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## Environment cleaning and disinfection SOP for COVID-19

COVID-19 virus (SARS COV-2) can potentially survive in environment for hours/days depending upon the type of surface. Hospital premises, areas and surfaces potentially contaminated with virus should be cleaned and disinfected regularly.

Transfer of microorganism from the contaminated surfaces to patient/HCW occur mostly via hand contact with the surface. Hand hygiene is the most important measure to prevent this transfer of infection.

Environmental cleaning and disinfection is fundamental in the decreasing the health care associated infections(HAI)

### 1. Cleaning and disinfection agents:

Cleaning is done with commonly available detergents and water..

#### Disinfectants:

1.Sodium hypochlorite solution (0.5%-1% ). The desired concentration is freshly prepared daily from stock solution available (5% or 10% concentration). Freshly prepared solution should be kept in a plastic closed container. It should not be used for metallic surfaces. Contact period of 10-30 minutes is recommended (depending on the nature of surface/article)

2.Alcoholic preparations: 70% ethyl alcohol, preferred for metallic surfaces.

3.Phenolic compounds (eg Lysol) may be used in some situations, depending on institutional policy.

Wipes/wet dusting are recommended over sprays for all reachable surfaces. Spraying to be avoided in general, only recommended for not reachable surfaces.

Wet mopping recommended for floors. Three bucket system is recommended. Detergent solution should be made with warm water. The mop used should be cleaned with hot water and detergent and then treated with 1% hypochlorite solution. Then keep for drying upside down, preferably in sun.

**PPE:** the cleaning staff shall wear appropriate PPE( heavy duty gloves, N95mask/surgical mask, apron, eye shield/goggles, boot) based on risk assessment. He/she should wash hands properly immediately after removing PPE.

#### Preparation of 1% hypochlorite solution:

% of hypochlorite solution	Dilution	Preparation	Chlorine(ppm)
<b>From 5% stock solution</b>			
0.5% hypo. Sol.	1:10	1 vol. stock +9 vol water	5000
1% hypo.sol.	1:5	1 vol.stock +4 vol. water	10,000
<b>From 10% stock solution</b>			
0.5% hypo.sol	1:20	1vol.stock+19 vol.water	5000
1% hypo.sol.	1:10	1vol.stock+9vol.water	

High touch surfaces: Bed rails, bed frame, tray table, bedside tables, door handles/knobs with adjoining area, handles of almirah, IV stand, BP cuffs, reachable surfaces of walls around beds, lift buttons, switches, chair arms, wall area around toilet in patient room, side rails of stairs, stretchers, wheel chairs, stethoscopes, mobile phones/telephones, computer, mouse, keyboards etc. they should be cleaned and disinfected frequently (3 hourly or earlier)

## 2.Frequency of cleaning & disinfection:

Disinfection protocol for COVID areas( Flu clinic/ward/ICU/COVID laboratories)			
Area	Disinfectant	Contact time	Frequency
Floor	1% hypochlorite sol (after cleaning with(S&W))	10 min	3hrly, and as and when required
Mops	1% hypo.sol.(after cleaning withS&W)		After every 240 square feet
High touch surfaces: Metallic Non metallic	70% alcohol  1% hypochlorite sol.	Till it dries  10 min	2-3 hrly
Low touch surfaces (walls/ceiling)	1% hypo.sol.(after cleaning with S&W,if required)	10 min	Twice a week
Toilet (floor/pots/bed pans)	1% hypo.sol. (after cleaning withS&W)	10 min	After every use
BMW bins	Inner& outer surface , 1% hypo.sol.	10 min	After every use
BMW bags	Outer surface	10 min	Before discarding,each time
Article: telephone, computer, keyboard, mouse, bed side monitors, ECG probes, USG machine, pulse oximeter, infusion pumps, ventilator exterior etc	70 % alcohol, wipes	Till dries	After each use/as frequently as 2hrs,depending on nature of article
Stethoscope	70% alcohol wipes	Till it dries	After each use
BP apparatus cuff	Detergent and warm water		After each use
Thermometer(dedicated to one patient only)	Clean withS&W, 70% alcohol	Till it dries	After each use, store in dry individual holder
Injection/dressing trolley	70% alcohol(after cleaning with S&W)		Cleaned daily (soap and water), disinfected after each use
Wheel chair	70% alcohol	Till it dries	Cleaned daily(s&w), disinfected after each use
Stretchers	70% alcohol	Till it dries	Cleaned daily(S&W), or when soiled,

			disinfect after each use.
Clinical Sample containers(outer surface)	1% hypo.sol	10 min	Before sending to laboratory
Ice packs	1% hypo.sol.	10 min	After each use
Liquid waste	1% hypo.sol.	30 min	After treatment, drained
Discarded linen	1% hypo. Sol.	30 min	If soiled, to be discarded

*Contact period with 1% hypochlorite should always be at least more than one minute.*

**3. Cleaning and disinfection of non COVID areas during COVID -19 period:** The cleaning and disinfecting agents would be same as used in COVID areas. Cleaning of floors and disinfection should be at least 2-3 times per day.

**4. Terminal cleaning and disinfection:**

When COVID patient/suspect is discharged/shifted from the ward, it needs a thorough cleaning and disinfection.

- a. The cleaning person shall wear full PPE (heavy duty gloves, N95 mask, aprons, eye shield/goggles, cap, boot) and follow all standard precautions,
- b. Remove dirty linen and put carefully without much agitation into yellow double bags labelled as COVID-19.
- c. Cleaning with detergent and water followed by disinfection with 1% hypochlorite: working from clean to dirty area and high to low area with a fresh mop . clean all high touch areas of room which are potentially contaminated.
- d. Clean all furnishings and surfaces of the room as window sills, chair, over bed table, computer, television etc
- e. Mattresses and pillows treated with 1% hypochlorite solution and preferably kept in sunlight for 2-3 hours.
- f. Mattresses, pillows and linen soiled with blood/body fluids treated with 1% hypochlorite solution for 30 minutes and then put in yellow bag/suitable packing material before discard.
- g. Clean the immediate surroundings of the bed and remake the bed
- h. Toilet & bathroom: clean floor and bucket, mugs, sinks, tap knobs and nozzles, pots, bed pans etc with detergent and water followed by disinfection with 1% hypochlorite
- i. Clean and disinfect BMW bins(inner& outer surface)
- j. Inspect for pest control
- k. Clean ,disinfect and store the cleaning equipment
- l. Remove PPE carefully in doffing area and wash hands before leaving the patient care area.
- m. Fogging of the room is not usually recommended (no added benefit). It may be optional depending on availability and institution policy.

**5. Cleaning& disinfection in COVID ICUs:**

- a. Cleaning and disinfection to be done every 3 hourly.
- b. No washing and brooming shall be done inside the ICU
- c. Different buckets and mops (with labels) are used for different areas of ICU eg nursing station, doffing area, patient beds, rest of the ICU.
- d. First surface cleaning done ,then the floor cleaning and finally washrooms are cleaned.
- e. Sequence of cleaning in ICUs:

- f. Nursing station: Chair, nursing counter table, crash cart, injection/medicine trolley, dressing trolley, computer, keyboard, mouse, telephone/mobile followed by floor cleaning.
- g. Patient area: There should be minimum 1 meter distance between adjacent beds and from the wall. I/V stand, infusion pumps, Ventilator screen, switch board (only alcohol wipes, not spray), bed side table, patient cot (headend rails, side rails, foot end rails then foot wheels), finally floor around the patient bed.
- h. Rest of the ICU: cleaning of the floor of remaining part of the ICU is then followed.
- i. Washroom: floors, sinks, high touch surfaces are cleaned
- j. Doffing area: being the dirtiest place shall be cleaned last. Doffing area preferably should have full length mirror to check proper doffing procedure. It should be equipped with Yellow and BMW bins lined with double bags, glove box, hand rub stand with hand rub, doffing sequence chart. After removal of PPE hand washing with soap and water to be done.

## 6. Cleaning and disinfection in OT:

Proper cleaning and disinfection is essential to prevent infections in patients and HCWs (HAIs). It shall be done in 3 phases:

**1. Initial cleaning:** performed every morning. Wear appropriate PPE (gloves, gown/apron, surgical mask/N95, goggles/eye shield) based on risk assessment. No one should enter OT before it is cleaned. All the surfaces disinfected with 1% hypochlorite solution following principle of clean to dirty, top to down and in to out. If any surface is dirty first cleaned with detergent and water. Disinfect all antiseptic bottles, trays, sterile containers. Wash the scrub basin and taps with detergent and water. Keep OT closed for 15-20 minutes with ventilation (exhaust) on. Remove all the PPE carefully and discard appropriately. (SOPs)

**2. In between cases cleaning:** a signage of wet floor placed. OT door should be kept closed and air handling unit (if present) should be kept on. If surfaces are dirty, first clean with detergent and water, followed by disinfection with 1% sodium hypochlorite/70% alcohol depending on nature of the surface. The surfaces that might have come in contact with blood/body fluids as tops of surgical lights, BP cuffs, tourniquets, suction canister, OT table etc need cleaning and disinfection in between cases. Wet mopping of floor with detergent and water followed by 1% hypochlorite sol. In the area approximately 3-4 feet area around the OT table is done.

**3. Terminal cleaning:** it is done at the end of the day. Thorough cleaning and disinfection of OT table, surfaces and floor to be done. Appropriate PPE should be donned every time cleaning is done. Clean and disinfect lights, ceiling mounted tracks, high touch surfaces, furniture. Spot check walls for cleanliness. Clean scrub sinks and surrounding walls. Mop all the floor including underneath the OT table. Use separate mop for different rooms. Use disinfectant in sufficient quantity that the floor remains wet for at least for 5 minutes. Slippers should be washed with detergent and water followed by disinfection with 1% sod. Hypochlorite sol. for 10 minutes.

**Detailed wash down of OT:** It should be done weekly in the OTs used daily and once a month in OTs used less frequently (institutional policy may be followed).

## 7. Cleaning and disinfection of Hospital campus:

- a. The patient entry regulated.
- b. Signages to direct patients to different areas of hospital.
- c. Social distancing maintained in all areas.
- d. Prohibition of spitting in hospital premises (posters)
- e. Cleaning and disinfection (detergent and water, 1% hypochlorite) to be done twice daily, preferably during less busy hours of the day.

- f. Designated routes for the transportation of waste & laundry articles. Transported preferably at fixed time of the day.
- g. The BMW temporary storage area: ensure proper segregation areas based on type of waste. It is to be cleaned and disinfected twice daily.
- h. Cleaning and disinfection at canteens and tug shops to be done regularly. The chairs, tables, front desks, cabins to be cleaned with detergent and water followed by disinfection with 1% hypochlorite/70% alcohol. Floor mopping at least twice daily (earlier if needed) with detergent and water followed by disinfection with 1% hypochlorite. The persons working there should do frequent hand washing and wear surgical mask.

The HODs/ facility/ward in charges or in charges of outsource staff may ensure that all HCWs are adequately trained in infection control practices by HICC team. They may also ensure that the HCWs attend the regular orientation classes conducted in small groups by HICC team time to time (schedule shall be communicated to respective departments)

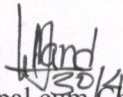
Hand hygiene and social distancing to be followed all the time, at all places, by all.

Note:

- i. Correct Technique of Donning and Doffing of PPE is most important to prevent HAIs
- ii. Judicious and appropriate use of PPE requested.
- iii. The Basic Principles of IPC and Standard precautions should be applied in all health care facilities.
- iv. This is a Dynamic document and shall be updated time to time as the knowledge with COVID-19 evolve with time and with new national and international guidelines.

Resources:

National guidelines for infection prevention and control in health care facility. MoH&FW,GOI  
National centre for Disease control(NCDC), disinfection guidelines,  
Hospital infection control guidelines, ICMR  
Guidelines for implementation of Kayakalp initiative, MoH&FW, GOI,  
COVID-19, IPC, SOPs, ver.2, JIPMER, Puducherry  
IPC policy, ver.2, AIIMS, Rishikesh  
COVID-19 containment measures, IPC for hospital and clinics, IMA, Tamilnadu  
IPC guidelines for COVID-19, ver.1.2, AIIMS, New Delhi

  
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