

Decontamination and disinfection of contaminated areas

The purpose of decontamination and disinfection is to neutralise and kill COVID-19 (SARS-CoV-2) virus through cleaning, disinfection and decontamination process. This is done to prevent infection.

Materials and equipment required

1. Personal protective equipment (PPE)

A person responsible for disinfecting and decontaminating a contaminated area should be geared in PPE which include:

- ❖ Coverall
- ❖ N-95 respirator
- ❖ Surgical masks
- ❖ Goggles/face shield
- ❖ Inner gloves (non-sterile medical gloves)
- ❖ Outer gloves (utility gloves)
- ❖ Plastic apron
- ❖ Gumboots

Criteria for use of PPE to disinfect and decontaminate different facilities

PPE requirement	Isolation room (ward, ICU)	Quarantine facilities	Vehicles and other carriers
Inner gloves	√	X	X
Outer gloves	√	√	√
Plastic apron	√	X	X
Coverall	√	X	X
N95 mask	√	X	X
Surgical mask	X	√	√
Goggles/face shield	√	X	X
Gumboot	√	X	X

Note: In case of an individual in the quarantine room testing positive, it should be treated as infected and all procedures recommended for disinfection, including the use of PPE for isolation room should be followed.

2. Disinfectants

- ❖ 0.5 percent bleaching (sodium hypochlorite) solution (Refer preparation section 7).
- ❖ 2 percent glutaraldehyde solution (if bleaching solution not appropriate to prevent corrosion of surfaces)
- ❖ 70 percent alcohol

3. Decontamination supplies

- ❖ Mop and bucket
- ❖ Hand-operated knapsack sprayer or power sprayer
- ❖ Waste bins
- ❖ Alcohol wipes
- ❖ Sharps container
- ❖ Bucket to prepare disinfectant
- ❖ A red biohazard bag to dispose used PPE

4. Procedures for cleaning and disinfecting a room

Preparation for disinfection and decontamination

- ❖ Rings, wrist watches and jewellery must be removed
- ❖ Use soap and water to wash hands or an alcohol-based hand rub
- ❖ Wear appropriate PPE as per the donning procedures (as per requirement for recommended facilities)

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Routine disinfection of isolation room

- ❖ Body fluid spills should be decontaminated promptly
- ❖ Clean room with neutral detergent and water
- ❖ Mop floor using 0.5 percent bleaching solution to disinfect room
- ❖ Rooms should be cleaned and disinfected at every shift (three times a day) and as required
- ❖ Frequently clean and disinfect commonly used or hand-touched surfaces of anteroom or lobby areas (at least thrice a day)
- ❖ Remove PPE following proper doffing procedures
- ❖ Put all used PPE in red waste bins and secure it properly
- ❖ Segregate waste as per the National Guidelines on Infection Control and Medical Waste Management 2018
- ❖ Put reusable PPE (goggles/face shields and gumboot) in 2 percent Glutaraldehyde solution, soak for 10 minutes
- ❖ Observe hand hygiene by washing with soap and water and alcohol-based hand rub
- ❖ Reusable equipment, such as mop handles and buckets, must be decontaminated after use with a chlorine-based disinfectant
- ❖ Put all wastes from the patient's room into a red waste bin, spray bleaching solution over the waste, secure it properly and store it in the waste storage area.

Decontamination of isolation room after a patient's discharge or demise

- ❖ Following release, after recovery, and/or demise of a patient, it is recommended the room is left vacant for one hour with doors closed
- ❖ Before entering the room, perform hand hygiene and wear PPE as per the donning procedures
- ❖ Collect all cleaning equipment and healthcare waste bags before entering room
- ❖ Remove all healthcare waste and any other disposable items
- ❖ Bedding and bed screens should be treated as infectious linen. Do not shake linen and avoid

all necessary agitation and soak in 2 percent Glutaraldehyde solution for 30 minutes before washing

- ❖ For mattresses and pillows, disinfect with (spray) 2 percent Glutaraldehyde solution and sundry until completely dried
- ❖ Patient care equipment should be cleaned with 2 percent Glutaraldehyde solution
- ❖ Clean all surfaces, beds and bathrooms with a neutral detergent, followed by a 0.5 percent chlorine-based disinfectant solution
- ❖ Segregate waste as per the National Guidelines on Infection Control and Medical Waste Management 2018
- ❖ Reusable equipment, such as mop handles and buckets must be decontaminated after use with a chlorine-based disinfectant as described above
- ❖ Reusable PPE items such as goggles and gumboots should be soaked in 0.5 percent bleaching solution for at least 10 minutes
- ❖ Put all wastes generated in the patients room in red bin, spray bleaching solution over the waste and secure it properly and store it in the waste storage area.

Routine disinfection of Quarantine Room

- ❖ Clean the room with neutral detergent and water
- ❖ Mop the floor using 0.5 % bleaching solution to disinfect the room
- ❖ The rooms should be cleaned and disinfected at least once a day and as and when required
- ❖ There should be more frequent cleaning and disinfection of commonly used hand- touched surfaces and of anteroom or lobby areas (at least twice a day).
- ❖ Remove PPE following proper doffing procedures
- ❖ Put all disposable used PPE in red waste bin and secure it properly
- ❖ Put the reusable PPE (goggles, and gumboot) in 2% Glutaraldehyde solution, soak for 10 minutes
- ❖ Perform hand hygiene with soap and water and alcohol-based hand rub
- ❖ Reusable equipment (such as mop handles,

buckets) must be decontaminated after use with a chlorine-based disinfectant as described above.

- ❖ Segregate waste as per the National Guidelines on Infection Control and Medical Waste Management 2018.
- ❖ Put all wastes from the patient’s room into a red waste bin, spray bleaching solution over the waste, secure it properly and store it in the waste storage area.

Procedures for decontamination and disinfection of motor vehicles/aircraft

- ❖ Use PPE following donning procedures
- ❖ Vehicles, aircraft and helicopters that are used for transporting suspected or infected person should be thoroughly disinfected using 2 percent Glutaraldehyde solution or 70 percent alcohol
- ❖ All under parts and wheels of cars should be sprayed with water and disinfectant. Lower pressure power sprayer or hand hold knapsack sprayer will be used for disinfecting, wheels and outer surfaces of the vehicles
- ❖ Vehicles/aircraft interiors can be wiped down with disinfectants on cloths or by spraying disinfectants as required
- ❖ Remove PPE following the doffing procedures

5. Waste disposal from isolation and quarantine facilities

All wastes generated from the quarantine facilities should be treated as infectious and treated accordingly.

Waste from isolation room

- ❖ Waste generated from the isolation room should be treated as infectious
- ❖ Biohazard bag should not be filled beyond ¾ of its capacity
- ❖ Use double bag for biohazard wastes and secure it tightly
- ❖ Spray disinfectant on waste plastic bag using

0.5 percent bleaching powder and leave it for 20 minutes

- ❖ The ward boy will collect all plastic bags in larger ones
- ❖ Spray disinfectant over the large plastic bag and leave it for 20 minutes
- ❖ Waste from the isolation room should be sent for incineration or autoclaving and disposal

Waste from the quarantine facilities

- ❖ Waste generated from quarantine facilities should be treated as infectious
- ❖ Waste bin with biohazard bag will be provided to all quarantined individuals
- ❖ Each individual at quarantine facilities should keep waste in front of the door daily at the fixed time decided by the Quarantine Facility Coordinator
- ❖ The ward boy will spray disinfectant on waste plastic bag and keep for 20 minutes
- ❖ The ward boy will collect all the plastic bags in larger ones
- ❖ Spray disinfectant over the large plastic bag and keep for 20 minutes
- ❖ Waste from the quarantine facilities should be sent for incineration or autoclaving and disposal

6. Preparation of disinfectants

Preparation of 0.5 percent bleaching solution (Sodium hypochlorite)

Formula for preparation of 0.5 percent bleaching solution

$$\text{No. of gm of powder in 1 litre of water} = \frac{\% \text{ chlorine desired} \times 1000}{\% \text{ chlorine in in bleaching powder}}$$

Example: To make 0.5 chlorine solution from calcium hypo-chloride powder containing 30 percent active chlorine:

0.5 percent x1000/30 percent = 16.67 grams per litre of water.

Therefore add 16.67 grams per litre of water.

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Procedure for preparation of 2 percent Glutaraldehyde solution

Reseal the container holding 2 percent Glutaraldehyde solution

Add activator proportionately as recommended by the manufacturers before its use

7. Management team

- ❖ Health Official
- ❖ Ward boy
- ❖ Cleaner

Roles and responsibilities Health official

- ❖ Overall management and supervision of the decontamination and disinfection process of infected premises

- ❖ Monitor health of ward boy and provide counselling service if required
- ❖ The health staff shall wear basic PPE + N95 where necessary

Ward Boy

- ❖ Responsible for preparation of disinfectant
- ❖ Disinfect and decontaminate rooms (at least thrice a day) as per directives of the health official
- ❖ Any other work the health official assigns

Cleaner

- ❖ Responsible for cleaning, collecting and disposing waste
- ❖ Clean rooms and other areas (every shift)
- ❖ Any other work the health officials assigns

