



## Personal Protection Methods and management of Biomedical Waste Generated during COVID 19

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### Introduction

In face of the need for airway management and endotracheal intubation in COVID-19 infected patients with respiratory failure, before approaching patients with coronavirus infection, remember that “personal protection” is priority along with management of biomedical waste generated during COVID-19 management. Check relevant equipment and use contact isolation precautions. In particular, plan ahead and allow sufficient time to remove all obstacles before contacting the patient.

### Methods of Personal Protection

- 1) All staff and visitors entering the isolation ward should wear personal protective equipment (PPE) as recommended:
  - a) Disposable fluid resistant jumpsuits.
  - b) Double-layer gloves: The outer gloves should at least extend to/ cover the jumpsuit cuffs.
  - c) Masks should be N95 grade or above or with Powered Air Purifying Respirators (PAPR).
  - d) Disposable protective face shield, goggles, disposable waterproof shoe

cover or rubber boots extending up to mid calf.

- e) Disposable waterproof apron: when the patient has symptoms of vomiting or diarrhea, wear a waterproof apron or an apron made of PVC, rubber or other waterproof materials.
  - f) Poster of putting on and taking off protective equipment sequences should be posted wherever equipment is being worn and removed. Hand hygiene equipment such as soap and water or alcohol-based dry cleaners should be provided.
  - g) A team should overlook the sequence of putting on and taking off PPE. A trained observer assists to check whether the equipment was completely and properly put on or removed while the intubating personnel put on and off PPE.
- 2) Check standard monitors, intravenous access, intubation equipment, intubation medications, ventilator and sputum suction equipment.
  - 3) Avoid awake fibroptic intubation unless otherwise specified. Nebulizing local anesthetics will nebulize the virus. Disposable video assisted intubation devices are advised.

Back-up equipments such as supraglottic airways (SGA), laryngeal masks (LMA) and emergent front of neck access (eFONA) should also be readily available.

- 4) Bed up Head elevation (BUHE) position: This position increases functional residual capacity (FRC) thus will improve oxygen reserve and increase the safety time for intubation. Sniffing position can make intubation easier.
- 5) Make sure the high-efficiency particulate air (HEPA) filter is placed immediately adjacent to patient mask i.e. between the patient mask and the breathing circuit, or between the patient mask and the Ambu bagging system.
- 6) To confirm position of tracheal intubation use end-tidal CO<sub>2</sub> (ETCO<sub>2</sub>), Confirmation by auscultation via stethoscope is not recommended. Connect the HEPA filter to perform mechanical ventilation.
- 7) If intubation is unsuccessful, consider SGA with low driving pressure (< 20 cm H<sub>2</sub>O) under pressure control ventilation (PCV). If difficult intubation is encountered, eFONA may be considered early.
- 8) All airway equipment must be sealed with double zipper plastic bags and removed for decontamination and disinfection.
- 9) After leaving the negative pressure environment an assistant should wipe all surfaces with appropriate disinfectant (as instructed by the hospital).
- 10) After removing protective equipment, avoid touching hair, face, or eyes before washing hands.

### **Management of Biomedical Waste Generated During COVID-19 in Isolation Wards, Sample Collection Centre and Laboratory**

Healthcare Facilities having isolation wards, sample collection centre and laboratory for COVID-19 patients need to follow these steps to ensure safe handling and disposal of biomedical waste generated during treatment:

- a) Keep separate color coded bins/bags/containers in isolation wards and maintain proper segregation of waste.
- b) 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.
- c) Collect and store biomedical waste separately prior to handing over the same CBWTF (common biomedical waste treatment facility). 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.
- d) 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.
- e) Maintain separate record of waste generated from COVID-19 isolation wards
- f) 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.
- g) 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.
- h) Feces from COVID-19 confirmed patient who is unable to use toilets and excreta is collected in diaper, must be treated as biomedical waste and should be placed in

yellow bag/container. However, if a bedpan is used, then faces to be washed into toilet and cleaned with a neutral detergent and water, disinfected with a 0.5% chlorine solution, then rinsed with clean water.

- i) Collect used PPEs such as goggles, face-shield, splash proof apron, Plastic Coverall, Hazmet suit, nitrile gloves into Red bag.
- j) Collect used masks (including triple layer mask, N95 mask, etc.), head cover/cap, shoe-cover, disposable linen Gown, non-plastic or semi plastic coverall in Yellow bags.

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