staff and the doctors concerned shall have the responsibility of informing the patients' relatives of the measures to be taken and the importance of restriction of visitors. This should be done at the time of patients' admission.
7. Children below 12 years should not be allowed into isolation areas. One attendant should be allowed to stay in the ward with the patient who should be taught to practice hand hygiene before and after touching the patient.
8. Mobile phones have the potential to transmit infection by contact. There should be a policy on the use of mobile phones and visitors should be taught to decontaminate the phone with a hand rub.

- Notice to be put up in visitors' reception/waiting area: "Please do not visit your relative or friend (the patient) if you have a cold, cough, rash or any other communicable disease or have diarrhoea or vomiting within the last 48 hours."
- Notice to be put up in the patients' room: "While you are visiting the hospital please do not use the patients' toilets. There are separate toilets for visitors."

Annex 7: Airborne isolation, droplet and contact precautions for healthcare staff, patients and visitors

Target group	Airborne isolation precautions	Droplet precautions	Contact precautions
Hospital staff	• Clean hands between tasks and upon entering and exiting your hospital room • Place a sign on your room door to let staff know what to do. • Close the door to your room.	• Clean hands frequently • Put a sign on your door to let staff know what to do. • Wear a mask and eye protection. • Place masks outside your door for use by hospital staff and visitors.	• Clean hands frequently. • Put a sign on your door to let staff know what to do. • Wear gloves and gowns when entering your room.
Patients	• Clean hands frequently, especially after coughing and sneezing. • Keep room door closed at all times. • Be sure visitors read the sign on your door. • Leave your room only when medically necessary and wear a mask when you do. • Limit visitors to a few family members and friends who have immunity to your illness.	• Clean hands frequently, especially after coughing and sneezing. • Be sure visitors entering your room have read the sign on your door. • Leave your room only when medically necessary and wear a mask when you do. • Limit visitors to a few family members and friends. Brothers and sisters of paediatric patients on droplet precautions are discouraged from visiting.	• Clean your hands frequently. • Be sure visitors read the sign on your door. • Limit visitors to a few family members and friends.
Visitors	• Clean hands when entering and exiting patient's room. • Confirm that you have been vaccinated or have had the patient's disease to develop immunity. • Go to the nurse's station, if you have any questions.	• Clean hands upon entering and exiting your room. • Wear a mask and eye protection before entering the room and while visiting. • Go to the nurse's station, if you have any questions.	• Clean hands upon entering and exiting your room. • Avoid contact with dressings, tubes, bed sheets and other items the patient may touch. • Do not go into the rooms of other patients. • Go to the nurse's station, if you have questions.

Adapted from https://www.ucsfhealth.org/education/hospital_precautions/

Annex 8: Biomedical Waste Management and Handling (Principle) Rules, 2016

8.1. Duties of occupier*

a. Take all necessary steps to ensure that biomedical waste is handled without any adverse effect to human health and the environment and in accordance with these rules;
b. Make a provision within the premises for a safe, ventilated and secured location for storage of segregated biomedical waste in coloured bags or containers in the manner as specified in Schedule I, to ensure that there shall be no secondary handling, pilferage of recyclables or inadvertent scattering or spillage by animals and the biomedical waste from such place or premises shall be directly transported in the manner as prescribed in these rules to the common biomedical waste treatment facility or for the appropriate treatment and disposal, as the case may be, in the manner as prescribed in Schedule I (Annex 8.2)
c. Pre-treat the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or sterilization on-site in the manner as prescribed by the World Health Organization (WHO) guidelines on Safe Management of wastes from health-care activities and WHO blue book, 2014 and then sent to common BioMedical Waste Treatment facility for final disposal;
d. Phase out the use of chlorinated BMW disposable plastic bags (excluding blood bags, uro bags, etc.) and gloves (the definition of chlorinated plastic bags is mentioned in BMWM [Amendment] Rules, May 2019);
e. Dispose of solid waste other than biomedical waste in accordance with the provisions of respective waste management rules made under the relevant laws and amended from time to time (Solid Waste Rules, 2016 as amended);
f. Not to give treated biomedical waste with municipal solid waste;
g. Provide training to all its health-care workers and others, involved in handling of biomedical waste at the time of induction and thereafter at least once every year and the details of training programmes conducted, number of personnel trained and number of personnel not undergone any training shall be provided in the Annual Report;
h. Immunize all its health-care workers and others, involved in handling of biomedical waste for protection against diseases including hepatitis B and tetanus that are likely to be transmitted by handling of biomedical waste, in the manner as prescribed in the National Immunization Policy or the guidelines of the Ministry of Health and Family Welfare issued from time to time;
i. Establish a bar-code system for bags or containers containing biomedical waste to be sent out of the premises for further treatment and disposal in accordance with the guidelines issued by the Central Pollution Control Board (Guidelines for bar-code system for effective management of BMW CPCB, April 2018 as amended) by March 2019;
j. Ensure segregation of liquid chemical waste at source and ensure pre-treatment or neutralization before mixing with other effluent generated from health-care facilities;
k. Ensure treatment and disposal of liquid waste in accordance with the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);
l. Ensure occupational safety of all its health-care workers and others involved in handling of biomedical waste by providing appropriate and adequate personal protective equipment;
m. Conduct health check up at the time of induction and at least once in a year for all its health-care workers and others involved in handling of biomedical waste and maintain the records for the same;
n. Maintain and update on day-to-day basis the biomedical waste management register and

display the monthly record on its website according to the biomedical waste generated in terms of category and colour coding as specified in Schedule I;

o. Report major accidents including accidents caused by fire hazards, blasts during handling of biomedical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I to the prescribed authority and also along with the annual report;
p. All the healthcare facilities (any number of beds) shall make available the annual report on its website within a period of two years from the date of publication of Biomedical Waste Management (Amendment) Rules, 2018, published 16 March 2018);
q. Inform the prescribed authority immediately in case the operator of a facility does not collect the biomedical waste within the intended time or as per the agreed time;
r. Establish a system to review and monitor the activities related to biomedical waste management, either through an existing committee or by forming a new committee and the committee shall meet once in every six months and the record of the minutes of the meetings of this committee shall be submitted along with the annual report to the prescribed authority and the healthcare establishments having less than 30 beds shall designate a qualified person to review and monitor the activities relating to biomedical waste management within that establishment and submit the annual report;
s. Maintain all record for operation of incineration, hydro or autoclaving etc., for a period of five years;
t. Existing incinerators to achieve the standards for treatment and disposal of biomedical waste as specified in Schedule II for retention time in secondary chamber and Dioxin and Furans within two years from the date of this notification.

*Biomedical Waste Management (Principle) Rules, 2016, GoI, 28 March 2016, BMWM (Amendment) Rules, 2018, BMWM (Amendment) Rules, 2019 Feb, May. Guidelines for management of Healthcare Waste as per BMWM rules, 2016, Central Pollution Control Guidelines, 2018.

8.2. Biomedical wastes categories and their segregation, collection, treatment, processing and disposal options

SCHEDULE I: [See rules 3(e), 4(b), 7(1), 7(2), 7(5), 7(6) and 8(2)]

Part-1

Category	Type of waste	Type of bag or container to be used	Treatment and disposable options
Yellow	(a) Human anatomical waste: Human tissues, organs, body parts and fetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time)	Yellow-coloured non-chlorinated plastic bags	Incineration or plasma pyrolysis or deep burial*
	(b) Animal anatomical waste: Experimental animal carcasses, body parts, organs, tissues, including the waste generated from animals used in experiments or testing in veterinary hospitals or colleges or animal houses		
	(c) Soiled waste: Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs and bags containing residual or discarded blood and blood components		Incineration or plasma pyrolysis or deep burial* In the absence of above facilities, autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery.
	(d) Expired or discarded medicines: Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials, etc.	Yellow-coloured non-chlorinated plastic bags or containers	Expired cytotoxic drugs and items contaminated with cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at temperature >1200 °C or to common biomedical waste treatment facility or hazardous waste treatment, storage and disposal facility for incineration at >1200 °C Or encapsulation or plasma pyrolysis at >1200 °C. All other discarded medicines shall be either sent back to manufacturer or disposed by incineration.

Category	Type of waste	Type of bag or container to be used	Treatment and disposable options
	(e) Chemical waste: Chemicals used in production of biological and used or discarded disinfectants.	Yellow-coloured containers or non-chlorinated plastic bags	Disposed of by incineration or plasma pyrolysis or encapsulation in hazardous waste treatment, storage and disposal facility.
	(f) Chemical liquid waste: Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, Silver X-ray film developing liquid, discarded formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities, etc.	Separate collection system leading to effluent treatment system	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other wastewater. The combined discharge shall conform to the discharge norms given in Schedule III.
	(g) Discarded linen, mattresses, beddings contaminated with blood or body fluid, routine mask and gown	Non-chlorinated yellow plastic bags or suitable packing material	Non-chlorinated chemical disinfection followed by incineration or plasma pyrolysis or for energy recovery. In the absence of above facilities, shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery or incineration or plasma pyrolysis.
	(h) Microbiology, biotechnology and other clinical laboratory waste: Blood bags, laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures	Autoclave or microwave or hydroclave safe plastic bags or containers	Pre-treat to sterilize with non-chlorinated chemicals on-site as per World Health Organization guidelines on “Safe management of wastes from health care activities” and WHO Blue Book, 2014 and thereafter sent for incineration.

Category	Type of waste	Type of bag or container to be used	Treatment and disposable options
Red	Contaminated waste (recyclable) wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and fixed needle syringes) and vacutainers with their needles cut) and gloves.	Red-coloured non-chlorinated plastic bags or containers	Autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent to registered or authorized recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites.
White sharps bin (translucent)	Waste sharps, including metals: Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharps.	Puncture proof, Leak proof, tamper proof containers	Autoclaving or dry heat sterilization followed by shredding or mutilation or encapsulation in metal container or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries (having consent to operate from the State Pollution Control Boards or Pollution Control Committees) or sanitary landfill or designated concrete waste sharp pit.
Blue sharps bin	(a) Glassware: Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes.	Puncture-proof and leak-proof boxes or containers with blue-coloured marking	Disinfection (by soaking the washed glass waste after cleaning with detergent and sodium hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling.
	(b) Metallic body implants	Puncture-proof and leak-proof boxes or containers with blue-coloured marking	

*Disposal by deep burial is permitted only in rural or remote areas where there is no access to common biomedical waste treatment facility. This will be carried out with prior approval from the prescribed authority and as per the standards specified in Schedule II. The deep burial facility shall be located as per the provisions and guidelines issued by Central Pollution Control Board from time to time.

Part-2

1. All plastic bags shall be as per BIS standards as and when published, till then the prevailing Plastic Waste Management Rules shall be applicable.
2. Chemical treatment using at least 1% to 2% sodium hypochlorite having 30% residual chlorine for 20 minutes or any other equivalent chemical reagent that should demonstrate Log 10^4 reduction efficiency for microorganisms as given in Schedule III.
3. Mutilation or shredding must be to an extent to prevent unauthorized reuse.
4. There will be no chemical pretreatment before incineration, except for microbiological, laboratory and highly infectious waste.
5. Incineration ash (ash from incineration of any biomedical waste) shall be disposed through hazardous waste treatment, storage and disposal facility, if toxic or hazardous constituents are present beyond the prescribed limits as given in the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008 or as revised from time to time.
6. Dead fetus below the viability period (as per the Medical Termination of Pregnancy Act 1971, amended from time to time) can be considered as human anatomical waste. Such waste should be handed over to the operator of common biomedical waste treatment and disposal facility in yellow bag with a copy of the official Medical Termination of Pregnancy certificate from the Obstetrician or the Medical Superintendent of hospital or healthcare establishment.
7. Cytotoxic drug vials shall not be handed over to unauthorized person under any circumstances. These shall be sent back to the manufactures for necessary disposal at a single point. As a second option, these may be sent for incineration at common biomedical waste treatment and disposal facility or TSDFs or plasma pyrolysis at temperature >1200 °C.
8. Residual or discarded chemical wastes, used or discarded disinfectants and chemical sludge can be disposed at hazardous waste treatment, storage and disposal facility. In such case, the waste should be sent to hazardous waste treatment, storage and disposal facility through operator of common biomedical waste treatment and disposal facility only.
9. On-site pretreatment of laboratory waste, microbiological waste, blood specimens, and blood bags should be disinfected or sterilized as per the Guidelines of World Health Organization or National AIDS Control Organization and then given to the common biomedical waste treatment and disposal facility.
10. Installation of in-house incinerator is not allowed. However, in case there is no common biomedical facility within 75 km distance, the same may be installed by occupier after taking authorization from the State Pollution Control Board.
11. Syringes should be either mutilated or needles should be cut and or stored in tamper-proof, leak-proof and puncture-proof containers for sharps storage. Wherever the occupier is not linked to a disposal facility it shall be the responsibility of the occupier to sterilize and dispose in the manner prescribed.
12. Biomedical waste generated in households during healthcare activities shall be segregated as per these rules and handed over in separate bags or containers to municipal waste collectors. Urban local bodies shall have tie up with the common biomedical waste treatment and disposal facility to pick up this waste from the Material Recovery Facility (MRF) or from the house hold directly, for final disposal in the manner as prescribed in this Schedule.

8.3. Duties of the operator of a common biomedical waste treatment and disposal facility

It shall be the duty of every operator to:

a. Take all necessary steps to ensure that the biomedical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to the human health and the environment, in accordance with these rules and guidelines issued by the Central Government or, as the case may be, the Central Pollution Control Board from time to time;
b. Ensure timely collection of biomedical waste from the occupier as prescribed under these rules;
c. Establish bar coding and global positioning system for handling of biomedical waste in accordance with the guidelines issued by the Central Pollution Control Board by 27 March 2019;
d. Inform the prescribed authority immediately regarding the occupiers which are not handing over the segregated biomedical waste in accordance with these rules;
e. Provide training for all its workers involved in handling of biomedical waste at the time of induction and at least once a year thereafter;
f. Assist the occupier in training conducted by them for biomedical waste management;
g. Undertake appropriate medical examination at the time of induction and at least once in a year and immunise all its workers involved in handling of biomedical waste for protection against diseases, including hepatitis B and tetanus, that are likely to be transmitted while handling biomedical waste and maintain the records for the same;
h. Ensure occupational safety of all its workers involved in handling of biomedical waste by providing appropriate and adequate personal protective equipment (PPE);
i. Report major accidents including accidents caused by fire hazards, blasts during handling of biomedical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I (refer to rules) to the prescribed authority and also along with the annual report;
j. Maintain a log book for each of its treatment equipment according to weight of batch; categories of waste treated; time, date and duration of treatment cycle and total hours of operation;
k. Allow occupier, who are giving waste for treatment to the operator, to see whether the treatment is carried out as per the rules;
l. Shall display details of authorization, treatment, annual report, etc. on its website; (m) after ensuring treatment by autoclaving or microwaving followed by mutilation or shredding, whichever is applicable, the recyclables from the treated biomedical wastes such as plastics and glass, shall be given to recyclers having valid consent or authorization or registration from the respective State Pollution Control Board or Pollution Control Committee;
m. Supply non-chlorinated plastic coloured bags to the occupier on chargeable basis, if required;
n. Common biomedical waste treatment facility shall ensure collection of biomedical waste on holidays also;
o. Maintain all record for operation of incineration, hydro or autoclaving for a period of five years; and
p. Upgrade existing incinerators to achieve the standards for retention time in secondary chamber and dioxin and furans within two years from the date of this notification.

8.4. Standards for treatment and disposal of biomedical waste

SCHEDULE II: [See rule 4(t), 7(1) and 7(6)]

1. Standards for incineration

All incinerators shall meet the following operating and emission standards.

A. Operating standards

1. Combustion efficiency (CE) shall be at least 99.00%.
2. The combustion efficiency is computed as follows:

$$C.E. = \frac{\%CO_2}{\%CO_2 + \%CO} \times 100$$

3. The temperature of the primary chamber shall be a minimum of 800 °C and the secondary chamber shall be minimum of 1050 °C ± 500 °C.
4. The secondary chamber gas residence time shall be at least two seconds.

B. Emission standards

S.No.	Parameter	Standards	
		Limiting concentration in mg/Nm³ unless stated	**Sampling duration in minutes, unless stated**
1.	Particulate matter	50	30 or 1 NM³ of specimen volume, whichever is more
2.	Nitrogen oxides NO and NO_2	400	30 for online sampling or grab specimen
3.	HCl	50	30 or 1 NM³ of specimen volume, whichever is more
4.	Total dioxins and furans	0.1 ngTEQ/Nm³ (at 11%O_2)	8 hours or 5 NM³ of specimen volume, whichever is more
5.	Mercury and its compounds	0.05	2 hours or 1 NM³ of specimen volume, whichever is more

C. Stack height

Minimum stack height shall be 30 metres above the ground and shall be attached with the necessary monitoring facilities as per requirement of monitoring of "general parameters" as notified under the Environment (Protection) Act, 1986 and in accordance with the Central Pollution Control Board Guidelines of Emission Regulation Part-III.

Note:

1. The existing incinerators shall comply with the above within a period of two years from the date of the notification.
2. The existing incinerators shall comply with the standards for dioxins and furans of 0.1 ngTEQ/Nm³, as given below within two years from the date of commencement of these rules.

3. All upcoming common biomedical waste treatment facilities having incineration facility or captive incinerator shall comply with standards for dioxins and furans.
4. The existing secondary combustion chambers of the incinerator and the pollution control devices shall be suitably retrofitted, if necessary, to achieve the emission limits.
5. Wastes to be incinerated shall not be chemically treated with any chlorinated disinfectants.
6. Ash from incineration of biomedical waste shall be disposed of at common hazardous waste treatment and disposal facility. However, it may be disposed of in municipal landfill, if the toxic metals in incineration ash are within the regulatory quantities as defined under the Hazardous Waste (Management and Handling and Transboundary Movement) Rules, 2008 as amended from time to time.
7. Only low sulphur fuel such as light diesel oil or low sulphur heavy stock or diesel, compressed natural gas, liquefied natural gas or liquefied petroleum gas shall be used as fuel in the incinerator.
8. The occupier or operator of a common biomedical waste treatment facility shall monitor the stack gaseous emissions (under optimum capacity of the incinerator) once in three months through a laboratory approved under the Environment (Protection) Act, 1986 and record of such analysis results shall be maintained and submitted to the prescribed authority. In case of dioxins and furans, monitoring should be done once in a year.
9. The occupier or operator of the common biomedical waste treatment facility shall instal continuous emission monitoring system for the parameters as stipulated by State Pollution Control Board or Pollution Control Committees in authorization and transmit the data real time to the servers at State Pollution Control Board or Pollution Control Committees and Central Pollution Control Board.
10. All monitored values shall be corrected to 11% oxygen on dry basis.
11. Incinerators (combustion chambers) shall be operated with such temperature, retention time and turbulence, as to achieve Total Organic Carbon content in the slag and bottom ashes less than 3% or their loss on ignition shall be less than 5% of the dry weight.
12. The occupier or operator of a common biomedical waste incinerator shall use combustion gas analyser to measure CO_2, CO and O_2.

2. Operating and emission standards for disposal by plasma pyrolysis or gasification

A. Operating standards

All the operators of the plasma pyrolysis or gasification shall meet the following operating and emission standards:

1. Combustion Efficiency (CE) shall be at least 99.99%.
2. The combustion efficiency is computed as follows:

$$\text{C.E.} = \frac{(\%CO_2)}{(\%\ CO_2 + \%CO)} \times 100$$

3. The temperature of the combustion chamber after plasma gasification shall be 1050±50 °C with gas residence time of at least 2 (two) second, with minimum 3% oxygen in the stack gas.
4. The stack height should be a minimum of 30 m above ground level and shall be attached with the necessary monitoring facilities as per requirement of monitoring of “general parameters” as notified under the Environment (Protection) Act, 1986 and in accordance with the CPCB Guidelines of Emission Regulation Part-III.

B. Air emission standards and air pollution control measures

1. Emission standards for incinerator, notified at Sl. No.1 above in this Schedule, and revised from time to time, shall be applicable for the plasma pyrolysis or gasification also.
2. Suitably designed air pollution control devices shall be installed or retrofitted with the plasma pyrolysis or gasification to achieve the above emission limits, if necessary.
3. Wastes to be treated using plasma pyrolysis or gasification shall not be chemically treated with any chlorinated disinfectants and chlorinated plastics shall not be treated in the system.

C. Disposal of ash vitrified material:

The ash or vitrified material generated from the "Plasma Pyrolysis or Gasification" shall be disposed off in accordance with the Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2008 and revisions made thereafter in case the constituents exceed the limits prescribed under Schedule II of the said Rules or else in accordance with the provisions of the Environment (Protection) Act, 1986, whichever is applicable.

3. Standards for autoclaving of biomedical waste

The autoclave should be dedicated for the purposes of disinfecting and treating biomedical waste.

1. When operating a gravity flow autoclave, medical waste shall be subjected to:
   a. a temperature of not less than 121 °C and pressure of 15 pounds per square inch (psi) for an autoclave residence time of not less than 60 minutes; or
   b. a temperature of not less than 135 °C and a pressure of 31 psi for an autoclave residence time of not less than 45 minutes; or
   c. a temperature of not less than 149 °C and a pressure of 52 psi for an autoclave residence time of not less than 30 minutes.
2. When operating a vacuum autoclave, medical waste shall be subjected to a minimum of three pre-vacuum pulse to purge the autoclave of all air. The air removed during the pre-vacuum, cycle should be decontaminated by means of HEPA and activated carbon filtration, steam treatment, or any other method to prevent release of pathogen. The waste shall be subjected to the following:
   a. a temperature of not less than 121 °C and pressure of 15 psi per an autoclave residence time of not less than 45 minutes; or
   b. a temperature of not less than 135 °C and a pressure of 31 psi for an autoclave residence time of not less than 30 minutes;
3. Medical waste shall not be considered as properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process. If for any reasons, time temperature or pressure indicator indicates that the required temperature, pressure or residence time was not reached, the entire load of medical waste must be autoclaved again until the proper temperature, pressure and residence time were achieved.
4. Recording of operational parameters: Each autoclave shall have graphic or computer recording devices which will automatically and continuously monitor and record dates, time of day, load identification number and operating parameters throughout the entire length of the autoclave cycle.
5. Validation test for autoclave: The validation test shall use four biological indicator strips, one shall be used as a control and left at room temperature, and three shall be placed in

the approximate centre of three containers with the waste. Personal protective equipment (gloves, face mask and coveralls) shall be used when opening containers for the purpose of placing the biological indicators. At least one of the containers with a biological indicator should be placed in the most difficult location for steam to penetrate, generally the bottom centre of the waste pile. The occupier or operator shall conduct this test three consecutive times to define the minimum operating conditions. The temperature, pressure and residence time at which all biological indicator vials or strips for three consecutive tests show complete inactivation of the spores shall define the minimum operating conditions for the autoclave. After determining the minimum temperature, pressure and residence time, the occupier or operator of a common biomedical waste treatment facility shall conduct this test once in three months and records in this regard shall be maintained.

6. Routine test: A chemical indicator strip or tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste package at different locations to ensure that the inner content of the package has been adequately autoclaved. The occupier or operator of a common biomedical waste treatment facility shall conduct this test during autoclaving of each batch and records in this regard shall be maintained.
7. Spore testing: The autoclave should completely and consistently kill the approved biological indicator at the maximum design capacity of each autoclave unit. Biological indicator for autoclave shall be Bacillus stearothermophilus spores using vials or spore strips; with at least 1×10^6 spores. Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, a temperature less than 121 °C or a pressure less than 15 psi. The occupier or operator of a common bio medical waste treatment and disposal facility shall conduct this test at least once in every week and records in this regard shall be maintained.

4. Standards of microwaving

1. Microwave treatment shall not be used for cytotoxic, hazardous or radioactive wastes, contaminated animal carcasses, body parts and large metal items.
2. The microwave system shall comply with the efficacy test or routine tests and a performance guarantee may be provided by the supplier before operation of the limit.
3. The microwave should completely and consistently kill the bacteria and other pathogenic organisms that are ensured by approved biological indicator at the maximum design capacity of each microwave unit. Biological indicators for microwave shall be Bacillus atrophaeusspores using vials or spore strips with at least 1×10^4 sporesper detachable strip. The biological indicator shall be placed with waste and exposed to same conditions as the waste during a normal treatment cycle.

5. Standards for deep burial

1. A pit or trench should be dug about two meters deep. It should be half-filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil.
2. It must be ensured that animals do not have any access to burial sites. Covers of galvanized iron or wire meshes may be used.

3. On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes.
4. Burial must be performed under close and dedicated supervision.
5. The deep burial site should be relatively impermeable and no shallow well should be close to the site.
6. The pits should be distant from habitation, and located so as to ensure that no contamination occurs to surface water or ground water. The area should not be prone to flooding or erosion.
7. The location of the deep burial site shall be authorised by the prescribed authority.
8. The institution shall maintain a record of all pits used for deep burial.
9. The ground water table level should be a minimum of six meters below the lower level of deep burial pit.

6. Standards for efficacy of chemical disinfection

Microbial inactivation efficacy is equated to “Log10 kill” which is defined as the difference between the logarithms of number of test microorganisms before and after chemical treatment. Chemical disinfection methods shall demonstrate a 4 Log10 reduction or greater for Bacillus Subtilis (ATCC 19659) in chemical treatment systems.

7. Standards for dry heat sterilization

Waste sharps can be treated by dry heat sterilization at a temperature not less than 185 °C, at least for a residence period of 150 minutes in each cycle, which sterilization period of 90 minutes. There should be automatic recording system to monitor operating parameters.

1. Validation test for sharps sterilization unit
   - Waste sharps sterilization unit should completely and consistently kill the biological indicator *Bacillus stearothermophillus* or *Bacillus atropheausspores* using vials with at least log10^6 spores per ml. The test shall be carried out once in three months
2. Routine test
   - A chemical indicator strip or tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste to ensure that the inner content of the sharps has been adequately disinfected. This test shall be performed once in week and records in this regard shall be maintained.

8. Standards for liquid waste

1. The effluent generated or treated from the premises of occupier or operator of a common bio medical waste treatment and disposal facility, before discharge into the sewer should conform to the following limits

Parameters	Permissible limits
pH	6.5–9.0
Suspended solids	100 mg/L
Oil and grease	10 mg/L
BOD	30 mg/L
COD	250 mg/L
Bio-assay test	90% survival of fish after 96 hours in 100% effluent

Note:

i. Above limits are applicable to the occupiers of healthcare facilities (bedded) which are either connected with sewerage network without terminal sewage treatment plant or not connected to public sewers.
ii. For discharge into public sewers with terminal facilities, the general standards as notified under the Environment (Protection) Act, 1986 (29 of 1986) shall be applicable.
iii. Healthcare facilities having less than ten beds shall have to instal sewage treatment plant by 31December 2019
iv. Non-bedded occupiers shall dispose infectious wastes only after treatment by disinfection as per Schedule–II (6) of the principle rules.

2. Sludge from the effluent treatment plant shall be given to common biomedical waste treatment facility for incineration or to hazardous waste treatment, storage and disposal facility for disposal.

8.5. Form IV, Annual Report

Form IV

Annual Report

(BioMedical Waste Management Rules, 2016)

[To be submitted to the prescribed authority on or before 30 June every year for the period from January to December of the preceding year, by the occupier of healthcare facility (HCF) or common biomedical waste treatment facility (CBWTF)]

S.No.	Particulars	Details
1.	Particulars of the occupier	
	(i) Name of the authorized person (occupier or operator of facility)	
	(ii) Name of HCF or CBMWTF	
	(iii) Address for correspondence	
	(iv) Address of facility	
	(v) Tel. No, Fax. No	
	(vi) E-mail ID	
	(vii) URL or website	
	(viii) GPS coordinates of HCF or CBMWTF	
	(ix) Ownership of HCF or CBMWTF	(State government or private or semi government or any other)
	(x) Status of authorization under the BioMedical Waste (Management and Handling) Rules	Authorization No. .....valid up to.....
	(xi) Status of consents under Water Act and Air Act	Valid up to:
2.	Type of healthcare facility	
	(i) Bedded hospital	No. of beds.....
	(ii) Non-bedded hospital (clinic or blood bank or clinical laboratory or research institute or veterinary hospital or any other)	
	(iii) License member and its date of expiry	

3.	Details of CBMWTF				
	(i) Number healthcare facilities covered by CBMWTF				
	(ii) Number of beds covered by CBMWTF				
	(iii) Installed treatment and disposal capacity of CBMWTF	_____kg/day			
	(iv) Quantity of biomedical waste treated or disposed by CBMWTF	_____kg/day			
4.	Quantity of waste generated or disposed in kg per annum (on monthly average bases)	Yellow bin:			
		Red bin:			
		White sharps bin:			
		Blue sharps bin:			
5.	Details of the storage, treatment, transportation, processing and disposal facility				
	(i) Details of the on-site storage facility	Size :			
		Capacity :			
		Provision of on-site storage: (cold storage of any other provision)			
	(ii) Details of the treatment or disposal facilities	Type of treatment	Number of equipment	Capacity (kg/day)	Quantity treated or disposed (kg/annum)
		Incinerators: Plasma pyrolysis: Autoclaves: Microwave: Hydroclave: Shredder: Needle tip cutter or destroyer: Sharps encapsulation or concreter pit: Deep burial pits: Chemical Disinfection: Any other treatment:			
	(iii) Quantity of recyclable wastes sold to authorized recyclers after treatment in kg per annum	Red category (such as plastic, glass, etc.)			
	(iv) Number of vehicles used for collection and transportation of biomedical waste				

	(v) Details of incineration ash and ETP sludge generated and disposed during the treatment of wastes in kg per annum		Quantity generated	Where disposed
		Incineration Ash ETP Sludge		
	(vi) Name of the common biomedical waste treatment facility operator through which wastes are disposed of			
	(vii) List of member HCF not handed over biomedical waste			
6.	Do you have biomedical waste management committee? If yes, attach minutes of the meetings held during the reporting period			
7.	Details of trainings conducted on BMW management			
	(i) Number of trainings conducted on BMW management			
	(ii) Number of personnel trained			
	(iii) Number of personnel trained at the time of induction			
	(iv) Number of personnel not trained			
8.	Details of the accident occurred during the year			
	(i) Number of accidents occurred			
	(ii) Number of persons affected			
	(iii) Remedial action taken (provide details)			
9.	Are you meeting the standards of air pollution from the incinerator? How many times in last year could not meet the standards?			
	Details of continuous online emission monitoring systems installed			
10.	Liquid waste generated and treatment methods in place. How many times you have not met the standards in a year?			
11.	Is the disinfection method or sterilization meeting the log 4 standards? How many times you have not met the standards in a year?			

12.	Any other relevant information	(Air pollution control devices attached with the incinerator)

Certified that the above report is for the period from
.....
.....
.....

Name and Signature
Head of the Institution

Date:
Place:

Annex 9: The operation theatre – preparation for surgery

9.1. Surgical attire

Function of the various items of surgical attire

Gloves: Protect the patient from organisms on the surgeon's hand and also protects the surgeon from contact with the blood and tissues of the patient.

Gown and waterproof apron: Protects the patient from organisms on the body surface and clothes of the surgical team and protects the clothes and body surface of the surgeon from the blood and tissues of the patient.

Mask: Protects the patient against microorganisms expelled during breathing, talking, laughing and coughing. It also protects the surgeon (the mouth and nose) from splashes of blood and secretions.

Eye protection or visors, these protect the eyes of the surgeon from splashes of blood and secretions.

Cap: Protects the patient from organisms shed from the hair and skin of the surgeon, should cover all the hair

Footwear; these should be made of sturdy, washable material with closed toes to protect the feet from splashes, and injury due to falling instrument If footwear are not available shoe covers can be worn. These are disposable or reusable.

Before entering the operation room, don the cap, face mask and eyewear. Some masks come with eye protection; however, these may not be available in resource limited settings. A simple method of making a mask with eye protection is by stapling or fixing a plastic transparent sheet to the mask so that when the mask is worn, the transparent sheet forms a shield in front of the eyes.

The steps of surgical scrub

1. The scrubbing facility: tap and sink
2. Remove rings, watch and bracelets.
3. Clean the fingernails.
4. Starting with the fingers, apply soap/antiseptic to all surfaces of hands.
5. Rub between fingers.
6. Continue to apply soap/antiseptic till the elbow.
7. Starting with fingers, rinse each hand and arm till the elbow with the hands above the level of the elbow.
8. Dry with a sterile towel beginning with the fingers and till the elbow.
9. Keep the scrubbed hands above the waist level.

Wearing the gown

The sterile gown is worn after surgical scrub. The gown should ideally be made of a waterproof material. If a waterproof gown is not available, a waterproof apron has to be worn under the gown.

- An assistant opens the sterile pack containing sterile gown (the sterile gown is folded inside out.
- Lift folded gown from pack, Stepping away from the table, locate neckband and grasp front of gown below the neckband.
- Allow the gown to unfold keeping inside of gown towards the body.

Note: Do not touch outside of gown with bare hands. The outside of the gown is the sterile surface.

- With hands at shoulder level, slip both arms into armholes simultaneously.
- The assistant brings the gown over the shoulders by touching the inside of the gown at the arm seams.

Gloves

After wearing the sterile gown, the sterile gloves are worn. Sterile surgical gloves should be worn in the following way.

- The outer package of gloves is opened by the assistant without touching the inner wrapper.
- Open inner glove wrapper exposing the cuffed gloves with palm up.
- Pick up one glove by the cuff touching only the inner portion of the cuff.
- While holding cuff in one hand with the fingers pointing downwards, slip other hand into the glove. Pick up the second glove by sliding the fingers of the gloved hand under the cuff of the second glove.
- Do not contaminate the gloved hand with the ungloved hand as the second glove is being put on. Keep hands at waist level in front of body with fingers clasped.

Removing the gloves

Important: After the surgical procedure the first thing to do is to remove the gloves
Do not allow the outside of the used glove to touch your skin.

- The gloves should be removed before touching anything.
- Rinse gloved hands in a disinfectant solution to remove blood and body fluids.
- Partly pull off one of the gloves by grasping it near the cuff.
- Keeping the first glove partly on, remove the second glove partly to avoid touching the outer surface of either glove.
- Both gloves are now turned partially inside out and can together be removed completely while avoiding touching the outside of the glove with bare hands.
- Wash hands after removing gloves, since gloves may contain nicks and tears which could allow blood and body fluids to contaminate the hands.

9.2. Cleaning of operation theatre

Daily cleaning procedure

- Before start of the first case, at least one hour before:
  - Damp dust with detergent–disinfectant all equipment, furniture and lights
  - Wipe surgical light reflector again with 70% alcohol to remove the film left by the detergent

- Between cases:
  - Place soiled towels, drapes and gowns in a clean laundry bag and send to laundry. Wet linen should be placed in plastic container so that bacteria do not pass through the moist material.
  - Soiled instruments must be placed in disinfectant and then send to the cleaning area, this prevents occupational hazard to the cleaner.
  - Wipe all used equipment, furniture and lights.
  - Move operating table to one side and wet vacuum or wet mop a 3–4 feet area around the operating site.
  - Empty suction bottle and wash the suction bottle and tubing with detergent–disinfectant. Best is disposable suction bottle.
- Terminal daily cleaning after scheduled cases are over:
  - Remove all portable equipment from the room
  - Wipe windowsills, overhead lights, equipment, furniture and waste containers with a cloth soaked in detergent disinfectant solution.
  - Wet vacuum or wet mop the entire floor area
  - Clean and disinfect the wheels/castors
  - Restock unsterile supplies
  - Check levels and dates of all sterile supplies and restock
  - Clean the air-conditioning grills
  - Clean scrub sinks with scouring powder
  - Empty all shelves, wipe with detergent–disinfectant and dry them before replacing the supplies.

Weekly general cleaning procedure

- Remove all portable equipment. Clean lights and fixtures with detergent disinfectant solution and cloth.
- Clean doors hinges and facings and rinse with solution.
- Wipe down the walls with a mop soaked in detergent disinfectant solution.
- Scrub the floor with floor cleaning machine and a phenol disinfectant detergent solution. Use a wet vacuum to pick up the fluid.
- Replace clean portable equipment, clean wheels and castors by rolling them across a towel saturated with detergent disinfectant.
- Wash and dry all furniture and equipment including
  - Operating room table
  - Suction holders
  - Foot and sitting stools
  - IV stands and all other stands
  - X-ray view boxes
  - All tables
  - Tubing to oxygen tanks
  - Waste containers and buckets

Note: Thorough washing and cleaning is essential. Fumigation and fogging have no role in the modern operation room. Fumigation with formalin is hazardous to persons and should not be done. It can also harm sensitive equipment.

Annex 10: Ventilation and design requirements

Ventilation and design requirements of the operation theatre are:[#]

- Airborne bacteria originate primarily from the skin of persons in the operation theatre (OT). The bacteria carried on the skin reach the air through skin scales, which are constantly being shed by the persons in the room. After remaining suspended in the air, the skin scales carrying bacteria settle on various surfaces, equipment and on the floor of the OT. Appropriately circulated clean filtered air will remove airborne organisms.
- Air should be circulated by positive pressure through high efficiency particulate air (HEPA) filters. These are special filters, which can remove particles greater than 0.3 micron. Bacteria will be removed, as the size of bacteria is 0.5–1 micron. HEPA filters should be monitored for efficiency on a regular basis and changed when required.
- The ventilation rate is expressed as the number of air changes per hour. For an OT, the recommended ventilation rate is 20 air changes per hour.
- To prevent contamination of the clean zones, the direction of airflow should be from the ultra-clean or aseptic zone to less clean zones in order of their cleanliness (see the concept of zoning). This is achieved by an appropriate pressure gradient. Highest positive pressure is maintained in the ultra-clean areas. The higher pressure allows air to flow to less clean areas around the doors and openings and prevents the entry of air from the less clean area.
- Within the rooms air inlets should be at high level and outlets at low level so that the clean air moves downwards through the room and towards the contaminated floor where it is exhausted through the outlet.
- The temperature in the OT should be between 18 and 24 °C. The room should have central air-conditioning. Window air conditioners are a source of contamination and have no place in an OT.
- The surfaces of floors and walls of the OT should be as hard, non-porous and smooth as possible. Ceramic tiles are not ideal because the grouting between the tiles can harbour microorganisms. There should be no cracks and crevices since cracks and crevices can harbour microorganisms and cannot be cleaned properly. A special paint called epoxy paint is particularly suitable for the walls of the OT. The joint between the walls and floor should be curved for easy cleaning.
- The operation table should be placed away from the entrance.
- The openings should be fitted with swing doors.
- Since people are the main source of airborne contamination, the number of persons in the OT should be kept to a minimum. Opening and closing of doors should be avoided as this interferes with the direction of airflow.

Note: It is evident that older hospitals and some hospitals in India may not be able to achieve these standards. However, the principles underlying these standards should always be kept in view whenever new facility is designed and renovations should attempt to achieve these standards.

[#] www.nabh.co/images/pdf/RevisedGuidelines_AirConditioning_OT.docx

Annex 11: High risk pathogen – epidemic action plan

High-risk pathogens: Strategic planning and operational management for infection prevention and control

- High-risk pathogens
  - Filoviruses: Ebola, Marburg
  - Crimean Congo–haemorrhagic fever
  - Kyasanur forest disease
  - New strain of influenza
  - MERS-CoV, SARS-CoV, novel-CoV
  - Nipah virus
  - Multidrug-resistant or extremely drug resistant tuberculosis
  - Multidrug-resistant Gram-negative bacilli
- Strategic planning
  - Awareness of stakeholders
    - Healthcare facility administrators
    - Microbiologists
    - Infectious disease physicians
    - Nursing administration
    - Housekeeping manager
    - Public health
    - Senior clinicians
  - Surveillance information
    - Identifying surveillance information resources for incidence, prevalence, case definition, IPC, case management, laboratory diagnosis, notification
- NCDC, WHO, CDC
  - Creation of triaging system
    - Training of staff of first contact → security, reception (customer care), nurse, emergency doctors, on-call doctors
    - Design of the triage room
  - Creation of isolation facilities
    - Isolation of patients with suspected symptoms and signs → at reception
    - Isolation of suspected/confirmed cases for clinical management
  - Ensuring appropriate training of relevant staff
    - Doctors
    - Nurses
    - Housekeeping
    - Radiologists
    - Physiotherapist
  - Ensuring consumable availability
    - Personal protective equipment
  - Planning for availability of medicines
    - Specific antimicrobial agents for empirical or targeted therapy (e.g. antiviral agents)
  - Defining clinical referral pathways
    - Infectious diseases
    - Microbiology
    - Cardiologist
    - Respiratory physician/pulmonary medicine
    - Surgical
    - Obstetrics

    - Paediatrics
    - Intensive care and anaesthesia
  - Planning for intra-hospital transport: e.g. radiology, surgery
    - Identification of transport route
    - Use of PPE
    - Communication to other staff and visitors
    - Cleaning/ decontamination of the route
  - Planning for patient transportation outside the hospital
    - Identification of High Security Infectious Disease Unit
    - Identification of ambulance and its requirements
    - Training of transportation team
    - Ambulance for patients on ventilator
  - Planning for laboratory diagnosis
    - Identification of the referral laboratory
    - Guidelines for transportation of clinical specimens or isolates
  - Planning for biomedical waste disposal
    - Guidelines for high-risk biomedical waste
    - Training of housekeeping staff
  - Planning for public health notification
    - Identification and contact details of local and central public health authorities for discussion and communication
  - Planning for staff health and staff absence related contingencies
    - Training of staff for prevention of infection by high-risk pathogens
    - Appropriate use of PPE
    - Staff quarantine
  - Duration of quarantine
  - Identifying quarantine area
    - Information about quarantine: dos and don'ts
  - Planning for the dead patient – mortuary, post mortem, cremation/burial
    - Communication with public health
    - Guidelines to deal with the dead
- Operational management:
  - Patient reception
    - Reception and security staff awareness about high-risk pathogen causing disease
  - Triage
    - Training of triage staff (nurse) on triaging questions
    - Use of PPE
  - Communication
    - Communication of triage nurse with ID physician or microbiologist in suspected cases
  - Risk assessment
    - Checking current case definition
    - Reaching at a provisional and differential diagnosis
  - Isolation
    - Isolation of suspected and confirmed cases
  - Use of PPE by staff and care-givers
    - Appropriate use
    - Wearing and taking off the PPE
  - Clinical management
    - Taking care to prevent sharps injury and splash exposure
    - Treatment administration as per standard guidelines
    - Care plan for patients requiring intensive care

- Laboratory investigations – general
  - Communication to laboratory director and information cascade for general haematological, biochemical, cytological, histopathological, microbiological, clinical pathological investigations
  - Disposal of specimens, isolates, culture bottles and plates
  - Decontamination of equipment
  - Training of laboratory staff
  - Reducing non-essential investigations
- Laboratory diagnosis of high-risk pathogen
  - Specimen/isolate packaging for referral laboratory as per WHO guidelines
  - Communication with referral laboratory
- Radiology investigations
  - Reducing non-essential investigations
  - Transportation of patients to radiology → communication with radiology, patient transporters
  - Use of PPE
  - Environmental cleaning and decontamination
- Staff quarantine
  - Duration of quarantine
  - Noting signs and symptoms
  - Plan for staff healthcare

Annex 12: Classification of infective microorganisms by risk group

Risk Group 1 (no or low individual and community risk): A microorganism that is unlikely to cause human or animal disease.
Risk Group 2 (moderate individual risk, low community risk): A pathogen that can cause human or animal disease but is unlikely to be a serious hazard to laboratory workers, the community, livestock or the environment. Laboratory exposures may cause serious infection, but effective treatment and preventive measures are available and the risk of spread of infection is limited.
Risk Group 3 (high individual risk, low community risk): A pathogen that usually causes serious human or animal disease but does not ordinarily spread from one infected individual to another. Effective treatment and preventive measures are available.
Risk Group 4 (high individual and community risk): A pathogen that usually causes serious human or animal disease and that can be readily transmitted from one individual to another, directly or indirectly. Effective treatment and preventive measures are not usually available.

Annex 13: Forms for surveillance of HAI*

(Adapted from NHSN by ICMR-AIIMS HAI surveillance network)

13.1. Denominator data collection forms

Hospital Name:		Surveillance Unit Number:	Month:	Year:
Date	**Number of patients**	**Number of patients with ≥1 central line**	**Number of patients with urinary catheter**	**Number of patients with ventilator**
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
Total				

*ICMR-AIIMS HAI Surveillance Network was created in collaboration with the Centers for Disease Control and Prevention (CDC), Atlanta, USA as part of Global Health Security Agenda (GHSA) project for capacity building and strengthening of hospital infection control to detect and prevent antimicrobial resistance in India.

13.2. BSI case report form

Case ID:		
Hospital Name:		
Sex: ☐Male ☐Female	Date of Birth:__ /___ /___	Birth weight: _____ grams (NICU only)
Date of hospital admission: __ /__ /___ Date of admission to surveillance unit: __ /___ /___		
Location prior to hospital admission: ☐Home / Community ☐Another hospital ☐Unknown		
List all other Case IDs assigned to this patient since hospital admission:		
1. BSI details		
Date of event (dd/mm/yyyy):	___ /___ /___	
Type of laboratory-confirmed BSI	☐Recognized Pathogen** ☐Common Commensal (from ≥ 2 blood cultures)	
Fill out culture results in Section 5, organisms and antibiotic susceptibility		
1a. Inpatient locations		
List all locations, in chronological order, where patient was housed on the date of event:		
List all the locations, in chronological order, where patient was housed on the day before the date of event:		
2. Invasive devices: central lines		
Did the patient have a central line in place at any time on • The date of event or • The day before the date of event?	☐Yes ☐No (skip to 3, Infections at other body sites) ☐Unknown	
If YES, was the central line in place for >2 calendar days?	☐Yes ☐No (skip to 3, Infections at other body sites) ☐Unknown	
If YES, type(s) of central line(s) in place (check all that apply)	☐Non-tunneled short-term catheter (e.g. double or triple lumen) ☐Peripherally inserted central catheter (PICC) ☐Port-a-cath ☐Hemodialysis catheter ☐Tunneled catheter ☐Umbilical catheter ☐Unknown ☐Other, specify: _____	

Location(s) of central line(s) in place (check all that apply)	☐Jugular ☐Subclavian ☐Femoral Other, specify: _____	☐Brachial ☐Umbilical ☐Unknown	
3. Infections at other body sites			
Was a positive, matching culture obtained from another body site(s) during the secondary BSI attribution period?	☐Yes ☐No (skip to 4, outcome) ☐Unknown		
If YES, specify specimen(s) collected, date(s) of culture, and organism(s).	Specimen collected	Date of collection	Organism
	1.		
	2.		
	3.		
4. Outcome			
Patient outcome	☐Discharged ☐Transferred to other hospital ☐Died ☐Unknown		
Date of discharge, transfer, or death (dd/mm/yyyy)	___ /___ /___		

**http://www.cdc.gov/nhsn/XLS/master-organism-Com-Commensals-Lists.xlsx. If an organism is not included on the complete list of common commensals, it must be treated as a recognized pathogen.

13.3. UTI case report form

Case ID:		
Hospital name:		
Sex: ☐Male ☐Female	Date of Birth:__ /___ /___	Birth weight: _____grams (NICU only)
Date of hospital admission: ___ /___ /___ Date of admission to surveillance unit: ___ /___ /___		
Location prior to hospital admission:	☐Home/Community ☐Another hospital ☐Unknown	
List all other Case IDs assigned to this patient since hospital admission:		
1. UTI details		
Date of event (dd/mm/yyyy):	___ /___ /____	
Type of UTI	☐Culture confirmed UTI	
Fill out culture results in Section 4, organisms and antibiotic susceptibility		
1a. Inpatient locations		
List all locations, in chronology, where patient housed on date ofevent (DoE):		
List all locations, in chronology where patient housed day before DoE		
2. Invasive devices: urinary catheters		
Did the patient have a Foley catheter in place at any time on: • The date of event or • The day before the DOE?	☐Yes ☐No (skip to 3, outcome) ☐Unknown	
If YES, was Foley catheter in place for >2 calendar days?	☐Yes ☐No ☐Unknown	
3. Outcome		
Patient outcome	☐Discharged ☐Transferred to other hospital ☐Died ☐Unknown	
Date of discharge, transfer, or death (dd/mm/yyyy)	____ /_____ /_____	

13.4. Checklist for ventilator-associated pneumonia

Ventilator-associated pneumonia checklist																										
Day/ Month																										
Radiological (chest X-ray baseline)																										
New or progressive and persistent infiltrate																										
Consolidation																										
Cavitation																										
Clinical																										
Fever																										
WBC count																										
Leukopenia (<4000 WBC/ mm^3)																										
Leucocytosis (>12000 WBC/ mm^3																										
Sputum-purulent new-onset/ change																										
New/ worsening cough/ dyspnoea/ tachypnoea																										
Worsening gas exchange																										
Sputum-purulent new-onset/ change																										
New/worsening gas exchange/ dyspnoea/ tachypnoea																										
Worsening gas exchange																										
ABG	PO_2																									
	PCO_2																									
Worsening gas exchange (O_2 desats, PO_2/ FiO_2 ←240, ∧O_2/ ventilation demand																										
FIO_2																										
Mode of ventilator																										
Ventilator																										
Respiratory rate																										
Laboratory																										
(+) Blood culture with no other source																										
BAL C/s																										
Other																										

13.5. Surveillance periods for SSI following selected NHSN operative procedures

Day 1 = the date of the procedure

30-day surveillance			
Code	**Operative procedure**	**Code**	**Operative procedure**
AAA	Abdominal aortic aneurysm repair	LAM	Laminectomy
AMP	Limb amputation	LTP	Liver transplant
APPY	Appendix surgery	NECK	Neck surgery
AVSD	Shunt for dialysis	NEPH	Kidney surgery
BILI	Bile duct, liver or pancreatic surgery	OVRY	Ovarian surgery
CEA	Carotid endarterectomy	PRST	Prostate surgery
CHOL	Gallbladder surgery	REC	Rectal surgery
COLO	Colon surgery	SB	Small bowel surgery
CSEC	Caesarean section	SPLE	Spleen surgery
GAST	Gastric surgery	THOR	Thoracic surgery
HTP	Heart transplant	THYR	Thyroid and/ or parathyroid surgery
HYST	Abdominal hysterectomy	VHYS	Vaginal hysterectomy
KTP	Kidney transplant	XLAP	Exploratory laparotomy
90-day surveillance			
Code	**Operative procedure**		
BRST	Breast surgery		
CARD	Cardiac surgery		
CBGB	Coronary artery bypass graft with both chest and donor site incisions		
CBGC	Coronary artery bypass graft with chest incision only		
CRAN	Craniotomy		
FUSN	Spinal fusion		
FX	Open reduction of fracture		
HER	Herniorrhaphy		
HPRO	Hip prosthesis		
KPRO	Knee prosthesis		
PACE	Pacemaker surgery		
PVBY	Peripheral vascular bypass surgery		
VSHN	Ventricular shunt		

Note: Superficial incisional SSIs are followed only for a 30-day period for all procedure types. Secondary incisional SSIs are followed only for a 30-day period regardless of the surveillance period for the primary site.


World Health
Organization
India

Advisory on the use of hydroxy–chloroquine as prophylaxis for SARS-CoV-2 infection

The **National Task force for COVID-19** constituted by Indian Council of Medical Research recommends the use of hydroxy– chloroquine for prophylaxis of SARS-CoV-2 infection for high risk population. Copy is annexed.

The Advisory provides for placing the following high risk population under chemoprophylaxis with hydroxy chloroquine:

- Asymptomatic Healthcare Workers involved in the care of suspected or confirmed cases of COVID-19
- Asymptomatic household contacts of laboratory confirmed cases

The protocol recommended by the National Task force has been approved by the Drug Controller General of India for restricted use in emergency situations.

While following the above recommendations, States should take note of the following:

1) **The placing of healthcare workers under chemoprophylaxis should not instill a sense of false security.** They should follow all prescribed public health measures such as frequent washing of hands, respiratory etiquettes, keeping a distance of minimum 1m and use of Personal protective equipment (wherever applicable).
2) They should self-monitor their health and report to health authorities immediately in the event of them becoming symptomatic.
3) The high risk contacts of a positive case placed under chemo prophylaxis, **should remain in home quarantine while on prophylactic therapy.**
4) As recommended by the said Task Force, the drug should only be given on the prescription of a registered medical practitioner. The contraindications mentioned in the recommendations should strictly be followed.
5) Apart from the symptoms of COVID-19 (fever, cough, breathing difficulty), if the person on chemo-prophylaxis develops any other symptoms, he should immediately seek medical treatment of the medical practitioner who has prescribed the chemoprophylaxis.

It is reiterated that the intake of the above medicine should not in still sense of false security.

ANNEXURE I

सत्यमेव जयते

प्रोफेसर (डा.) बलराम भार्गव, पदम श्री
एमडी, डीएम, एफआरसीपी (जी.), एफआरसीपी (ई.), एफएसीसी,
एफएएचए, एफएएमएस, एफएनएएस, एफएएसस्सी, एफ.एन.ए., डी.एस.सी.
सचिव, भारत सरकार
स्वास्थ्य अनुसंधान विभाग
स्वास्थ्य एवं परिवार कल्याण मंत्रालय एवं
महानिदेशक, आई सी एम आर

Prof. (Dr.) Balram Bhargava, Padma Shri
MD, DM, FRCP (Glasg.), FRCP (Edin.),
FACC, FAHA, FAMS, FNASc, FASc, FNA, DSc
Secretary to the Government of India
Department of Health Research
Ministry of Health & Family Welfare &
Director-General, ICMR

भारतीय आयुर्विज्ञान अनुसंधान परिषद
स्वास्थ्य अनुसंधान विभाग
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
भारत सरकार
वी. रामलिंगस्वामी भवन, अंसारी नगर
नई दिल्ली - 110 029

Indian Council of Medical Research
Department of Health Research
Ministry of Health & Family Welfare
Government of India
V. Ramalingaswami Bhawan, Ansari Nagar
New Delhi - 110 029

D.O.No.VIR/4/2020/ECD-I
22nd March, 2020

Dear Madam

Please find attached the final recommendation of the National Taskforce for COVID-19 for the use of hydroxychloroquine as prophylaxis. This recommendation supersedes the earlier recommendation dated 21.3.2020

With regards

Yours sincerely,

Balram Bhargava

(Balram Bhargava)

Encl: As above

Smt. Preeti Sudan,
Secretary (Health & Family Welfare)
Ministry of Health & Family Welfare,
Nirman Bhawan,
New Delhi-110008.

Tele.: 26588204, 26589620, Fax (Off.) : 91-11-26588662, E-mail: secy-dg@icmr.gov.in

Recommendation for empiric use of hydroxy-chloroquine for prophylaxis of SARS-CoV-2 infection

Background:

Hydroxy-chloroquine is found to be effective against coronavirus in laboratory studies and in-vivo studies. Its use in prophylaxis is derived from available evidence of benefit as treatment and supported by pre-clinical data. The following recommendation for the use of hydroxy-chloroquine as a prophylactic agent against SARS-CoV-2 infection is based on these considerations, as well as risk-benefit consideration, under exceptional circumstances that call for the protection of high-risk individuals.

The National Taskforce for COVID-19 recommends the use of hydroxy-chloroquine for prophylaxis of SARS-CoV-2 infection for selected individuals as follows:

Eligible individuals:

- Asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19
- Asymptomatic household contacts of laboratory confirmed cases

Dose:

- Asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19: *400 mg twice a day on Day 1, followed by 400 mg once weekly for next 7 weeks; to be taken with meals*
- Asymptomatic household contacts of laboratory confirmed cases: *400 mg twice a day on Day 1, followed by 400 mg once weekly for next 3 weeks; to be taken with meals*

Exclusion/contraindications:

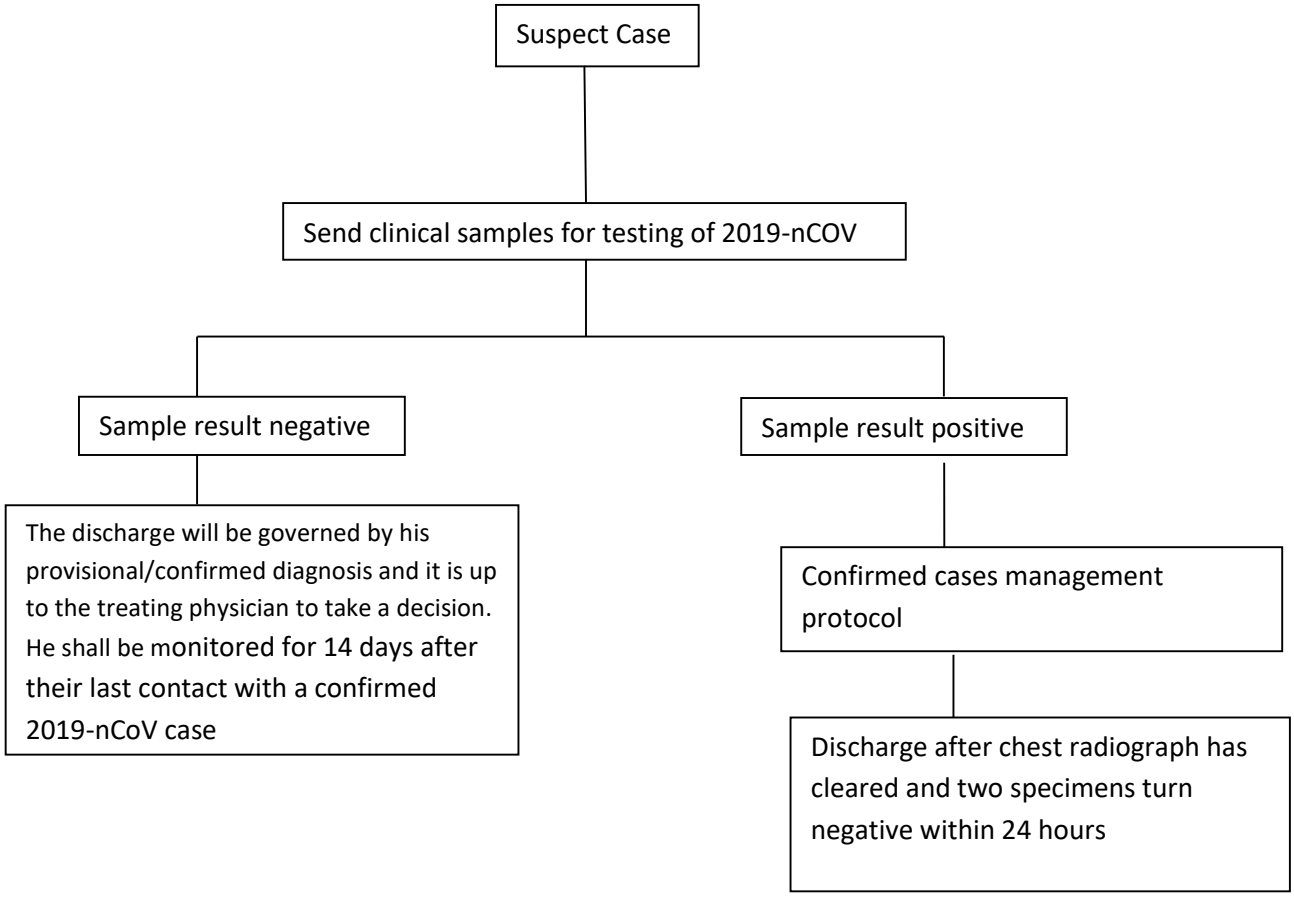
- The drug is not recommended for prophylaxis in children under 15 years of age.
- The drug is contraindicated in persons with known case of retinopathy, known hypersensitivity to hydroxychloroquine, 4-aminoquinoline compounds

Key considerations:

- The drug has to be given only on the prescription of a registered medical practitioner.
- Advised to consult with a physician for any adverse event or potential drug interaction before initiation of medication
- The prophylactic use of hydroxychloroquine to be coupled with the pharmacovigilance for adverse drug reactions through self-reporting using the Pharmacovigilance Program of India (PvPI) helpline/app.
- If anyone becomes symptomatic while on prophylaxis he/she should immediately contact the health facility, get tested as per national guidelines and follow the standard treatment protocol.
- All asymptomatic contacts of laboratory confirmed cases should remain in home quarantine as per the national guidelines, even if they are on prophylactic therapy.
- Simultaneously, proof of concept and pharmacokinetics studies be taken up expeditiously. Findings from these studies and other new evidence will guide any change in the recommendation.

Discharge Policy of nCoV Case

Clinical samples of any suspect/probable case* of nCOV will be sent for laboratory confirmation to designated laboratories. The case will be kept in isolation at health facility till the time of receipt of laboratory results and given symptomatic treatment as per existing guidelines. If the laboratory results for nCOV are negative, the discharge of such patients will be governed by his provisional/confirmed diagnosis and it is up to the treating physician to take a decision. The case shall still be monitored for 14 days after their last contact with a confirmed 2019-nCoV case. In case the laboratory results are positive for nCOV, the case shall be managed as per the confirmed case management protocol. The case shall be discharged only after evidence of chest radiographic clearance and viral clearance in respiratory samples after twospecimens test negative for nCOV within a period of 24 hours.



Case Classification*

Suspect case

A. Patients with severe acute respiratory infection (fever, cough, and requiring admission to hospital), **AND** with no other etiology that fully explains the clinical presentation **AND** at least one of the following:

- a history of travel to or residence in the city of Wuhan, Hubei Province, China in the 14 days prior to symptom onset, or
- patient is a health care worker who has been working in an environment where severe acute respiratory infections of unknown etiology are being cared for.

.

B. Patients with any acute respiratory illness **AND** at least one of the following:

- close contact with a confirmed or probable case of 2019-nCoV in the 14 days prior to illness onset, or
- visiting or working in a live animal market in Wuhan, Hubei Province, China in the 14 days prior to symptom onset, or
- worked or attended a health care facility in the 14 days prior to onset of symptoms where patients with hospital-associated 2019-nCov infections have been reported.

Probable case

Probable case: A suspect case for whom testing for 2019-nCoV is inconclusive or for whom testing was positive on a pan-coronavirus assay.

Confirmed case

A person with laboratory confirmation of 2019-nCoV infection, irrespective of clinical signs and symptoms.

(Source: WHO: https://www.who.int/publications-detail/global-surveillance-for-human-infection-with-novel-coronavirus-(2019-ncov))

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Key considerations:

- The drug has to be given only on the prescription of a registered medical practitioner.
- Advised to consult with a physician for any adverse event or potential drug interaction before initiation of medication
- The prophylactic use of hydroxychloroquine to be coupled with the pharmacovigilance for adverse drug reactions through self-reporting using the Pharmacovigilance Program of India (PvPI) helpline/app.
- If anyone becomes symptomatic while on prophylaxis he/she should immediately contact the health facility, get tested as per national guidelines and follow the standard treatment protocol.
- All asymptomatic contacts of laboratory confirmed cases should remain in home quarantine as per the national guidelines, even if they are on prophylactic therapy.
- Simultaneously, proof of concept and pharmacokinetics studies be taken up expeditiously. Findings from these studies and other new evidence will guide any change in the recommendation.

Note - It is reiterated that the intake of above medicine should not in still sense of false secuirity. The hydroxy-chloroquine may not be replaced by any other compound.

Government of India
Ministry of Health & Family Welfare
Directorate General of Health Services
(EMR Division)

COVID-19: GUIDELINES ON DEAD BODY MANAGEMENT

15.03.2020

1. Scope of the document

- There are currently over 100 laboratory confirmed cases and two deaths due to Novel Coronavirus disease (COVID-19) in India. Being a new disease there is knowledge gap on how to dispose of dead body of a suspect or confirmed case of COVID-19.

- This guideline is based on the current epidemiological knowledge about the COVID-19. India is currently having travel related cases and few cases of local transmission. At this stage, all suspect/ confirmed cases will be isolated in a health care facility. Hence the document is limited in scope to hospital deaths.

2. Key Facts

- The main driver of transmission of COVID-19 is through droplets. There is unlikely to be an increased risk of COVID infection from a dead body to health workers or family members who follow standard precautions while handling body.

- Only the lungs of dead COVID patients, if handled during an autopsy, can be infectious.

3. Standard Precautions to be followed by health care workers while handling dead bodies of COVID.

Standard infection prevention control practices should be followed at all times. These include:

1. Hand hygiene.
2. Use of personal protective equipment (e.g., water resistant apron, gloves, masks, eyewear).
3. Safe handling of sharps.

4. Disinfect bag housing dead body; instruments and devices used on the patient.
5. Disinfect linen. Clean and disinfect environmental surfaces.

4. Training in infection and prevention control practices

All staff identified to handle dead bodies in the isolation area, mortuary, ambulance and those workers in the crematorium / burial ground should be trained in the infection prevention control practices.

5. Removal of the body from the isolation room or area

- The health worker attending to the dead body should perform hand hygiene, ensure proper use of PPE (water resistant apron, goggles, N95 mask, gloves).
- All tubes, drains and catheters on the dead body should be removed.
- Any puncture holes or wounds (resulting from removal of catheter, drains, tubes, or otherwise) should be disinfected with 1% hypochlorite and dressed with impermeable material.
- Apply caution while handling sharps such as intravenous catheters and other sharp devices. They should be disposed into a sharps container.
- Plug Oral, nasal orifices of the dead body to prevent leakage of body fluids.
- If the family of the patient wishes to view the body at the time of removal from the isolation room or area, they may be allowed to do so with the application of Standard Precautions.
- Place the dead body in leak-proof plastic body bag. The exterior of the body bag can be decontaminated with 1% hypochlorite.The body bagcan be wrapped with a mortuary sheet or sheet provided by the family members.

- The body will be either handed over to the relatives or taken to mortuary.
- All used/ soiled linen should be handled with standard precautions, put in bio-hazard bag and the outer surface of the bag disinfected with hypochlorite solution.
- Used equipment should be autoclaved or decontaminated with disinfectant solutions in accordance with established infection prevention control practices.
- All medical waste must be handled and disposed of in accordance with Bio-medical waste management rules.
- The health staff who handled the body will remove personal protective equipment and will perform hand hygiene.
- Provide counseling to the family members and respect their sentiments.

6. Environmental cleaning and disinfection

All surfaces of the isolation area (floors, bed, railings, side tables, IV stand, etc.) should be wiped with 1% Sodium Hypochlorite solution; allow a contact time of 30 minutes, and then allowed to air dry.

7. Handling of dead body in Mortuary

- Mortuary staff handling COVID dead body should observe standard precautions.
- Dead bodies should be stored in cold chambers maintained at approximately 4°C.
- The mortuary must be kept clean. Environmental surfaces, instruments and transport trolleys should be properly disinfected with 1% Hypochlorite solution.
- After removing the body, the chamber door, handles and floor should be cleaned with sodium hypochlorite 1% solution.

8. Embalming

- Embalming of dead body should not be allowed.

9. Autopsies on COVID-19 dead bodies

Autopsies should be avoided. If autopsy is to be performed for special reasons, the following infection prevention control practices should be adopted:

- The Team should be well trained in infection prevention control practices.
- The number of forensic experts and support staff in the autopsy room should be limited.
- The Team should use full complement of PPE (coveralls, head cover, shoe cover, N 95 mask, goggles / face shield).
- Round ended scissors should be used
- PM40 or any other heavy duty blades with blunted points to be used to reduce prick injuries
- Only one body cavity at a time should be dissected
- Unfixed organs must be held firm on the table and sliced with a sponge – care should be taken to protect the hand
- Negative pressure to be maintained in mortuary. An oscillator saw with suction extraction of the bone aerosol into a removable chamber should be used for sawing skull, otherwise a hand saw with a chain-mail glove may be used
- Needles should not be re-sheathed after fluid sampling – needles and syringes should be placed in a sharps bucket.
- Reduce aerosol generation during autopsy using appropriate techniques especially while handling lung tissue.

- After the procedure, body should be disinfected with 1% Sodium Hypochlorite and placed in a body bag, the exterior of which will again be decontaminated with 1% Sodium Hypochlorite solution.
- The body thereafter can be handed over to the relatives.
- Autopsy table to be disinfected as per standard protocol.

10. Transportation

- The body, secured in a body bag, exterior of which is decontaminated poses no additional risk to the staff transporting the dead body.
- The personnel handling the body may follow standard precautions (surgical mask, gloves).
- The vehicle, after the transfer of the body to cremation/ burial staff, will be decontaminated with 1% Sodium Hypochlorite.

11. At the crematorium/ Burial Ground

- The Crematorium/ burial Ground staff should be sensitized that COVID 19 does not pose additional risk.
- The staff will practice standard precautions of hand hygiene, use of masks and gloves.
- Viewing of the dead body by unzipping the face end of the body bag (by the staff using standard precautions) may be allowed, for the relatives to see the body for one last time.
- Religious rituals such as reading from religious scripts, sprinkling holy water and any other last rites that does not require touching of the body can be allowed.
- Bathing, kissing, hugging, etc. of the dead body should not be allowed.

- The funeral/ burial staff and family members should perform hand hygiene after cremation/ burial.
- The ash does not pose any risk and can be collected to perform the last rites.
- Large gathering at the crematorium/ burial ground should be avoided as a social distancing measure as it is possible that close family contacts may be symptomatic and/ or shedding the virus.

Mock Drill for Emergency Response for Handling COVID -19 cases in Govt Hospitals

Setting	Personnel Required	Inventory/Activity/ Skills to be tested
1. Outpatients facilities/ Initial Triage		
Consultation Room	Healthcare workers (Doctors and Nurses)	Physical examination of patients with respiratory symptoms. Inventory PPEs & Medicines, hand washing and sanitizer facility.
	Healthcare workers (Doctors and Nurses)	Physical examination of patients without respiratory symptoms but based on self-declaration and /or history
	Cleaners	After and between consultations with patients with respiratory symptoms; Disinfectants.
Waiting Room		Well ventilated areas with Exhaust Fans/Open Areas
2. Emergency /Inpatient facilities/Isolation Rooms and Duty Stations		
	Healthcare workers (Doctors and Nurses)	• PPE • Drugs & Disposable • Oxygen Apparatus • Suction Machine • Hand washing and Hand sanitizer facility
	Cleaners	Entering the room of COVID-19 patients with proper PPE
Laboratory	Lab Technician	Collection of Respiratory samples
Administrative Areas	All staff, including healthcare workers	Administrative tasks that do not involve contact with COVID -19 patients but work on logistics and supply and record maintenance. Hand washing and hand sanitizer facility.

Setting	Personnel Required	Inventory/Activity/ Skills to be tested
3. ICU Facilities		
ICUs	Respiratory specialists Anaesthesiologist • ICU Nurses • OT Technician	• PPEs • Knowledge and skill as per treatment protocols • Oxygen supply • Emergency medicines • Monitors • Defibrillators • Ventilators
4. Ambulance or transfer vehicle (For shifting to Tertiary Care Centre)		
	Healthcare workers	Transporting suspected COVID-19 patients to the referral healthcare facility.
	Driver with Paramedical workers	Involved only in driving the patient with suspected COVID-19 disease and the driver's compartment is separated from the main compartment.
		Assisting with embarkation /disembarkation of patient with suspected COVID-19 disease.
	Cleaners	Cleaning and disinfection after and between transport of patients with suspected COVID-19 disease to the referral healthcare facility
5. Details of Tertiary Care Centre (Contact No. of Nodal Person and Emergency No.) are available		

General Tips:

1. In addition to using the appropriate PPE, frequent hand hygiene and respiratory hygiene should always be performed. PPE should be discarded in an appropriate waste container after use, and hand hygiene should be performed before putting on and after taking off PPE.

2. The number of visitors should be restricted. If visitors must enter a COVID-19 patient's room, they should be provided with clear instructions about how to put on and remove PPE and about performing hand hygiene before putting on and after removing PPE; this should be supervised by a healthcare worker.
3. This category includes the use of no-touch thermometers, thermal imaging cameras, and limited observation and questioning, all while maintaining a spatial distance of at least 1 m.
4. All rapid response team members must be trained in performing hand hygiene and how to put on and remove PPE to avoid self-contamination.

Laboratory investigations (i) All kits required for collection (Respiratory samples like Nasopharyngeal Swab, Sputum and bronchoalveolar lavage) such as swabs, VTMs, Zip Lock Bag & Cold Chain etc. are available (ii) All lab investigations of a COVID-19 suspect case should be restricted to a bare minimum as deemed appropriate by the treating physician till such time as the confirmatory COVID-19 tests are made available. After confirmation proper bio safety precautions should be observed if any invasive investigations are done.

Assessment of Healthcare workers

Doctors, Nurses, Technicians should undergo knowledge assessment along with skill assessment and if needed the requisite training should be provided to fill the gaps. A Microbiologists should be posted for Supervising the samples collection from the patients in a proper way and ensuring the transportation of sample to designated laboratories for testing under appropriate condition including maintenance of cold chain for this purpose.

Public Health Specialist should be engaged to advise about the reduction of infection in the medical care facility. They will also supervise the handing over of discharged patients to State Surveillance teams for monitoring and tracking these patients till the requisite period is over. They will also supervise proper biomedical waste disposal of the healthcare facility.

Guidelines for notifying COVID-19 affected persons by Private Institutions

In the wake of the prevailing COVID-19 situation and in order to strengthen the containment measures, it is of utmost importance that each and every case (suspects/confirmed) of COVID-19 is isolated and provided appropriate treatment and their contacts are traced at the earliest to break the chain of transmission. It is important that support and cooperation of private sector is enlisted, in this regard.

Therefore, it shall be mandatory for all hospitals (Government and Private), Medical officers in Government health institutions and registered Private Medical Practitioners including AYUSH Practitioners, to notify such person(s) with COVID-19 affected person (as defined in the attached annexure) to concerned district surveillance unit. All practitioners shall also get the self-declaration forms (enclosed), who, within their knowledge, are having travel history of COVID-19 affected countries as per the extant guidelines and are falling under the case definition of COVID-19 (Suspect/Case)

In case the person has any such history in the last 14 days and is symptomatic as per case definition of COVID-19, the person must be isolated in the hospital and will be tested for COVID-19 as per protocol.

Information of all such cases should be given to the State helpline number (list enclosed) and also to national helpline 1075. Email may also be sent at ncov2019@gov.in.

S.No.	State	Helpline numbers
1	Andhra Pradesh	0866-2410978
2	Arunachal Pradesh	9536055743
3	Assam	6913347770
4	Bihar	104
5	Chhattisgarh	077122-35091
6	Goa	104
7	Gujarat	104
8	Haryana	8558893911
9	Himachal Pradesh	104
10	Jharkhand	104
11	Karnataka	104
12	Kerala	0471-2552056
13	Madhya Pradesh	0755-2527177
14	Maharashtra	020-26127394
15	Manipur	3852411668
16	Meghalaya	108
17	Mizoram	102
18	Nagaland	7005539653
19	Odisha	9439994859
20	Punjab	104
21	Rajasthan	0141-2225624
22	Sikkim	104
23	Tamil Nadu	044-29510500
24	Telangana	104
25	Tripura	0381-2315879
26	Uttar Pradesh	18001805145
27	Uttarakhand	104
28	West Bengal	3323412600
S. No	**Name of Union Territory (UT)**	**Helpline numbers**
1	Andaman & Nicobar Islands	03192-232102
2	Chandigarh	9779558282
3	D & N Haveli	104
	Daman & Diu	104
4	Delhi	011-22307145
5	Jammu	1912520982
	Kashmir	0194-2440383
6	Ladakh	01982-256462
7	Lakshdweep	04896-263742
8	Puducherry	104

Annexure-I

COVID-19 Case Definitions

Suspect Case:

A patient with acute respiratory illness (fever and at least one sign/ symptom of respiratory disease (e.g., cough, shortness of breath) **AND** a history of travel to of residence in a country/area or territory reporting local transmission (See NCDC website for updated list) of COVID-19 disease during the 14 days prior to symptom onset;

OR

A patient / Health care worker with any acute respiratory illness **AND** having been in contact with a confirmed COVID-19 case in the last 14 days prior to onset of symptoms;

OR

A patient with severe acute respiratory infection (fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness breath) AND requiring hospitalization **AND** with no other etiology that fully explains the clinical presentation;

OR

A case for whom testing for COVID-19 is inconclusive

Laboratory Confirmed case: A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- २१ मार्च २०२०

प्रति,

आयुक्त, महानगरपालिका (सर्व)
जिल्हाधिकारी (सर्व)
मुख्य कार्यकारी अधिकारी
जिल्हा परिषद (सर्व)

विषय: राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना करण्याबाबत (उद्रेक सदृष्य व आपत्कालीन परिस्थितीचा मुकाबला करण्यासाठी राज्यातील सर्व रुग्णालयांसाठी मार्गदर्शक सूचना..

राज्यामध्ये कोव्हीड १९ या रोगाने बाधित रुग्ण बऱ्याच जिल्हयांमध्ये आढळून येत आहेत. या रुग्णांवर मुख्यत्वे शासकीय रुग्णालये, वैद्यकीय महाविद्यालयाची रुग्णालये / महानगरपालिका रुग्णालयातून उपचार करण्यात येत आहेत. तथापि, बाधित रुग्णांची वाढती संख्या लक्षात घेता भविष्यात आपत्कालीन परिस्थिती उदभवल्यास उपचारास्तव खाजगी रुग्णालयांच्या सेवा व विलगीकरण कक्ष याची आवश्यकता भासणार आहे. उपचार प्रक्रियेत खाजगी रुग्णालयांच्या सहभागास्तव याबाबतीत त्यांनाही याबाबीची कल्पना देणे आवश्यक आहे. यास्तव आपण आपल्या अधिपत्याखालील क्षेत्रातील सर्व रुग्णालयांच्या व्यवस्थापनासोबत बैठक घेऊन त्यांना खालील सूचना देण्यात याव्यात. याबाबत आरोग्य व कुटूंब कल्याण मंत्रालय, भारत सरकार यांचेकडून प्राप्त झालेल्या मार्गदर्शक सूचना सोबत जोडण्यात येत आहेत.

१. तातडी नसलेल्या सर्व शस्त्रक्रिया पुढे ढकलण्यात याव्यात.
२. विषाणुबाधेची आपत्कालीन परिस्थिती हाताळण्यासाठी त्यांच्या रुग्णालयात विलगीकरण कक्ष व काही खाटा राखून ठेवण्यात याव्यात.
३. रुग्णालयात पुरेसा मास्क, ग्लोव्हज व पर्सनल प्रोटेक्शन किटचा साठा उपलब्ध करुन ठेवण्यात यावा.
४. रुग्णालयात ऑक्सीजनचा पुरेसा साठा व व्हेन्टीलेटर्स सुस्थितीत स्थितीत असणे तसेच आवश्यकते नुसार हाय फलो ऑक्सीजन मास्क उपलब्ध करुन ठेवावे.
५. अतिदक्षता विभागात आरोग्य सेवा देण्यासाठी पुरेसे प्रशिक्षित डॉक्टर्स व कर्मचारी उपलब्ध करुन द्यावेत.
६. ज्या रुग्णांच्या बाबतीत परिस्थिती पूर्णत: नियंत्रणाखाली आहे तसेच गंभीर परिस्थिती नसलेल्या रुग्णांना (ज्यांना बाहय रुग्ण उपचाराद्वारे रुग्णसेवा देणे शक्य आहे) घरी सोडण्यात यावे. तसेच अशा स्वरुपाचे नविन रुग्ण दाखल करुन घेऊ नयेत.
७. आंतररुग्ण असलेल्या इतर रुग्णांसाठी केवळ एकच नातेवाईकास रुग्णालयात थांबण्याची परवानगी देण्यात यावी.

८. रुग्णालयात येणाऱ्या सर्व रुग्णांना शिंकणे, खोकणे याबाबतचे नियम पाळण्याची / आवश्यकतेनुसार मास्कचा वापर व हाताळणी बाबतचे शास्त्रशुध्द माहिती देणारे व कोव्हीड १९ चा प्रादुर्भाव टाळण्यासाठी घ्यावयाची दक्षता व हात धुणे व अन्नसेवन व स्वच्छता पाळणे याबाबतची माहिती द्यावी द्यावी अथवा भित्तीपत्रके रुग्णालयात लावावी.

९. सर्व रुग्णालयाच्या आवारात अथवा जवळपास औषधी दुकाने व त्यावर होणारी गर्दी नियंत्रणासाठी उपाययोजना करावी.

१०. आवश्यकतेनुसार इंडीयन रेडक्रॉस सोसायटी व राष्ट्रीय आपत्ती निवारण पथकाची मदत घेण्यात यावी.

उपरोक्त सूचना साथरोग प्रतिबंधात्मक कायदा, १८९७ अन्वये निर्गमित करण्यात आलेली अधिसूचना व नियमावली मधील तरतुदीनुसार सक्षम प्राधिकाऱ्याच्या मान्यतेने सर्व शासकीय, महापालिका, खाजगी, जिल्हास्तरीय, तालुकास्तरीय, नगरपरिषद / नगरपंचायत व ग्रामीण क्षेत्रातील रुग्णालयांना देण्यात येत आहेत.

(डॉ. प्रदीप व्यास)
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Advisory issued by Ministry of Health and Family Welfare, Government of India for Hospitals and Medical Education Institutions

The medical infrastructure in the country needs to be prepared for any possible influx of patients on account of COVID 19. In this context, the following interventions are proposed up to 15th April, 2020. They will be reviewed as per the evolving situation.

Indoor Facilities:

1. Non-essential elective surgeries should be postponed.
2. Some beds should be set apart and prepared for creating isolation facilities in every public and private hospital.
3. All hospitals should mobilize additional resources including masks, gloves and personal protection equipment. Healthcare personnel should be trained for dealing with any foreseeable emergencies.
4. All doctors, nurses and support staff in different specialities, including pre and para clinical departments, should be mobilized and trained in infection prevention and control practices.
5. Hospitals must procure sufficient numbers of ventilators and high flow oxygen masks in preparation for future requirements.
6. All hospitals must ensure that they have adequate trained manpower and resource pools for ventilator/ ICU care.
7. Hospitals may ensure that stable patients are discharged as early as possible while further new admissions (of stable patients) are also restricted.
8. Number of patient attendants should be strictly restricted to 'one' only.

IEC Activities:

9. Patients must be educated about cough etiquette, Do's and Don'ts, proper use of masks instead of using them indiscriminately and inefficiently; and personal hygiene. Hospitals should put up posters etc. to increase awareness amongst patients on Do'sand Don'ts regarding COVID 19.
10. Patients must be counselled against attaching any kind of stigma to Corona virus patients or to facilities where such patients are admitted. They must be made aware that quick disclosure of symptoms and undergoing testing if advised is the surest way of battling COVID 19.

Administrative:

11. All hospitals should carry out a preparedness drill on Sunday, 22nd March 2020.Guidelines for this drill will be made available on the Health Ministry website.
12. Non-essential audits of hospitals by various regulators and accreditation agencies may be postponed.
13. All hospitals must provide treatment free of cost to any medical personnel who pick up infection while treating patients.
14. No suspected COVID 19 patient should be turned away from any hospital and the admission of any such patient should be notified to NCDC or IDSP immediately.
15. Similarly, all pneumonia patients must also be notified to NCDC or IDSP so that they can be tested for COVID 19.
16. Hospitals to ensure social distancing in their premises.
17. All ongoing examinations may be rescheduled after 31.03.2020.
18. All evaluation work may be rescheduled after 31.03.2020.
19. All Educational Institutions and Examination Boards are requested to maintain regular communication with the students and teachers through electronic means and keep them fully informed so that there is no anxiety amongst the students, teachers and parents.
20. Institutions are also requested to notify help-line numbers/e-mails which students can access for their queries.
21. All unauthorized/ authorized shops (excluding pharmacies) and eateries in the vicinity of hospitals should be compulsorily shut.
22. Leave of all kinds (except under emergency and unavoidable circumstances) may be cancelled immediately.

OPD:

23. All patients may be advised not to come for routine visits to the OPD if it can be avoided or postponed.
24. OPDs may be organised in such a manner that patients exhibiting flu like symptoms are attended separately from other patients and spaced out so as to avoid overcrowding.
25. Patients suffering from chronic diseases and minor elements may be advised to utilise OPDs in primary/ secondary care facilities rather than crowding tertiary care centres.
26. Pharmacy counters may be increased and queue management systems to be followed by engaging Indian Red Cross/ NDRF volunteers.

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- २१ मार्च २०२०

प्रति,

आयुक्त, महानगरपालिका (सर्व)
जिल्हाधिकारी (सर्व)
मुख्य कार्यकारी अधिकारी
जिल्हा परिषद (सर्व)

विषय: राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना करण्याबाबत (उद्रेक सदृष्य व आपत्कालीन परिस्थितीचा मुकाबला करण्यासाठी खाजगी रुग्णालयांची सेवा उपलब्ध करुन घेण्याबाबत..

राज्यात करोनाचा वाढता प्रादुर्भाव लक्षात घेऊन उद्रेक सदृष्य परिस्थिती हाताळण्यासाठी शासकीय रुग्णालये अपुरी पडण्याची शक्यता नाकारता येत नाही. त्यामुळे आपल्या अधिपत्याखालील क्षेत्रातील खाजगी रुग्णालयांची अद्ययावत यादी तयार करण्यात यावी. या खाजगी रुग्णालयांकडून आपत्कालीन परिस्थिती हाताळण्याकरिता काही खाटा राखून ठेवण्याबाबत निर्देशित करावे व यानुसार संबंधीत खाजगी रुग्णालयांकडून जास्तीत जास्त किती खाटा उपलब्ध होऊ शकतात याची तालुकानिहाय यादी तयार करण्यात यावी. **यामध्ये विलगीकरण कक्षासह व्हेन्टीलेटर्सच्या सुविधा असलेल्या किती खाटा उपलब्ध आहेत व व्हेन्टीलेटर्सच्या सुविधेशिवाय किंती खाटा उपलब्ध होऊ शकतात याचीही रुग्णालयनिहाय माहिती घ्यावी व उपरोक्त तपशिलासह जिल्हानिहाय यादी शासनास उपलब्ध करुन द्यावी.** रुग्णालयाची तपासणी करुन माहिती घेण्यासाठीची चेकलिस्ट सोबत जोडण्यात येत आहे.

उपरोक्त सूचना साथरोग प्रतिबंधात्मक कायदा, १८९७ अन्वये निर्गमित करण्यात आलेली अधिसूचना व नियमावली मधील तरतुदीनुसार सक्षम प्राधिकाऱ्याच्या मान्यतेने देण्यात येत आहेत.

प्रदीप व्यास

(डॉ. प्रदीप व्यास)
प्रधान सचिव, महाराष्ट्र शासन

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Hospital Preparedness for n- Corona Virus Disease Hospital Assessment Checklist				
1	**Generic Hospital Information**			
1.1	Name of the Hospital			Comments
1.2	Address			
1.3	Contact No.			
1.4	Name of Director/ Med Supdt.			
	Contact Number			
1.4	Name of Second in Command			
	Contact Number			
1.5	Total Number of Beds in the Hospital			
2	**Hospital Plan**			
2.1	Hospital Disaster Plan/ Manual	Yes	No	
2.1.1	The Manual has provided for surge capacity to manage an outbreak of Emerging diseases (EVD)			
2.2	Hospital Committee/ Adhoc Group to support technical decision making	Yes	No	
3	**Isolation Facility**			
3.1	Location within the hospital (Away from main crown, ground floor, level etc)			
3.2	No of beds available			
3.1	No. of beds available as single isolation rooms with washroom facility.			
3.2	By use of Exhaust fans (direction must outside & not towards dormitory /patient waiting area)	Yes	No	
3.3	Ante room / changing room attached to the isolation facility	Yes	No	
3.4	Separate entry to the isolation facility	Yes	No	
4	**Infection prevention and control; practices**			
4.1	Hand washing Facility	Yes	No	
4.2	Hand sanitizer	Yes	No	
4.3	Availability of 24 X 7 Water & Generator Back up	Yes	No	
4.4	Availability of Sodium Hypochlorite in different strengths.	Yes	No	
4.5	Facilities for disposable of sharps, and other consumable wastes as per bio medical waste management rules.	Yes	No	
4.6	Disposable bags available at the ante rooms for bio medical hazard	Yes	No	

4.7	Decontamination of infectious waste done prior to disposal throught identifiedwaste management agency.	Yes	No	
4.8	Frequency of Disinfection of floors, door knobs, bed railings etc.			
4.9	Hospital infection Control Committee exists	Yes	No	
4.10	Frequency of meeting & last date when the committee met			
4.11	Infection Control Protocols available	Yes	No	
4.12	Hospital workers knowledgeable about hand hygiene, cough Etiquettes, distancing measures Use of PPE			
4.13	Laid down protocol for limiting entry of visitors	Yes	No	
5	**ICU/ Critical care (AC)**			
5.1	Number of intensive care beds available and earmarked for nCorona virus disease			
5.2	ICU beds available within the nCorona virus disease isoaltion facility	Yes	No	
5.3	Mede of Oxygen availability Cylinders/ Central supply with Generator backup			
5.4	Consumables: masks, respirators, ET tubes, etc for managing critical patient available.	Yes	No	
5.5	Ventilators, Monitors, Pulse, Dialysis machine, Oxymeters, Nebulizers, Syringe infusion pumps etc for managing, ECG machine critical patient available	Yes	No	
5.6	Specialists/ Physicians trained in critical care/ intensive care/ respiratory medicine to manage cases	Yes	No	
5.7	Standard case management protocol available	Yes	No	
5.8	Availability of dedicated doctor, nurses and support staff for ncorona cases			
5.9	Training on Donning and Doffing of PPE to ICU staff.			
6	Laboratory			

6.1	Laboratory with in the hospital has the required facilities to handle nasopharyngeal swab/oropharyngeal swab/ blood/serum/ bronchoalveolar lavage / tracheal or nasopharyngeal aspirate/ nasal swab/ sputum	Yes	No	
6.2	Sample collection kits available for collection, labeling and transportation	Yes	No	
6.3	Vaccine carriers available	Yes	No	
6.4	Refrigerator available for storing samples at 2-8 degree C	Yes	No	
6.5	Trained personal available for taking samples	Yes	No	
6.6	Identified laboratory personal aware of the lab where samples are to be sent and the contact details of the lab.	Yes	No	
7	PPE			
7.1	Personal Protective equipment available	Yes	No	
7.1.1	Stock available (in absolute numbers)			
7.1.2	The Personal protective kit has an outer impermeable gown	Yes	No	
7.3	3 layered surgical mask (quantity)			
7.4	N 95 Respirator (quantity)			
7.5	Surgical gloves (quantity)			
7.6	Rubber gloves (quantity)			
7.7	Gum boots (quantity)			
7.8	Availability of NIV guidelines for sample collection and transportation	Yes	No	
8	Communication			
8.1	Important contact numbers listed	Yes	No	
8.2	Networking with the attached Airports	Yes	No	
9	Training			
9.1	Hospital staff trained on nCorona virus / SARS/ H1N1/ MERS-COV Disease			
10	Ambulance			
10.1	Dedicated ambulance available for shifting of patients, with BLS/ Trasport Ventilator	Yes	No	
10.2	Driver knows how to wear 3 layered surgical mask and Gloves	Yes	No	

10.3	Stretcher Bearers are trained to wear personal protective equipment and it safe disposal	Yes	No	
11	Morgue			
11.1	Motuary staff trained in handling patients and dorning PPE	Yes	No	
11.2	Availability of body bags	Yes	No	

BOARD OF GOVERNORS

In supersession of the Medical Council of India

Telemedicine Practice Guidelines

Enabling Registered Medical Practitioners to Provide Healthcare Using Telemedicine

[This constitutes Appendix 5 of the Indian Medical Council (Professional Conduct, Etiquette and Ethics Regulation, 2002]

25 March 2020

These Guidelines have been prepared in partnership with NITI Aayog

TABLE OF CONTENT

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TELEMEDICINE

'The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities.'

TELEHEALTH

'The delivery and facilitation of health and health-related services including medical care, provider and patient education, health information services, and self-care via telecommunications and digital communication technologies.'

REGISTERED MEDICAL PRACTITIONER

'A Registered Medical Practitioner [RMP] is a person who is enrolled in the State Medical Register or the Indian Medical Register under the Indian Medical Council Act 1956.' [IMC Act, 1956]

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Background

Telemedicine: An Enabler of Healthcare Access and Affordability

There are a number of benefits of telemedicine. It increases *timely access* to appropriate interventions including *faster access* and *access to services that may not otherwise* be available.

In India, providing In-person healthcare is challenging, particularly given the large geographical distances and limited resources. One of the major advantages of telemedicine can be for saving of cost and effort especially of rural patients, as they need not travel long distances for obtaining consultation and treatment. In this type of scenario, telemedicine can provide an optimal solution for not just providing timely and faster access. It would also reduce financial costs associated with travel. It also reduces the inconvenience/impact to family and caregivers and social factors. Telemedicine can play a particularly important role in cases where there is no need for the patient to physically see the RMP (or other medical professional), e.g. for regular, routine check-ups or continuous monitoring. Telemedicine can reduce the burden on the secondary hospitals.

With telemedicine, there is higher likelihood of maintenance of records and documentation hence minimalizes the likelihood of missing out advice from the doctor other health care staff. Conversely, the doctor has an exact document of the advice provided via tele-consultation. Written documentation increases the legal protection of both parties. Telemedicine provides patient's safety, as well as health workers safety especially in situations where there is risk of contagious infections. There are a number of technologies that can be used in telemedicine, which can help patients adhere better to their medication regimens and manage their diseases better. Telemedicine can also enable the availability of vital parameters of the patient available to the physician with the help of medical devices such as blood pressure, blood glucose, etc management.

Disasters and pandemics pose unique challenges to providing health care. Though telemedicine will not solve them all, it is well suited for scenarios in which medical practitioners can evaluate and manage patients. A telemedicine visit can be conducted without exposing staff to viruses/infections in the times of such outbreaks. Telemedicine practice can prevent the transmission of infectious diseases reducing the risks to both health care workers and patients. Unnecessary and avoidable exposure of the people involved in delivery of healthcare can to be avoided using telemedicine and patients can be screened remotely. It can provide rapid access to medical practitioners who may not be immediately available in person. In addition, it makes available extra working hands to provide physical care at the respective health institutions. Thus, health systems that are invested in telemedicine are well positioned to ensure that patients with Covid-19 kind of issues receive the care they need.

The government is committed to providing equal access to quality care to all and digital health is a critical enabler for the overall transformation of the health system. Hence, mainstreaming telemedicine in health systems will minimize inequity and barriers to access. India's digital health policy advocates use of digital tools for improving the efficiency and outcome of the healthcare system and lays significant focus on the use of telemedicine services, especially in the Health and Wellness Centers at the grassroots level wherein a mid-level provider/health worker can connect the patients to the doctors through technology platforms in providing timely and best possible care.

However, there has been concern on the practice of telemedicine. Lack of clear guidelines has created significant ambiguity for registered medical professionals, raising doubts on the practice of telemedicine. The 2018 judgement of the Hon'ble High Court of Bombay had created uncertainty about the place and legitimacy of telemedicine because an appropriate framework does not exist.

In India, till now there was no legislation or guidelines on the practice of telemedicine, through video, phone, Internet based platforms (web/chat/apps etc). The existing provisions under the Indian Medical Council Act, 1956, the Indian Medical Council (Professional Conduct, Etiquette and Ethics Regulation 2002), Drugs &Cosmetics Act, 1940 and Rules 1945, Clinical Establishment (Registration and Regulation) Act, 2010, Information Technology Act, 2000 and the Information Technology (Reasonable Security Practices and Procedures and Sensitive Personal Data or Information) Rules 2011 primarily govern the practice of medicine and information technology. Gaps in legislation and the uncertainty of rules pose a risk for both the doctors and their patients.

There are some countries that have put in legislative measures and some countries, which follow non-legislative measures such as guidelines to practice telemedicine. In some countries guidelines are treated as professional norms that need to be followed by medical practitioners. We reviewed these other guidelines and consulted to put together these guidelines to enable medical practitioners to practice telemedicine.

Telemedicine will continue to grow and be adopted by more healthcare practitioners and patients in a wide variety of forms, and these practice guidelines will be a key enabler in fostering its growth.

Purpose

The purpose of these guidelines is to give practical advice to doctors so that all services and models of care used by doctors and health workers are encouraged to consider the use of telemedicine as a part of normal practice. These guidelines will assist the medical practitioner in pursuing a sound course of action to provide effective and safe medical care founded on current information, available resources, and patient needs to ensure patient and provider safety.

These telemedicine guidelines will help realize the full potential of these advancements in technology for health care delivery. It provides norms and protocols relating to physician-patient relationship; issues of liability and negligence; evaluation, management and treatment; informed consent; continuity of care; referrals for emergency services; medical records; privacy and security of the patient records and exchange of information; prescribing; and reimbursement; health education and counseling.

These guidelines will provide information on various aspects of telemedicine including information on technology platforms and tools available to medical practitioners and how to integrate these technologies to provide health care delivery. It also spells out how technology and transmission of voice, data, images and information should be used in conjunction with other clinical standards, protocols, policies and procedures for the provision of care. Where clinically appropriate, telemedicine is a safe, effective and a valuable modality to support patient care.
Like any other technology, the technology used for telemedicine services can be abused. It has some risks, drawbacks and limitations, which can be mitigated through appropriate training, enforcement of standards, protocols and guidelines,

These guidelines should be used in conjunction with the other national clinical standards, protocols, policies and procedures.

1. Telemedicine: Definitions and Applications

1.1 DEFINITIONS

1.1.1 Definition of Telemedicine

World Health Organization defines telemedicine as

"The delivery of health-care services, where distance is a critical factor, by all health-care professionals using information and communications technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and the continuing education of health-care workers, with the aim of advancing the health of individuals and communities."

1.1.2 Definition of Telehealth

NEJM Catalyst defines *telehealth as "The delivery and facilitation of health and health-related services including medical care, provider and patient education, health information services, and self-care via telecommunications and digital communication technologies."*

In general, telemedicine is used to denote clinical service delivered by a Registered medical practitioner while telehealth is a broader term of use of technology for health and health related services including telemedicine.

1.1.3 Definition of Registered Medical Practitioner (RMP)

For the purpose of this document a 'Registered Medical Practitioner' is defined as a person who is enrolled in the State Medical Register or the Indian Medical Register under the IMC Act 1956.

1.2 SCOPE

Within the broad paradigm of telemedicine, these guidelines will be published under the IMC Act and are for privileged access only. These guidelines are designed to serve as an aid and tool to enable RMPs to effectively leverage Telemedicine to enhance healthcare service and access to all

- The guidelines are meant for RMPs under the IMC Act 1956
- The guidelines cover norms and standards of the RMP to consult patients via telemedicine
- Telemedicine includes all channels of communication with the patient that leverage Information Technology platforms, including Voice, Audio, Text & Digital Data exchange

EXCLUSIONS:

The guidelines specifically explicitly **exclude** the following:

- Specifications for hardware or software, infrastructure building & maintenance
- Data management systems involved; standards and interoperability
- Use of digital technology to conduct surgical or invasive procedures remotely
- Other aspects of telehealth such as research and evaluation and continuing education of health-care workers
- Does not provide for consultations outside the jurisdiction of India

1.3 REGISTERED MEDICAL PRACTITIONERS ARE ENTITLED TO PRACTICE TELEMEDICIN: ALL OF THEM WILL TAKE AN ONLINE COURSE ON PRACTICE OF TELEMEDICINE

1.3.1 ***A Registered Medical Practitioner*** is entitled to provide telemedicine consultation to patients from any part of India

1.3.2 RMPs using telemedicine shall uphold the ***same professional and ethical norms and standards*** as applicable to traditional in-person care, within the intrinsic limitations of telemedicine

1.3.3 To enable all those RMPs who would want to practice telemedicine get familiar with these Guidelines as well as with the process and limitations of telemedicine practice:

- An online program will be developed and made available by the Board of Governors in supersession of Medical Council of India.
- All registered medical practitioners intending to provide online consultation need to complete a mandatory online course within 3 years of its notification.
- In the interim period, the principles mentioned in these guidelines need to be followed.
- Thereafter, undergoing and qualifying such a course, as prescribed, will be essential prior to practice of telemedicine.

1.4 TELEMEDICINE APPLICATIONS

1.4.1 Tools for Telemedicine

RMP may use any telemedicine tool suitable for carrying out technology-based patient consultation e.g. telephone, video, devices connected over LAN, WAN, Internet, mobile or landline phones, Chat Platforms like WhatsApp, Facebook Messenger etc., or Mobile App or internet based digital platforms for telemedicine or data transmission systems like Skype/ email/ fax etc.

Irrespective of the tool of communication used, the core principles of telemedicine practice remain the same.

1.4.2 Telemedicine applications can be classified into ***four basic types***, according to the ***mode of communication, timing of the information transmitted, the purpose of the consultation and the interaction between the individuals involved***—be it RMP-to-patient / caregiver, or RMP to RMP.

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1.4.2.1 According to the Mode of Communication

- Video (Telemedicine facility, Apps, Video on chat platforms, Skype/Face time etc.)
- Audio (Phone, VOIP, Apps etc.)
- Text Based:
  - Telemedicine chat based applications (specialized telemedicine smartphone Apps, Websites, other internet-based systems etc.)
  - General messaging/ text/ chat platforms (WhatsApp, Google Hangouts, Facebook Messenger etc.)
  - Asynchronous (email/ Fax etc.)

1.4.2.2 According to timing of information transmitted

Real time Video/audio/text interaction	Asynchronous exchange of relevant information
Video/audio/text for exchange of relevant information for diagnosis, medication and health education and counseling	Transmission of summary of patient complaints and supplementary data including images, lab reports and/or radiological investigations between stakeholders. Such data can be forwarded to different parties at any point of time and thereafter accessed per convenience/need

1.4.2.3 According to the purpose of the consultation

For Non-Emergency consult:

First consult with any RMP for diagnosis/treatment/health education/ counseling	***Follow-up*** consult with the ***same RMP***
Patients may consult with an RMP for diagnosis and treatment of her condition or for health education and counseling	Patients may use this service for follow up consultation on his ongoing treatment with the same RMP who prescribed the treatment in an earlier in-person consult.

Emergency consult for immediate assistance or first aid etc.

- In case alternative care is not present, tele-consultation might be the only way to provide timely care. In such situations, RMPs may provide consultation to their best judgement. Telemedicine services should however be avoided for emergency care when alternative in-person care is available, and telemedicine consultation should be limited to first aid, life-saving measure, counseling and advice on referral.

- In all cases of emergency, the patient must be advised for an in-person interaction with an RMP at the earliest.

1.4.2.4 According to the individuals involved

Patient to RMP
Telemedicine services may connect patients to an RMP

Caregiver to RMP
Telemedicine services may connect Care givers to an RMP, under certain conditions as detailed in Framework (Section 4)

RMP to RMP
RMP may use telemedicine services to discuss with other RMPs issues of care of one or more patients, or to disseminate knowledge

Health worker to RMP
A Health Worker [1] can facilitate a consultation session for a patient with an RMP. In doing so, the former can help take history, examine the patient and convey the findings. They can also explain/reinforce the advice given by the RMP to the patient.

[1] Nurse, Allied Health Professional, Mid-level health provider, ANM or any other health worker designated by an appropriate authority

2. Technology Used & Mode of Communications

Multiple technologies can be used to deliver telemedicine consultation. There are 3 primary modes: **Video, Audio, or Text** (chat, messaging, email, fax etc.) Each one of these technology systems has their respective strengths, weaknesses and contexts, in which, they may be appropriate or inadequate to deliver a proper diagnosis.

It is therefore important to understand the strengths, benefits as well as limitations of different technologies. Broadly, though telemedicine consultation provides safety to the RMP from contagious conditions, it cannot replace physical examination that may require palpation, percussion or auscultation; that requires physical touch and feel. Newer technologies may improve this drawback.

STRENGTHS AND LIMITATIONS OF VARIOUS MODES OF COMMUNICATION

Mode	Strengths	Limitations
VIDEO: Telemedicine facility, Apps, Video on chat platforms, Facetime etc.	• Closest to an in person-consult, real time interaction • Patient identification is easier • RMP can see the patient and discuss with the caregiver • Visual cues can be perceived • Inspection of patient can be carried out	• Is dependent on high quality internet connection at both ends, else will lead to a sub optimal exchange of information • Since there is a possibility of abuse/ misuse, ensuring privacy of patients in video consults is extremely important
AUDIO: Phone, VOIP, Apps etc.	• Convenient and fast • Unlimited reach • Suitable for urgent cases • No separate infrastructure required • Privacy ensured • Real-time interaction.	• Non-verbal cues may be missed • Not suitable for conditions that require a visual inspection (e.g. skin, eye or tongue examination), or physical touch • Patient identification needs to be clearer, greater chance of imposters representing the real patient
TEXT BASED: Specialized Chat based Telemedicine Smartphone Apps, SMS, Websites,	• Convenient and quick • Documentation & Identification may be an integral feature of the platform • Suitable for urgent cases, or follow-ups, second opinions provided RMP has enough context from other sources,	• Besides the visual and physical touch, text-based interactions also miss the verbal cues • Difficult to establish rapport with the patient.

messaging systems e.g. WhatsApp, Google Hangouts, FB Messenger	• No separate infrastructure required, • Can be real time	• Cannot be sure of identity of the doctor or the patient
ASYNCHRONOUS: Email Fax, recordings etc.	• Convenient and easy to document • No specific app or download requirement • Images, data, reports readily shared • No separate infrastructure required • More useful when accompanied with test reports and follow up and second opinions	• Not a real time interaction, so just one-way context is available, relying solely on the articulation by the patient • Patient identification is document based only and difficult to confirm • Non-verbal cues are missed • There may be delays because the Doctor may not see the mail immediately

3. Guidelines for Telemedicine in India

The **professional judgment of a Registered Medical Practitioner** should be the **guiding principle for all telemedicine consultations**: An RMP is well positioned to decide whether a technology-based consultation is sufficient or an in-person review is needed. Practitioner shall exercise proper discretion and not compromise on the quality of care. Seven elements need to be considered before beginning any telemedicine consultation (see panel)

Seven Elements to be considered before any telemedicine consultation	
1	Context
2	Identification of RMP and Patient
3	Mode of Communication
4	Consent
5	Type of Consultation
6	Patient Evaluation
7	Patient Management

3.1 TELEMEDICINE SHOULD BE APPROPRIATE AND SUFFICIENT AS PER CONTEXT

3.1.1 The Registered Medical Practitioners should exercise their professional judgment to decide whether a telemedicine consultation is appropriate in a given situation or an in-person consultation is needed in the interest of the patient. They should consider the mode/technologies available and their adequacy for a diagnosis before choosing to proceed with any health education or counseling or medication. They should be reasonably comfortable that telemedicine is in the patient's interest after taking a holistic view of the given situation.

3.1.2 **Complexity of Patient's health condition**
Every patient/case/medical condition may be different, for example, a new patient may present with a simple complaint such as headache while a known patient of Diabetes may consult for a follow-up with emergencies such as Diabetic Ketoacidosis. The RMP shall uphold the same standard of care as in an in-person consultation but within the intrinsic limits of telemedicine.

3.2 IDENTIFICATION OF THE REGISTERED MEDICAL PRACTITIONER AND THE PATIENT IS REQUIRED

3.2.1 Telemedicine consultation is should not be anonymous: both patient and the RMP need to know each other's identity.

3.2.2 An RMP should verify and confirm patient's identity by name, age, address, email ID, phone number, registered ID or any other identification as may be deemed to be appropriate. The RMP should ensure that there is a *mechanism for a patient to verify* the credentials and contact details of the RMP.

3.2.3 For issuing a prescription, the RMP needs to explicitly ask the age of the patient, and if there is any doubt, seek age proof. Where the patient is a minor, after confirming the age, tele consultation would be allowed only if the minor is consulting along-with an adult whose identity needs to be ascertained.

3.2.4 An RMP should begin the consultation by informing the patient about his/her name and qualifications.

3.2.5 Every RMP shall *display the registration number* accorded to him/her by the State Medical Council/MCI, on prescriptions, website, electronic communication (WhatsApp/ email etc.) and receipts etc. given to his/her patients

3.3 MODE OF TELEMEDICINE

3.3.1 Multiple technologies can be used to deliver telemedicine consultations. All these technology systems have their respective strengths, weaknesses and contexts in which they may be appropriate or inadequate in order to deliver proper care.

3.3.2 *Primarily there are 3 modes: Video, Audio or Text (chat, images, messaging, email, fax etc.)*. Their strengths, limitations and appropriateness as detailed in Section 2 need to be considered by the RMP.

3.3.3 There may be situations where in order to reach a diagnosis and to understand the context better; a real-time consultation may be preferable over an asynchronous exchange of information. Similarly, there would be conditions where an RMP could require hearing the patient speak, therefore, a voice interaction may be preferred than an email or text for a diagnosis. There are also situations where the RMP needs to visually examine the patient and make a diagnosis. In such a case, the RMP could recommend a video consultation. Considering the situation, using his/her best judgment, an RMP may decide the best technology to use to diagnose and treat**.**

3.4 PATIENT CONSENT

Patient consent is necessary for any telemedicine consultation. The consent can be Implied or explicit depending on the following situations:

3.4.1 If, the patient initiates the telemedicine consultation, then the consent is **implied[2].**

3.4.2 An **Explicit patient** consent is needed if:

A **Health worker, RMP or a Caregiver** initiates a Telemedicine consultation.

[2] Implied Consent: In an in-person consultation, it is assumed the patient has consented to the consult by his/her actions. When the patient walks in an OPD, the consent for the consultation is taken as implied. Like an in-person consultation, for most of the tele-consultations the consent can be assumed to be implied because the patient has initiated the consultation.

3.4.3 An **Explicit consent can be recorded** in any form. Patient can send an email, text or audio/video message. Patient can state his/her intent on phone/video to the RMP (e.g. "Yes, I consent to avail consultation via telemedicine" or any such communication in simple words). The RMP must record this in his patient records.

3.5 EXCHANGE OF INFORMATION FOR PATIENT EVALUATION

RMPs must make all efforts to gather sufficient medical information about the patient's condition before making any professional judgment.

3.5.1 Patient's Information

- An RMP would use his/her professional discretion to gather the type **and extent of patient information** (history/examination findings/Investigation reports/past records etc.) required to be able to exercise proper clinical judgement.
- This information can be **supplemented** through conversation with a healthcare worker/provider and by any information supported by **technology-based tools**.
- If the RMP feels that the **information received is inadequate**, then he/she can request for additional information from the patient. This information may be shared in real time or shared later via email/text, as per the nature of such information. For example, an RMP may advise some laboratory or/and radiological tests to the patient. In such instances, the consult may be considered paused and can be resumed at the rescheduled time. An **RMP may provide health education as appropriate at any time**.
- Telemedicine has its own set of limitations for adequate examination. **If a physical examination is critical information for consultation, RMP should not proceed until a physical examination can be arranged through an in-person consult.** Wherever necessary, depending on professional judgement of the RMP, he/she shall recommend:

    - Video consultation
    - Examination by another RMP/ Health Worker ;
    - In-person consultation

- The information required may vary from one RMP to another based on his/her professional experience and discretion and for different medical conditions based on the defined clinical standards and standard treatment guidelines.
- RMP shall maintain all patient records including case history, investigation reports, images, etc. as appropriate.

3.6 TYPES OF CONSULTATION: FIRST CONSULT/ FOLLOW-UP CONSULT

There are two types of patient consultations, namely, first consult and the follow-up consult.

An RMP may have only a limited understanding of the patient seeking teleconsultation for the first time, when there have been no prior in-person consultation. However, if the first consult happens to be via video, RMP can make a much better judgment and hence can provide much better advice including additional medicines, if indicated.

On the other hand, if a patient has been seen in-person earlier by the RMP, then it is possible to be more comprehensive in managing the patient.

3.6.1 First Consult means

- The patient is consulting with the RMP for the first time; or
- The patient has consulted with the RMP earlier, but more than 6 months have lapsed since the previous consultation; or
- The patient has consulted with the RMP earlier, but for a different health condition

3.6.2 Follow-Up Consult(s) means

- The patient is consulting with the same RMP within 6 months of his/her previous in-person consultation and this is for continuation of care of the same health condition. However,

it *will not be considered* a follow up if:

- There are new symptoms that are not in the spectrum of the same health condition; and/or
- RMP does not recall the context of previous treatment and advice

3.7 PATIENT MANAGEMENT: HEALTH EDUCATION, COUNSELING & MEDICATION

3.7.1 If the condition can be appropriately managed via telemedicine, based on the type of consultation, then the RMP may proceed with a professional judgement to:

- Provide *Health Education* as appropriate in the case; and/or
- Provide *Counseling* related to specific clinical condition; and/or
- *Prescribe Medicines*

3.7.2 **Health Education**: An RMP may impart health promotion and disease prevention messages. These could be related to diet, physical activity, cessation of smoking, contagious infections and so on. Likewise, he/ she may give advice on immunizations, exercises, hygiene practices, mosquito control etc

3.7.3 Counseling: This is specific advice given to patients and it may, for instance, include food restrictions, do's and don't's for a patient on anticancer drugs, proper use of a hearing aid, home physiotherapy, etc to mitigate the underlying condition. This may also include advice for new investigations that need to be carried out before the next consult.

3.7.4 Prescribing Medicines

Prescribing medications, via telemedicine consultation is at the professional discretion of the RMP. It entails the same professional accountability as in the traditional in-person consult. If a medical condition requires a particular protocol to diagnose and prescribe as in a case of in-person consult then same prevailing principle will be applicable to a telemedicine consult.

RMP may prescribe medicines via telemedicine ONLY when RMP is satisfied that he/ she has gathered adequate and relevant information about the patient's medical condition and prescribed medicines are in the best interest of the patient.

Prescribing Medicines *without an appropriate diagnosis/provisional diagnosis will amount to a professional misconduct*

Specific Restrictions

There are certain limitations on prescribing medicines on consult via telemedicine depending upon the type of consultation and mode of consultation. The categories of medicines that can be prescribed via tele-consultation will be as notified in consultation with the Central Government from time to time.
The categories of medicines that can be prescribed are listed below:

- **List O**: It will comprise those medicines which are safe to be prescribed through any mode of tele-consultation. In essence they would comprise of
    - Medicines which are used for common conditions and are often available 'over the counter'. For instance, these medicines would include, paracetamol, ORS solutions, cough lozenges etc
    - Medicines that may be deemed necessary during public health emergencies.

- **List A:** These medications are those which can be prescribed during the first consult which is a video consultation and are being re-prescribed for re-fill, in case of follow-up.
    - This would be an inclusion list, containing relatively safe medicines with low potential for abuse Is a list of medication which RMP can prescribe in a patient who is undergoing follow-up consult, as a refill.

- **List B:** Is a list of medication which RMP can prescribe in a patient who is undergoing follow-up consultation in addition to those which have been prescribed during in-person consult for the same medical condition.

- **Prohibited List:** An RMP providing consultation via telemedicine **cannot prescribe** medicines in this list. These medicine have a high potential of abuse and could harm the patient or the society at large if used improperly

    - Medicines listed in ***Schedule X*** of Drug and Cosmetic Act and Rules or any ***Narcotic*** and ***Psychotropic*** substance listed in the Narcotic Drugs and Psychotropic Substances, Act, 1985

The drugs in the above mentioned list is summarized in Annexure 1

3.6.4.2 Issue a Prescription and Transmit

- If the RMP has prescribed medicines, RMP shall issue a prescription as per the Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations and shall not contravene the provisions of the Drugs and Cosmetics Act and Rules. A sample format is suggested in Annexure 2
- RMP shall provide photo, scan, digital copy of a signed prescription or e-Prescription to the patient via email or any messaging platform
- In case the RMP is transmitting the prescription directly to a pharmacy, he/ she must **ensure explicit consent** of the patient that entitles him/her to get the medicines dispensed from any pharmacy of his/ her choice

Table: Matrix of the permissible drug lists based on the type and mode of consultation

List Group	Mode of Consultation [Video/Audio/Text]	Nature of Consultation [First-consultation/ Follow-up]	List of Medicines
O	Any	Any	List O[1]
A	Video	First Consultation Follow-up, for continuation of medications	List A[2]
B	Any	Follow-up	List B[3]
Prohibited	Not to be prescribed	Not to be prescribed	Schedule X of Drug and Cosmetic Act and Rules or any Narcotic and Psychotropic substance listed in the Narcotic Drugs and Psychotropic Substances, Act, 1985[4]

1. *This list included commonly used 'over-the-counter' medications such as Paracetamol, Oral Rehydration Solution (ORS) packets, Antacids etc.*
   This list also includes medicines that may be deemed necessary during emergencies and would be notified from time to time.
2. *This list includes usually prescribed medications for which diagnosis is possible only by video consultation such as antifungal medications for Tinea Cruris, Ciprofloxacillin eye drops for Conjunctivitis etc. and Re-fill medications for chronic diseases such as Diabetes, Hypertension, Asthma etc*
3. *This list includes 'add-on' medications which are used to optimize an existing condition. For instance, if the patient is already on Atenolol for hypertension and the blood pressure is not controlled, an ACE inhibitor such as Enalapril*
4. *For instance, Anti-Cancer drugs; Narcotics such as Morphine, Codeine etc*

3.7 DUTIES AND RESPONSIBILITIES OF A RMP IN GENERAL

3.7.1 MEDICAL ETHICS, DATA PRIVACY & CONFIDENTIAILITY[3]

3.7.1.1 Principles of medical ethics, including professional norms for protecting patient privacy and confidentiality as per IMC Act shall be binding and must be upheld and practiced.

3.7.1.2 Registered Medical Practitioner would be required to fully abide by Indian Medical Council (Professional conduct, Etiquette and Ethics) Regulations, 2002 and with the relevant provisions of the IT Act, Data protection and privacy laws or any applicable rules notified from time to time for protecting patient privacy and confidentiality and regarding the handling and transfer of such personal information regarding the patient. This shall be binding and must be upheld and practiced.

3.7.1.3 Registered Medical Practitioners will not be held responsible for breach of confidentiality if there is a reasonable evidence to believe that patient's privacy and confidentiality has been compromised by a technology breach or by a person other than RMP. The RMPs should ensure that reasonable degree of care undertaken during hiring such services.

3.7.1.4 Misconduct

It is specifically noted that in addition to all general requirements under the MCI Act for professional conduct, ethics etc, while using telemedicine all actions that wilfully compromise patient care or privacy and confidentiality, or violate any prevailing law are explicitly not permissible.

Some examples of actions that are not permissible:

- RMPs insisting on Telemedicine, when the patient is willing to travel to a facility and/or requests an in-person consultation
- RMPs misusing patient images and data, especially private and sensitive in nature (e.g. RMP uploads an explicit picture of patient on social media etc)
- RMPs who use telemedicine to prescribe medicines from the specific restricted list
- RMPs are not permitted to solicit patients for telemedicine through any advertisements or inducements

3.7.1.5 Penalties: As per IMC Act, ethics and other prevailing laws.

[3] It is the responsibility of the RMP to be cognizant of the current Data Protection and Privacy laws. RMP shall not breach the patient's confidentiality akin to an in-person consultation. For example: If the RMP is planning to create virtual support group for disseminating health education for patients suffering from a particular disease condition then he/she shall be wary of the patient's willingness and not violate patient's privacy and confidentiality by adding them to the group without their consent.

3.7.2 MAINTAIN DIGITAL TRAIL/ DOCUMENTATION OF CONSULTATION

It is incumbent on RMP to maintain the following records/ documents for the period as prescribed from time to time:

3.7.2.1 Log or record of Telemedicine interaction (e.g. Phone logs, email records, chat/ text record, video interaction logs etc.).

3.7.2.2 Patient records, reports, documents, images, diagnostics, data etc. (Digital or non-Digital) utilized in the telemedicine consultation should be retained by the RMP.

3.7.2.3 Specifically, in case a prescription is shared with the patient, the RMP is required to maintain the prescription records as required for in-person consultations.

3.7.3 Fee for Telemedicine Consultation

3.7.3.1 Telemedicine consultations should be treated the same way as in-person consultations from a fee perspective: RMP may charge an appropriate fee for the Telemedicine consultation provided.

3.7.3.2 An RMP should also give a receipt/invoice for the fee charged for providing telemedicine-based consultation.

4. Framework for Telemedicine

This section lays out the framework for practicing telemedicine in 5 scenarios:

1. Patient to Registered Medical Practitioner
2. Caregiver to Registered Medical Practitioner
3. Health Worker to Registered Medical Practitioner
4. Registered Medical Practitioner to Registered Medical Practitioner
5. Emergency Situations

Essential Principles:

- The ***professional judgement*** of a Registered Medical Practitioner should be the guiding principle: an RMP is well positioned to decide whether a technology-based consultation is sufficient, or an in-person review is needed. Practitioner shall exercise proper discretion and not compromise on the quality of care
- ***Same principles apply irrespective of the mode*** (video, audio, text) used for a telemedicine consultation. However, the patient management and treatment can be different depending on the mode of communication used.
- RMP should exercise **his/her professional discretion** for the mode of communication depending on the type of medical condition. If a case requires a video consultation for examination, RMP should explicitly ask for it
- The RMP ***can choose not to proceed*** with the consultation at any time. At any step, the RMP may refer or request for an in-person consultation
- At any stage, the ***patient has the right to choose to discontinue*** the teleconsultation

4.1 CONSULTATION BETWEEN PATIENT AND REGISTERED MEDICAL PRACTITIONER

Specifically, this section details with the key elements of the process of teleconsultation to be used in the First consults and Follow up consults when a patient consults with an RMP.

In these 2 situations, the patient initiates telemedicine consultation and thereby consent is implied

4.1.1 First Consult: Patient to Registered Medical Practitioner

4.1.1.1 First Consult means

1. The patient is consulting with the RMP for the first time; or
2. The patient has consulted with the RMP earlier, but more than 6 months have lapsed since the previous consultation; or
3. The patient has consulted with the RMP earlier, but for a different health condition

4.1.1.2 Tele-Consultation Process

The flow of the process is summarized in the Figure 1 and the steps are detailed below.

1. Start of a Telemedicine Consultation for First Consult

- The telemedicine consultation is initiated by the patient (For example, a patient may do an audio or video call with a RMP or send an email or text with a health query)
- RMP accepts to undertake the consultation

2. Patient identification and consent

- RMP should confirm patient identity to his/her satisfaction by asking patient's name, age, address, email ID, phone number or any other identification that may be reasonable
- Telemedicine consultation should be initiated by the patient and thereby consent is implied

3. Quick assessment:

- The patient's condition needs to be quickly assessed by the RMP based on available inputs and RMP uses his professional discretion if emergency care is needed, to decide if emergency care is needed.
- If the condition of the patient merits emergency intervention, then advice for first aid/ immediate relief is provided and guidance is provided for referral, as appropriate.

If the condition does not merit an emergency intervention, the following steps are undertaken:

4. Exchange of Information for Patient Evaluation

- The RMP may ask the patient to provide relevant information (complaints, information about any other consults for the same problem, available investigation and medication details, if any). The patient shall be responsible for accuracy of information shared by him/her with the RMP.
- If the RMP feels that the information provided at this stage is inadequate, then he/she shall request for additional information from the patient. This information may be shared in real time or shared later via email/text, as per the nature of such information. The consultation may be resumed at a rescheduled time after receipt of the additional information (this may include some laboratory or radiological tests). In the meantime, the RMP may provide health advice as appropriate.
- If the RMP is satisfied that he/she has adequate patient information for offering a professional opinion, then he/she shall exercise one's professional judgment for its suitability for management via telemedicine.
- If the situation is NOT appropriate for further telemedicine consultation, then the RMP should provide Health advice/ Education as appropriate; and/or refer for in-person consultation.

5. Patient Management

If the condition can be appropriately managed via telemedicine, then the RMP may take a professional judgement to either:

- Provide *Health Education* as appropriate in the case; and/or
- Provide *Counseling* related to specific clinical condition, *including advice related to new investigations that need to be carried out before next consult*; and/or
- *Provide specific treatment by prescribing medicines* as in List O (which are over the counter drugs or others as notified). Additional medicines (as per List A) can also be prescribed if the ongoing tele-consultation is on video.

4.1.2 Follow-up Consult: Patient to Registered Medical Practitioner

In a follow-up consultation, since the RMP-patient interaction has already taken place for the specific medical condition under follow-up, there is already an understanding of the context, with availability of previous records. This allows a more definitive and secure interaction between the RMP and the patient.

4.1.2.1 Follow-Up Consult means

The patient is consulting with the RMP within 6 months of his/her previous in-person, and this consultation is for continuation of care of the same health condition. Follow-up can be in situations of a chronic disease or a treatment (e.g. renewal or change in medications) when a face-to-face consultation is not necessary. Examples of such chronic diseases are: asthma, diabetes, hypertension and epilepsy etc

4.1.2.2 Tele-Consultation Process

The flow of the process is summarized in Figure 2 and the steps are detailed below:

1. Start of a Telemedicine Consultation for Follow Up

- Patient may initiate a follow up consult with a RMP for continuation of his/her ongoing treatment or for a new complaint or complication arising during the course of the ongoing treatment using any mode of communication. For e.g., the patient may do an audio or video call with a RMP or send him/her an email or text message with a specific health query
- RMP accepts to undertake the consultation

2. Patient identification and consent

- RMP should be reasonably convinced that he/she is communicating with the known patient, for e.g. if the patient is communicating with RMP through the registered phone number or registered email id
- If there is any doubt RMP can request the patient to reinitiate the conversation from a registered phone number or email id or should confirm patient identity to his/her satisfaction by asking patient's name, age, address, email ID or phone number. [Details in the section 3.2]

- Patient initiates the Telemedicine consultation and thereby consent is implied

3. Quick Assessment for Emergency Condition

- If the patient presents with a complaint which the RMP identifies as an emergency condition necessitating urgent care, the RMP would then advice for first aid to provide immediate relief and guide for referral of the patient, as deemed necessary.

4. In case of routine follow-up consultation, the following would be undertaken:

- If the RMP has access to previous records of the patient, he/ she may proceed with continuation of care.
- RMP shall apply his/her professional discretion for type of consultation based on the adequacy of patient information (history/examination findings/Investigation reports/past records).
- If the RMP needs additional information, he/ she should seek the information before proceeding and resume tele-consultation for later point in time.

5. Patient Management

- If RMP is satisfied that he/she has access to adequate patient information and if the condition can be appropriately managed by tele-consultation, he/she would go ahead with the tele-management of the patient.

- If the follow-up is for continuation of care, then the RMP may take a professional judgement to either:
  - Provide health education as appropriate in the case; or
  - Provide counseling related to specific clinical condition *including advice related to new investigations that need to be carried out before next consult*;
  - And/or Prescribe Medications. The medications could be either of the below:

    - If the follow up is for *continuation of care for the same medical condition*, the RMP would re-prescribe original set of medications for a refill (List A of medications, which has been previously prescribed for the patient).

- If the RMP considers addition of a new drug, as an 'add-on' medication to optimize the underlying medical condition, then the RMP can prescribe medications listed under List B.

- If the follow-up consult is for a new minor ailment necessitating only 'over the counter' medications or those notified for this purpose, medications under List O can be prescribed.

- If the follow-up consult reveals new symptom pertaining to a different spectrum of disease, then the RMP would proceed with the condition as enunciated in the scenario for a first-time consultation (4.1.1).

4.2 CONSULTATION BETWEEN PATIENT AND RMP THROUGH A CAREGIVER

4.2.1 For the purpose of these guidelines "***Caregiver***" could be a family member, or any person authorized by the patient to represent the patient.

4.2.2 There could be two possible settings:

1. Patient **is present** with the **Caregiver** during the consultation.

2. Patient **is not present** with the **Caregiver**. This may be the case in the following:

2a. Patient is a minor (aged 16 or less) or the patient is incapacitated, for example, in medical conditions like dementia or physical disability etc. The care giver is deemed to be authorized to consult on behalf of the patient.

2b. Caregiver has a formal authorization or a verified document establishing his relationship with the patient and/or has been verified by the patient in a previous in-person consult (explicit consult).

In all of the above, the consult shall proceed as in the case of RMP and the patient (first or follow up consult, vide 4.1)

4.2 CONSULTATION BETWEEN HEALTH WORKER AND RMP

For the purpose of these guidelines, "Health worker" could be a Nurse, Allied Health Professional, Mid-Level Health Practitioner, ANM or any other health worker designated by an appropriate authority

Proposed Set up

- This sub section will cover interaction between a Health Worker seeking consultation for a patient in a public or private health facility.
- In a public health facility, the mid-level health practitioner at a Sub-center or Health and wellness center can initiate and coordinate the telemedicine consultation for the patient with a RMP at a higher center at district or State or National level. Health and Wellness centers are an integral part of comprehensive primary health care.
- This setting will also include health camps, home visits, mobile medical units or any community-based interaction.

Tele-Consultation Process

The flow of the process is summarized in Figure 3 and the steps are detailed below:

1. ***Start of a Telemedicine Consultation through a Health Worker/RMP***
    - The premise of this consultation is that a patient has been seen by the Health worker
    - In the judgment of the health worker, a tele-consultation with a RMP is required
    - Health Worker should obtain the patient's informed consent
    - Health worker should explain potential use and limitations of a telemedicine consultation
    - He/she should also confirm patient identity by asking patient's name, age, address, email ID, phone number or any other identification that may be reasonable
    - Health Worker initiates and facilitates the telemedicine consultation.

2. ***Patient Identification (by RMP)***
    - RMP should confirm patient identity to his/her satisfaction by asking patient's name, age, address, email ID, phone number or any other identification that may be reasonable
    - RMP should also make their identity known to the patient

3. ***Patient Consent (by RMP):***
    - RMP should confirm the patient's consent to continue the consultation

4. ***In case of Emergency,***
    - The Health Worker would urgently communicate about the underlying medical condition of the patient to the RMP.
    - If based on information provided, if the RMP identifies it as an emergency condition necessitating urgent care, he/she should advice for first aid to be provided by the Health Worker for immediate relief and guide for referral of the patient, as deemed necessary.

In case, the condition is not an emergency, the following steps would be taken:

5. ***Exchange of Information for Patient Evaluation (by RMP)***
    - The Health Worker must give a detailed explanation of their health problems to the RMP which can be supplemented by additional information by the patient, if required.
    - The RMP shall apply his professional discretion for type and extent of patient information (history/examination findings/Investigation reports/past records) required to be able to exercise proper clinical judgement.
    - If the RMP feels that the information provided is inadequate, then he/she shall request for additional information. This information may be shared in real time or shared later via email/text, as per the nature of such information. For e.g., RMP may advice some laboratory or/and radiological tests for the patient. For such instances, the consult may be considered paused and can be resumed at the rescheduled time. RMP may provide health education as appropriate at any time.

6. ***Patient Management***
    - Once the RMP is satisfied that the available *patient information is adequate* and that the case is *appropriate for management via telemedicine, then he/she would proceed with the management*. Health worker should document the same in his/her records.
    - The RMP may take a professional judgement to either:
        - Provide health education as appropriate in the case,
        - Provide counseling related to specific clinical condition *including advice related to new investigations that need to be carried out before next consult*;
        - And/or prescribe medications.
            - as prescribed for use in guidelines from time to time for a particular cadre of Health Workers.

5.2 Role of Health Worker:

In all cases of emergency, the Health Worker must seek measures for immediate relief and first-aid from the RMP who is being tele-consulted. Health worker must provide the immediate relief/first aid as advised by the RMP and facilitate the referral of the patient for appropriate care. The Health Worker must ensure that patient is advised for an in-person interaction with an RMP, at the earliest.

For patients who can be suitably managed via telemedicine, the Health Worker plays a vital role of

- Reinforcing the health education and counseling provided by the RMP
- Providing the medicine prescribed by the RMP and providing patient counseling on his/her treatment.

4.4 REGISTERED MEDICAL PRACTITIONER TO ANOTHER RMP/ SPECIALIST

- Registered Medical Practitioner might use telemedicine services to consult with another RMP or a specialist for a patient under his/her care. Such consultations can be initiated by a RMP on his/her professional judgement.
- The RMP asking for another RMP's advice remains the treating RMP and shall be responsible for treatment and other recommendations given to the patient.
- It is acknowledged that many medical specialties like radiology, pathology, ophthalmology, cardiology, dermatology etc. may be at advanced stages of adoption of technology for exchange of information or some may be at early stage. Guidelines support and encourage interaction between RMPs/ specialists using information technology for diagnosis, management and prevention of disease.
    - ***Tele-radiology*** is the ability to send radiographic images (x-rays, CT, MRI, PET/CT, SPECT/CT, MG, Ultrasound) from one location to another.
    - ***Tele-pathology*** is use of technology to transfer image-rich pathology data between distant locations for the purposes of diagnosis, education, and research.
    - ***Tele-ophthalmology*** access to eye specialists for patients in remote areas, ophthalmic disease screening, diagnosis and monitoring.

4.5 EMERGENCY SITUATIONS

In all telemedicine consultations, as per the judgment of the RMP, if it is an emergency situation, the goal and objective should be to provide in-person care at the soonest. However critical steps could be life-saving and guidance and counseling could be critical. For example, in cases involving trauma, right advice and guidance around maintaining the neck position might protect the spine in some cases. The guidelines are designed to provide a balanced approach in such conditions. The RMP, based on his/ her professional discretion may

- Advise first aid
- Counseling
- Facilitate referral

In all cases of emergency, the patient MUST be advised for an in-person interaction with a Registered Medical Practitioner at the earliest

5. Guidelines for Technology Platforms enabling Telemedicine

This specifically covers those technology platforms which work across a network of Registered medical practitioners and enable patients to consult with RMPs through the platform

5.1 Technology platforms (mobile apps, websites etc.) providing telemedicine services to consumers shall be ***obligated to ensure*** that the consumers are consulting with ***Registered medical practitioners*** duly registered with national medical councils or respective state medical council and comply with relevant provisions

5.2 Technology Platforms shall conduct their ***due diligence*** before listing any RMP on its online portal. Platform must provide the ***name, qualification and registration number, contact details of every RMP*** listed on the platform

5.3 In the event some non-compliance is noted, the technology platform shall be required to ***report*** the same to BoG, in supersession to MCI who may take appropriate action

5.4 Technology platforms based on ***Artificial Intelligence/Machine Learning are not allowed to counsel the patients or prescribe any medicines*** to a patient. Only a RMP is entitled to counsel or prescribe and has to directly communicate with the patient in this regard. While new technologies such as Artificial Intelligence, Internet of Things, advanced data science-based decision support systems etc. could ***assist and support a RMP*** on patient evaluation, diagnosis or management, the final prescription or counseling has to be directly delivered by the RMP

5.6 Technology Platform must ensure that there is a proper mechanism in place to address any queries or grievances that the end-customer may have

5.7 In case any specific technology platform is found in violation, BoG, MCI may designate the technology platform as blacklisted, and no RMP may then use that platform to provide telemedicine

6. Special responsibilities of Board of Governors in supersession to Medical Council of India (BoG-MCI)

6.1 Any of the drug-lists contained in Telemedicine Practice Guidelines can be modified by the Board of Governors in super-session of the Medical Council of India/Medical Council of India from time to time, as required.

6.2 The Board of Governors in super-session of the Medical Council of India may issue necessary directions or advisories or clarifications in regard to these Guidelines, as required.

6.3 The Telemedicine Practice Guidelines can be amended from time to time in larger public interest with the prior approval of Central Government [Ministry of Health and Family Welfare, Government of India].

Flow charts

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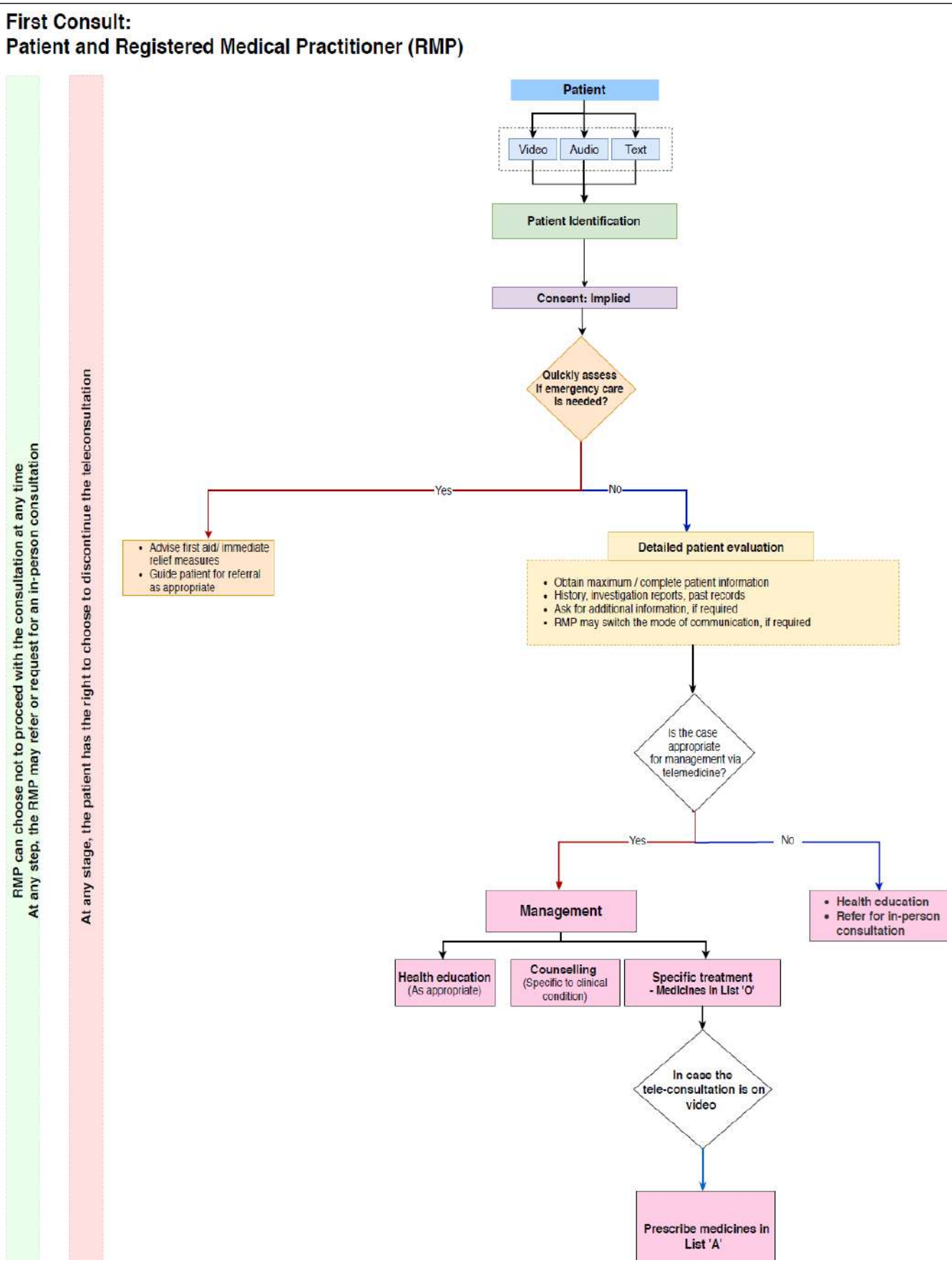

Figure 1: Flow chart for teleconsultation for first consult

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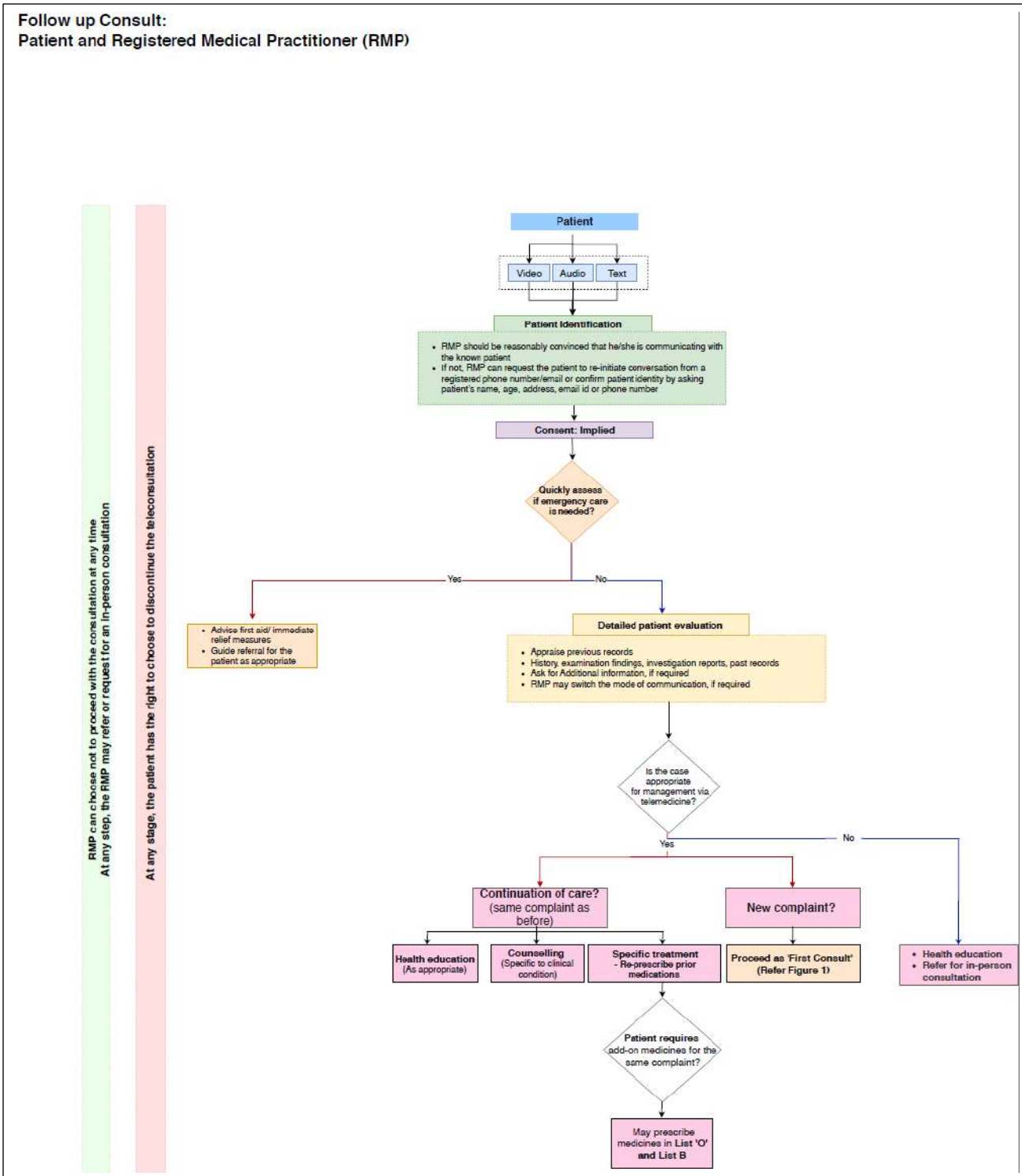

Figure 2: Flow Chart for teleconsultation on follow-up Consult

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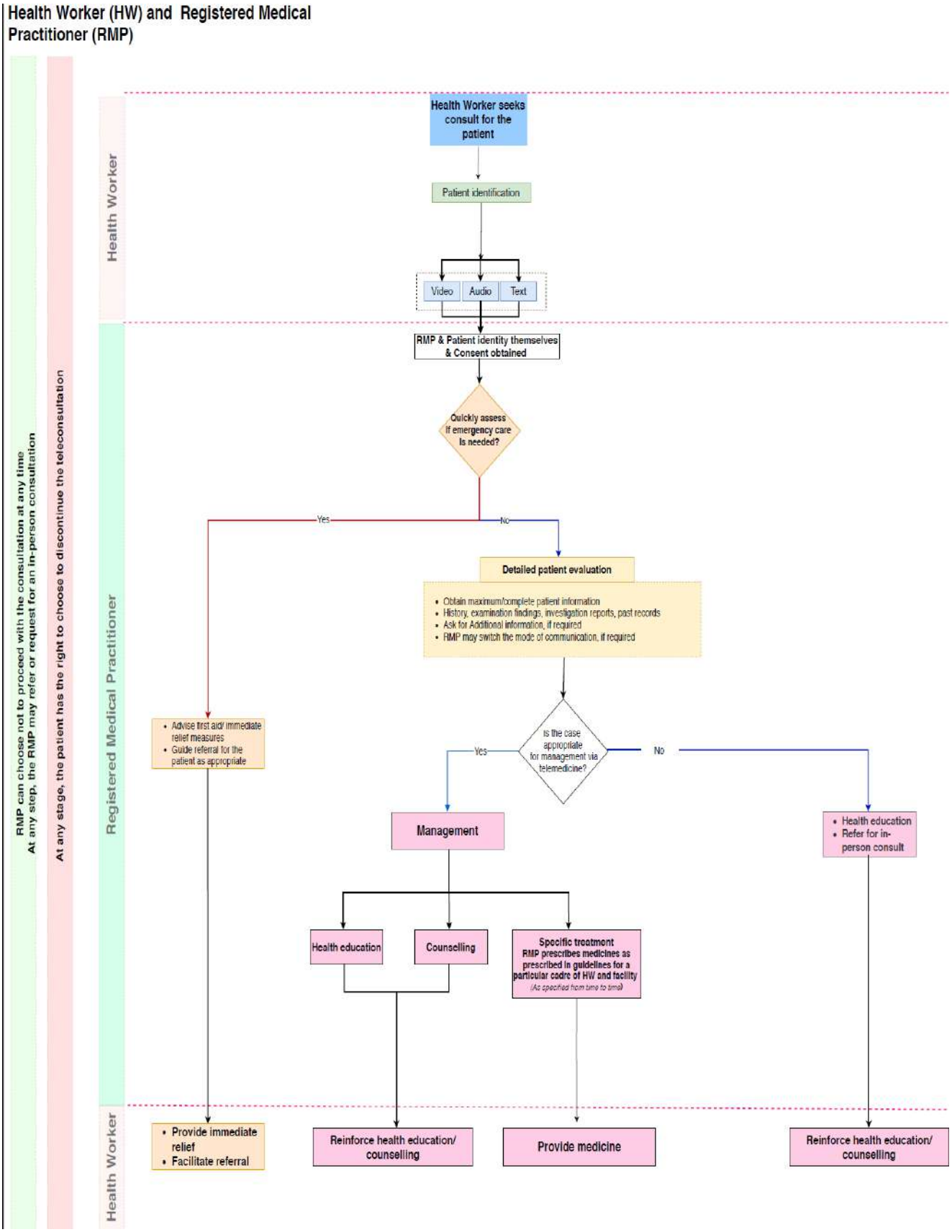

Figure 3: Flow chart for a teleconsultation between a Health Worker (HW) and a Registered Medical Practitioner

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Annexures

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MEDICINE LISTS

List O

- **Common over-the counter medications such as**
  - Antipyretics: Paracetamol
  - Cough Supplements: Lozenges,
  - Cough/ Common-cold medications (such as combinations of Acetylcysteine, Ammonium Chloride, Guaifensen, Ambroxol, Bromhexene, Dextromethorphan)
  - ORS Packets
  - Syrup Zinc
  - Supplements: Iron & Folic Acid tablets, Vitamin D, Calcium supplements
  - Etc

- **Medications notified by Government of India in case from time to time on an Emergency basis**
  - Such as Chloroquine for Malaria control for a specific endemic region, when notified by Government

List A

- **First Consult Medications (Diagnosis done on video mode of consultation) such as**
  - Ointments/Lotion for skin ailments: Ointments Clotrimazole, Mupirocin, Calamine Lotion, Benzyl Benzoate Lotion etc
  - Local Ophthalmological drops such as: Ciprofloxacillin for Conjunctivitis, etc
  - Local Ear Drops such as: Clotrimazole ear drops, drops for ear wax etc..
  - Follow-up consult for above medications

- **Follow-up medications for chronic illnesses <u>for 're-fill'</u> (on any mode of consultation) such as medications for**
  - Hypertension: Enalapril, Atenolol etc
  - Diabetes: Metformin, Glibenclamide etc
  - Asthma: Salmetrol inhaler etc
  - Etc

List B

- **On follow-up, medications prescribed as <u>'Add-on'</u> to ongoing chronic medications to optimize management such as for hY**pertension: Eg, add-on of Thiazide diuretic with Atenolol
  - Diabetes: Addition of Sitagliptin to Metformin
  - Etc

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6.1 SAMPLE PRESCRIPTION FORMAT

REGISTERED MEDICAL PRACTITIONER'S NAME

QUALIFICATION

REGISTRATION NUMBER

ADDRESS

CONTACT DETAILS (EMAIL AND PHONE NUMBER)

Date Of Consultation

Name of Patient

Age

Gender

Address

Height (wherever applicable)

Weight (wherever applicable)

LMP (wherever applicable)

CHIEF COMPLAINTS

DIAGNOSIS OR PROVISIONAL DIAGNOSIS

RELEVANT POINTS FROM HISTORY

℞

EXAMINATION / LAB FINDINGS

1. NAME OF MEDICINE (in capital letters only withgeneric name) drug form, strength, frequency of administration & duration.

2. NAME OF MEDICINE (in capital letters only withgeneric name) drug form, strength, frequency of administration & duration.

SUGGESTED INVESTIGATIONS

3. NAME OF MEDICINE (in capital letters only withgeneric name) drug form, strength, frequency of administration & duration.

SPECIAL INSTRUCTIONS

RMPs Signature & Stamp

Note: This prescription is generated on a teleconsultation.

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Guidelines for Quarantine facilities COVID-19

The purpose of this document is to provide interim guidance for setting up of quarantine facilities

Guidelines for Quarantine facilities

1.0. Introduction

Quarantine is the separation and restriction of movement or activities of persons who are not ill but who are believed to have been exposed to infection, for the purpose of preventing transmission of diseases. Persons are usually quarantined in their homes, but they may also be quarantined in community-based facilities.

Quarantine can be applied to

- An individual or to a group of persons who are exposed at a large public gathering or to persons believed exposed on a conveyance during international travel.
- A wider population- or geographic-level basis.

Examples of this application include the closing of local or community borders or erection of a barrier around a geographic area (cordon sanitaire) with strict enforcement to prohibit movement into and out of the area.

The purpose of this document is to provide guidelines for setting up of quarantine facilities during the current COVID-19 outbreak.

The recommended duration of quarantine for Covid-19 based on available information is upto 14 days from the time of exposure.

The purpose of quarantine during the current outbreak is to reduce transmission by

- Separating contacts of COVID-19 patients from community
- Monitoring contacts for development of sign and symptoms of COVID-19, and
- Segregation of COVID-19 suspects, as early as possible from among other quarantined persons

The scope of this document is to cover the procedures required for

- Physical infrastructure/Functional Services requirement at quarantine facilities
- Procedure for medical monitoring of contacts, reporting formats
- Protocol for referrals of suspects/ Symptomatics and isolation of symptomatics if required temporarily
- Infection control practices by medical personnel, supporting staffs and catering staffs etc.

2.0. Evaluation of potential sites for facility-based quarantine is important for preparedness planning (Checklist at Annexure-11).

Requirements for Quarantine facility in a community-based facility is as under

1. **Location:**
    - preferably placed in the outskirt of the urban/ city area (can be a hostel/unused health facilities/buildings, etc.)
    - away from the people's reach, crowded and populated area
    - well protected and secured (preferably by security personnel/ army)
    - preferably should have better approachability to a tertiary hospital facility having critical care and isolation facility
2. **Access considerations**
    - Parking space including Ambulances etc.
    - Ease of access for delivery of food/medical/other supplies
    - Differently-abled Friendly facilities (preferably)
3. **Ventilation capacity:** Well ventilated preferably natural
4. **Basic infrastructure/functional requirements:**
    - Rooms/Dormitory separated from one another may be preferable with in-house capacity of 5-10 beds/room
    - Each bed to be separated 1-2 meters (minimum 1 metre) apart from all sides.
    - Lighting, well-ventilation, heating, electricity, ceiling fan
    - Potable water to be available
    - Functional telephone system for providing communications.
    - Support services- fooding, snacks, recreation areas including television
    - Laundry services
    - Sanitation services/Cleaning and House keeping
    - Properly covered bins as per BMW may be placed

5. **Space requirements for the facility:**

    - Administrative offices- Main control room/clerical room
    - Logistics areas/Pharmaceutical rooms

- Rest rooms- doctors/nurses/supporting staffs
- Clinical examination room/ nursing station / Sampling area
- Laundry facilities (on- or off-site)
- Mess/Meal preparation (on- or off-site)
- Holding area for contaminated waste
- Wash room/Bathroom/Toilet

6. **Social support resources/ Recreational areas**
   - Television and radio / Reading materials/ indoor plays

7. **Monitoring the health of contacts:** During that period, contacts should be monitored at least daily for fever and respiratory symptoms.

2.2. Standard operating Procedures: To ensure smooth operation in the quarantine facility, the standard Operative procedures (SOPs) needs to be framed as under

- Daily monitoring surveillance using the daily reporting format (annex 1)
- Fever triage/ Isolation
- Case and contact monitoring and response
- Transfers of suspect/symptomatic to designated hospital (through ambulances)
- Public information
- Provider information (SOPs)
  - medical personnel (annex 2),
  - nursing staff (annex 3),
  - movement of health personnel and support staff (annex 4) and
  - security staff (annex 5)

Functional flow should be maintained to reduce/minimise the interactions between quarantine people and healthcare professionals/supporting staffs so that transmission of disease is prevented and controlled

3.0. **Risk assessment of the quarantine facility**

The risk level refers to how likely it is that someone in the Quarantine camp will become infected with corona virus as a result of movements and activities performed in the Quarantine camp.

Risk assessment includes identification of the biohazard risk precaution levels, along with its associated activities. The risk level refers to how

likely it is that someone in the Quarantine camp will become infected with corona virus as a result of procedures performed in the Quarantine camp. Areas were sagregated and labeled as:

- **Low risk areas:** Areas having less direct contact with evacuee suspects such as control room center in the quarantine center, nursing station and areas of kitchen where food is cooked.
- **Moderate risk areas:** Moderate risk areas are where infectious aerosols are generated from areas where the suspects were inhabiting in their bed linen, pillows and nearby clothes; low concentration of infectious particles. Contaminated surface near the quarantine zones.
- **High risk areas (containment Quarantine camp):** Areas where direct dealing with the suspects are as under

  Medical examination room, sample collection areas(high concentration of infectious particles while coughing, sneezing, gag reflex during nasopharangeal & oropharangeal sample collection). Toilet and bathroom areas, dining areas, areas of bio-waste collections, segregation and disposal.

  Based on risk assessment, areas should be earmarked and infection prevention control measures to be applied as per MOHFW guidelines.

4.0 Securing Entry and Exit points

- In order to prevent and control infection in the facility, strategic points in the facility needs to be identified including
- The Control room where a person entering inside quarantined building to get proper awareness and training on infection control measures,
- A well informed and trained security to check (main entrance gate of the area) and a guard (24*7) with registers for ins and outs and a designated nursing officer for checking proper PPE wear (main entrance gate in the building)
- The international biohazard warning symbol and sign to be displayed on the doors of the rooms where suspects are kept, BMW management areas,samples of higher risk groups are handled

- Only authorized & trained persons or those designated in work areas to permitted to enter the quarantine areas;
- Doors to keep closed at all times preferably under observation of a guard.
- There should be double door entry was managed with only one door to be open at a single time.

5.0 . Human resource Deployment: In the quarantine facility, Chief Medical officer needs to be appointed as In-charge /nodal officer for overall coordination and supervision of the quarantine center. Services of General duty medical doctors, Medicine specialists, Pediatrics, Microbiologist (for diagnostic support and IPC), Psychiatrists & Psychologists are required for routine examination and relevant clinical care of the quarantined people. Para-medics including Staff Nurse and Lab. Technician, Pharmacist need to be posted. Public health specialist are required for monitoring public health aspects of the facility while services of clinical microbiologist are required for sample collection, packaging and infection prevention & control practices. House keeping staff also need to be deployed.

6.0 Training – Training is the most important and critical part to ensure that all activities takes place as per established protocol and SOPs, training of health care professionals and other relevant staffs was undertaken initially. Training of medical officers on SOPs needs to be followed at Quarantine centers for daily examination, movements in the facility, infection prevention control measures and use of PPE kit etc.

Training of clinicians, laboratory technicians and medics needs to be undertaken on appropriate sample collection (nasopharyngeal and throat) and triple layer packaging with cold chain maintenance.

Paramedical staffs i.e., staff nurses; medics, pharmacist etc. needs to be trained on SOPs to be followed at Quarantine centers and use of PPE kit. Staff undertaking the work in Laundry, Mess/Canteen, security and other related staff i.e., drivers, general duty staff etc. needs to be trained on use of mask, gloves , cleaning and disinfection procedures and use of PPE kit, etc.

Refresher training or regular direction to all the above staffs needs to be provided as on need basis. During the quarantine period as and when new staff was posted, it needs to be ensured that he/she received proper training before undertaking the work. It is to emphasized that all activities / procedures must be done under strict monitoring/observations of trained specialists.

7.0 . **Daily Clinical Examination and referral -** All quarantined people needs to be examined twice (morning & evening) daily clinically and those requiring

referrals for related symptoms of Corona virus (fever, cough, sore throat, breathlessness etc.) or any other reason needs to be referred to designated hospital in ambulance directly with due precautions as per referral SOP. Ambulances need to be placed in the facility in standby mode for transport including advanced lifesaving ambulance.

Daily census of the people needs to be undertaken twice a day (ex. Morning 8 am and evening 6 pm).

8.0 Coordination– Chief medical officer needs to supervise and coordinate with various organizations working with the facility. To ensure all activities take place according to standard protocol, separate teams were constituted for various purposes- Supervisory team, admin team, logistic team, referral team, medicine / equipment team, hygiene sanitation team.

Daily review meetings needs to be conducted under chairmanship of Chief medical officer to discuss day to day affairs and sort out any issue requiring attention.

24*7 control room needs to be established at the facility with monitor for CCTV cameras and speakers at each floor so that quarantined people can be communicated on routine basis and necessary instructions can be provided.

9.0 Recording and reporting mechanisms- To ensure standardized reporting, daily reporting formats of suspected cases with symptoms related to corona virus, no. of cases requiring referral, sample collection status needs to designed (as per annexure 1). It needs to be sent daily to relevant higher authorities.

10.0 Monitoring and Supervision – Daily monitoring visit needs to be conducted inside quarantine facility and outside the facility in the surrounding campus by public health and incharge officers and gaps to be noted. Necessary corrective actions and preventive actions to be taken by the nodal officer.

Visits also given by senior officers from for regular review.

11.0 Establishment of Infection Prevention Control (IPC) measures – As per risk assessment was undertaken with respect to probability of infection from possibly infected quarantine people to health care, other staffs and surrounding areas. Special map of the facility needs to be prepared to outline the details of movement of health care and other personnel around the quarantine area and in the building. It need to be ensured that movement of health care staffs and other personnel to undertake as per the designed map to prevent and control infections.

Separate fence needs to be raised around the building to prevent entry of animals especially dogs, monkeys and even birds if possible.

Well informed and trained security personnel needs to be deployed all around the building on 24*7 rotation basis to monitor the facility and to avoid entry of un-desired persons/animals and even birds for eating any food remains/droppings inside the area.

To ensure that all health care personnel use PPE as per guidelines, they need to be properly trained and assisted during wearing of PPE. Separate areas to be earmarked for PPE Donning and Doffing. Compliance for same to be ensured by nodal officer.

Separate well informed and trained nursing officers need to be stationed at the building to regulate the movement of the staffs entering the facility. He/ She should be assigned the duty that every person entering the facility enters in the register of all the details on time of name, designation entry/exit. Nursing officer to ensure that all the persons are labeled while entering the building so that they can be identified by security staff. At the entrance, two door entries may be ensured to avoid mixing of quarantine people with health care staff.

It is to be ensured that all the quarantine facility is decontaminated daily (refer to infection prevention control guidelines) with disinfectants (freshly prepared 1% hypochlorite, detergent solution) including surface mopping of all the floor, bathrooms, toilets facility, under side of beds, other related items placed in the rooms of quarantine people .

A separate cubicle for people developing mild symptoms for temporary observation (transit room) may be considered so that it will lead to an early isolation of any symptomatic person and to prevent transmission to other cluster of groups.

12.0 Lodging, **Catering, Laundry and other related activities** –Disposable and pre-packed food to be needs to be served to quarantined people. All the quarantined people to be kept on separate beds with distance of 1-2 meters with no bed facing opposite to each other. All Beds were having disposable bed sheet that should be changed on daily basis. Personal toiletries/ towel/ blanket/ pillow with covers/electric kettle, room heater and water dispenser may be provided to each person depending on availability.

A separate room needs to be assigned to perform laundry services for cleaning of all the clothes and other washing related activities. Before laundering, all the washable items needs to be placed in 1% hypochlorite up to 30 minutes and later washed in detergent solution.

13.0 Biomedical waste (BMW) management- To ensure that biomedical waste management in the facility takes place as per standard guidelines, separate yellow, red /black bags, foot operating dustbins needs to be kept at each floor and outside the facility. It is to strictly ensured that Doffing takes place in the designated area with all the PPE kit including mask, gloves is properly placed in yellow bags. All the health care workers collecting the possible infectious material such as food items, PPE kits from yellow bags should also wear PPE and following the IPC measures. Designated place to be earmarked outside the building for collection of yellow and black bags. It should be collected at least twice daily by biomedical waste management vehicle/any other local established practice.

Site of collection of biomedical waste should be regularly disinfected with freshly prepared 1% hypochlorite solution. All officials concerned with the administration and all other health care workers including medical, paramedical, nursing officers, other paramedical staff and waste handlers such as safaikarmacharis, attendants & Sanitation attendants needs to be well oriented to requirements of handling and management of general and biomedical waste generated at the facility. Steps in the management of biomedical waste include generation, accumulation, handling, storage, treatment, transport and disposal as mentioned in the SOP needs to be followed. Continuous training, monitoring & supervision to monitor the implementation to be done on daily basis to manage compliance related issues. All the generated waste from Quarantine facility to be treated as isolation waste and its disinfection /treatment was strictly monitored by specialists in the health authorities.

14.0 Logistic management- All logistic to be used in quarantine facility i.e., PPE , medical equipments i.e. Thermal thermometer, Stethoscope, BP machine etc., office logistic, sample collection and packaging material, etc.to purchased in advance.

Performa needs to be prepared for daily consumption of PPE, triple layer mask, gloves, etc. and monitored by logistic team on daily basis.

15.0 Information, Education & Communication (IEC) and Psycho-social support – As on arrival, there might be an obvious sense of psychological fear and panic among all the quarantine people and some of the involved stakeholders like health care professionals/staffs including doctors, security personnel etc.. An interpersonal communication needs to made to all of them one after another in groups by Psychiatrist team initially and later on with individual counselling sessions. Quarantine people needs to be explained on Universal infection control

measures , personal protective measures, written instructions on Do's and Don'ts in the quarantine zone to be provided to contain and avoid spread of the infection. Importance of frequent Hand washing specially after touching surfaces like door handles, stair railings, bed railings, etc. to be instructed for strict compliance. Everyday quarantine people to be counseled by clinicians regarding day to day queries. If needed, referral to be made to psychiatrist /psychologist team. If there is fear in the surrounding community it needs to be addressed.

16.0 Sample collection and packaging – For baseline testing, Samples (Nasopharyngeal swab and throat swabs) for COVID-19 need to be collected from all quarantine people & sent with triple layer packaging maintained in cold chain (2-8^{o}C) to designated laboratory .

Safe collection & handling of specimens in the Quarantine camp needs to be performed in identified locations as per the SOP. Specimen containers generally used are viral transport medim (VTM vials containing 3 ml medium) with falcon tubes (50 ml) as secondary layer of Triple layer packaging system. Containers needs to be correctly labeled to facilitate proper identification. Specimen request or specification forms to be placed in separate waterproof zip pouch envelopes with locking facility and pasted on the outside walls of the sample transport containers (Performa annexure). Just before the end of the 14 days quarantine period, resampling of nasopharyngeal swabs needs to be done.

17.0 Discharge of quarantine people from Quarantine Facility - The quarantine people needs to be discharged at the end of 14 days of incubation period provided samples are negative on resampling. Instructions should be provided to self-monitor their health at their home (home quarantine) for next 14 days and immediately report to their District Surveillance officer (DSO), in case of development of symptoms suggestive of COVID-19. Written instructions were handed over to them individually. The District Surveillance Units (DSO) and State Surveillance Units (SSO) to be provided with contact details of the quarantine people to conduct active surveillance for next 14 days under intimation to the Central Surveillance Unit, IDSP (NCDC).

18.0 Terminal Disinfection and decontamination procedures: Quarantine facility terminal disinfection procedures to be performed as per guidelines. Cleaning/ decontamination to be performed using the proper personal protective equipment (PPE) and adopting three bucket system as prescribed in the SOP (at attached annexure).

Spraying of 1% sodium hypochlorite working solution (dilution 1:4 from an initial concentration of 4%) to be done on all the surfaces (protecting electrical points/appliances). This was followed by cleaning with a neutral detergent that is used for removing the traces formed by hypochlorite solution. While

cleaning, windows need to be opened in order to protect the health of cleaning personnel.

All frequently touched areas, such as all accessible surfaces of walls and windows, the toilet bowl and bathroom surfaces needs to be carefully cleaned. All textiles (e.g. pillow linens, curtains, etc.) should be first treated with 1% hypochlorite spray and then, packed and sent to get washed in laundry using a hot-water cycle (90°C) and adding laundry detergent. 1% hypochlorite solution should also sprayed in the PPE doffing area and discard area twice a day on daily basis. Mattresses / pillows after spraying with 1% hypochlorite should be allowed to get dry (both sides) in bright sunlight for upto 3 hrs each.

Annex 1

DAILY REPORTING FORMAT
(Daily Clinical Examination)

COVID-19

Name of the Centre:
Address:
Centre In Charge:
Contact No:

S.no	Date of reporting	Census in the Centre (8 AM)	Clinically examined	Suggestive Symptoms like fever, cough, breathing difficulty, other respiratory problems,	Other clinical cases and non 2019-nCoV	Cases referred to designated hospital	Cumulative cases referred to designated hospital	Cases discharged from designated hospital	Cases still admitted at designated hospital	Census in the Centre (8PM)	Remarks

etc

	M	FM	FM	F		M	FM	FM	FM	FM	F

Annex 2

Standard Operative Producers for medical personnel

There are shift duties of the doctors may be as under

Morning : 800AM to 200 PM
Afternoon : 200PM to 800 PM
Night : 800PM to 800 AM (next day)

General instructions for medical doctors from designated hospital (s) for performing their duty at Quarantine facility may be as under:

a. The name of the duty officers and duty roster for to be displayed at the control room.
b. Each team to follow the procedure mentioned below:
c. The resident doctors on duty will report to the centre at the reporting time and mark attendance in the register.
d. After that, they will go to clinical area to examine the quarantined people in the centre.

e. The doctors on working duty will team up with medical officers from Quarantine facility to form a paired team (one from hospital and another from the Quarantine facility) to examine the cases.
f. They will examine and assess the patients and report to the In-charge of the Quarantine facility.
g. They will take care of the infection control/protective measures while examining the persons and follow guidelines placed at the door for safety/infection control measures.
h. If any symptomatic case/ additional symptoms are observed/ reported, it should be discussed with the In-charge of the Quarantine facility for referral to the designated hospital, if required.
i. They will complete examination of all patients and report before 12 noon on the same day and handover the report to the Office In-charge for onward transmission to the Ministry.
j. They will not leave till the next relieving team arrived.
k. They will hand over this information to the next relieving team.
l. They will leave the Quarantine facility with due permission of In-charge of the Quarantine facility.
m. If any doctor has not reported due to unavoidable circumstances, present available team will inform to the concerned authority of designated hospital for substitute.
n. In case any patient needs to be transferred due to any eventuality to the referral centre, senior most doctor will accompany the ALS Ambulance to take care of the patient till he/she reaches and handed over to the centre.
o. The medical team may take help of psychiatric/ counsellor team if required, for psychosocial support
p. Team to work in harmony with the Quarantine facility medical team.
θ. The senior most doctor on duty from the designated hospital will take decision of the clinical management.

Annex 3

Standard Operative Producers for Nursing Officer (supervisor)

- Maintain log of medical professionals/staffs entering/exiting in the quarantine facility, where the quarantine people are housed.
- A designated nursing officer (infection prevention & control nurse) has to ensure that the incoming officers/ staff to the quarantine building that are wearing appropriate PPE, and they are aware of universal infection control precautions {hand washing (alcohol/ sanitizers or soap + water; mask, gloves, PPE).
- After this he/she will allow the person to enter.
- The PPE doffed off by the outgoing medical professionals needs to be disposed in the yellow bag and hand sanitization should be ensured after disposing the PPE. **(PPE- donning On / doffing Off enclosed).**
- Yellow bags containing the infected materials placed in the nearby gate should be disposed off daily as per the Biomedical Waste Management Rules.
- The dustbins should be covered at all times. This should be ensured by Nursing officer. If required, disinfection has to be done as advised.
- Black bags (municipal wastes) - to be disposed after proper packaging daily as per the Biomedical Waste Management Rules.
- Supervise IPC in the facility in coordination with Microbiologist/Clinician

Annex 4

Standard Operative Producers for Movement of Health Professionals and Support Staff Inside the Quarantine facility

The movements of health professionals are to be monitored at three vital points considering the control of infection for the prevailing disease-

CONTROL ROOM:

- Health professionals and support staff need to be made aware and trained in correct procedure of wearing mask and gloves.
- They need to be trained to follow the infection control measures as instructed including
    - hand washing with soap and water and sanitizing with alcohol-based sanitizers,
    - cough etiquettes,
    - donning and doffing of PPE etc.
    - before entering the quarantine facility.

Main Gate Security post: To monitor entry of persons/visitors to the facility and ensure that the personnel should comply with instructions / including wear the mask correctly.

Nursing Station at Quarantine building (ground floor):

1. Registration of name with time and purpose for entering the building
2. PPE should be donned here.
3. Nursing officer will check and ensure strict and correct wearing of PPE before entering the main quarantine area
4. After coming out from the main quarantine area, PPE to be doffed properly and placed in the designated bin for infective material (Yellow bag)
5. The hands should be sanitized before exiting the quarantine area
6. Mobile phones are not allowed to be used inside the building
7. Name of doctors to be written on the PPE with permanent marker for identification.

Annexure-5

Standard Operative Producers for Security Personnel at Quarantine facility

1. For security purpose, ensure 24 hours manning of the post of the quarantine facility.
2. The person manning the area must be trained and instructed to wear mask and gloves during the duty period.
3. Instructions for infection control measures like hand washing etc. should be properly briefed.
4. Doctors/Nursing staff/supporting staffs/other entering the quarantine area should wear appropriate PPE before entering the quarantine centers.
5. Log of those entering/exiting the Quarantine facility should be maintained. Only those having specific purpose inside the Quarantine facility should be allowed to enter.
6. The log should be put up daily to the controlling authority.
7. Security guard should have a whistle to give signals to people to not come near the quarantine facility if they do not have any purpose to visit the Quarantine facility.
8. He should report immediately to the officer In-charge controlling the security of the quarantine facility, if anybody does not follow the instructions as directed.
9. The security personnel should not leave after completing his shift till his reliever reports for duty.
10. The officer In-charge controlling the security of the quarantine facility will supervise the duty roster and roles and responsibilities of all the personnel deployed at the quarantine area for smooth functioning.

Annexure-6

Requirements of Equipment for Quarantine Facility

Equipment	Daily Consumption for holding 300 persons
Gloves • reusable vinyl or rubber gloves for environmental cleaning • latex single-use gloves for clinical care	200
Hair covers (optional)	1500
Particulate respirators (N95, FFP2, or equivalent)	150
Medical (surgical or procedure) masks	1500
Gowns and aprons (single-use long-sleeved fluid-resistant or reusable non-fluid-resistant gowns)	150
PPE Kit	130
Alcohol-based hand rub	50
Plain soap (liquid if possible, for washing hands in clean water)	500
Clean single-use towels (e.g. paper towels)	1500
Sharps containers	5
Appropriate detergent for environmental cleaning and disinfectant for disinfection of surfaces, instruments or equipment	20 litres
Large plastic bags	200
Appropriate clinical waste bags	100
Linen bags	500
Collection container for used equipment	200

Annexure - 7

Human Resource requirement for Quarantine Facility

The requisite human resources at a Quarantine Facility can be divided into two broad categories:

General Requirements of medical personnel for the facility as under

Medical personnel- (catering facility of 300 people)

I. On- Duty Doctors in 6 hours shift of 2 doctors
II. Nusring Staff in 6 hours shift of 4 nurses
III. Lab. Technicians in 6 hours shift of 4 technicians

1. Health professionals: (Multi-disciplinary team)

- Medical doctors (Multi-Speciality team)- General duty doctors, Specialists like Medicine, Paediatrician, Psychiatrist / Psychologist, Public Health specialist, Microbiologist etc.
- Nursing officers
- Pharmacists
- Paramedics
- Lab. Technicians (preferably)

2. Supporting staffs like Safai Karamchari, Housekeeping, Laundry workers, Cooks, etc.
3. Security staffs

Annexure- 8

Checklist for screening entry of persons inside the quarantine building

- Only authorised personnel should enter the quarantine facility for carrying out pre-determined activity. While entering the quarantine facility, it should be ensured that personnel are wearing the requisite personal protective equipment

- A pre-identified staff should be designated to screen the personnel entering in the quarantine facility using following check-list.

I. Is the person entering the quarantine building either doctors/nursing officers/ supporting staffs/ Govt. officials etc. posted or authorized to enter the quarantine building in the Centre?

II. Whether the person entering the quarantine building is having duty inside the building during that time?

III. Whether the person entering wear protective suit correctly?

IV. Whether the person entering wear N-95 Mask correctly?

V. Whether the person entering wear goggles correctly?

VI. Whether the person entering wear headgear correctly?

VII. Whether the person entering wear boots correctly?

VIII. Whether PPE has no gaps/physical damages which can be a risk in the disease transmission?

IX. If it is 'YES' in all Qs from 1to 9, then, the person is allowed to enter the quarantine building.

X. If any of the Qs is NO, then , to ask for appropriate donning of PPE initially and if not still then, to contact the concerned officer supervising the

nursing officers and if required, NCDC Team on duty /In-charge of the center.

Annexure – 9

Guidelines for Disinfection of quarantine facility (for COVID-19)

(Refer to NCDC Website for latest updates)

Guidelines for disinfection of quarantine facility (for COVID-19)

Scope*:* This document aims to provide interim guidance about the environmental cleaning / decontamination in quarantine camp facilities (e.g. barracks, cubicles in rooms, offices, and toilets, etc.) where persons with potential exposure to COVID-19 have housed.

The causative agent involved in the current outbreaks of 2019-nCoV acute respiratory disease, the 2019-nCoV (genus: Betacoronavirus), belongs to the family of Coronaviridae, a large family of enveloped, positive-sense single-stranded RNA viruses. Coronaviruses are transmitted in most instances through large respiratory droplets and contact transmission, but other modes of transmission have also been proposed worldwide.

The time of survival and the conditions affecting the 2019-nCoV viability in the environment are currently unknown. According to studies assessing the environmental stability of other coronaviruses, the Severe Acute Respiratory Syndrome coronavirus (SARS-CoV) is estimated to survive several days in the environment and the Middle East Respiratory Syndrome-related coronavirus (MERS-CoV) more than 48 hours at an average room temperature (20°C) on different surfaces [1-3].

Environmental cleaning: Due to the potential survival of the virus in the environment for several days, the premises and areas potentially contaminated with the 2019-nCoV should be cleaned before their re-use, using products containing antimicrobial agents known to be effective against coronaviruses. Although there is lack of specific evidence for their effectiveness against 2019-nCoV virus, cleaning with water and household detergents and use of common disinfectant products should be sufficient for general precautionary cleaning. Tests carried out using SARS-CoV showed that sodium hypochlorite is effective.

These guidelines provide guidance for environmental cleaning in quarantine facilities housing people exposed/ potential exposure toCOVID-19 and have been adapted based on the Hospital Infection Prevention and Control guidelines drafted by NCDC in collaboration with WHO and other stakeholders.

Area/Items	Item/Equipment	Process	Method/ Procedure
Clinical Area			
General clinical areas Floors (clinical areas) – daily mopping	Dust mops Mop (No broom will be used for sweeping) Detergent/ sanitizer–hot water, sodium hypochlorite(1%) Three buckets (one with plain water and one with detergent solution; one bucket for sodium hypochlorite(1%)	Sweeping Cleaning Daily mopping	• Sweep with the dust mop or damp mop to remove surface dust. Sweep under the furniture and remove dust from corners. Gathered dust must be removed using a hearth brush and shovel. • The sweep tool should be cleaned or replaced after use. • Prepare cleaning solution using detergent with warm water • Use the three-bucket technique for mopping the floor, one bucket with plain water and one with the detergentsolution. • First mop the area with the warm water and detergent solution. • After mopping clean the mop in plain water and squeeze it. • Repeat this procedure for the remaining area. • Mop area again using sodium hypochlorite 1% after drying the area. • In between mopping if solution or water is dirty change it frequently. • Mop the floor starting at the far corner of the room and work towards thedoor. • Clean articles between cleaning. **Note:** Mopping should be done twice a day
Ceiling and Walls	Sweeping tool Duster Bowl/ small bucket of soap solution Plain water	Damp dusting	• Damp dusting with a long handledtool for the walls and ceiling done with very little moisture, just enough to collect thedust. • Damp dusting should be done in straight lines that overlap one another. • Change the mop head/cover when soiled. **Note:** Should be done once a week or after examining a suspect case

	Care of mop	Hot water Detergent Sodium hypochlorite 1%	• Clean with hot water and detergent solution, disinfect it with sodium hypochlorite and keep for drying upsidedown.
Doors and door knobs	Damp cloth or Sponge squeeze mop Detergent	Thorough washing	• The doors are to be washed with a brush, using detergent and water once a week (on one defined day); gently apply cloth to soiled area, taking care not to remove paint, then wipe with warm water to remove excess cleaningagent. • Door knobs and other frequently touched surfaces should be cleaned daily.
Isolation room	Detergent/ Sanitizer– warm water, sodium hypochlorite (1%) Three buckets (one with plain water and one with detergent solution); separate bucket for sodium hypochlorite (1%)	Terminal cleaning	• Before cleaning an isolation room, liaise with infection control team for details of any special requirements. Staff will be instructed on specific cleaning procedures required with reference to • Safety uniform to be worn. • Chemicals or disinfectants to be used. • Also, if bed screen and shower screen are to be cleaned or changed, refer cleaning in isolation rooms.
All clinical areas/ Laboratories/ Wherever spill care is required	Sodium hypochlorite (1%) Rag piece Absorbent paper Unsterile gloves Spill care kit Mop Hot water	Blood and body fluid spill care	• Wear non-sterile gloves. • For large spills, cover with absorbent paper/ rag piece • if any broken glass and sharps, using a pair of forceps and gloves, carefully retrieve.Use a large amount of folded absorbent paper to collect small glass splinters. Place the broken items into the puncture proof sharps container. • Cover the spill with sodium hypochlorite(1%)for 10–20 minutes contact time. • Clean up spill and discard into infectious waste bin, and mop area with soap and hot water. • Clean the mop and mop area with 1% sodium hypochlorite. • Wash mop with detergent and hot water and allow it to dry.

Stethoscope	Alcohol-based rub/Spirit swab	Cleaning	• Should be cleaned with detergent and water. • Should be wiped with alcohol based rub/spirit swab before each patient contact.
BP cuffs and covers	Detergent Hot water	Washing	• Cuffsshouldbewipedwithalcohol-based disinfectant and regular laundering is recommended for the cover.
Thermometer	Detergent and water Alcohol rub Individual thermometer holder	Cleaning	• Should be stored dry in individual holder. • Clean with detergent and tepid water and wipe with alcohol rub in between patient use. • Store in individual holder inverted. • Preferably one thermometer for each patient.
Injection and dressing trolley	Detergent and water Duster Disinfectant (70% alcohol)	Cleaning	• To be cleaned daily with detergent and water. • After each use should be wiped with disinfectant.
Refrigerators	Detergent and water Absorbent paper or clean cloth	Cleaning (weekly)	• Empty the fridge and store thingsappropriately. • Defrost, decontaminate and clean with detergent. • Dry it properly and replace the things. • Weekly cleaning is recommended.

Area/Items	Item/Equipment	Process	Method/ procedure
Lodging area			
General cleaning	Detergent and warm water Mop Two buckets Clean utility gloves Handmops	Daily mopping floors Thorough washing	• Scrub floors with hot water and detergent with using minimal water. (Do not pour thewater.) • Clean with plainwater. • Allow to dry • Hypochlorite 1% mopping canbe done. **Note:**Recommend general cleaning procedure should be done twice a day
Lockers, tables, cupboard, wardrobes, benches, shelves and cots	Damp duster Warm water Detergent Dry duster	Damp dusting	• Damp dust with warm waterand detergent.
Railings	Detergent/ Sanitizer–hotwater, sodium hypochlorite	Daily dusting	• Damp dust with warm water and detergent followed by disinfection with hypochlorite

	1% Three small buckets/ or big bowls One with plain water One with detergent solution One for sodium hypochlorite 1%		
Mirrors and Glass	Warm water Detergent water/ cleaning solution Damp cloth Wiper	Cleaning	• Using warm water and a small quantity of detergent and using a damp cloth, wipe over the mirror and surround, then using a dry lint-free cloth, buff the mirror and glass to a clean dryfinish.
Sluice room Stainless steel/ Any other sink	Powder cleanser Detergent powder Wiper Cloth	Cleaning	• Sinks are to be cleaned witha powder cleanser. • Firstwetthesink.Sprinkleonalittle powder cleanser and work around the surface with a cloth, include the plughole. • Do not use the powder cleanseron dry sink. • After removing spillage and any stains, flush away with running water. Wipe down the surface of the sink.
Pantry furniture	Duster	Dusting	• Dampdust
Telephone	Warm water detergent solution Duster	General cleaning	• Damp dust with warm waterand detergent. • **Payingspecialattentiontotheear and mouth piece and dry it properly.**
Desks	Damp cloth Furniture polish	Dusting	• Wipe top sides and draw handles with a damp cloth. Wooden desks should be cleaned with furniture polish and buffed to clear glows. Pen holder etc. to be cleaned ordusted.
Chairs (Vinyl)	Warm water and detergent	Cleaning	• Wipe down with warm water and detergent. Remove any marks under arms and seat. Check fordamage to stoppers, if stopper require replacement, report to maintenance department.
Furniture and fittings	Warm water and detergent Rag piece	Dusting	• Using warm water and detergent, damp dust all furniture and fittings, including chairs, stools, beds, tables, cupboards, wardrobes, lockers, trolleys, benches, shelves and storage racks, waste/ bins, fire extinguishers, oxygen cylinders, televisions window sills and dry properly.
Bed tables, bedside lockers	Warm water and detergent Wiper Duster	Cleaning	• Wipe down over bed table. Wipe top and underneath base and stand, using warm water and detergent. Dry oncompletion. • Wipe down the bedside. Remove marks from fronts of draws and sides. Using warm water and detergent, wash the top to remove any sticky marks anddust.
Light switches	Damp cloth (never	Cleaning	• Light switches to be cleaned of dust, spots and finger

and over-bed lights	wet) Detergent Warm water		marks. Clean with a damp cloth (never wet) and detergent. • Over-bed lighting to be damp dusted. Clean with warm water and detergent.
Curtains	Soft clothes Water Mild soap solution	Cleaning	• Clean with water and soap for curtains
White clothes	Sodium hypochlorite 1% Tap water	Washing	• Should be washed under running water and soaked in 1% sodium hypochlorite for 20minutes. **Note:** PPE should be worn while washing soiled linen.
Mattress and pillow covers (cloth)	Tap water	Washing	• Mattress and pillows should be covered with a reusable mattress cover. • It should be changed for each patient and when soiled sent to the laundry according to schedule.
Mattress/ Pillow with rexin cover Normal/ without rexin	Sodium hypochlorite 1% Sunlight	Terminal Damp dusting and cleaning Drying in sunlight	• If with rexin cover, can be cleaned with 1% sodium hypochlorite before use for next patient • If routine mattress, dry it in bright sunlight for 1-2 days before using for next patient
Water jars	Vim powder Soap and water	Cleaning	• Recommended boiled water for drinking • Water jars should be scrubbed/ cleaned with soap and water and boiled water before filling withwater.

Areas	Agents / Toilet cleaner	Procedure
Cleaning of toilets		
Toilet pot/ commode	Sodium hypochlorite 1%/ Soap powder / long handle angular brush	• Inside of toilet pot/commode: • Scrub with the recommended agents and the long handle angular brush. • Outside: Clean with recommended agents; use a nylon scrubber.
Lid/commode	Nylon scrubber and soap powder	• Wet and scrub with soap powder and the nylon scrubber inside and outside
Toilet floor	Soap powder and scrubbing brush/ nylon broom	• Scrub floor with soap powder and the scrubbing brush • Wash with water • Use sodium hypochlorite1% dilution
Tap	Nylon scrubber and soap powder	• Wet and scrub with soap powder and the nylon scrubber.
Outside sink	Soap powder and nylon scrubber	• Scrub with the nylon scrubber.
Showers area / Taps and fittings	Warm water Detergent powder Nylon Scrubber	• Thoroughly scrub the floors/tiles with warm water and detergent • Wipe over taps and fittings with a damp cloth and detergent. • Care should be taken to clean the underside of taps and fittings.

		• Taps should be dried aftercleaning
Soap dispensers	Detergent and water	• Daily dusting • Should be cleaned weeklywith detergent and water and dried.

Note: Dry the floors with a separate drying mop.

Annexure- 10

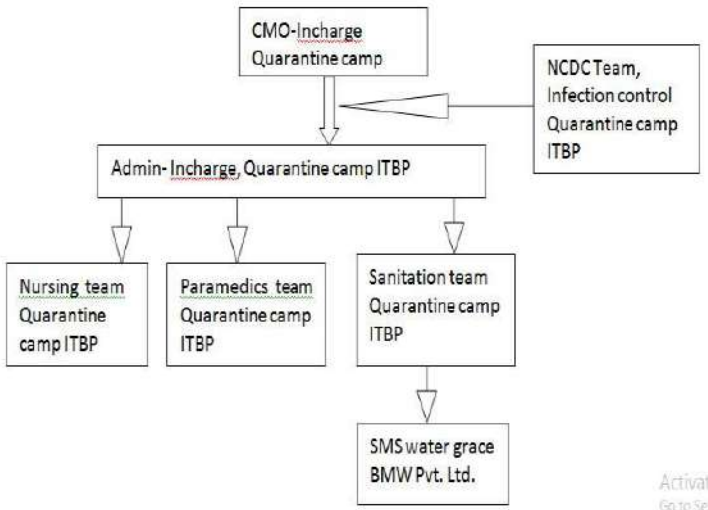
SoPs for Management of Bio-medical Waste (BMW) in the Quarantine Quarantine facility

"Bio-medical waste" means any waste, which is generated during the surveillance, monitoring, diagnosis, treatment or immunization of quarantined personnel in health Quarantine facility. The Bio-medical Waste Management rules are applicable to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio medical waste in any form at the quarantine Quarantine facility.

Management of Hospital/Healthcare/Biomedical waste at the quarantine Quarantine facility is of utmost concern having global implications and immediate attention. It is documented that even the general waste generated from Quarantine Quarantine facility is a potential health hazard to the health care workers, public, flora and fauna of the area.

All officials concerned with the Quarantine facility administration and all other health care workers including medical, dental, nursing officers, other paramedical staff and waste handlers such as safai karmacharis, attendants & Sanitation attendants are well oriented to requirements of handling and management of general and biomedical waste generated at the Quarantine facility. Steps in the management of biomedical waste include generation, accumulation, handling, storage, treatment, transport and disposal.

Organogram for Biomedical waste management(ITBP Chhawla):



Bio-medical waste has been classified in to 4 major categories to improve the segregation of waste at the source itself:

Categories	Type of Bags	Type of Waste	Treatment/Disposal
Yellow 	Non chlorinated plastic, autoclavable bags	1. Donned off PPE 2. PPE with spill 3. Gloves 4. Shoe covers 5. Head Covers 6. disposable bed sheets	Incineration or Plasma pyrolysis or deep burial*
Red 	Non chlorinated plastic, autoclavable bags	1. Eye protection goggles 2. recyclable materials like pens 3. plastic water bottles used by quarantine people 4. Bed sheets	Autoclaving/microwaving /hydroclaving and then sent for recyling not be sent to landfill
White 	Puncture, leak, tamper proof containers	1. sharp waste including metals	Auto or Dry Heat Sterilization followed by shredding or mutilation or encapsulation
Blue 	Cardboard boxes with blue coloured marking	Glassware/tubelight/CFL bulbs/LED used in quarantine Quarantine facility	Disinfection or autoclaving, microwaving, hydroclaving and then sent for recycling

Duties of the Quarantine Quarantine facility Authorities:

1. Provide training to all its health care workers and others involved in handling of bio medical waste.
2. To provide a safe, ventilated and secured location for storage of segregated BMW within premises of quarantine Quarantine facility.
3. Provide legal authorization and access to Waste collecting van/vehicle.

Duties of the Bio-medical waste management company (SMS water grace BMW Pvt. Ltd.):

1. Ensure timely collection (atleast twice daily morning & evening) of BMW from Quarantine Quarantine facility

2. Handing over of recyclable waste after treatment by autoclaving and incineration to authorized agencies identified by Government of India.
3. Assist health care facilities in training of workers.

4. Provide PPE kits and other safety measures to their vehicle driver, collector, helper, safai karamchari.
5. Issue authorized Identity card to all the persons coming to the Quarantine Quarantine facilityus.

Treatment and Disposal:
1. Quarantine Quarantine facility does not have an onsite setup for BMW treatment facilities there it should be taken to their designated BMW facility and treatment/disposal must be done as per BMW regulations approved in their contract.
2. No untreated bio-medical waste shall be kept stored beyond a period of 48 hours.
3. All the waste (even the general waste) generated from the quarantine Quarantine facility must be treated as Biomedical waste.

Maintenance of Records:

1. Records in relation to generation, collection, reception, storage, transportation, treatment and disposal shall be maintained as per rules For 5 years.

Accident Reporting: In case of major accident-intimate immediately and submit a report within 24 hours to the Quarantine facility incharge(CMO-Incharge ITBP Quarantine facility).

Implementation:

Efficient implementation of the bio-medical waste management pivots on orientation, training and

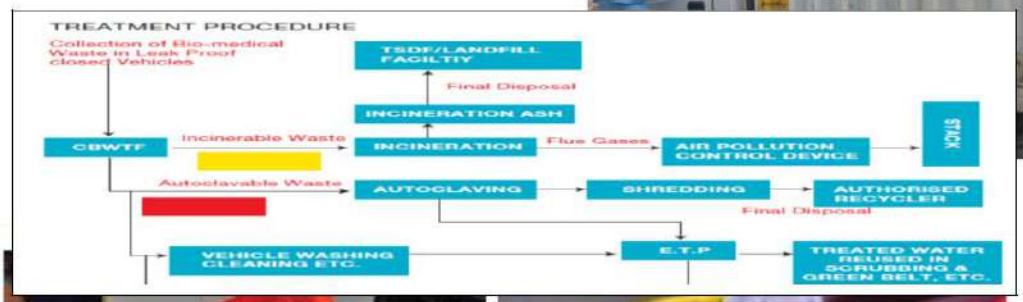
involvement of all the staff in the Quarantine facility. Ensuring proper disposal and segregation at source is the most important step as this is the limiting factor for most health care settings. Continuous training, monitoring & supervision to monitor the implementation must be done on daily basis.

Generation to Disposal process:

1. BMW is collected from various sites in the quarantine facility.

2. All Collected Bags are loaded on to special Bio Medical Waste Trucks/Van and are transported to BMW management facility for treatment and disposal thereafter.

Procedure/ Flowchart for Treatment of Biomedical Waste:



Annex 11

Guidelines for Quarantine facility Incharge, Health professionals, Quarantine people and their family members to guide them with respect to the discharge from Quarantine facility and follow up action in the community.

A. For the Quarantine facility Incharge & Health Professionals at the Quarantine facility:

- The final sample collection for all the travellers shall be taken up on the 13^{th} and 14^{th} day while being in the facility.
- The samples shall be collected and sent to the designated laboratories.
- The reports for the same shall be received latest by $16^{th}/17^{th}$ day in the facility through ICMR.
- Based on the reports a decision can be taken to discharge the travellers.
- Discharge shall accordingly, if agreed to, will be done on the 18^{th} day from the Quarantine facility. Quarantine facility Incharge shall accordingly intimate the travellers in advance for them to make arrangement for their onward journey.
- A detailed enumeration of the proposed place of stay by the travllers during the next 14 days will be obtained including contact numbers by the Quarantine facility Incharge.
- The Quarantine facility Incharges will plan dropping the travellers in either of the locations i.e. ISBT, Railway Station or Airport as per the preference of the travellers.

B. For the Travellers in the Quarantine facility:

1. While travelling back home:

- Provide details of your stay for next 14 days including the contact numbers.
- Obtain list of District and State Surveillance Officers for follow up and reporting in case of any issue.
- Use triple layer surgical mask (follow correct use and disposal of mask as briefed during the stay in quarantine centre)
- Follow frequent hand-wash with soap and water or use alcohol based hand sanitizer.
- Use respiratory etiquettes (use tissue paper/ hand-kerchief to cover your nose and mouth, turn head away from the person facing of you, while coughing/ sneezing).
- Monitor your temperature twice daily.

- Retain the aircraft boarding pass/ rail ticket/ details of Journey by taxi (including contact number of drivers etc)

2. After reaching home

- Avoid crowded places.
- Monitor your health for a period of next 14 days (after leaving the quarantine centre).
- Monitor body temperature twice daily.
- At all times:
    - Maintain personal hygiene
    - Wash hands with soap and water frequently or use alcohol based hand sanitizer.
    - Use respiratory etiquettes (use tissue paper/ hand-kerchief to cover your nose and mouth, turn head away from the person facing of you, while coughing/ sneezing).
- Report to nearest health facility if you develop fever, cough or difficulty in breathing besides reporting it to the State and District Surveillance Officer.
- Allow attendance by health workers / respond to call received from Health functionaries. Keep their contact numbers handy.
- Inform about your health at the end of 14 days period to the Healthcare worker and State and District Surveillance Officer.

3. In case you develop <u>fever, cough or difficulty in breathing</u> any time after leaving the quarantine Centre (within next 14 days):

- Call the nearest health facility or health worker visiting you/ talking to you besides informing the State and District Surveillance Officer.
- An identified care giver (among family members) will only attend to you. He / she will wear mask and wash hands, every time he/ she comes in contact with you.
- Use surgical triple layer mask immediately on realization of symptoms.
- Get admitted to the identified health facility as advised.
- The vehicle/ ambulance which was used for transportation also needs to be disinfected. (Contact the health facility for the disinfection procedure).
- Follow infection prevention and control practices at all times and places.
- If further assistance is required, call Ministry of Health, Government of India's Control Room no. +91-11-23978046.

C. Advice to other family members at home:

- Wash your hands with soap and water frequently.
- If the person (discharged from the quarantine centre) develops symptoms inform the health worker and also the State and District Surveillance Officer.
- In case advised to shift the patient to a health facility:
    - Share list of all contacts till date with the treating doctor/ health care worker and the State and District Surveillance
    - Family members to be in home quarantine till either medical examination rules out novel coronavirus infection or the result of sample is negative.
    - Proper disinfection of bedding/ clothing/ room/ all personal belongings should be followed with 1% Sodium hypochlorite solution.

CHECKLIST FOR ESTABLISHING A QUARANTINE CENTER

I. Basic Information:

1) Name of the Quarantine Centre_
2) Address: _

3) Officer In charge:_
4) Email address:
5) Phone Number: _
6) GPS Coordinates:_

II. Location of quarantine centre

7) Located away from the residential area? ☐ Yes ☐ No
8) Distance to nearby residential area?
9) Away from an area where gathering expected (Eg: Temples, stadiums, Churches etc):

☐ Yes ☐ No

III. Accessibility to the quarantine centre :

10) How far is it from the nearby airport?
11) How far is from the nearest railway station?
12) How far is the nearest bus station?
13) Is the road to quarantine centre is free from heavy traffic?
14) Is the road to quarantine centre is wide enough to have two vehicles at a time?

☐ Yes ☐ No

15) How far is the nearest tertiary care centre?
16) How far is the nearest District Hospital?

IV. Facilities & basic amenities at quarantine facility:

17) How many floors are there in the quarantine building?
18) How many rooms available at the quarantine facility?
19) How many numbers of beds in each room at quarantine facility?

20) What is the distance between beds in the quarantine room?
21) Is there is 24*7 supply of electricity at the facility? ☐ Yes ☐ No
22) Is there 24*7 supply of water at the facility? ☐ Yes ☐ No
23) Is there air conditioning available? ☐ Yes ☐ No
24) If yes, it is by centralised AC or individual air conditioning in each room?
    i. If individual AC ? a: Split b: Window
25) Does window space covers at least 10% of total area? ☐ Yes ☐ No
26) How many windows in each room?
27) Is there exhaust fans in each room? ☐ Yes ☐ No
    i. If Yes, how much air exchange rate expressed in cubic feet per minute (CFM)?
28) Is there drainage facility available in each floor? ? ☐ Yes ☐ No
29) Is there any separate sewage line from Quarantine areas?
30) Are there separate exit & entry points? ☐ Yes ☐ No
31) Is there availability of 24*7 security services at the quarantine area?
32) Is there any separate door for entry of non-health professionals for housekeeping, catering?
33) ☐ Yes ☐ No
34) Is there any separate washroom facility for each room at the facility? ☐ Yes ☐ No
35) If not, how many wash rooms per person/area?
36) Are the floors washable & easily dried? ☐ Yes ☐ No
37) Is the floor mappable? ☐ Yes ☐ No
38) Is there any in-house mess facility available at quarantine area?
39) Is there any separate room/ resting facility for?
    i. Doctors
    ii. Nurses
    iii. Paramedics
    iv. Cleaning staffs

v. Linen management

40) What is the Frequency of changing linen in Quarantine rooms?
41) Whether disposable of Linen used? ☐ Yes ☐ No
    i. If No then, How they are disinfecting & cleaning linen?
    ii. How frequently linens changed?

42) Is there any curtains available in the quarantine rooms/wards? ☐ Yes ☐ No

   i. If yes frequency of changing them?
   ii. frequency of disinfecting & cleaning?

43) Is there any policy for disinfecting mattress at quarantine facility? ☐ Yes ☐ No

44) Is there any written policy for disinfecting beds at quarantine centres?

☐ Yes ☐ No

45) If yes, please verify policy and elaborate /

VI. Infection control practices

46) Is adequate PPE supply available at the quarantine facility? ☐ Yes ☐ No

47) Is there adequate supply of disinfectants at the centre? ☐ Yes ☐ No

48) Are the staffs in the facility trained in wearing PPE? ☐ Yes ☐ No

49) Is there a separate area for donning & doffing PPE? ☐ Yes ☐ No

50) Is there hand washing facility with soap with dispenser / hand sanitizer available at donning & doffing areas?

☐ Yes ☐ No

51) If yes, what type of hand rub dispensers are available? (select all applicable answers)

   i. Pocket bottle
   ii. Bottle affixed to trolley/tray
   iii. Bottle affixed to bed
   iv. Wall dispenser
   v. Dispenser located on bedside table/trolley

52) Whether all staff has access to hand rub dispensers? ? ☐ Yes ☐ No

53) Are hand rub dispensers replaced when empty?

   i. Always
   ii. Intermittently

iii. Rarely
iv. Never
v. Not applicable

54) Are posters illustrating handwash technique displayed beside each sink?

☐ Yes ☐ No

55) Is there availability of bleaching solution of different strength available?

% of hypochlorite solution	YES	NO
1%		
5%		
10%		

56) Is there any policy for rodent & pest control management? ☐ Yes ☐ No

57) If yes, is it being implemented & followed? ☐ Yes ☐ No

58) Are the staffs trained in infection control practices? ☐ Yes ☐ No

59) Is there a structured curriculum / training module for Infection Control Practices? ? ☐ Yes ☐ No

60) What is the Frequency of cleaning of
   i. floors of quarantine rooms/wards
   ii. Bathrooms
   iii. Ambulatory areas
   iv. Resting rooms
   v. What is the Frequency of cleaning high touch surfaces like door knobs, bed rails etc?

61) Is there any separate sample collection area? ☐ Yes ☐ No

62) Is there is separate thermometer & BP apparatus available at the quarantine centre?

☐ Yes ☐ No

63) Are there colour coded bags available for BMW management?

64) Is the waste being segregated and disposed as per protocol? ☐ Yes ☐ No

65) Are the sharps being disposed as per protocol? ☐ Yes ☐ No

66) How the food waste is being disposed?

VII. Recreational facilities

67) Is there provision for mobile phone or internet at the facility? ☐ Yes ☐ No

68) Are the mobiles phone disinfected?
   i. If Yes how
   ii. How frequently

69) Is there any recreational room / area available? ☐ Yes ☐ No

70) Is there any provision for Television or Radio at the quarantine facility?
☐ Yes ☐ No

71) Is there a provision of printed reading materials at the facility? ☐ Yes ☐ No
   i. If Yes how the materials are disposed off?

VIII. Human resources & logistics

72) Is there a dedicated Infection nurse for the quarantine facility to monitor IPC activities?

73) Is there is rotational shift for doctors/nurses/paramedics?
   i. If Yes, how many shifts?
   ii. Doctors in each shift
   iii. Nurses in each shift
   iv. Cleaning staffs in each shift

74) Is there any pulmonologists/physician available when it is needed? ☐ Yes ☐ No

75) Is there a phlebotomist/ lab technician available when it is needed? ☐ Yes ☐ No

76) Is there any availability of clinical psychologist in quarantine facility? ☐ Yes ☐ No

IX. SOP & policies

77) Is there any guidelines/ inhouse SOP for infection control practices? ☐ Yes ☐ No

78) Is there any protocol for limiting the visitors to quarantine area? ☐ Yes ☐ No

79) Is there any written policy for the recreational area? ? ☐ Yes ☐ No

80) Biomedical waste management guidelines 2016 & amendments 2019 available? ☐ Yes ☐ No

81) Does the quarantine health facility in charge aware of National IPC guidelines for healthcare facilities 2020? ☐ Yes ☐ No

82) Is there any linen policy available? ☐ Yes ☐ No

83) Is there any SOP for working of doctors, nurses & paramedics at quarantine facility? ☐ Yes ☐ No

84) Is there any protocol for disinfecting ambulance after transporting patient to isolation centre?

85) Is there any policy for monitoring health of staffs at quarantine area?

86) Is there enough IEC displayed at the quarantine centre?

X. Transporting Patients to Isolation centre

87) Is there any protocol for transfer of patients to tertiary care/transfer of symptomatic cases to isolation centre?

88) Is there separate ambulance available for transporting patients to isolation centre? ☐ Yes ☐ No

89) Are the ambulance staff trained in wearing PPE & infection control practices?

90) How far is the Isolation facility from the quarantine centre

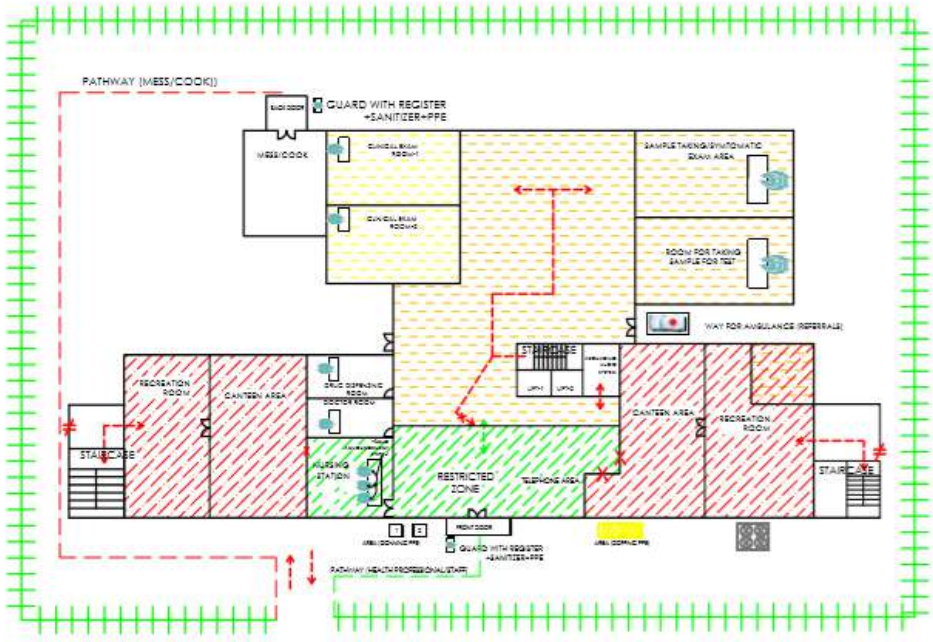
National Centre for Disease Control

National Centre for Disease Control
(formerly National Institute of Communicable Diseases)
Directorate General of Health Services , Ministry of Health & Family Welfare
Government of India

सत्यमेव जयते

MAP SHOWING FUNCTIONAL AREAS IN THE GROUND FLOOR

(QUARANTINE BUILDING) RESTRICTIONS & FLOW OF MOVEMENT OF PEOPLE



CHHAWLA QUARANTINE CENTRE (ITBP CAMP)

LEGENDS:-

1. UNSAFE ZONE(Only people with H/O traveling to China access)

AREA WHERE QUARANTINED PEOPLE ENJOYS IN THE GROUND FLOOR AREA

PATHWAY FOR QUARANTINED PEOPLE

NO ENTRY FOR QUARANTINED PEOPLE

2. SAFE AND RESTRICTED ZONE

SAFE

NO QUARANTINED PEOPLE ENTERS HERE

ONLY HEALTH PROFESSIONALS/ STAFFS STAY

3.ALERT ZONE (Transmission of infection from quarantined people to health professionals can occur here)

AREA WHERE QUARANTINED PEOPLE AND HEALTH PROFESSIONAL OR STAFFS MAY INTERACT (RISK ZONE FOR TRANSMISSION OF INFECTION)

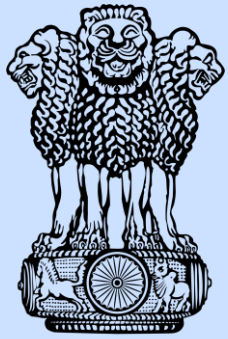
4. BLACK BAG (BMW)

5. YELLOW BAG (BMW)

6. CLOSED DOORS WITH KEYS IN NURSING STATION (In case of emergency to open).

7. INCOMING QUARANTINED PEOPLE (From China) CANENTER FROM THESE DOORS TO THE QUARANTINE BUILDING ON THE DAY OF ARRIVAL

8. PUBLIC ANNOUNCEMENT SYSTEM AT RECEPTION



COVID -19 Outbreak

Guidelines for Setting up Isolation Facility/Ward

National Centre for Disease Control

22 Sham Nath Marg, Delhi 110054

Directorate General of Health Services

Ministry of Health and Family Welfare

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WHO has declared the COVID-19 (SARS-CoV-2) outbreak as Public Health Emergency of international concern and has raised the risk assessment of China, Regional Level and Global Level to Very High and "all countries should be prepared for containment, including active surveillance, early detection, isolation and case management, contact tracing and prevention of onward spread of SARS-CoV-2 infection. Among the factors affecting cluster containment, Isolation of cases and quarantine of contacts is the mainstay of outbreak containment.

Scope of document: This guidance document has been prepared to establish an isolation facility at the level of district hospital, a secondary health care facility.

A. Quarantine and isolation

Quarantine and Isolation are important mainstay of cluster containment. These measures help by breaking the chain of transmission in the community.

Quarantine

Quarantine refers to separation of individuals who are not yet ill but have been exposed to COVID-19 and therefore have a potential to become ill. There will be voluntary home quarantine of contacts of suspect /confirmed cases. The guideline on home quarantine available on the website of the Ministry provides detail guidance on home quarantine.

Isolation refers to separation of individuals who are ill and suspected or confirmed of COVID-19. All suspect cases detected in the containment/buffer zones (till a diagnosis is made), will be hospitalized and kept in isolation in a designated facility till such time they are tested negative. Persons testing positive for COVID-19 will remain to be hospitalized till such time 2 of their samples are tested negative as per MoHFW's discharge policy. About 15% of the patients are likely to develop pneumonia, 5 % of whom requires ventilator management.

Hence dedicated Intensive care beds need to be identified earmarked. Some among them may progress to multi organ failure and hence critical care facility/ dialysis facility/ and Salvage therapy [Extra Corporeal Membrane Oxygenator (ECMO)] facility for managing the respiratory/renal complications/ multi-organ failure shall be required. If such facilities are not available in the containment zone, nearest tertiary care facility in Government / private sector needs to be identified, that becomes a part of the micro-plan.

There are various modalities of isolating a patient. Ideally, patients can be isolated in individual isolation rooms or negative pressure rooms with 12 or more air-changes per hour.

In resource constrained settings, all positive COVID-19 cases can be cohorted in a ward with good ventilation. Similarly, all suspect cases should also be cohorted in a separate

ward. However under no circumstances these cases should be mixed up. A minimum distance of 1 meter needs to be maintained between adjacent beds. All such patients need to wear a triple layer surgical mask at all times.

Nosocomial infection in fellow patients and attending healthcare personnel are well documented in the current COVID-19 outbreak as well. There shall be strict adherence to Infection prevention control practices in all health facilities. IPC committees would be formed (if not already in place) with the mandate to ensure that all healthcare personnel are well aware of IPC practices and suitable arrangements for requisite PPE and other logistic (hand sanitizer, soap, water etc.) are in place. The designated hospitals will ensure that all healthcare staff is trained in washing of hands, respiratory etiquettes, donning/doffing & proper disposal of PPEs and bio-medical waste management.

At all times doctors, nurses and para-medics working in the clinical areas will wear three layered surgical mask and gloves. The medical personnel working in isolation and critical care facilities will wear full complement of PPE (including N95 masks).

The support staff engaged in cleaning and disinfection will also wear full complement of PPE. Environmental cleaning should be done twice daily and consist of damp dusting and floor mopping with Lysol or other phenolic disinfectants and cleaning of surfaces with sodium hypochlorite solution. Detailed guidelines available on MoHFW's website may be followed.

B. Setting up isolation facility/ward

An isolation facility aims to control the airflow in the room so that the number of airborne infectious particles is reduced to a level that ensures cross-infection of other people within a healthcare facility is highly unlikely.

- At State level, a minimum of **50** bed isolation ward should be established.
- At District level, a minimum of **10** bed isolation ward should be established.
  - Post signages on the door indicating that the space is an isolation area.
  - Remove all non-essential furniture and ensure that the remaining furniture is easy to clean, and does not conceal or retain dirt or moisture within or around it.
  - COVID-19 patients should be housed in single rooms.
  - However, if sufficient single rooms are not available, beds could be put with a spatial separation of at least 1 meter (3 feet) from one another.
  - To create a 10 bed facility, a minimum space of 2000 sq. feet area clearly segregated from other patientcare areas is required.
  - Preferably the isolation ward should have a separate entry/exit and should not be co-located with post-surgical wards/dialysis unit/SNCU/labour room etc.
  - It should be in a segregated area which is not frequented by outsiders.
  - The access to isolation ward should be through dedicated lift/guarded stairs.

- There should be double door entry with changing room and nursing station. Enough PPE should be available in the changing room with waste disposal bins to collect used PPEs.Used PPEs should be disposedas per the BMWM guidelines.
- Stock the PPE supply and linen outside the isolation room or area (e.g. in the change room). Setup a trolley outside the door to hold PPE. A checklist may be useful to ensure that all equipment is available.
- Place appropriate waste bags in a bin. If possible, use a touch-free bin. Ensure that used (i.e. dirty) bins remain inside the isolation rooms.
- Place a puncture-proof container for sharps disposal inside the isolation room/area and bio-medical waste should be managed as per the BMWM guidelines.
- Keep the patient's personal belongings to a minimum. Keep water pitchers and cups, tissue wipes, and all items necessary for attending to personal hygiene within the patient's reach.
- Non-critical patient-care equipment (e.g. stethoscope, thermometer, blood pressure cuff, and sphygmomanometer) should be dedicated for the patient, if possible. Any patient-care equipment that is required for use by other patients should be thoroughly cleaned and disinfected before use.
- Place an appropriate container with a lid outside the door for equipment that requires disinfection or sterilization.
- Ensure that appropriate hand washing facilities and hand-hygiene supplies are available. Stock the sink area with suitable supplies for hand washing, and with alcohol-based hand rub, near the point of care and the room door.
- Ensure adequate room ventilation. If room is air-conditioned, ensure 12 air changes/ hour and filtering of exhaust air. A negative pressure in isolation rooms is desirable for patients requiring aerosolization procedures (intubation, suction nebulisation). These rooms may have standalone air-conditioning. These areas should not be a part of the central air-conditioning.
- If air-conditioning is not available negative pressure could also be created through putting up 3-4 exhaust fans driving air out of the room.
- In **district hospital**, where there is sufficient space, natural ventilation may be followed. Such isolation facility should have large windows on opposite walls of the room allowing a natural unidirectional flow and air changes. The principle of natural ventilation is to allow and enhance the flow of outdoor air by natural forces such as wind and thermal buoyancy forces from one opening to another to achieve the desirable air change per hour.
- The isolation ward should have a separate toilet with proper cleaning and supplies.
- Avoid sharing of equipment, but if unavoidable, ensure that reusable equipment is appropriately disinfected between patients.

- Ensure regular cleaning and proper disinfection of common areas, and adequate hand hygiene by patients, visitors and care givers.Keep adequate equipment required for cleaning or disinfection inside the isolation room or area, and ensure scrupulous daily cleaning of the isolation room or area.
- **Visitors to the isolation facility should be restricted /disallowed**. For unavoidable entries, they should use PPE according to the hospital guidance, and should be instructed on its proper use and in hand hygiene practices prior to entry into the isolation room/area.
- Ensure that visitors consult the health-care worker in charge (who is also responsible for keeping a visitor record) before being allowed into the isolation areas. Keep a roster of all staff working in the isolation areas, for possible outbreak investigation and contact tracing.
- Doctors, nurses and paramedics posted to isolation facility **need to be dedicated** and not allowed to work in other patient-care areas.
- Consider having designated portable X-ray and portable ultrasound equipment.
- Corridors with frequent patient transport should be well-ventilated.
- All health staff involved in patient care should be well trained in the use of PPE.
- Set up a telephone or other method of communication in the isolation room or area to enable patients, family members or visitors to communicate with health-care workers. This may reduce the number of times the workers need to don PPE to enter the room or area.

C. Checklist for isolation rooms

- Eye protection (visor or goggles)
- Face shield (provides eye, nose and mouth protection)
- Gloves
- reusable vinyl or rubber gloves for environmental cleaning
- latex single-use gloves for clinical care
- Hair covers
- Particulate respirators (N95, FFP2, or equivalent)
- Medical (surgical or procedure) masks
- Gowns and aprons
- single-use long-sleeved fluid-resistant or reusable non-fluid-resistant gowns
- plastic aprons (for use over non-fluid-resistant gowns if splashing is anticipated and if fluid-resistant gowns are not available)
- Alcohol-based hand rub
- Plain soap (liquid if possible, for washing hands in clean water)
- Clean single-use towels (e.g. paper towels)
- Sharps containers

- Appropriate detergent for environmental cleaning and disinfectant for disinfection of surfaces, instruments or equipment
- Large plastic bags
- Appropriate clinical waste bags
- Linen bags
- Collection container for used equipment
- Standard IEC
- Standard protocols for hand hygiene, sample collection and BMW displayed clearly
- Standard Clinical management protocols

D. Wearing and removing Personal Protective Equipment (PPE)

Before entering the isolation room or area:

- Collect all equipment needed;
- Perform hand hygiene with an alcohol-based hand rub (preferably when hands are not visibly soiled) or soap and water;
- Put on PPE in the order that ensures adequate placement of PPE items and prevent self-contamination and self-inoculation while using and taking off PPE; an example of the order in which to don PPE when all PPE items are needed is hand hygiene, gown, mask or respirator, eye protection and gloves

Leaving the isolation room or area

- Either remove PPE in the anteroom or, if there is no anteroom, make sure that the PPE will not contaminate either the environment outside the isolation room or area, or other people.
- Remove PPE in a manner that prevents self-contamination or self-inoculation with contaminated PPE or hands. General principles are:
  - remove the most contaminated PPE items first;
  - perform hand hygiene immediately after removing gloves;
  - remove the mask or particulate respirator last (by grasping the ties and discarding in a rubbish bin);
  - discard disposable items in a closed rubbish bin;
  - put reusable items in a dry (e.g. without any disinfectant solution) closed container; an example of the order in which to take off PPE when all PPE items are needed is gloves (if the gown is disposable, gloves can be peeled off together with gown upon removal), hand hygiene, gown, eye protection, mask or respirator, and hand hygiene
  - Perform hand hygiene with an alcohol-based hand rub (preferably) or soap and water whenever un-gloved hands touch contaminated PPE items.

E. Transport of Infectious Patients

It is recommended that transport of infectious patients is limited to movement considered medically essential by the clinicians, e.g. for diagnostic or treatment purposes. Where infectious patients are required to be transported to other units within the hospital or outside the following precautions may be implemented:

- Infected or colonised areas of the patient's body are covered: - For contact isolation this may include a gown, sheets or dressings to surface wounds; these patients are transferred to a Standard Pressure or Protective Environment Isolation room - For respiratory isolation the patient is dressed in a mask, gown and covered in sheets; these patients are accommodated in a Negative Pressure Isolation Room - For quarantine isolation the patient may be transported in a fully enclosed transport cell or isolator with a filtered air supply and exhaust; these patients are accommodated in a high level quarantine isolation suite.
- The transport personnel remove existing PPE, cleanse hands and transport the patient on a wheelchair, bed or trolley, applying clean PPE to transport the patients and when handling the patient at the destination. Gown-up and gown-down rooms located at the entry to a Unit will assist the staff to enter and exit the facility according to the strict infection control protocols required, thereby reducing the risk of contamination
- The destination unit should be contacted and notified prior to the transfer to ensure suitable accommodation on arrival.
- It is preferred that the patient is transported through staff and service corridors, not public access corridors During planning stages, design can assist transfer of infectious patients by providing service corridors and strategically placed lifts, capable of separation from other lifts. The nominated lift may be isolated from public and staff transit through access control measures and cleaned following transit of the infectious patient.
- Design may also incorporate a designated floor for horizontal bed transfers of infectious patients away from busy clinical areas. The designated floor may be located at mid-level in the hospital
- A combination of nominated lifts, corridors and a bed transfer floor would assist in the movement of infectious patients through the hospital and minimise the risk of spread of infection.

Annexure I

Checklist for isolation rooms

- Eye protection (visor or goggles)
- Face shield (provides eye, nose and mouth protection)
- Gloves
- reusable vinyl or rubber gloves for environmental cleaning
- latex single-use gloves for clinical care
- Hair covers
- Particulate respirators (N95, FFP2, or equivalent)
- Medical (surgical or procedure) masks
- Gowns and aprons
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- Large plastic bags
- Appropriate clinical waste bags
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- Collection container for used equipment
- Standard IEC
- Standard protocols for hand hygiene, sample collection and BMW displayed clearly
- Standard Clinical management protocols

Annexure II

Hospital Preparedness & Isolation Facility Assessment Checklist - COVID19

I . GENERAL INFORMATION

1. Name of the healthcare facility (HCF)				
2. Type	☐Public ☐Private			
3. Category of HCF	☐Primary ☐Secondary ☐Tertiary			
4. Subcategory	☐PHC ☐UPHC ☐CHC ☐Taluk/Sub-District Hospital ☐ District Hospital ☐General Hospital ☐Medical College Hospital ☐ Multi-Speciality Hospital ☐Nursing Home ☐ Dispensary ☐Clinic			
5. Address of the health facility a) Block b) District c) State d) Email ID e) Contact no.				
6. Name of Director/ Principal/Medical superintendent a) Email ID b) Contact no.				
7. Name of RMO/Hospital In-charge a) Email ID b) Contact no				
8. Total number of inpatient beds				
9. Total number of ICU beds				
10. Average number of OPD attendance per month				
11. Average number of new admissions /months				
12. Bed occupancy rate (Annual)				
13. Total staff strength	Doctors – MBBS			
	Doctors- AYUSH			
	Clinical Specialists other than Intensivist/Pulmonologist			
	Non-Clinical specialists other than Microbiologist			
	Microbiologists			
	Intensivists #	Pulmonologist #	Int	Pulm
	Senior Resident #	Junior Resident #	SR	JR
	Interns			
	Nurses			
	Lab technicians			

	Pharmacists	
	Laboratory Technicians	
	Cleaning staff	
	Ambluance drivers	
14. Does this HCF have a designated COVID 19 isolation facility		☐Yes☐No

II. HCF PREPAREDNESS TO MANAGE MAJOR EPIDEMICS & PANDEMICS

15. Core Emergency Response / Rapid Response Team for outbreak management identified?	☐Available ☐In progress☐ Not started
16. Roles and responsibilities of RRT/ERT clearly defined?	☐Available ☐In progress☐ Not started
17. Is there a contingency plan for covering for a core team member who is absent?	☐Available ☐In progress☐ Not started
18. Monitoring and managing Health Care Personnel (HCP) a) The facility follows the Central/State public health policies/procedures for monitoring and managing HCP with potential for exposure to COVID-19 b) The facility have a process to conduct symptom and temperature checks prior to the start of duty shift for HCP	☐Yes ☐No ☐Yes ☐No
19. Training for Healthcare Personnel (HCP) a) Education and job-specific training to HCP regarding • Signs and symptoms of infection • Triage procedures including patient placement and filling the CIF • Safely collect clinical specimen • Correct infection control practices and PPE use • HCP sick leave policies • Recommended actions for not using recommended PPE • How and to whom suspected cases (COVID-19)should be reported	☐Completed ☐In Progress☐ Not Started ☐Completed ☐In Progress☐ Not Started ☐Completed ☐In Progress☐ Not Started ☐Completed ☐In Progress☐ Not Started ☐Completed ☐In Progress☐ Not Started ☐Completed ☐In Progress☐ Not Started ☐Completed ☐In Progress☐ Not Started

III. TRIAGE

20. Triage protocols available at the healthcare facility?	☐Available ☐In progress ☐ Not started
21. Availability of telemedicine facility as a way to provide clinical support without direct interaction with the patient	☐Available ☐In progress ☐ Not started
22. Is there specific waiting area for people with respiratory symptoms?	
23. Availability of designated ARI/COVID-19 triage area	☐Available ☐In progress ☐ Not started
24. Do they have non-contact Infra-Red thermometer available near the registration desk?	
25. Availability of signage directing to triage area and signage to instruct patients to alert staff if they have symptoms of COVID-19	☐Available ☐In progress ☐ Not started
26. Do they have dedicated/single examination rooms in Triage area? (Dedicated room should satisfy criteria of one patient per room with door closed for examination)	☐Yes ☐No
27. Triage area has signs/alerts about respiratory etiquette and hand hygiene?	☐Yes ☐No
28. Does the HCF provide masks for patients with respiratory symptoms?	☐Yes ☐No

29. Triage staff trained on revised COVID19 case definition and identify suspected cases ?	☐Yes ☐No
30. Screening questionnaire and algorithm for triage available with staff	☐Available ☐In progress ☐ Not started
31. Infrared thermometer available with the triage staff	☐Available ☐In progress ☐ Not started
32. Waste bins and access to cleaning/ disinfection supplies available in Triage area	☐Available ☐In progress ☐ Not started
33. Physical barriers (e.g., glass or plastic screens) at reception areas available to limit close contact between triage staff and potentially infectious patients	☐Available ☐In progress ☐ Not started
34. Does the patient waiting area have cross ventilation	☐Yes ☐No
35. Waiting area cleaned at least twice daily with 0.5% hypochlorite solution (or) 70% alcohol for surfaces that do not tolerate chlorine	☐Yes ☐No
36. Does the hospital have dedicated infrastructure for isolation facility? (If No skip to Section IV)	☐Yes ☐No
37. Type of isolation Facility	☐Temporary ☐ Permanent
IV Isolation Facility	
38. Is the isolation facility near OPD/IPD/other crowded area?	☐Yes ☐No
39. Screening rooms identified and available at the isolation area?	☐Available ☐In progress☐ Not started
40. Is there separate entry to the isolation area?	☐Yes ☐No
41. Dedicated space for staff to put on PPE while entering the isolated area	☐Available ☐In progress☐ Not started
42. Is there separate exit for isolation area?	☐Yes ☐No
43. Dedicated space for staff to take off PPE near exit?	☐Available ☐In progress☐ Not started
44. Isolation facility is separate and has rooms/wards?	☐Rooms☐Wards
45. Are washrooms available as 1 toilet per 20 persons?	☐Yes ☐No
46. Number of beds in each isolation rooms/wards	
47. Is the distance between two beds in isolation wards/rooms more than 1 meter?	☐Yes ☐No
48. Do the hospital have policy to segregate clinical staff (e.g. nurses) for care of COVID19 cases?	☐Yes ☐No
49. Whether PPEs available and located near point of use? a. Gloves b. Gowns c. Face masks d. 95 respirators	 ☐Yes ☐No ☐Yes ☐No ☐Yes ☐No ☐Yes ☐No
50. Whether the hospital limits the movement of patients in the isolation facility outside for medically necessary purposes only?	☐Yes ☐No
51. Are the known or suspected COVID19 patients placed on contact and droplet precautions?	☐Yes ☐No
52. If a patient leaves their room for medical purposes, are they provided face mask ?	☐Yes ☐No
53. Do staff transporting the patient wear PPE?	☐Yes ☐No
54. While transporting patients are specific routes used to minimize contact with other patients and staff?	☐Yes ☐No
55. For a patient on Airborne Precautions, air pressure is monitored daily with visual indicators (e.g., smoke tubes, flutter strips), regardless of the presence of differential pressure sensing devices (e.g., manometers):	☐Yes ☐No

56. Are these isolation rooms/wards satisfying the criteria of negative pressure class N? (Applicable if an aerosol generating procedure is performed)	☐Yes ☐No
57. Is there Provision food in the isolation area?	☐Available ☐In progress☐ Not started
58. Policy for leftover food waste management?	☐Available ☐In progress☐ Not started
59. Is there an ICU facility attached to isolation area?	☐Yes ☐No
60. Availability of cross ventilation	☐Yes ☐No
61. Is there any designated area for sample collection?	☐Yes ☐No
62. Are they following standard precautions and PPE while taking sample?	☐Yes ☐No
63. Does the facility have a written policy for sample collection and transport?	☐Yes ☐No
64. Are these sample transported in triple packing?	☐Yes ☐No
65. Does the transportation package contain IATA DG code (UN3373)?	☐Yes ☐No
66. Are they following standard precautions while transporting the sample?	☐Yes ☐No
67. Are the floors of isolation facility suitable for moping?	☐Yes ☐No
68. Is drinking water available at isolation area?	☐Yes ☐No
69. Availability of management protocols for COVID19	☐Available ☐In progress☐ Not started
70. Is rotation roster of duty shift for staff posted at isolation facility	☐Available ☐In progress☐ Not started
71. Is there any protocol for limiting the entry of visitors at isolation area?	☐Available ☐In progress☐ Not started
72. Availability of separate Thermometers BP apparatus with adult & Pediatric cuffs?	☐Yes ☐No
73. Availability of discharge policy for COVID19	☐Available ☐In Progress☐ Not Started

IV. INFECTION PREVENTION AND CONTROL PRACTICES

74. Does the hospital have Hospital Infection control Committee (HICC)?	☐Yes ☐No
75. Are there any infection control protocols/guidelines available?	☐Available ☒In progress☐ Not started
76. Functioning hand washing stations (including water, soap and paper towel or air dry) at isolation area?	
77. Does the facility have uninterrupted running water supply?	☐Yes ☐No
78. Is alcohol based hand sanitizer available at isolation area?	☐Yes ☐No
79. Are the staff following five movements of hand washing?	☐Yes ☐No
80. Are the staff following six steps of hand washing?	☐Yes ☐No
81. Is there posters to reinforce hand washing and PPE at hand washing stations	☐Available ☐In progress☐ Not started

VI. ENVIRONMENTAL CLEANING

82. Are objects and environmental surfaces in patient care areas touched frequently (e.g., bed rails, overbed table, bedside commode, lavatory surfaces) are cleaned	☐Yes ☐No
83. Are they disinfected with an approved disinfectant frequently (at least daily) and when visibly soiled?	☐Yes ☐No
84. Is there cleaning chart?	☐Yes ☐No
85. Frequency of cleaning of high touch areas, Bed rails, Tables, Chairs, Keyboards etc.,	
86. Is there any housekeeping policy available at isolation area?	☐Yes ☐No

87. Availability of terminal cleaning checklist	☐Available ☐In progress☐ Not started
88. Availability of three bucket system	☐Yes ☐No
89. Are they following correct contact time for disinfection with hypochlorite solution? (10 minutes for non-porous surfaces)	☐Yes ☐No
90. Are the staff following outward mopping technique	☐Yes ☐No
91. Availability of separate mops for each area	☐Yes ☐No
92. Frequency of cleaning of isolation rooms?	
93. Frequency of cleaning of ambulatory areas?	
94. Frequency of cleaning of bathrooms of isolation areas?	
95. Staff wearing PPE while cleaning a. Gloves b. Masks c. Apron	☐Yes ☐No ☐Yes ☐No ☐Yes ☐No
96. Are the staff trained in housekeeping and infection control practices?	☐Yes ☐No
97. Doctors, nurses & cleaning staff available/ shift at isolation area?	☐Yes ☐No
98. Barrier nursing practiced at isolation area in 1:1 ratio?	☐Yes ☐No
99. Is there any policy for linen management for isolation facility?	☐Available ☐In progress☐ Not started
100. What is the frequency of changing linen in isolation rooms?	☐Daily ☐Alternate Days ☐Weekly ☐When Soiled
101. Type of linen used	☐ Disposable ☐Reusable

VII. BIOMEDICAL WASTE MANAGEMENT (BMWM)

102. Availability of SOP for BMW management?	☐Available ☐In progress☐ Not started
103. Availability of agreement with CWTF	☐Available ☐In progress☐ Not started
104. Are they following color codes bins in BMW management?	☐Yes ☐No
105. Is there sufficient quantity color coded bags available?	☐Yes ☐No
106. Are they disinfecting the waste before it is disposed?	☐Yes ☐No
107. Method of disposing biomedical wastes?	☐CWTF ☐Deep burial ☐Incineration
108. Disposal of sharps as per the standard protocol?	☐Yes ☐No
109. Availability of biomedical waste trolley?	☐Yes ☐No
110. Availability of dedicated BMW collection area?	☐Yes ☐No
111. BMW collected from isolation facility within 48hrs?	☐Yes ☐No

VIII. ICU FACILITY

112. Are there any beds dedicated for COVID 19 infection?	☐Yes ☐No
113. If Yes, Number of beds dedicated to COVID 19 cases?	
114. Is the distance between beds in ICU more than 1 meter?	☐Yes ☐No
115. Is the oxygen supply is by cylinder or central connection?	
116. Are there any separate Ventilators, nebulizers, Infusion pumps in ICU?	☐Yes ☐No
117. Adequate supply of masks, ET tubes, PPE kits available at ICU?	☐Yes ☐No
118. All ICU Staff received training in donning & doffing of PPE?	☐Completed ☐In progress☐ Not started
119. Are there separate area for donning & doffing of PPE?	☐Yes ☐No
120. Hand washing facility & hand sanitizer available at donning & doffing areas?	☐Yes ☐No

XII.OTHER ESSENTIAL SERVICES

121.Is there strategy available for optimizing the PPE supply	☐Available ☐In progress☐ Not started
122.Are there any stockout experience for PPEs in the las year.	☐Yes ☐No
123.Designated ambulance facility for transporting patients from isolation area?	☐Yes ☐No
124.list of contact numbers of ambulance drivers displayed at isolation area?	☐Available ☐In progress☐ Not started
125.Ambulance staff trained in wearing PPE & and other Infection control practices?	☐Yes ☐No
126.SOP for disinfecting ambulance after transporting confirmed case/dead body?	☐Available ☐In progress☐ Not started
127.Written protocol available for disposing dead bodies of confirmed cases?	☐Available ☐In progress☐ Not started
128.Is there enough availability of body bags?	☐Yes ☐No
129.Are the staff trained in handling dead bodies and wearing PPE?	☐Yes ☐No

Revision 1:

Guidelines for Handling, Treatment and Disposal of Waste Generated during Treatment/Diagnosis/ Quarantine of COVID-19 Patients

25th March, 2020

(In suppression earlier guidelines upload at CPCB website on 19/03/2020)

Central Pollution Control Board

(Ministry of Environment, Forest & Climate Change)

Parivesh Bhawan, East Arjun Nagar

Delhi – 110032

In order to deal with COVID-19 pandemic, State and Central Governments have initiated various steps, which include setting up of quarantine centers/camps, Isolation wards, sample collection centers and laboratories.

Following specific guidelines for management of waste generated during diagnostics and treatment of COVID-19 suspected / confirmed patients, are required to be followed by all the stakeholders including isolation wards, quarantine centers, sample collection centers, laboratories, ULBs and common biomedical waste treatment and disposal facilities, in addition to existing practices under BMW Management Rules, 2016.

These guidelines are based on current knowledge on COVID-19 and existing practices in management of infectious waste generated in hospitals while treating viral and other contagious diseases like HIV, H1N1, etc. These guidelines will be updated if need arises. This Revision-1 of guidelines is done mainly to incorporate specific requirements and responsibilities of persons operating quarantine camps or caretakers of quarantine homes/home-care units and also the responsibilities of Urban Local Bodies (ULBs) at sections (c) and (f) respectively. Specific provisions are also incorporated for States not having common CBWTFs and for allowing hazardous waste incinerators to dispose COVID-19 waste.

Guidelines brought out by WHO, MoH&FW, ICMR, CDC and other concerned agencies from time to time may also be referred.

Guidelines for handling, treatment and disposal of COVID-19 waste at Healthcare Facilities, Quarantine Camps/ Quarantine-homes/ Home-care, Sample Collection Centers, Laboratories, SPCBs/PCCs, ULBs and CBWTFs is give below;

(a) COVID-19 Isolation wards:

Healthcare Facilities having isolation wards for COVID-19 patients need to follow these steps to ensure safe handling and disposal of biomedical waste generated during treatment;

- Keep separate color coded bins/bags/containers in wards and maintain proper segregation of waste as per BMWM Rules, 2016 as amended and CPCB guidelines for implementation of BMW Management Rules.

- As precaution double layered bags (using 2 bags) should be used for collection of waste from COVID-19 isolation wards so as to ensure adequate strength and no-leaks;

- Collect and store biomedical waste separately prior to handing over the same CBWTF. Use a dedicated collection bin labelled as “COVID-19” to store COVID-19 waste and keep separately in temporary storage room prior to handing over to authorized staff of CBWTF. Biomedical waste collected in such isolation wards can also be lifted directly from ward into CBWTF collection van.

- In addition to mandatory labelling, bags/containers used for collecting biomedical waste from COVID-19 wards, should be labelled as “COVID-19 Waste”. This marking would enable CBWTFs to identify the waste easily for priority treatment and disposal immediately upon the receipt.

- General waste not having contamination should be disposed as solid waste as per SWM Rules, 2016;

- Maintain separate record of waste generated from COVID-19 isolation wards

- Use dedicated trolleys and collection bins in COVID-19 isolation wards. A label "COVID-19 Waste" to be pasted on these items also.

- The (inner and outer) surface of containers/bins/trolleys used for storage of COVID-19 waste should be disinfected with 1% sodium hypochlorite solution daily.

- Report opening or operation of COVID-19 ward and COVID ICU ward to SPCBs and respective CBWTF located in the area.

- Depute dedicated sanitation workers separately for biomedical waste and general solid waste so that waste can be collected and transferred timely to temporary waste storage area.

(b) Sample Collection Centers and Laboratories for COVID-19 suspected patients

Report opening or operation of COVID-19 sample collection centers and laboratories to concerned SPCB. Guidelines given at section (a) for isolation wards should be applied suitably in in case of test centers and laboratories also.

(c) Responsibilities of persons operating Quarantine Camps/Homes or Home-Care facilities[*]

Less quantity of biomedical waste is expected from quarantine Camps / Quarantine Home/ Home-care facilities. However, the persons responsible for operating quarantine camps/centers/home-care for suspected COVID-19 persons need to follow the below mentioned steps to ensure safe handling and disposal of waste;

- General solid waste (household waste) generated from quarantine centers or camps should be handed over to waste collector identified by Urban Local Bodies or as per the prevailing local method of disposing general solid waste.
- Biomedical waste if any generated from quarantine centers/camps should be collected separately in yellow colored bags (suitable for biomedical waste collection) provided by ULBs. These bags can be placed in separate and dedicated dust-bins of appropriate size.
- Persons operating Quarantine camps/centers should call the CBWTF operator to collect biomedical waste as and when it gets generated. Contact details of CBWTFs would be available with Local Authorities.
- Persons taking care of quarantine home / Home-care should deposit biomedical waste if any generated from suspected or recovered COVID-19 patients, by following any of the following methods as may be arranged by ULBs;
    - Hand over the yellow bags containing biomedical waste to authorized waste collectors at door steps engaged by local bodies; or
    - Deposit biomedical waste in yellow bags at designated deposition Centers established by ULBs. The bag again be stored in yellow bag or container; or
    - Handover the biomedical waste to waste collector engaged by CBWTF operator at the doorstep.

- Persons operating Quarantine camps/centers or Quarantine-homes/Home-care should report to ULBs in case of any difficulty in getting the services for disposal of solid waste or biomedical waste.

Clarifications:

- Quarantine Camps / Quarantine-Home / Home-care are the places where suspected people or the contacts of suspected / confirmed cases who have been directed by authorised hospitals or local authorities to stay at home for at least 14 days for observation for any symptom of COVID-19, if any.
- Patients positive for COVID-19 will not be treated at Quarantine Camps / Quarantine-Home / Home-care unless such situation is notified by the State/Central Governments.
- Biomedical waste at Quarantine Camps / Home-care will comprise of used syringes, date expired or discarded medicines, used masks/gloves and in case of patients with other chronic diseases may also include drain bags, urine bags, body fluid or blood soaked tissues/cotton, empty ampules etc.
- Biomedical waste generated from Quarantine Camps / Quarantine-Home / Home-care would be treated as 'domestic hazardous waste' as defined under Solid Waste Management Rules, 2016, and shall be disposed as per provisions under Biomedical Waste Management Rules, 2016 and these guidelines.
- General waste from Quarantine Camps / Quarantine-Home / Home-care shall be disposed as Solid waste as per provisions under SWM Rules, 2016.

[*Amended in Rev. 1 of guidelines dated 24/03/2020]

(d) Duties of Common Biomedical Waste Treatment Facility (CBWTF):

- Report to SPCBs/PCCs about receiving of waste from COVID-19 isolation wards / Quarantine Camps / Quarantined homes / COVID-19 Testing Centers;
- Operator of CBWTF shall ensure regular sanitization of workers involved in handling and collection of biomedical waste;
- Workers shall be provided with adequate PPEs including three layer masks, splash proof aprons/gowns, nitrile gloves, gum boots and safety goggles;
- Use dedicated vehicle to collect COVID-19 ward waste. It is not necessary to place separate label on such vehicles;
- Vehicle should be sanitized with sodium hypochlorite or any appropriate chemical disinfectant after every trip.
- COVID-19 waste should be disposed-off immediately upon receipt at facility.
- In case it is required to treat and dispose more quantity of biomedical waste generated from COVID-19 treatment, CBWTF may operate their facilities for extra hours, by giving information to SPCBs/PCCs.
- Operator of CBWTF shall maintain separate record for collection, treatment and disposal of COVID-19 waste.

- Do not allow any worker showing symptoms of illness to work at the facility. May provide adequate leave to such workers and by protecting their salary.

(e) Duties of SPCBs/PCCs

- Shall maintain records of COVID-19 treatment wards / quarantine centers / quarantines homes in respective States.
- Ensure proper collection and disposal of biomedical waste as per BMW Rules, 2016 and SoPS given in this guidance document;
- Allow CBWTFs to operate for extra hours as per requirement;
- May not insist on authorisation of quarantine camps as such facilities does not qualify as health facilities. However, may allow CBWTFs to collect biomedical waste as and when required;
- In case of States not having CBWTFs as well as rural or remote areas, not having access to CBWTFs, the existing captive facilities of any hospital may be identified for disposal of COVID-19 waste as per provisions under BMWM Rules, 2016 and these guidelines.
- Coordinate with CBWTFs and ULBs in establishing adequate collection and disposal of COVID-19 waste.
- In case of generation of large volume of yellow color coded (incinerable) COVID-19 waste, permit HW incinerators at existing TSDFs to incinerate the same by ensuring separate arrangement for handling and waste feeding.

(f) Duties of Urban Local Bodies +

Urban Local Bodies are responsible for ensuring safe collection and disposal of biomedical waste, if any, generated form Quarantine Camps/ Quarantine Homes/ Home Care for COVID-19 suspected persons.

- Information on each Quarantine Camps/ Quarantine Homes/ Home-Care should be available with local administration and provide updated list to SPCBs from time to time;
- In case of quarantine camps, ensure that biomedical waste is collected directly by CBWTFs identified by ULB. Waste from quarantine camps to be lifted by CBWTFs on call basis as and when the biomedical waste gets generated. Provide contact details of CBWTF operator at Quarantine Camps;
- Provide necessary support, security including authorisation to staff of CBWTFs;
- ULB shall engage CBWTF operator for ultimate disposal of biomedical waste collected from quarantine home/home care or waste deposition centers or from door steps as may be required depending on local situation; ULB shall make agreement with CBWTF in this regard.
- ULBs envisage following options to facilitate safe collection and disposal of biomedical waste from quarantined homes/Home care;
    a) Engage authorized waste collectors for door steps collection of biomedical waste and transfer to collection points for further pick-up by CBWTF; and/or
    b) In case number of quarantined homes/Home-care units are less, ULBs may engage services of CBWTFs to collect the waste directly from door-steps.

- Provide yellow colored bags (designated for BMW) to the persons responsible for operating Quarantine Camp or home-care. If required, such bags may be provided through CBWTF.
- ULBs shall ensure the following in engaging authorized waste collectors at door-steps or at waste deposition centers;
    - Create a separate team of workers who shall be engaged in door step waste collection at waste deposition centres or at quarantine homes or home care.
    - Ensure that only designated staff collects biomedical waste from quarantine homes or home care.
    - Training should be provided for sanitization, about collection of biomedical waste, precautionary measures to handle biomedical waste.
    - Impart training to waste collector in handling of biomedical waste including methods of sanitization. Training to waste collectors should be arranged through CBWTF operators;
    - The staff involved in handling and collection of waste from quarantine homes or home care centers shall be provided with adequate Personnel Protective Equipment such as three layer masks, splash proof aprons/gowns, heavy-duty gloves, gum boots and safety goggles. These PPEs are required to be worn all the time while collecting of waste from quarantine center/quarantine homes/home care/waste deposition centres.
    - Use dedicated carts / trolleys / vehicles for transport of biomedical waste. Ensure sanitization of vehicles with 1% hypochlorite after each trip.
    - Ensure that, waste collectors arriving at quarantine center or at home care shall spray the disinfectant (1% hypochlorite solution) on the bin used for yellow bag.
- Establish common waste deposition centers (as stipulated under SWM Rules, 2016) for receiving / collection of biomedical waste. For this purpose, existing Dhalaos if any may be converted suitably.
- The general solid waste collected from quarantine homes or home care shall be disposed off as per SWM Rules, 2016.
- Services of Common Biomedical Waste Treatment & Disposal Facilities (CBWTFs) and staff associated with CBWTFs for collection, transportation, treatment and disposal of biomedical waste generated from hospitals including COVID-19 isolation wards, Quarantine Camps, etc. may be considered an essential service as part of health infrastructure.
- Facilitate smooth operations of CBWTFs.

[+ Inserted in Rev. 1 of guidelines dated 24/03/2020]

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Ministry of Health and Family Welfare
Directorate General of Health Services
[Emergency Medical Relief]

Coronavirus Disease 2019 (COVID-19): Standard Operating Procedure (SOP) for transporting a suspect/confirmed case of COVID-19

1. About this SOP

This SOP is applicable to current phase of COVID-19 pandemic in India (local transmission and limited community transmission), wherein as per plan of action, all suspect cases are admitted to isolation facilities. These procedures are meant to guide and be used for training ambulance drivers and technicians in transporting COVID-19 patients. These also aim to support programme officers in monitoring functionality and infection prevention protocols of the ambulances.

2. Introduction

Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats and bats. In humans, the transmission of COVID-19 can occur via respiratory droplets directly (through droplets from coughing or sneezing) or indirectly (through contaminated objects or surfaces). The people most at risk of COVID-19 infection are those who are in close contact with a suspect/confirmed COVID-19 patient and those who care for such patients.

3. Transportation of patients

Ideally, there should be ambulances identified specifically for transporting COVID suspect patients or those who have developed complications, to the health facilities. Currently, there are two types of ambulances – ALS (with ventilators) and BLS (without ventilators). States may empanel other ambulances having basic equipment like that of BLS and use it for COVID patients. However, this must be ensured that strict adherence to cleaning and decontamination protocols given here in the guidance note need to be followed. The fleet in - charge or person designated by CMO/CS, will supervise its adherence.

Call centres after receiving the call will try to triage the condition of the patient and accordingly dispatch either ALS, BLS or other registered ambulances. However, please ensure that 102 ambulances should not be used for corona patients and should only be used for transporting pregnant women and sick infants. Ambulance staff (technicians as well as drivers) should be trained and oriented about common signs and symptoms of COVID-19 (fever, cough and difficulty in breathing). A sample questionnaire to identify COVID-19 cases is placed at **Annexure I.** They should also be aware about common infection, prevention and control practices including use of Personal Protective Equipment (PPE). Both the EMT and driver of ambulance will wear PPE while handling, managing and transporting the COVID identified/ suspect patients. Similar use of PPE is to be ensured by the health personnel at receiving

health facility. Patient and attendant should be provided with triple layer mask and gloves. Simple public health measures like hand hygiene, respiratory etiquettes, etc. need to be adhered by all.

Augmenting the capacity of ambulances in districts

Local authorities should prepare a line list of all private ambulance service providers in their respective areas. These ambulances should be linked with centralized call centre so as to ensure adequate number of ambulances based on population and time to care approach (Avg. response time of 20 minutes). Orientation on Infection Prevention Protocols and protocols for transporting COVID patients should also be ensured for staff of these ambulances. To ensure response time of 20 minutes, ambulances should be strategically located at hospitals, police stations.

Only identified and designated ambulances should be used for transportation. People, health functionaries, nursing homes, private clinics, hospitals should be made aware to use ambulance services for COVID patients being provided through toll free numbers. Otherwise it might increase the chances of transmission of infection. Every district should facilitate empaneling of ambulances other than those in the public health system even if the present situation may not require using them. To minimize the risk of transmission, it is strongly recommended that if other than empaneled ambulances are bringing COVID or suspect patients, such vehicles need to be quarantined for thorough cleaning and disinfection and should only be released after certification by district administration/ district health official.

3.1 Call Centre: On receiving the call, the call centre needs to enquire following details:

a) Demographic details of the patient i.e. name, age, gender etc.
b) To ascertain whether the patient is suspect case of COVID-19
    i. Symptoms of patient: Ask whether the patient is suffering from fever, cough and difficulty in breathing
    ii. Whether patient has recently returned from a foreign country
    iii. Whether the patient was under home quarantine as directed by local health administration
c) Clinical condition of patient to be transported: whether stable or critical

3.2 In case of an inter-facility transfer, the casualty medical officer of the referring hospital has to ensure that bed is available in referral hospital with supporting equipment and needs to convey the same while making the call.

3.3 Assign the job to nearest ambulance with dedicated facility at strategic locations as mentioned in the box above.

3.3.1 Check for state of preparedness of ambulance: **Annexure II**
3.3.2 Ensure PPE for ambulance staff: **Annexure III**

3.4 Both call centre and ambulances should always keep the updated list of available hospitals and beds.

3.5 On receiving the call, from the call centre and prior to shifting the patient, EMT will perform following:

3.5.1 the EMT will seek the above mentioned details again to ensure whether the patient is a suspect case of COVID-19.

3.5.2 The EMT will wear the appropriate PPE.

3.5.3 The EMT shall assess the condition of the patient

3.5.4 If the patient is ambulatory and stable, he/she may be asked to board the ambulance otherwise the EMT (while using the prescribed PPE) may assist loading of patient.

3.5.5 Only one caregiver should be allowed to accompany the patient (while using the prescribed PPE).

3.5.6 EMT should also ensure availability and provision of adequate triple layered mask and gloves for patient and/or attendant.

3.5.7 The patient and the care giver will be provided with a triple layer medical mask.

3.5.8 EMT will contact the identified health facility for facility preparedness and readiness.

3.6 Management on board

3.6.1 Measure vitals of patient and ensure patient is stable.

3.6.2 If required, give supplementary O_2 therapy at 5 L/min and titrate flow rates to reach target $SpO_2 \geq 90\%$.

3.6.3 If patient is being transported on ventilator to a higher center, follow ventilator management protocols, provided the EMT is either trained or assisted by a doctor well versed in ventilator management.

3.7 Handing over the patient

3.7.1 On reaching the receiving hospital, the EMT will hand over the patient and details of medical interventions if any during transport. After handing over the patient, the PPEs will be taken off as per protocol followed by hand washing. Use Alcohol based rub /soap water for hand hygiene.

3.7.2 The biomedical waste generated (including PPE) to be disposed off in a bio-hazard bag (yellow bag). Inside would be sprayed with Sodium Hypochlorite (1%) and after tying the exterior will also be sprayed with the same. It would be disposed off at their destination hospital. This shall again be followed by hand washing.

3.8 Disinfection of ambulance

3.8.1 All surfaces that may have come in contact with the patient or materials contaminated during patient care (e.g., stretcher, rails, control panels, floors, walls and work surfaces) should be thoroughly cleaned and disinfected using 1% Sodium Hypochlorite solution. (see **Annexure – IV** for preparation of 1% Sodium hypochlorite solution)

3.8.2 Clean and disinfect reusable patient-care equipment before use on another patient with alcohol based rub.

3.8.3 Cleaning of all surfaces and equipment should be done morning, evening and after every use with soap/detergent and water.

3.9 Capacity building

District Authorities to ensure capacity building of EMT and driver on following areas:

3.9.1 Donning and doffing of PPE
3.9.2 Infection prevention protocols given in this guideline (**Annexure V**)
3.9.3 Triaging and identifying COVID-19 suspects based on their signs and symptoms.
3.9.4 Similarly, emergency staff of health facility should also be trained in segregation, isolation and management of COVID-19 patients. They should not be mixed with other patients.

3.10 Monitoring

A checklist for weekly monitoring by District Surgeon/ Anesthetist is at Annexure VI

Annexure I

Question	**Response**
Has someone in your close family returned from a foreign country	Yes/No
Is the patient under home quarantine as advised by local health authority?	Yes/No
Have you or someone in your family come in close contact with a confirmed COVID-19 patient in the last 14 days?	Yes/No
Do you have fever?	Yes/No
Do you have cough?	Yes/No
Do you have sore throat?	Yes/No
Do you feel shortness of breath?	Yes/No

Annexure II

Checklist for list of consumables, equipment

S. No.	Item	Available (Yes/No)	If yes, whether functional	Remarks: quantity, expiry, last inspection date etc.
1	Stretcher trolley (foldable)			
2	Vital sign monitor			
2.1	✓ NIBP			
2.2	✓ SPO_2			
2.3	✓ ECG			
3	Ventilator with O_2 Source			
4	Defibrillator with battery			
5	Syringe infusion pump			
6	Ventimask with O_2 flowmeter			
7	Ambu bag with face mask			
8	Laryngoscope with batteries			
9	ETT with oro-pharyngeal airway			
10	Suction apparatus with suction and catheter			
11	Emergency drug tray			
12	IV Fluids			
13	Nebulizer			
14	Any other items:			
14.1	✓ Foleys catheter			
14.2	✓ ECG Electrode			
14.3	✓ IV Cannula			

Annexure III

Rational use of PPE by ambulance staff*

Activity	Risk	Recommended PPE	Remarks
Transporting patients not on any assisted ventilation	Moderate risk	N-95 mask Gloves	
Management of SARI patient while transporting	High risk	Full complement of PPE	When aerosol generating procedures are anticipated
Driving the ambulance	Low risk	Triple layer medical mask Gloves	

* The training of EMTs on COVID-19 will strictly adhere to the above mentioned rational use of PPE (the above recommendation is by an expert group (including WHO) and recommended by Joint Monitoring Group under DGHS available at www.mohfw.gov.in)

Annexure IV

Guidelines for Preparation of 1% sodium hypochlorite solution

Product	Available chlorine	1percent
Sodium hypochlorite – liquid bleach	3.5%	1 part bleach to 2.5 parts water
Sodium hypochlorite – liquid	5%	1 part bleach to 4 parts water
NaDCC (sodium dichloro-isocyanurate) powder	60%	17 grams to 1 litre water
NaDCC (1.5 g/ tablet) – tablets	60%	11 tablets to 1 litre water
Chloramine – powder	25%	80 g to 1 litre water
Bleaching powder	70%	7g g to 1 litre water
Any other	As per manufacturer's Instructions	

Annexure V

Infection Prevention for Pre-hospital Care

1.1. General

Ambulance or emergency health care workers are exposed to many infectious agents during their work. Transmission of infectious disease can occur while providing emergency care, rescue and body recovery/removal. Effective infection prevention and control is central to providing high quality health care for patients and a safe working environment for those that work in healthcare settings. Implementation of good infection control practices help to minimize the risk of spread of infection to patients and staff.

Pre-hospital care need to have an infection prevention program to monitor for HAIs (Healthcare Associated Infections) and prevent the spread of diseases/infection.

1.2. Standard Precautions

Standard precautions are based on the principle that all blood, body fluids, secretions, excretions (except sweat), non-intact skin, and mucous membranes may contain transmissible infectious agents. These set of measures are intended to be applied to the care of all patients in all healthcare settings, regardless of the suspected or confirmed presence of an infectious agent. Standard precautions include:

- Hand hygiene
- Use of barrier precautions or personal protective equipment
- Safe injection practices

1.2.1. Hand Hygiene

Hand hygiene is the single most important practice to reduce the transmission of infectious agents in healthcare settings. The term “hand hygiene” includes both hand washing with either soap and water, and use of alcohol-based products (gels, rinses, foams) that do not require the use of water. It is important to ensure the availability of hand rub products at all times in the ambulance to ensure hand hygiene compliance.

1.2.2. Use of barrier precautions or Personal Protective Equipment (PPE)

COVID-19 is primarily a droplet transmitted infection, with indirect transmission through fomites/contaminated surfaces/objects. The standard precautions on use of personal protective equipment, as per the risk profile are given in annexure III.

The Healthcare worker must possess knowledge and skill regarding use and removal of the PPE after its use.

1.3. **Equipment disinfection:**

Equipment and surfaces are contaminated if they have come in contact with patient's skin, blood or body fluids. These can spread infection. Therefore, it is mandatory that these are cleaned and disinfected using 1% sodium hypochlorite or alcohol based disinfectants at least once daily and after every patient contact. Patient care items and surfaces that can contribute to the spread of infection include:

- Stethoscopes
- Blood pressure cuffs

- Monitors
- Stretchers, backboards, and immobilization devices
- Laryngoscope blades
- Radios/mobiles
- Shelves
- Door handles
- Other items and surfaces in ambulance or transport vehicle

1.4. **Decontamination of ambulance:**

- Decontamination of ambulance needs to be performed every time a suspect/confirmed case is transported in the ambulance. The following procedure must be followed while decontaminating the ambulance:
- Gloves and N-95 masks are recommended for sanitation staff cleaning the ambulance.
- Disinfect (damp wipe) all horizontal, vertical and contact surfaces with a cotton cloth saturated (or microfiber) with a 1% sodium hypochlorite solution. These surfaces include, but are not limited to: stretcher, Bed rails, Infusion pumps, IV poles/Hanging IV poles, Monitor cables, telephone, Countertops, sharps container. Spot clean walls (when visually soiled) with disinfectant-detergent and windows with glass cleaner. Allow contact time of 30 minutes and allow air dry.
- Damp mop floor with 1% sodium hypochlorite disinfectant.
- Discard disposable items and Infectious waste in a Bio/Hazard bag. The interior is sprayed with 1% sodium hypochlorite. The bag is tied and exterior is also decontaminated with 1% sodium hypochlorite and should be given to the hospitals to dispose of according to their policy.
- Change cotton mop water containing disinfectant after each cleaning cycle.
- Do not place cleaning cloth back into the disinfectant solution after using it to wipe a surface.
- Remove gloves and wash hands.

Annexure VI

Checklist for Monitoring

Weekly monitoring by District Surgeon/ Anesthetist to be ensured. Following parameters to be monitored:

1. Daily stock-check & functionality test of critical equipment (Oxygen, Suction, etc.)
2. Decontamination & Disinfection Protocols – before and after transporting COVID patients
3. Waste Management – Segregation, General Waste, BMW, Liquid Waste, etc.
4. Spill Management
5. Linen Management
6. Patients' property
7. 'End of Life' care
8. Fire Safety
9. Outcome –
    1. Deaths while transporting
    2. Death after reaching the facility
    3. No. of successful resuscitation (return to spontaneous circulation after cardiac arrest)
    4. IV Fluid Usage Rate – Number of Units (1 unit = 500 ml) transfused/ Patients transported
    5. Percentage of cases, reporting more than 95% Oxygen Saturation level on arrival
    6. Incidence of Aspiration Pneumonia
    7. Service Experience (Feed-back Score on Likert scale 1-5)

INDIAN COUNCIL OF MEDICAL RESEARCH

DEPARTMENT OF HEALTH RESEARCH

Revised Strategy of COVID19 testing in India (Version 3, dated 20/03/2020)

Background:

WHO declared an outbreak of febrile respiratory illness of unknown etiology in December 2019 from Wuhan, Hubei province of China. Since its emergence, the disease rapidly spread to neighboring provinces of China as well as to 182 other countries. Infection is spread through droplets of an infected patient generated by coughing and sneezing or through prolonged contact with infected patients.

Currently, India has witnessed cases of COVID19 mostly related to travel and local transmission from imported cases to their immediate contacts. Community transmission of the disease has not been documented till now. Once community transmission is documented, the above testing strategy will undergo changes to evolve into stage appropriate testing strategy.

Advisory for testing are being reviewed and updated periodically (09/03/2020, 16/03/2020 and 20/03/2020). The testing strategy is reviewed by the National Task Force constituted by Secretary DHR & DG, ICMR and Chaired by Prof. V. K. Paul, Member, NITI Aayog.

Objectives:

- To contain the spread of infection of COVID19.
- To provide reliable diagnosis to all individuals **meeting the inclusion criteria of COVID19 testing.**

Current testing strategy:

i. All asymptomatic individuals who have undertaken international travel in the last 14 days:

- They should stay in home quarantine for 14 days.
- They should be tested only if they become symptomatic (fever, cough, difficulty in breathing)
- All family members living with a confirmed case should be home quarantined

ii. All symptomatic contacts of laboratory confirmed cases.

iii. All symptomatic health care workers.

iv. All hospitalized patients with Severe Acute Respiratory Illness (fever AND cough and/or shortness of breath).

v. Asymptomatic direct and high-risk contacts of a confirmed case should be tested once between day 5 and day 14 of coming in his/her contact.

- Direct and high-risk contact include those who live in the same household with a confirmed case and healthcare workers who examined a confirmed case without adequate protection as per WHO recommendations.

Specimen Collection, Packaging and Transport Guidelines for 2019 novel Coronavirus (2019-nCoV)

Title: Specimen Collection, Packaging and Transport Guidelines for 2019 Novel Coronavirus (2019-nCoV)	SOP number: ICMR-NIV/2019-nCoV/Specimens_01 Prepared by: Dr. Y.K. Gurav Date: 19/01/2020 Reviewed by: Dr. V. Potdar Date: 20/01/2020 Approved by: Dr. P. Abraham Date: 20/01/2020

Scope:

To be used by the Government health authorities/ hospitals/ clinicians/ laboratories planning to collect appropriate clinical samples as indicated for diagnosis of 2019-nCoV.

Purpose:

This document describes the information for collection, packaging and transport of clinical specimens to Influenza group at ICMR-National Institute of Virology (NIV), Pune, Maharashtra for diagnosis of 2019 Novel Coronavirus (2019-nCoV)

Responsibilities:

- The clinician should decide necessity for collection of clinical specimens for laboratory testing of 2019-nCoV only after following the case definition as given by the health authorities, Government of India.
- Appropriate clinical sample need to be collected by laboratory personnel/ health care worker trained in specimen collection in presence of a clinician.
- By following all biosafety precautions and using personal protective equipment (PPEs), clinical samples need to be sent to the designated laboratory (ICMR-NIV, Pune) by following standard triple packaging.

Selection of patient:

Any person who presents with Severe Acute Respiratory Illness (SARI) AND any one of the following i.e. a history of travel from Wuhan, China in 14 days prior to symptoms onset; disease in healthcare worker working in an environment of SARI patients; unusual or unexpected clinical course, especially sudden deterioration despite appropriate treatment; should be urgently investigated. Updated case definition need to be followed as per MOHFW, Govt of India which is available on the website www.mohfw.gov.in

Specimen collection details:

(Adapted from the WHO guidelines on 2019-nCoV):

Specimen type	Collection materials	Transport to laboratory	Storage till testing	Comment
Nasopharyngeal and oropharyngeal swab	Dacron or polyester flocked swabs*	4 °C	≤5 days: 4 °C >5 days: -70 °C	The nasopharyngeal and oropharyngeal swabs should be placed in the same tube to increase the viral load.
Bronchoalveolar lavage	sterile container*	4 °C	≤48 hours: 4 °C >48 hours: –70 °C	There may be some dilution of pathogen, but still a worthwhile specimen
Tracheal aspirate, nasopharyngeal aspirate or nasal wash	sterile container*	4 °C	≤48 hours: 4 °C >48 hours: –70 °C	Not applicable
Sputum	sterile container	4 °C	≤48 hours: 4 °C >48 hours: –70 °C	Ensure the material is from the lower respiratory tract
Tissue from biopsy or autopsy including from lung	sterile container with saline	4 °C	≤24 hours: 4 °C >24 hours: –70 °C	Autopsy sample collection preferably to be avoided
Serum (2 samples – acute and convalescent)	Serum separator tubes (adults: collect 3-5 ml whole blood)	4 °C	≤5 days: 4 °C >5 days: –70 °C	Collect paired samples: • acute – first week of illness • convalescent – 2 to 3 weeks later

**For transport of samples for viral detection, use VTM (viral transport medium) containing antifungal and antibiotic supplements. Avoid repeated freezing and thawing of specimens.*

Specimen labelling and processing:

- Personal protective equipment (apron, hand gloves, face shield, N95 Masks etc.) need to be used and all biosafety precautions should be followed so as to protect individuals and the environment.
- Proper labelling (name/age/gender/specimen ID) need to be done on specimen container and other details of sender (name/address/phone number) on the outer container by mentioning "To be tested for 2019-nCoV"
- For any queries, the nodal officer from ICMR-NIV Pune (Dr Yogesh K. Gurav, Scientist E) may be contacted (Phone 020-26006290/ 26006390; Email: gurav.yk@gmail.com/gurav.yk@gov.in) and need to be informed in advance before sending specimens to ICMR-NIV, Pune.

Specimen Collection, Packaging and Transport Guidelines for 2019 novel Coronavirus (2019-nCoV)

Requirements for Clinical Samples Collection, Packaging and Transport

1. Sample vials and Virus Transport Medium (VTM)

2. Adsorbent material (cotton, tissue paper), paraffin, seizer, cello tape

3. A leak-proof secondary container (e.g., ziplock pouch, cryobox, 50 mL centrifuge tube, plastic container)

4. Hard-frozen Gel Packs

5. A suitable outer container (e.g., thermocol box, ice-box, hard-board box) (minimum dimensions: 10 x 10 x 10 cm)

Procedure for Specimen Packaging and Transport

1. Use PPE while handling specimen

2. Seal the neck of the sample vials using parafilm

3. Cover the sample vials using absorbent material

4. Arrange primary container (vial) in secondary container

5. Placing the centrifuge tube inside a zip-lock pouch

6. Placing the zip-lock pouch inside a sturdy plastic container and seal the neck of the container

Note: *Sample vials can also be placed inside a zip-lock pouch, covered in absorbent material and secured by heat-sealing or rubber bands. Then, the zip-lock pouch should be placed inside another plastic pouch and secured*

7. Using a thermocol box as an outer container and placing the secondary container within it, surrounded by hard-frozen gel packs

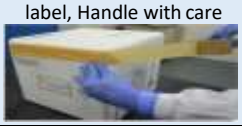
7. Using a hard card-board box as an outer container and placing the secondary container and the gel packs

8. Placing the completed Specimen Referral Form (available on www.niv.co.in) and request letter inside a leak-proof, zip-lock pouch

9. Securing the zip-lock pouch with the Specimen Referral Form on the outer container

10. Attaching the labels:

- Senders' address, contact number; Consignee's address /contact number;
- Biological substance-Category B;
- 'UN 3373'; Orientation label, Handle with care



Documents to accompany:

1) Packaging list/proforma Invoice 2) Air way bill (for air transport) (to be prepared by sender or shipper) 3) Value equivalence document (for road/rail/sea transport) [Note: 1. A vaccine-carrier/ice-box can also be used as an outer container 2. The minimum dimensions of the outer container should be 10 x 10 x 10 cm (length x width x height)]

Routing of samples:

- Clinical specimens, official documents and Specimen request forms for testing of 2019-nCoV need to be sent to the ICMR-NIV address (The Director, ICMR-National Institute of Virology, 20-A, Dr Ambedkar Road, Pune, Maharashtra, Pin: 4110001).
- For shipment-related queries/information, kindly contact Dr Sumit Bharadwaj (Scientist B, Influenza Group) on email: sumitduttbhardwaj@gmail.com, phone 020-26006290/26006390

INDIAN COUNCIL OF MEDICAL RESEARCH
DEPARTMENT OF HEALTH RESEARCH

Date: 28/03/2020

Total Government Laboratories Approved by ICMR: 122

Operational Laboratories for COVID19 Testing: N= 113

Laboratories in the process of Operationalization = 09

S. No.	Names of States	Names of Medical Colleges
1.	Andhra Pradesh (4)	1. Sri Venkateswara Institute of Medical Sciences, Tirupati 2. Rangaraya Medical College, Kakinada 3. Sidhartha Medical College, Vijaywada 4. Govt. Medical College, Ananthpur
2.	Assam (4)	5. Gauhati Medical College, Guwahati 6. Regional Medical Research Center, Dibrugarh 7. Jorhat Medical College, Jorhat 8. Silchar Medical College, Silchar
3.	Bihar (2)	9. Rajendra Memorial Research Institute of Medical Sciences, Patna 10. Indira Gandhi Institute Medical Sciences, Patna
4.	Chandigarh (2)	11. Post Graduate Institute of Medical Education & Research, Chandigarh – 239 samples can be tested 12. Govt. Medical College, Chandigarh
5.	Chhattisgarh (2)	13. All India Institute of Medical Sciences, Raipur 14. Late Baliram Kashyap M Govt. Medical College, Jagdalpur
6.	Delhi (6)	15. All India Institute Medical Sciences 16. Lady Hardinge Medical College 17. National Centre for Disease Control 18. Ram Manohar Lohia Hospital 19. Institute of Liver & Biliary Sciences 20. Army Hospital Research & Referral
7.	Gujarat (6)	21. BJ Medical College, Ahmedabad 22. MP Shah Govt Medical College, Jamnagar 23. Govt. Medical College, Surat 24. Govt. Medical College, Bhavnagar 25. Govt. Medical College, Vadodara 26. GMC, Rajkot, Gujarat
8.	Haryana (2)	27. Pt. B.D. Sharma Post Graduate Inst. of Med. Sciences, Rohtak, Haryana 28. BPS Govt. Medical College, Sonipat
9.	Himachal Pradesh (2)	29. Indira Gandhi Medical College, Shimla 30. Dr. Rajendra Prasad Govt. Medical College, Tanda
10.	Jammu & Kashmir (4)	31. Govt. Medical College, Jammu 32. Command Hospital (NC) Udhampur 33. Sher-i-Kashmir Institute of Medical Sciences, Srinagar 34. Govt. Medical College, Srinagar

11.	Jharkhand (2)	35. MGM Medical College & Hospital, Jamshedpur 36. Rajendra Institute of Medical Sciences, Ranchi
12.	Karnataka (7)	37. Hassan Inst. of Med. Sciences, Hassan 38. Mysore Medical College & Research Institute, Mysore 39. Shimoga Instt. of Medical Sciences, Shivamoga Inst. of Med. Sciences, Shivamogga 40. Command Hospital (Air Force) Bengaluru 41. Bangalore Medical College & Research Institute, Bengaluru -1400 samples can be tested 42. National Institute of Virology, Bangalore Field Unit, Bengaluru -400 samples can be tested 43. Gulbarga Institute of Medical Sciences, Gulbarga -
13.	Kerala (9)	44. National Institute of Virology Field Unit, Allapuzzha 45. Govt. Medical College, Thiruvanathapuram 46. Govt. Medical College, Kozhikode 47. Govt. Medical College, Thrissur 48. Rajiv Gandhi Center for Biotechnology, Thiruvanathapuram 49. Sree Chitra Tirunal Institute of Medical Sciences, Thiruvanathapuram 50. State Public Health Laboratory, Trivandrum 51. Interuniversity, Kottayam 52. Malabar Cancer Center, Thalassery
14.	Maharashtra (8)	53. National Institute of Virology, Pune 54. Seth GS Medical College & KEM Hospital, Mumbai 55. Kasturba Hospital for Infectious Diseases, Mumbai 56. National Institute of Virology Field Unit, Mumbai 57. Armed Forces Medical College, Pune 58. BJ Medical College, Pune 59. Indira Gandhi Govt. Medical College, Nagpur 60. Grant Medical College & Sir JJ Hospital, Mumbai 61. V. M. Government Medical College, Solapur 62. Govt. Medical College, Aurangabad
15.	Madhya Pradesh (4)	63. All India Institute of Medical Sciences, Bhopal 64. National Institute for Research on Tribal Health, Jabalpur 65. Mahatma Gandhi Memorial Medical College, Indore 66. Gandhi Medical College, Bhopal
16.	Manipur (2)	67. Jawaharlal Nehru Institute of Med. Sciences, Imphal-East, Manipur 68. Regional Institute of Medical Sciences, Imphal
17.	Meghalaya (1)	69. North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences, Shillong, Meghalaya
18.	Odisha (2)	70. Regional Medical Research Centre, Bhubaneshwar 71. All India Institute of Medical Sciences, Bhubaneshwar
19.	Puducherry (1)	72. Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry
20.	Punjab (2)	73. Govt. Medical College, Amritsar 74. Govt. Medical College, Patiala

21.	Rajasthan (8)	75. Sawai Man Singh Medical College, Jaipur 76. Dr. Sampurnanand Medical College, Jodhpur 77. Jhalawar Medical College, Jhalawar 78. RNT Medical College, Udaipur 79. SP Medical College, Bikaner 80. All India Institute of Medical Sciences, Jodhpur 81. JLN Medical College, Ajmer 82. Govt. Medical College, Kota
22.	Tamil Nadu (10)	83. King Institute of Preventive Medicine & Research, Chennai 84. Madras Medical College, Chennai 85. Govt. Theni Medical College, Theni 86. Tirunelveli Medical College, Tirunelveli 87. Govt. Medical College, Thiruvarur 88. Kumar Mangalam Govt. Medical College, Salem 89. Coimbatore Medical College, Coimbatore 90. Govt. Medical College, Villupuram 91. Madurai Medical College, Madurai 92. K A P Viswanatham Govt. Medical College, Trichy
23.	Telangana (5)	93. Gandhi Medical College, Secunderabad 94. Osmania Medical College, Hyderabad 95. Sir Ronald Ross of Tropical & Communicable Diseases, Hyderabad. 96. Nizam's Institute of Medical Sciences, Hyderabad 97. Institute of Preventive Medicine, Hyderabad
24.	Tripura (1)	98. Government Medical College, Agartala
25.	Uttar Pradesh (8)	99. King George Medical University, Lucknow 100. Institute of Medical Sciences, Banaras Hindu University, Varanasi 101. Jawaharlal Nehru Medical College, Aligarh 102. Command Hospital, Lucknow 103. Lala Lajpat Rai Memorial Medical College, Meerut 104. Sanjay Gandhi Post Graduate Institute, Lucknow 105. Uttar Pradesh RIMS, Saifai 106. Regional Medical Research Centre, Gorakhpur
26.	Uttarakhand (2)	107. Govt. Medical College, Haldwani 108. All India Institute of Medical Sciences, Rishikesh
27.	West Bengal (4)	109. National Institute of Cholera & Enteric Diseases, Kolkata 110. Institute of Post Graduate Medical Education & Research, Kolkata 111. Midnapore Medical College, Midnapore 112. North Bengal Medical College, Darjeeling
28.	Andaman & Nicobar Islands (1)	113. Regional Medical Research Centre, Port Blair

Other Laboratories approved by ICMR:
N = 09

S. No.	State	Name of the Medical College	Status
1.	Andhra Pradesh	1. Guntur Medical College	DHR/ICMR have provided Real Time PCR Machine. State Govt. to provide Biosafety cabinet, microfuge and consumables
2.	Assam	2. Fakhruddin Ali Ahmed Medical College, Barpeta	Reagents
3.	Bihar	3. Darbhanga Medical College, Darbhanga	Reagents received more than 2 days ago. Still not started.
		4. Patna Medical College, Patna	Real Time PCR machine has been dispatched.
4.	Delhi	5. Maulana Azad Medical College	Reagents in transit
5.	Kerala	6. Regional Cancer Centre, Thiruvanathapuram	Reagents in transit
6.	Madhya Pradesh	7. Bhopal Memorial Hospital & Research Centre	Reagents yet to be dispatched
7.	Maharashtra	8. Shri Bhausaheb Hire Government Medical College, Dhule	Real time PCR machine installed. Reagents will be handpicked by the Colleges.
8.	West Bengal	9. School of Tropical Medicine, Kolkata	Reagents yet to be dispatched

INDIAN COUNCIL OF MEDICAL RESEARCH
DEPARTMENT OF HEALTH RESEARCH

Date: 28/03/2020

List of Private Laboratories to test COVID-19

S. No.	Names of States	Names of Laboratory and Address
1	Delhi (8)	1. Lal Path Labs, Block -E, Sector 18, Rohini, Delhi 2. Dr Dangs Lab, C-2/1, Safadarjung Development Area, New-Delhi 3. Laboratory Services, Indraprastha Apollo Hospitals, Sarita Vihar, New Delhi 4. Max Lab, Max Super Spciality Hospital, Saket, New-Delhi 5. Sir Ganga Ram Hospital Clinical Lab Services, Sir Ganga Ram Hospital, Delhi 6. Oncquest Labs Ltd, 3-Factory Road, New-Delhi 7. Prognosis Laboratories, 515-16, Sector 19, Dwarka 8. City X-Ray & Scan Clinic Pvt Ltd, 4B/18, Tilak Nagar, New-Delhi
2.	Gujarat (4)	1. Unipath Specialty laboratory limited, 102, Sanoma Plaza, Opposite Parimal Garden, Besides JMC House, Ellisbridge, Ahmedabad 2. Supratech Micropath Laboratory & Research Institute Pvt Ltd, Kedar, Ahmedabad 3. SN GeneLab Pvt Ltd, President Plaza –A, Near Mahavir Hospital, Nanpura, Surat 4. Pangenomics International Pvt Ltd, Ellis Bridge, Ahmedabad
3.	Haryana (5)	1. Strand Life Sciences, A-17, Sector 34, Gurugram 2. SRL Limited, GP26, Sector 18, Gurugram 3. Modern Diagnostic & Research Centre-Lab, 363-364/4, JAwahar Nagar. Gurgaon 4. Core Diagnostics Pvt Ltd, Udyog Vihar Phase-3, Gurgaon 5. MolQ Laboratory, Plot 28,29; Sector 18(P), Electronic city, Udyog Vihar, Phase IV, Gurgaon
4.	Karnataka (2)	1. Neuberg Anand Reference Laboratory, Anand Tower, #54, Bowring Hospital Road, Bengaluru 2. Cancyte Technologies Pvt Ltd, Sri Shankara Research Centre, Bengaluru
5.	Maharashtra (10)	1. Thyrocare Technologies Limited, D37/1, TTC MIDC, Turbhe, Navi Mumbai 2. Suburban Diagnostics (India) Pvt. Ltd., 306, 307/T, 3rd Floor, Sunshine Bld., Andheri (W), Mumbai 3. Metropolis Healthcare Ltd, Unit No. 409-416, 4th Floor, Commercial Building-1, Kohinoor Mall, Mumbai 4. Sir H.N. Reliance Foundation Hospital and Research Centre, Molecular Medicine, Reliance Life Sciences Pvt. Ltd., R-282, TTC Industrial Area, Rabale, Navi Mumbai 5. SRL Limited, Prime Square Building, Plot No 1, Gaiwadi Industrial Estate, SV Road, Goregaon, Mumbai 6. A.G. Diagnostics Pvt Ltd, Nayantara Building, Pune

		7. Kokilaben Dhirubhai Ambani Hospital Laboratory, Four Bungalows, Mumbai 8. InfeXn Laboratories Private Limited, A/131, Therelek Compound, Road No 23, Wagle Industrial Estate, Thane (W) 9. iGenetic Diagnostics Pvt Ltd, Krislon House, Andheri East, Mumbai 10. Tata Memorial Centre Diagnostic Services-Tata Memorial Hospital, Parel, Mumbai
6.	Orissa (1)	1. Dept of Lab Services, Apollo Hospitals, Bhubaneswar
7.	Tamil Nadu (4)	1. Dept. of Clinical Virology, CMC, Vellore 2. Department of Laboratory Services, Apollo Hospitals Enterprise Ltd, Chennai 3. Neuberg Ehrlich Lab Pvt Ltd, 46-48 Masilamani Road, Balaji Nagar, Chennai 4. Sri Ramachandra Medical College & Research Institute, Porur, Chennai
8.	Telangana (8)	1. Laboratory Services, Apollo Hospitals, 6th Floor, Health Street Building, Jubilee Hills, Hyderabad 2. Vijaya Diagnostic Centre Pvt Ltd, Street No 19, Himayath Nagar, Hyderabad 3. Vimta Labs Ltd, Plot No 142, Phase 2, IDA Cherlapally, Hyderabad 4. Apollo Health and Lifestyle Limited, Diagnostic Labortory, Bowenpally, Secunderabad 5. Dr. Remedies Labs Private Ltd, A3, Titus Plaza, Sharma Commercial Complex, Punjagutta, Hyderabad 6. Pathcare Labs Pvt Ltd, Medchal, Hyderabad 7. American Institute of Pathology And Lab Sciences Pvt Ltd, Citizens Hospital, Serilingampally, Hyderabad 8. Medcis Pathlabs India Pvt Ltd, Plot No 16 & 17, Swathi Plaza, Anand Nagar, New Bowenpally, Secunderabad
9.	U.P. (1)	1. RML Mehrotra Pathology Pvt Ltd, Nirala Nagar, Lucknow
10.	West Bengal (2)	1. Apollo Gleneagles Hospitals, 58 Canal Circular Road, Kolkata 2. Tata Medical Center, Rajarhat, Kolkata
11.	Kerala (2)	1. DDRC SRL Diagnostics Pvt Ltd, Panampilly Nagar, Ernakulam 2. MIMS Lab Services, Govindapuram, Kozhikode

INDIAN COUNCIL OF MEDICAL RESEARCH

DEPARTMENT OF HEALTH RESEARCH

Guidance document for State Nodal & Testing VRDLs for nCoV

You have been identified as the State Nodal Laboratory for ensuring collection and transport of suspected nCoV sample to ICMR-NIV, Pune. In addition, you are also identified as a testing laboratory for nCoV.

Your roles and responsibilities are as follows:

- You are supposed to make phone calls to VRDLs in your State (list of VRDLs and contact numbers are attached) and inform them the following:
  - If they collect any suspect samples of nCoV directly or through State Health Authorities/IDSP, they should inform you immediately (on real time basis).

  - As soon as you get the information about a sample collected from suspect case, you are supposed to contact Sequel Logistics or World Courier and arrange pick up of samples from the respective sites. Contact details of the relevant agencies are placed at **Annexure 1.**

- Once the courier agency picks up the sample, you need to coordinate with the concerned courier agency for getting the sample(s) delivered to NIV, Pune by the shortest route in shortest time.
- Pick up of the sample by the courier agency will be directly from the VRDL where the sample has been collected and stored. You are not supposed to ask any VRDL to ship the sample to your centre.
- Once the sample is shipped, immediate notification of dispatch of sample along with details should be sent to:
  - Dr. Sumit Bharadwaj – sumitduttbhardwaj@gmail.com;
  - DHR-ICMR - vrdltechnicalevaluation@gmail.com and
  - Whatsapp group (DHR-ICMR VRDLs).

For State Nodal VRDLs who are also the testing sites, following are the directives:

- Till the time you receive the reagents, nCoV primers and probes from NIV Pune, you should ship the samples to ICMR-NIV, Pune.
- Once you receive the reagents, you have to acknowledge on the Whatsapp group (Preparedness for nCoV) immediately. After the receipt of samples before opening a positive control, first aliquot reagents and primers. Then aliquot positive control. Run the PCR assay with appropriate positive and negative controls (as indicated in the SOP), and share the results with NIV, Pune within 24 hrs. The results should include the gel doc pictures showing the molecular ladder and the band for the positive control.
- After the Positive Control PCR results are verified by NIV, Pune, your VRDL must initiate the **testing of respiratory samples collected from suspected nCoV cases**.
- After initiation of testing for nCoV at your VRDL**, aliquots of all respiratory samples tested POSITIVE** for nCoV must be shared with NIV, Pune. Minimum volume of 2 ml of positive respiratory sample needs to be shared with NIV, Pune.
- In addition, the first 10 respiratory samples tested negative must also be shared with NIV, Pune for verification of results. Minimum volume of 1 ml of negative respiratory sample should be sent to NIV, Pune.
- **Shipment of all the positive respiratory samples and the first 10 negative respiratory samples to NIV, Pune needs to be on a real-time basis.**
- **In case you get any positive result by testing suspect nCoV respiratory sample, you are not supposed to disclose the results to anyone.** You should only **advise the treating clinician to isolate the patient in an appropriate facility and follow all biosafety precautions till further confirmation**. In such situations you should immediately send an aliquot of sample to ICMR-NIV, Pune for nCoV reconfirmation. **A positive result (if any) would only be declared by NIV, Pune after reconfirmation.**

- In case of a negative respiratory sample, results should be reported as tentative clearly mentioning that confirmation is awaited from NIV, Pune.

- Blood samples (whole blood in EDTA vacutainer and yellow serum vacutainer for serum) should also be collected from all suspected cases.
- **Blood samples from cases tested positive for nCoV need to be shipped to NIV, Pune on a real-time basis**.
- **For any positive cases, a convalescent serum sample needs to be collected after 2 weeks.**
- Blood samples (serum and plasma) from negative cases should be frozen after aliquoting and then sent to NIV, Pune in batches.
- Ensure **proper precautions to prevent cross-contamination and ensure PCR quality**. Some of the important precautions are as follows-
    - Ensure proper calibration of Micropipettes.
    - Make multiple aliquots of primers, nuclease free water for PCR and for the Positive control plasmids.
    - Strictly ensure uni-directional workflow in the molecular biology laboratory.
    - Ensure that the reagents for the nCoV assay are stored separately from the Positive control.
    - Positive Control should be added in a separate area than the extracted sample RNA.
    - Ensure proper disinfection measures as well as avoiding cross-contamination by cleaning all work surfaces in the molecular biology laboratory with bleach followed by 70% ethanol.
    - Strictly follow SOP shared by NIV Pune and include positive control and negative controls as per the instructions.

- ***Please Note: No results for nCoV should be reported on NIE portal. However, other respiratory virus screening should be reported as usual.***

You are requested to read the advisories on following web-links:

https://mohfw.gov.in/diseasealerts/novel-corona-virus

http://niv.co.in/SOP_Specimen_Collection_2019-nCoV.pdf

http://niv.co.in/Specimen_referral_form.pdf

Sequel Logistics:

Deba Prasad Sahoo – 9019642443
Hardik Shah – 7738350002

World Courier:

Mr. Pradeep - 9004367878

F. No. Z.28015/23/2020-EMR
Government of India
Ministry of Health and Family Welfare

Nirman Bhawan, New Delhi
Dated the 21st March, 2020

ORDER

The guidelines laid down by Indian Council of Medical Research for COVID-19 testing in private laboratories in India (as annexed) is notified vide Clause (i) and (l) of sub-section 2 of Section 10 of DM Act, 2005, under the power delegated vide order F. NO. 40-2/2020-DM1 (A); dated 11th March, 2020 for strict follow up and compliance.

Preeti Sudan
Secretary,
Ministry of Health & Family Welfare
Government of India

Guidelines for COVID-19 testing in private laboratories in India

The test to be conducted by a laboratory which has NABL accreditation for real-time PCR assay for RNA virus.

Whom to test:

Laboratory test should only be offered when prescribed by a qualified physician as per the ICMR guidleines for COVID-19 testing. Since the guidance evolves periodically, the latest revised version should be followed (link below).
(https://icmr.nic.in/sites/default/files/upload_documents/2020-03-20_covid19_test_v3.pdf)/ www.mohfw.gov.in.

Sample collection and Testing guidelines:

- Appropriate biosafety and biosecurity precautions should be ensured while collecting respiratory samples (oropharnygeal and nasal swab) from a suspect patient. Alternatively, a COVID-19 specific separate sample collection site may be created.
- Preferably, home collection of samples may be done by all the private laboratories. This will help avoid the contact of people with the suspect case during local travel to reach the laboratory.
- Only real time PCR based assays are recommended. Conventional PCR, in-house real time PCR and antibody/antigen tests are not recommended for COVID19 testing.
- Commercial kits for real time PCR based diagnosis of COVID-19 should be US FDA approved or European CE Certified or both for *in vitro* diagnosis of COVID-19 under emergency use, under intimation to DCGI, MoH&FW. Nucleic acid extraction kits and other reagents should be of standard quality.
- All the laboratory staff involved in COVID-19 testing should be appropriately trained in Good Laboratory Practices and performing real-time PCR.
- All the biomedical waste should be disposed off in accordance with National guidelines (https://dhr.gov.in/sites/default/files/Bio-medical_Waste_Management_Rules_2016.pdf).
- The sample should be opened only in Biosafety Cabinet Class II A2. At the time of sample disposal, the Viral Transport Medium (VTM) with swabs should be discarded in a biohazard bag containing 2% Lyzol or 5% freshly prepared hypochlorite solution.

Bag should then be sealed using plastic tag and disposed of in accordance with the National guidelines.

- Government ID to support the current address and contact number of the suspect patient should be collected at the time of sample collection.

Reporting protocols:

- Before any laboratory (private or public) start their activities, they must ensure immediate/real time reporting of the test results along with the contact details to the ICMR HQ database accessible at https://cvstatus.icmr.org.in. Login credentials to each lab for uploading the data will be given by ICMR.
- Each laboratory will be given a registration number by ICMR. The registration number given by ICMR should be prominently exhibited in case any advertisement is made and also in the report.
- The access to specified data and analysis to stakeholders like IDSP, MoHFW will be provided through API for timely initiation of contact tracing and appropriate control measures.
- The request should be send at aggarwal.n@icmr.gov.in indicating name, contact details and mobile number of nodal contact for the lab.

Policy for sample storage and destruction:

- All COVID19 positive samples will need to be transported to ICMR-NIV, Pune under suitable biosafety and biosecurity precautions as laid down by ICMR. The negative samples will be destroyed within one week of collection.
- No sample should be shared with any other organisation for any purpose.

Cost of the test:

The National Task Force recommends that the maximum cost for testing sample should not exceed Rs 4,500/-. This may include Rs 1,500 as a screening test for suspect cases, and an additional Rs 3,000/- for confirmation test. However, ICMR encourages free or subsidized testing in this hour of National public health emergency.

These guidelines may be amended from time to time.

Failure to comply with any of the above guidelines will result in legal action.

INDIAN COUNCIL OF MEDICAL RESEARCH

DEPARTMENT OF HEALTH RESEARCH

Requisite information to be submitted by private laboratories interested in COVID 19 testing

S.No	Name of lab	Head Office	Total No of collection sites	Location of Collection sites	Influenza testing by RT-PCR Y/N	No of RT-PCR Machine available	No of Biosafety cabinets	Dedicated area for molecular diagnostics	COVID 19 testing reagents available Y/N	List of reagents available	Quantity of Reagent available	If not available please mention timeline for procurement	NABL/CAP/ILAC Accreditation & Scope of Accreditation	Participation in EQAS Programme (If any)	Modality of Sample Collection	No cost /chargeable
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																

Interested private laboratories may kindly send the filled in performa to Dr. Neeraj Aggarwal at: **aggarwal.n@icmr.gov.in**

Date: 28 March 2020

Guidance on Rapid antibody kits for COVID-19

Not recommended for diagnosis of COVID-19 infection

- Can be done on blood/serum/plasma samples
- Test result is available within 30 minutes
- Test comes positive after 7-10 days of infection
- The test remains positive for several weeks after infection
- Positive test indicates exposure to SARS-CoV-2
- Negative test does not rule out COVID-19 infection

These tests are not recommended for diagnosis of COVID-19 infection

List of CE-IVD approved antibody based rapid kits

1. *COVID-19 IgM-IgG Dual Antibody Rapid Test* **(CE-IVD)***:* **BioMedomics** (+1- 9198903070, info@biomedomics.com, USA)
2. *One Step Test for Novel Coronavirus (2019-nCoV) IgM/IgG antibody (Colloidal Gold)* **(CE-IVD)***:* **Getein Biotech** (+86-25-68568594, sales@getein.com, overseas@getein.com.cn, Nanjing, China)
3. *COVID 19 Rapid Test Kit* (IgM/IgG) **(CE-IVD)** (**Sensing Self Ltd**, Singapore,), **also validated by NIV, Pune**
4. *COVID-19 IgG/IgM Rapid Test Cassette (Whole Blood/Serum/Plasma)* **(CE- IVD)***:* **Hangzhou Biotest Biotech** Co.,Ltd. (info@alltests.com.cn, +86-57- 158120625, China)
5. *COVID-19 IgM/IgG test kit* **(CE-IVD)** (**AmonMed Biotechnology Co. Ltd**, info@amonmed.com)
6. *COVID-19 Antibody (IgG/IgM)Test Kit* **(CE-IVD)** (**Beijing Abace Biology Co.,** Ltd., huanyi.cheng@rd.abace-biology.com)
7. *Tigsun COVID-19 Combo IgM/IgG Rapid Test* **(CE-IVD)** (**Beijing Tigsun Diagnostics Co.**,Ltd., hu.duan@tigsun.com)
8. *2019-nCoV IgG/IgM Rapid Test Cassette* **(CE-IVD)** (**BIOMAXIMA S.A,** Poland, export@biomaxima.com)
9. *OnSite COVID-19 IgG/IgM Rapid Test* **(CE-IVD)** (**CTK Biotech**, Inc., USA, sparker@ctkbiotech.com)
10. *COVID-19 IgG/IgM Detection Kit (Colloidal Gold)* **(CE-IVD)** (Hunan Lituo Biotechnology Co., Ltd.,)
11. VivaDiag SARS-CoV-2 IgM/IgG rapid test. **(CE-IVD) Vivacheck** Lab (91- 4448544811, info@vivacheck.com, vivachek.india@gmail.com India office: Tamil Nadu)
12. COVID-19 Antibody Kit Serological Test. (CE-IVD) GenSure Biotech Inc., https://www.ozo.life (+91 7021901240, tarshant@ozo.life India Office: Bangalore

Antibody based rapid kit are validated by ICMR-NIV, Pune

1. SARS-CoV-2 Antibody Test: **Wondfo** (+86-3032296083, sales@wondfo.com.cn, China), **validated by NIV, Pune**

This is an evolving list, and kits which will get CE/FDA approval or validated by NIV Pune will be added.

Guidelines for use of commercial kits for nasal/throat swab based diagnosis of COVID-19 in India, 28 March, 2020

- Currently, RT-PCR probes for diagnosis of COVID-19 are procured from USA by ICMR-NIV and are distributed to the testing laboratories across the country
- ICMR welcomes use of commercial kits for diagnosis of COVID-19
- US FDA EUA/CE IVD approved kits can be used directly after due approval from DCGI and intimation to ICMR
- ICMR has established a fast-track mechanism for validation of non US FDA EUA/CE IVD approved kits at ICMR NIV. Test kits with 100% concordance among true positive and true negative samples will be approved for commercial use in India
- ICMR NIV has completed evaluation of **17** non- US FDA EUA/CE IVD kits. The results of the validation are summarized in the following table

Name of Company	Name of the Kit	Concordance among true negative (%)	Concordance among true positive (%)
1. Altona Diagnostics	RealStar SARS-CoV-2 RT-PCR kit 1.0	100%	100%
2. MY LAB	Patho Detect	100%	100%
3. BGI	Real Time Fluorescent RT-PCR Kit for detecting 2019-nCoV	100%	90%
4. Krishgen Bio System	SARS-CoV-2 Coronavirus Real Time RT-PCR (RT-qPCR) Detection Kit v1	100%	80%
5. ABI	TaqMan 2019-nCoV Control Kit v1	100%	90%
6. HIMEDIA	Hi –PCR Corona Virus (CoViD-19) Probe PCR Kit	100%	5%
7. HUWEL	Quantiplus Coronavirus (2019nCoV) detection kit	100%	40%
8. IIT-Delhi	SYBR Green based one step QRT-PCR	98%	10%
9. KILPEST (BLACKBIO)	TRUPCR	100%	75%
10. Genesig	Coronavirus (COVID19) genesig Real Time PCR Assay	100%	84%
11. Roche	LightMix Modular SARS and Wuhan CoV E gene	91%	100%
12. Roche	LightMix Modular SARS and Wuhan CoV N gene	93%	67%
13. Roche	LightMix Modular Wuhan RdRp gene	100%	60%
14. Seegene	Allplex 2019-nCoV assay	100%	100%
15. SD Biosensor	nCoV Real-Time Detection kit	100%	100%
16. AmpliGene India Biotech	AmpEZ Covid -19 using real-time PCR machine	Inconclusive results. Needs further product development	
17. AmpliGene India Biotech	AmpEZ Covid -19 using Ampligene device	Inconclusive results. Needs further product development	

(Sensitivity and specificity of the kits could not be calculated since there were no false positive and false negative samples)

- ICMR recommends these results and the Central Drugs Standard Control Organization (CDSCO) has been intimated.

भारतीय आयुर्विज्ञान अनुसंधान परिषद
स्वास्थ्य अनुसंधान विभाग, स्वास्थ्य और परिवार
कल्याण मंत्रालय, भारत सरकार

Indian Council of Medical Research
Department of Health Research, Ministry of Health
and Family Welfare, Government of India

Date: 25/03/2020

Notice

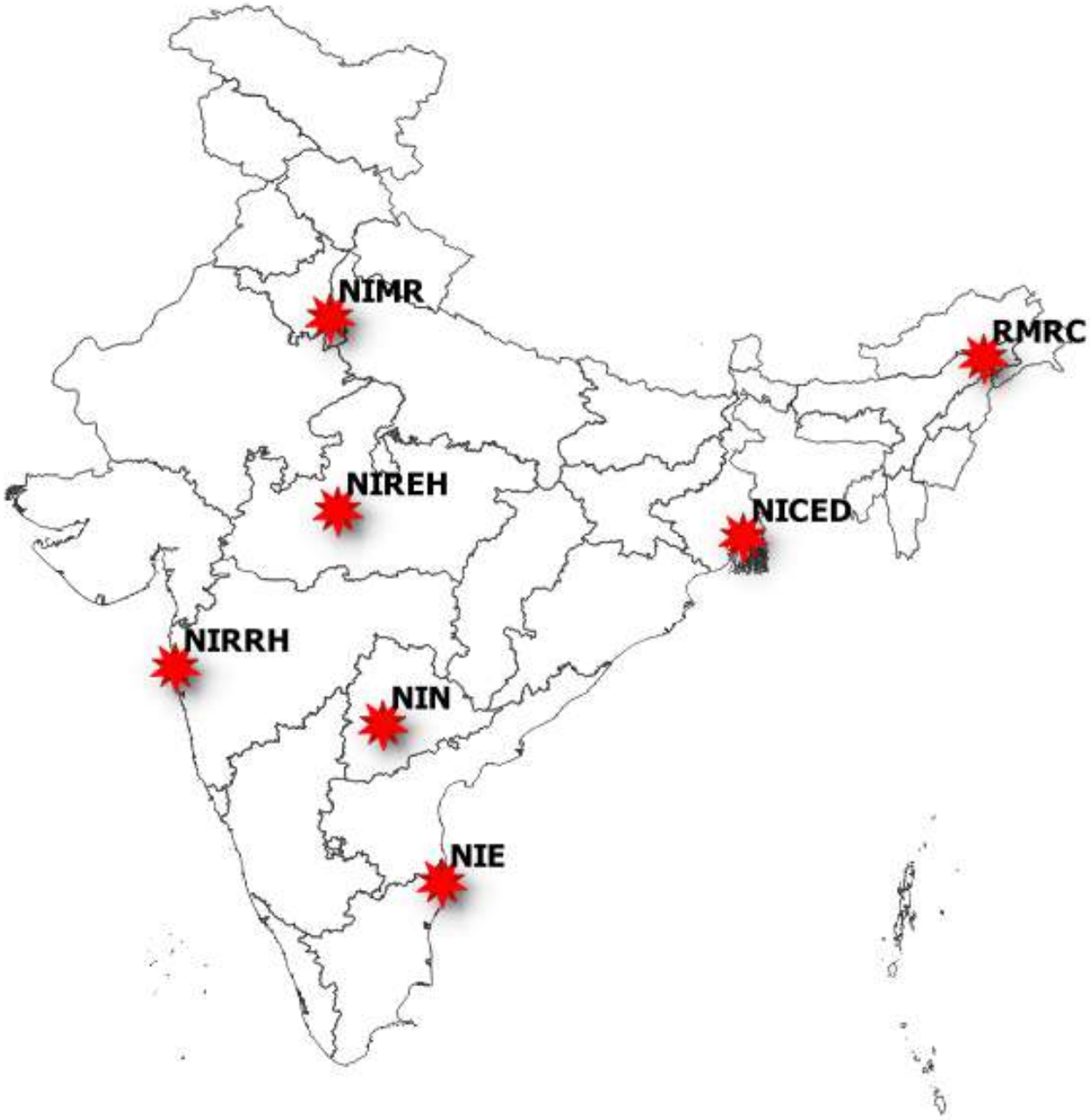
ICMR has identified following institutes to serve as Depot for storage of Reagents required for COVID-19 testing.

S. No.	Name of Institute	Officer's Name, Designation and Contact Details
1	ICMR - National Institute of Cholera & Enteric Diseases (NICED), Kolkata	Dr Shanta Dutta, Director Email: shanta.niced@icmr.gov.in Mob: +91-9830152971
2	ICMR - Regional Medical Research Centre (RMRC), Dibrugarh	Dr Kanwar Narain, Director Email: knarain.rmrcne@gov.in Mob: +91-9435334901
3	ICMR - National Institute of Epidemiology (NIE), Chennai	Dr Manoj Murhekar, Director Email: director.nie@icmr.gov.in Mob: +91-9444414663
4	ICMR - National Institute of Nutrition (NIN), Hyderabad	Dr Hemalatha R, Director Email: directornin@icmr.gov.in Mob: +91-9246283362
5	ICMR - National Institute for Research in Reproductive Health (NIRRH), Mumbai	Dr Smita Mahale, Director Email: dir@nirrh.res.in Mob: +91-9920391165
6	ICMR – National Institute of Malaria Research (NIMR), Delhi	Dr Amit Prakash Sharma, Director Email: director@mrcindia.org Mob: +91-9810111336
7	ICMR –National Institute for Research on Environmental Health (NIREH), Bhopal	Dr Rajnarayan Tiwari, Director Email: tiwari.rr@gov.in Mob: +91-9225224605

वी. रामलिंगस्वामी भवन, पोस्ट बॉक्स नं. 4911,
अंसारी नगर, नई दिल्ली – 110 029, भारत
V. Ramalingaswami Bhawan, P. O. Box No. 4911.
Ansari Nagar, New Delhi – 110 029, India

Tel: +91-11-26588895 / 26588980 / 26589794
+91-11-26589336 / 26588707
Fax: +91-11-26588663 icmr.nic.in

Location Map



GOVERNMENT OF MAHARASHTRA

Department of Revenue and Forest, Disaster Management,

Relief and Rehabilitation, Mantralaya, Mumbai- 400 032

No: DMU/2020/CR. 92/DisM-1, Dated: 23rd March 2020

NOTIFICATION

COVID -19 – The Epidemic Diseases Act, 1897- Lockdown – Orders

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Reference:

1. The Epidemic Diseases Act, 1897
2. The Disaster Management Act, 2005
3. Government Notification, Public Health Department, No. Corona-2020/CR-58/Aarogya-5, Dated- 13th March 2020, 14th March 2020, 15th March 2020

No: DMU/2020/CR. 92/DMU-1- Whereas the State Government is satisfied that the State of Maharashtra is threatened with the spread of Covid-19 Virus, which has already been declared as a pandemic by World Health Organization, and it is therefore necessary to take certain further emergency measures to prevent and contain the spread of virus, the Government in exercise of the powers conferred under Section 2 of The Epidemic Diseases Act, 1897, read with all other enabling provisions of The Disaster Management Act, 2005, **hereby notify lockdown in the entire State of Maharashtra with Immediate effect till 31stof March, 2020**, prescribing the following regulations and measures during the said period:

1. All state borders shall be sealed other than for movement of essential and perishable commodities.
2. All public transport services including inter-city MSRTC buses and Metro will not be permitted. Taxis with not more than two persons besides driver, auto-rickshaws with not more than one passenger besides driver are permitted only for the purposes specified in the order. However, transport of passengers for accessing emergency medical services shall be permitted. Plying of private vehicles shall be restricted only to the extent

of procuring essential commodities, health services and activities permitted under this order, and with only one person besides driver.

3. Operation of all inter-state bus and passenger transport services (including private vehicles) including those by private operators shall stand suspended.

4. Every person who is required to observe home quarantine shall strictly observe the same failing which he/she will be liable for penal action and shifted to government quarantine.

5. Residents shall stay at home and come out only for permitted activities while strictly observing social distancing norms and abiding the conditions stated at para 2 above.

6. Any congregation of more than 5 persons in public places is prohibited.

7. All shops including commercial establishments, offices and factories, workshops, godowns etc. shall close their operations. However, production and manufacturing units which require continuous process & pharmaceuticals, API etc will be permitted. Further, manufacturing units engaged in production of essential commodities like dal and rice mills, food and related units, dairy units, feed and fodder units etc. may function will also be permitted to operate.

8. Government offices, shops and establishments permitted to operate during this period with barest minimum staff and shall take steps to ensure social distancing such as painting of foot marks at distances of 3 feet from each other near check out counters. They shall also ensure proper sanitation in their premises and ensure availability of hand sanitizers/hand washing facilities.

9. The following shops/establishments providing essential goods and services shall be excluded from the above restrictions:

   a) Banks/ATMs, insurance, FinTech services and related activities.

   b) Print and electronic media

   c) IT and ITeS, including telecom, postal, internet and data Services

   d) Supply chain and transport of essential commodities

   e) Export and Import of agricultural goods and products, and all commodities.

f) E-Commerce (delivery) of essential goods including food, pharmaceutical and medical equipment

g) Sale of food items, groceries, milk, bread, fruits, vegetables, eggs, meat, fish and their transportation and warehousing activities

h) Bakery and veterinary establishments for the pets

i) Take-away/ home delivery at restaurants

j) Hospitals, pharmacies and optical stores, pharmaceuticals manufacturing & their dealers and their transportation

k) Petrol pumps, LPG gas, oil agencies, their godowns and their related transport operations

l) All security and facility management services including those provided by private agencies to institutions providing essential services

m) Private establishments that support the provisioning of essential services or the efforts for containment of COVID-19

n) The supply chain relating to above.

o) All enforcing authorities to note that fundamentally strict restrictions relate to movement of people but not to goods and commodities as a matter of principle.

10. The Departments/Offices of the State Government and its Public Sector Undertaking (PSU) providing services shall be functional only to the extent of providing essential services.
11. All religious places of any denomination shall be closed by issuing suitable prohibitory orders.
12. During the lockdown period, steps will be taken to ensure that there is no disruption in the supply of essential commodities to the people.
13. All elective surgeries shall be re-scheduled in all private and Government hospitals to enhance the availability of health care facilities to COVID-19 patients.
14. All Divisional Commissioners, Municipal Commissioners and Collectors are directed to identify vacant places near hospitals for housing health staff in case of necessity.

15. The Collectors of following districts which are at presently Corona disease free shall issue orders prohibiting any vehicular movements into their districts, Viz. Wardha, Bhandara, Gondia, Chandrapur, Gadhchiroli, Satara, Sangli, Kolhapur, Solapur, Buldhana, Amravati, Akola, Washim, Nashik, Dhule, Nandurbar, Jalgaon, Beed, Jalna, Osmanabad, Parbhani, Hingoli, Latur, Nanded and Sindhudurg. This shall noy apply to medical emergencies.
16. All the District Collectors, District Superintendents of Police, Commissioners of Police, Municipal Commissioners of Corporations and other competent authorities in respect of the concerned institutions, organizations and establishments are hereby authorized and directed to take all necessary measures in a humane and judicious manner for enforcement and implementation of the aforesaid regulations and measures.
17. Any person, institution, organization violating any provision of these regulations shall be dealt under the provisions of The Epidemics Diseases Act 1897, The Disaster Management Act 2005, other relevant Acts and regulations there under.
18. No suit or legal proceedings shall lie against any person for anything done or intended to be done in good faith under these regulations.
19. All earlier orders issued by the various authorities will be aligned with this order by the enforcement agencies.

BY ORDER AND IN THE NAME OF THE GOVERNOR OF MAHARASHTRA

(AJOY MEHTA)

CHIEF SECRETARY
GOVERNMENT OF MAHARASHTRA

Copy to:

1) Principal Secretary,to Hon'ble Governor of Maharashtra, Rajbhavan, Mumbai
2) Principal Secretary to Hon'ble Chief Minister, Government of Maharashtra
3) Secretary to Hon'ble Deputy Chief Minister, Government of Maharashtra
4) Private Secretaries of All Hon''ble Minister / Minister of State, Mantralaya
5) All Additional Chief Secretaries / Principal Secretaries / Secretaries of Government of Maharashtra, Mantralaya

6) Director General of Police
7) Principal Secretary, Public Health Department, Mantralaya
8) Secretary, Medical Education, Mantralaya
9) All Divisional Commissioners in the State
10) All Commissioners of Police in the State
11) All Commissioners of Municipal Corporations in the State
12) All District Collectors
13) All District Superintendents of Police in the State

CC:

The Manager, Government Printing Press with a request to publish the Government Notification in the extraordinary issue of Maharashtra State Gazette

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- १९ मार्च २०२०

प्रति,

आयुक्त, महानगरपालिका (सर्व)
जिल्हाधिकारी (सर्व)
पोलीस आयुक्त (सर्व)
पोलीस अधिक्षक (सर्व)
मुख्य कार्यकारी अधिकारी, जिल्हा परिषद सर्व

विषय: राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना करण्याबाबत (१२ देशातील प्रवाशांचे अलगीकरण, विलगीकरण तसेच महाराष्ट्रात प्रविष्ठ होणाऱ्या २२ चेकपोस्टवरील प्रवाशांच्या तपासणीबाबत मार्गदर्शक सूचना)..

संदर्भ: शासन समक्रमांक दिनांक १८ मार्च २०२० चे पत्र व त्या समवेतची सहपत्रे.

संदर्भाधिन पत्रान्वये राज्यात करोनाचा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपायोजना म्हणून केंद्र व राज्य शासनाकडून यापुर्वी नमूद केल्यानुसार एकूण १२ करोनाबाधित पाच देशातून / या देशामार्गे अथवा या देशांस भेट देऊन आलेल्या प्रवाशांची विमानतळावर तपासणी करुन त्यांना अलगीकरण (Quarantine) व आवश्यकतेनुसार विलगीकरण (Isolation) करणे अनिवार्य करण्यात आलेले होते.

आता सक्षम प्राधिकाऱ्यांकडून प्राप्त झालेल्या निर्देशानुसार प्रवाशांचे अलगीकरण व विलगीकरणाबाबत खालील सूचना देण्यात येत आहेत.

१. या बाधित देशांतून / देशांमार्गे अथवा या देशांस भेट देऊन आलेल्या प्रवाशांद्वारे प्रवासात अथवा त्यांच्या वास्तव्यामुळे होऊ शकणाऱ्या संसर्गास अटकाव करण्याच्या दृष्टीने सदर प्रवाशांचे आंतरराष्ट्रीय विमानतळानजीक अलगीकरण कक्षात/ संस्थेत किंवा आयुक्त, महानगरपालिका / जिल्हाधिकारी यांनी अलगीकरणासाठी अधिग्रहीत केलेल्या शासकीय / खाजगी इमारतीमधील अलगीकरण कक्षातच त्यांचे अलगीकरण करण्यात यावे.

२. अलगीकरण संस्थेत असलेल्या प्रवाशांपैकी ज्या प्रवाशांचे घर किंवा नातेवाईक आंतरराष्ट्रीय विमानतळ असलेल्या (मुंबई / पुणे / नागपूर) शहर व उपनगरात नाहीत व ज्या प्रवाशांना अलगीकरण कक्षात रहाण्याची इच्छा नाही असे प्रवासी स्वखर्चाने त्यांची इच्छा असल्यास जिल्हाधिकारी व महापालिका आयुक्त यांनी अलगीकरणासाठी अधिग्रहीत केलेल्या हॉटेलमध्येच वास्तव्य करु शकतात.

३. अलगीकरण करण्यात आलेल्या प्रवाश्यांना कोणत्याही परिस्थितीत अलगीकरणाचा कालावधी पूर्ण होईपर्यंत सार्वजनिक वाहतुक व्यवस्थेद्वारे प्रवास करण्यास प्रतिबंध करण्यात येत आहे. यास्तव अलगीकरण कक्षातून महाराष्ट्रातील रहिवाशी प्रवाशांसाठी एका दिशेने अथवा एकाच गंतव्यस्थानी प्रवास करणाऱ्या प्रवाशांना एकत्र करुन संबंधीत जिल्हाधिकारी, प्रवाशांच्या स्वखर्चाने प्रवासी संख्येनुसार खाजगी वाहन (टॅक्सी, मिनीबस व बस इत्यादी) आवश्यक ती दक्षता घेण्याच्या शर्तीवर उपलब्ध करुन देतील. या वाहन, वाहन चालक व प्रवाशांबाबतची माहिती / सूचना करोना नियंत्रण कक्ष व त्यांचे गंतव्यस्थानाच्या पोलीस स्टेशनला देणे जिल्हाधिकाऱ्यांना आवश्यक राहील. प्रवास पश्च्यात त्या वाहनाचे निर्जंतुकीकरण व वाहन चालकाची तपासणी करण्यात यावी.

४. त्याचप्रमाणे महाराष्ट्रा लगतच्या गोवा, गुजरात व कर्नाटक या राज्यातील आंतरराष्ट्रीय विमानतळावर उतरलेल्या व महाराष्ट्रात येणाऱ्या प्रवाशांनाही दिनांक १८ मार्च २०२० च्या पत्रात उल्लेख केल्याप्रमाणे त्यांच्या "अ" "ब" व "क" प्रवर्गानुसार अलगीकरण व विलगीकरण करण्याच्या सूचना सक्षम प्राधिकाऱ्यांकडून देण्यात आलेल्या आहेत. त्यानुसार राज्य सरकारकडून संबंधीत राज्यांना घरात अलगीकरणाच्या सूचना असलेल्या प्रवाश्यांना अलगीकरणाच्या कालावधीत संबंधीत राज्याने अधिग्रहीत केलेल्या अलगीकरण कक्षात ठेवण्याची विनंती करण्यात आलेली आहे. तसेच अशा प्रवाशांना देखील अलगीकरणाचा कालावधी नमूद केलेले स्टॅम्प तळहाताच्या पाठीमागे दर्शनी भागावर मारण्याबाबत संबंधीत राज्यांना विनंती केलेली आहे.

५. याचबरोबर महाराष्ट्र राज्यात एकूण २२ चेकपोस्टवर कोणत्याही वाहनाद्वारे प्रवेश करणाऱ्या प्रवाशांची आंतरराष्ट्रीय विमानतळाच्या धर्तीवर आरोग्य तपासणी करण्याबाबतच्या सूचना निर्गमित करण्याबाबत सक्षम प्राधिकाऱ्यांचे निर्देश आहेत. (चेकपोस्टची यादी गृह / परिवहन विभागाकडून स्वतंत्रपणे पाठविण्यात येत आहे). या चेकपोस्टवर परिवहन अधिकारी (आरटीओ), पोलीस व आरोग्य सेवेतील प्रशिक्षीत कर्मचारी असतील. या कर्मचाऱ्यांनी या वाहनातील कर्मचाऱ्यांना या पत्रासमवेत जोडलेले स्वघोषणापत्र वाचून दाखवावे व जे प्रवासी नमूद बाधित देशांतून / देशांमार्गे अथवा या देशांस भेट देऊन आलेले आहेत व ज्यांना घरात अलगीकरणाच्या सूचना देण्यात आलेल्या आहेत / स्टॅम्प मारलेला आहे अशा प्रवाशांना करोनाबाधेसंबंधी (सर्दी, ताप, खोकला इत्यादी) काही लक्षणे आढळल्यास तात्काळ त्यांना तपासणीसाठी विनिर्दिष्ठ रुग्णालयात भरती करण्यात यावे. आवश्यकतेनुसार त्यांना विलगीकरण कक्षात दाखल करण्यात यावे. या प्रक्रियेदरम्यान प्रवाशांना सौजन्य व सौहार्दपूर्ण वागणूक देण्यात यावी. अलगीकरण करण्यात आलेला प्रवासी प्रवास करतांना आढळल्यास तात्काळ त्यांना अलगीकरण कक्षात दाखल करण्यात यावे.

६. या सर्व चेकपोस्ट जवळदेखील अलगीकरण संस्था कक्ष स्थापन करण्यासाठी इमारत / होस्टेल अधिग्रहीत करण्याबाबत संबंधीत जिल्हाधिकारी / महापालीका आयुक्त यांना निर्देशित करण्यात येत आहे. या तपासणीमध्ये इतर राज्यातून महाराष्ट्रात प्रवेश करणाऱ्या व करोनाबाधित विनिर्दिष्ठ १२ देशांतून / देशांमार्गे / देशांना भेट देऊन आलेल्या प्रवाशांबाबत खातरजमा करुन घरात अलगीकरण आवश्यक असलेल्या प्रवाशांना स्टॅम्प मारलेले नसल्यास अलगीकरण कालावधी नमूद केलेले स्टॅम्प मारुन त्यांना विनिर्दिष्ठ अलगीकरण कक्षात भरती करण्यात येईल. अलगीकरण कक्षातून महाराष्ट्रातील रहिवाशी प्रवाशांसाठी एका दिशेने अथवा एकाच गंतव्यस्थानी प्रवास करणाऱ्या

प्रवाशांना एकत्र करुन संबंधीत जिल्हाधिकारी, प्रवाशांच्या स्वखर्चाने प्रवासी संख्येनुसार खाज. वाहन (टॅक्सी, मिनीबस व बस इत्यादी) आवश्यक ती दक्षता घेण्याच्या शर्तीवर उपलब्ध करुन देतील. या वाहन, वाहन चालक व प्रवाशांबाबतची माहिती / सूचना करोना नियंत्रण कक्ष व त्यांचे गंतव्यस्थानाच्या पोलीस स्टेशनला देणे जिल्हाधिकाऱ्यांना आवश्यक राहील. प्रवास पश्च्यात त्या वाहनाचे निर्जंतुकीकरण व वाहन चालकाची तपासणी करण्यात यावी.

७. उपरोक्त विषयाच्या अनुषंगाने दिनांक १८ व १९ मार्च २०२० च्या पत्रान्वये निर्गमित करण्यात आलेल्या सर्व सूचना आंतरराष्ट्रीय जलवाहतुकीद्वारे राज्यात आलेल्या प्रवाशांनाही लागू राहतील.

८. अलगीकरण करण्यात आलेल्या प्रवाश्यांना कोणत्याही परिस्थितीत अलगीकरणाचा कालावधी पूर्ण होईपर्यंत सार्वजनिक वाहतुक व्यवस्थेद्वारे प्रवास करण्यास प्रतिबंध करण्यात येत आहे. अलगीकरण केलेल्या व्यक्ती, अलगीकरणाच्या कालावधीत जर त्यांच्या घराव्यतिरिक्त सार्वजनिक ठिकाणी आढळल्यास अथवा प्रवास करीत असल्याचे दिसून आल्यास त्यांचेवर भारतीय दंडसंहिता कलम १८८ नुसार कारवाई करण्यात यावी असे निर्देशीत करण्यात येत आहे.

उपरोक्त सूचनांनुसार सर्व संबंधितांनी तात्काळ कार्यवाही करावी.

(डॉ. प्रदीप व्यास)
प्रधान सचिव, महाराष्ट्र शासन

प्रत अपर मुख्य सचिव (गृह / परिवहन)
प्रत अपर मुख्य सचिव (महसुल)
प्रत अपर मुख्य सचिव (ग्रामविकास)
मंत्रालय, मुंबई
प्रत विभागीय आयुक्त, (सर्व)
प्रत आयुक्त, आरोग्य सेवा, मुंबई
प्रत संचालक, आरोग्य सेवा मुंबई / पुणे
प्रत संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई
प्रत मा. मुख्यमंत्री यांचे प्रधान सचिव
प्रत मा.उपमुख्यमंत्री यांचे सचिव
प्रत मा. मुख्य सचिव यांचे उपसचिव
प्रत खाजगी सचिव, मा. मंत्री (सा.आ.) मंत्रालय, मुंबई
प्रत खाजगी सचिव, मा. राज्य मंत्री (सा.आ.) मंत्रालय, मुंबई

दिनांक

स्वघोषणापत्र

मी श्री / श्रीमती _____ असे स्वघोषित करीत आहे की, मी / माझे कुटुंबिय यापैकी कोणीही दिनांक १५ फेब्रुवारी २०२० वा त्या नंतर चीन, इटली, इराण, दक्षिण कोरीया, फ्रान्स, स्पेन, जर्मनी, संयुक्त अरब एमिरेट्स (युएई अंतर्गत), कतार, ओमान, कुवेत व युनायटेड स्टेट ऑफ अमेरीका या देशांतून / देशांमार्गे / अथवा देशांत भेट देऊन हवाईमार्गे अथवा जलवाहतुकी मार्गे प्रवास केलेला नाही /आहे.

केला असल्यास मी माझ्या घरात / अलगीकरण कक्षात / हॉटेलमध्ये (स्वखर्चाने) पुढील १४ दिवस अलगीकरणात राहीन.

या कालावधीत मी कोणत्याही सार्वजनिक वाहतुक व्यवस्थेचा वापर करणार नाही.

स्वाक्षरी

GOVERNMENT OF MAHARASHTRA
PUBLIC HEALTH DEPARTMENT
G.T. Hospital Compound, 10th Floor, New Mantralaya,
Mumbai 400 001 Dated 14th March, 2020

Notification

No.Corona-2020/CR-58/Aarogya-5: Whereas State Government has decided to invoke provisions of Epidemic Disease Act, 1897 vide Notification No. Corona 2020/CR 58/Aarogya-5, dated 13th March, 2020 from the date of issue of the notification,

Therefore in exercise of the powers conferred under section 2, 3 & 4 of the Epidemic Diseases Act, 1897, Government of Maharashtra is pleased to frame following Regulations for prevention and containment of Coronavirus Disease-2019 (COVID-19).

1. These regulations may be called 'The Maharashtra COVID-19 Regulations, 2020'.

2. COVID-19 means the Coronavirus Disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV 2) as defined by the World Health Organization (WHO) / Government of India.

3. 'Empowered Officer' under Section 2(1) of the Act. shall be Commissioner, Health Services, Director of Health Services (DHS-I & II), Director, Medical Education & Research (DMER), all Divisional Commissioners of Revenue Divisions & all Collectors and Municipal Commissioners & they are empowered to take such measures as are necessary to prevent the outbreak of COVID-19 or the spread thereof within their respective jurisdictions.

4. All hospitals (Government & Private) should have separate corners for screening of suspected cases of COVID-19.

5. All hospitals (Government & Private) during screening of such cases shall record the history of travel of the person to any country or area

where COVID-19 has been reported. In addition, the history of contacts with the suspected or confirmed case of COVID-19 is also required to be recorded. Information of all such cases must be given to State Integrated Disease Surveillance Unit and Collector of the district/ local Municipal Commissioner immediately.

i. In case the person has any such history of travel to affected areas in last 14 days and he/ she is asymptomatic, he/ she must remain in home quarantine for 14 days from the day of exposure. He/ she must abide by the Home Quarantine Guidelines issued by Ministry of Health & Family Welfare, Government of India meticulously. Persons who do not observe the Home Quarantine Guidelines shall be quarantined in the quarantine facilities set up by Government.

ii. Person with travel history and symptoms as per case definition of COVID-19, must be isolated in a hospital as per protocol and he/ she will be tested for COVID-19 as per protocol.
These stipulations of duration & symptoms may undergo changes based on advisories issued by Government of India.

6. No person/ Institution/ organization will use any print or electronic or social media for dissemination of any information regarding COVID-19 without ascertaining the facts and prior clearance of the Commissioner, Health Services, Director of Health Services (DHS-I & II), Director, Medical Education & Research (DMER), or Collector as the case may be. This is necessary to avoid spread of any unauthenticated information and/or rumors regarding COVID-19. If any person / Institution / organization is found indulging in such activity, it will be treated as a punishable offence under these Regulations.

7. Only laboratories authorized to take test samples for COVID-19 will collect the samples as per guidelines of Government of India. Such samples shall be sent to designated laboratories as authorized by Government of Maharashtra / Government of India.

8. Any person with a history of travel in last 14 days to a country or area from where COVID-19 has been reported, must voluntarily report to State Control Room (020- 26127394) or to the State Surveillance Officer, IDSP (020-27290066) / Toll Free number 104 or to such numbers as may be assigned, so that necessary measures may be initiated by Commissioner, Health Services, Director of Health Services (DHS-I&II), Director, Medical Education & Research (DMER), and the Collector/ Municipal Commissioner as the case may be.

9. Officers empowered under the Act are authorized to isolate and / or admit a person who develops symptoms simulating that of the COVID 19 infection as per the case definition criteria published by WHO or Government of India from time to time. The empowered officer may initiate action under the section 188 of Indian Penal Code (48 of 1860) against the person who refuses to comply with such advice of isolation and/or admission.

10. In the event of COVID-19 being reported from a defined geographic area such as village, town, ward, colony, settlement, the Collector of the concerned District / Municipal Commissioner of the concerned Municipal Corporation shall be competent to implement following containment measures, but not limited to these, in order to prevent spread of the disease.

    i. Sealing of the geographical area.
    ii. Barring entry and exit of population from the containment area.
    iii. Restricting Vehicular Movement in the area.
    iv. Closure of schools, offices, cinema halls, swimming pools, gyms, etc. and banning mass congregations, functions as may be deemed necessary.
    v. Initiating active and passive surveillance of COVID-19 cases.
    vi. Hospital isolation of all suspected cases and their contacts.

vii. Designating any Government or Private Building as a quarantine facility.

viii. Any other measure as directed by Public Health Department of Government of Maharashtra.

Staff of all Government Departments and Organisations of the concerned area will be at the disposal of Collector/ Municipal Commissioner for discharging the duty of containment measures. If required, Collector / Municipal Commissioner may requisition the services of any other person also.

11. Any person / Institution / organization found violating any provision of these Regulations shall be deemed to have committed an offence punishable under section 188 of Indian Penal Code (45 of 1860). Empowered Officers may penalize any person / institution / organization found violating provisions of these Regulations or any further orders issued by Government under these Regulations.

12. No suit or legal proceedings shall lie against any person for anything done or intended to be done in good faith under this Regulation unless proved otherwise

13. These regulations shall come into force immediately and shall remain valid for a period of one year, or until further orders, whichever is earlier from the date of publication of this Notification.

By order and in the name of Governor of Maharashtra,

Pradeep Vyas

(Dr Pradeep Vyas)
Principal Secretary to Government

1. Principal Secretary to Hon'ble Governor, Rajbhavan, Mumbai
2. Principal Secretary to Hon'ble Chief Minister, Mantralaya, Mumbai

3. Principal Secretary to Hon'ble Deputy Chief Minister, Mantralaya, Mumbai
4. Hon'ble Minister (Health & Family Welfare), Mantralaya, Mumbai
5. Hon'ble Minister of State (Health & Family Welfare), Mantralaya, Mumbai
6. Additional Chief Secretary/ Principal Secretary/ Secretary (All), Mantralaya, Mumbai
7. Secretary, Maharashtra Legislature Secretariat, Vidhan Bhavan, Mumbai
8. Commissioner (Health Services) & Mission Director, NHM, Mumbai
9. All Divisional Commissioners
10. All District Collectors
11. All Municipal Commissioners
12. All Chief Executive Officers, Zilla Parishad
13. Director, Health Services- I/II, Mumbai/Pune
14. Additional Director, Health Services (All)
15. Joint Director, Health Services (All)
16. Deputy Directors, Health Services (All)
17. Civil Surgeons (All)
18. District Health Officers (All)
19. District Malaria Officers (All)
20. Deputy Secretary to Chief Secretary, Mantralaya, Mumbai
21. All Joint / Deputy Secretary, Public Health Department
22. PA to Principal Secretary, Public Health Department
23. All Section Officers, Public Health Department
24. Select File: Aarogy-5

अधिसुचना

सार्वजनिक आरोग्य विभाग,
गोकुळदास तेजपाल रुग्णालय संकूल,
१० वा मजला, नवीन मंत्रालय, मुंबई ४०० ००१.
दि. १४ मार्च २०२०.

क्रमांक करोना २०२०/प्र क्र ५८/ आरोग्य ५ : ज्याअर्थी महाराष्ट्र राज्यात दिनांक १३ मार्च २०२० च्या अधिसूचनेनुसार, अधिसूचनेच्या दिनांकापासून साथरोग अधिनियम, १८९७ ची अंमलबजावणी सुरु झालेली आहे, त्याअर्थी साथरोग अधिनियम, १८९७ च्या खंड २, ३ व ४ नुसार प्रदान करण्यात आलेल्या अधिकारानुसार महाराष्ट्र शासन राज्यात करोना विषाणुमुळे (COVID 19) उदभवलेल्या संसर्गजन्य रोगाचा प्रतिबंध व नियंत्रण यासाठी खालीलप्रमाणे नियम प्रसिध्द करीत आहे.

१. या नियमांना " महाराष्ट्र कोव्हीड १९ उपाययोजना नियम, २०२०" असे संबोधण्यात येईल.

२. "कोव्हिड १९" म्हणजे भारत सरकार व जागतिक आरोग्य संघटनेने परिभाषित केल्यानुसार सिव्हीअर ॲक्यूट रेस्पीरेटरी सिंड्रोम करोना व्हायरस २ (सार्स कोव्ही २).

३. साथरोग अधिनियमाच्या खंड २ (१) नुसार आयुक्त, आरोग्य सेवा, संचालक, आरोग्य सेवा १, संचालक, आरोग्य सेवा २, संचालक, वैद्यकीय शिक्षण व संशोधन, सर्व विभागीय आयुक्त महसुल विभाग, सर्व जिल्हाधिकारी व महानगरपालिका आयुक्त हे सक्षम प्राधिकारी घोषित करण्यात येत आहे व त्यांना त्यांच्या कार्यक्षेत्रात कोव्हिड १९ वर नियंत्रण आणण्यासाठी व त्याचा प्रादुर्भाव रोखण्यासाठी ज्या उपाययोजना करणे आवश्यक आहे त्या करण्यासाठी ते सक्षम असतील.

४. सक्षम प्राधिकाऱ्यांनी घोषीत केलेल्या सर्व शासकीय व खाजगी रुग्णालयात करोना विषाणु संशयीत रुग्णांची तपासणीसाठी स्वतंत्र कक्ष स्थापन करण्यात येईल.

५. सर्व शासकीय व खाजगी रुग्णालयांनी सदर रुग्णांची तपासणी करतांना त्यांनी करोना विषाणुबाधित इतर देशात प्रवास केला होता किंवा कसे याबाबत नोंदी घेतील. त्याचप्रमाणे सदर रुग्णांचा संपर्क संशयीत किंवा संसर्गग्रस्त व्यक्तीशी आल्याची नोंद ठेवण्यात येईल. वरीलप्रमाणे घेण्यात आलेली रुग्णांची माहिती तातडीने एकात्मिक रोग सर्वेक्षण केंद्र, पुणे तसेच संबंधीत जिल्हाधिकारी / आयुक्त, महानगरपालिका यांना सादर करणे आवश्यक राहील.

i. प्रवाशाने करोना बाधित प्रदेशात मागील १४ दिवसाच्या कालावधीत प्रवास केल्याचा इतिहास असल्यास व रुग्णास करोना बाधा झाल्याची लक्षणे नसल्यास त्यांना तपासणी दिनांकापासून

पुढील १४ दिवस स्वत:च्या घरात अलगीकरण करुन रहाणे आवश्यक राहील. स्वत:च्या घरात अलगीकरण करुन रहातांना त्यांनी आरोग्य व कुटुंब कल्याण मंत्रालय, नवी दिल्ली यांनी अलगीकरणाबाबत दिलेल्या सूचनांची काटेकोर अंमलबजावणी करणे त्यांचेवर बंधनकारक असेल. केंद्र शासनाच्या अलगीकरणासंबंधीच्या सूचनांचे स्वत:च्या घरात अलगीकरणासाठी पालन न करणाऱ्या रुग्णांना राज्य शासनाने कार्यान्वित केलेल्या अलगीकरण कक्षात भरती करण्यात येईल.

ii. ज्या प्रवाशांना करोना बाधित प्रदेशातील प्रवासाचा इतिहास असेल व त्यांना कोव्हीड १९ संसर्गाबाबत निश्चित केलेल्या व्याखेनुसार रोगलक्षणे दिसत असतील तर त्यांना अलगीकरणाबाबत विनिर्दिष्ट उपचारपध्दतीनुसार शासकीय रुग्णालयातील स्वतंत्र विलगीकरण कक्षात भरती करण्यात यावे व त्यांची कोव्हीड १९साठी प्रयोगशाळा तपासणी व औषधोपचार सुरु करण्यात यावा.

सदर अलगीकरण व विलगीकरण सूचनांमध्ये केंद्र शासनाच्या सूचनेनुसार वेळोवेळी झालेले बदल लागू राहतील.

६. कोणत्याही व्यक्तीस / संस्था / संघटनांना कोव्हीड १९ बाबत कोणत्याही प्रकारच्या अफवा, अनधिकृत माहिती ईलेक्ट्रॉनिक किंवा सोशल मिडीयाच्या माध्यमातून पसरविण्यास प्रतिबंध करण्यात येत आहे. याबाबत आयुक्त, आरोग्य सेवा व संचालक, राष्ट्रीय आरोग्य अभियान, संचालक, आरोग्य सेवा, मुंबई, संचालक, आरोग्य सेवा, पुणे व संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई, विभागीय आयुक्त व जिल्हाधिकारी यांचेमार्फतच अधिकृत माहितीचे प्रसारण करण्यात येईल. याबाबतची कोणतीही अनधिकृत माहिती अथवा अफवा पसरविणाऱ्या व्यक्ती अथवा संस्था अथवा संघटना या कायद्यान्वये कायदेशिर व दंडनिय कारवाईस पात्र राहील.

७. आरोग्य व कुटुंब कल्याण मंत्रालय, भारत सरकार व महाराष्ट्र शासन यांनी प्राधिकृत केलेल्या प्रयोगशाळेमधूनच कोव्हीड १९ बाबतच्या नमुने गोळा करण्यात येतील व भारत सरकार व महाराष्ट्र शासन यांनी प्राधिकृत केलेल्या प्रयोगशाळांमधूनच या नमुन्यांची तपासणी केली जाईल.

८. मागील १४ दिवसांत ज्या व्यक्ती करोना बाधित देशातून प्रवास करुन आलेल्या असतील त्यांनी स्वत:हून याबाबतची माहिती करोना नियत्रणासाठीचा राज्य नियंत्रण कक्ष (०२०-२६१२ ७३९४), एकात्मिक रोग सर्वेक्षण प्रकल्प कक्ष (०२०-२७२९ ००६६) किंवा टोल फ्रि क्रमांक १०४ किंवा यासाठी

प्राधिकृत अधिकाऱ्यांनी दिलेल्या दुरध्वनी क्रमांकावर कळविणे आवश्यक राहील जेणकरुन त्या अनुषंगाने आवश्यक उपचारात्मक व प्रतिबंधात्मक उपाययोजना प्राधिकृत अधिकारी आयुक्त, आरोग्य सेवा व संचालक, राष्ट्रीय आरोग्य अभियान, संचालक, आरोग्य सेवा, मुंबई, संचालक, आरोग्य सेवा, पुणे व संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई, विभागीय आयुक्त व जिल्हाधिकारी यांचेमार्फतच त्यांच्या त्यांच्या कार्यक्षेत्रामध्ये करतील.

९. वरीलप्रमाणे साथरोग प्रतिबंधात्मक कायदा, १८९७ नुसार प्राधिकृत अधिकारी यांना प्रवाश्यांचे अलगीकरण व जागतिक आरोग्य संघटना किंवा आरोग्य व कुटुंब कल्याण मंत्रालय यांनी कोव्हीड १९ बाधित रोग व्याखेत नमूद केलेली लक्षणे असल्यास सदर संशयीत रुग्णांना शासकीय रुग्णालयातील विलगीकरण कक्षात भरती करण्याचे अधिकार राहतील. अलगीकरण किंवा रुग्णालयात विलगीकरणास मज्जाव / प्रतिबंध / अडथळा आणणाऱ्यांविरुध्द सक्षम प्राधिकाऱ्यामार्फत भारतीय दंड संहितेच्या कलम १८८ नुसार कारवाई करण्यात येईल.

१०. एखाद्या भौगोलीक क्षेत्र उदाहरणार्थ गांव, शहर, तालुका, वॉर्ड, कॉलनी इत्यादी मध्ये कोव्हीड १९ चा प्रादुर्भाव / उद्रेक आढळल्यास अशा उद्रेकजन्य क्षेत्राबाबत खाली नमूद केलेल्या तसेच प्रसंगानुसार आवश्यक असलेल्या प्रतिबंधात्मक उपाययोजना करण्यासाठी संबंधित जिल्हाधिकारी / महानगरपालिका आयुक्त सक्षम प्राधिकारी असतील. अशा भौगोलिक क्षेत्रांच्या बाबतीत -

अ) क्षेत्र प्रतिबंधीत करणे

आ) क्षेत्रातील नागरीकांचे आगमन व प्रस्थान प्रतिबंधीत करणे

इ) क्षेत्रातून वाहनांचे आवागमन प्रतिबंधीत करणे

ई) क्षेत्रातील शाळा, कार्यालये, सिनेमागृहे, नाट्यगृहे, जलतरण तलाव, व्यायामशाळा, गर्दी टाळण्याच्या दृष्टीने आवश्यकतेनुसार सामुदायीक कार्यक्रमास प्रतिबंध करणे

उ) कोव्हीड १९ बाधीतांचे प्रत्यक्ष व अप्रत्यक्ष सर्वेक्षण करणे

ऊ) संशयीत व त्यांचे संपर्कातील व्यक्तींचे आवश्यकतेनुसार रुग्णालयात विलगीकरण करणे

ए) शासकीय किंवा खाजगी इमारत / मत्ता अलगीकरणासाठी आवश्यकतेनुसार नामनिर्देशीत करणे

ऐ) कोव्हीड १९चा प्रादुर्भाव व प्रतिबंध करण्यासाठी सार्वजनिक आरोग्य विभाग, महाराष्ट्र शासन यांनी दिलेल्या मार्गदर्शक उपायोजना व सूचनांची अंमलबजावणी करणे

जिल्हाधिकारी / महानगरपालीका आयुक्त यांना अशा क्षेत्रामधील सर्व शासकीय विभाग / संस्थांच्या आस्थापनेवरील कर्मचाऱ्यांच्या सेवा किंवा निर्देशीत करतील अशी कोणत्याही व्यक्तीच्या सेवा कोव्हीड १९ या रोगाचे नियंत्रण / प्रतिबंधात्मक / आपत्कालीन उपाययोजना करण्याचे कामासाठी आवश्यकतेनुसार अधिग्रहीत करता येतील.

११. कोणतीही व्यक्ती, संस्था अथवा संघटना यांनी या नियमावलीतील नियमांचे उल्लंघन केल्यास ते भारतीय दंडसंहिता (४५ ऑफ १८६०) च्या कलम १८८ नुसार दंडनिय / कायदेशीर कारवाईस पात्र राहतील व या नियमावलीनुसार प्राधिकृत अधिकारी उपरोक्त नुसार व वेळोवेळी शासनाने या नियमानुसार दिलेल्या सूचनांचे उल्लंघन करणाऱ्याविरुध्द दंडनिय कारवाई करण्यास सक्षम असेल.

१२. या नियमावलीची अंमलबजावणी करणाऱ्या प्राधिकृत अधिकाऱ्याविरुध्द कोव्हीड १९चा प्रादुर्भाव रोखण्यासाठी सदभावनेने केलेल्या किंवा करण्यात येणाऱ्या कृतीबद्दल अंमलबजावणीच्या अनुषंगाने अन्यथा दोषी नाही तोपर्यंत कोणतीही कायदेशिर कारवाई अथवा गुन्हे दाखल करता येणार नाही.

१३. सदर नियमावली ही अधिसूचना निर्गमित झाल्याच्या दिनांकापासून तात्काळ अंमलात येईल व अधिसूचनेच्या दिनांकापासून पुढील एक वर्ष किंवा आवश्यकतेनुसार पुढील आदेशापर्यंत अस्तित्वात राहील.

महाराष्ट्राचे राज्यपाल यांचे आदेशानुसार व नावांने

(डॉ. प्रदीप व्यास)
शासनाचे प्रधान सचिव

१. मा. राज्यपाल यांचे प्रधान सचिव
२. मा. मुख्यमंत्री यांचे प्रधान सचिव
३. मा. उपमुख्यमंत्री यांचे प्रधान सचिव
४. मा. मंत्री (आरोग्य), मंत्रालय, मुंबई
५. मा. राज्यमंत्री (आरोग्य) मंत्रालय, मुंबई
६. अपर मुख्य सचिव/प्रधान सचिव/सचिव, मंत्रालय, मुंबई
७. सचिव, विधानमंडळ सचिवालय, मुंबई
८. आयुक्त, आरोग्य सेवा तथा संचालक, राष्ट्रीय आरोग्य अभियान, मुबई
९. सर्व विभागीय आयुक्त

१०. जिल्हाधिकारी (सर्व)
११. आयुक्त, महानगरपालिका (सर्व)
१२. मुख्य कार्यकारी अधिकारी, जिल्हा परिषद (सर्व)
१३. मा. मुख्य सचिव यांचे उप सचिव
१४. संचालक, आरोग्य सेवा, आरोग्य सेवा संचालनालय, मुंबई / पुणे
१५. अतिरिक्त संचालक, आरोग्य सेवा (सर्व)
१६. सहसंचालक, आरोग्य सेवा (सर्व)
१७. उपसंचालक, आरोग्य सेवा (सर्व)
१८. जिल्हा शल्यचिकित्सक (सर्व)
१९. जिल्हा आरोग्य अधिकारी (सर्व)
२०. जिल्हा हिवताप अधिकारी सर्व
२१. सर्व मंत्रालयीन विभाग
२२. सर्व सह सचिव/उपसचिव, सार्वजनिक आरोग्य विभाग
२३. प्रधान सचिव, सार्वजनिक आरोग्य विभाग यांचे स्विय सहायक
२४. सर्व कार्यासन अधिकारी, सार्वजनिक आरोग्य विभाग, मंत्रालय, मुंबई
२५. निवड नस्ती-आरोग्य ५

F.No.C-13014/1/2020-Vig.
Government of India
Ministry of Personnel, Public Grievances and Pensions
(Department of Personnel and Training)
*****

North Block, New Delhi
Dated: 06/03/2020

OFFICE MEMORANDUM

Subject: Exemption to employees to mark biometric attendance in Aadhar Based Biometric Attendance System(AEBAS) – reg.

Though only a small number of novel coronovirus(COVID-19) cases are reported in our country but keeping in view the nature of virus, it is a must to take all possible preventive measures to stop spread of virus.

2. It is learnt that most common method of transmission of virus seems to be through infected surfaces. Therefore, it is desirable to avoid touching surfaces, which might be infected due to human touch.

3. In view of the above, all the Ministries/Departments are requested to exempt their employees to mark biometric attendance in Aadhar Based Biometric Attendance System(AEBAS) till 31st March, 2020. However, all the employees are required to mark their attendance in Attendance register, (as done prior to launch of biometric system), during this period.

(Ajay Kumar Singh)
Under Secretary to the Govt. of India
Ph: 23094579

To,

1. All the Ministries/Departments, Government of India
2. PMO/Cabinet Secretariat
3. PS to Hon'ble MOS(PP)
4. PSO to Secretary(Personnel)
5. Sr. Tech. Dir., NIC, DoP&T

} For Information

Press Information Bureau
Government of India
****

Finance Minister announces Rs 1.70 Lakh Crore relief package under Pradhan Mantri Garib Kalyan Yojana for the poor to help them fight the battle against Corona Virus

- **Insurance cover of Rs 50 Lakh per health worker fighting COVID-19 to be provided under Insurance Scheme**
- **80 crore poor people will to get 5 kg wheat or rice and 1 kg of preferred pulses for free every month for the next three months**
- **20 crore women Jan Dhan account holders to get Rs 500 per month for next three months**
- **Increase in MNREGA wage to Rs 202 a day from Rs 182 to benefit 13.62 crore families**
- **An ex-gratia of Rs 1,000 to 3 crore poor senior citizen, poor widows and poor disabled**
- **Government to front-load Rs 2,000 paid to farmers in first week of April under existing PM Kisan Yojana to benefit 8.7 crore farmers**
- **Central Government has given orders to State Governments to use Building and Construction Workers Welfare Fund to provide relief to Construction Workers**

New Delhi, 26th March 2020

The Union Finance & Corporate Affairs Minister Smt. Niramla Sitharaman today announced **Rs 1.70 Lakh Crore relief package under Pradhan Mantri Garib Kalyan Yojana for the poor to help them fight the battle against Corona Virus**. While addressing the press conference here today, Smt. Sitharaman said "Today's measures are intended at reaching out to the poorest of the poor, with food and money in hands, so that they do not face difficulties in buying essential supplies and meeting essential needs."

The Minister of State for Finance & Corporate Affairs Shri Anurag Singh Thakur was also present besides Shri Atanu Chakraborty, Secretary, Department of Economic Affairs and Shri Debashish Panda, Secretary, Department of Financial Services. **Following are the components of the Pradhan Mantri Garib Kalyan Package: —**

PRADHAN MANTRI GARIB KALYAN PACKAGE

I. Insurance scheme for health workers fighting COVID-19 in Government Hospitals and Health Care Centres

- Safai karamcharis, ward-boys, nurses, ASHA workers, paramedics, technicians, doctors and specialists and other health workers would be covered by a Special insurance Scheme.
- Any health professional, who while treating Covid-19 patients, meet with some accident, then he/she would be **compensated with an amount of Rs 50 lakh under the scheme.**

- All government health centres, wellness centres and hospitals of Centre as well as States would be covered **under this scheme approximately 22 lakh health workers would be provided insurance** cover to fight this pandemic.

II. PM Garib Kalyan Ann (अन्न) Yojana

- Government of India would not allow anybody, especially any poor family, to suffer on account of non-availability of foodgrains due to disruption in the next three months.
- **80 crore individuals, i.e, roughly two-thirds of India's population would be covered under this scheme**.
- Each one of them would be provided double of their current entitlement over next three months.
- This additionality would be free of cost.

Pulses:

- To ensure **adequate availability of protein** to all the above mentioned individuals, 1 kg per family, would be provided pulses according to regional preferences for next three months.
- These pulses would be provided **free of cost** by the Government of India.

III. Under Pradhan Mantri Garib Kalyan Yojana,

Benefit to farmers:

- **The first instalment of Rs 2,000 due in 2020-21 will be front-loaded and paid in April 2020 itself under the PM KISAN Yojana.**
- It would cover 8.7 crore farmers

IV. Cash transfers Under PM Garib Kalyan Yojana:

Help to Poor:

- A total of **20.40 crores PMJDY women account-holders** would be given an ex-gratia of **Rs 500 per month for next three months**.

Gas cylinders:

- Under **PM Garib Kalyan Yojana**, **gas cylinders**, **free of cost**, would be provided to 8 crore poor families for the next three months.

Help to low wage earners in organised sectors:

- **Wage-earners below Rs 15,000 per month** in **businesses having less than 100 workers** are at risk of losing their employment.
- Under this package, government proposes to pay **24 percent of their monthly wages into their PF accounts for next three months**.
- This would **prevent disruption in their employment**.

Support for senior citizens (above 60 years), widows and *Divyang*:

- There are around 3 crore aged widows and people in *Divyang* category who are vulnerable due to economic disruption caused by COVID-19.
- Government will **give them Rs 1,000 to tide over difficulties during next three months**.

MNREGA

- Under PM Garib Kalyan Yojana, **MNREGA wages would be increased by Rs 20 with effect from 1 April, 2020**. Wage increase under MNREGA will provide an additional Rs 2,000 benefit annually to a worker.
- This will benefit approximately 13.62 crore families.

V. Self-Help groups:

- Women organised through 63 lakhs Self Help Groups (SHGs) support 6.85 crore households.
  a) Limit of collateral free lending would be increased from Rs 10 to Rs 20 lakhs.

VI. Other components of PM Garib Kalyan package

Organised sector:

- Employees' Provident Fund Regulations will be amended to include Pandemic as the reason to **allow non-refundable advance of 75 percent of the amount or three months of the wages, whichever is lower, from their accounts**.
- Families of four crore workers registered under EPF can take benefit of this window.

Building and Other Construction Workers Welfare Fund:

- Welfare Fund for Building and Other Constructions Workers has been created under a Central Government Act.
- There are around 3.5 Crore registered workers in the Fund.
- **State Governments will be given directions to utilise this fund to provide assistance and support to these workers to protect them against economic disruptions.**

District Mineral Fund

- **The State Government will be asked to utilise the funds available under District Mineral Fund (DMF) for supplementing and augmenting facilities of medical testing, screening and other requirements in connection with preventing the spread of CVID-19 pandemic as well as treating the patients affected with this pandemic.**

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RM/KMN

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

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असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 172] नई दिल्ली, बृहस्पतिवार, मार्च 26, 2020/चैत्र 6, 1942
No. 172] NEW DELHI, THURSDAY, MARCH 26, 2020/CHAITRA 6, 1942

स्वास्थ्य और परिवार कल्याण मंत्रालय

(स्वास्थ्य और परिवार कल्याण विभाग)

अधिसूचना

नई दिल्ली, 26 मार्च, 2020

सा.का.नि. 219(अ).—केन्द्रीय सरकार का यह समाधान हो गया है कि 'हाइड्रॉक्सीक्लोरोक्वीन' औषधि महामारी COVID-19 के कारण उत्पन्न होने वाली आपातकालीन अपेक्षाओं को पूरा करने के लिए आवश्यक है और लोकहित में 'हाइड्रॉक्सीक्लोरोक्वीन' औषधि और उस पर आधारित निर्मितियों के विक्रय और वितरण को विनियमित और निबंधित करने तथा उनको दुरुपयोग के निवारण के लिए ऐसा करना आवश्यक और समीचीन है;

अतः, अब, केन्द्रीय सरकार, औषधि और प्रसाधन सामग्री अधिनियम, 1940 (1940 का 23) की धारा 26ख द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए यह निर्देश देती है कि हाइड्रोक्सीक्लोरोक्वीन औषधि युक्त किसी भी निर्मिति की खुदरा बिक्री औषधि और प्रसाधन सामग्री नियम, 1945 की अनुसूची H1 में निर्दिष्ट दवाओं की बिक्री के लिए शर्तों के अध्यधीन होगी।

2. यह आदेश आधिकारिक राजपत्र में इसके प्रकाशन की तारीख से प्रवृत्त होगा ।

[फा. सं. 18-03/2020-DC]

डॉ. मनदीप के. भण्डारी, संयुक्त सचिव

MINISTRY OF HEALTH AND FAMILY WELFARE

(Department of Health and Family Welfare)

NOTIFICATION

New Delhi, the 26th March, 2020

G.S.R. 219(E).—Whereas, the Central Government is satisfied that the drug 'Hydroxychloroquine' is essential to meet the requirements of emergency arising due to pandemic COVID-19 and in the public interest, it is necessary and expedient to regulate and restrict the sale and distribution of the drug 'Hydroxychloroquine' and preparation based thereon for preventing their misuse;

Now, therefore, in exercise of the powers conferred by Section 26B of the Drugs and Cosmetics Act, 1940 (23 of 1940), the Central Government hereby directs that sale by retail of any preparation containing the drug Hydroxychloroquine shall be in accordance with the conditions for sale of drugs specified in Schedule H1 to the Drugs and Cosmetics Rules, 1945.

2. This order shall come into force on the date of its publication in the Official Gazette.

[F. No. 18-03/2020-DC]

Dr. MANDEEP K. BHANDARI, Jt. Secy.

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F.No.11013/9/2014-Estt.A.III
Government of India
Ministry of Personnel, Public Grievances and Pensions
(Department of Personnel and Training)
*****

North Block, New Delhi
Dated: 16/03/2020
17th

OFFICE MEMORANDUM

Subject: Preventive measures to be taken to contain the spread of Novel Coronavirus (COVID-19) – regarding.

In order to contain the spread of Novel Coronavirus (COVID-19), some precautionary measures are required to be taken by all the employees and the Ministries/Departments. In this regard, it has been decided to issue the following advisory for the well-being of Government employees and in public interest.

2. All the Ministries/Departments are advised to take all necessary measures such as :-

(i) Install thermal scanners at the entry of Government buildings, as feasible. Mandatory placing of hand sanitizers at the entry of Government buildings. Those found having flu-like symptoms may be advised to take proper treatment/quarantine etc.

(ii) Discourage, to the maximum extent, entry of visitors in the office complex. Routine issue of visitors/temporary passes should be suspended with immediate effect. Only those visitors whom have proper permission of the officer who they want to meet, should be allowed after being properly screened.

(iii) Meetings, as far as feasible, should be done through video conferencing. To minimize or reschedule meetings involving large number of people unless necessary.

(iv) Avoid non-essential official travel.

(v) Undertake essential correspondence on official email and avoid sending files and documents to other offices, to the extent possible.

(vi) Facilitate delivery and receipt of dak at the entry point itself of the office building, as far as practicable.

(vii) Close all gyms/recreation centres/creches located in Government buildings.

(viii) Ensure proper cleaning and frequent sanitization of the work-place, particularly of the frequently touched surfaces.

(ix) Ensure regular supply of hand sanitisers, soap and running water in the washrooms.

(x) All officials may be advised to take care of their own health and look out for respiratory symptoms/fever and, if feeling unwell, should leave the workplace immediately after informing their reporting officers. They should observe home-quarantine as per the guidelines issued by MoH&FW, Government of India available at the following URL: **mohfw.gov.in/DraftGuidelinesforhomequarantine.pdf.**

(xi) The leave sanctioning authorities are advised to sanction leave whenever any request is made for self-quarantine as a precautionary measure.

(xii) Advise all employees who are at higher risk i.e. older employees, pregnant employees and employees who have underlying medical conditions, to take extra precautions. The Ministries/Departments may take care not to expose such employees to any front-line work requiring direct contact with the public.

3. An indicative list of Do's and Don'ts is also annexed for wide dissemination.

Encl: As above

17/3/2020

(Umesh Kumar Bhatia)
Deputy Secretary to the Govt. of India

To,

1. All the Ministries/Departments, Government of India
2. PMO/Cabinet Secretariat
3. PS to Hon'ble MOS(PP)
4. PSO to Secretary(Personnel)
5. Sr. Tech. Dir., NIC, DoP&T

} For Information

ANNEXURE

Do's

- To maintain personal hygiene and physical distancing.
- To practice frequent hand washing. Wash hands with soap and water or use alcohol-based hand rub. Wash hands even if they are visibly clean.
- To cover your nose and mouth with handkerchief/tissue while sneezing and coughing.
- To throw used tissues into closed bins immediately after use.
- To maintain a safe distance from persons during interaction, especially with those having flu-like symptoms.
- To sneeze in the inner side of your elbow and not to cough into the palms of your hands.
- To take their temperature regularly and check for respiratory symptoms. To see a doctor if you feel unwell (fever, difficulty in breathing and coughing). While visiting doctor, wear a mask/cloth to cover your mouth and nose.
- For any fever/flu-like signs/symptoms, please call State helpline number or the 24x7 helpline number of the Ministry of Health & Family Welfare at 011-23978046.

Don'ts

- Shake hands.
- Have a close contact with anyone, if you're experiencing cough and fever.
- Touch your eyes, nose and mouth.
- Sneeze or cough into palms of your hands.
- Spit in Public.
- Travel unnecessarily, particularly to any affected region.
- Participate in large gatherings, including sitting in groups at canteens.
- Visit gyms, clubs and crowded places etc.
- Spread rumours or panic.

No.T-21021/1/2020-Acad.Desk(Part-3)
Government of India
Ministry of Personnel, Public Grievances and Pensions
Department of Personnel and Training
Training Division

Block-IV, Old JNU Campus,
New Mehrauli Road, New Delhi-110067
Dated: 19th March, 2020

OFFICE MEMORANDUM

Sub:- Preventive measures to be taken to contain the spread of Novel Coronavirus (COVID-19).

With a view to contain the spread of Novel Coronavirus (COVID-19) it is imperative that the following precautionary measures are taken by all the Training Institutions: -

i) All Training Institutions may review the ongoing training programmes and take appropriate measures to defer/curtail them to the extent possible. It would not be advisable to undertake any new training programme for the time being.

ii) Entry of visitors to training institution may be restricted. If absolutely necessary, such visitors may be admitted after proper screening. Installation of thermal scanner at the entry points of the buildings may be taken up wherever feasible. Hand sanitizers should be mandatorily placed at the entry points and every person-faculty member/staff member/Visitor entering the premises should compulsorily clean their hands before entering the premises.

iii) Availability of adequate hand sanitizers and running water/soap in the training institute should be ensured.

iv) Training/Teaching may be conducted, as far as possible, in a virtual/online mode.

v) Adequate distance may be maintained between students in the physical classrooms

vi) Meetings to the extent possible should be conducted through video conferencing only.

vii) All non-essential travel may be avoided. Outside visits and excursions, group activities/screening of movies etc. and physical training activities may be suspended with immediate effect.

viii) Calling of guest faculty may be avoided.

ix) All gyms/recreation centres, creches, book clubs etc. inside the premises may be shut down immediately.

x) A fully functional medical centre with the presence of qualified doctor(s) and nursing staff may be ensured with proper protocol for treating of staff/faculty/trainee with flu like symptoms. SOPs may be developed in consultation with local Public Health Authorities to ensure quick response for testing and isolation/quarantine of symptomatic patients etc.

xi) Separate quarantine facility may be created in consultation with local Public Health Authorities.

xii) Mess Supervisors should ensure that all the trainees and mess staff wash their hands properly before entry into the Mess and before entry into the kitchen. Messaging outside the mess, its kitchen and the toilets about 'Dos and Don'ts' must be ensured.

xiii) Everything prepared in the mess must be cooked properly and raw salad and uncut fruit avoided for the time being. Linen should be changed frequently. The Trainees may be advised not to share the glass for drinking water and use only their respective water bottles for drinking water. Trainees may be advised not to use outside eateries as a preventive measure.

xiv) Common contact places including class rooms, hostels, mess, guest houses, vehicles/buses etc to be disinfected frequently. Dustbins may be placed in front of all the washrooms. Doorknobs of class rooms, toilets, hostel doors, canteen and all common facilities to be disinfected regularly.

xv) All faculty members and staff members may be advised to take care of their own health as well as of their friends and family and look out for symptoms such as respiratory problems, fever, discomfort etc. In case anyone feels unwell and shows flu-like symptoms, should inform the Training Coordinator/designated faculty immediately and report to the Medical Centre of the training institutes.

xvi) All staff & faculty at higher risks such as elderly employees, pregnant employees, employees with poor medical conditions and employees suffering from major chronic ailments may be advised to take proper care.

xvii) Frequent hand washing with soap, water and alcohol-based hand rub, should be encouraged. Covering of nose and mouth while sneezing and coughing, throwing of used tissues in close bins immediately after use. Keeping a safe distance from persons during interaction, especially with those having flu-like symptoms, sneezing in the inner side of the one's elbow and not coughing into the palms of one's hand, regular check of temperature and respiratory systems, consultation with the doctor in the event of one's feeling unwell, wearing of mask and covering of mouth and nose while visiting a doctor and avoidance of social gatherings, must be strongly advised to every faculty member and staff member. Staff & faculty should also be advised not to spit in the public, travel unnecessarily, participate in the large gathering, spending time in the canteens unnecessarily, visit gyms, clubs and crowded places.

xviii) The Health Advisories issued by the Ministry of Health and Family Welfare should be referred to and followed scrupulously.

xix) Action taken in this regard may be intimated to this Department regularly.

(Biswajit Banerjee)
Under Secretary to the Government of India
Tele. No.011-26194167
E-mail: biswajitbanerjee.edu@nic.in

To

1. All Central Training Institutes, CCAs
2. All Attached offices/Autonomous bodies under DOPT.
3. PS to Hon'ble MOS(PP)
4. PSO to Secretary (Personnel)
5. Sr. Tech. Dir., NIC, DoP&T

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- २४ मार्च २०२०

प्रति,

आयुक्त, आरोग्य सेवा व संचालक, रा. आ.अ.,
पुणे.

विषय **राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना व उपचारासाठी वैद्यकीय साहित्य व उपकरणे यांची उपलब्ध विविध दरकरार व शासन उपक्रम व हाफकीन कडीन निविदेच्या दरानुसार पुरवठा करण्यास तयार असणाऱ्या पुरवठादारांकडून तातडीने खरेदी करण्यास शासनाची मान्यता देण्याबाबत..**

संदर्भ: संचालक, आरोग्य सेवा, पुणे यांनी जा क्र संआसे/खरेदी कक्ष/ करोना नियंत्रण् व प्रतिबंधात्मक उपायोजना / साहित्य व उपकरणे खरेदीस मान्यता /२०२० दिनांक २१.०३.२०२० चे पत्र.

संदर्भाधिन पत्रान्वये संचालक, आरोग्य सेवा, पुणे यांनी कोव्हीड १९ मुळे उदभवलेल्या आजारावर प्रतिबंध व उपचारास्तव औषधी, वैद्यकीय साहित्य व उपकरणे शासन उपक्रम व हाफकीन कडील मान्य् दरकरारानुसार पुरवठा करण्यास तयार असलेल्या पुरवठादाराकडून तातडीने खरेदी करण्यास मान्यता मिळण्याबाबत प्रस्ताव सादर केला आहे. या अनुषंगाने आपणांस कळविण्यात येते की,

1. सदर खरेदी ही जिल्हास्तरावर उपलब्ध राष्ट्रीय आरोग्य अभियानांतर्गत उपलब्ध निधी, जिल्हा वार्षिक योजनांतर्गत निधी, राष्ट्रीय आपत्ती निवारण कक्षाकडून प्राप्त झालेला निधी तसेच वैद्यकीय शिक्षण विभागाला राष्ट्रीय आपत्ती व्यवस्थापन कक्ष, महात्मा ज्योतिबा फुले अंतर्गत व वैद्यकीय शिक्षण विभागाच्या कडून प्राप्त अनुदान इत्यादीद्वारे उपलब्ध झालेल्या अनुदानातून करण्यास मान्यता देण्यात येत आहे.

2. सदर खरेदी ही जिल्हाधिकारी यांच्य अध्यक्षतेखालील गठीत झालेल्या समितीच्या मान्यतेने व शिफारशीनुसार करणे आवश्यक राहील.

३. सदर खरेदी ही हाफकीन अंतर्गत खरेदी कक्ष, बृहनमुंबई महानगरपालिका, केंद्र शासन उपक्रम - एच. एल. एल. लाईफ केअर तसेच अन्य शासन उपक्रम के. ए. पी. एल. लाईफ केअर, तसेच अन्य राज्यशासनाच्या मेडीकल सर्व्हीस कार्पोरेशनचे दरसूचीनूसार करण्यास मान्यता देण्यात येत आहे.

4. वैद्यकीय उपकरणे व यंत्रसामग्रीची आवश्यकता व त्याची तांत्रिक विर्निदेश (टेक्नीकल स्पेसिफीकेशन) हे समितीत असलेल्या आरोग्यसेवा संचालनालयाच्या व वैद्यकीय शिक्षण व संशोधन संचालनालयाच्या सदस्यांनी शिफारस करणे किंवा ज्या तांत्रिक विर्निदेशांना मान्यता आहे (Already approved) अशीच उपकरणे ही या समितीच्या मान्यतेने खरेदी करता येतील. तसेच औषधे उपकरणे

व यंत्रसामुग्री कोव्हीड १९ प्रादुर्भावामुळे उदभवलेल्या आजारावर उपचारासाठी आवश्यक असल्याचे या समितीने प्रमाणित करणे आवश्यक राहील. फक्त व्हेंटीलेटर खरेदीची जिल्हानिहाय संख्या मा.मुख्यसचिवांकडून संमत करुन घ्यावी.

खरेदी करतांना अनावश्यक खरेदी/ द्विरुक्ती टाळावी व उपलब्ध अनुदानाच्या मर्यादेतच करण्यात यावी. कोणतेही साहित्य, उपकरणे विनावापर पडून राहणार नाहीत याची सर्वस्वी जबाबदारी खरेदी करणाऱ्या अधिकाऱ्यांच्या राहील.

सदर मान्यता वैद्यकीय शिक्षण व औषधीद्रव्ये विभाग यांचे सहमतीने निर्गमित करण्यात येत आहे.

(डॉ. प्रदीप व्यास)
प्रधान सचिव, महाराष्ट्र शासन

प्रत सचिव (वैद्यकीय शिक्षण व औषधी द्रव्ये विभाग, मंत्रालय मुंबई)
प्रत जिल्हाधिकारी (सर्व)
प्रत मुख्य कार्यकारी अधिकारी, जिल्हा परिषद (सर्व)
प्रत संचालक आरोग्य सेवा, मुंबई व पुणे
प्रत संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई
प्रत अधिष्ठाता, शासकीय वैद्यकीय महाविद्यालय (सर्व)
प्रत सह संचालक,आरोग्य सेवा (खरेदी) मुंबई
प्रत उपसंचालक, आरोग्य सेवा, परिमंडळ, (सर्व)
प्रत जिल्हा शल्य चिकित्सक (सर्व)
प्रत जिल्हा आरोग्य अधिकारी, जिल्हा परिषद (सर्व)

आमदार स्थानिक विकास कार्यक्रम सन २०१९-२० व २०२०-२१ या आर्थिक वर्षाकरिता " कोव्हिड-१९" (COVID १९) संदर्भात वैद्यकीय यंत्रसामुग्री व साहित्य खरेदीबाबत.

महाराष्ट्र शासन
नियोजन विभाग
शासन परिपत्रक क्रमांक-स्थाविका-०६१६/प्र.क्रं ९६/का.१४८२,
मंत्रालय, हुतात्मा राजगुरु चौक,
मादाम कामा मार्ग, मुंबई-४०० ०३२
दिनांक : २७ मार्च, २०२०

वाचा :- १) नियोजन विभागाचे, शासन निर्णय क्रमांक-स्थाविका-०६१६/प्र.क्रं ९६/का.१४८२, दि.१२/७/२०१६
२) नियोजन विभागाचे, शासन निर्णय क्रमांक-स्थाविका-०६१६/प्र.क्रं ९६/का.१४८२, दि.३१/८/२०१७

परिपत्रक

सार्वजनिक आरोग्य विभागाने अधिसूचना क्रमांक करोना-२०२०/प्र.क्रं ५८/आरोग्य-५, दिनांक,१४ मार्च, २०२० अन्वये साथरोग अधिनियम-१८९७ (Epidemics diseases Act-1897) च्या खंड २,३ व ४ नुसार राज्यात " कोव्हिड-१९" (COVID 19) विषाणुमुळे उदभवलेल्या संसर्गजन्य रोगाचा प्रतिबंधक व नियंत्रण करण्यासाठी " महाराष्ट्र " कोव्हिड-१९" (COVID 19), उपाययोजना नियम-२०२०" प्रमाणे तातडीच्या उपाययोजना निश्चित केल्या आहेत. या पार्श्वभुमीवर सध्या " कोव्हिड-१९" (COVID 19) विषाणूविरुध्द जिल्हा पातळीवर करण्यात येत असलेल्या कार्यवाहीला बळ देण्यासाठी एक वेळची " विशेष बाब" म्हणून " आमदार स्थानिक विकास कार्यक्रम " सन २०१९-२० व २०२०-२१ अंतर्गत " कोव्हिड-१९" (COVID 19) च्या अनुषंगाने उद्भवलेल्या आपत्कालीन परिस्थितीत "वैद्यकीय यंत्रसामुग्री व साहित्य" तात्काळ उपलब्ध करुन देणे आवश्यक आहे.

२. "आमदार स्थानिक विकास कार्यक्रम " अंतर्गत सन २०१९-२० व २०२०-२१ करिता "कोव्हिड-१९" (COVID 19) विषाणुमुळे उद्भवलेल्या आपत्कालीन परिस्थितीमध्ये जिल्हास्तरावर परिणामकारक प्रतिबंधात्मक कार्यवाही होण्याच्या दृष्टीने खालील "वैद्यकीय यंत्रसामुग्री व साहित्य" खरेदी करण्यासाठी विधीमंडळ सदस्यांना रुपये ५० लक्ष मर्यादेपर्यंत निधी एक वेळची " विशेष बाब " म्हणून उपलब्ध करुन देण्यास शासनाची मान्यता देण्यांत येत आहे.

अ.क्रं	वैद्यकीय यंत्रसामुग्री व साहित्य
१	इनफ्रारेड थर्मामिटर (Infra-Red Thermometers) (Non-contact)
२	पर्सनल प्रोटेक्शन इक्वीपमेंटस किटस (Personal Protection Equipment (PPE) Kits)
३	कोरोना टेस्टींग किटस (CORONA Testing Kits)
४	आयसीयु व्हेंटलिटर व आयसोलेशन वार्ड / क्वॉर्टरटाईन वार्डस व्यवस्था (ICU Ventilator and setting up of Isolation / Quarantine Wards)
५	वैद्यकीय कर्मचा-यांकरिता फेस मास्क, ग्लोव्हज व सॅनिटायझर (Face Masks, Gloves and Sanitizers for Medical Personnel)
६	सार्वजनिक आरोग्य विभाग, वैद्यकीय शिक्षण शिक्षण व औषधी द्रव्ये विभागाने कोव्हीड-१९ (COVID 19) या विषाणुमुळे उदभवलेल्या संसर्गजन्य रोगाचा प्रतिबंध करण्याकरिता करण्यांत आलेल्या उपाययोजना करिता प्रमाणित केलेले इतर तत्सम वैद्यकीय यंत्रसामुग्री व साहित्य)

०३. आमदार स्थानिक विकास कार्यक्रमांतर्गत सन २०१९-२० व २०२०-२१ करिता "वैद्यकीय यंत्रसामुग्री व साहित्य" खरेदीकरिता विधानमंडळ सदस्यांनी निधीची शिफारस केल्यास जिल्हाधिकारी यांनी प्रशासकीय मान्यता दयावी व तद्नंतर जिल्हास्तरीय कार्यान्वयीन यंत्रणाचे प्रमुख (१) जिल्हा शल्य चिकित्सक (District Civil Surgeon) (२) जिल्हा आरोग्य अधिकारी, जिल्हा परिषद (District Health Officer, Zilha Parishad,) अथवा आवश्यकतेनुसार आयुक्त, महानगरपालिका (Commissioner, Municipal Corporation) व मुख्याधिकारी, नगरपालिका (Chief Officer, Municipal Councils) यांना खालील अटींनुसार वैद्यकीय यंत्रसामुग्री व साहित्य खरेदी करता येईल.

१. आमदार स्थानिक विकास कार्यक्रमांतर्गत " कोव्हिड-१९" (COVID 19) संदर्भात वैद्यकीय यंत्रसामुग्री व सुविधांबाबत सार्वजनिक आरोग्य विभाग अथवा वैद्यकीय शिक्षण व औषधी द्रव्ये विभागाने विहित केलेल्या धोरणानुसार व निश्चित केलेल्या कार्यपध्दतीनुसार खरेदी करावी.

२. आमदार स्थानिक विकास कार्यक्रमांतर्गत " कोव्हिड-१९" (COVID 19) संदर्भात वैद्यकीय यंत्रसामुग्री व साधनसामुग्री व सुविधांच्या संदर्भात देखभाल व दुरुस्तीसाठी निधी उपलब्ध करुन देता येणार नाही. तसेच अशा वैद्यकीय साधनसामुग्री सुविधांसाठी कोणताही "आवर्ती खर्च" देखील आमदार स्थानिक विकास कार्यक्रमाअंतर्गत अनुज्ञेय राहणार नाही.

०४. महाराष्ट्र शासनाच्या www.maharashtra.gov.in या संकेतस्थळावर हे शासन परिपत्रक उपलब्ध करण्यात आले असून त्यांचा संकेतांक क्रमांक २०२००३२७१५५२०३०५१६ असा आहे. हे परिपत्रक डिजीटल स्वाक्षरीने साक्षांकित करुन काढण्यांत येत आहे.

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नांवाने

VIJESING FATTESING VASAVE

Digitally signed by VIJESING FATTESING VASAVE
DN: c=IN, o=GOVERNMENT OF MAHARASHTRA, ou=PLANNING DEPARTMENT, postalCode=400032, st=Maharashtra, 2.5.4.20=5494d2ad3a3bc5ddd66daf9a8f17ceec5e2d7d4b6a8bba99c51d275801bcdf1b, cn=VIJESING FATTESING VASAVE
Date: 2020.03.27 16:04:12 +05'30'

(वि.फ.वसावे)

उपसचिव,महाराष्ट्र शासन

प्रत :-

१. मा. राज्यपालांचे सचिव
२. मा. मुख्यमंत्र्यांचे प्रधान सचिव
३. मा. उप मुख्यमंत्री यांचे सचिव
४. सर्व मंत्री / राज्यमंत्री यांचे खाजगी सचिव
५. विरोधी पक्षनेते (विधानसभा / परिषद)
६. कार्याध्यक्ष, राज्य नियोजन मंडळ
७. मा. मुख्य सचिव
८. सर्व अपर मुख्य सचिव /प्रधान सचिव / सचिव
९. सदस्य सचिव, उर्वरित महाराष्ट्र विकास मंडळ, मुंबई
१०. सदस्य सचिव, मराठवाडा विकास मंडळ, औरंगाबाद
११. सदस्य सचिव, विदर्भ विकास मंडळ, नागपूर

१२.सर्व मंत्रालयीन प्रशासकिय विभाग, मंत्रालय, मुंबई

१३.सर्व विभागीय आयुक्त

१४.सर्व जिल्हाधिकारी

१५.सर्व मुख्य कार्यकारी अधिकारी, जिल्हा परिषद

१६. सर्व आयुक्त, महानगरपालिका

१७. सर्व मुख्याधिकारी, नगरपंचायत / परिषद

१८. नियोजन विभागातील सर्व सहसचिव / उप सचिव / अवर सचिव / वि. का. अ.

१९.संचालक, आरोग्य सेवा संचालनालय, मुंबई

२०. संचालक, वैद्यकीय शिक्षण व औषधी द्रव्य विभाग, मुंबई

२१. संचालक, अर्थ व सांख्यिकी संचालनालय, मुंबई

२२.सर्व जिल्हा शल्य चिकित्सक

२३.सर्व जिल्हा आरोग्य अधिकारी

२४.सर्व उपायुक्त (नियोजन), विभागीय आयुक्त कार्यालय

२५.सर्व जिल्हा नियोजन अधिकारी, जिल्हाधिकारी कार्यालय

२६.सर्व कक्ष अधिकारी, नियोजन विभाग

२७.निवड नस्ती (का. १४८२), नियोजन विभाग

F.No. 37001/2020/Div.III/NPPA

सत्यमेव जयते

NPPA
AFFORDABLE MEDICINES FOR ALL

भारत सरकार
रसायन एवं उर्वरक मंत्रालय
औषध विभाग
राष्ट्रीय औषध मूल्य निर्धारण प्राधिकरण
Government of India
Ministry of Chemicals & Fertilizers
Department of Pharmaceuticals
National Pharmaceutical Pricing Authority

SHUBHRA SINGH, IAS
Chairman
Tel. No. 011-23746639
Fax: 011-23746652

28th March, 2020

Subject: Ensuring availability and distribution of Masks, Gloves and Sanitizers-reg.

Dear Sir/Madam,

This is with reference to earlier D.O. dated 20.02.2020, Order dated 13.03.2020 and D.O. dated 26.03.2020 regarding monitoring and availability of drugs including Masks, Gloves and Sanitizers in view of emerging situation in context of COVID-19.

2. It is learnt that various State Governments/UTs are facing problems in placing orders for Masks, Gloves and Sanitizers due to non-availability of details of Manufacturers of these items. In this regard, please find enclosed indicative list of manufacturers Masks, Gloves and Sanitizers received from Association of Indian Manufacturers of Medical Devices (AiMeD) for ready reference and necessary action.

3. At the same time, it is requested that issues in movement of stock and manpower may be resolved on priority so as to ensue uninterrupted production and supply of medicines and medical devices in the country.

4. Suitable instructions may kindly be issued to District Administrations/concerned authorities to co-ordinate with the manufacturers/distributors/Chemist Association to ensure the seamless availability of drugs, Masks, Gloves and Sanitizers.

Warm Regards

Yours sincerely,

(Shubhra Singh)

Encl : As above.

The Chief Secretaries,
All State Governments & UT Governments as per list enclosed
(As per enclosed list)

Copy to:

1. Union Home Secretary;
2. Secretary, MoH&FW;
3. Secretary, DoP, MoC&F;
4. Secretary, MoC&F;
5. Principal Health Secretary, All State/UT Governments
6. State Drug Controllers, All State/UT Governments
7. AIMeD, AIOCD.

(Shubhra Singh)

List of Gloves Manufacturers

Sr No.	Company Name	Address	Authorised Person	State	M/I	Contact	Email
1	AGE INDUSTRIES PVT. LTD.						
2	Amazing Gloves						
3	Amazing Rubber Products Pvt. Ltd.	Plot No. 14C, CSEZ, Cochin, Kakkanad, Kerala 682037	Jaya Sankar (Executive Director)	Kerala	M	062387 42481	
4	Anondita Healthcare	D- 001, Sector- 80, Noida, Uttar Pradesh	Anupam Gosh (Proprieter)	Uttar Pradesh	M	0120-4520300	info@anonditahealthcare.com
5	Asma Rubber Products Pvt Ltd	39-B, Cochin Special Economic Zone, Kakkanad, Cochin- 682 037, Kerala, India	CY A Rahim (Managing Director)	Kerala	M	0484-2413023; 9847050666, 9847050555	info@asmaglove.com
6	Beta Healthcare Products (P) Ltd.	Plot No 21B, Cochin Special Economic Zone, Kakkanad, Cochin-682037, Kerala, India	S. Srinivasan (GM)	Kerala	M	0484 2413 340	betahealthcare@gmail.com
7	BPL Medical Technologies	BPL Medical Technologies Pvt. Ltd., 11th KM, Arekkare, Banarghatta Road, Bangalore-560076	Princy Antony	Karnataka	I		
8	BRIGHTWAY GLOVES PVT. LTD.						
9	Cadilla Pharmaceuticals Ltd.	Cadila Pharmaceuticals Nanikadi, Kadi, Gujarat 382715	Mr. Jignesh Desai (VP)	Gujarat	M		
10	CareNow Medical Pvt Ltd.						
11	CASIL INDUSTRIES LTD.						

12	Deluxe Scientic Surgico Pvt. Ltd.	Desco House, 387, F.I.E, Patpar Ganj Industrial Area, New Delhi-110092, INDIA		Delhi	M	011-40526418 / 42486418 / 43086418	
13	HEALTHIUM MEDTECH PVT LTD (TRUSKIN GLOVES PVT. LTD.)	Healthium Medtech Pvt. Ltd. Plot # 13 to 16, KIADB Industrial Area, Kunigal taluk, Tumkur District - 572126		Karnataka	M		
14	HICARE GLOVES PVT. LTD.						
15	HICARE POLYMERS PVT. LTD.						
16	Jajoo Surgicals Pvt. Ltd.	61A/62, Industrial Area No 3, A.B Road, Dewas-455001, (M.P.) India	Vishnu Bhagwan Jajoo (Director)	Madhya Pradesh	I		
17	JIT & JIT GLOVES						
18	KANAM LATEX INDUSTRIES PRIVATE LIMITED						
19	Kanam Latex Industries Pvt. Ltd.						
20	Lenora Glove (P) Ltd.	Plot no. 15/104-1, Rottigounder Road, Thirumalayam Palayam Village (P.O.), K.G.Chavadi, Maddukarai (Via), Tamil Nadu 641105		Tamilnadu	M	090475 38111	
21	Mariya Healthcare (P) Ltd.	2/212 ANAKKAL,MUNEKKAR P.O, PALAKKAD 678597	Joseph Jose (Director)	Kerala	M+I	9846619150	mariyahealth@gmail.com
22	Medlis Healthcare Pvt Ltd						
23	MRK Healthcare	Patan, North Gujarat	Sneh Shah (Director)	Gujarat	M+I	022-6261 1111	info@mrkhealthcare.com

24	Primus Gloves (P) Ltd.	Plot No. 14 A, Cochin Special Economic Zone, Cochin - 682 037	Jose Paul M (Technical director)	Kerala	M+I	0484 2413063	primusgloves@gmail.com
25	Reblatex Ltd.						
26	RFB LATEX LIMITED	78-80, SynapseIndia Rd, Noida Special Economy Zone, Block A, Phase-2, Noida, Uttar Pradesh 201305		Uttar Pradesh	M	07185 355 364	
27	Rubboqeen Healthcare Products Pvt Ltd						
28	Safecare Rubber Products Pvt. Ltd						
29	Safehield India Rubber Products Pvt. Ltd.	Plot No. 16-B, Cochin Special Economic Zone, Kochi, Kerala 682037	Anikumar PC (MD)	Kerala	M	9846092780	
30	SANREA HEALTHCARE PRODUCTS PVT. LTD.						
31	SMR Naturals						
32	Sree Krisna Medineeds	Plot No.35,First floor,TIE, IDA, Balanagar, Hyderabad, Telangana 500037	P Raju (Accounts)	Telangana	I	080082 99444	
33	SRI ANUSHAM RUBBER INDUSTRIES PVT. LTD.						
34	ST. Marys Rubbers Pvt Ltd.						
35	Vijay Latex Products (P) Ltd.	Plot No. 231-3, GIDC Umbergaon, Umbergaon INA, Gujarat 396165	Jitendra Salot (CMD)	Gujarat	M		

List of Hand Sanitizer Manufacturers

Sr No.	Company Name	Address	Authorised Person	State	M/I	Contact	Email
1	Concord Drugs Limited	Concord Drugs Limited, Survey no: 249, Brahmanapally Village, Hayathnagar(M), RR District, Hyderabad , Telanagana, India	S. Nagi Reddy (Chairman)	Telangana	M		
2	3M India Ltd.	3M India Ltd.	Vandana Singh (Manager)				
3	Addii Biotech Pvt. Ltd.	Village Kaundi, PO Thane, Baddi, Himachal Pradesh 173205	Ashish Kandari (Plant Head)	Himachal Pradesh	M	8146995533, 9023561756	info@addiibiotech.com
4	Agrawal Drugs Pvt. Ltd.	24/6B, Integrated Industrial Estate, Setor 8 A, SIDCUL, Haridwar, Uttarakhand 249403	Sumeet Agrawal (MD)	Uttarakhand	M		
5	All kind Healthcare Unit	Allkind Healthcare Unit – III, Plot No 79 A & B, EPIP-Phase-II Village Thana, Baddi, Himachal Pradesh 173205	Vivek K Singh (MD)	Himachal Pradesh	M	9915218700	moninder.allkind@gmail.com
6	AMAR PRODUCTS	Plot No. F5A/7 MIDC,VADALGAON, AMBERNATH(W)-421501, Loknagari, Ambernath, Maharashtra 421501	Mukesh Amarlal (Partner)	itizer	M		
7	B Braun Medical India (P) Ltd.	Boomerang, A-601, 6th Floor, Near Chandivali Studio, Andheri(East), Mumbai, Maharashtra 400072	Rakesh Bajaj (MD)	Maharashtra	P2P	022 6668 2222	info.in@bbraun.com
8	Biodeal Pharmaceuticals (P) Ltd.	Vill. Saini Majra, Nalagarh Ropar Road, Nalagarh, Himachal Pradesh 174101	Sumit Shrivastava (Plant Head)	Himachal Pradesh	M	01795 265 570	
9	Biopharm Drugs & Pharmaceuticals						
10	Brawn Cosmetics & Herbals Pvt. Ltd						
11	Cadilla Pharmaceuticals Ltd.	Cadila Pharmaceuticals Nanikadi, Kadi, Gujarat 382715	Jignesh Desai (VP)	Gujarat	M	02718 225001/15	
12	Canixa Life Sciences Pvt. Ltd.	Canixa Life Sciences Pvt. Ltd., Khasra No.313, Raipur Industrial Area, Raipur, Bhagwanpur, Roorkee - 247667, District Haridwar – Uttrakhand.	Ravikar Pratap Singh(Plant GM)	Uttarakhand	M		
13	CareNow Medical Pvt Ltd.	3/ 272-5, Neelambur Road, Muthugoundenpudur, Coimbatore, Tamil Nadu 641406	Anand Venkatachalam(MD)	Tamilnadu	M	9943034949	info@carenow.com
14	Centure Pharmaceutical Pvt Ltd.						
15	Cipla Health	Cipla House, Peninsula Business Park, Ganapatrao Kadam Marg, Lower Parel West, Mumbai-400013	Nitin Jajodia (CFO)	Himachal Pradesh	P2P	022-24826000	ciplahealth@cipla.com

16	CIRON DRUGS & PHARMACEUTICALS PVT. LTD	N-118, M.I.D.C., Tarapur, Boisar, Dist. Thane - 401 506. Maharashtra, INDIA.		Maharashtra	M		
17	Cortec Healthcare Pvt. Ltd.	NH-74, Dehradun Highway, Kishanpur, Roorkee, Uttarakhand 247667	A K Singh (Senior GM)	Uttarakhand	M	01332 232 248	Info@cotecpharma.in
18	Curetech Skincare	Plot No. 33-34,Phase IV, Bhatoli Kalan, Baddi, Solan 173205 (H.P.)	Jaysingh Yamagekar (VP)	Himachal Pradesh	M	92185 93186	operations@curetechskincare.com
19	Dettol						
20	Dr. Sabharwal's Wound Care	137, Village Buranwala, Post Office, Barotiwala, Himachal Pradesh 174103	Manish Sabharwal (Proprieter)	Himachal Pradesh	M	0172 264 0018	drsmpl@gmail.com
21	Forever Living Products	501,SHARYANS CENTRE, 5TH FLOOR, ABOVE LIJJAT PAPAD OPP BANDRA RLY STN, 3 GURUNANAK ROAD, BANDRA WEST MUMBAI MH 400050 IN	Rohil Jayekar	Maharashtra	I	022 2645 3301	
22	GMH Laboratories	Plot No. 13, Industrial Township, Bhatoli-Kalan,Baddi, Distt. Solan - 173205 Himachal Pradesh (INDIA)	Chandrbhan Sharma (General manager)	Himachal Pradesh	M	98829-81001	info@gmhlaboratories.com
23	Johnson & Smith Co.						
24	Leeford Healthcare Ltd						
25	M/S. AERO PHARMA (SILVASSA)	S. No 127 /1 1st Floor, Preeti Industrial Estate, Amli Ind. Estate, Silvassa, Dadra and Nagar Haveli 396230	Sanjay Kumar (Factory Manager)	Dadra & Nagar	M	0260 264 4847	
26	M/s. Aurolab	No 1, Sivagangai Main Road, Veerapanjan, Madurai, Tamil Nadu 625020		Taminadu	M	0452 244 6100	
27	Magbro Healthcare (P) Ltd.	Solan, Himachal Pradesh 174101	Shashi Pal Sharma (Technical Director)	Himachal Pradesh	M		
28	Marine Lifesciences	30, Housing Board Phase-3, Extention, HPSIDC, Baddi, Himachal Pradesh 173205	Sajjan Kumar Garg (MD)	Himachal Pradesh	M	092168 71933	
29	Microwin Labs Pvt Ltd.						
30	Nanz Med Science Pharma (P) Ltd.	Ram Pur Ghat, Paonta Sahib, Distt. Sirmour-173025, Himachal Pradesh (India)	Rakesh Bajaj (MD)	Himachal Pradesh	M	9810037253, 9805770002	rakeshbajaj@nanzpharma.com
31	Percos India (P) Ltd.	PLOT NO. 23, SECTOR-6B, SIDCUL, (U.K.),, Integrated Industrial Estate, Setor 8 A, BHEL Township, Haridwar, Uttarakhand 249403		Uttarakhand	M	120-4115528	contact@percosindia.com
32	PHARMA SYNTH FORMULATIONS LIMITED	18-22, Sector-6B, SIDCUL IIE, Ranipur,Haridwar, Uttarakhand - 249403	Arvind Kumar Gupta (Director)	Uttarakhand	M	01334-239201	hd@pharmasynth.in
33	Plena Remedies	Plot No. 17, Himuda INDL Area, Bhatolikalan, Baddi, Himachal Pradesh 173205	Surinder Pal	Himachal Pradesh	M		
34	Pontika Aerotech Limited	Pontika Aerotech Limited Vill Johron, PO Puruwala, Nahan Road, Paonta Sahib, Dist–Sirmour, Himachal Pradesh–173001 India	Sonu Panwar (Deputy Manager)	Himachal Pradesh	M	7834051021/22	info@pontikaaerotech.com
35	Pritam International	KH No. 138, Raipur Industrial Area, Bhagwanpur, Roorkee, Haridwar, Uttarakhand-247667	Mr. Pratap Singh (Plant Head)	Uttarakhand	M		

36	PSK Pharma Private Limited	PSK Pharma Private Limited, 121/22 Mahajenahalli, Shimoga Road, Harihar - 577601	Kshitij Basawraj (Director)	Karnataka	M	099860 25744	weprotect@pskpharma.com
37	RIDHAM ENTERPRISE	Plot No 50 – P/2. Bileshwarpura PO Chhatral-382729 ,Ta.Kalol.Dist. Gandhinagar, Gujarat					
38	Saar Biotech	SAAR BIOTECH Vill. Bhud, NH-21 A, (Near Engg. Collage Hostel) Baddi , Distt. Solan (H.P.)	Anil	Himachal Pradesh	M		
39	Sai Corporation	353-196/186/1-2, Village Johron, Industrial Area, Trilokpur Road, Kala Amb, Himachal Pradesh 173030	Sunil Sarraf (CEO)	Himachal Pradesh	M		
40	Salvia Cosmeceuticals Pvt. Ltd.	B-34, 2ND FLOOR, LAWRENCE ROAD INDUSTRIAL AREA NEW DELHI DL 110035 IN	Ajay Kakar (Director)	Delhi	M		operations@salvepharma.com
41	Sceptre Medical India (P) Ltd.	Plot No. 230, Rai Industrial Area , Near Bsnl Exchange, Sonipat, Haryana, 130029, India		Haryana	M		
42	Sisla Laboratories	I-2050 DSIDC Industrial area, Narela, Delhi - 110040	Bipin Gupta (Proprieter)	Delhi	M	9811067418	
43	Spectrum Biosides India (P) Ltd.	Survey No. 809, INDUSTRIAL DEVELOPMENT AREA, Medchal Rd, Secunderabad, Telangana 501401	Kapil Reddy L (Director)	Telangana	M	091219 33311	
44	Trisis Ventures	Plot No 115-118, DIC, Industrial Area Rd, Baddi, Himachal Pradesh 173205	Eshan Sharma (General Manager)	Himachal Pradesh	M		
45	Varav Biogenesis Pvt. Ltd.	Plot No. 3 A, Industrial Area, Trilokpur Road, Kala amb - 173030, Himachal Pradesh, India	Manoj Garag (Director)	Himachal Pradesh	M	9882243778	varavbiogenesis2010@gmail.com
46	VVF (India) Ltd.	VVF India Ltd. Plot No. 141 / 143, Survey No. 195 / 4, 195 / 6, Panchal,Udyog Nagar, Bhimpore, Nani Daman - 396210 India	Rahul Chauhan (Dirctor-RA)	Daman	M	124 402 8000	IndiaHelp@rb.com
47	Will Impex Pharmachem Pvt. Ltd.	57, First Floor, Shivam Estate, Near Ujala Cross Road, Sarkhej, Ahmedabad - 380015	Bijai Brahmbhatt (Director)	Gujarat	M	9825084869	contact@willimpex.in
48	Medipol Pharmaceutical India Pvt. Ltd.	1199/3,Bhud, Baddi, Nalagarh Road, baddi (H.P.)-173205	Raja Sriram (Admin Officer)	Himachal Pradesh	M		
49	Sidhbali Formulations	sidhbali formulations , narsan khurd Roorkee Hardwar UK	Dr Sanjiv Sangal (Managing Partner)	Uttarakhand	M		

List of Mask Manufacturers

Sr No.	Company Name	Address	Authorised Person	State	M/I	Contact	Email	
1	AJ SURGICALS	plot no 1 GF KH no 25/8/2 Nangli Sakrawati New delhi 110043		Delhi	M			
2	AM Nonwovens	AM Nonwovens, No.79/38-B, Jeeva Street, Kattabomman Nagar, Narimedu, Madurai –		Tamilnadu	M			
3	Amkay Products Pvt. Ltd.	AMKAY ENCLAVE,68-Rashmi Park Bunglow, Dhumal Nagar, Waliv Road,Vasai (E) -401208. Dist: Thane,	Himanshu Batavia(Director)	Maharashtra	M	7720085358	info@amkayproducts.com	
4	Associates Packaging	D-1555, DSIDC Industrial Area, Narela, Narela Industrial Area, Delhi-110040, India	Prateek Narsaria					Non Woven (Non Surgical)
5	Bell Cross Industries	Bellcross Industries Pvt Ltd , 229, Sarita, Prabhat Industrial Estate, Dahisar East, Mumbai	Nikunj Kedia (Director)	Maharashtra	M	022 2896 1566		
6	CareNow Medical Pvt. Ltd.	3/ 272-5, Neelambur Road, Muthugoundenpudur, Coimbatore, Tamil Nadu 641406	Anand Venkatachalam(MD)	Tamilnadu	M	9943034949	info@carenow.com	Air Filtration Mask
7	Deluxe Scientic Surgico Pvt. Ltd.	Desco House, 387, F.I.E, Patpar Ganj Industrial Area, New Delhi-110092, INDIA		Delhi	M	011-40526418 / 42486418 / 43086418		
8	Fashion Art	C 138 Sector 65 Noida, Uttar Pradesh 201301		Uttar Pradesh	M			Non Woven
9	Hitex Healthcare							
10	Jit & Jit Products	Lane No. 22, Janatha Road,, Vyttila, Kochi, Kerala, PIN - 682019, India, Ernakulam, Kerala		Kerala	M			
11	KC Green Revolution (P) Ltd.	I 38, Sector 5, DSIDC, Bawana, New Delhi-11000	Bipin Radhi(Director)	Delhi	M			Total(2+3+4) Ply
12	MBL Impex	9B, First Floor, APIIC, IE, Prashanti Nagar, Kukatpally Industrial Estate, Kukatpally,	P. Shivakumar (Accounts)	Telangana	M			Total(2+3) Ply
13	Medicube Healthcare Pvt. Ltd	Plot No. 6-9, SY. No. 323, Babaguda Village, Hyderabad, 500078	Rohit Reddy Aragonda(MD)	Telangana	M			
14	Medildin Healthcare Ltd.	Silvaasa, Dadra & Nagar Haveli	Smita Shah (MD)	Dadra & Nagar	M			Total(2+3) Ply
15	Neelkanth Packaging	979/980, Village Rithala, Rohini, Delhi - 110085	Ravinder Gulati	Delhi	M			Non Woven

16	Noor Packaging	R/o Plot No 68- C, Near Radha Swami Satsang Centre, Gazipur Area, Nangla Gujrao NIT,	Ankur Soni (Proprieter)	Haryana	M			
17	Om Packaging Solutions	I-2290, DSIDC Industrial Area, Narela, Narela Industrial Area, Delhi-110040, India	Bushan Gupta	Delhi	M			Non Woven
18	Pacmatic Industries (P) Ltd.	Plot No. 4 A, Shri Ram Marg, Sector 25, Part 2, Opposite Indo Farm, Huda,Panipat-132103,	Kunal Chanana (Director)	Haryana	M			
19	Plasti Surge Industries Pvt.							
20	Premium Healthcare Disposables	Roy Para, Near Vivekananda Club, Hatiara, Kolkata, West Bengal 700157	T. Nandi(Accountant)	West Bengal	M	033 2572 0050		
21	Reckitt Benckiser (India) Private Ltd.	VVF India Ltd. Plot No. 141 / 143, Survey No. 195 / 4, 195 / 6, Panchal,Udyog Nagar, Bhimpore, Nani Daman - 396210 India	Rahul Chauhan (Dirctor-RA)	Daman	I	124 402 8000	IndiaHelp@rb.com	Plot no. 48 Institutional Area Sector 32 Gurgaon 122001 Haryana India
22	RENNEX MEDICAL	RENNEX MEDICAL,4/1 EAST PATEL NAGAR,		Delhi	I			N 95
23	Romsons Medicons	E-20, Foundry Nagar, Agra, Uttar Pradesh 282006	Vikas Khanna	Uttar Pradesh	M			
24	Seth Pharma	78 Deendayal Nagar,, Kanpur - 208002, Uttar Pradesh, India	Vijay Kumar Seth (Proprieter)	Uttar Pradesh	M	9336944460		
25	SL Packaging (P) Ltd	Suite No-101 & 102, Green Plaza, 67, Maharshi Devendra Road, Near Nimtalla Fire Brigade, Jorabagan, Kolkata, West Bengal 700006	Gopal Sarai	Kolkata	M			Non Woven (Non Surgical)
26	SPM Medicare Pvt. Ltd.	B-40, Phase-II, Noida, Uttar Pradesh-201305, Noida, Uttar Pradesh 201305	Umang Mathur (MD)	Uttar Pradesh	M	8407070718	info@spmmedicare.com	
27	Sree krisna Medineeds	Plot No.35,First floor,TIE, IDA, Balanagar, Hydera	P Raju (Accounts)	Telangana	M	080082 99444		Total(2+3) Ply
28	Thea-Tex Healthcare (India) Pvt Ltd	Anand Mangal Industrial Estate, Sativali Road, Waliv Phata, Vasai East, 401 208,Maharashtra, India.	Anand Singh (CEO)	Maharashtra	M	0250-6450283 / 6452358 / 2480289 / 3295393	contact@thea-tex.com	Total(2+3+4) Ply
29	Unity Healthcare	C-24, Preet Vihar Delhi 92		Delhi	Supplier			Supplier
30	Uttarakhand Surgicals	KHASRA NO 1043,041 CAMP ROAD , SELAKUI INDUSTRIAL AREA - DEHRADUN	Tarun Jain	Uttarakhnad	M			

31	Vijay Sabre Safety (P) Ltd.	Plot No. II Survey No. 46/1 P Daman Ganga , INDL Estate, Athal Silvasa, Bilad Road Silvasa	Jitendra Salot (CMD)	Daman	M			
32	YVR Medivision Pvt. Ltd.	Plot No. 19, IDA, Balanagar, Hyderabad, Telangana 500037	Sree Kanth Kante (Director)	Telangana	M			
33	JP Industries	1199/2,Bhud, Baddi, Nalagarh Road, baddi (H.P.)-173205		Himachal Pradesh	M			
34	VISHNU PACKWELL PVT LTD	H-253-254 SECTOR-1,DSIIDC,BAWANA,DELHI-110039	ANKIT BABBAR	Delhi	M	9873282321	VISHNUPACKWELL@GMAIL.COM	Non woven

No. 1(2)/2020-SP-I
Government of India
Ministry of Consumer Affairs, Food & Public Distribution
Department of Food & Public Distribution

Krishi Bhawan, New Delhi
Dated: 24 March, 2020

To

1. Chief Secretaries,
(of All State Governments)

2. Administrators of all UT Administrations.

Subject: Review of prices of essential commodities.

Sir/ Madam,

A meeting of Committee of Secretaries (CoS) was held under the chairmanship of Cabinet Secretary on 23rd March, 2020 on the above subject.

2. This Department, vide letter of even number dated 21.3.2020 (copy enclosed), has already requested the State Governments/ UT Administrations to take appropriate measures to ensure the availability of Ethyl alcohol/ Ethanol/ ENA to the manufacturers of hand sanitizers in order to contain Corona Virus/ Covid 19.

3. Since availability of sanitizers and its prices needs to be monitored for its smooth supply, State Governments/ UT Administrations are requested to ensure adherence to the recommendations made in the CoS meeting, which are as follows:

i) JS (Sugar), D/o Food & Public Distribution; and D/o Consumer Affairs may coordinate with the alcohol distilleries; Excise Commissioners and Drug Controllers in States to start manufacture of sanitizers through alcohol distilleries expeditiously. States may be advised to give all necessary permissions without delay. States may also be asked to waive the 300% excise duty on ethanol used for the purpose of making sanitizers. Supply of sanitizer in bulk to State and Central Government hospitals at low rates may be negotiated with the distilleries.

ii) Secretary, D/o Consumer Affairs and JS (Sugar), D/o Food & Public Distribution may coordinate with States to ensure that functioning of bottling plants for sanitizers is allowed to continue unhindered and all new permissions to be expeditiously granted.

iii) JS (Sugar) in D/o Food & Public Distribution may coordinate between deodorant manufacturers and sanitizer manufacturers/ distilleries to further address the shortage of sanitizer bottles/ pumps.

iv) In view of the urgency, States may be pursued to waive inspection requirements and other formalities for starting production of sanitizers and other equipment. The States may be asked to give post facto approval for such facilities. Secretary, M/o Pharmaceuticals may coordinate with States and stakeholders.

Contd./-

4. State Governments/ UT Administrations are requested to expedite all necessary permissions, as recommended by CoS; and waive the excise duty on ethanol, if any, for manufacturing of sanitizers.

5. State Governments/ UT Administrations are also requested to exempt raw material production for hand sanitizers/ ethanol, including packing material from lockdown and restrictions on transport including inter-state transport.

6. This may be treated as "Most Urgent".

Yours faithfully,

Encl: As above.

24.3.20

(Subodh Kumar Singh)
Joint Secretary (Sugar & Admn.)
E-mail: js-sugar@gov.in

Copy to:

1. Principal Secretaries of Cane/ Excise/ Industries/ Health Departments of States.
2. State Drug Controllers.
3. Indian Sugar Mills Association.
4. All India Distillers Association.
5. Association of Indian Medical Device Industry (Tel. 0129-4289000/4061151)

Copy also to:

Central Nodal Officers to the States for management of Novel Corona Virus (COVID-19).

Copy for information to:

1. Secretary, D/o Food & Public Distribution
2. Secretary, D/o Consumer Affairs
3. Secretary, D/o Petroleum & Natural Gas
4. Secretary, D/o Pharmaceuticals
5. Secretary, D/o Health and Family Welfare
6. Addl. Secretary (Shri A. Giridhar), Cabinet Secretariat.
7. Prime Minister's Office (Shri Shrikar Pardeshi, JS)

(Subodh Kumar Singh)
Joint Secretary (Sugar & Admn.)
E-mail: js-sugar@gov.in

No. 1(2)/2020-SP-I
Government of India
Ministry of Consumer Affairs, Food & Public Distribution
Department of Food & Public Distribution
* * *

Krishi Bhawan, New Delhi
March 21, 2020

To

1. Chief Secretaries,
(All State Governments)
2. Administrators of all UT Administrations

Subject: To enhance production of hand sanitizers and to ensure its availability to the consumers in view of sudden outbreak of Corona Virus.

- - -

Sir / Madam,

I am directed to refer to this Department's letter of even number dated 19.03.2020 (copy enclosed) requesting State Governments / UT Administrations to take following actions to ensure the availability of Ethanol/ENA to the manufacturers of hand sanitizers:

(i) Necessary permissions on account of licensing and storage of Ethyl Alcohol/ Extra Neutral Alcohol (ENA)/ Ethanol may be accorded by the State Government agencies to the sanitizer industries upto their installed capacity without any quota restriction on supply of Ethyl Alcohol/ENA.

(ii) All possible arrangements should be made to ensure that Ethyl Alcohol/ENA is made easily available to the sanitizer industry.

(iii) The sanitizer industry operating in the States/ UT administrations should be motivated to run their units in all three shifts, so that they can utilize their installed capacity to produce maximum quantity of hand sanitizers. Sanitizer Industry should also be encouraged to enhance their production capacity; for which necessary permissions may be accorded by the States/ UT Administrations on priority basis.

(iv) Distilleries can also produce sanitizer in bulk, that can be bottled by the Sanitizer Industry and other Industries; for which necessary permissions, if required may be accorded by the States/ UT Administrations on priority basis.

2. Many distilleries have bottling units; these distilleries may be motivated to produce hand sanitizers. **Attention is also invited to letter No. DCGI/Misc/2020(96) dated 18.03.2020 (copy enclosed) issued by Central Drugs Standard Control Organisation**, Directorate General of Health Services, GoI to all States / UT Drug Controllers to expedite the licensing of manufacturers of such products which are required for the manufacture of hand sanitizers.

Contd/-

3. It is again requested to issue necessary directions to the concerned authorities including the District Collectors of the Districts in which the distilleries / manufacturers of sanitizers are located and to the distilleries to ensure the availability of Ethanol/ENA to the manufacturers of sanitizers. Lists of molasses based and grain based distilleries are enclosed.

4. Prime Minister's Office is monitoring the progress of this issue; action taken by the State Governments/UT Administrations along with copies of orders issued in this regard may be sent to this Department immediately so as to apprise PMO.

Yours faithfully,

31.3.20

(Subodh Kumar Singh)
Joint Secretary to the Govt. of India
Tel.No.011-23382512
E-mail: js-sugar@gov.in

Copy to:

1. Principal Secretaries of Cane/ Excise/Industries/Health Departments of States.
2. Drug Controllers of the State Governments.
3. Indian Sugar Mills Association (Tel.No.011-26262294, 26262295, 26262296)
4. All India Distillery Association (Tel.No.011-26432743)
5. Association of Indian Medical Device Industry (Tel.No. 0129-4289000/4061151)

Copy also to:

Central Nodal Officers to the States for management of Novel Corona Virus (COVID-19).

Copy for information to:

1. Secretary, D/o Food & Public Distribution
2. Secretary, D/o Consumer Affairs
3. Secretary, M/o Petroleum & Natural Gas
4. Secretary, M/o Health & Family Welfare
5. Secretary, D/o Pharmaceuticals
6. Addl. Secretary (Shri A. Giridhar), Cabinet Secretariat
7. Prime Minister's Office (Shri Shrikar Pardeshi, Joint Secretary)

(Subodh Kumar Singh)
Joint Secretary to the Govt. of India

करोनाच्या पार्श्वभूमीवर शासनाच्या अधिनस्त कार्यरत विविध परिषदेच्या अंतर्गत नोंदणीकृत वैद्यक व्यावसायिकांच्या सेवा अधिग्रहित करणेबाबत.

महाराष्ट्र शासन

वैद्यकीय शिक्षण व औषधी द्रव्ये विभाग

शासन निर्णय क्रमांक:करोना २०२०/ प्र.क्र.६०/६०/वैसेवा-२

गो.ते.रुग्णालय आवार, गो.ते. संकुल, नववा मजला मंत्रालय, मुंबई ४०० ००१.

दिनांक :२६ मार्च, २०२०

प्रस्तावना:-

सार्वजनिक आरोग्य विभागाच्या दिनांक १४.०३.२०२० च्या अधिसूचनेन्वये राज्यात साथरोग अधिनियम, १८९७ च्या अमंलबजावणी सुरू झाली असून कोवीड-१९ मुळे उद्भवलेल्या संसर्गजन्य रोगाचा प्रतिबंध व नियंत्रण यासाठी प्रसिध्द करण्यात आले आहेत. सदर अधिसूचनेन्वये साथरोग अधिनियमाच्या खंड २ (१) नुसार संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई यांना सक्षम प्राधिकारी घोषीत करण्यात आले असून त्यांच्या कार्यक्षेत्रात कोवीड-१९ वर नियंत्रण आणण्यासाठी व प्रादुर्भाव रोखण्यासाठी उपाययोजना करण्याकरिता ते सक्षम आहेत.

राज्य शासनाच्या अधिनस्त विविध वैद्यकीय परिषदा कार्यरत आहेत. या परिषदेच्या अंतर्गत डॉक्टर, पॅरावैद्यक व्यवसायिक, शुश्रुषा व्यवसायिक इत्यादींची नोंदणी करण्यात येते. या परिषदेअंतर्गत नोंदणी झालेल्या व्यवसायिकांना कोविड-१९ या आजारामुळे उद्भवणाऱ्या आपत्कालीन परिस्थितीत वैद्यकीय सेवा पुरविण्याकरिता त्या-त्या जिल्ह्याच्या ठिकाणी असलेल्या व्यवसायिकांच्या सेवा रूग्णहितार्थ प्राप्त करून घेण्याची बाब शासनाच्या विचाराधीन होती.

शासन निर्णय:-

उपरोक्त वस्तुस्थिती विचारात घेवून, कोवीड-१९ या साथीच्या आजाराचा होणारा संभाव्य प्रादुर्भाव रोखण्यासाठी राज्य शासनाच्या अधिनस्त कार्यरत विविध परिषदेच्या अंतर्गत नोंदणी झालेल्या डॉक्टर, पॅरावैद्यक व्यवसायिक, शुश्रुषा व्यवसायिक इत्यादींची कोविड-१९ या आजारामुळे उद्भवणाऱ्या आपत्कालीन परिस्थितीत वैद्यकीय सेवा अधिग्रहीत करून घेण्याचे अधिकार संचालक, वैद्यकीय शिक्षण व संशोधन तसेच त्या-त्या जिल्हयातील अधिष्ठाता, शासकीय वैद्यकीय महाविद्यालय यांना प्रदान करण्याचा शासनाने निर्णय घेतला आहे. त्यानुसार तरुण डॉक्टर यांची कोविड-१९ (करोना विषाणू) बाधित रुग्णांची

व वयस्कर डॉक्टर यांची इतर रुग्णांच्या उपचाराकरिता नियुक्ती करण्यात यावी. तथापि, त्यांनी वैद्यकीय शिक्षण व औषधी द्रव्ये विभागाने आदेश दिल्यानंतरच प्रत्यक्ष अधिग्रहणाची कार्यवाही सुरु करण्यात यावी.

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने.

(डॉ. संजय मुखर्जी)
सचिव, महाराष्ट्र शासन

प्रति,

संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई

संचालक, आयुष संचालनालय, मुंबई

प्रबंधक, महाराष्ट्र वैद्यकीय परिषद, मुंबई / महाराष्ट्र दंत परिषद, मुंबई / महाराष्ट्र आयुर्वेद परिषद /महाराष्ट्र परिचर्या परिषद, मुंबई / महाराष्ट्र होमिओपॅथी परिषद, मुंबई

सर्व अधिष्ठाता, शासकीय वैद्यकीय महाविद्यालये / शासकीय दंत महाविद्यालये /शासकीय आयुर्वेद महाविद्यालये

प्राचार्य, शासकीय नर्सिंग महाविद्यालय.

सर्व अधिकारी / कर्मचारी, वैद्यकीय शिक्षण व औषधी द्रव्ये विभाग, मंत्रालय, मुंबई

प्रत माहितीसाठी-

सचिव, वैद्यकीय शिक्षण व औषधी द्रव्ये विभाग यांचे स्वीय सहाय्यक.

1727004/2020/O/O IDSP-NCDC

Guidelines for Workplace of COVID-19 case

When someone who has COVID-19 coughs or exhales they release droplets of infected fluid. Most of these droplets fall on nearby surfaces and objects - such as desks, tables or telephones. People could catch COVID-19 by touching contaminated surfaces or objects – and then touching their eyes, nose or mouth.

If they are standing within one meter of a person with COVID-19 they can catch it by breathing in droplets coughed out or exhaled by them. In other words, COVID-19 spreads in a similar way to flu.

Simple ways to prevent the spread of COVID-19 in your workplace

- Make sure your workplaces are clean and hygienic
  - Surfaces (e.g. desks and tables) and objects (e.g. telephones, keyboards) need to be wiped with disinfectant regularly
- Promote regular and thorough hand-washing by employees, employers and customers.
- Put sanitizing hand rub dispensers in prominent places around the workplace. Make sure these dispensers are regularly refilled
- Promote good respiratory hygiene in the workplace
- Ensure that face masks(surgical mask) and / or paper tissues are available at your workplaces, for those who develop a runny nose or cough at work, along with closed bins for hygienically disposing of them
- Refrain from unnecessary travel both local and international.
- In case of unavoidable travel to locations reporting COVID-19,
  - Make sure your organization and its employees have the latest information on areas reporting COVID-19 available at https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/.
  - Regularly check travel advisories of MoHFW and accordingly share it with employees.
  - Make sure all persons travelling are briefed by a qualified professional (e.g. staff health services, health care provider or local public health partner) and know what to do and who to contact if they feel ill while traveling.
  - Avoid sending employees at higher risk of serious illness (e.g. older employees and those with medical conditions such as diabetes, heart and lung disease)
  - Encourage employees to wash their hands regularly and stay at least one meter away from people who are coughing or sneezing
  - Ensure that your employees comply with instructions from local authorities where they are traveling.
  - Employees who have returned should monitor themselves for symptoms for 14 days and take their temperature twice a day.
  - If they develop even a mild cough or low grade fever (i.e. a temperature of 37.3 C or more) they should **stay at home and self-isolate and report to the nearest designated health facility (information can be taken from 01123978046) and inform workplace**. This means avoiding close contact (one meter or nearer) with other people, including family members.

Advisory for Hotels in view of COVID-19 situation

- Make sure that the premises of hotel are clean and hygienic. Wipe the surfaces with disinfectant regularly.
- Promote regular and thorough hand-washing by employees, employers and customers.
- Put sanitizing hand rub dispensers in prominent places around the workplace. Make sure these dispensers are regularly refilled
- Promote good respiratory hygiene in the hotel.

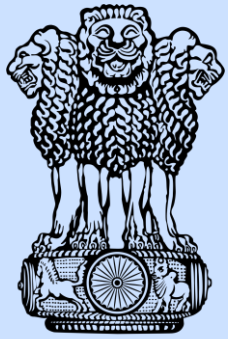
- Ensure that face masks(surgical mask) and / or paper tissues are available at your hotel, for those who develop a runny nose or cough at work, along with closed bins for hygienically disposing of them
- Display moments of hand wash, steps of hand wash and respiratory hygiene at reception through posters.
- Keep IEC/ FAQs for reference/ displayed
- Keep the log of visitors updated and record following information separately for all the guests in the following format.

Name		
Permanent Address		
Contact Number/s		
email id		
Have you done any international travel in last 14 days*		**Yes/No**
If yes, then give details of country/ countries visited in last 14 days		
Places visited in India in last 14 days		
Are you suffering from any of the following, please tick*		
Fever	**Cough**	**Difficulty in breathing**

Signature of the Guest

* If yes to any of these, then please inform District Surveillance Officer or at national helpline number 01123978046.

Designate a nodal officer for coordination with District and share his contact details with DSO.



COVID -19 Outbreak

Standard Operating Procedures

State or District Control Room

National Centre for Disease Control

22 Sham Nath Marg, Delhi 110054

Directorate General of Health Services

Ministry of Health and Family Welfare

Table of Contents

WHO has declared the COVID-19 (SARS-CoV-2) as Public Health Emergency of international concern and has raised the risk assessment of China, Regional Level and Global Level to Very High.

To monitor implementation of activities to contain local transmission of COVID-2019 disease a state control room should be set up. The creation of control room will ensure a single incident command structure for coordination of all activities related to COVID-19 containment and efficient use of resources.

The control room should be headed by a state health department officials/ State surveillance officers. The Control room incharge will supervise activities related to surveillance, call centre, media scanning, sample collection and intersectoral coordination. Following sub-teams should be formuuated for the control room:

1. Surveillance team
2. Call Centre management team
3. Media Surveillance team
4. Sample tracing team
5. Private hospital surveillance team
6. Transportation and ambulance management team
7. Inter departmental and coordination team

TORs of Teams

1. Surveillance team

- Hospital surveillance
  - The condition of the Symptomatic patients admitted at isolation wards of hospitals will be closely scrutinized and reports will be updated to surveillance team
  - Analysis of the reports
- Field surveillance
  - Those patients discharged from hospitals will be monitored by field workers in their corresponding PHC area
  - Those asymptomatic travellers/contacts in home isolation will also be monitored for 14 days by field workers and reports will be sent to the DSO.
- Lab Surveillance
  - The DSO and District nodal officers entrusted for sample collection will inform to the lab surveillance team before sample collection
  - Sample requisition forms will be scrutinized before sending to National Institute of Virology Pune/VDRL lab network.
  - Liaison with districts and sample collection point

2. Call Centre management team

- All State teams shall ensure to be present in daily meeting at 6 pm at the state control room / wherever suggested by authorities.
- All State teams shall connect and coordinate with corresponding teams in all districts and compile the activities, so as to prepare the report of the

activities in the evening meeting.

- The respective State teams may co-opt the officers necessary for compiling the reports and supporting the districts as per the needs.
- They shall ensure that the specific activities are conducted, data collated and presented in a specific format.

Control room call centre should be set up in state as well as district. The call centre is to be set up with 3 laptop, 3 mobile/ landline telephone facility. Each Call Centre Operator is to be assigned both a telephone and a computer. One outgoing mobile facility also available for answering pending calls. Two whatsapp number also be made available in control management room. Depending on the configuration of the call centre, each workstation should have the following items:

- Headset for hands-free answering;
- Reference materials (including all standard MoHFW guidelines);
- Item to be used to request assistance from the supervisor (Paper and pen/pencil, register etc)
- All phone/computer banks are set up in close proximity to power, telephone, and data sockets/ports.

Mandates for Call Centre

- Call centre will be operational 24*7
- Documentation of all the activities happening in call centre
- Daily consolidation report at 4.30 pm.
- Establishing call centre with sufficient connectivity
- To answer medical queries, logistics and administrative issues regarding health and health related problems
- Daily maintenance of second and third level call referral. Compilation format

Total number of calls till today	No: of calls on the date--/--/2020	Total	Case follow up till today	Case reported on --./2020	Total fever, cough, shortness of breath with contact/travel history

3. Media Surveillance team; Print, visual and social media surveillance with the support of State and District team.

- Collection of information regarding demand and supply of logistics, Human resources etc. circulated in the media,
- Validating the information collected from the media for negative outcomes and execute timely preventive and control measures.
- Reply queries to the general public regarding health related events and information through phone numbers circulated at the state level.

Reporting format of cyber space monitoring

Sl No.	Description	Details
1	Whether any misinformation noticed	
2	Misinformation noticed Give details in brief	
3	Whether reported to take action and case booked	
4	Cases booked today	
	Total cases Booked till today	

4. Sample Tracing Team

- The team should keep a watch on sample sent to each lab from all districts and answer all queries regarding the sending of samples in coordination with the PH lab.
- The team should hand hold the district in transportation of samples, filling formats, collecting reports and intimate the authorities regarding the status of results Monitor sample collection and facilitate
- All sample test results to be reported to the respective Superintendent of MCH, District Collector, DHS, DME and Prl Secretary on daily basis

SI No	Description	Number	Results received	Positive
1	Total Sample Collected			
2	Samples sent to			

5. Private hospital surveillance team

- Team should compile the data regarding the general public visiting private hospitals from all districts and suspect and identify any missed out contacts of contacts reaching the facilities.
- Reporting format

Number of persons visited private hospitals	
Suspected cases/contacts identified from March	

6. Transportation and ambulance management team

The teams should compile the data regarding the availability spacing, training of drivers of ambulances and vehicles carrying patients from home isolation to the hospital isolation facilities and back it should be ensured that there should be continuous availability of vehicles 24 x 7 in all districts. The data should be compiled in following format in all districts .All possible challenges at the

district should be addressed there itself and decision taken at the state could be compiled and addressed during control room presentation.

7. Inter departmental and coordination team

There should be daily co-ordination meetings under the chairmanship of DC. The inter-sectoral team should assess the requirements and address staffing needs, identify funding sources and mechanisms for related activities, ensure inter-sectoral coordination between government departments, agencies, civil society organizations and other relevant bodies. All sectors should be prepared to support the implementation of public health measures and the health sector response and to maintain essential business continuity.

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- २८ मार्च २०२०

प्रति,

विभागीय आयुक्त (सर्व)
जिल्हाधिकारी (सर्व)
मुख्य कार्यकारी अधिकारी (सर्व)

विषय: महाराष्ट्राच्या सिमेवर किंवा महाराष्ट्रातील जिल्ह्याच्या सिमेवर येणाऱ्या प्रवाशांबाबत करावयाची कार्यवाही...

संदर्भ : महसुल व वन विभाग, शासन निर्णय क्र. सीएलएस-२०२०/प्र.क्र.१२३/म-३, दि.२८.०३.२०२०

महाराष्ट्र राज्यामध्ये कोविड-१९ या आजाराचा झपाट्याने प्रसार होत आहे. या आजाराचे रुग्ण सर्वच विभागांमध्ये आढळून आले आहेत. कोविड-१९ नियंत्रणाचा एक भाग म्हणून राज्यामध्ये संपुर्ण Lock Down करण्यात आले आहे. तथापि, महाराष्ट्रातील तसेच काही कारणांमुळे परराज्यात गेलेले प्रवासी, स्थलांतरित कामगार, बेघर, इ. राज्यामध्ये परत येत आहेत. त्यातील बरेचसे पायी व मिळेल त्या रस्त्याने येत आहेत. या प्रवाशांकडून कोविड-१९ चा प्रसार होऊ शकतो, ही बाब लक्षात घेता खालीलप्रमाणे कार्यवाही करावी:-

१) वर नमुद केल्यानुसार राज्यांतील जिल्ह्याच्या सीमेवर किंवा राज्याच्या सीमा भागातील जिल्ह्यांमध्ये जे प्रवासी, स्थलांतरित कामगार, इ. येतील त्यांना वर नमूद केल्यानुसार आहे त्या ठिकाणी प्रत्येक जिल्ह्यांमध्ये अलगीकरण (Quarantine) मध्ये ठेवण्यात यावे. त्या ठिकाणी त्यांना आवश्यक मुलभूत सुविधा उपलब्ध करुन देण्यात याव्यात.

२) परराज्यातून आलेले प्रवासी, स्थलांतरित कामगार व वेघर यांना महसुल विभागाने दिलेल्या वास्तव्याच्या ठिकाणी आणल्यानंतर तेथून जवळ असणाऱ्या प्राथमिक आरोग्य केंद्रांच्या वैद्यकीय अधिकाऱ्यांना कळविण्याच्या सुचना संबंधितांना द्याव्यात.

३) वैद्यकीय अधिकाऱ्यांनी सर्व प्रवाशांची वैद्यकीय तपासणी करुन आवश्यकतेनुसार औषधोपचार करावेत. गरोदर माता / बालके यांची विशेष काळजी घ्यावी.

४) वैद्यकीय अधिकाऱ्यांनी सर्व प्रवाशांना कोविड-१९ आजार व या आजाराच्या प्रतिबंधासाठी वैयक्तिक आणि सार्वजनिक स्तरावर घ्यावयाची काळजी याबाबत सविस्तर आरोग्य शिक्षण द्यावे.

५) प्रवाशांमध्ये ताप (१००F च्या पुढे), खोकला-धाप लागणे अशी लक्षण असणारे प्रवाशी असल्यास पुढील तपासणीसाठी त्यांना रुग्णवाहिकेने जिल्हा रुग्णालय येथे संदर्भीत करावे.

६) जिल्हा रुग्णालयांमध्ये संशयित कोविड-१९ कक्षामध्ये या सर्वांना दाखल करावे आणि त्यांच्या घशातील स्त्रावाचा नमुना घ्यावा. चाचणी अहवाल समारात्मक आल्यास त्वरित आयसोलेशन कक्षात दाखल करावे. अहवाल नकारात्मक आल्यास महसुल विभागाच्या मार्गदर्शक सुचनांनुसार पुढील कार्यवाही करावी.

७) रुग्णांची चाचणी सकारात्मक आल्यास त्यांच्या सहवासितांची संपूर्ण माहिती घ्यावी व त्यांना स्वतंत्रपणे १४ दिवसांसाठी (Quarantine) मध्ये ठेवावे व लक्षणे आढळून आल्यास पुढील कार्यवाही करावी.

८) ५०० पेक्षा जास्त प्रवासी एका ठिकाण असतील तर, तेथे वहुविध आरोग्य सेवक (पुरुष) यांना २४ तास उपलब्ध ठेवण्यात यावे.

प्रवासी, स्थलांतरीत कामगार आणि वेघर याचेमुळे स्थानिक जनतेमध्ये कोविड-१९ आजार पसरु नये यासाठी उपरोक्त नुसार कार्यवाही करण्यात यावी.

8-3-2020

(डॉ. प्रदीप व्यास)
प्रधान सचिव, महाराष्ट्र शासन

प्रत आयुक्त, आरोग्य सेवा, मुंबई
प्रत संचालक, आरोग्य सेवा मुंबई / पुणे
प्रत संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई
प्रत मा. मुख्यमंत्री यांचे प्रधान सचिव
प्रत मा.उपमुख्यमंत्री यांचे सचिव
प्रत मा. मुख्य सचिव यांचे उपसचिव

COVID-१९ विषाणुच्या प्रादुर्भावामुळे निर्माण झालेली परिस्थिती हाताळण्यासाठी लेखाशीर्ष २२४५०२४४ अंतर्गत वितरित केलेल्या निधीमधून मदत उपाय योजनांवरील (Relief Measures) खर्च भागविण्यासाठी अनुमती देण्याबाबत .....

महाराष्ट्र शासन
महसुल व वन विभाग
शासन निर्णय,क्रमांक: सीएलएस-२०२०/प्र.क्र.१२३/म-३
मंत्रालय, मुंबई - ४०० ०३२
दिनांक : २८ मार्च,२०२०

संदर्भ : १. केंद्र शासन,गृह मंत्रालय,यांचे पत्र क्र. ३३-४/२०२०-MDM-I, दिनांक १४ मार्च, २०२०
२. शासन निर्णय, समक्रमांक, दिनांक: १६.३.२०२०
३. केंद्र शासन,गृह मंत्रालय,यांचे पत्र क्र. ३३-०४/२०२०-MDM-I, दिनांक २८ मार्च, २०२०
४. केंद्र शासनाचे पत्र क्रमांक ३२-७/२०१४-NDM-I,दिनांक ८.४.२०१५
५. शासन निर्णय क्रमांक: सीएलएस-२०१५/प्र.क्र.४०/म-३, दिनांक १३.५.२०१५

प्रस्तावना:

देशात व राज्यामध्ये COVID-१९ विषाणुचा प्रादुर्भाव झाल्यामुळे रोगराई नियंत्रित करण्याची आवश्यकता विचारात घेवून आवश्यक उपाययोजना करण्यासाठी राज्य कार्यकारी समितीची दिनांक १६ मार्च, २०२० रोजी मुख्यसचिव यांच्या अध्यक्षतेखाली बैठक आयोजित करण्यात आली होती. सदर बैठकीत राज्य कार्यकारी समितीने घेतलेल्या निर्णयानुसार COVID-१९ विषाणुच्या प्रादुर्भावामुळे पसरणारी रोगराई नियंत्रित करण्यासाठी विलगीकरण कक्ष स्थापन करणे,त्यासाठी तात्पुरती निवासी व्यवस्था करणे, अन्न, कपडे, वैद्यकीय देखभाल इत्यादी तसेच अतिरिक्त चाचणी प्रयोगशाळा स्थापन करण्याचा खर्च, अग्निशमन, पोलीस,स्थानिक स्वराज्य संस्था व आरोग्य सेवेतील कर्मचाऱ्यांच्या वैयक्तिक संरक्षणासाठी प्रतिरोधक साधनांचा खर्च व व्हेंटीलेटर,हवा शुध्दीकरण यंत्र, थर्मल स्कॅनर्स व इतर साधनांचा खर्च भागविण्यासाठी सर्व जिल्हयांना राज्य आपत्ती प्रतिसाद निधीमधून संदर्भाधीन क्रमांक २ येथील शासन निर्णयान्वये रू ४५ कोटी निधी वितरित करण्यात आला आहे. या निधीमधून लॉकडाऊन उपाययोजनामुळे राज्यात अडकलेले, मदत छावण्या व इतर ठिकाणी आश्रय घेतलेले स्थलातंरित कामगार व बेघर व्यक्ती यांना अन्न,वस्त्र, निवारा व वैद्यकीय देखभाल पुरविण्यासाठी होणारा खर्च अनुज्ञेय करण्याची बाब शासनाच्या विचाराधीन होती.

शासन निर्णय:

देशात व राज्यामध्ये COVID-१९ विषाणुचा प्रादुर्भाव झाल्यामुळे रोगराई नियंत्रित करण्याची आवश्यकता विचारात घेवून उपाययोजना करण्यासाठी राज्य कार्यकारी समितीची दिनांक १६ मार्च, २०२० रोजी मुख्यसचिव यांच्या अध्यक्षतेखाली बैठक आयोजित करण्यात आली होती. सदर बैठकीत राज्य कार्यकारी समितीने घेतलेल्या निर्णयानुसार COVID-१९ विषाणुच्या प्रादुर्भावामुळे पसरणारी रोगरोई नियंत्रित करण्यासाठी संदर्भाधीन क्रमांक २ येथील शासन निर्णयामध्ये विहित केलेल्या बाबीवरील खर्च भागविण्यासाठी राज्य आपत्ती

DS(W)

प्रतिसाद निधीमधून (S.D.R.F.) रूपये ४५,००,००,०००/- (रूपये पंचेचाळीस कोटी फक्त) विभागीय आयुक्तांना वितरित करण्यात आला आहे.

२. संदर्भाधीन क्रमांक ५ येथील शासन निर्णयातील अनुक्रमांक ३ (अ) येथे नमूद केलेल्या " मदत छावणीमध्ये आश्रय घेतलेल्या व्यक्तींकरिता तात्पुरती राहण्याची व्यवस्था, अन्न,कपडे व औषधोपचार" या बाबीमध्ये कोव्हीड-१९ विषाणूचा राज्यातील फैलाव रोखण्यासाठी **लॉकडाऊन उपाययोजनामुळे राज्यात अडकलेले, मदत छावण्या व इतर ठिकाणी आश्रय घेतलेले स्थलातंरित कामगारांसह बेघर व्यक्ती यांना अन्न,वस्त्र, निवारा व वैद्यकीय देखभाल पुरविण्यासाठी होणारा खर्च अनुज्ञेय राहील.** यापूर्वी संदर्भाधीन क्रमांक २ येथील शासन निर्णयान्वये वितरित करण्यात आलेल्या रूपये ४५ कोटी निधीमधून वरील खर्च करण्यास जिल्हाधिकारी यांना प्राधिकृत करण्यात येत आहे. या संदर्भातील केंद्र शासनाच्या संदर्भाधीन क्रमांक ३ येथील दिनांक २८.३.२०२० च्या पत्राची प्रत सोबत जोडली आहे.

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावांने,

(सु.ह.उमराणीकर)
उपसचिव,महाराष्ट्र शासन

प्रति,

१. मा.मुख्यमंत्री यांचे प्रधान सचिव,मंत्रालय,मुंबई,
२. मा.उपमुख्यमंत्री यांचे सचिव,मंत्रालय,मुंबई
३. मा. विरोधी पक्ष नेता (विधानसभा/विधान परिषद), विधानमंडळ सचिवालय,मुंबई,
४. महाराष्ट्र विधानमंडळाचे सर्व सन्माननीय विधान सभा/विधान परिषद सदस्य,
५. अपर मुख्य सचिव (वित्त), मंत्रालय,मुंबई,
६. प्रधान सचिव (सार्वजनिक आरोग्य विभाग),जी.टी.हॉस्पीटल, मुंबई,
७. अपर मुख्य सचिव /प्रधान सचिव /सचिव,सर्व मंत्रालयीन प्रशासकीय विभाग,मंत्रालय,मुंबई,
८. संचालक (आरोग्य सेवा), महाराष्ट्र राज्य,मुंबई,
९. सर्व विभागीय आयुक्त,
१०. सर्व जिल्हाधिकारी,
११. महालेखापाल (लेखा व अनुज्ञेयता) १/२, महाराष्ट्र, मुंबई/नागपूर,
१२. महालेखापाल (लेखा परिक्षा) १/२,महाराष्ट्र,मुंबई/नागपूर,
१३. संचालक, लेखा व कोषागारे ,मुंबई
१४. सर्व जिल्हा कोषागार अधिकारी,
१५. मा.मंत्री(मदत व पुनर्वसन) यांचे खाजगी सचिव,मंत्रालय,मुंबई
१६. मा. राज्यमंत्री (मदत व पुनर्वसन) यांचे खाजगी सचिव,मंत्रालय,मुंबई
१७. वित्तिय सल्लागार व सहसचिव,मदत व पुनर्वरान प्रभाग,मंत्रालय,मुंबई
१८. कार्यासन अधिकारी (म-११/म-३), मदत व पुनर्वसन प्रभाग,मंत्रालय,मुंबई
१९. वित्त विभाग (कार्यासन व्यय-९/अर्थ-६),मंत्रालय,मुंबई
२०. निवड नस्ती (कार्यासन/ म-३)

No. 33-04/2020-NDM-I
Government of India
Ministry of Home Affairs
(Disaster Management Division)

'C' Wing, 3rd Floor, NDCC-II,
Jai Singh Road, New Delhi,
Dated 28th March, 2020

To

The Chief Secretaries
(All States)

Subject: Item and Norms of assistance under State Disaster Response Fund (SDRF) in the wake of COVID-19 Virus Outbreak.

Sir/ Madam,

I am directed to refer this Ministry's letter No. 33-4/2020, dated 14th March 2020 on the above mentioned subject and to say that the existing norms issued vide this Ministry letter no 32-7/2014-NDM-I dated 08.04.2015, under item no 3(a) "***Relief Measures - Provision for temporary accommodation, food, clothing medical care etc.***" would be applicable to homeless people, including migrant labourers, stranded due to lockdown measures, and sheltered in the relief camps and other places for providing them food etc., for the containment of spread of Covid-19 virus in the country.

Yours faithfully,

28/03/2020

(Sanjeev Kumar Jindal)
Joint Secretary to Government of India
Tel: 23438096

Copy to AS(UT), MHA for making similar provisions for utilization of UT Disaster Response Funds by the Union Territories.

CC for information: PS to HM/MOS(N)/HS/ Secretary (Expenditure).

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना 2020/प्र.क्र. 58/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉम्प्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- 15 मार्च 2020

प्रति,

सचिव,
महाराष्ट्र लोकसेवा आयोग,
मुंबई.

विषय: राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना करण्याबाबत.. (विविध परिक्षा दि.31 मार्च,2020 पर्यंत स्थगित करण्याबाबत.)

राज्य शासनाने करोना विषाणूचा (कोव्हिड १९) प्रादुर्भाव रोखण्यासाठी राज्यात साथरोग प्रतिबंधात्मक कायदा, 1897 दिनांक १३ मार्च २०२० पासून लागू करुन खंड २, ३ व ४ मधील तरतुदीनुसार अधिसूचना व नियमावलीही निर्गमित करण्यात आलेली आहे.

करोना विषाणुचा राज्यातील वाढता प्रादुर्भाव लक्षात घेता प्रतिबंधात्मक उपाययोजनेचा एक भाग म्हणून कोणत्याही कारणास्तव होणारी गर्दीस प्रतिबंध करण्यात आला आहे. यास्तव दि.31 मार्च,2020 पर्यंत आपल्या स्तरावरुन घेण्यात येणाऱ्या विविध परिक्षा पुढे ढकलण्यात याव्यात. अशा सूचना आपणास सक्षम प्राधिकाऱ्यांच्या मान्यतेने देण्यात येत आहेत.

तरी उपरोक्तनुसार तात्काळ कार्यवाही करण्याची विनंती आपणास करण्यात येत आहे.

(डॉ. प्रदीप व्यास)
प्रधान सचिव, महाराष्ट्र शासन

प्रत अपर मुख्य सचिव, सामान्य प्रशासन विभाग, मंत्रालय, मुंबई.
प्रत जिल्हाधिकारी, सर्व
प्रत आयुक्त, आरोग्य सेवा, मुंबई
प्रत संचालक, आरोग्य सेवा मुंबई / पुणे
प्रत संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई
प्रत मा. मुख्यमंत्री यांचे प्रधान सचिव
प्रत मा.उपमुख्यमंत्री यांचे सचिव
प्रत मा. मुख्य सचिव यांचे उपसचिव

25

GOVERNMENT OF MAHARASHTRA
PUBLIC HEALTH DEPARTMENT
G.T.Hospital Compund, 10th Floor, New Mantralaya,
Mumbai 400 001 Dated 13th March, 2020

Notification

No. Corona-2020/CR 58/ Aarogya-5, Whereas a Public Health emergency has developed in the State of Maharashtra due to spread of communicable disease due to Corona virus (COVID-19)

And whereas, it is expedient to make provision to prevent spread of this communicable disease, as per the measures suggested by World Health Organisation & Government of India.

Now, to implement all emergency measures to control this communicable disease (COVID-19) in the State of Maharashtra, this Department by this Notification in exercise of the powers conferred by section 2 of the Epidemic Diseases Act, 1897, empowers all the powers exercisable by the State Government under section 2, 3 & 4 of the Epidemic Diseases Act, 1897 from the date of issue of this notification.

By order and in the name of Governor of Maharashtra,

Pradeep Vyas

(Dr Pradeep Vyas)
Principal Secretary to Government

1. Principal Secretary to Hon'ble Governor, Rajbhavan, Mumbai
2. Principal Secretary to Hon'ble Chief Minister, Mantralaya, Mumbai
3. Principal Secretary to Hon'ble Deputy Chief Minister, Mantralaya, Mumbai
4. Hon'ble Minister (Health & Family Welfare), Mantralaya, Mumbai

5. Hon'ble Minister of State (Health & Family Welfare), Mantralaya, Mumbai
6. Additional Chief Secretary/ Principal Secretary/ Secretary (All), Mantralaya, Mumbai
7. Secretary, Maharashtra Legislature Secretariet, Vidhan Bhawan, Mumbai
8. Commissioner (Health Services) & Mission Director, NHM, Mumbai
9. All Divisional Commissioners
10. All District Collectors
11. All Municipal Commissioners
12. All Chief Executive Officers, Zilla Parishad
13. Director, Health Services- I/II, Mumbai/Pune
14. Additional Director, Health Services (All)
15. Joint Director, Health Services (All)
16. Deputy Directors, Health Services (All)
17. Civil Surgeons (All)
18. District Health Officers (All)
19. District Malaria Officers (All)
20. Deputy Secretary to Chief Secretary, Mantralaya, Mumbai
21. All Joint / Deputy Secretary, Public Health Department
22. PA to Principal Secretary, Public Health Department
23. All Section Officers, Public Health Department
24. Select File-Aarogy-5

महाराष्ट्र शासन
सार्वजनिक आरोग्य विभाग,
गोकुळदास तेजपाल रुग्णालय संकूल,
१० वा मजला, नवीन मंत्रालय, मुंबई ४०० ००१.
दि. १३ मार्च, २०२०

अधिसुचना

क्रमांक करोना २०२०/प्र क्र ५८/ आरोग्य ५ : ज्याअर्थी, राज्यात करोना विषाणुमुळे (COVID-19) उदभवणाऱ्या संसर्गजन्य आजारामुळे आरोग्य विषयक आपत्कालीन परिस्थिती निर्माण झालेली आहे.

त्याअर्थी, जागतिक आरोग्य संघटना व आरेाग्य व कुटुंब कल्याण मंत्रालय, भारत सरकार यांनी या संसर्गजन्य रोगाच्या नियंत्रणास्तव प्रसारित केलेल्या विविध उपाययोजनांची अंमलबजावणी व राज्यात या करोना विषाणुमुळे उदभवलेल्या संसर्ग रोगाच्या नियंत्रणास्तव आपत्कालीन उपाययोजना करण्याची आवश्यकता निर्माण झाली आहे.

त्याअर्थी, साथरोग अधिनियम, १८९७ च्या खंड २ नुसार राज्याला मिळालेल्या अधिकारानुसार, महाराष्ट्र राज्यात साथरोग अधिनियमातील खंड २, ३, व ४, ची अंमलबजावणी या अधिसूचनेच्या दिनांकापासून सुरु करण्यात येत आहे.

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने ,

(डॉ. प्रदीप व्यास)
शासनाचे प्रधान सचिव

१. मा. राज्यपाल यांचे प्रधान सचिव, राजभवन, मुंबई.
२. मा. मुख्यमंत्री यांचे प्रधान सचिव, मंत्रालय, मुंबई.
३. मा. उपमुख्यमंत्री यांचे प्रधान सचिव, मंत्रालय, मुंबई
४. मा. मंत्री (आरोग्य व कुटुंब कल्याण), मंत्रालय, मुंबई
५. मा. राज्यमंत्री (आरोग्य व कुटुंब कल्याण) मंत्रालय, मुंबई
६. अपर मुख्य सचिव/प्रधान सचिव/सचिव, मंत्रालय, मुंबई
७. सचिव, महाराष्ट्र विधानमंडळ सचिवालय, विधानभवन, मुंबई.
८. आयुक्त, आरोग्य सेवा तथा संचालक, राष्ट्रीय आरोग्य अभियान, मुबई
९. सर्व विभागीय आयुक्त
१०. सर्व जिल्हाधिकारी

११. सर्व महानगरपालिका आयुक्त
१२. सर्व मुख्य कार्यकारी अधिकारी, जिल्हा परिषद
१३. संचालक, आरोग्य सेवा-१/२, आरोग्य सेवा संचालनालय, मुंबई / पुणे
१४. अतिरिक्त संचालक, आरोग्य सेवा (सर्व)
१५. सहसंचालक, आरोग्य सेवा (सर्व)
१६. उपसंचालक, आरोग्य सेवा (सर्व)
१७. जिल्हा शल्यचिकित्सक (सर्व)
१८. जिल्हा आरोग्य अधिकारी (सर्व)
१९. जिल्हा हिवताप अधिकारी (सर्व)
२०. मा. मुख्य सचिव यांचे उप सचिव
२१. सर्व सह सचिव/उपसचिव, सार्वजनिक आरोग्य विभाग
२२. प्रधान सचिव, सार्वजनिक आरोग्य विभाग यांचे स्विय सहायक
२३. सर्व कार्यासन अधिकारी, सार्वजनिक आरोग्य विभाग
२४. निवड नस्ती-आरोग्य ५

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- १८ मार्च २०२०

प्रति,

आयुक्त, महानगरपालिका (सर्व)
जिल्हाधिकारी (सर्व)
पोलीस आयुक्त (सर्व)
पोलीस अधिक्षक (सर्व)
मुख्य कार्यकारी अधिकारी, जिल्हा परिषद सर्व

विषय: राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना करण्याबाबत (१२ देशातील प्रवाशांचे अलगीकरण व विलगीकरणाबाबतच्या मार्गदर्शक सूचना)..

संदर्भ: सार्वजनिक आरोग्य विभाग समक्रमांक अधिसूचना दिनांक १३ व १४ मार्च २०२०

राज्यात करोनाचा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपायोजना म्हणून केंद्र व राज्य शासनाकडून यापुर्वी नमूद केल्यानुसार दिनांक १५ फेब्रुवारी २०२० व त्यानंतर चीन, इटली, इराण, दक्षिण कोरीया, फ्रान्स, स्पेन, जर्मनी या करोनासंसर्ग बाधित सात देशातून / या देशामार्गे अथवा या देशांस भेट देऊन आलेल्या प्रवाशांची विमानतळावर तपासणी करुन त्यांना अलगीकरण (Quarantine) व आवश्यकतेनुसार विलगीकरण (Isolation) करणे अनिवार्य करण्यात आलेले होते.

आता आरोग्य व कुटुंब कल्याण मंत्रालय, भारत सरकार यांच्या मार्गदर्शक सूचना लक्षात घेऊन व विमानतळावरील प्रवाशांच्या तपासणीनंतर तसेच करोना बाधित रुग्णांची तपासणी व प्राप्त माहितीच्या विश्लेषणानुसार आज दिनांक १८ मार्च २०२० पासून उपरोक्त नमूद सात देशांच्या यादीत खालील देशातील प्रवास करुन आलेल्या व्यक्तींचा समावेश करण्यात आलेला आहे यांचेसह आता १५ फेब्रुवारी २०२० नंतर, खाली नमूद केलेल्या देशांतील, देशांमार्गे अथवा या देशांस भेट देऊन आलेल्या प्रवाश्यांचेही अलगीकरण (Quarantine) व आवश्यकतेनुसार विलगीकरण (Isolation) करणे राज्य शासनाकडून अनिवार्य करण्यात आलेले आहे.

१. संयुक्त अरब एमिरेट्स (यु. ए. ई.),
२. कतार
३. ओमान
४. कुवेत
५. यु.एस.ए. (अमेरिका)

अलगीकरण व विलगीकरणाबाबत उपरोक्त १२ देशांतील, देशांमार्गे अथवा या देशांस भेट देऊन आलेल्या प्रवाश्यांचे बाबतीत आज दिनांक १८ मार्च २०२० पासून खालीलप्रमाणे मार्गदर्शक सूचना अंमलात आणण्यात याव्यात.

प्रवाशांच्या तपासणीअंती त्यांची विभागणी त्यांच्यातील लक्षणांच्या आधारे खाली नमूद केल्याप्रमाणे अ, ब, व क प्रवर्गात (A, B and C category) करण्यात यावी.

" अ " प्रवर्ग - अतिजोखीम (Category A - High Risk)

या प्रवाशांमध्ये ताप, सर्दी खोकला व श्वास घेण्यास त्रास होणे ही लक्षणे दिसून येत आहेत तसेच त्यांनी कोव्हीड १९चा प्रादुर्भाव असलेल्या उपरोक्त देशांमध्ये प्रवास केलेला आहे किंवा गेल्या १४ दिवसांत उपरोक्त देशातून प्रवास केलेल्यांच्या संपर्कात आले आहेत असे सर्व प्रवासी अतिजोखीमीचे ठरविण्यात आले आहेत

आवश्यक कार्यवाही : अशा " अ " प्रवर्गातील सर्व प्रवाशांचे विलगीकरण करुन त्यांना विर्निदिष्ठ रुग्णालयात दाखल करणे अनिवार्य राहील.

"ब" प्रवर्ग - मध्यम जोखीम (Category B - Moderate Risk) -

उपरोल्लेखीत कोणत्याही देशातून आलेले प्रवासी ज्यांच्यात " अ " प्रवर्गाची लक्षणे दिसून आलेली नाहीत, तथापि, ज्यांचे वय ६० पेक्षा अधिक आहे किंवा उच्च रक्तदाब, मधुमेह, दमा, कर्करोगग्रस्त प्रवासी किंवा कोणतेही प्रत्यारोपण झालेले, इम्यूनो सप्रेसिव्ह थेरपी चालू असलेल्या प्रवासी या प्रवर्गात येतील.

आवश्यक कार्यवाही: अशा प्रवाशांच्या बाबतीत विमानतळावरील कार्यरत वैद्यकीय चमुने तात्काळ तपासणी करुन त्यांना राज्य शासनाने विर्निदिष्ठ केलेल्या अलगीकरण कक्षात (Quarantine) पुढील १४ दिवस वैद्यकीय निगराणीखाली ठेवावे. या कालावधीत त्यांना सर्दी,ताप, खोकला किंवा श्वसनास त्रास यापैकी काही लक्षणे आढळून आल्यास त्यांना तात्काळ विनिर्दिष्ठ विलगीकरण कक्षात दाखल करण्यात येईल.

" क " प्रवर्ग - कमी जोखीम (Category B - Low Risk) - .

उपरोल्लेखीत कोणत्याही देशातून आलेले प्रवासी तथापि, "अ" किंवा "ब" प्रवर्गात नमूद केल्याप्रमाणे करोनाबाधेचे कोणतेही लक्षण नसणारे प्रवासी.

आवश्यक कार्यवाही : अशा प्रवाशांचे अंतिम गंतव्यस्थान राज्यात किंवा राज्याबाहेर कोठेही असल्यास अशा प्रवाशांना ते ज्या आंतरराष्ट्रीय विमानतळावर उतरले असतील त्या विमानतळाजवळ असलेल्या अलगीकरण कक्षात अलगीकरण करण्यात येईल किंवा संबंधित आयुक्तांनी जर अलगीकरणासाठी काही हॉटेल्स विनिर्दिष्ठ केली असतील अशा हॉटेलमध्ये संबंधीत प्रवाशाला त्याच्या स्वखर्चाने ठेवण्यात येईल जेणेकरुन प्रवासा दरम्यान होणा-या प्रादुर्भावास अटकाव होईल.

घरात अलगीकरणाबाबत निर्देशित प्रवाश्यांच्या बाबतीत खालील सूचना अंमलात आणण्यात याव्यात.

- ज्या व्यक्तीचे अथवा त्यांच्या नातेवाईकांचे वास्तव्य आंतरराष्ट्रीय विमानतळानजीकच्या शहरात आहे त्यांचेबाबतीत त्यांचे अलगीकरण त्यांच्या अथवा त्यांच्या नातेवाईकांचे वास्तव्याच्या ठिकाणी करण्यात यावे. संबंधीत प्रवासी जर नातेवाईकाच्या घरात राहणार असेल तर अशा वेळी त्या प्रवाश्याचे व त्याच्या नातेवाईकाचे नांव संपूर्ण पत्ता, भ्रमणध्वनी क्रमांकाबाबतचे हमीपत्र (Self Declaration) नोंदवून घेण्यात यावे. अशावेळी संबंधीत व्यक्ती व त्यांचे नातेवाईकाच्या भ्रमणध्वनीवर दूरध्वनी करुन खातरजमा करावी.

- अशा प्रवाशांना निवडणूकीसाठी वापरण्यात येणाऱ्या इंडेलीबल शाईने त्यांच्या तळहाताच्या पाठीमागे दिसेल अशा ठिकाणी अलगीकरणांचा कालावधीत नमूद केलेला स्टॅम्प मारण्यात यावा. हा स्टॅम्प १४ दिवस हातावर दिसू शकतो अशा प्रकारे मारण्यात यावा.
- अशा प्रवाशांचा संपूर्ण पत्ता, वास्तव्याचे ठिकाण व भ्रमणध्वनी क्रमांक याची नोंद करण्यात यावी. त्या व्यक्तीसमोरच त्यांच्या भ्रमणध्वनीवर दुरध्वनी करुन सदर क्रमांक चालू असल्याची खातरजमा करण्यात यावी.
- अनिवार्य अलगीकरण केलेली व्यक्ती अलगीकरण कक्षाच्या बाहेर, घरात अलगीकरण केले असल्यास घराबाहेर आढळल्यास अशा व्यक्तीवर फौजदारी कलम १८८ नुसार कारवाई करण्याचे अधिकार सक्षम प्राधिकारी यांना असतील.

अलगीकरण करण्यात आलेली व्यक्ती ज्या क्षेत्रात वास्तव्यास असेल त्या क्षेत्रातील जिल्हाधिकारी अथवा महापालिका क्षेत्रात महापालिका आयुक्त यांनी त्या व्यक्तीच्या जवळच्या पोलीस ठाण्यात देखील अलगीकरण करण्यात आलेल्या व्यक्तीची संपूर्ण माहिती द्यावी व त्या क्षेत्रातील संबंधीत पोलीस स्टेशनने संबंधीत व्यक्ती ही घरातच आहे याची दररोज खातरजमा करावी. याबाबत सर्व माहिती एकात्मिक रोग सर्वेक्षण कार्यालय / राज्य करोना नियंत्रण कक्ष, पुणे यांना दररोज पाठवावी.

सदर सूचना या सक्षम प्राधिकाऱ्यांच्या निर्देशानुसार निर्गमित करण्यात येत असून या सूचनांची तात्काळ अंमलबजावणी करण्यात यावी. सुलभ संदर्भासाठी भारत सरकारच्या गृहमंत्रालय यांचेकडून दिनांक ११ मार्च २०२० रोजीच्या व आरोग्य व कुटुंब कल्याण मंत्रालयाकडून दिनांक १३ मार्च व १६ मार्च २०२० रोजी प्राप्त झालेल्या सूचना सोबत जोडण्यात येत आहेत. या सूचना भारत सरकारच्या आरोग्य व कुटुंब कल्याण मंत्रालयाच्या अधिकृत संकेतस्थळावर देखील उपलब्ध आहेत.

प्रदीप व्यास

(डॉ. प्रदीप व्यास)
प्रधान सचिव, महाराष्ट्र शासन

प्रत अपर मुख्य सचिव (गृह)
प्रत अपर मुख्य सचिव (महसुल)
प्रत अपर मुख्य सचिव (ग्रामविकास)
प्रत अपर मुख्य सचिव (नगरविकास)
मंत्रालय, मुंबई
प्रत विभागीय आयुक्त, (सर्व)
प्रत आयुक्त, आरोग्य सेवा, मुंबई
प्रत संचालक, आरोग्य सेवा मुंबई / पुणे
प्रत संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई
प्रत मा. मुख्यमंत्री यांचे प्रधान सचिव
प्रत मा.उपमुख्यमंत्री यांचे सचिव
प्रत मा. मुख्य सचिव यांचे उपसचिव
प्रत खाजगी सचिव, मा. मंत्री (सा.आ.) मंत्रालय, मुंबई
प्रत खाजगी सचिव, मा. राज्य मंत्री (सा.आ.) मंत्रालय, मुंबई

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- २१ मार्च २०२०

प्रति,

आयुक्त, महानगरपालिका (सर्व)
जिल्हाधिकारी (सर्व)
मुख्य कार्यकारी अधिकारी
जिल्हा परिषद (सर्व)

विषय: राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना करण्याबाबत (उद्रेक सदृष्य व आपत्कालीन परिस्थितीचा मुकाबला करण्यासाठी सेवानिवृत्त आरोग्य अधिकारी, परिचारीका व कर्मचारी यांच्या सेवा उपलब्ध करुन घेण्याबाबत..

राज्यात करोनाचा वाढता प्रादुर्भाव लक्षात घेऊन उद्रेक सदृष्य परिस्थिती हाताळण्यासाठी अधिकचे आरोग्य सेवा देणाऱ्या अधिकारी व कर्मचाऱ्यांची आवश्यकता भासू शकते. त्याची पुर्वतयारी म्हणून आपल्या स्तरावरुन अधिपत्याखालील क्षेत्रातील शासकीय /महापालिका / नगरपालिका /आर्म फोर्सेस (मेडीकल कॉर्प) मधून सेवानिवृत्त झालेले परंतु, आरोग्य सेवा देण्यास सक्षम असणाऱ्या डॉक्टर्स, परिचारीका व आरोग्य कर्मचाऱ्यांना स्थानिक आवाहन करुन ऑनलाईन अर्जाद्वारे इच्छुकता मागवावी व अशा इच्छुक सेवानिवृत्त अधिकारी व कर्मचाऱ्यांची यादी तयार करुन ठेवावी. त्याचप्रमाणे आर्म फोर्सेसच्या बाबतीत जिल्हा सैनिक कल्याण अधिकाऱ्यांकडून इच्छुक आरोग्य सेवा देणाऱ्या सेवानिवृत्त अधिकारी / कर्मचाऱ्यांच्या यादी उपलब्ध करुन घ्यावी.

प्रदीप व्यास

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महाराष्ट्र शासन

महत्वाचे

क्रमांक करोना २०२०/प्र.क्र. ७६/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- २७ मार्च २०२०

प्रति,

आयुक्त, आरोग्य सेवा तथा
अभियान संचालक, राआअ
मुंबई

विषय: कोव्हीड १९च्या उपचारासाठी कर्मचारी व साहित्य उपलब्ध करण्याबाबत...

संदर्भ : १) संचालक, आरोग्य सेवा, पुणे यांचे पत्र क्र संआसे/करोना/ स्वतंत्र सुविधा/कक्ष ५८/५३२५-६८/२०२० दिनांक २५ मार्च २०२०
२) आयुक्त, आरोग्य सेवा यांनी त्यांचे पत्र क्र राआसोम/कोव्हीड -१९/कर्मचारी उपलब्धता/२०२० दिनांक २६.०३.२०२०
३) शासन साआवि पत्र क्र करोना २०२०/प्रक्र ५८/आरोग्य ५ दिनांक २४.०३.२०२०

संदर्भ क्रमांक १ च्या पत्रान्वये संचालक, आरोग्य सेवा, पुणे यांनी सर्व जिल्हा शल्य चिकित्सकांना कोव्हीड १९ या आजारावरील उपचारासाठी शक्यतो १०० पेक्षा जास्त खाटा असलेल्या रुग्णालयांमध्ये स्वतंत्र सुविधा कक्ष निर्माण करण्याच्या अनुषंगाने सर्वसामायिक सूचना देण्यात आल्याचे नमूद केले आहे.

सदर स्वतंत्र कक्षासाठी आवश्यक असणारी उपकरणे, यंत्रसामुग्री, साहित्यसामग्री व मनुष्यबळाची नेमणूकीची आवश्यकता असल्याचे आयुक्त, आरोग्य सेवा यांनी त्यांचे संदर्भ क्रमांक २ वरील पत्रान्वये मनुष्यबळ नेमणूक व खरेदीसाठी समिती नेमून कार्यवाही करण्याबाबत प्रस्तावित केले आहे.

या अनुषंगाने आपणांस कळविण्यात येते की,

१) जिल्हाधिकारी यांचे अध्यक्षतेखाली असलेल्या समितीने वॉक इन इंटरव्हयू द्वारे डॉक्टर्स, नर्सेस, तंत्रज्ञ यांची आवश्यकतेनुसार तात्पुरत्या कंत्राटी स्वरुपात नेमणूक करावी. सदर वैद्यकीय अधिकारी व कर्मचाऱ्यांना शासन स्तरावर कंत्राटी कर्मचाऱ्यांसाठी जे दर निश्चित केले आहेत त्या दराने मानधन अदा करण्यात यावे. तसेच यापुर्वी दिलेल्या सूचनांनुसार सक्षम निवृत्त / बॉन्ड पूर्ण झालेले वैद्यकीय अधिकारी, नर्सेस व तंत्रज्ञ यांना कंत्राटी तत्वावर तात्पुरती नेमणूक देता येईल.

२) कोव्हीड १९ च्या उपचारास्तव निर्माण करण्यात आलेल्या स्वतंत्र कक्षासाठी यंत्रसामग्री, उपकरणे व फर्नीचर खरेदीच्या अनुषंगाने नमूद करण्यात येते की शासन पत्र क्रमांक करोना २०२०/प्रक्र ५८/आरोग्य ५ दिनांक २४.०३.२०२० मध्ये नमूद केल्यानुसार जिल्हाधिकारी यांचे अध्यक्षतेखाली

उपरोक्त साहित्य खरेदी करण्यासाठी गठीत झालेल्या समितीच्या मान्यतेने व हाफकीन अंतर्गत खरेदी कक्ष, बृहनमुंबई महानगरपालिका, केंद्र शासन उपक्रम - एच एल एल लाईफ केअर तसेच अन्य शासन उपक्रम किंवा अन्य राज्याचे मेडीकल सर्व्हिस कॉर्पोरेशनचे दरसूचीनुसार न्युनतम दरावर खरेदी करण्यात यावी.

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प्रत संचालक, आरोग्य सेवा, मुंबई / पुणे
प्रत सह संचालक, आरोग्य सेवा (सर्व)
प्रत जिल्हा शल्य चिकित्सक (सर्व)
प्रत जिल्हा आरोग्य अधिकारी, जिल्हा परिषद (सर्व)
प्रत अवर सचिव (कार्यासन आरोग्य ३ / आरोग्य ७)

सत्यमेव जयते

Containment Plan

Novel Coronavirus Disease 2019

(COVID 19)

Ministry of Health & Family Welfare
Government of India

1. INTRODUCTION

1.1 Background

On 31st December 2019, the World Health Organization (WHO) China Country Office was informed of cases of pneumonia of unknown etiology (unknown cause) detected in Wuhan City, Hubei Province of China. On 7th January 2020, Chinese authorities identified a new strain of Coronavirus as the causative agent for the disease. The virus has been renamed by WHO as SARS-CoV-2 and the disease caused by it as COVID-19. The disease since its first detection has affected all the provinces of China and 40 other countries (including Hong Kong, Macau and Taiwan). As per WHO (as of 26th February, 2020), there has been a total of 81109 confirmed cases of COVID-19 worldwide including 78191 confirmed cases and 2718 deaths reported from China. Besides China, 2918 confirmed cases and 44 deaths have been reported from 37 countries.

In India, as on 26th February, 2020, three travel related cases (from Hubei province, China), were reported (all from Kerala). All these cases were clinically stable during the period of hospitalization and discharged as per the discharge policy.

1.2. Risk Assessment

The risk for spread has been assessed by World Health Organization and currently (as on 26th February, 2020) it is very high for China and high at regional and global levels. WHO on 30th January, 2020 declared the current novel coronavirus outbreak as a Public Health Emergency of International Concern (PHEIC). According to WHO, "all countries should be prepared for containment, including active surveillance, early detection, isolation and case management, contact tracing and prevention of onward spread of SARS-CoV-2 infection.

Clusters have appeared in many countries including USA, France, Germany and local transmission in Hong Kong, Singapore, Republic of Korea, Iran and Italy.

1.3. Epidemiology

Coronaviruses belong to a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats, bats etc. Rarely, animal corona viruses may evolve and infect people and then spread between people as witnessed during the outbreak of Severe Acute Respiratory Syndrome (SARS, 2003) and Middle East Respiratory Syndrome (MERS, 2014). The etiologic agent responsible for current outbreak of SARS-CoV-2 is a novel coronavirus is closely related to SARS-Coronavirus.

In humans, the transmission of SARS-CoV-2 can occur via respiratory secretions (directly through droplets from coughing or sneezing, or indirectly through contaminated objects or surfaces as well as close contacts). Nosocomial transmission has been described as an important driver in the epidemiology of SARS and MERS and has also documented in COVID-19.

Current estimates of the incubation period of COVID range from 2-14 days, and these estimates will be refined as more data become available. Most common symptoms include fever, fatigue, dry cough and breathing difficulty. Upper respiratory tract symptoms like sore throat, rhinorrhoea, and gastrointestinal symptoms like diarrhoea and nausea/ vomiting are seen in about 20% of cases.

Due to paucity of scientific literature based on community based studies, the available data on host factors is skewed towards cases requiring hospitalization. As per analysis of the biggest cohort reported by Chinese CDC, about 81% of the cases are mild, 14% require hospitalization and 5% require ventilator and critical care management. The deaths reported are mainly among elderly population particularly those with co-morbidities.

At the time of writing this document, many of the crucial epidemiological information particularly source of infection, mode of transmission, period of infectivity, etc. are still under investigation.

2. STRATEGIC APPROACH

India would be following a scenario based approach for the following possible scenarios:

i. Travel related case reported in India
ii. Local transmission of COVID-19
iii. Community Transmission of COVID-19 disease
iv. India becomes endemic for COVID-19

2.1. Strategic Approach for Current Scenario: "only travel related cases reported from India"

(i) Inter-ministerial coordination (Group of Ministers, Committee of Secretaries) and Centre-State Co-ordination been established.
(ii) Early Detection through Points of Entry (PoE) screening of passengers coming from China, Honk Kong, Indonesia, Japan, Malaysia, Republic of Korea, Singapore, Thailand and Vietnam through 21 designated airports, 12 major ports, 65 minor ports and 8 land crossings.
(iii) Surveillance and contact tracing through Integrated Disease Surveillance Programme (IDSP) for tracking travellers in the community who have travelled from affected countries and to detect clustering, if any, of acute respiratory illness.
(iv) Early diagnosis through a network of 15 laboratories of ICMR which are testing samples of suspect cases.
(v) Buffer stock of personal protective equipment maintained.
(vi) Risk communication for creating awareness among public to follow preventive public health measures.

2. 2. Local transmission of COVID-2019 disease

The strategy will remain the same as explained in para 2.1 as above. In addition cluster containment strategy will be initiated with:

- Active surveillance in containment zone with contact tracing within and outside the containment zone.
- Expanding laboratory capacity for testing all suspect samples and
- Establishing surge capacities for isolating all suspect / confirmed cases for medical care.
- Implementing social distancing measures.
- Intensive risk communication.

3. SCOPE OF THIS DOCUMENT

In alignment with strategic approach, this document provides action that needs to be taken for containing a cluster. The actions for control of large outbreaks will be dealt separately under a mitigation plan.

4. OBJECTIVES

The objective of cluster containment is to stop transmission, morbidity and mortality due to COVID-19.

5. CLUSTER CONTAINMENT

5.1. Definition of Cluster

A cluster is defined as 'an unusual aggregation of health events that are grouped together in time and space and that are reported to a health agency' (Source CDC). Clusters of human cases are formed when there is local transmission. The local transmission is defined as a laboratory confirmed case of COVID-19:

(i) Who has not travelled from an area reporting confirmed cases of COVID-19 or

(ii) Who had no exposure to a person travelling from COVID-19 affected area or other known exposure to an infected person

There could be single or multiple foci of local transmission. There may or may not be an epidemiological link to a travel related case.

5.2. Cluster Containment Strategy

The cluster containment strategy would be to contain the disease with in a defined geographic area by early detection, breaking the chain of transmission and thus preventing its spread to new areas. This would include geographic quarantine, social distancing measures, enhanced active surveillance, testing all suspected cases, isolation of cases, home quarantine of contacts, social mobilization to follow preventive public health measures.

5.3. Evidence base for cluster containment

Large scale measures to contain COVID-19 have been tried in China and Republic of Korea and also in countries that reported small clusters such as Germany, France, Singapore and Italy. Since COVID-19 is an airborne infection and there is efficient human to human transmission, success of containment operations cannot be guaranteed. Interventions to limit morbidity, mortality and social disruption associated with SARS in 2003 demonstrated that it was possible then to mobilize complex public health operation to contain SARS outbreak. Mathematical modeling studies suggest containment might be possible.

5.4. Factors affecting cluster containment

A number of variables determine the success of the containment operations. These are:

(i) Size of the cluster.
(ii) How efficiently the virus is transmitting in Indian population.
(iii) Time since first case/ cluster of cases originated. Detection, laboratory confirmation and reporting of first few cases must happen quickly.
(iv) Active case finding and laboratory diagnosis.
(v) Isolation of cases and quarantine of contacts.
(vi) Geographical characteristics of the area (e.g. accessibility, natural boundaries)
(vii) Population density and their movement (including migrant population).
(viii) Resources that can be mobilized swiftly by the State Government/ Central Government.
(ix) Ability to ensure basic infrastructure and essential services.

5.5. Assumptions

(i) The virus is not circulating in Indian Population.
(ii) Even if there is a global pandemic, there is large part of the country which remains unaffected and large population which remains susceptible.

6. ACTION PLAN FOR CLUSTER CONTAINMENT

6.1. Institutional mechanisms and Inter-Sectoral Co-ordination

At the National Level, the National Crisis Management Committee (NCMC) will be activated. The co-ordination with health and non-health sectors will be managed by NCMC, on issues, flagged by Ministry of Health. Ministry of Health and Family Welfare will activate its Crisis Management Plan.

The Concerned State will activate State Crisis Management Committee or the State Disaster Management Authority, as the case may be to manage the clusters of COVID-19.

There will be daily co-ordination meetings between the centre and the concerned State through video conference.

The State should review the existing legal instruments to implement the containment plan. Some of the Acts/ Rules for consideration could be (i) Disaster Management Act (2005) (ii) Epidemic Act (1897) (iii) Cr.PC and (iv) State Specific Public Health Acts.

6.2. Trigger for Action

The trigger could be the IDSP identifying a cluster of Influenza like Illness (ILI) or Severe Acute Respiratory syndrome (SARI), which may or may not have epidemiological linkage to a travel related case. It could also be through other informal reporting mechanisms (Media/ civil society/ hospitals (government / private sector) etc. The State will ensure early diagnosis through the ICMR/VRDL (Virus Research and Diagnostic Laboratory) Network. A positive case will trigger a series of actions for containment of the cluster.

6.3. Deployment of Rapid Response Teams (RRT)

Emergency Medical Relief (EMR) division, Ministry of Health and Family Welfare will deploy the Central Rapid Response Team (RRT) to support and advice the State. The State will deploy its State RRT and District RRT.

6.4. Identify geographically-defined Containment zone and Buffer zone

6.4.1. Containment zone

The containment zone will be defined based on:

(i) The index case / cluster, which will be the designated epicenter
(ii) The listing and mapping of contacts.
(iii) Geographical distribution of cases and contacts around the epicenter.
(iv) Administrative boundaries within urban cities /town/ rural area.

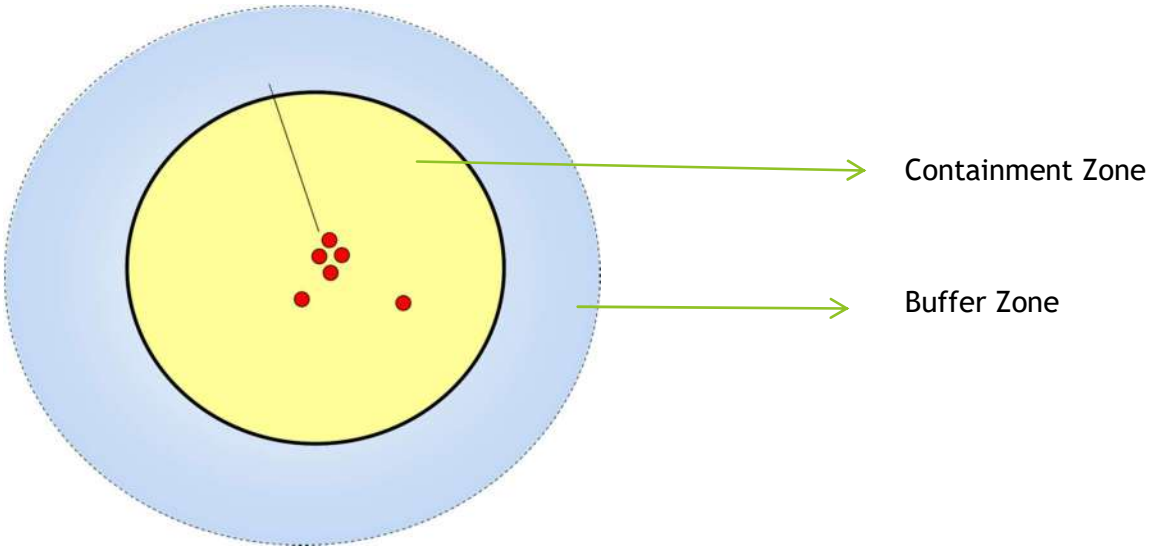
The RRT will do listing of cases, contacts and their mapping. This will help in deciding the perimeter for action. The decision of the geographic limit and extent of perimeter control will be that of the State Government. However, likely scenarios and possible characteristics of the containment and buffer zone are given in Table-1.

Table 1: Scenarios for determining containment and buffer zones

S. No.	Scenario	Containment zone characteristics
1	A small cluster in closed environment such as residential schools, military barracks, hostels or a hospital.	Containment zone will be determined by the mapping of the persons in such institution including cases and contacts. A buffer zone of additional 5 Km radius*will be identified.
2	Single cluster in a residential colony	Administrative boundary of the residential colony and a buffer zone of additional 5 Km radius.*
3	Multiple clusters in communities (residential colony, schools, offices, hospitals etc.) with in an administrative jurisdiction	Administrative boundary of the urban district and a buffer zone of neighboring urban districts.
4	Multiple clusters spatially separated in different parts administrative districts of a city	Administrative boundary of city/ town and congruent population in the peri-urban areas as the buffer zone.**
5	Cluster in a rural setting	3 Km radius of containment zone and additional 7 Kms radius of buffer zone.

* The perimeter of the containment zone will be determined by the continuous real time risk assessment.

** The decision to follow a containment protocol will be based on the risk assessment and feasibility of perimeter control.



The Central RRT will help the State/ District administration in mapping the Containment Zone.

If the epidemiological assessment process is to take time (>12-24 hrs), then a containment zone of 3 Kms and a buffer zone of 7 Kms will be decided which may be subsequently revised, if required, based on epidemiologic investigation. Except for rural settings.

6.4.2. Buffer zone

Buffer zone is an area around the containment zone, where new cases are most likely to appear. There will not be any perimeter control for the buffer zone. The activities of buffer zone are listed under paragraph 7.2.

6.4.3. Perimeter

Perimeter of the containment zone will be decided by the District administration based on criteria defined in Para 6.4.1. Clear entry and exit points will be established. The perimeter controls that need to be applied is in para 7.3.

7. SURVEILLANCE

7.1. Surveillance in containment zone

7.1.1. Contact listing

The RRTs will list the contacts of the suspect / laboratory confirmed case of COVID-19. The District Surveillance Officer (in whose jurisdiction, the laboratory confirmed case/ suspect case falls) along with the RRT will map the contacts to determine the potential spread of the disease. If the residential address of the contact is beyond that district, the district IDSP will inform the concerned District IDSP/State IDSP.

7.1.2. Mapping of the containment and buffer zones

The containment and buffer zones will be mapped to identify the health facilities (both government and private) and health workforce available (primary healthcare workers, Anganwadi workers and doctors in PHCs/CHCs/District hospitals).

7.1.3. Active Surveillance

The residential areas will be divided into sectors for the ASHAs/Anganwadi workers/ANMs each covering 50 households (30 households in difficult areas). Additional workforce would be mobilized from neighboring districts (except buffer zone) to cover all the households in the containment zone. This workforce will have supervisory officers (PHC/CHC doctors) in the ratio of 1:4.

The field workers will be performing active house to house surveillance daily in the containment zone from 8:00 AM to 2:00 PM. They will line list the family members and those having symptoms. The field worker will provide a mask to the suspect case and to the care giver identified by the family. The patient will be isolated at home till such time he/she is examined by the supervisory officer. They will also follow up contacts identified by the RRTs within the sector allocated to them.

All ILI/SARI cases reported in the last 14 days by the IDSP in the containment zone will be tracked and reviewed to identify any missed case of COVID-19 in the community.

Any case falling within the case definition will be conveyed to the supervisory officer who in turn will visit the house of the concerned, confirm that diagnosis as per case definition and will make arrangements to shift the suspect case to the designated treatment facility. The supervisory officer will collect data from the health workers under him/ her, collate and provide the daily and cumulative data to the control room by 4.00 P.M. daily.

7.1.4 Passive Surveillance

All health facilities in the containment zone will be listed as a part of mapping exercise. All such facilities both in Government and private sector (including clinics) shall report clinically suspect cases of COVID-19 on real time basis (including 'Nil' reports) to the control room at the district level.

7.1.5. Contact Tracing

The contacts of the laboratory confirmed case/ suspect case of COVID-19 will be line-listed and tracked and kept under surveillance at home for 28 days (by the designated field worker). The Supervisory officer in whose jurisdiction, the laboratory confirmed case/ suspect case falls shall inform the Control Room about all the contacts and their residential addresses. The control room will in turn inform the supervisory officers of concerned sectors for surveillance of the contacts. If the residential address of the contact is beyond the allotted sector, the district IDSP will inform the concerned Supervisory officer/concerned District IDSP/State IDSP.

7.2. Surveillance in Buffer zone

The surveillance activities to be followed in the buffer zone are as follows:

i. Review of ILI/SARI cases reported in the last 14 days by the District Health Officials to identify any missed case of COVID-19 in the community.
ii. Enhanced passive surveillance for ILI and SARI cases in the buffer zone through the existing Integrated Disease Surveillance Programme.
iii. In case of any identified case of ILI/SARI, sample should be collected and sent to the designated laboratories for testing COVID-19.

All health facilities in the buffer zone will be listed as a part of mapping exercise. All such facilities both in Government and private sector (including clinics) shall report clinically suspect cases of COVID-19 on real time basis (including 'Nil' reports) to the control room at the district level. Measures such as personal hygiene, hand hygiene, social distancing to be enhanced through enhanced IEC activities in the buffer zone.

7.3. Perimeter Control

The perimeter control will ensure that there is no unchecked outward movement of population from the containment zone except for maintaining essential services (including medical emergencies) and government business continuity. It will also limit unchecked influx of population into the containment zone. The authorities at these entry points will be required to inform the incoming travelers about precautions to be taken and will also provide such travelers with an information pamphlet and mask.

All vehicular movement, movement of public transport and personnel movement will be restricted. All roads including rural roads connecting the containment zone will be guarded by police.

The District administration will post signs and create awareness informing public about the perimeter control. Health workers posted at the exit point will perform screening (e.g. interview travelers, measure temperature, record the place and duration of intended visit and keep complete record of intended place of stay).

Details of all persons moving out of perimeter zone for essential/ emergency services will be recorded and they will be followed up through IDSP. All vehicles moving out of the perimeter control will be decontaminated with sodium hypochlorite (1%) solution.

8. LABORATORY SUPPORT

8.1 Designated laboratories

The identified VRDL network laboratory, nearest to the affected area, will be further strengthened to test samples. The other available govt. laboratories and private laboratories (BSL 2 following BSL 3 precautions) if required, shall also be engaged to test samples, after ensuring quality assurance by ICMR/VRDL network. If the number of samples exceeds its surge capacity, samples will be shipped to other nearby laboratories or to NCDC, Delhi or NIV, Pune or to other ICMR lab networks depending upon geographic proximity.

All test results should be available within 12 hours of sampling. ICMR along with the State Government will ensure that there are designated agencies for sample transportation to identified laboratories. The contact number of such courier agencies shall be a part of the micro-plan.

The designated laboratory will provide daily update (daily and cumulative) to District, State and Central Control Rooms on:

i. No. of samples received
ii. No. of samples tested
iii. No. of samples under testing

iv. No. of positive samples

8.2 Testing criteria

All suspect cases conforming to the case definition will be tested. The testing of suspect cases in the containment and buffer zones will continue till 14 days from the date, the last confirmed case is declared negative by laboratory test.

9. HOSPITAL CARE

All suspect cases detected in the containment/buffer zones (till a diagnosis is made), will be hospitalized and kept in isolation in a designated facility till such time they are tested negative. Persons testing positive for COVID-19 will remain to be hospitalized till such time 2 of their samples are tested negative as per MoHFW's discharge policy. About 15% of the patients are likely to develop pneumonia, 5 % of whom requires ventilator management. Hence dedicated Intensive care beds need to be identified earmarked. Some among them may progress to multi organ failure and hence critical care facility/ dialysis facility/ and Salvage therapy [Extra Corporeal Membrane Oxygenator (ECMO)] facility for managing the respiratory/renal complications/ multi-organ failure shall be required. If such facilities are not available in the containment zone, nearest tertiary care facility in Government / private sector needs to be identified, that becomes a part of the micro-plan.

9.1 Surge capacity

Based on the risk assessment, if the situation so warrants (data suggested an exponential rise in the number of cases), the surge capacity of the identified hospitals will be enhanced, private hospitals will be roped in and sites for temporary hospitals identified and it's logistic requirements shall be worked out.

9.2 Pre-hospital care (ambulance facility)

Ambulances need to be in place for transportation of suspect/confirmed cases. Such ambulances shall be manned by personnel adequately trained in infection prevention control, use of PPE and protocol that needs to be followed for disinfection of ambulances (by 1% sodium hypochlorite solution using knapsack sprayers).

9.3 Infection Prevention Control Practices

Nosocomial infection in fellow patients and attending healthcare personnel are well documented in the current COVID-19 outbreak as well. There shall be strict adherence to Infection prevention control practices in all health facilities. IPC committees would be formed (if not already in place) with the mandate to ensure that all healthcare personnel are well aware of IPC practices and suitable arrangements for requisite PPE and other logistic (hand sanitizer, soap, water etc.) are in place. The designated hospitals will ensure that all healthcare staff is trained in washing of hands, respiratory etiquettes, donning/doffing & proper disposal of PPEs and bio-medical waste management.

At all times doctors, nurses and para-medics working in the clinical areas will wear three layered surgical mask and gloves. The medical personnel working in isolation and critical care facilities will wear full complement of PPE (including N95 masks).

The support staff engaged in cleaning and disinfection will also wear full complement of PPE. Environmental cleaning should be done twice daily and consist of damp dusting and floor mopping with Lysol or other phenolic disinfectants and cleaning of surfaces with sodium hypochlorite solution. Detailed guidelines available on MoHFW's website may be followed.

10. CLINICAL MANAGEMENT

10.1. Clinical Management

The hospitalized cases may require symptomatic treatment for fever. Paracetamol is the drug of choice. Suspect cases with co-morbid conditions, if any, will require appropriate management of co-morbid conditions.
For patients with severe acute respiratory illness (SARI), having respiratory distress may require, pulse oxymetry, oxygen therapy, non-invasive and invasive ventilator therapy. Detailed guidelines available on MoHFW's website and updated from time to time, may be followed.

10.2. Discharge Policy

Discharge policy for suspected cases of COVID-19 tested negative will be based on the clinical assessment of the treating physician. For those tested positive for COVID-19, their discharge from hospital will be governed by consecutive two samples tested negative and the patient is free from symptoms.

11. PHARMACEUTICAL INTERVENTIONS

As of now there is no approved drug or vaccine for treatment of COVID-19.

12. NON-PHARMACEUTICAL INTERVENTIONS

In the absence of proven drug or vaccine, non-pharmaceutical interventions will be the main stay for containment of COVID-19 cluster.

12.1. Preventive public health measures

There will be social mobilization among the population in containment and buffer zone for adoption of community-wide practice of frequent washing of hands and respiratory etiquettes in schools, colleges, work places and homes. The community will also be encouraged to self-

monitor their health and report to the visiting ASHA/Anganwadi worker or to nearest health facility.

12.2. Quarantine and isolation

Quarantine and Isolation are important mainstay of cluster containment. These measures help by breaking the chain of transmission in the community.

12.2.1. Quarantine

Quarantine refers to separation of individuals who are not yet ill but have been exposed to COVID-19 and therefore have a potential to become ill. There will be voluntary home quarantine of contacts of suspect /confirmed cases. The guideline on home quarantine available on the website of the Ministry provides detail guidance on home quarantine.

12.2.2. Isolation

Isolation refers to separation of individuals who are ill and suspected or confirmed of COVID-19. There are various modalities of isolating a patient. Ideally, patients can be isolated in individual isolation rooms or negative pressure rooms with 12 or more air-changes per hour.

In resource constrained settings, all positive COVID-19 cases can be cohorted in a ward with good ventilation. Similarly, all suspect cases should also be cohorted in a separate ward. However under no circumstances these cases should be mixed up. A minimum distance of 1 meter needs to be maintained between adjacent beds. All such patients need to wear a triple layer surgical mask at all times.

12.3 Social distancing measures

For the cluster containment, social distancing measures are key interventions to rapidly curtail the community transmission of COVID-19 by limiting interaction between infected persons and susceptible hosts. The following measures would be taken:

12.3.1 Closure of schools, colleges and work places

Administrative orders will be issued to close schools, colleges and work places in containment and buffer zones. Intensive risk communication campaign will be followed to encourage all persons to stay indoors for an initial period of 28 days, to be extended based on the risk assessment. Based on the risk assessment and indication of successful containment operations, an approach of staggered work and market hours may be put into practice.

12.3.2 Cancellation of mass gatherings

All mass gathering events and meetings in public or private places, in the containment and buffer zones shall be cancelled / banned till such time, the area is declared to be free of COVID-19 or the outbreak has increased to such scales to warrant mitigation measures instead of containment.

12.3.3. Advisory to avoid public places

The public in the containment and buffer zones will be advised to avoid public places and only if necessary for attending to essential services. The administration will ensure supply of enough triple layer masks to the households in the containment and buffer zones.

12.3.4. Cancellation of public transport (bus/rail)

There will be prohibition for persons entering the containment zone and on persons exiting the containment zone. To facilitate this, if there are major bus transit hubs or railway stations in the containment zone, the same would be made dysfunctional temporarily. Additionally, irrespective of fact that there is a rail/road transit hub, the perimeter control will take care of prohibiting people exiting the containment zone including those using private vehicles and taxies.

As a significant inconvenience is caused to the public by adopting these measures in the containment zone, State government would proactively engage the community and work with them to make them understand the benefits of such measures.

13. MATERIAL LOGISTICS

13.1. Personal Protective Equipment

The type of personal protective equipment for different categories of:

S. No.	Name of the item	Category of personnel
1	PPE Kit, N 95, Mask, Gloves, Goggles, cap and shoe cover)	• Doctors and nurses attending to patients in isolation, ICU/ critical care facilities of hospitals in the containment zone. • Para-medical staff in the back cabin of ambulance. • Auxillary/ support staff involved in disinfection vehicles/ ambulances and surface cleaning of hospital floors and other surfaces
2	N-95 Mask and gloves	• Supervisory doctors verifying a suspect case • Persons collecting samples. • Doctors/nurses attending patients in primary health care facilities
3	Triple Layer Surgical mask	• To be used by Field workers doing surveillance work • Staff providing essential services. • Suspect cases and care giver / by stander of the suspect case • Security staff. • Ambulance drivers • Residents permitted to go out for essential services .

The State Government has to ensure adequate stock of personal protective equipment. The quantity required for a containment operation will depend upon the size & extent of the cluster and the time required containing it. A containment of a cluster, lasting a month or two

in a population of 100,000 may require 20,00,000 triple layer masks; 2,00,000 gloves; 100,000 N-95 masks and about 50,000 PPE Kits. The foregoing number is to illustrate that State need to have a rate contract and assured supply for these items.

13.2. Transportation

A large number of vehicles will be required for mobilizing the surveillance and supervisory teams. The vehicles will be pooled from Government departments. The shortfall, if any, will be met by hiring of vehicles.

13.3. Stay arrangements for the field staff

The field staff brought in for the surveillance activities and that for providing perimeter control need to be accommodated with in the containment zone. Facilities such as schools, community buildings etc. will be identified for sheltering. Catering arrangement will need to be made at these locations.

13.4 Bio-medical waste management

A large quantity of bio-medical waste is expected to be generated from containment zone. Arrangement would also be required for such bio-medical waste (discarded PPEs etc.), preferably by utilizing the bio-medical waste management services at the designated hospital.

14. RISK COMMUNICATION

14.1 Risk communication material

Risk communication materials [comprising of (i) posters and pamphlets; (ii) audio only material; (iii) AV films] prepared by PIB/MoHFW will be prepared and kept ready for targeted roll out in the containment and buffer zones.

14.2 Communication channels

14.2.1 Interpersonal communication

During house to house surveillance, ASHAs/ other community health workers will interact with the community (i) for reporting symptomatic cases (ii) contact tracing (iii) information on preventive public health measures.

14.2.2 Mass communication

Awareness will be created among the community through miking, distribution of pamphlets, mass SMS and social media. Also use of radio and television (using local channels) will ensure penetration of health messages in the target community.

14.2.3 Dedicated helpline

A dedicated helpline number will be provided at the Control room (district headquarter) and its number will be widely circulated for providing general population with information on risks of COVID-19 transmission, the preventive measures required and the need for prompt reporting to health facilities, availability of essential services and administrative orders on perimeter control.

14.2.4 Media Management

At the Central level, only Secretary (H) or representative nominated by her shall address the media. There will be regular press briefings/ press releases to keep media updated on the developments and avoid stigmatization of affected communities. Every effort shall be made to address and dispel any misinformation circulating in media incl. social media.

At the State level, only Principal Secretary (H), his/her nominee will speak to the media.

15. INFORMATION MANAGEMENT

15.1 Control room at State & District Headquarters

A control room (if not already in place) shall be set up at State and District headquarters. This shall be manned by State and District Surveillance Officer (respectively) under which data managers (deployed from IDSP/ NHM) responsible for collecting, collating and analyzing data from field and health facilities. Daily situation reports will be put up.

The state will provide aggregate data on daily basis on the following (for the day and cumulative):

i. Total number of suspect cases
ii. Total number of confirmed cases
iii. Total number of critical cases on ventilator
iv. Total number of deaths
v. Total number of contacts under surveillance

15.2 Control room in the containment zone

A control room shall be set up inside the containment zone to facilitate collection, collation and dissemination of data from various field units to District and State control rooms. This shall be manned by an epidemiologist under which data managers (deployed from IDSP/ NHM) will be responsible for collecting, collating and analyzing data from field and health facilities.
This control room will provide daily input to the District control room for preparation of daily situation report.

15.3 Alerting the neighboring districts/States

The control room at State Government will alert all neighboring districts. There shall be enhanced surveillance in all such districts for detection of clustering of symptomatic illness. Awareness will be created in the community for them to report symptomatic cases/contacts.

Also suitable provisions shall be created for enhancing horizontal communication between adjacent districts, especially for contact tracing exercise and follow up of persons exiting the containment zone.

16. CAPACITY BUILDING

16.1 Training content

Trainings will be designed to suit requirement of each and every section of healthcare worker involved in the containment operations. These trainings for different target groups shall cover:

1. Field surveillance, contact tracing, data management and reporting
2. Surveillance at designated exit points from the containment zone
3. Sampling, packaging and shipment of specimen
4. Hospital infection prevention and control including use of appropriate PPEs and bio-medical waste management
5. Clinical care of suspect and confirmed cases including ventilator management, critical care management
6. Risk communication to general community

16.2 Target trainee population

Various sections of healthcare workforce (including specialist doctors, medical officers, nurses, ANMs, Block Extension Educators, MHWs, ASHAs) and workforce from non-health sector (security personnel, Anganwadi Workers, support staff etc.). Trainings will be tailored to requirements of each of these sections.

The training will be conducted by the RRT a day prior to containment operations are initiated.

16.3 Replication of training in other districts

The State Govt. will ensure that unaffected districts are also trained along the same lines so as to strengthen the core capacities of their RRTs, doctors, nurses, support staff and non-health field formations. These trainings should be accompanied with functional training exercises like mock-drills.

17. FINANCING OF CONTAINMENT OPERATIONS

The fund requirement would be estimated taking into account the inputs in the micro-plan and funds will be made available to the district collector from NHM flexi-fund.

17.1 Scaling down of operations

The operations will be scaled down if no secondary laboratory confirmed COVID-19 case is reported from the containment and buffer zones for at-least 4 weeks after the last confirmed test has been isolated and all his contacts have been followed up for 28 days. The containment operation shall be deemed to be over 28 days from the discharge of last confirmed case (following negative tests as per discharge policy) from the designated health facility i.e. when the follow up of hospital contacts will be complete.

The closing of the surveillance for the clusters could be independent of one another provided there is no geographic continuity between clusters. However the surveillance will continue for ILI/SARI.

However, if the containment plan is not able to contain the outbreak and large numbers of cases start appearing, then a decision will need to be taken by State administration to abandon the containment plan and start on mitigation activities.

18. IMPLEMENTATION OF THE MICRO-PLAN

Based on the above activities, the State/ District will prepare an event specific micro-plan and implement the containment operations.

Guidelines for disinfection of quarantine facility (for COVID-19)

Scope*:* This document aims to provide interim guidance about the environmental cleaning / decontamination in quarantine camp facilities (e.g. barracks, cubicles in rooms, offices, and toilets, etc.) where persons with potential exposure to COVID-19 have housed.

The causative agent involved in the current outbreaks of 2019-nCoV acute respiratory disease, the 2019-nCoV (genus: Betacoronavirus), belongs to the family of Coronaviridae, a large family of enveloped, positive-sense single-stranded RNA viruses. Coronaviruses are transmitted in most instances through large respiratory droplets and contact transmission, but other modes of transmission have also been proposed worldwide.

The time of survival and the conditions affecting the 2019-nCoV viability in the environment are currently unknown. According to studies assessing the environmental stability of other coronaviruses, the Severe Acute Respiratory Syndrome coronavirus (SARS-CoV) is estimated to survive several days in the environment and the Middle East Respiratory Syndrome-related coronavirus (MERS-CoV) more than 48 hours at an average room temperature (20°C) on different surfaces [1-3].

Environmental cleaning: Due to the potential survival of the virus in the environment for several days, the premises and areas potentially contaminated with the 2019-nCoV should be cleaned before their re-use, using products containing antimicrobial agents known to be effective against coronaviruses. Although there is lack of specific evidence for their effectiveness against 2019-nCoV virus, cleaning with water and household detergents and use of common disinfectant products should be sufficient for general precautionary cleaning. Tests carried out using SARS-CoV showed that sodium hypochlorite is effective.

These guidelines provide guidance for environmental cleaning in quarantine facilities housing people exposed/ potential exposure toCOVID-19 and have been adapted based on the Hospital Infection Prevention and Control guidelines drafted by NCDC in collaboration with WHO and other stakeholders.

Area/Items	Item/Equipment	Process	Method/ Procedure
Clinical Area			
General clinical areas Floors (clinical areas) – daily mopping	Dust mops Mop (No broom will be used for sweeping) Detergent/ sanitizer–hot water, sodium hypochlorite(1%) Three buckets (one with plain water and one with detergent solution; one bucket for sodium hypochlorite(1%)	Sweeping Cleaning Daily mopping	• Sweep with the dust mop or damp mop to remove surface dust. Sweep under the furniture and remove dust from corners. Gathered dust must be removed using a hearth brush and shovel. • The sweep tool should be cleaned or replaced after use. • Prepare cleaning solution using detergent with warm water • Use the three-bucket technique for mopping the floor, one bucket with plain water and one with the detergentsolution. • First mop the area with the warm water and detergent solution. • After mopping clean the mop in plain water and squeeze it. • Repeat this procedure for the remaining area. • Mop area again using sodium hypochlorite 1% after drying the area. • In between mopping if solution or water is dirty change it frequently. • Mop the floor starting at the far corner of the room and work towards thedoor. • Clean articles between cleaning. **Note:** Mopping should be done twice a day
Ceiling and Walls	Sweeping tool Duster Bowl/ small bucket of soap solution Plain water	Damp dusting	• Damp dusting with a long handledtool for the walls and ceiling done with very little moisture, just enough to collect thedust. • Damp dusting should be done in straight lines that overlap one another. • Change the mop head/cover when soiled. **Note:** Should be done once a week or after examining a suspect case
	Care of mop	Hot water Detergent Sodium hypochlorite 1%	• Clean with hot water and detergent solution, disinfect it with sodium hypochlorite and keep for drying upsidedown.

Doors and door knobs	Damp cloth or Sponge squeeze mop Detergent	Thorough washing	• The doors are to be washed with a brush, using detergent and water once a week (on one defined day); gently apply cloth to soiled area, taking care not to remove paint, then wipe with warm water to remove excess cleaningagent. • Door knobs and other frequently touched surfaces should be cleaned daily.
Isolation room	Detergent/ Sanitizer–warm water, sodium hypochlorite (1%) Three buckets (one with plain water and one with detergent solution); separate bucket for sodium hypochlorite (1%)	Terminal cleaning	• Before cleaning an isolation room, liaise with infection control team for details of any special requirements. Staff will be instructed on specific cleaning procedures required with reference to • Safety uniform to be worn. • Chemicals or disinfectants to be used. • Also, if bed screen and shower screen are to be cleaned or changed, refer cleaning in isolation rooms.
All clinical areas/ Laboratories/ Wherever spill care is required	Sodium hypochlorite (1%) Rag piece Absorbent paper Unsterile gloves Spill care kit Mop Hot water	Blood and body fluid spill care	• Wear non-sterile gloves. • For large spills, cover with absorbent paper/ rag piece • if any broken glass and sharps, using a pair of forceps and gloves, carefully retrieve.Use a large amount of folded absorbent paper to collect small glass splinters. Place the broken items into the puncture proof sharps container. • Cover the spill with sodium hypochlorite(1%)for 10–20 minutes contact time. • Clean up spill and discard into infectious waste bin, and mop area with soap and hot water. • Clean the mop and mop area with 1% sodium hypochlorite. • Wash mop with detergent and hot water and allow it to dry.
Stethoscope	Alcohol-based rub/Spirit swab	Cleaning	• Should be cleaned with detergent and water. • Should be wiped with alcohol based rub/spirit swab before each patient contact.
BP cuffs and covers	Detergent Hot water	Washing	• Cuffsshouldbewipedwithalcohol-based disinfectant and regular laundering is recommended for the cover.

Thermometer	Detergent and water Alcohol rub Individual thermometer holder	Cleaning	• Should be stored dry in individual holder. • Clean with detergent and tepid water and wipe with alcohol rub in between patient use. • Store in individual holder inverted. • Preferably one thermometer for each patient.
Injection and dressing trolley	Detergent and water Duster Disinfectant (70% alcohol)	Cleaning	• To be cleaned daily with detergent and water. • After each use should be wiped with disinfectant.
Refrigerators	Detergent and water Absorbent paper or clean cloth	Cleaning (weekly)	• Empty the fridge and store thingsappropriately. • Defrost, decontaminate and clean with detergent. • Dry it properly and replace the things. • Weekly cleaning is recommended.

Area/Items	Item/Equipment	Process	Method/ procedure
Lodging area			
General cleaning	Detergent and warm water Mop Two buckets Clean utility gloves Handmops	Daily mopping floors Thorough washing	• Scrub floors with hot water and detergent with using minimal water. (Do not pour thewater.) • Clean with plainwater. • Allow to dry • Hypochlorite 1% mopping canbe done. **Note:**Recommend general cleaning procedure should be done twice a day
Lockers, tables, cupboard, wardrobes, benches, shelves and cots	Damp duster Warm water Detergent Dry duster	Damp dusting	• Damp dust with warm waterand detergent.
Railings	Detergent/ Sanitizer–hotwater, sodium hypochlorite 1% Three small buckets/ or big bowls One with plain water One with detergent solution One for sodium hypochlorite 1%	Daily dusting	• Damp dust with warm water and detergent followed by disinfection with hypochlorite
Mirrors and Glass	Warm water Detergent water/ cleaning solution Damp cloth Wiper	Cleaning	• Using warm water and a small quantity of detergent and using a damp cloth, wipe over the mirror and surround, then using a dry lint-free cloth, buff the mirror and glass to a clean dryfinish.
Sluice room Stainless steel/ Any other sink	Powder cleanser Detergent powder Wiper Cloth	Cleaning	• Sinks are to be cleaned witha powder cleanser. • Firstwetthesink.Sprinkleonalittle powder cleanser and work around the surface with a cloth, include the plughole. • Do not use the powder cleanseron dry sink. • After removing spillage and any stains, flush away with running water. Wipe down the surface of the sink.
Pantry furniture	Duster	Dusting	• Dampdust
Telephone	Warm water detergent solution Duster	General cleaning	• Damp dust with warm waterand detergent. • **Payingspecialattentiontotheear and mouth piece and dry it properly.**
Desks	Damp cloth Furniture polish	Dusting	• Wipe top sides and draw handles with a damp cloth. Wooden desks should be cleaned with furniture polish and buffed to clear glows. Pen holder etc. to be cleaned ordusted.

Chairs (Vinyl)	Warm water and detergent	Cleaning	• Wipe down with warm water and detergent. Remove any marks under arms and seat. Check fordamage to stoppers, if stopper require replacement, report to maintenance department.
Furniture and fittings	Warm water and detergent Rag piece	Dusting	• Using warm water and detergent, damp dust all furniture and fittings, including chairs, stools, beds, tables, cupboards, wardrobes, lockers, trolleys, benches, shelves and storage racks, waste/ bins, fire extinguishers, oxygen cylinders, televisions window sills and dry properly.
Bed tables, bedside lockers	Warm water and detergent Wiper Duster	Cleaning	• Wipe down over bed table. Wipe top and underneath base and stand, using warm water and detergent. Dry oncompletion. • Wipe down the bedside. Remove marks from fronts of draws and sides. Using warm water and detergent, wash the top to remove any sticky marks anddust.
Light switches and over-bed lights	Damp cloth (never wet) Detergent Warm water	Cleaning	• Light switches to be cleaned of dust, spots and finger marks. Clean with a damp cloth (never wet) and detergent. • Over-bed lighting to be damp dusted. Clean with warm water and detergent.
Curtains	Soft clothes Water Mild soap solution	Cleaning	• Clean with water and soap for curtains
White clothes	Sodium hypochlorite 1% Tap water	Washing	• Should be washed under running water and soaked in 1% sodium hypochlorite for 20minutes. **Note:** PPE should be worn while washing soiled linen.
Mattress and pillow covers (cloth)	Tap water	Washing	• Mattress and pillows should be covered with a reusable mattress cover. • It should be changed for each patient and when soiled sent to the laundry according to schedule.
Mattress/ Pillow with rexin cover Normal/ without rexin	Sodium hypochlorite 1% Sunlight	Terminal Damp dusting and cleaning Drying in sunlight	• If with rexin cover, can be cleaned with 1% sodium hypochlorite before use for next patient • If routine mattress, dry it in bright sunlight for 1-2 days before using for next patient
Water jars	Vim powder Soap and water	Cleaning	• Recommended boiled water for drinking • Water jars should be scrubbed/ cleaned with soap and water and boiled water before filling withwater.

Areas	Agents / Toilet cleaner	Procedure
Cleaning of toilets		
Toilet pot/ commode	Sodium hypochlorite 1%/ Soap powder / long handle angular brush	• Inside of toilet pot/commode: • Scrub with the recommended agents and the long handle angular brush. • Outside: Clean with recommended agents; use a nylon scrubber.
Lid/commode	Nylon scrubber and soap powder	• Wet and scrub with soap powder and the nylon scrubber inside and outside
Toilet floor	Soap powder and scrubbing brush/ nylon broom	• Scrub floor with soap powder and the scrubbing brush • Wash with water • Use sodium hypochlorite1% dilution
Tap	Nylon scrubber and soap powder	• Wet and scrub with soap powder and the nylon scrubber.
Outside sink	Soap powder and nylon scrubber	• Scrub with the nylon scrubber.
Showers area / Taps and fittings	Warm water Detergent powder Nylon Scrubber	• Thoroughly scrub the floors/tiles with warm water and detergent • Wipe over taps and fittings with a damp cloth and detergent. • Care should be taken to clean the underside of taps and fittings. • Taps should be dried aftercleaning
Soap dispensers	Detergent and water	• Daily dusting • Should be cleaned weeklywith detergent and water and dried.

Note: Dry the floors with a separate drying mop.

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COVID-19: Guidelines on disinfection of common public places including offices

Scope: This document aims to provide interim guidance about the environmental cleaning /decontamination of common public places including offices in areas reporting COVID-19.

Coronavirus Disease 2019 (COVID -19) is an acute respiratory disease caused by a novel Coronavirus (SARS-CoV-2), transmitted in most instances through respiratory droplets, direct contact with cases and also through contaminated surfaces/objects. Though the virus survives on environmental surfaces for varied period of time, it gets easily inactivated by chemical disinfectants.

In view of the above, the following guidelines are to be followed, especially in areas reporting COVID-19. For ease of implementation the guideline divided these areas into (i) indoor areas, (ii) outdoor areas and (iii) public toilets.

1. Indoor areas including office spaces

Office spaces, including conference rooms should be cleaned every evening after office hours or early in the morning before the rooms are occupied. If contact surface is visibly dirty, it should be cleaned with soap and water prior to disinfection. Prior to cleaning, the worker should wear disposable rubber boots, gloves (heavy duty), and a triple layer mask.

- Start cleaning from cleaner areas and proceed towards dirtier areas.
- All indoor areas such as entrance lobbies, corridors and staircases, escalators, elevators, security guard booths, office rooms, meeting rooms, cafeteria should be mopped with a disinfectant with 1% sodium hypochlorite or phenolic disinfectants. The guidelines for preparing fresh 1% sodium hypochlorite solution is at **Annexure I**
- High contact surfaces such elevator buttons, handrails / handles and call buttons, escalator handrails, public counters, intercom systems, equipment like telephone, printers/scanners, and other office machines should be cleaned twice daily by mopping with a linen/absorbable cloth soaked in 1% sodium hypochlorite.Frequently touched areas like table tops, chair handles, pens, diary files, keyboards, mouse, mouse pad, tea/coffee dispensing machines etc. should specially be cleaned.
- For metallic surfaces like door handles, security locks, keys etc. 70% alcohol can be used to wipe down surfaces where the use of bleach is not suitable.
- Hand sanitizing stations should be installed in office premises (especially at the entry) and near high contact surfaces.
- In a meeting/conference/office room, if someone is coughing, without following respiratory etiquettes or mask, the areas around his/her seat should be vacated and cleaned with 1% sodium hypochlorite.
- Carefully clean the equipment used in cleaning at the end of the cleaning process.
- Remove PPE, discard in a disposable PPE in yellow disposable bag and wash hands with soap and water.

In addition, all employees should consider cleaning the work area in front of them with a disinfecting wipe prior to use and sit one seat further away from others, if possible

2. Outdoor areas

Outdoor areas have less risk then indoor areas due to air currents and exposure to sunlight. These include bus stops, railway platforms, parks, roads, etc. Cleaning and disinfection efforts should be targeted to frequently touched/contaminated surfaces as already detailed above.

3. Public toilets

Sanitary workers must use separate set of cleaning equipment for toilets (mops, nylon scrubber) and separate set for sink and commode). They should always wear disposable protective gloves while cleaning a toilet.

Areas	Agents / Toilet cleaner	Procedure
Toilet pot/ commode	Sodium hypochlorite 1%/ detergent Soap powder / long handle angular brush	• Inside of toilet pot/commode: • Scrub with the recommended agents and the long handle angular brush. • Outside: clean with recommended agents; use a scrubber.
Lid/ commode	Nylon scrubber and soap powder/detergent 1% Sodium Hypochlorite	• Wet and scrub with soap powder and the nylon scrubber inside and outside. • Wipe with 1% Sodium Hypochlorite
Toilet floor	Soap powder /detergent and scrubbing brush/ nylon broom 1% Sodium Hypochlorite	• Scrub floor with soap powder and the scrubbing brush • Wash with water • Use sodium hypochlorite1% dilution
Sink	Soap powder / detergent and nylon scrubber 1% Sodium Hypochlorite	• Scrub with the nylon scrubber. • Wipe with 1% sodium hypochlorite
Showers area / Taps and fittings	Warm water Detergent powder Nylon Scrubber 1% Sodium Hypochlorite/ 70% alcohol	• Thoroughly scrub the floors/tiles with warm water and detergent • Wipe over taps and fittings with a damp cloth and detergent. • Care should be taken to clean the underside of taps and fittings. • Wipe with 1% sodium hypochlorite/ 70% alcohol
Soap dispensers	Detergent and water	• Should be cleaned daily with detergent and water and dried.

- 70% Alcohol can be used to wipe down surfaces where the use of bleach is not suitable, e.g. metal. (Chloroxylenol (4.5-5.5%)/ Benzalkonium Chloride or any other disinfectants found to be effective against coronavirus may be used as per manufacturer's instructions)
- Always use freshly prepared 1% sodium hypochlorite.

- Do not use disinfectants spray on potentially highly contaminated areas (such as toilet bowl or surrounding surfaces) as it may create splashes which can further spread the virus.
- To prevent cross contamination, discard cleaning material made of cloth (mop and wiping cloth) in appropriate bags after cleaning and disinfecting. Wear new pair of gloves and fasten the bag.
- Disinfect all cleaning equipment after use and before using in other area
- Disinfect buckets by soaking in bleach solution or rinse in hot water

4. **Personal Protective Equipment (PPE)**: Wear appropriate PPE which would include the following while carrying out cleaning and disinfection work.

- Wear disposable rubber boots, gloves (heavy duty), and a triple layer mask
- Gloves should be removed and discarded damaged, and a new pair worn.
- All disposable PPE should be removed and discarded after cleaning activities are completed.
- Hands should be washed with soap and water immediately after each piece of PPE is removed, following completion of cleaning. (Refer to **Annexure II**: Steps of Hand Hygiene)

Masks are effective if worn according to instructions and properly fitted. Masks should be discarded and changed if they become physically damaged or soaked. (**Annexure-III**: Guidelines for use of mask)

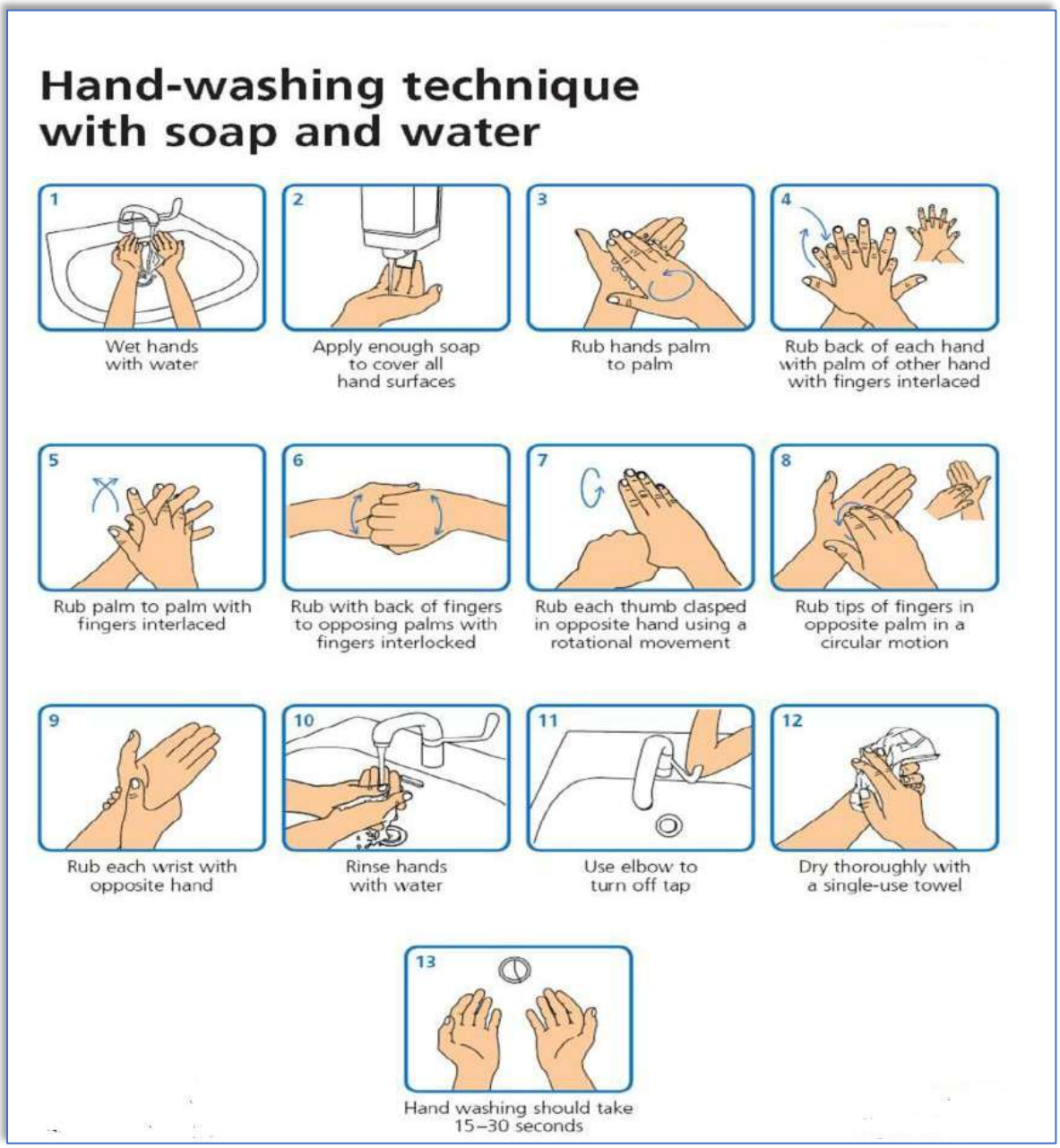
Annexure-I

Guidelines for Preparation of 1% sodium hypochlorite solution

Product	Available chlorine	1percent
Sodium hypochlorite – liquid bleach	3.5%	1 part bleach to 2.5 parts water
Sodium hypochlorite – liquid	5%	1 part bleach to 4 parts water
NaDCC (sodium dichloro-isocyanurate) powder	60%	17 grams to 1 litre water
NaDCC (1.5 g/ tablet) – tablets	60%	11 tablets to 1 litre water
Chloramine – powder	25%	80 g to 1 litre water
Bleaching powder	70%	7g g to 1 litre water
Any other	As per manufacturer's Instructions	

Annexure II

Steps of Hand Hygiene



Annexure III

Guidelines for use of mask

The correct procedure of wearing triple layer surgical mask

1. Perform hand hygiene
2. Unfold the pleats; make sure that they are facing down.
3. Place over nose, mouth and chin.
4. Fit flexible nose piece over nose bridge.
5. Secure with tie strings (upper string to be tied on top of head above the ears –lower string at the back of the neck.)
6. Ensure there are no gaps on either side of the mask, adjust to fit.
7. Do not let the mask hanging from the neck.
8. Change the mask after six hours or as soon as they become wet.
9. Disposable masks are never to be reused and should be disposed off.
10. While removing the mask great care must be taken not to touch the potentially infected outer surface of the mask
11. To remove mask first untie the string below and then the string above and handle the mask using the upper strings.
12. Disposal of used masks: Used mask should be considered as potentially infected medical waste. Discard the mask in a closed bin immediately after use.

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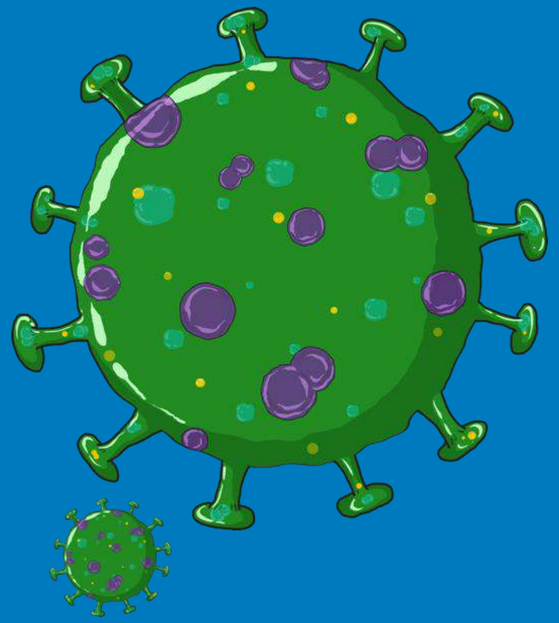


COVID-19

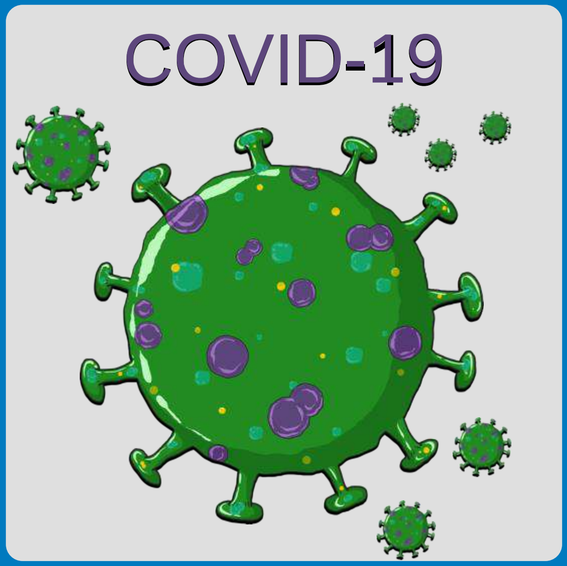
RESPONSE AND CONTAINMENT MEASURES

TRAINING OF ANM, ASHA, AWW

WHAT ARE WE GOING TO LEARN?

1 ROLE OF THE FLW
This session talks about the role that each of the frontline worker plays and what she needs to understand about COVID-19

2 INFORMATION TO THE COMMUNITY
This section talks about the information and knowledge that the FLW will give to the community on Handwashing, Cough hygiene, Social distancing and HRG



3 COMMUNITY SURVEILLANCE
Session discusses the contact tracing protocol, how to identify the contact, what are the guidelines for supporting people who are suspected, symptomatic or asymptomatic cases

4 STIGMA & DISCRMINATION
This session deals with the myths and misconceptions around Coronavirus and many fears that result in stigmatising behaviours at various level. What is the role of the FLW and what can she do

5 SUPPORTIVE PUBLIC HEALTH SERVICES: COMMUNITY & HH
What is the role that community networks play in addressing COVID in the community, what are the services required: home care , home quarantine in urban and rural areas

6 PERSONAL SAFETY
Frontline workers will work to reach out the message to thousands of directly or indirectly affected community members. However they also need to take care of their own personal safety

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SESSION 1

Communication for Response and Containment Measures

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ROLE OF ANM, ASHA & AWW

HEALTH - ANM
UNDER GUIDANCE OF DSO/MO

- Provide information
  (a) Preventive and control measures including social distancing during the phases of the COVID outbreak
  (b) Addressing myths and misconceptions;
- Support DSO on
  (a) Contact tracing as per SOPs
  (b) Link public health (home quarantine, home care, and supportive services for HRG and probable cases) in urban and rural areas &
  (c) Psychosocial care and discrimination stigma and discrimination.
- Reporting and feedback across different phases of COVID-19 pandemic (no cases, imported/sporadic cases, clusters and community wide transmission)
- Personal Safety and Precautions
- Supervision of effective usage COVID-19 IEC materials

HEALTH-ASHA, CHV(IN URBAN AREAS) AND ICDS –AWW, UNDER GUIDANCE OF ASHA FACILITATOR & CDPO

- Community awareness through inter-personal communication
  (a) Uptake of preventive and control measures including social distancing
  (b) Addressing myths and misconceptions;
- Support ANM/Supervisor in house to house surveillance including
  (a) Identification of HRG and probable cases
  (b) Ensure uptake of medical services in urban and rural areas and
  (c) Psychosocial care, stigma and discrimination

- Reporting and feedback across different phases of COVID-19 pandemic (no cases, imported/sporadic cases, clusters and community wide transmission)

- Personal Safety and Precautions

- Use of COVID 19 IEC materials

LET US UNDERSTAND ABOUT COVID-19

COVID-19 IS CORONAVIRUS DISEASE-2019

IT IS CAUSED BY A CORONAVIRUS NAMED AS SARS-CoV-2

WHAT ARE THE COMMON SYMPTOMS OF COVID-19

THE SYMPTOMS OF COVID-19 ARE FEVER, COUGH, AND DIFFICULTY IN BREATHING

IF YOU HAVE THESE AND YOU ARE A CONTACT OF A LABORATORY CONFIRMED POSITIVE CASE IMMEDIATELY CALL THE STATE HELPLINE NUMBER OR MINISTRY OF HEALTH & FAMILY WELFARE, GOVERNMENT OF INDIA 24X7 HELPLINE 011-2397 8046, 1075 OR YOUR ASHA/ANM.

NATIONAL HEALTH MISSION

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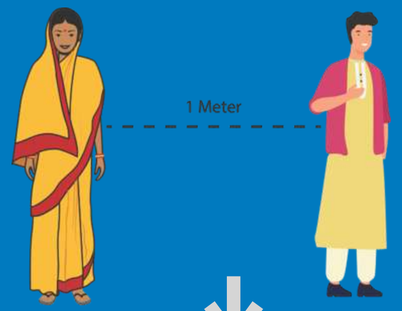
SESSION 2

PREVENTION: SAFE PRACTICES IN THE COMMUNITY

HAND HYGIENE

RESPIRATORY HYGIENE



SOCIAL DISTANCING

HIGH RISK GROUP

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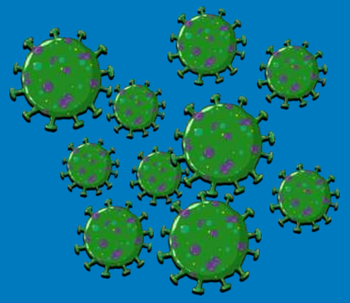
MODES OF TRANSMISSION

SNEEZE/ COUGH
BY INFECTED PERSON



INFECTED DROPLETS

INFECTED DROPLETS
GET ON YOUR HAND

AND WHEN TOUCH
ANY SURFACE OR PERSON

VIRUS
TRANSFERRED!!

SNEEZE/ COUGH
BY INFECTED PERSON

INFECTED DROPLETS

INFECTED DROPLETS
GET ON YOUR HAND

VIRUS
TRANSFERRED!!

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HAND HYGIENE

PREVENTION - WHAT TO DO?

Hand hygiene is a way of cleaning one's hands that substantially reduces potential pathogens (harmful germs) on the hands. Hand hygiene procedures include hand washing with soap and water for at least 40 secs or use of 70% alcohol-based hand rubs

DO

- WASH YOUR HANDS OFTEN WITH SOAP AND WATER FOR 40 SECONDS ESPECIALLY AFTER YOU HAVE BEEN IN A PUBLIC PLACE, OR AFTER BLOWING YOUR NOSE, COUGHING, OR SNEEZING.
- USE A HAND SANITISER (AT LEAST 70% ALCOHOL BASED) IF SOAP AND WATER NOT AVAILABLE COVER ALL SURFACES OF YOUR HANDS AND RUB THEM TOGETHER UNTIL THEY FEEL DRY.

DO NOT

- TOUCH YOUR EYES, NOSE, AND MOUTH WITH UNWASHED HANDS.
- TOUCH SURFACES LIKE DOOR KNOBS AND DOOR BELLS, ELEVATOR BUTTONS, HANDRAILS, SUPPORT HANDLES, CHAIR BACKS, ATM SURFACES, MOBILES, JEEP HANDLES ETC

PREVENTION: RESPIRATORY HYGIENE

Respiratory Hygiene is a combination of measures taken to stop the spread of germs through respiratory behaviours like coughing or sneezing

DO

- DO USE a handkerchief or a tissue to cover your face while coughing or sneezing
- DO THROW the used tissue immediately into a closed dustbin
- DO COVER your sneeze into your bent upper arm in case you are not carrying a tissue or a kerchief.
- DO WASH hands immediately after you have covered your sneeze or cough

DO NOT

- DO NOT use other ways of covering your face like the pallu of the sari of the chunni or the gamcha
- DO NOT spit in the open, always use a spittoon or wash basin for spitting

CASE STUDY

Smita has gone out to buy vegetables. She has a sore throat and is often coughing without covering her face. You are in the shop when she comes and suddenly she has a fit of cough. Everyone instantly moves away from her and the shopkeeper says angrily “Don’t come into my shop if you are coughing.”

QUESTION 1: IF YOU WERE THERE AS A CUSTOMER; WHAT WOULD YOU HAVE DONE?

QUESTION 2: IF YOU WERE THE SHOPKEEPER, WHAT WOULD YOU HAVE DONE?

QUESTION 3: AS A HEALTH WORKER WHAT WOULD YOU ADVISE/COUNSEL?

ANSWERS

- It is good for people to move away and keep a distance. However, as a fellow customer anyone could give a polite advice to follow the correct respiratory hygiene.
- It is wrong for the shopkeeper to have shouted at Smita. This is stigmatising behaviour. Though everyone is scared, being rude is not helpful. It will just keep people away from reporting a problem if they feel discriminated against. The shopkeeper can also keep his shop infection free by wiping the counters with a disinfectant regularly.

As a health worker my job will be:

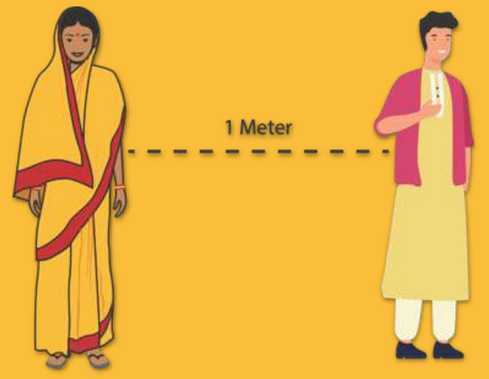
- Counsel Smita that she must cover her face with a handkerchief when coughing. Suggest her to get medication at the PHC
- Counsel the shopkeeper that anyone can have a cough and it need not be coronavirus infection. However anyone can have the infection and therefore he can help by keeping a box of tissues and hand sanitizer on the counter or keep a washing station for people to wash their hand.
- Counsel people on respiratory hygiene

PREVENTION: SOCIAL DISTANCING

SOCIAL DISTANCING : DELIBERATELY INCREASING THE PHYSICAL SPACE BETWEEN PEOPLE TO AVOID SPREADING ILLNESS. STAYING AT LEAST ONE METER AWAY FROM OTHER PEOPLE LESSENS YOUR CHANCES OF CATCHING COVID-19.

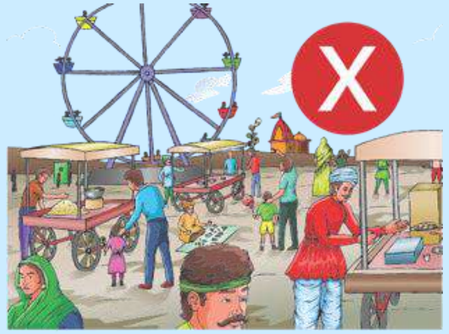
DO

- STAY AT HOME UNLESS ABSOLUTELY NECESSARY
- KEEP A DISTANCE OF AT LEAST ONE METER BETWEEN YOURSELF AND ANOTHER PERSON



DO NOT

- DO NOT HOLD EVENTS WHERE PEOPLE HAVE TO GATHER (EVEN IF IT IS A CORNER MEETING WITH THREE OR FOUR FRIENDS, OR AN EVENING CHAT ON THE CHAUPAL)
- DO NOT GO TO CROWDED PLACES LIKE MARKETS, SHOPPING, MELAS, PARTIES
- DO NOT USE PUBLIC TRANSPORT



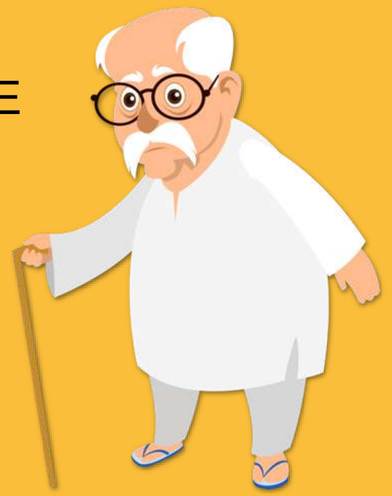
PREVENTION: HIGH RISK GROUP

HIGH RISK GROUPS ARE PEOPLE WHO ARE AT A HIGHER RISK FROM SEVERE ILLNESS IF THEY GET COVID-19. THIS INCLUDES:

OLDER ADULTS

PEOPLE WHO HAVE UNDERLYING MEDICAL CONDITIONS LIKE:

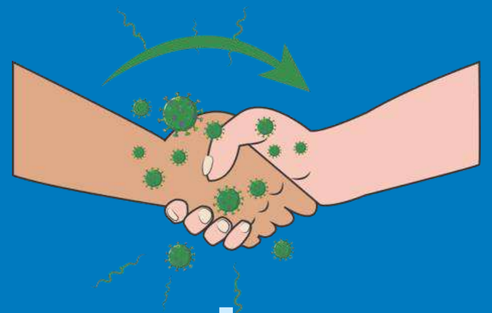
- HEART DISEASE
- DIABETES
- LUNG DISEASE
- KIDNEY DISEASE
- ON CANCER MEDICATION



PREGNANT WOMEN
(AS WE DO NOT KNOW THE IMPACT OF THE DISEASE ON PREGNANCY AS OF YET, IT IS BETTER TO TAKE CARE)

SESSION 3

COMMUNITY SURVEILLANCE



TYPES OF CONTACTS

COMMUNITY SURVEILLANCE SoP

ADVISORY

COMMUNICATION

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DEFINITIONS – SUSPECT/PROBABLE INFECTED PERSON

A person with acute respiratory illness (fever and at least one sign/symptom of respiratory disease (eg. Cough, shortness of breath) AND

A history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 disease during the 14 days prior to symptom onset OR

A person with any acute respiratory illness AND having being in contact with a confirmed COVID-19 case in the last 14 days prior to onset of symptoms OR

A person with severe acute respiratory infection {fever and at least one sign/symptom of respiratory disease (eg., Cough, shortness of breath)} AND requiring hospitalisation AND with no other etiology that fully explains the clinical presentation OR

A case for whom testing for COVID-19 is inconclusive.

DEFINITIONS - WHO IS A CONTACT

A CONTACT IS A PERSON WHO IS INVOLVED IN ANY OF THE FOLLOWING:

- PROVIDING DIRECT CARE WITHOUT PROPER PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR COVID-19 PATIENTS
- STAYING IN THE SAME CLOSE ENVIRONMENT OF A COVID-19 PATIENT (INCLUDING WORKPLACE, CLASSROOM, HOUSEHOLD, GATHERINGS).
- TRAVELING TOGETHER IN CLOSE PROXIMITY (LESS THAN 1 M) WITH A SYMPTOMATIC PERSON WHO LATER TESTED POSITIVE FOR COVID-19.

TYPES OF CONTACTS

HIGH RISK

- Touched body fluids of the patient (Respiratory tract secretions, blood, vomit, saliva, urine, feaces)
- Had direct physical contact with the body of the patient, shook hands, hugged or took care of.
- Touched or cleaned the linen, clothes, or dishes of the patient.
- Lived in the same household as the patient.
- Anyone in close proximity (less than one meter) of the confirmed case without precautions.
- Passenger traveling in close proximity (less than one meter) for more than 6 hours with a symptomatic person who later tested positive for COVID-19.

LOW RISK

- Shared the same space (Same class for school/worked in same room/similar and not having a high risk exposure to confirmed or suspect case of COVID-19).
- Travelled in same environment (bus/train/flight/any mode of transit) but not having a high-risk exposure.

COMMUNITY BASED SURVEILLANCE

- SURVEILLANCE DONE BY VISITING THE LOCAL RESIDENCE OF THE CONTACT(S) BY HEALTH PERSONNEL TELEPHONE MAY BE USED IN CERTAIN CIRCUMSTANCES OR FOR FOLLOW-UP.
- INTRODUCE YOURSELF, EXPLAIN PURPOSE OF SURVEILLANCE, COLLECT DATA IN PRESCRIBED FORMAT.
- CONTACTS OF CONFIRMED CASES TRACED AND MONITORED FOR AT LEAST 28 DAYS AFTER THE LAST EXPOSURE TO THE CASE PATIENT FOR EVIDENCE OF COVID-19 SYMPTOMS AS PER CASE DEFINITION.
- INFORMATION ABOUT CONTACTS CAN BE OBTAINED FROM: PATIENT, HIS/HER FAMILY MEMBERS, PERSONS AT PATIENT'S WORKPLACE OR SCHOOL ASSOCIATES, OR OTHERS WITH KNOWLEDGE ABOUT THE PATIENT'S RECENT ACTIVITIES AND TRAVELS.

  ARI SURVEILLANCE IN THE CONTAINMENT ZONE

ADVISORY FOR CONTACTS

ASYMPTOMATIC

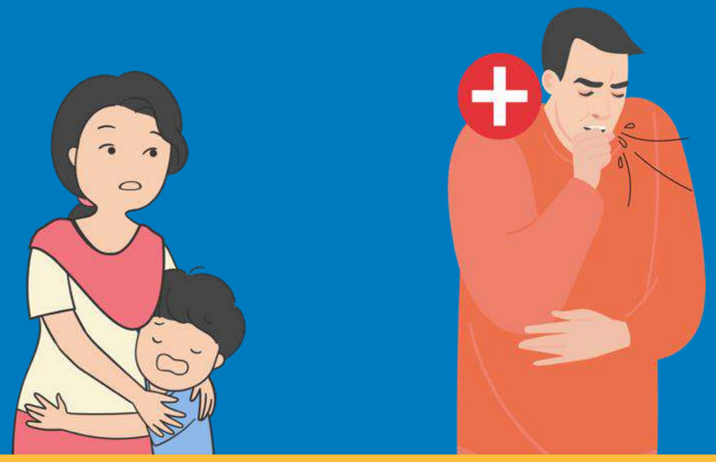
1. Home quarantine for at least 28 days after the last exposure with the case.
2. Initiate self-health monitoring for development of fever or cough and maintain a list of contacts on daily basis.
3. Active monitoring (eg. Daily visits or telephone calls) for 28 days after the last exposure shall be done by ANM/ASHA/identified person
4. Direct and high-risk contacts of a confirmed case should be tested once between day 5 and day 14 of coming inn his/her contact

IF SYMPTOMATIC

1. If symptoms develop (fever, cough, difficulty in breathing), use mask, self-isolate and immediately inform ANM / ASHA/ the identified local health official by telephone

CASE SCENARIO

SUNIL IS A YOUNG MAN OF 30 YEARS. HE WORKS IN MUMBAI AS A TEACHER IN A SMALL SCHOOL AND HAS RETURNED BACK HOME FOR HOLI. SUNIL HAS BEEN CONFIRMED WITH COVID-19 AND NOW HIS FAMILY IS WORRIED.



QUESTION: WHAT WILL YOU DO?

ANSWERS

- ENSURE THAT ALL MEMBERS IN THE FAMILY HAVE BEEN GIVEN THE ADVISE TO FOLLOW
- FOLLOW UP IF ANY HELP NEEDED
- ORGANISE FOR THE FAMILIES TO HAVE SUPPORT WHEN THEY ARE ON QUARANTINE FOR GETTING THEIR DAILY SUPPLIES LIKE GROCERIES OR VEGETABLES.
- CHECK ON HAND HYGIENE AND RESPIRATORY HYGIENE UNDERSTANDING
- CHECK IF ALL CLOTHES AND HOUSEHOLD MATERIALS USED BY CONFIRMED FAMILY MEMBER HAVE BEEN DISINFECTED.
- TALK TO THE FAMILY OFTEN EVEN IF ONLY ON THE MOBILE AND ENCOURAGE OTHER FRIENDS OF THE FAMILY TO TALK ON THE PHONE. THIS IS TO HELP THEM MANAGE THE FEELING OF BEING ISOLATED.

SESSION 4

SUPPORTIVE PUBLIC HEALTH SERVICES: COMMUNITY HOUSEHOLDS

CREATE SUPPORTIVE ENVIRONMENT

HOME QUARANTINE -SELF

HOME QUARANTINE- FAMILY MEMBERS

HOME CARE

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RESPONSE AND CONTAINMENT– CREATE A SUPPORTIVE ENVIRONMENT

TALK TO AND INVOLVE INFLUENCERS FIGHT DISCRIMINATION

- Make a list of local influencers (Gram Pradhan, Religious Leaders, Teachers, any other)
- Explain & discuss the situation and protocols/orders/notifications to be followed and seek their support in giving key messages.
- Support assigning roles for community networks

PLAN COMMUNITY SUPPORT FOR HIGH RISK

- Make a list of high risk groups in the village
- Identify people they meet or talk to; share preventive measures with these people and request them to keep communicating these measures to the high risk people
- Take care of older people or people with co - morbidities like hypertension, diabetes, lung or kidney disease.
- Take care of children whose parents may be in quarantine for issues of education and/or care.

COORDINATE WITH THE EXISTING COMMUNITY NETWORKS FOR SUPPORT

- Coordinate with the existing groups like SHGs, Youth networks, VHSNC etc on the roles assigned for emergency planning, distribution of services like food/grocery delivery for quarantined households, midday meals medicine etc.
- Share contact details of ANM, ASHA, Ambulance, and other medical support with them
- Share coordinating details of Child protection committees for addressing issues of trauma and violence in children.

HELP DEVELOP HOUSEHOLD EMERGENCY CONTACT LIST

- Ensure each household has a current list of emergency contacts for family, friends, neighbours, essential services contact numbers like food, medicines, medical help .

CASE STUDY

BABULAL HAS BEEN RENTING OUT HIS TRACTOR FOR THE LAST SEVERAL YEARS AND MANY PEOPLE KNOW HIM IN THE COMMUNITY. RECENTLY PEOPLE HAVE STOPPED TAKING BABAULAL'S TRACTORS ON RENT AND YOU COME TO KNOW THAT THIS IS BECAUSE BABULAL HAS BEEN HAVING SYMPTOMS OF COLD AND FLU. WHEN YOU SPEAK WITH BABULAL HE TELLS YOU THAT WHEN HE IS WALKING PEOPLE CROSS OVER ON THE OTHER SIDE OF THE STREET AND DO NOT EVEN TALK TO HIM OR HIS FAMILY MEMBERS, INCLUDING HIS CHILDREN EVEN ON THE PHONE. HE HAS DECIDED TO GO TO HIS CITY HOUSE SO HE DOES NOT HAVE TO BEAR THIS BEHAVIOUR

ROLE OF AN INFLUENCER

QUESTION 1: IS THIS THE RIGHT THING TO DO?

QUESTION 2: WHAT WILL YOU DO AS THE LOCAL HEALTH WORKER?

- CHECK WHO CAN HELP IN INFLUENCING THE LOCAL LANDOWNERS.
- USE THE KEY INFLUENCERS IN GIVING THE COMMUNICATION ON WHAT IS COVID AND WHAT ARE THE SYMPTOMS.
- TALK TO THE DHO/MO FOR DISCUSSING THE SYMPTOMS OF COVID WITH BABULAL AND IF HE IS A CONTACT WHAT ADVISORY SHOULD BE GIVEN TO HIM

HOME QUARANTINE: STAY SAFE FOR PROBABLE INFECTED PERSON

RESTRICTED MOVEMENT FOR COVID-19 SUSPECTS

KEEP DISTANCE

- Stay in a well ventilated specific room and away from other people in your home. Restrict movement
- If available, use a separate bathroom

AVOID VISITORS IN THE HOUSE

- BECAUSE IF INFECTED YOU CAN SPREAD INFECTION TO OTHERS

SEEK HEALTH CARE AND NOTIFY

- If suffering from cough or fever or breathing difficulty and suspecting contact, wear a mask, and notify nearest health facility / ASHA/ANM immediately.

AVOID GOING TO PUBLIC AREAS

- Do not go to work, school, or public areas like markets, cinemas etc.
- Avoid using public transport

WEAR A MASK

- Wear a mask correctly when you are around other people and whenever you enter a healthcare provider's clinic

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HOME CARE: KEEP ENVIRONMENT SAFE

PRECAUTIONS TO BE TAKEN BY THE HOUSEHOLD WHERE THERE IS A SUSPECTED CASE

- SUPPORT: ASSIGNED FAMILY MEMBER TO TAKE CARE OF INFECTED PERSON HELPING THEM FOLLOW DOCTOR'S INSTRUCTIONS FOR MEDICATION(S) AND CARE.
- WASH HANDS: WITH SOAP AND WATER FOR AT LEAST 40 SECONDS OR, IF SOAP AND WATER ARE NOT AVAILABLE, CLEAN YOUR HANDS WITH AN ALCOHOL-BASED HAND SANITIZER THAT CONTAINS AT LEAST 70% ALCOHOL. WASH OFTEN AND ESPECIALLY AFTER TOUCHING
- CLEAN AND DISINFECT: ALL "HIGH-TOUCH" SURFACES, SUCH AS TABLETOPS, DOORKNOBS, BATHROOM FIXTURES, TOILETS, PHONES, EVERY DAY. ALSO, WIPE ANY SURFACES THAT MAY HAVE BLOOD, STOOL, OR BODY FLUIDS ON THEM. USING BLEACHING POWDER SOLUTION TSP OF HOUSEHOLD BLEACH IN 4 CUPS OF WATER)

WASH LAUNDRY THOROUGHLY AND AVOID SHAKING SOILED LINEN

- IMMEDIATELY REMOVE AND WASH CLOTHES OR BEDDING THAT HAVE BLOOD, STOOL, OR BODY FLUIDS ON THEM. KEEP AWAY FROM BODY.
- WASH AND DISINFECT LINEN IN WARM WATER AND SOAP, DRY IN SUN
- WASHING MACHINE: USE DISINFECTANT, SOAP, WARM WATER, DRY IN SUN
- LINEN CAN BE SOAKED IN HOT WATER AND SOAP IN A LARGE DRUM, USING A STICK TO STIR, AVOIDING SPLASHING (SOAK LINEN IN 1% CHLORINE FOR APPROXIMATELY 30 MINUTES. FINALLY, RINSE WITH CLEAN WATER AND LET LINEN DRY FULLY IN THE SUNLIGHT.
- PLACE ALL USED DISPOSABLE GLOVES, FACEMASKS, AND OTHER CONTAMINATED ITEMS IN A LINED CONTAINER BEFORE DISPOSING OF THEM WITH OTHER HOUSEHOLD WASTE.
- NOTE: INFECTED PERSON MAY BE AMBULATORY OR BED-RIDDEN

HOME QUARANTINE: STAY SAFE FOR FAMILY MEMBERS

- HOUSEHOLD MEMBERS SHOULD STAY IN ANOTHER ROOM OR BE SEPARATED FROM THE PATIENT AS MUCH AS POSSIBLE.
- HOUSEHOLD MEMBERS SHOULD USE A SEPARATE BEDROOM AND BATHROOM, IF AVAILABLE.
- AVOID SHARING HOUSEHOLD ITEMS E.G. DISHES, DRINKING GLASSES, CUPS, EATING UTENSILS, TOWELS, BEDDING, OR OTHER ITEMS WITH OTHER PEOPLE AT HOME.
- WASH HAND AS OFTEN THOROUGHLY WITH SOAP AND WATER (40 SECS) OR WITH 70% ALCOHOL-BASED HAND SANITISER
- WHEN IN CONTACT WITH THE PERSON WHO IS QUARANTINED, THE FAMILY MEMBERS SHOULD WEAR A THREE LAYERED MASK AT ALL THE TIMES. DISPOSABLE MASKS ARE NEVER TO BE REUSED.
- USED MASK SHOULD BE CONSIDERED AS POTENTIALLY INFECTED. DISPOSE MASK BY SOAKING IN HOME BLEACH SOLUTION AND THEN THROWING IN A DUSTBIN.
- DO NOT LET SMALL CHILDREN PLAY WITH THE MASKS.

SESSION 5

STIGMA AND DISCRIMINATION

WHAT IS STIGMA?

WHY IS THERE STIGMA?

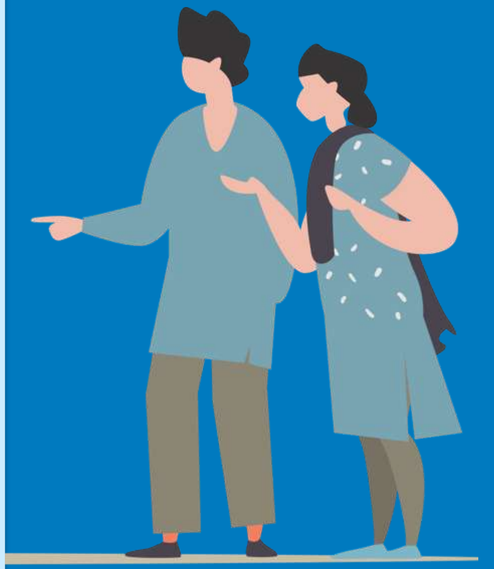
WHAT DOES STIGMA DO?

WHAT CAN FLW DO?

WHAT IS STIGMA?

IN ANY EPIDEMIC, IT IS COMMON FOR INDIVIDUALS TO FEEL STRESSED AND WORRIED BECAUSE THEY FEAR:

- FALLING ILL AND DYING
- AVOIDING APPROACHING HEALTH FACILITIES DUE TO FEAR OF BECOMING INFECTED WHILE IN CARE
- FEAR OF LOSING LIVELIHOODS, NOT BEING ABLE TO WORK DURING ISOLATION, AND OF BEING DISMISSED FROM WORK
- FEAR OF BEING SOCIALLY EXCLUDED/PLACED IN QUARANTINE BECAUSE OF BEING ASSOCIATED WITH THE DISEASE
- FEELING POWERLESS IN PROTECTING LOVED ONES AND FEAR OF LOSING LOVED ONES BECAUSE OF THE VIRUS OR BEING SEPARATED DURING QUARANTINE
- FEELINGS OF HELPLESSNESS, BOREDOM, LONELINESS AND DEPRESSION DUE TO BEING ISOLATED AND NOT WORKING TOWARDS CARING FOR A DEPENDENT
- STRESS IS CAUSED DUE TO THE ABOVE FEARS AND BEING TREATED AS AN OUTCASTE OR BLAMED FOR SPREADING THE DISEASE



WHY IS THERE STIGMA?

THE LEVEL OF STIGMA ASSOCIATED WITH COVID-19 IS BASED ON THREE MAIN FACTORS:

- COVID-19 IS A NEW DISEASE ABOUT WHICH MANY THINGS ARE STILL BEING DISCOVERED.
- WHEN SOMETHING IS UNKNOWN PEOPLE ARE WORRIED WHICH LEADS TO FEAR
- RUMOURS OR FAKE NEWS GIVE WRONG INFORMATION AND SPREADS THE FEAR.

RECOGNISING STIGMA?

1. YOU ARE IN THE GROCERY SHOP. THERE ARE SEVERAL PEOPLE WHO ARE WEARING A MASK. YOU SEE BABULAL THE STORE OWNER GOING RED IN HIS FACE AS HE TRIES TO SUPPRESS A COUGH.
2. SUKHRAM HAS COME BACK FROM PUNE WHERE HE WORKS AS A TAXI DRIVER. THEY STAY IN A JOINT FAMILY AND YOU HAVE TAKEN HIS CONTACT HISTORY AS ADVISED BY YOUR SUPERVISOR. YOU COME TO KNOW THAT SUKHRAM'S FAMILY MEMBERS HAVE ASKED HIM TO LEAVE THE HOUSE
3. BEAUTY WORKS IN DELHI AS A HOUSE MAID. RECENTLY SHE HAS COME BACK AND YOU HAVE BEEN TOLD THAT BEAUTY'S EMPLOYERS HAVE ASKED HER TO LEAVE AS SHE HAD A COLD.
4. SURALI IS A YOUNG GIRL OF 11 YEARS. SHE AND HER 8 YEAR OLD BROTHER ARE STAYING WITH AN AUNT AS THEIR PARENTS HAVE BEEN ASKED TO GO IN FOR ISOLATION. SURALI'S AUNT KEEPS ON COMPLAINING TO YOU THAT THE CHILDREN ARE A BIG BURDEN ON THE FAMILY'S RESOURCES.

WHAT WILL YOU FEEL LIKE IF YOU WERE BABULAL, RANI, SUKHRAM, BEAUTY?

THE STIGMA

- BABULAL HAS SIMPLE COUGH. BUT HE IS TOO SCARED TO COUGH IN FRONT OF PEOPLE AS HE WILL LOOSE THE CUSTOMERS.
- SUKHRAM NEEDS FAMILY SUPPORT TO HELP HIM STAY IN ISOLATION. IF EVERYONE TAKES PROPER PRECAUTIONS THE INFECTION NEED NOT SPREAD.
- BEAUTY HAS A SEASONAL COLD BUT SHE HAS BEEN ASKED TO LEAVE BY HER EMPLOYERS.
- SURALI AND HER BROTHER ARE TWO SMALL CHILDREN WHO NEED TO BE SUPPORTED AND THIS KIND OF INCIDENCE CAN CAUSE MENTAL STRESS EVEN IN THE FUTURE. CPC SHOULD BE APPROACHED FOR APPROPRIATE MEASURES FOR HELPING CHILDREN IN DIFFICULT SITUATIONS

WHAT DOES STIGMA DO?

MAKES PEOPLE HIDE THEIR PROBLEMS

KEEPS PEOPLE AWAY FROM ACCESSING HEALTH SERVICES AND SEEKING HELP

DISCOURAGES THEM & MAY AT TIMES PREVENT THEM FROM ADOPTING HEALTHY BEHAVIOURS

WHAT CAN THE FLW DO?

AS A HEALTH WORKER, YOU CAN:

- SENSITIZE PEOPLE AND HELP THEM TO UNDERSTAND THAT IT IS A SIMPLE INFECTION AND 80% OF THE CASES ARE MILD CASES.
- COVID-19 CAN HAPPEN TO ANYONE, SPEAK TO PEOPLE, BE AVAILABLE TO LISTEN TO HOW THEY FEEL
- ADVISE PEOPLE TO ENGAGE IN RELAXING ACTIVITIES LIKE INDOOR GAMES, READING, GARDENING, HOME-CLEANING, ETC.
- ASK PEOPLE TO STAY AWAY FROM WATCHING NEGATIVE THINGS ON THE TV AND ALSO FAKE NEWS
- ENGAGE COMMUNITY INFLUENCERS , SHARE CORRECT INFORMATION ON COVID-19 WITH THEM. BRIEF THEM ON SPECIFIC SUPPORT REQUIRED BY YOU. GUIDE WHATSAPP GROUPS TO HELP IN GIVING HOPE AND POSITIVE NEWS TO HELP PEOPLE HANDLE STRESS.
- PUBLICLY, USE TERMS LIKE PEOPLE WHO HAVE COVID-19 INSTEAD OF “COVID-19 CASES” OR “VICTIMS”. SIMILARLY, USE TERMS LIKE PEOPLE WHO MAY HAVE COVID-19 INSTEAD OF “SUSPECTED CASES”
- EMPHASIZE THAT MOST PEOPLE DO RECOVER FROM COVID-19, AMPLIFY THE GOOD NEWS ABOUT LOCAL PEOPLE . WHO HAVE RECOVERED FROM COVID-19? WHO HAVE SUPPORTED A LOVED ONE THROUGH RECOVERY?
- MAKE SPECIAL EFFORTS TO REACH OUT TO HIGH RISK GROUPS INCLUDING SENIOR CITIZENS AND YOUNGER CHILDREN.

CASE FROM PIPLI: WHAT CAN FLW DO?

Suresh was under home quarantine when his wife, developed labour pains and had to be taken to the hospital for delivery. The ASHA assured Suresh that his wife will be taken care of while he should remain isolated within the house as advised. The ASHA called her neighbour Seema and requested her to send food for Suresh. She reminded Seema to take the precautions while giving food. She then called the convener of local mothers' group and a member of village health and nutrition committee (VHSNC) member and apprised both of them of the situation requesting them to arrange for Suresh's food and home-care requirements. The VHSNC member requested village youth group members to do the needful for Suresh at-least for next 72 hours till his wife returns.

1. What are the positive actions taken by ASHA?
   ASHA has proactively formed community support groups and planned in case of emergency
2. What should be done?
   She informed her neighbour to give food

3. Which groups and /or people were involved by ASHA to provide supportive environment?
   The neighbours, VHSNC (who in turn involved the Youth Groups) and Adolescent Girls groups
4. If you were in place of ASHA, what would you have done additionally?

SESSION 6

COMMUNICATION, PERSONAL SAFETY FOR HEALTH/ICDS PERSONNEL

WHAT TO COMMUNICATE

HOW TO COMMUNICATE?

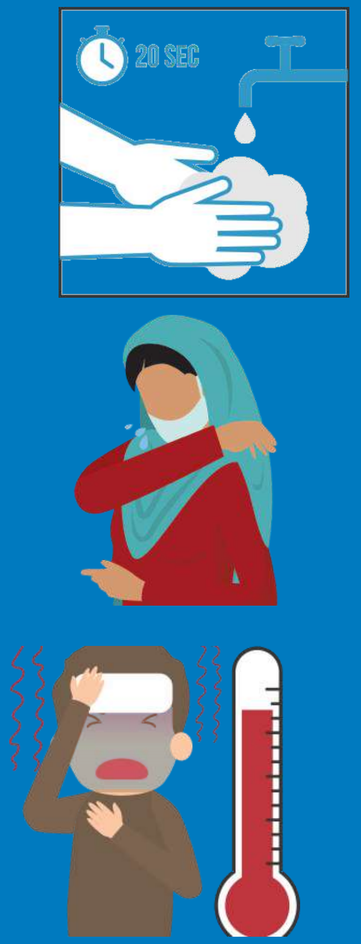
MASK MANAGEMENT

PRECAUTIONS

Ministry of Health & Family Welfare
Government of India

WHAT TO COMMUNICATE AND COMMUNICATION PLATFORMS

- HAND HYGIENE
- RESPIRATORY HYGIENE
- SOCIAL DISTANCING
- HOME CARE & HOME QUARANTINE
- MONITORING SYMPTOMS



- SHARE MOBISODES
- DISPLAY IEC MATERIALS AT APPROPRIATE PLACES
- USE ESSENTIAL SERVICES (LIKE GARBAGE COLLECTION VANS, MILK SUPPLY, ETC.) FOR MIKING
- SHARE WHATSAPP MESSAGES ON GROUPS
- USE POCKET BOOK FOR GIVING KEY MESSAGES

COMMUNICATION: HOW?

- ALWAYS BE POLITE. ANYONE CAN GET THE INFECTION, ANYWHERE. DO NOT DISCRIMINATE, SHOUT, OR USE RUDE LANGUAGE.
- TELL PEOPLE ABOUT THE PURPOSE OF YOUR VISIT AND WHAT YOU WILL DO WITH THE ANSWERS YOU ARE SEEKING. SAY THAT THIS IS THE SUPPORT THAT THE GOVERNMENT IS GIVING ALL CITIZENS.
- GATHER ACCURATE INFORMATION FROM THE PATIENT: THEIR NAME, DATE OF BIRTH, TRAVEL HISTORY, LIST OF SYMPTOMS, RECORD AND COMMUNICATE AS PER THE SURVEILLANCE FORMAT. WRITE THE INFORMATION CLEARLY
- BE AWARE THAT SUSPECTED AND CONFIRMED CASES, AND ANY VISITORS ACCOMPANYING THEM, MAY BE STRESSED OR AFRAID. SO, THE MOST IMPORTANT THING YOU CAN DO IS TO LISTEN CAREFULLY TO QUESTIONS AND CONCERNS.
- WHEN YOU MEET PEOPLE, AVOID TOUCHING OR DIRECT PHYSICAL CONTACT. THIS IS TRUE FOR PASSING ON INFECTION EITHER WAY. MAINTAIN DISTANCE OF MORE THAN 1 METER WHEN YOU INTERACT.
- IT IS BETTER TO SIT IN THE OPEN AND SPEAK WITH THE FAMILY MEMBERS IF SPACE AND SITUATION ALLOWS.
- ASK QUESTIONS AND GET VERY SPECIFIC ANSWERS. WHEN YOU ARE WRITING, MAKE SURE YOUR WRITING IS CLEAR AND COMPLETE INFORMATION (ADDRESSES, NAMES, CONTACT NUMBERS) IS WRITTEN LEGIBLY.
- CHECK IF PEOPLE HAVE UNDERSTOOD YOUR MESSAGE BY ASKING THEM TO REPEAT WHAT YOU HAVE TOLD.
- IF THERE ARE QUESTIONS AND YOU HAVE THE ANSWERS, YOU MUST SHARE THIS WITH THE COMMUNITY MEMBER. HOWEVER IF YOU DO NOT HAVE THE ANSWER, DO NOT HESITATE TO SAY SO. A LOT IS STILL UNKNOWN ABOUT COVID-19

MASK MANAGEMENT

USE A MASK IF AND ONLY WHEN:

- YOU DEVELOP FEVER, COUGH OR DIFFICULTY IN BREATHING
- YOU VISIT A HEALTH CARE FACILITY.
- YOU ARE CARING FOR AN ILL PERSON
- WHEN CONTACT TRACING

USE A MASK CORRECTLY:

- UNFOLD PLEATS, FACING DOWN, PLACE OVER NOSE, MOUTH AND CHIN.
- FIT NOSE PIECE OVER NOSE-BRIDGE. TIE STRINGS UPPER STRING TIED - TOP OF HEAD ABOVE EARS LOWER STRING AT THE BACK OF THE NECK.
- LEAVE NO GAPS ON EITHER SIDE OF THE MASK, ADJUST TO FIT.
- DO NOT PULL THE MASK DOWN OR HANG FROM THE NECK
- AVOID TOUCHING THE MASK WHILE IN USE.
- REPLACE MASKS WITH A NEW CLEAN, DRY MASK AS SOON AS THEY BECOME DAMP/HUMID, 6 -8 HOURS

REMOVING AND DISPOSING THE MASK

- DO NOT RE-USE SINGLE-USE MASKS
- DO NOT TOUCH OTHER SURFACES OF THE MASK WHILE REMOVING.
- TO REMOVE MASK FIRST UNTIE THE STRING BELOW AND THEN THE STRING ABOVE AND HANDLE THE MASK USING THE UPPER STRINGS. OTHER SURFACES MAY BE POTENTIALLY CONTAMINATED
- REMOVE THE MASK BY USING APPROPRIATE TECHNIQUE (I.E. DO NOT TOUCH THE FRONT BUT REMOVE THE LACE FROM BEHIND)
- AFTER REMOVAL OR WHENEVER YOU INADVERTENTLY TOUCH A USED MASK, CLEAN HANDS BY USING A 70% ALCOHOL-BASED HAND RUB OR SOAP AND WATER FOR 40 SECS.
- DISCARD SINGLE-USE MASKS AFTER EACH USE AND DISPOSE OF THEM IMMEDIATELY UPON REMOVAL

PRECAUTION AND SAFETY MEASURE FOR FLW

WHEN MOVING AROUND THE COMMUNITY

- MAINTAIN DISTANCE OF AT LEAST 1 METER FROM PEOPLE WHEN YOU ARE COMMUNICATING
- USE A THREE LAYERED MASK TO COVER YOUR FACE. MAKE SURE IT IS PROPERLY WORN.(WHILE CONTACT TRACING)
- AVOID TOUCHING YOUR FACE (EYES, NOSE, MOUTH) AT ALL TIMES
- WASH YOUR HANDS WITH SOAP AND WATER FREQUENTLY, OR USE ALCOHOL BASED HAND-RUB
- AVOID TOUCHING OR DIRECT PHYSICAL CONTACT

IMMEDIATELY ON REACHING HOME

- CAREFULLY REMOVE AND DISPOSE OFF YOUR FACE MASK BY SOAKING IN BLEACH SOLUTION AND THEN THROWING IT IN A COVERED DUSTBIN. (SEE: MASK MANAGEMENT).
- WASH YOUR HANDS WITH SOAP AND WATER OR ALCOHOL BASED HAND-SANITISER BEFORE YOU TOUCH ANYTHING ELSE.
- WIPE DOWN WHAT YOU HAVE CARRIED LIKE YOUR PURSE AND MOBILE WITH HOME BASED DISINFECTANT (4 TSPS OF HOUSEHOLD BLEACH IN 4 CUPS OF WATER)
- IF YOU GET ANY SYMPTOMS LIKE FEVER, COUGH OR DIFFICULTY IN BREATHING REPORT TO THE NEAREST GOVERNMENT FACILITY OR DISTRICT SURVEILLANCE OFFICER IMMEDIATELY.

MYTHS & FACTS

STATEMENT: WITH THE SUMMERS COMING UP, THE CORONAVIRUS WILL BE KILLED

FACT: COVID-19 HAS BEEN DETECTED IN ALL AREAS, INCLUDING AREAS WITH HOT AND HUMID WEATHER. THE BEST WAY TO PROTECT YOURSELF AGAINST COVID-19 IS BY FREQUENTLY WASHING YOUR HANDS WITH SOAP AND WATER, COVERING YOUR COUGHS AND SNEEZES AND AVOIDING CROWDED PLACES.

STATEMENT: HAVING A BATH WITH HOT WATER WILL KILL THE VIRUS

FACT: THE VIRUS LIVES INSIDE THE BODY WHERE THE TEMPERATURE IS MAINTAINED AT 37ºC AND IS NOT AFFECTED BY A HOT WATER BATH THAT YOU HAVE.

STATEMENT: GETTING THE PNEUMONIA VACCINE WILL PROTECT YOU AGAINST THE VIRUS

FACT: WHILE VACCINES FOR PNEUMONIA WILL CERTAINLY PROTECT YOU AGAINST OTHER ORGANISMS THAT CAUSE PNEUMONIA, THE VACCINE FOR NOVEL CORONAVIRUS IS UNDER DEVELOPMENT.

STATEMENT: SPRAYING ALCOHOL OR DISINFECTANT OVER YOUR BODY CAN PREVENT INFECTION

FACT: SPRAYING WITH ALCOHOL OR SANITISER ON CLOTHES AND BODY WILL NOT PREVENT YOU FROM GETTING INFECTION. INFECTION SPREADS WHEN THE VIRUS ENTERS THE BODY THROUGH NOSE OR MOUTH. CLEANING AND WIPING HANDS WITH ALCOHOL IS TO PREVENT THE GERM FROM ENTERING YOUR SYSTEM THROUGH INFECTED HANDS WHEN YOU TOUCH YOUR MOUTH OR YOU EAT FOOD WITH INFECTED HANDS.

STATEMENT: REGULARLY RINSING THE NOSE WITH SALINE WILL PREVENT THE INFECTION

FACT: RINSING NOSE WITH SALINE HAS IN FEW CASES HELPED IN CONTAINING COMMON COLD, BUT HAS NO EVIDENCE TO SUGGEST IT IS EFFECTIVE AGAINST THE NOVEL CORONAVIRUS INFECTION

MYTHS & FACTS

STATEMENT: CORONAVIRUS CAN BE PASSED THROUGH CHICKEN AND MEAT

FACT: NO! THERE IS NO SUCH EVIDENCE OF CORONAVIRUS SPREADING THROUGH MEAT AND POULTRY PRODUCTS. HOWEVER IT IS ALWAYS ADVISED TO HAVE PROPERLY COOKED MEAT AND CHICKEN.

STATEMENT: A PERSON WITH CORONAVIRUS CAN RECOVER FULLY AND BE NO MORE INFECTIOUS.

FACT: 80% OF THE PEOPLE HAVE RECOVERED FROM THE DISEASE WITHOUT NEEDING SPECIAL TREATMENT. BUT INFORMATION ON THE VIRUS TREATMENT IS STILL BEING RESEARCHED

STATEMENT: EATING RAW GARLIC, SESAME SEEDS WILL PROTECT YOU AGAINST THE VIRUS

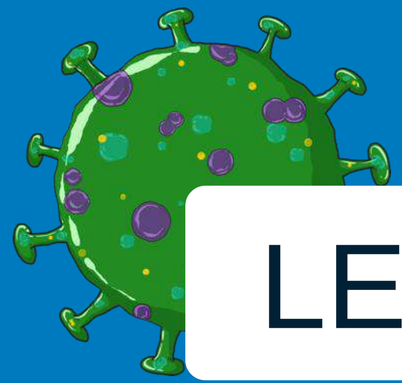
FACT: GARLIC IS A HEALTHY FOOD THAT HAS OTHER BENEFITS BUT DOES NOT PROTECT YOU AGAINST THE CORONAVIRUS.

STATEMENT: THE VIRUS CAN DIE EASILY ONCE IT IS OUT OF THE BODY

FACT: WE DO NOT KNOW ABOUT THIS PARTICULAR VIRUS AS OF NOW. SIMILAR VIRUSES (SARS, MERS) SURVIVE FROM 8 TO 24 HOURS DEPENDING ON TYPES OF SURFACES.

STATEMENT: YOU CAN GET COVID-19 THROUGH MOSQUITO BITES

FACT: THE CORONAVIRUS CANNOT BE SPREAD THROUGH THE BITE OF A MOSQUITO. IT IS SPREAD THOROUGH DROPLETS SPREAD WHEN AN INFECTED PERSON SNEEZES OR COUGHS



LET'S EXPOSE THE VIRUS

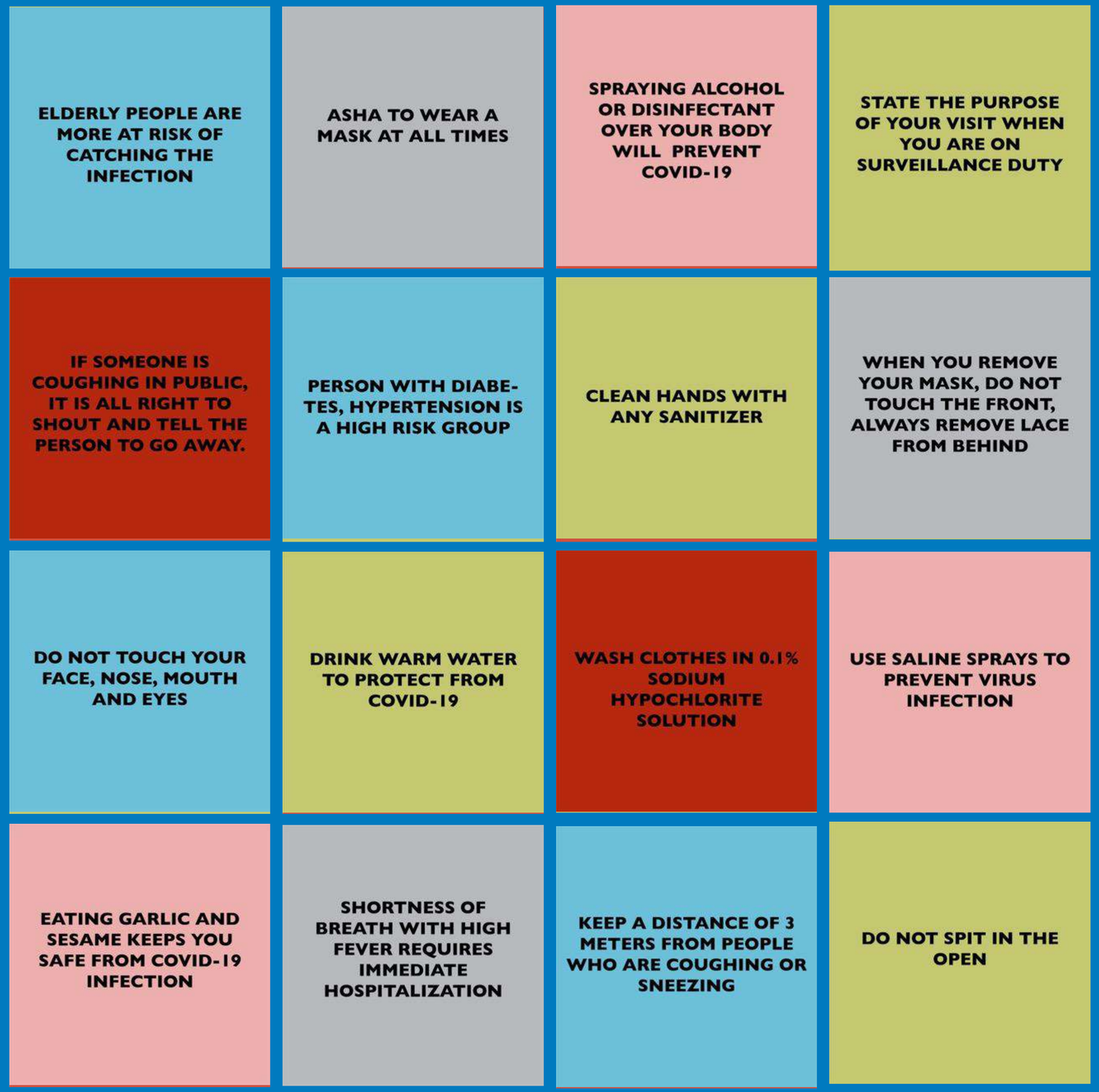
CORRECT INFORMATION AND BEHAVIOURS IS THE WAY TO DEFEAT THE INFECTION.

LET’S PLAY THE GAME TO UNCOVER THE VIRUS AND TACKLE IT THROUGH OUR INFORMATION

LET’S PLAY A RECAP GAME: IN EACH SQUARE YOU WILL FIND A STATEMENT,

LET’S HEAR YOUR ANSWER.

LET'S HEAR YOUR ANSWERS.



SESSION 7

How to meet special communication needs in urban areas

ACTIVATING SUPPORT

SAFE PRACTICES

STIGMA AND DISCRIMINATION

ACTIVATING SUPPORT

Community support should involve key stakeholders identified in the area and trained to given safe inputs and support

ADVISE COMMUNITY MEMBERS TO

- Volunteer for supporting the Community help-desk set up by local municipality
- Support the task of distributing masks in the community, ensuring that they are given to those who most require. Mask management to be taught while distribution
- Community representative to ensure that community cleaning and disinfection drive to be taken up regularly by the Municipal corporation
- Give information through local political and religious leaders involvement
- Give information out through common essential services like garbage vans, milk supply van etc.
- Free distribution of bleach/sodium hypochlorite solution and use of the disinfectant to be planned in the community

ACTIVATING SUPPORT

Remember urban areas are densely populated with limited health staff. You need to develop community support to keep everyone and yourself safe.

- Identify the high risk groups in the community and help them to isolate themselves to protect them from getting infected
- Be in touch with the government services to organise to get the mid-day meals delivered to the children's homes.
- Get key influencers who can help you with vigilance and tracking people who may possibly be infected and report it for referral.
- Community level cadre to be trained to ensure compliance of protocols during lock down period
- Community level structure to be identified to transform into quarantine facilities

PRACTICING SAFE BEHAVIOURS

Remember many daily wage / unorganized sector workers with severe economic hardship would go to work despite restrictions increasing their vulnerability

Reach out to specific group of people such as labourers, housemaids, shelter home migrants and daily wage workers and advise them to follow:

- Frequent handwashing with soap and water for 40 seconds especially after coming from outside, before eating food and after going to toilet.
- Change clothes and if possible wash oneself using soap after coming from outside. Avoid touching eyes, nose and mouth.
- Avoid spitting in open places and use only a wash basin or spittoon
- Maintain a distance of minimum 1 meter from others
- Contact community help-desk/ health facility if they develop fever, cough or difficulty in breathing or need any information

Stigma and Discrimination

Remember urban areas are densely populated with limited health staff. You need to develop community support to keep everyone and yourself safe.

Resident Welfare Associations

1. Many of the societies have stopped maids and other helpers from entering. While this is correct as this will keep people at home, the way of managing this distancing is stigmatizing
2. Words like “They will bring this disease to us” “The disease will spread because of them” etc are stigmatizing
3. Work with the local influencers and key decisionmakers of the area to sensitise people
4. Use the mass media clips to sensitise
5. Use government orders to show why housing societies should not discriminate against the working class like car cleaners, maids etc.

Ministry of Health
& Family Welfare
Government of India

COVID-19
BOOK OF FIVE

Response and Containment Measures for ANM, ASHA, AWW

627

CONTENT

1 WHAT IS MY ROLE :
ANM, ASHA, AWW

Health – ANM *Under guidance of DSO/MO*

- Provide information
(a) Preventive and control measures including social distancing
(b) Addressing myths and misconceptions;

- Support DSO on
(a) Contact tracing as per SOPs
(b) Implementing home quarantine, home care, and supportive services for HRG and probable cases urban/ rural areas and
(c) Address psychosocial care and stigma and discrimination.

- Reporting and feedback
- Team safety and prevention
- Supportive Supervision

Health –ASHA, CHV (in urban areas) and ICDS – AWW *Under guidance of ASHA Facilitator and CDPO*

- Community awareness through inter-personal communication
(a) Uptake of preventive and control measures including social distancing
(b) Addressing myths and misconceptions;

- Support ANM/Supervisor in house to house surveillance including
(a) Identification of HRG and probable cases
(b) Ensure uptake of medical services in urban and rural areas and
(c) Address psychosocial care and stigma and discrimination.

- Reporting and feedback
- Personal safety and precautions
- Use of COVID 19 IEC materials

COVID-19

2 WHAT SHOULD I KNOW ABOUT COVID-19

1. It is a disease called Coronavirus Disease-2019 caused by a Coronavirus named as SARS-CoV-2

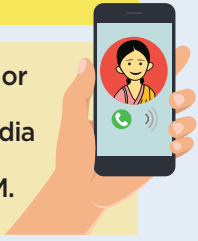
2. The symptoms of COVID-19 are Fever , Cough and Difficulty in breathing

3. If you have the symptoms of Fever, Cough or Difficulty in Breathing

AND

4. You are a contact of a laboratory confirmed positive case

5. You must immediately call the State Helpline Number or Ministry of Health & Family Welfare, Government of India 24x7 helpline 011-2397 8046, 1075 or your ASHA/ANM.



COVID-19

3 WHAT ARE THE SAFE PRACTICES TO BE PROMOTED

1 Frequent handwashing
a. Regularly and thoroughly wash your hands with soap and water for 40 secs or 70% alcohol based hand rub

2 Maintain social distancing
a. Practice at least 1 metre distance between yourself and others.
b. Avoid going to crowded places
c. Avoid organising and attending events, prayers, parties

3 Avoid touching eyes, nose and mouth
a. Because contaminated hands can transfer the virus to your eyes, nose or mouth

4 Practice good respiratory hygiene
a. Cover your mouth and nose with handkerchief or tissue when you cough or sneeze.
b. Dispose of the used tissue immediately in a closed dustbin.
c. Wash your hands with soap and water for 40 secs or rub hands with 70% alcohol based hand sanitiser

5 Stay informed, take care and follow advice from ANM / ASHA/AWW
a. Stay informed on the latest developments about COVID-19
b. Check with the ASHA/ANM/AWW or PHC on any queries you have on how to protect yourself

COVID-19

4 WHO IS A SUSPECT

1 Anyone with acute respiratory illness {fever and at least one sign/symptom of respiratory disease (cough, difficulty in breathing),

AND

2 A history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 disease during the 14 days prior to symptom onset;

OR

3 Anyone with any acute respiratory illness AND having been in contact with a confirmed COVID-19 case in the last 14 days prior to onset of symptoms;

OR

4 Anyone with severe acute respiratory infection {fever and at least one sign/symptom of respiratory disease (cough, difficulty in breathing} AND requiring hospitalization;

OR

5 A case for whom testing for COVID-19 is inconclusive. Laboratory Confirmed case: A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

COVID-19

5 WHO IS A CONTACT CASE

1. Staying in the same house without proper protection with COVID-19 patient
2. Staying in the same close environment as a COVID-19 patient (including workplace, classroom, household, gatherings)
3. Traveling together in close proximity (less than 1 m) with a symptomatic person who later tested positive for COVID-19
4. Person providing direct care to a COVID-19 patient
5. The infection may have been transferred within a 14-day period before the onset of illness in the case under consideration

COVID-19

6 HOW TO CONDUCT COMMUNITY SURVEILLANCE

1. **Visiting Contact:** Community Surveillance done by visiting the local residence of the contact(s) by Health Personnel. Telephone may be used in certain circumstances or for follow-up. Follow precautions.

2. **Introducing purpose:** Introduce yourself, explain purpose of contact tracing, collect data in prescribed format.

3. **Use Formats:** Community Surveillance to include identification of extended social networks and travel history of cases during the 28 days after onset of illness.

4. **Monitoring:** Contacts of confirmed cases traced and monitored for at least 28 days after the last exposure to the case patient for evidence of COVID - 19 symptoms as per case definition.

5. **Follow-up:** Information about contacts can be obtained from:
   a. A patient, his/her family members, persons at patient's workplace or school associates, or
   b. others with knowledge about the patient's recent activities and travels

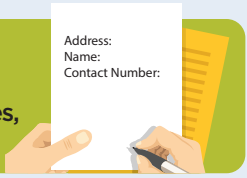
COVID-19

7 HOW TO COMMUNICATE DURING COMMUNITY SURVEILLANCE

1 **Always be polite.** anyone can get affected by COVID-19. Do not discriminate, shout, or use rude language. Tell people about the purpose of your visit and what you will do with the answers you are seeking. Say that this is the support that the government is giving to all citizens.

2 **Keep distance of 1 meter:** When you meet people, avoid touching or close physical contact. This is true for passing on infection either way. It is better to sit in the open and speak with the family members if space and situation allows.

3 **Interview:** Ask questions and get very specific answers. When you are writing, make sure your writing is clear and complete information (addresses, names, contact numbers) is written legibly.



4 **Feedback:** Check if people have understood your messages correctly by taking feedback and asking them to repeat what you have advised or shared

5 **Clarifications:** If there are questions and you have the answers, you must share this with the community member. However, if you do not have the answer, do not hesitate to say so. A lot is still unknown about COVID-19

Be Prepared when you go to the field:

- *Carry a Sanitizer/soap for cleaning your hand*
- *Carry your formats*
- *Carry your own writing materials like pen, writing pad*
- *Carry your masks and extra masks if required*

COVID-19

8 HOW TO CREATE A SUPPORTIVE ENVIRONMENT

1

Talk to and involve Influencers
a. Make a list of local influencers (Gram Pradhan, Religious Leaders, Teachers, any other)
b. Explain & discuss the situation and protocols to be followed and seek their support in awareness campaign

2

Plan community support for high risk groups
a. Make a list of high risk people in the village as per contact tracing protocols
b. Identify people they meet or talk to; share preventive measures with these people and request them to keep communicating these measures to the high risk people
c. Take care of children whose parents may be in quarantine for issues of education and/or care

3

Develop community networks for support
a. Divide village into smaller groups for emergency planning, keep contact details of group coordinators
b. Share contact details of ANM, ASHA, AWW Ambulance, and other medical support with them
c. Share coordinating details of child protection committees for addressing issues of trauma and violence in children.

4

Help develop household emergency contact lists
a. Ensure each household has a current list of emergency contacts of the government help line, ANM, ASHA or AWW

5

Raise your voice against Stigma and Discrimination
a. Identify stigma and discrimination situations in the community
b. Talk to the affected households to support them in time of need.

COVID-19

9 HOW TO INTERACT WITH FAMILIES

1. Greet with local salutation and state purpose of your visit. Be respectful, polite and empathetic. Do not discriminate or be rude.

2. Be aware that suspected and confirmed cases, and their family members may be stressed or afraid. So, the most important thing you can do is to listen carefully to questions and concerns.

3. Gather accurate information from the person: their name, date of birth, travel history, list of symptoms, record and communicate as per the surveillance format. Write the information clearly

4. You may not have an answer for every question: a lot is still unknown about COVID-19 and it is okay to admit that.

5. If available, share information pamphlets or handouts with family members. Discuss their questions using IEC like pamphlets etc to enable better understanding and motivate them to share the CORRECT information with others.

COVID-19

10 WHAT ARE THE SAFE PRACTICES AT HOME

1 Stay away from others
a. Stay in a specific room and away from other people in your home. Maintain distance of at least 1 meter. Restrict all movement so that others in the house stay safe from infection
b. If available, use a separate bathroom

2 Seek health care and notify
a. If suffering from fever, cough, or having difficulty in breathing, wear a mask to protect others and immediately get in touch with your nearest health facility or ASHA or ANM.

3 Wear a mask
a. When you are around other people and before you enter a healthcare provider's clinic
b. If sick person is unable to wear it, then other family members should wear it when they enter the sick person's room

4 Avoid going to public areas
a. Do not go to work, school, or public areas
b. If you are infected, you could transmit infection to others

5 Avoid visitors or support staff coming to the house
a. You may likely pass infection unknowingly
b. Support staff like maids, drivers, etc should be asked to stay away

COVID-19

11 HOW TO SUPPORT HOME QUARANTINE

1 **Support:** Assigned family member to take care of bed ridden person helping them follow doctor's instructions for medication(s) and care.

2 **Monitor Symptoms:** Fever and breathing must be monitored regularly and reported immediately in case there is breathing difficulty or very high fever.

3 **Protective Hygiene:**

- Avoid sharing household items like dishes, drinking glasses, cups, eating utensils, towels, bedding with the person. Throw used tissues in a lined closed trash can.
- Wash and disinfect linen in warm water and soap, dry in sun
- Washing machine: use disinfectant, soap, warm water, dry in sun
- Linen can be soaked in hot water and soap in a large drum, using a stick to stir, avoiding splashing (soak linen in 0.05% chlorine for approximately 30 minutes. Finally, rinse with clean water and let linen dry fully in the sunlight.
- Place all used tissues, disposable gloves, facemasks, and other contaminated items in a lined container before disposing them of with other household waste.

4 **Clean and disinfect:** All "high-touch" surfaces, such as counters, table tops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables, every day. Also, clean any surfaces that may have blood, stool, or body fluids on them.

5 **Wash hands:** with soap and water for at least 40 seconds or, if soap and water are not available, clean your hands with a 70% alcohol-based hand sanitizer. Wash often and especially after touching

COVID-19

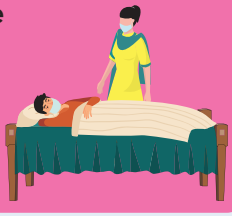
12 HOW TO SUPPORT HOME QUARANTINE FOR FAMILY MEMBERS

1 **Wash hand** often thoroughly with soap and water for 40 secs or rub with 70% alcohol-based hand sanitizer

2 **Keep away from elderly.** Household members should stay in another room or be separated from the person as much as possible. Household members should use a separate bedroom and bathroom, if available.

3 **Avoid sharing** household items e.g. dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items with other people at home.

4 **Wear a triple layered mask** at all the time when in contact with infected person. Disposable masks are never to be reused. (Used mask should be considered as potentially infected). Mask to be disposed safely.



5 **If symptoms appear** (fever/cough /difficulty in breathing) he/she should immediately inform the nearest health centre or call your local phone number

COVID-19

13 HOW CAN I ADDRESS STIGMA

As a major support to people when they suffer from anxieties, stigma and/or discrimination you can help people overcome their anxieties and build a supportive environment

1. Publicly, use terms like people who have COVID-19 instead of "COVID-19 cases" or "victims". Similarly, use terms like people who may have COVID-19 instead of "suspected cases" – even when it may be the official terminology in your contact listing formats.

2. Advise people to minimize watching, reading or listening to news that causes them to feel anxious or distressed.

3. Advise people to engage in relaxing activities like indoor games, reading, gardening, home-cleaning, etc.

4. Engage community influencers to build community support by talking to people within their circle of influence.
   a. Identify influencers
   b. Share correct information on COVID-19 with them
   c. Brief them on specific support required by you.

5. To emphasise that most people do recover from COVID-19, amplify the good news about local people
   a. Who have recovered from COVID-19
   b. Who have supported a loved one through recovery

COVID-19

14 HOW TO USE A MASK

1. **Use a mask if:**
   a. You develop fever, cough or breathing difficulty
   b. You are visiting a health facility.
   c. You are caring for an ill person and/or entering the room of an infected person.

2. **Use a Mask Correctly:**
   a. Unfold pleats, facing down, place over nose, mouth and chin.
   b. Fit nose piece over nose-bridge. Tie strings upper string tied - top of head above ears lower string at the back of the neck.
   c. Leave no gaps on either side of the mask, adjust to fit.
   d. Do not pull the mask down or hang it from the neck
   e. Avoid touching the mask while in use.

3. **Replace masks** with a new clean, dry mask as soon as they become damp/humid. Do not re-use single-use masks.

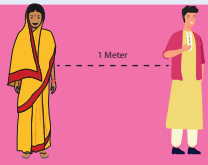
4. **Remove the mask**
   a. By using appropriate technique (i.e. do not touch the front but remove the lace from behind)
   b. By first untying the string below and then the string above and handle the mask using the upper strings. Do not touch other surfaces of the mask while removing.

5. **Disposing of Mask**
   After removal or whenever you inadvertently touch a used mask, clean hands by using an alcohol-based hand rub or soap and water. Discard single-use masks after each use and dispose of them immediately upon removal by soaking in household bleach solution and then throwing in a closed dustbin

COVID-19

15 WHAT ARE THE PRECAUTIONS FOR ME DURING COMMUNITY VISITS

1. Maintain distance of 1 meter from people and avoid close physical contact when you are communicating

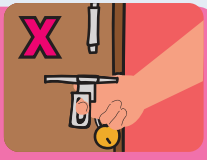


2. Use a three layered mask to cover your face. Make sure it is properly worn

3. Avoid touching your face (eyes, nose, mouth) at all times.

4. Wash your hands with soap and water for 40 secs or use a 70% alcohol based hand rub.

5. Avoid touching high touch points like door bells, door knobs , support rails and



COVID-19

16 WHAT ARE THE PRECAUTIONS & SAFETY MEASURES ME ON REACHING HOME

1. Carefully remove your face mask and gloves using the correct method, avoid touching front of your mask at all time, untie lace from behind and do not let the mask hang low around your neck.

2. Dispose off used mask and gloves by throwing them in a covered dustbin. (See: MASK MANAGEMENT).

3. If you have carried your bag/register, wipe them down with the disinfectant solution. Add four teaspoons of any home bleach to four cups of water to prepare disinfectant solution.

4. Wash your hands with soap and water for 40 secs or 70% alcohol based hand-sanitizer before you touch anything else.

5. If you get any symptoms like cold, cough, fever, contact the nearest Government Facility or District Surveillance Officer immediately.

FACTS AND MYTHS

1. Statement: With the summers coming up, the Coronavirus will be killed

FACT: The COVID-19 virus can be transmitted in ALL AREAS, including areas with hot and humid weather. The best way to protect yourself against COVID-19 is by frequently washing your hands with soap and water, covering your coughs and sneezes and avoiding crowded places.

2. Statement: Having a bath with hot water will kill the virus

FACT: The virus lives inside the body where the temperature is maintained at 37ºC and is not affected by a hot water bath that you have.

3. Statement: Eating raw garlic, sesame seeds will protect you against the virus

FACT: Garlic is a healthy food that has other benefits but does not protect you against the Coronavirus.

4. Statement: Getting the pneumonia vaccine will protect you against the virus

FACT: While vaccines for Pneumonia will certainly protect you against pneumonia, it has no protective effect against the Novel Coronavirus.

5. Statement: You can get COVID-19 through mosquito bites

FACT: The Coronavirus cannot be spread through the bite of a mosquito. It is spread thorough droplets spread when an infected person sneezes or coughs

6. Statement: Spraying alcohol or disinfectant over your body can prevent infection

FACT: Spraying with alcohol or sanitizer on clothes and body, or consuming alcohol will not prevent you from getting infection. Infection spreads when the virus enters the body through nose or mouth. Cleaning and wiping hands with alcohol is to prevent the germ from entering your system through infected hands when you touch your mouth or you eat food with infected hands.

7. Statement: Regularly rinsing the nose with saline will prevent the infection

FACT: Rinsing nose with saline has in few cases helped in containing common cold, but has no evidence to suggest it is effective against the Novel Coronavirus infection

COVID-19

WHY DO CHILDREN IN EMERGENCIES REQUIRE SPECIAL ATTENTION?[1]

Children are the most vulnerable of the populations. They have unique needs and these often get overlooked in emergencies. The ASHA and AWW have an important role to play as members of the child protection committees at the village level.

1. Inform parents that children may express anxiety and sadness. This may be expressed as stubbornness or tantrums. Parents need to be patient and not resort to violent disciplining.
2. Be informed that during emergencies children can be put in situations where they experience violence, abuse and deprivation. Be aware of these possibilities, take action and report
3. To be vigilant and watch out for unaccompanied minors
4. Call CHILDLINE 1098 for any support for children.
5. Monitor that Child Protection workers of Child Care Institutions (CCIs) are following all safety norms

[1]This section to be used only for Child Protection Nodal Officers at the State level

For more Information contact:

Director, Emergency Medical and Relief.
Ministry of Health and Family Welfare.
Tel: +91-11-23978046

Director, National Center For Disease Control.
Tel: +91-1123913148

Mission Director, National Rural Health Mission.
Tel: xxxxxxxxxx

COVID-19
FACILITATOR GUIDE

Response and Containment Measures
Training toolkit for ANM, ASHA, AWW

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

सत्यमेव जयते
Ministry of Health & Family Welfare
Government of India

CONTENT

About the Toolkit

INTRODUCTION

In January 2020 the World Health Organization (WHO) declared the outbreak of a new coronavirus disease in Hubei Province, China to be a Public Health Emergency of International Concern. Since then WHO has declared it as a Pandemic affecting more than 115 countries around the globe. India has seen it's first COVID-19 case in Kerala on 30th January 2020. With cases rising steadily, all sections of our society must play a role if we are to stop the spread of this disease and the frontline health worker has the responsibility, the reach and the influence within the community.

UNICEF and WHO are supporting the government of India in taking action to contain the COVID-19 outbreak.

WHO SHOULD USE THE TOOLKIT

The training module should be used by the designated COVID-19 trainers with the Health frontline functionary viz the ANM and the ASHA. This module can be used in a stand-alone training of one and a half hours or as part of a larger training.

ROLE OF THE FRONTLINE WORKER

Health – ANM (Under guidance of DSO/MO)	Health – ASHA, CHV(in urban areas) and ICDS - AWW (Under guidance of ASHA Facilitator and CDPO)
1. Provide information on (a) preventive and control measures including social distancing (b) addressing myths and misconceptions; 2. Support DSO on (a) contact tracing as per SOPs (b) implementing home quarantine, home care, and supportive services for HRG and probable cases urban/ rural areas and (c) address psychosocial care and stigma and discrimination. 3. Reporting and feedback 4. Team safety and prevention 5. Supportive supervision	1. Community awareness through inter-personal communication (a) uptake of preventive and control measures including social distancing (b) addressing myths and misconceptions; 2. Support ANM/Supervisor in house to house surveillance including (a) identification of HRG and probable cases (b) ensure uptake of medical services in urban and rural areas and (c) psychosocial care and stigma and discrimination 3. Reporting and feedback 4. Personal safety and precautions 5. Use of COVID 19 IEC materials

HOW TO USE THE TOOLKIT

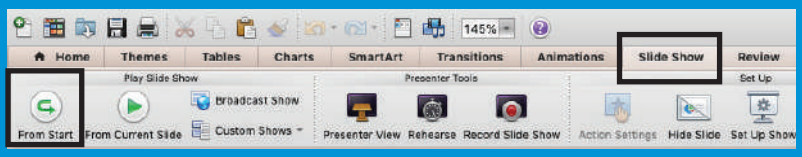
The toolkit consists of the following:

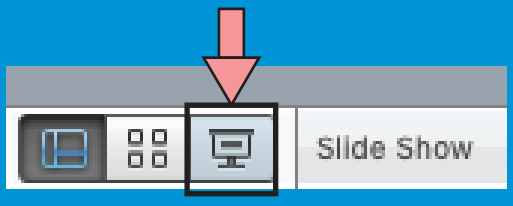
1. Facilitator Guide for the training (to be used by the DSO for training the FLWs)
2. Presentation for the training (to be used by the DSO during the VC)
3. Pocket book with 5 to do's for various topics as reference for the FLW (the pdf can be loaded on the WhatsApp and be a handy guide for the FLW)

The Facilitator guide and the presentation are to be used by the Trainer. The Facilitator guide will give point of facilitation tips to the trainer on how to run the training sessions . Sessions follow the PowerPoint presentation. The trainer is expected to familiarize himself/herself with the sessions and the presentation before discussions. The trainer should also keep an updated status of the districts and clusters in the state which are under lock down or have a high infection rate. The trainer should use session number 7 only during training of FLWs working in urban areas as it gives some area specific inputs to them.

A self-assessment is given at the end of each session which can be used by the participants to check on their understanding of the session.
The self-assessment is a case study or a checklist. All references are given to the trainer in the Facilitator guide
Further readings related to the sessions are given as a simplified Pocket Reference which can be shared with the participants.
Participants are expected to familiarize themselves with the readings. The Pocket Reference will be given as a PDF on the mobiles and can be viewed on the WhatsApp screen

Trainer must take care to run the PowerPoint presentation in the presentation mode. To shift the Slideshow mode, follow instruction as shown





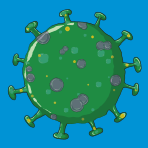
- To start a slideshow from the beginning of your presentation using the Ribbon, simply
  1. Navigate to the Slide Show tab
  2. Select From Beginning
- Selecting From Beginning starts your presentation from the first non-hidden slide in your presentation, regardless of which slide you are currently inside of your deck.
- Trainer must take care to run the PowerPoint presentation in the presentation mode. To shift to the Slideshow mode, follow instruction as shown here

Training Objectives

At the end of the training the ASHA/ANM/AWW will be able to do the following:

- Supporting community surveillance process (Early identification and reporting)
- Strengthening community linkage with public health services on preparedness, prevention, and control (home quarantine, home care, stigma and discrimination) including community / family support systems.
- Enhancing uptake of response and control of public health measures (safe behaviours and social distancing measures and early self-reporting if symptoms develop) and tracking and addressing of rumors and misinformation.
- Protection of health care workers from acquiring COVID-19.

KNOWLEDGE	SKILLS
Case definitions during cluster containment and community transmission and communication of symptoms for early detection.	Inter-personal communication to improve community involvement in COVID-19 prevention and control measures including early health seeking behaviour
Community surveillance and reporting process	Management of HRGs (Identification, tracking and reporting) and communicating
Information on Public health services for prevention and control, management of suspected cases (Symptomatic and Asymptomatic) including home quarantine, home care and stigma and discrimination, self-reporting, understanding co-morbidities and other risk groups (travel history or contacts: Corona affected countries/areas)	Building and maintaining supportive environment to tackle anxieties, fears, stigma and discrimination, and support high-risk groups, self-reporting, effective use of COVID-19 IEC materials
Safety and precautions for self Myths and misinformation	Effective use of COVID 19 IEC materials, protection measures like handwashing, social distancing, cough etiquette and correct use of medical mask while contact tracing



COVID-19

Training Agenda

Session 1: Understanding COVID- 19, Communication for Response and Containment Measures a. Roles and Responsibilities of the Health Workers/ ICDS Workers	15 minutes
Session 2: Prevention: Safe Practices in the Community a. Preventive services: ASHA/ANM/FLW to communicate for preparedness in the face of a COVID-19 outbreak at the community level	20 minutes
Session 3: Community Surveillance	10 minutes
Session 4: Supportive Public Health Services: Community and Households a. Control services (Home quarantine, home care, stigma and discrimination and supportive services for HRG) **(5 mins)** b. Handling of myths and misconceptions; reporting and feedback through cluster containment, community transmission at the epidemic stage **(5 mins)** c. Effective use of IEC materials on COVID-19 **(5 mins)**	15 minutes
Session 5: Managing Stigma and Discrimination	20 minutes
Session 6: Communication, Personal Safety for Health, ICDS Personnel	10 minutes
Session 7: Special Communication Needs in Urban Areas	10 minutes

COVID-19

Session 1: Introduction to COVID-19
Communication for Response and Containment

Learning outcome:
- Participants will be able to recall key messages on COVID 19
- Participants to recap on handling contact tracing
- Participants will be able to give a checklist of communication of symptoms for early detection.

Duration: 10 minutes

Methodology: Presentation

Process:
Facilitator says:

Slide 1: Welcome to the training on COVID-19 Response and Containment

Slide 2: In this training the topics that we are going to be talking about are six main areas and our roles.

1. This session talks about the role that each of the frontline worker or other worker plays and what she needs to understand about COVID-19
2. This section talks about the information and knowledge that the FLW will give to the community on Hand Hygiene, Respiratory hygiene, Social distancing and HRG
3. Session discusses the contact tracing protocol, how to identify the contact, what are the guidelines for supporting people who are suspected, symptomatic or asymptomatic cases
4. What is the role that community networks play in addressing COVID in the community, what are the services required: home care , home quarantine in urban and rural areas
5. This session deals with the myths and misconceptions around Coronavius and many fears that result in stigmatizing behaviours at various level. What is the role of the FLW and what can she do
6. Frontline workers will work to reach out the message to thousands of directly or indirectly affected community members. However they also need to take care of their own personal safety

Slide 4: For fulfilling these, what is the role that the various functionaries play. ASHA, ANM and other frontline functionaries including the Anganwadi worker. We may also have SHG group leaders like Jeevika didis or Kudamashree or NRLM members who will be asked by the District Surveillance Officer to help out in various ways.

Slide 5: Let us understand about the disease that we are talking of.

Session 2: Prevention: Safe Practices in the Community

Learning outcome:
• Participants will be able to explain prevention practices in the Community and Households
• Participants will be able to give a checklist of preventive actions to be taken at home and in public places to avoid spread of COVID-19.

Duration: 20 minutes

Methodology: Presentation

Process:

Slide 6: In this session we are going to see four things;
1. Hand Hygiene
2. Respiratory Hygiene
3. Social Distancing
4. High Risk Groups

Slide 7 & 8: This talks about the transmission modes and how to prevent infection through 1) Hand Hygiene; What, Do and Do nots

Slide 9: 2) Respiratory Hygiene : What, Do and Do nots

Slide 10: Case Study on Respiratory Hygiene and how the FLW can communicate
Facilitator will read the case study, give time for discussion and then conclude.

Slide 11: 3) Social Distancing, what it is and Do and Do nots

Slide 12: 4) Taking care of our High Risk Groups: who are the High Risk Groups and how will the FLW identify them

Self-Assessment: 5 mins
A. List five messages that you MUST give to contain spread of COVID-19 at the community level for:
1. Hand Hygiene
2. Respiratory Hygiene
3. Social Distancing

B. How will you identify the high risk groups

Session 3: Community Surveillance

Learning outcome:
- Participants will be able to explain who is a Suspect and who is a Contact
- Participants will be able to list the types of contacts and their risk levels
- Participants will be clear on giving information on services that are provided for symptomatic and asymptomatic cases

Duration: 10 minutes

Methodology: Presentation

Process:

Slide 13: In this session we are going to see:
a. Types of Contacts
b. Contact Tracing SoP
c. Advisory to be given for contacts
d. Communicating for community surveillance

Slide 14: This slide will give the definitions of a Contact and a Suspect to help FLW diffrentiate between a contact and a suspect

Slide 15: Types of Contact: High risk and low risk contacts

Slide 16: How to conduct the community-based surveillance

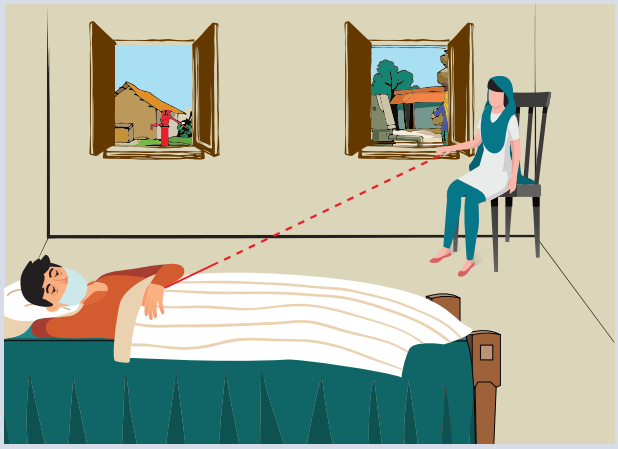
Slide 17: Who is a Symptomatic contact, what is the advisory and who is an Asymptomatic contact what is the advisory that should be given.

Slide 18: a) Faciliitator reads out the case scenario and then asks participants to answer.
b) Discuss the possible answers on what the FLW can do.

Self-Assessment
1. What are the types of Contacts
2. Make a list of symptoms that will categorise the contact as symptomatic and asymptomatic
3. What is the community surveillance protocol

Session 4: Supportive Public Health Services: Community and Households

Learning outcome:
- Participants will be able to understand the steps for ensuring creating community support for COVID-19
- Participants will understand and be able to give information on services to be provided for home care and home quarantine for suspected case and family members.
- Participants will be able to give a checklist of preventive actions to be taken at home and in public places to avoid spread of COVID-19.



Duration: 15 minutes

Methodology: Presentation

Process:

Slide 19: In this session we are going to see three things;
- Role of FLW in creating supportive environment at the community level.
- Role of FLW in giving correct information and ensuring safe behaviours for home quarantine and home care

Slide 20: Response and containment– Create a supportive environment
Read the slide on what the health workers and FLWs should do to create a Supportive environment at the community level.

Slide 21: Case Study. Discuss the case study. Use the answers to highlight the role of influencers in adopting safe practices in public and how FLWs can do it.

Slide 22: Home Quarantine : stay safe for probable infected person
This slide talks about the Home care that is required in case there is a suspect.

Slide 23: Home Care - Keep environment safe
Use this slide to explain safe practices to keep homes safe to be conveyed by FLWs to the community.

Slide 24: Home Quarantine: stay safe for family members
This slide explains the safe behaviours for family members of quarantined person.

Self-Assessment: 5 mins
1. List 5 things that you will communicate for guiding on home care
2. List 5 actions that you can take for community involvement on COVID-19

Session 5: Managing Stigma and Discrimination

Learning outcome:
- Participants will be able to define stigma and understand why COVID-19 causes a stigma in society.
- Participants will know how stigma affects their work and what they can do to address it.

Duration: 20 minutes

Methodology: Presentation

Process:

Slide 25: In this session we are going to learn what is Stigma, why COVID-19 carries stigma, how do we recognize stigmatizing behaviours and what can we do about it.

Slide 26 & 27 : What is stigma and why is there stigma
Use these two slides to define stigma and explain why there could be stigma associated with COVID-19

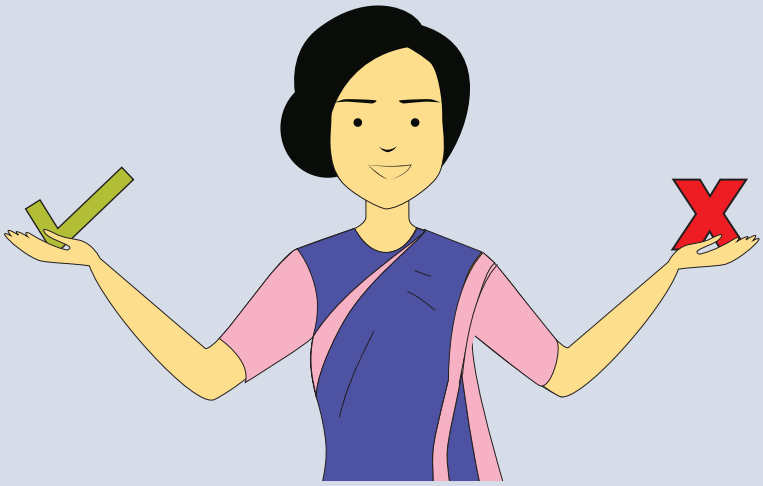
Slide 28: Recognizing stigma
Use slide 28 to discuss situations and their ability to recognize stigma . Take answers from FLWs. Show the next slide to share correct answers.

Slide 29 & 30: What does stigma do and what can an FLW do
These slides explain the effects on stigma on COVID-19 reporting and treatment. Use slide 29 to explain and discuss what FLWs can do to address stigma.

Slide 31: Facilitator will read the case study and ask participants to answer the questions.

Self-Assessment: 5 mins
1. List any 5 incidents which you think are manifestation of stigma in the community
2. Mark any two things that you can do to manage stigma in your community

Session 6: Personal Safety for Frontline Workers



Learning outcome:
- Participants will be able to list what to communicate and how to communicate
- Participants will demonstrate self-protection measures
- Participants will be able to prepare a checklist of safety measures to be taken during home visits and contact tracing procedures.

Duration: 10 minutes

Methodology: Presentation

Process:

Say, *"The ASHA, ANM and AWW are the three pillars of health and nutrition care in India. Protection and safety of FLWs (including ANM, ASHA, and AWW) are of utmost concern as they are the people who are at the forefront to fight COVID-19 at the community level."*

Slide 33 & 34: What and How to Communicate

The slides explain what is the main information to be shared by the FLWs in the community. Slide 34 gives few tips for effective communication.

Slide 35: Gives necessary tips on mask management

Slide 36: Precautions and safety measures for FLW

This tells about how the ASHA/ANM must take precautions against infections when she is moving in the community or doing house visits and about the precautions and safety precautions that the FLW must take on reaching home.

Slide 37 & 38: Myths and Facts

Gives you some of the prevailing myths and misconceptions. If there are any other questions, you may refer to the FAQs in this guide or talk with your supervisor.

Slide 39 & 40: A quick recap game on topics in the training module. There are statements given. You have to ask the FLWs during training whether they are correct or incorrect. [facilitator to run the presentation in show mode and click on the squares]. Correct statements are revealed below. Wrong statements are corrected

Session 7: Special Communication Needs in Urban Areas

Learning outcome:
- Participants will be able to discuss special activities needed in urban areas

Duration: 10 minutes

Methodology: Presentation

Process:
Facilitator will conduct this session only when FLWs from urban areas are participating

Slide 41 & 45: Discuss each slide and explain the actions which can be taken by the FLWs in urban areas

COVID-19

Reference

FAQs Things I need to know about COVID-19

1. What is COVID-19?

COVID-19 is the infectious disease caused by the most recently discovered coronavirus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. That is why it was called the Novel (new) Coronavirus. NCoV. It was found in 2019

2. What are the symptoms

The most common symptoms of COVID-19 are fever, cough and difficulty in breathing. Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhea. These symptoms are usually mild and begin gradually. Some people become infected but don't develop any symptoms and don't feel unwell. Most people (about 80%) recover from the disease without needing special treatment. Around 1 out of every 6 people who gets COVID-19 becomes seriously ill and develops difficulty in breathing. Older people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness. People with fever, cough and difficulty in breathing should seek medical attention immediately.

3. How does COVID-19 spread?

People can catch COVID-19 from others who have the virus. The disease can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales. These droplets land on objects and surfaces around the person. Other people then catch COVID-19 by touching these objects or surfaces, then touching their eyes, nose or mouth. People can also catch COVID-19 if they breathe in droplets from a person with COVID-19 who coughs out or exhales droplets. This is why it is important to stay more than 1 meter away from a person who is sick.

Can the virus that causes COVID-19 be transmitted through the air?

Studies to date suggest that the virus that causes COVID-19 is mainly transmitted through contact with respiratory droplets rather than through the air. See previous answer on "How does COVID-19 spread?"

Can COVID-19 be caught from a person who has no symptoms?

The main way the disease spreads is through respiratory droplets expelled by someone who is coughing. The risk of catching COVID-19 from someone with no symptoms at all is very low. However, many people with COVID-19 experience only mild symptoms. This is particularly true at the early stages of the disease. It is therefore possible to catch COVID-19 from someone who has, for example, just a mild cough and does not feel ill.

Can I catch COVID-19 from the feces of someone with the disease?

The risk of catching COVID-19 from the feces of an infected person appears to be low. Because this is a risk, however, it is another reason to clean hands regularly, after using the bathroom and before eating.

4. How long does the virus survive on surfaces?

It is not certain how long the virus that causes COVID-19 survives on surfaces, but it seems to behave like other coronaviruses. Studies suggest that coronaviruses (including preliminary information on the COVID-19 virus) may persist on surfaces for a few hours or up to several days. This may vary under different conditions (e.g. type of surface, temperature or humidity of the environment).

If you think a surface may be infected, clean it with simple disinfectant to kill the virus and protect yourself and others. Clean your hands with an alcohol-based hand rub or wash them with soap and water. Avoid touching your eyes, mouth, or nose.

5.Can the virus travel on goods that have come in from infected places?

No. The likelihood of an infected person contaminating commercial goods is low and the risk of catching the virus that causes COVID-19 from a package that has been moved, travelled, and exposed to different conditions and temperature is also low.

6. What message does an ASHA give to the community on protection?

Protection measures for everyone: You can reduce your chances of being infected or spreading COVID-19 by taking some simple precautions:

- Regularly and thoroughly clean your hands with an alcohol-based hand rub or wash them with soap and water.
  Why? Washing your hands with soap and water or using alcohol-based hand rub kills viruses that may be on your hands.
- Maintain at least 1 metre distance between yourself and anyone who is coughing or sneezing.
  Why? When someone coughs or sneezes they spray small liquid droplets from their nose or mouth which may contain virus. If you are too close, you can breathe in the droplets, including the COVID-19 virus if the person coughing has the disease.
- Avoid touching eyes, nose and mouth.
  Why? Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to your eyes, nose or mouth. From there, the virus can enter your body and can make you sick.
- Make sure you, and the people around you, follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately.
  Why? Droplets spread virus. By following good respiratory hygiene you protect the people around you from viruses such as cold, flu and COVID-19.
- Stay home if you feel unwell. If you have a fever, cough and difficulty in breathing, seek medical attention and call in advance. Follow the directions of your local health authority.
  Why? Health authorities will have the most up to date information on the situation in the area. Calling in advance will allow your health care provider to quickly direct you to the right health facility. This will also protect you and help prevent spread of viruses and other infections.
- Protection measures for persons who are in or have recently visited (past 14 days) areas where COVID-19 is spreading

Follow the guidance of your health care provider/ASHA/ANM

- Self-isolate by staying at home if you begin to feel unwell, even with mild symptoms such as headache, low grade fever (37.3 C or above) and slight runny nose, until you recover. If it is essential for you to have someone bring you supplies or to go out, e.g. to buy food, then wear a mask to avoid infecting other people.
  Why? Avoiding contact with others and visits to medical facilities will allow these facilities to operate more effectively and help protect you and others from possible COVID-19 and other viruses.
- If you develop fever, cough and difficulty in breathing, seek medical advice promptly as this may be due to a respiratory infection or other serious condition. Call in advance and tell your provider of any recent travel or contact with travelers.
  Why? Calling in advance will allow your health care provider to quickly direct you to the right health facility. This will also help to prevent possible spread of COVID-19 and other viruses.

7. Do I need medicines?

Avoid self-medication. While the symptoms can be treated as of now there are no medicines which can treat COVID-19. The best way to avoid getting Coronavirus is to wash your hands and not touch your face.

8. What should I not do?

The following measures ARE NOT effective against COVID-2019 and can be harmful:

- Smoking
- Wearing multiple masks
- Taking antibiotics

In any case, if you have fever, cough and difficulty in breathing seek medical care early to reduce the risk of developing a more severe infection and be sure to share your recent travel history with your health care provider.

9. Do I need to use a Mask to protect myself from COVID-19?

Only wear a mask if you are ill with COVID-19 symptoms (especially coughing) or looking after someone who may have COVID-19. Disposable face mask can only be used once. If you are not ill or looking after someone who is ill then you are wasting a mask. There is a world-wide shortage of masks, so WHO urges people to use masks wisely.

The most effective ways to protect yourself and others against COVID-19 are to frequently clean your hands, cover your cough with the bend of elbow or tissue and maintain a distance of at least 1 meter from people who are coughing or sneezing.

Annexure 1: Trainer Notes for the Slides

Slide 2 : What role will she play in helping to deal with COVID-19. 2. What is the information that community needs to keep themselves safe and how does the FLW give this information to the community. 3. What is community surveillance and how to conduct community surveillance, who is a person who shows the signs and symptoms and who is one who is infected but does not show the signs of infection. 4. What is Stigma and why is there stigma and how to help 5. How to help people during home quarantine, what care should family members take. 6. Personal safety of FLWs

Slide 5: The name of the disease is COVID-19. THIS IS CORONA VIRUS DISEASE – discovered in 2019. The name of the organism that causes the disease is SARS-CoV-2. This stands for Severe (because it is serious) Acute Respiratory Syndrome- Coronavirus (the name of the family of viruses) 2. Coronaviruses cause several similar diseases including SARS, HINI (Swine flu) and the common cold and Influenza.

Symptoms of COVID-19 are fever, cough and difficulty in breathing

If a person sees these symptoms, the person must immediately contact the government helpline numbers given in this slide.

If you know that the person with whom you have been in contact has been identified as positive for COVID-19, then the person must contact on the helpline numbers immediately.

Slide 7: How do you get infected ?

The virus travels through the respiratory droplets of an infected person. When the person sneezes or coughs, the virus is deposited on the person's hand if the hand covers the mouth, or droplets fall on a surface when the mouth/nose is not covered.

From the surface/hand, the virus will get transferred to an uninfected person's hand and when that hand coms in touch with the nostril, eyes or mouth the virus gets inside the system.

We do not have the knowledge of how long this virus lives once it is out of the body. But keeping hands clean and not touching them to the face is the most important way of preventing this infection . We are going to learn about this.

Slide 8: We spoke about transmission in the earlier slide. Let us now look at how we can prevent this transmission.

1. Washing of hands with soap and water will kill the virus. Similarly sanitizing with 70% alcohol-based sanitizer. We need to wash with soap for a particular time which is 40 secs. It takes that much time for the cell wall to be rubbed off. Similarly, with Alcohol. If you do not rub your hand, the virus coat does not fall off and no harm comes to the virus
2. As we spoke earlier the infected droplets can get transferred via shaking hands with an infected person who may have the bacteria on his hands to an uninfected person or through touching of surfaces which may have the bacteria. That is why we need to have these hand hygiene practices.

Slide 9: And because we do not want the infected droplets to go out into the air and infect more people, we have to maintain what is called as respiratory hygiene at all times .

Never use the saree pallu or gamcha for sneezing into as you may use these for wiping your hands and the germs will get transferred from your hand to your nose, mouth or eyes.

Slide 11: Social Distancing is keeping a distance between you and other people so that you do not come in contact with their infected droplets in case they are carrying an infection. This does not mean that every person you come across is infected. But it is necessary being careful. Social distancing also means that you avoid crowded places, you do not organize events where people have to get together. Be aware that the virus cannot live for long when it is out of the human body. It will require to find a human body to grow and survive. If it does not, it will die. When people are at a crowded place, they touch objects, each other, and may even exhale/inhale droplets - thus the virus can get transmitted from one person to another. That is why it is necessary to decrease human to human contact in this period.

Annexure 1: Trainer Notes for the Slides

Slide 11: Though the infection can happen to anyone, the infection becomes severe when it happens in old people or people who already have an illness. This is because the immune systems of such people are weak and cannot defend the body when it is attacked by disease causing organisms. Now you will understand the importance of immunizations which prepares our bodies for attacks from viruses and bacteria.

Slide 14: In this slide we have two simple definitions, though they may look very complicated here. It tells you who is a suspect
Let us remember that the suspect needs to have any one of the 5 things:
1. Any kind of fever, cough or a difficulty in breathing.
2. If the person has traveled from any place or area which has been an outbreak area for COVID in the last 14 days
3. If the person has been in close contact of another person who is positive for COVID
4. A person who has tested but has not got the results
5. A person who may not have the symptoms but the lab reports come as positive.

Now, a Contact is:
1. Someone who is providing direct care to a person who is confirmed to be positive for COVID
2. Someone who has stayed together with a person who has been tested as positive for COVID
3. Someone who has travelled together for more than 6 hours in close space with a person who later becomes positive for COVID

Slide 15: The types of contacts can then be further divided into contact who are at a high risk and those who are at low risk
The high risk ones are those who have directly been in touch with the patient or any body fluids while taking care during home quarantine, traveled with a patient, been in the same room/house and shared utensils, etc. with the patient.
A low risk contact is someone who would have been in the same place but well outside the range of one meter, may have travelled in the same bus or train or flight but sat atleast 1 meter away from the person who tested positive.

Slide 16: This slide tells you the simple process for surveillance. You will be given the Surveillance form by your immediate supervisor and the areas where you need to conduct the surveillance. Using this format, you must visit the households, introduce yourself and the purpose of your visit and then ask the questions from the format.
While completing the format, you must take care of the following:
1. Communication: Always introduce yourself and the purpose, be ready to answer the questions they may have
2. Preparation: Carry your own pens, pads, books. Also carry sanitizers and masks. Always wear your mask when you are doing surveillance. Do not take the mask off and let it hang from your neck and then put it back again. Do not touch the mask several times
3. Who should we collect information about? People who have been identified as contacts. We must monitor them for fever, cough, breathing difficulty for at least 28 days.
4. We have to give the contacts information about home quarantine and what care should be taken during home quarantine
5. We must also take details of contacts of contacts (people who the person has interacted with in the last 28 days).
6. Write out all your information clearly on the format. Do not leave the work to later as you will need addresses, names and telephone numbers in order to trace contacts when needed.
7. Make sure that you maintain a distance of one meter between yourself and the person you are interviewing.
8. Do not sit in crowed rooms. If possible, sit in the open.
9. Make sure you sanitize your hands every time by washing with soap and water for 40 secs or using a 70% alcohol-based sanitizer

Slide 17: The contacts will be of two types.
1. Those who do not show any symptoms of fever, cough or breathing difficulty. You have to give advice of home quarantine, self-isolation and active monitoring to both the caregiver and the person.
2. In case the contact shows symptoms of fever, cough and breathing difficulty then the advice to be given is
a) immediate isolation
b) use of mask and
c) contacting the nearest health facility and reporting .

Pocket Book Page 20: While training of Nodal officers for child protection refer to page 20 of the Pocket Reference to introduce the role of the ASHA and AWW for child protection in emergencies.

Training Guidelines

With the help of NPSP guidance and discussions from MOHFW, the following operational plan has been developed

Day 1: NATIONAL TRAINING OF TRAINERS THROUGH NIC/ZOOM CONNECTIVITY:

a. Participants: will include State ASHA Nodal Managers, ANM focal points, State Surveillance Officers IDSP, State Programme Managers (Urban), state level WHO and UNICEF field officials

Note: Participants will be attending online by connecting from their online platforms at home or identified facility considering physical distance measures.

b. Duration: It will be a 2.5 hour training, which will include some guidance to states on new developments, methodology to cascade the online trainings and 1.5 hour of FLW training material

c. The state participants will be instructed to conduct a state level training on Day 2 for district level trainers

Day 2: STATE TRAINING OF TRAINERS THROUGH NIC/ZOOM CONNECTIVITY

a. Participants: will include from each district, District Surveillance Officer, District Epidemiologist, District Programme Manager, City Programme Manager (Urban), District ASHA Manager/District Community Mobilizers, DPO-ICDS, WHO Medical Officers, UNICEF district officials (wherever available)

Note: Participants will be attending online by connecting from their online platforms ... at home or identified facility considering physical distance measures.

b. Duration: It will be a 2.5 hour training, which will include some guidance to states on new developments, methodology to cascade the trainings and 1.5 hour of FLW training material

c. The district trainers will be instructed to conduct a district level training on Day 3 for block level trainers

Day 3: DISTRICT TRAINING OF TRAINERS THROUGH DISTRICT ECHO CONNECTIVITY

a. Participants: will include Medical Officer in-charge or his designated MO, Block Programme Manager, Block ASHA Manager/Block Community Mobilizer, ASHA Facilitators, CDPOs, Field Monitor, Lady Health Visitors (wherever available)

Note: participants will be attending online by connecting from their online platforms at home or identified facility considering physical distance measures.

b. Duration: It will be a two- hour training, which will include methodology for cascading training and 1.5 hour of FLW training materials

c. The block/urban area trainers will be instructed to conduct block/city/urban area level trainings through virtual class, whatever is feasible

Day 4, 5 & 6: THROUGH DISTRICT ECHO CONNECTIVITY

a. Participants: Block/Urban area trainers will conduct training of ANMs, ASHAs and AWWs virtually, delivered through their smart phones/ To be conducted at PHC or sub centre

b. Duration: It will be a 1.5 hour module as per plan

c. Two sessions per day may be explored

d. The feedback and unanswered queries will need to be shared with state and national level for providing standard responses

For more Information contact:

Director, Emergency Medical and Relief. Ministry of Health and Family Welfare. Tel: +91-11-23978046

Director, National Center For Disease Control.
Tel: +91-1123913148

Mission Director, National Rural Health Mission.
Tel: xxxxxxxxxx

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- २१ मार्च २०२०

प्रति,

आयुक्त, आरोग्य सेवा व संचालक, रा आ अ, मुंबई
आयुक्त, एकात्मिक बालविकास योजना, नवी मुंबई
जिल्हाधिकारी (सर्व)
मुख्य कार्यकारी अधिकारी
जिल्हा परिषद (सर्व)
संचालक, आरोग्य सेवा, मुंबई / पुणे

विषय: राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना करण्याबाबत (राज्यातील आशा, आंगणवाडी सेविका यांना कोव्हीड १९ चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना व सर्वेक्षणासंबधी प्रशिक्षण देणेबाबत)..

राज्यात करोनाचा वाढता प्रादुर्भाव लक्षात घेऊन मोठया प्रमाणावर जनजागृती आवश्यक आहे. तसेच ग्रामीण भागात याबाबत अधिकृत माहिती पोहोचविणे आवश्यक आहे. यास्तव राज्यातील सर्व आशा, आंगणवाडी सेविका यांना प्रतिबंधक उपाययोजना म्हणून जनसामान्यांनी घ्यावयाची काळजी उदाहरणार्थ हात धुणे, वैय्यक्तिक स्वच्छता, अन्नसेवनाबाबतची माहिती व भाज्या व फळे यांची स्वच्छता, तसेच कोव्हीड १९ प्रादुर्भावाची प्राथमिक लक्षणे व त्यांच्या भागात राहणाऱ्या परंतु घरात अलगीकरण असलेल्या व्यक्तींची माहिती घेणे व कुटुंब सर्वेक्षण याबाबत प्रशिक्षित करण्यात यावे. यामुळे आपत्कालीन परिस्थिती हाताळण्यासाठी त्यांच्या सेवादेखील उपलब्ध करुन घेणे शक्य होईल.

प्रदीप व्यास

(डॉ. प्रदीप व्यास)
प्रधान सचिव, महाराष्ट्र शासन

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प्रत मा.उपमुख्यमंत्री यांचे सचिव
प्रत मा. मुख्य सचिव यांचे उपसचिव
प्रत खाजगी सचिव, मा. मंत्री (सा.आ.) मंत्रालय, मुंबई

Z-21020/14/2020-PH
Ministry of Health & Family Welfare
Government of India

Nirman Bhawan, New Delhi
Dated the 5th March, 2020

OFFICE MEMORANDUM

Subject: Query from states on mass gatherings – reg

Kindly recall queries raised by states on organisations of mass gathering etc. In view of the above, it is highlighted that:

- Experts across the World have advised to reduce mass gatherings to avoid the spread of COVID-19 Novel Coronavirus disease. In view of above, it is advised that mass gatherings may be avoided or possibly be postponed till the disease spread is contained.
- In case any such mass gatherings are organised, States may take necessary action to guide the Organisers on precautions to be taken as per the risk communication material already sent so as to avoid any Severe Acute Respiratory Illness (SARI) cases and Influenza Like Illness (ILIs) including Covid-19.

States may take necessary action accordingly in the matter.

(Rajender Kumar)
Under Secretary for Government of India
Ph. 23061778

To:

Prl Secy/ Secy H of all States / UTs

Government of India
Ministry of Health & Family Welfare
Directorate General of Health Services
(EMR Division)

Guidelines for home quarantine

Scope

Detection of a travel related/unrelated suspect case of novel Coronavirus Disease (COVID-19) will be followed by rapid isolation of such cases in designated health facilities and line listing of all contacts of such cases.Home quarantine is applicable to all such contacts of a suspect or confirmed case of COVID-19.

This intervention will be limited to the initial phase of India reporting only (i) travel related cases and (ii) focal clusters arising from a travel related/unrelated case where cluster containment strategy is adopted (iii) Persons coming from COVID-19 affected areas where local and community transmission is evident.

Definition of contact

A contact is defined as ahealthyperson that has been in such association with aninfected person or a contaminated environment as to have exposed and is therefore at a higher risk of developing disease.

A contact in the context of COVID-19 is:

- A person living in the same household as a COVID-19 case;
- A person having had direct physical contact with a COVID-19 case or his/her infectious secretions without recommended personal protective equipment (PPE) or with a possible breach of PPE
- A person who was in a closed environment or had face to face contact with a COVID-19 case at a distance of within1metre including air travel;

The epidemiological link may have occurred within a 14-day period before the onset of illness in the case under consideration.

Instructions for contacts being home quarantined

The home quarantined person should:

Stay in a well-ventilated single-room preferably with an attached/separate toilet. If another family member needs to stay in the same room, it’s advisable to maintain a distance of at least 1 meter between the two.

- Needs to stay away from elderly people, pregnant women, children and persons with co-morbidities within the household.

- Restrict his/her movement within the house.
- Under no circumstances attend any social/religious gathering e.g. wedding, condolences, etc.

He should also follow the under mentioned public health measures at all times:

- Wash hand as often thoroughly with soap and water or with alcohol-based hand sanitizer
- Avoid sharing household items e.g. dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items with other people at home.
- Wear a surgical mask at all the time. The mask should be changed every 6-8 hours and disposedoff.Disposable masks are never to be reused.
- Masks used by patients / care givers/ close contacts during home care should be disinfected using ordinary bleach solution (5%) or sodium hypochlorite solution (1%) and then disposed of either by burning or deep burial.
- Used mask should be considered as potentially infected.
- If symptoms appear (cough/fever/difficulty in breathing), he/she should immediately inform the nearest health centre or call 011-23978046.

Instructions for the family members of persons being home quarantined

- Only an assigned family member should be tasked with taking care of the such person
- Avoid shaking the soiled linen or direct contact with skin
- Use disposable gloves when cleaning the surfaces or handling soiled linen
- Wash hands after removing gloves
- Visitors should not be allowed
- In case the person being quarantined becomes symptomatic, all his close contacts will be home quarantined (for 14 days) and followed up for an additional 14days or till the report of such case turns out negative on lab testing

Environmental sanitation

a) Clean and disinfect frequently touched surfaces in the quarantined person's room (e.g. bed frames, tables etc.) daily with 1%Sodium Hypochlorite Solution.
b) Clean and disinfect toilet surfaces daily with regular household bleach solution/phenolic disinfectants
c) Clean the clothes and other linen used by the person separately using common household detergent and dry.

Duration of home quarantine

a) The home quarantine period is for 14 days from contact with a confirmed case or earlier if a suspect case (of whom the index person is a contact) turns out negative on laboratory testing

Advisory on Social Distancing Measure in view of spread of COVID-19 disease

Social distancing is a non-pharmaceutical infection prevention and control intervention implemented to avoid/decrease contact between those who are infected with a disease causing pathogen and those who are not, so as to stop or slow down the rate and extent of disease transmission in a community. This eventually leads to decrease in spread, morbidity and mortality due to the disease.

In addition to the proposed interventions, the State/UT Governments may prescribe such other measures as they consider necessary.

All these proposed interventions shall be in force till 31st of March, 2020. They will be reviewed as per the evolving situation.

The following interventions are proposed:

1. Closure of all educational establishments (schools, universities etc), gyms, museums, cultural and social centres, swimming pools and theatres. Students should be advised to stay at home. Online education to be promoted.

2. Possibility of postponing exams may be explored. Ongoing exams to be conducted only after ensuring physical distance of one meter amongst students.

3. Encourage private sector organizations/employers to allow employees to work from home wherever feasible.

4. Meetings, as far as feasible, shall be done through video conferences. Minimize or reschedule meetings involving large number of people unless necessary.

5. Restaurants to ensure handwashing protocol and proper cleanliness of frequently touched surfaces. Ensure physical distancing (minimum 1metre) between tables; encourage open air seating where practical with adequate distancing.

6. Keep already planned weddings to a limited gathering, postpone all non-essential social and cultural gatherings.

7. Local authorities to have a dialogue with organizers of sporting events and competitions involving large gatherings and they may be advised to postpone such events.

8. Local authorities to have a dialogue with opinion leaders and religious leaders to regulate mass gatherings and should ensure no overcrowding/at least one metre distance between people.

9. Local authorities to have meeting with traders associations and other stakeholders to regulate hours, exhibit Do's and Don'ts and take up a communication drive in market places like sabzi mandi, anaj mandi, bus depots, railway stations, post-offices etc., where essential services are provided.

10. All commercial activities must keep a distance of one meter between customers. Measures to reduce peak hour crowding in markets.

11. Non-essential travel should be avoided. Buses, Trains and aeroplanes to maximize social distancing in public transport besides ensuring regular and proper disinfection of surfaces.

12. Hospitals to follow necessary protocol related with COVID-19 management as prescribed and restrict family/friends/children visiting patients in hospitals.

13. Hygiene and physical distancing has to be maintained. Shaking hands and hugging as a matter of greeting to be avoided.

14. Special protective measures for delivery men/ women working in online ordering services.

15. Keep communities informed consistently and constantly.

Ministry of Health & Family Welfare

Ministry of Health and Family Welfare
Directorate General of Health Services
[Emergency Medical Relief]

Novel Corornavirus Disease (COVID-19)

Guidelines on use of masks by public

1. Introduction

A new disease named novel coronavirus (COVID-19) emerged in early December 2019 in China and has now spread to over 90 countries. As on 9th March 2020, India has reported 42 cases mostly among those who had travelled from affected countries. It causes a minor illness in majority of patients with symptoms of fever and or cough. A small proportion of such persons may progress to severe disease with difficulty in breathing.

It is spread by an infected person with COVID coughing and the droplets from his cough infecting others in close vicinity (less than 1 metre).

Any such new disease invariably related to cough leads to suggestions from various quarters, especially in social media, to use mask by general public to prevent the disease.

2. Purpose of this document

The purpose of this document is to give correct evidence based information to general public on use of mask.

3. Medical masks

Medical masks of different size and shapes are available in the market. The common ones are flat pleated masks of woven fabric which covers the nose and mouth and affixed behind the head with straps/ elastic fasteners. There are also conical or duck bill shaped masks with valves (or without valves) that fit in the contour of face over the nose and mouth, but are costlier.

4. Use of masks by general public

4.1. Persons having no symptoms are not to use mask

Medical masks should not be used by healthy persons who are not having any symptoms because it create a false sense of security that can lead to neglecting other essential measures such as washing of hands.

Further, there is no scientific evidence to show health benefit of using masks for non-sick persons in the community. In fact erroneous use of masks or continuous use of a disposable mask for longer than 6 hours or repeated use of same mask may actually increase risk of getting an infection. It also incurs unnecessary cost.

In such situation, more effective steps are:

i. Wash hands frequently with soap and water for 40 seconds. An alcohol based hand sanitizer with 70% alcohol must be used for 20 seconds. If hands are dirty or soiled, do not use alcohol based hand sanitizer, but wash hands preferably with soap and water.

ii. While coughing or sneezing cover nose and mouth with handkerchief, paper tissue. If handkerchief or tissue paper is not available cough into the flexed elbow. Dispose of tissue immediately after use and wash hands.

iii. Refrain from touching **face, mouth, nose and eyes.**

iv. Stay at least a metre away from those coughing or sneezing.

v. Monitor your body temperature.

4.2. When and who should use medical masks (apart from health care worker).

4.2.1. When a person develops cough or fever.

Use of medical three layer masks when ill, will prevent your infection from spreading to others. However you also need to wash your hands frequently to avoid spreading infection to others.

4.2.2. While visiting a healthcare facility.

4.2.3. When you are caring for an ill person.

4.2.4. Close family contacts of such suspect/confirmed cases undergoing home care should also use Triple layer medical mask.

4.3. Duration for which a medical mask will remain effective

A medical mask, if properly worn, will be effective for 8 hours. If it gets wet in between, it needs to be changed immediately.

4.4. Correct procedure of wearing triple layer mask

While wearing a medical mask, the steps given below needs to be followed. If you do not follow them, you may get infected from the mask itself. These steps are:

- Unfold the pleats; make sure that they are facing down.
- Place over nose, mouth and chin.
- Fit flexible nose piece (a metallic strip that can easily be located) over nose-bridge.

- Secure with tie strings (upper string to be tied on top of head above the ears – lower string at the back of the neck.)
- Ensure there are no gaps on either side of the mask, adjust to fit.
- While in use, avoid touching the mask.
- Do not let the mask hanging from the neck.
- Change the mask after six hours or as soon as they become wet.
- Disposable masks are never to be reused and should be disposed off.
- While removing the mask great care must be taken not to touch the potentially contaminated outer surface of the mask
- To remove mask first untie the string below and then the string above and handle the mask using the upper strings.

4.5. Disposal of used masks

Used mask should be considered as potentially infected. Masks used by patients / care givers/ close contacts during home care should be disinfected using ordinary bleach solution (5%) or sodium hypochlorite solution (1%) and then disposed of either by burning or deep burial.

Annexure to Ministry of Home Affairs Order No .40-3/2020-D dated ()24.03.2020

Guidelines on the measures to be taken by Ministries/ Departments of Government of India, State/Union Territory Governments and State/ Union Territory Authorities for containment of COVID-19 Epidemic in the Country.

1. Offices of the Government of India, its Autonomous/ Subordinate Offices and Public Corporations shall remain closed.
   Exceptions:
   Defence, central armed police forces, treasury, public utilities (including petroleum, CNG, LPG, PNG), disaster management, power generation and transmission units, post offices, National Informatics Centre, Early Warning Agencies

2. Offices of the State/ Union Territory Governments, their Autonomous Bodies, Corporations, etc. shall remain closed.
   Exceptions:
   a. Police, home guards, civil defence, fire and emergency services, disaster management, and prisons.
   b. District administration and Treasury
   c. Electricity, water, sanitation
   d. Municipal bodies—Only staff required for essential services like sanitation, personnel related to water supply etc

The above offices (Sl. No 1 & 2) should work with minimum number of employees. All other offices may continue to work-from-home only.

3. Hospitals and all related medical establishments, including their manufacturing and distribution units, both in public and private sector, such as dispensaries, chemist and medical equipment shops, laboratories, clinics, nursing homes, ambulance etc. will continue to remain functional. The transportation for all medical personnel, nurses, para-medical staff, other hospital support services be permitted.

4. Commercial and private establishments shall be closed down.
   Exceptions:
   a. Shops, including ration shops (under PDS), dealing with food, groceries, fruits and vegetables, dairy and milk booths, meat and fish, animal fodder. However, district authorities may encourage and facilitate home delivery to minimize the movement of individuals outside their homes.
   b. Banks, insurance offices, and ATMs.
   c. Print and electronic media
   d. Telecommunications, internet services, broadcasting and cable services. IT and IT enabled Services only (for essential services) and as far as possible to work from home.
   e. Delivery of all essential goods including food, pharmaceuticals, medical equipment through E-commerce.

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f. Petrol pumps, LPG, Petroleum and gas retail and storage outlets.
g. Power generation, transmission and distribution units and services.
h. Capital and debt market services as notified by the Securities and Exchange Board of India
i. Cold storage and warehousing services.
j. Private security services

All other establishments may work-from-home only.

5. Industrial Establishments will remain closed.
Exceptions:
   a. Manufacturing units of essential commodities.
   b. Production units, which require continuous process, after obtaining required permission from the State Government

6. All transport services – air, rail, roadways – will remain suspended.
Exceptions:
   a. Transportation for essential goods only.
   b. Fire, law and order and emergency services.

7. Hospitality Services to remain suspended
Exceptions:
   a. Hotels, homestays, lodges and motels, which are accommodating tourists and persons stranded due to lockdown, medical and emergency staff, air and sea crew.
   b. Establishments used/ earmarked for quarantine facilities.

8. All educational, training, research, coaching institutions etc. shall remain closed.

9. All places of worship shall be closed for public. No religious congregations will be permitted, without any exception.

10. All social/ political/ sports/ entertainment/ academic/ cultural/ religious functions / gatherings shall be barred.

11. In case of funerals, congregation of not more than twenty persons will be permitted.

12. All persons who have arrived into India after 15.02.2020, and all such persons who have been directed by health care personnel to remain under strict home/ institutional quarantine for a period as decided by local Health Authorities, failing which they will be liable to legal action under Sec. 188 of the IPC.

13. Wherever exceptions to above containment measures have been allowed, the organisations/employers must ensure necessary precautions against COVID-19

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virus, as well as social distance measures, as advised by the Health Department from time to time.

14. In order to implement these containment measures, the District Magistrate will deploy Executive Magistrates as Incident Commanders in the respective local jurisdictions. The Incident Commander will be responsible for the overall implementation of these measures in their respective jurisdictions. All other line department officials in the specified area will work under the directions of such incident commander. The Incident Commander will issue passes for enabling essential movements as explained.

15. All enforcing authorities to note that these strict restrictions fundamentally relate to movement of people, but not to that of essential goods.

16. The Incident Commanders will in particular ensure that all efforts for mobilisation of resources, workers and material for augmentation and expansion of hospital infrastructure shall continue without any hindrance.

17. Any person violating these containment measures will be liable to be proceeded against as per the provisions of Section 51 to 60 of the Disaster Management Act, 2005, besides legal action under Sec. 188 of the IPC (as per Appendix).

18. The above containment measures will remain in force, in all parts of the country, for a period of 21 days with effect from 25.03.2020.

24/3/2020

Union Home Secretary

Appendix

1. Section 51 to 60 of the Disaster Management Act, 2005

OFFENCES AND PENALTIES

51. Punishment for obstruction, etc.—Whoever, without reasonable cause —

(a) obstructs any officer or employee of the Central Government or the State Government, or a person authorised by the National Authority or State Authority or District Authority in the discharge of his functions under this Act; or

(b) refuses to comply with any direction given by or on behalf of the Central Government or the State Government or the National Executive Committee or the State Executive Committee or the District Authority under this Act,

shall on conviction be punishable with imprisonment for a term which may extend to one year or with fine, or with both, and if such obstruction or refusal to comply with directions results in loss of lives or imminent danger thereof, shall on conviction be punishable with imprisonment for a term which may extend to two years.

52. Punishment for false claim.—Whoever knowingly makes a claim which he knows or has reason to believe to be false for obtaining any relief, assistance, repair, reconstruction or other benefits consequent to disaster from any officer of the Central Government, the State Government, the National Authority, the State Authority or the District Authority, shall, on conviction be punishable with imprisonment for a term which may extend to two years, and also with fine.

53. Punishment for misappropriation of money or materials, etc.—Whoever, being entrusted with any money or materials, or otherwise being, in custody of, or dominion over, any money or goods, meant for providing relief in any threatening disaster situation or disaster, misappropriates or appropriates for his own use or disposes of such money or materials or any part thereof or wilfully compels any other person so to do, shall on conviction be punishable with imprisonment for a term which may extend to two years, and also with fine.

54. Punishment for false warning.—Whoever makes or circulates a false alarm or warning as to disaster or its severity or magnitude, leading to panic, shall on conviction, be punishable with imprisonment which may extend to one year or with fine.

55. Offences by Departments of the Government.—(1) Where an offence under this Act has been committed by any Department of the Government, the head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly unless he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a Department of the Government and it is proved that the

offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any officer, other than the head of the Department, such officer shall be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

56. Failure of officer in duty or his connivance at the contravention of the provisions of this Act.—Any officer, on whom any duty has been imposed by or under this Act and who ceases or refuses to perform or withdraws himself from the duties of his office shall, unless he has obtained the express written permission of his official superior or has other lawful excuse for so doing, be punishable with imprisonment for a term which may extend to one year or with fine.

57. Penalty for contravention of any order regarding requisitioning.—If any person contravenes any order made under section 65, he shall be punishable with imprisonment for a term which may extend to one year or with fine or with both.

58. Offence by companies.—(1) Where an offence under this Act has been committed by a company or body corporate, every person who at the time the offence was committed, was in charge of, and was responsible to, the company, for the conduct of the business of the company, as well as the company, 25 shall be deemed to be guilty of the contravention and shall be liable to be proceeded against and punished accordingly: Provided that nothing in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised due diligence to prevent the commission of such offence. (2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company, and it is proved that the offence was committed with the consent or connivance of or is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also, be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purpose of this section— (a) "company" means any body corporate and includes a firm or other association of individuals; and (b) "director", in relation to a firm, means a partner in the firm.

59. Previous sanction for prosecution.—No prosecution for offences punishable under sections 55 and 56 shall be instituted except with the previous sanction of the Central Government or the State Government, as the case may be, or of any officer authorised in this behalf, by general or special order, by such Government.

60. Cognizance of offences.—No court shall take cognizance of an offence under this Act except on a complaint made by— (a) the National Authority, the State Authority, the Central Government, the State Government, the District Authority or any other authority or officer authorised in this behalf by that Authority or Government, as the case may be; or (b) any person who has given notice of not less than thirty days in the manner prescribed, of the alleged offence and his intention to make a complaint to

the National Authority, the State Authority, the Central Government, the State Government, the District Authority or any other authority or officer authorised as aforesaid.

2. Section 188 in The Indian Penal Code

188. Disobedience to order duly promulgated by public servant.—Whoever, knowing that, by an order promulgated by a public servant lawfully empowered to promulgate such order, he is directed to abstain from a certain act, or to take certain order with certain property in his possession or under his management, disobeys such direction, shall, if such disobedience causes or tends to cause obstruction, annoyance or injury, or risk of obstruction, annoyance or injury, to any person lawfully employed, be punished with simple imprisonment for a term which may extend to one month or with fine which may extend to two hundred rupees, or with both; and if such disobedience causes or trends to cause danger to human life, health or safety, or causes or tends to cause a riot or affray, shall be punished with imprisonment of either description for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both.

Explanation.—It is not necessary that the offender should intend to produce harm, or contemplate his disobedience as likely to produce harm. It is sufficient that he knows of the order which he disobeys, and that his disobedience produces, or is likely to produce, harm.

Illustration
An order is promulgated by a public servant lawfully empowered to promulgate such order, directing that a religious procession shall not pass down a certain street. A knowingly disobeys the order, and thereby causes danger of riot. A has committed the offence defined in this section.

Issued on 19-03-2020

Government of India

Ministry of Health & FW

Additional Travel Advisory for Novel Coronavirus Disease (COVID-19)

In continuation of the travel advisories issued on 11th March,16th March and 17th March 2020, the following additional advisory is issued:

1. No scheduled international commercial passenger aircraft shall take off from any foreign airport for any airport in India, after 0001 hrs GMT of March 22, 2020 (*i.e. 0531 hrs Indian Standard Time (IST) of March 22, 2020). These instructions shall remain in force till 0001 hrs GMT of March 29, 2020.

2. A maximum travel time of 20 hours is permissible for such commercial passenger aircraft to land in India.

3. As such, no incoming scheduled international commercial passenger aircraft shall be allowed to disembark its passengers *on Indian soil* (Foreigner or Indian) after 2001 hrs GMT of March 22, 2020 (*i.e. 0131hrs IST of March 23, 2020).

4. These instructions are in addition to the travel restrictions/ advisories already issued and under implementation.

5. The above are temporary measures to restrict the spread of COVID-19, and are subject to review by Government.

महाराष्ट्र शासन

अत्यंत तातडीचे

क्रमांक करोना २०२०/प्र.क्र. ५८/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- १८ मार्च २०२०

प्रति,

अपर मुख्य सचिव, प्रधान सचिव, सचिव
सर्व मंत्रालयीन विभाग

विषय: राज्यात करोना विषाणू (कोव्हिड १९) चा प्रादुर्भाव रोखण्यासाठी प्रतिबंधात्मक उपाययोजना करण्याबाबत (वातानुकुलीत यंत्रणांचा वापर कमी करणेबाबत बाबतच्या मार्गदर्शक सूचना)..

संदर्भ: सार्वजनिक आरोग्य विभाग समक्रमांक अधिसूचना दिनांक १३ व १४ मार्च २०२०

करोना विषाणुच्या प्रतिबंधासाठी आरोग्य व कुटुंब कल्याण मंत्रालय, भारत सरकार यांचेकडून खालील आरोग्य विषयक खबरदारी घेण्याबाबत जनजागृती करण्यात येत आहे. यात प्रामुख्याने

- श्ससनसंस्थेचे विकार असणाऱ्या व्यक्तींची संपर्क ठेवतांना संसर्ग न होण्याची काळजी घेणे
- शिंकतांना व खोकतांना नाकातोंडावर रुमाल अथवा टिश्यू पेपर धरणे
- हात वारंवार धुणे
- अर्धवट शिजलेले कच्चे मांस न खाणे
- फळे, भाज्या स्वच्छ धुऊन खाणे इत्यादी

या विषाणुचा आजार व प्रसार मुख्यत्वे खोकल्यातून व शिंकण्यातून जे थेंब बाहेर पडतात त्यातूनच मोठया प्रमाणावर पसरत आहे व या आजारात संसर्गाचे प्रमाण खुप जास्त आहे. करोना विषाणुचे शिंकण्या व खोकल्यातून उडालेले थेब हवेतील धुलीकणांसोबत विविध वस्तुंच्या पृष्ठभागावर स्थिरावतात. मध्यवर्ती वातानुकुलन किंवा वातानुकुलीत खोलीमध्ये असे विषाणुमिश्रीत थेंबातील विषाणु जास्त कालावधीकरिता जिवंत राहतात परंतु, योग्य वायुविजन (Ventilation) किंवा तापमान जास्त असलेल्या वातावरणात हे थेंब लवकर सुकल्याने या विषाणुचा जीवन कालावधी कमी होतो व रोग प्रसारणास प्रतिबंध होतो. यास्तव वातानुकुलीत यंत्रणांचा कमितकमी वापर अथवा गरजेपुरताच वापर करुन इतर वेळी शक्यतो दरवाजे, खिडक्या उघडया ठेवून जास्तीत जास्त् वायुविजन होऊ देणे हादेखील एक प्रभावी प्रतिबंधक उपाय आहे.

यास्तव राज्यातील आपल्या अधिपत्याखालील सर्व कार्यालयांना वातानुकुलीत यंत्रणा न वापरणे अथवा गरजेपुरता कमितकमी वापर करण्याबाबतच्या सूचना प्रतिबंधात्मक उपाययोजने आपणाकडून निर्गमित करण्यात याव्यात अशा सूचना सक्षम प्राधिकाऱ्यांच्या मान्यतेने देण्यात येत आहेत.

(डॉ. प्रदीप व्यास)
प्रधान सचिव, महाराष्ट्र शासन

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प्रत पोलीस आयुक्त (सर्व)
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प्रत पोलीस अधिक्षक (सर्व)
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प्रत आयुक्त, आरोग्य सेवा, मुंबई
प्रत संचालक, आरोग्य सेवा मुंबई / पुणे
प्रत संचालक, वैद्यकीय शिक्षण व संशोधन, मुंबई
प्रत मा. मुख्यमंत्री यांचे प्रधान सचिव
प्रत मा.उपमुख्यमंत्री यांचे सचिव
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महाराष्ट्र शासन

महत्वाचे

क्रमांक करोना २०२०/प्र.क्र. ७५/आरोग्य ५
सार्वजनिक आरोग्य विभाग
गोकुळदास तेजपाल रुग्णालय आवार
कॉप्लेक्स बिल्डिंग, नविन मंत्रालय,
मुंबई-४०० ००१
दिनांक- २७ मार्च २०२०

प्रति,

आयुक्त, आरोग्य सेवा तथा
अभियान संचालक, राआअ
मुंबई

विषय: शासकीय रुग्णालयामध्ये दाखल असलेल्या रुग्णांच्या नातेवाईकांच्या लॉकडाऊन कालावधीतील आहाराबाबत ..

संदर्भ : आयुक्त, आरोग्य सेवा तथा अभियान संचालक, राआअ यांचे दिनांक २५.०३.२०२० चे पत्र

उपरोक्त पत्रान्वये आयुक्त, आरोग्य सेवा तथा अभियान संचालक, राआअ यांनी गरोदर माता, बाळंतपणे, अत्यावस्थ रुग्णांवरील उपचार व इतर अत्यावश्यक सेवा रुग्णालयांमार्फत सुरु असल्याने रुग्ण व त्यांचे बरोबरील नातेवाईक मोठया प्रमाणात रुग्णालयात उपस्थित असल्याबाबत कळविले आहे. सध्याची लॉकडाऊनची परिस्थिती लक्षात घेता रुग्णांच्या नातेवाईकांना रुग्णालयाच्या बाहेरही जेवण उपलब्ध होत नाही. त्याअनुषंगाने आपणांस खालीलप्रमाणे कळविण्यात येते आहे.

1. सद्यस्थितीत रुग्णालये तसेच प्राथमिक आरोग्य केंद्रामध्ये दाखल झालेल्या रुग्णांच्या किमान एका नातेवाईकाला रुग्णालयामार्फत आहार पुरविण्यास विशेष बाब म्हणून लॉकडाऊन कालावधीच्या मर्यादेत मान्यता देण्यात येत आहे.

2. यासाठीचा खर्च राज्य शासनाकडून आहारासाठी मिळणाऱ्या अनुदानातून तसेच राष्ट्रीय आरोग्य अभियानांतर्गत उपलब्ध निधीतून ज्या आरोग्य संस्थांना आहार सुविधा दिल्या जातात त्या आरोग्य संस्थांमध्ये या अनुदानातून करण्यात यावा.

(डॉ. प्रदीप व्यास)
प्रधान सचिव, सार्वजनिक आरोग्य विभाग

प्रत संचालक, आरोग्य सेवा, मुंबई / पुणे
प्रत सह संचालक, आरोग्य सेवा (सर्व)
प्रत जिल्हा शल्य चिकित्सक (सर्व)
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Health Advisory for Elderly Population of India during COVID19 Pandemic

Globally, COVID-19 has impacted several lives and is steadily increasing its reach. While Indian Government has taken stringent actions to contain the spread of COVID-19, including nation-wide lockdown, it is also critical for each one of us to follow the protocols and take necessary measures and precautions to break the chain of transmission of the disease.

Elderly people are at a higher risk of COVID-19 infection due to their decreased immunity and body reserves, as well as multiple associated co-morbidities like diabetes, hypertension, chronic kidney disease and chronic obstructive pulmonary disease. Also, course of disease tends to be more severe in case of elderlies resulting in higher mortality.

However, COVID-19 transmission among elderly population can be reduced by taking following measures:

DO's

1. Stay at home. Avoid meeting visitors at home. If meeting is essential, maintain a distance of one meter.
2. Wash your hands and face at regular intervals with soap and water.
3. Sneeze and cough either into your elbow or into tissue paper / handkerchief . After coughing or sneezing dispose of the tissue paper/ wash your handkerchief.
4. Ensure proper nutrition through home cooked fresh hot meals, hydrate frequently and take fresh juices to boost immunity.
5. Exercise and meditate.
6. Take your daily prescribed medicines regularly.
7. Talk to your family members (not staying with you), relatives, friends via call or video conferencing, take help from family members if needed
8. Postpone your elective surgeries (if any) like cataract surgery or total knee replacement
9. Clean the frequently touched surfaces with disinfectant regularly.
10. Monitor your health. If you develop fever, cough and/or breathing difficulty immediately contact nearest health care facility and follow the medical advice rendered

DON'Ts

1. Do not cough or sneeze into your bare hands or without covering your face.
2. Don't go near your contacts if you are suffering from fever and cough.
3. Don't touch your eyes, face, nose and tongue.
4. Don't go near affected/ sick people .
5. Don't self-medicate.
6. Don't shake hands or hug your friends and near ones.
7. Do not go to hospital for routine checkup or follow up. As far as possible make tele-consultation with your healthcare provider.
8. Don't go to crowded places like parks, markets and religious places.
9. Don't go out unless it is absolutely essential.

TRAINING RESOURCES FOR COVID 19 MANAGEMENT

S.No	Roles	Category of Health care professionals.	TRAINING RESOURCE
1	Field Surveillance (younger persons to be deployed)	ANM, ASHA, Anganwadi workers Ayush students NCC cadets NSS volunteers NYKS volunteers IRCS volunteers CPSE workers All officers generally deployed as micro observers during general elections, including teachers	1. COVID-19 FACILITATOR GUIDE https://www.mohfw.gov.in/pdf/FacilitatorGuideCOVID19_27%20March.pdf
2	Field Supervision (comparatively older persons may be deployed)	PHC doctors Ayush doctors Dental doctors Physiotherapists All officers generally deployed as micro observers during general elections, including teachers	1. COVID-19 FACILITATOR GUIDE https://www.mohfw.gov.in/pdf/FacilitatorGuideCOVID19_27%20March.pdf
3	Laboratory-Sample collection, packaging and transportation	Lab Technicians B Sc/M Sc Microbiology students	1.Notification of ICMR guidelines for COVID-19 testing in private laboratories in India https://www.mohfw.gov.in/pdf/NotificationofICMguidelinesforCOVID19testinginprivatelaboratoriesiIndia.pdf 2. Webinar schedule of COVID-19 of AIIMS New Delhi (webinar 1) https://www.youtube.com/watch?v=BTLGGV3_XnI 3. Latest Testing Guidelines of Indian Council of Medical Research (ICMR) https://www.mohfw.gov.in/pdf/LabTestingAdvisory.https://www.mohfw.gov.in/pdf/5COVIDFLWTrainingPlan27March.pdfpdf 4..Specimen Collection, Packaging and Transport Guidelines for 2019 novel Coronavirus (2019-nCoV) https://www.mohfw.gov.in/pdf/5Sample%20collection_packaging%20%202019-nCoV.pdf 5. Revised Strategy of COVID19 testing in India (Version 3, dated 20/03/2020 https://icmr.nic.in/sites/default/files/upload_documents/2020-03-20_covid19_test_v3.pdf 6.Guidance on Rapid antibody kits for COVID-19 https://icmr.nic.in/sites/default/files/upload_documents/Guidance_on_RapidKits_COVID19_28032020_V1.pdf

4	Clinical Management in COVID treatment facilities		Guidelines on Clinical Management of COVID – 19 https://www.mohfw.gov.in/pdf/GuidelinesonClinicalManagementofCOVID1912020.pdf
4.1	At isolation facility	Allopathic doctors	Webinars on SARS CoV-2/COVID-19 AIIMS, New Delhi https://www.mohfw.gov.in/pdf/COVIDWebinarSchedule26March2019.pdf DIRECT LINK: https://www.youtube.com/channel/UClhIpqB1ENbKtsWsVk0P_vg
		Doctors drawn from Army, Paramilitary and Railways	Webinars on SARS CoV-2/COVID-19 AIIMS, New Delhi https://www.mohfw.gov.in/pdf/COVIDWebinarSchedule26March2019.pdf DIRECT LINK: https://www.youtube.com/channel/UClhIpqB1ENbKtsWsVk0P_vg
		Ayush doctors	Guidelines on Clinical Management of COVID – 19 https://www.mohfw.gov.in/pdf/GuidelinesonClinicalManagementofCOVID1912020.pdf
		Medical interns	1.Guidelines on Clinical Management of COVID – 19 https://www.mohfw.gov.in/pdf/GuidelinesonClinicalManagementofCOVID1912020.pdf 2.Webinars on SARS CoV-2/COVID-19 AIIMS, New Delhi https://www.mohfw.gov.in/pdf/COVIDWebinarSchedule26March2019.pdf DIRECT LINK: https://www.youtube.com/channel/UClhIpqB1ENbKtsWsVk0P_vg
		Nursing students (M SC/ B Sc final year)	WEBINARS FOR NURSING OFFICERS FOR TRAINING IN CARE OF PATIENTS SUSPECTED Of/ OR HAVING COVID-19 INFECTION https://www.mohfw.gov.in/pdf/COVIDWEbinar.pdf Direct link:https://www.mohfw.gov.in/pdf/COVIDWEbinar.
4.2	Intensive care	Anaesthetist/ Respiratory Physician/ Medical Specialist 2/3 yr PG students (MD/ DNB/Diploma)in above mentioned subjects	1. Webinar-II on SARS CoV-2/COVID-19 AIIMS, New Delhi https://www.youtube.com/channel/UClhIpqB1ENbKtsWsVk0P_vg 2. Guidelines on Clinical management of severe acute respiratory illness (SARI) in suspect/confirmed novel

			coronavirus (nCoV) cases https://ncdc.gov.in/WriteReadData/l892s/96997299691580715786.pdf
		GNM nursing officers Nursing faculty M Sc and BSC final year nursing students	1. WEBINARS FOR NURSES FOR TRAINING IN CARE OF COVID-19 PATIENTS https://www.mohfw.gov.in/pdf/COVIDWEbinar.pdf DIRECTLINK:https://www.youtube.com/watch?v=-LiueyrHEIY 2. Guidelines on Clinical management of severe acute respiratory illness (SARI) in suspect/confirmed novel coronavirus (nCoV) cases https://ncdc.gov.in/WriteReadData/l892s/96997299691580715786.pdf

4.3	Infection prevention and Control	All above listed doctors and nurses	1.NATIONAL GUIDELINES FOR INFECTION PREVENTION AND CONTROL IN HEALTHCARE FACILITIES https://www.mohfw.gov.in/pdf//National%20Guidelines%20for%20IPC%20in%20HCF%20-%20final%281%29.pdf 2.Guidelines for Setting up Isolation Facility/Ward https://ncdc.gov.in/WriteReadData/l892s/42417646181584529159.pdf 3.Webinar on SARS CoV-2/COVID-19 (webinar 1) https://www.youtube.com/watch?v=BTLGGV3_XnI
5	Medical care/ nursing care in non-Covid areas.	All doctors/ nurses in service and above 60 or with co-morbidities All retired personnel volunteering to work	1. Guidelines on disinfection of common public places including offices https://www.mohfw.gov.in/pdf/Guidelinesondisinfectionofcommonpublicplacesincludingoffices.pdf
6.	Management		
	ICS	Serving / Retired armed forces officers Serving or retired CPSE Officers NDMA/SDMA/ NDRF officers NGO-Consultancy Groups	Training module of ICS available: 1. Training module for Incident response system :basic and intermediate https://nidm.gov.in/PDF/modules/irs-1.pdf
	Quarantine facility management		Quarantine facility checklist available: 1. Guidelines for Quarantine facilities COVID-19 https://ncdc.gov.in/WriteReadData/l892s/90542653311584546120.pdf

		All officers generally deployed as micro observers during general elections, including teachers	