Government of West Bengal
Department of Health and Family Welfare
Directorate of Health Services
Wing- A, 4th Floor, Swasthya Bhavan
GN 29, Sector- V, Salt Lake, Kolkata- 700091

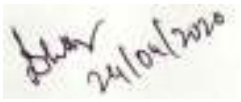
Memo No: HPH/9M-21/2020/95 **Dated: 24/04/2020**

To,
The MSVP, Medical College and Hospital (All)
The Chief Medical Officer of Health (All)
West Bengal

Sub: Guidelines for reuse of PPE & Masks for Health Care Workers

Please find herewith attached the recommendation of the Expert committee in respect of reuse of PPE and masks for Health Care Providers for your information.

You are requested to inform all concerned for strict compliance.



Director of Medical Education
Government of West Bengal

Director of Health Services
Government of West Bengal

Memo No: HPH/9M-21/2020/95/1(8) **Dated: 24/04/2020**

Copy forwarded for kind information please to:

1. The Mission Director & Secretary, Government of West Bengal
2. The Secretary, PHP, Government of West Bengal
3. The Principal, all Medical College and Hospitals
4. The Jt. Director of Health Services (PH&CD), Government of West Bengal
5. The Dy. Director of Health Services (Malaria), Government of West Bengal
6. The Dy. Director of Health Services (PH), Government of West Bengal
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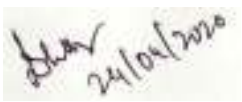

Director of Medical Education
Government of West Bengal

Director of Health Services
Government of West Bengal

Guidelines for reuse of PPE & Masks for Health Care Workers

One meeting was held on 13/04/2020 in the Green Room, Swasthya Bhawan, with different Experts from the field of Microbiology, Medicine and Tropical Medicine on the issue of re-utilization of N95 masks, PPE, Coveralls and Face shields during this acute crisis of COVID19 Pandemic, jointly chaired by the DME and DHS, Government of West Bengal. The following protocols are recommended.

- The face shields, PPE, Coveralls, gowns, surgical masks, N95 masks etc. should be used properly and judiciously.
- Use of N95 masks may be restricted to fever clinics, suspect and confirmed COVID wards, prioritizing the aerosol generating procedures like the sample collection, intubation of a COVID-19 positive case, during CPR, during bronchoscopy etc.
- For proper utilization of the PPE, masks etc. these should be decontaminated and reused as per following protocols:
  - Heat sensitive equipment (PPE): Preferably with Hydrogen peroxide vapor, Ethylene oxide sterilization technique.
    - Single warm cycle (55°C and 725 mg/l 100% EtO gas). Items and a chemical indicator placed in an individual standard poly/paper pouch. EtO exposure for 1 hour followed by 4 hour of aeration.
    - Standard Autoclaving can also be used in facilities where the above methods are unavailable. Taking into account that the PPE may be discarded if the elasticity of the rubber materials of the PPE is lost after repeated autoclaving.
  - Cloth items (gowns, cloth masks): Preferably Autoclaving or washing with soap and hot water.
  - Face shields and goggles: Immersion in 0.5% Sodium Hypochlorite solution or cleaning with 70% alcohol.
  - Heat sensitive equipment like N95 masks directly coming in contact of the skin: Though Hydrogen peroxide vapor is the preferable method, UV C radiation may be utilized, if available.
    - The laminar flow machine can be used for decontamination of the N95 masks, which will be properly labeled with the name of the users, and will be exposed to the UV C rays**, 15 minutes each side** (outer and inner), to 176–181 mJ cm^2 exposure of the masks, with a **40-W UV-C light** (average UV intensity experimentally measured to range from 0.18 to 0.20 mW cm^2). The masks will be kept 3 feet from the 40 W UV-C light source for 15 minutes.
- The HCW are advised to wear a surgical mask over the N95 mask for better protection and to prolong the life of the mask. The surgical mask will be discarded after 1 shift (8 hours) of usage and the N95 mask may be reutilized as noted below.
- Disposable N95 respirators may be re-used or worn for extended use as long as they are able to seal, were not worn during an aerosol generating procedure or have reached the end of their use by being soiled, damaged or moist from sweat or insensible fluid loss through breathing. The N95 masks can be utilized up to 5 cycles of usage and decontamination. DO NOT use ALCOHOL AND CHLORINE [bleach]-based disinfection methods.
- Equipments which are subjected to decontamination or reutilization/reuse should be used or worn as per the standard protocol of Donning and Doffing of PPE and Masks.

The detailed protocols and procedures for the different equipments as mentioned above are noted in the following Annexure:

Annexure-I & Annexure-II: Protocol for Decontamination of Coveralls and N95 Respirators, **Annexure-III:** Protocol for Re-use of Face shields and Goggles, **Annexure-IV:** SOP to make 0.5% hypochlorite

Annexure-I: Protocol for Decontamination of Coveralls and N95 Respirators

Segregation: Used coveralls, PPE [manufactured by Dupont (Tyvek- white/ Tychem- Grey color) **OR** by Kimberly Clark (A30- white color)] and N95 respirators (all types) should be deposited into separate clearly labeled Yellow bins for Masks, and Red bin for PPE.

Note: Used coveralls should be kept in closed bins/sealed bags in separate locked room until they are collected for reprocessing and decontamination.

Requirements:

- Minimum two designated adjoining rooms (one decontamination room for actual decontamination process & one processing room with clean areas for packing and dispatching decontaminated coverall).
- Hydrogen Peroxide Vapor (HPV) generator + clothes-clips (plastic/wooden)+ clothes-lines/ curtain lines with hooks (for N95)
- 11% commercially available stabilized Hydrogen Peroxide (e.g. Baccishield or Ecoshield in hospital supply)
- Measurement cylinders
- Closed bins/large plastic bags
- Stool/chair for standing while clipping the coveralls
- Permanent markers.
- Sealing machine with plastic pack rolls.
- PPE requirement for the processing staff [gown, N95 masks, nitrile gloves, heavy duty gloves, goggles, face shield, long boots, sterilium).
- Logbooks

Working solution: Make doubling dilution of 11% Hydrogen Peroxide according to volume of the room (see table).

Choose cycle/running time depending on the volume of the room as indicated below:

Room Volume	Hydrogen Peroxide (11%) in ml	RO water in ml	Final volume	Cycle/Running time at 32 ml /min in SATEJ PLUS machine/ Fogger machine available for OT sterilization
1000 cu ft	100 ml	100 ml	200 ml	6 min
2000 cu ft	200 ml	200 ml	400 ml	12 min
3000 cu ft	300 ml	300 ml	600 ml	19min
4000 cu ft	400 ml	400 ml	800 ml	25min
5000 cu ft	500 ml	500 ml	1000 ml	31min
6000 cu ft	600 ml	600 ml	1200 ml	37min

Annexure-II: Protocol for Decontamination of Coveralls and N95 Respirators

Procedure: Have the clothes line placed at a height of around 7 ft. Keep a gap of 3ft between each line. Seal entire room (including AC vents), except the door, using brown tape.

- Clip coveralls to clothes-lines suspended at each shoulder or hand using hangers. Ensure that the zip is open to expose the inner part. Keep a gap of at least 1 foot between each coverall.
- N95 masks can be clipped by the elastic band/ or hung on hooks on the clothes line with a gap of half foot between each mask.
- Ensure that HPV generator is plugged in and in position (45 degree angle), and there are no obstructions between HPV generator and suspended coveralls.
- Exit decontamination room and doff the gloves and gown at threshold. Discard in red bin. Perform hand hygiene.
- Start the HPV generator
- Let the room be sealed for at least 2 hours after the cycle finishes
- This completes the decontamination cycle.
- Open door- you will see fog; check the machine container to confirm that the solution was used.
- Aerate by switching on ceiling fans for 4 hours.
- After completion of decontamination cycle, collect decontaminated PPE in a clean container. The staff should don fresh PPE again.
- The collected PPE should then be moved to the adjacent room.
- The coveralls should be folded properly and packed in plastic bags
- The N95 masks should be placed in a separate box and sealed—NEED to work this out as there are different types.

Note: Biological indicator containing *Geobacillus stearothermophilus* spores may be used weekly, in separate locations inside the room, for quality control purpose.

Annexure-III: Protocol for Re-use of Face shields and Goggles

Segregation: Used face shields/goggles should each be deposited into separate clearly labelled **RED** bins/bags.

Equipment and materials required: 0.5% sodium hypochlorite- freshly prepared (see annexure); 70% alcohol (Bacillol solution), red buckets, flat surface for drying, clean pads/wipes.

Procedure:

- Immerse face shields and goggles in buckets of freshly prepared (not more than 4 hrs old) 0.5 % sodium hypochlorite solution for 10 minutes.
- Take out the face shields/goggles from the bin.
- Dry on a flat surface.
- Only after the surface is completely dry, wipe all surfaces with 70% alcohol using a clean pad/wipes.
- Face shields/goggles can be used, once dry.
- Place these in a new clean container.

- **PPE for re-processing staff** (gown, N95 masks, nitrile gloves, heavy duty long gloves, goggles, face shield, long boots, alcohol based hand rub).
- Log book to maintain.

Annexure-IV: SOP to make 0.5% hypochlorite

I. Procedure when 10% Sodium Hypochlorite solution is in hospital supply: One part (1) of sodium hypochlorite solution in nineteen (19) parts of water.

II. Procedure when 4% Sodium Hypochlorite solution is in hospital supply: One part (1) of sodium hypochlorite solution in seven (7) parts of water.

Change solution after every four hours.

Emptying of bin containing sodium hypochlorite should be done in the sluice room. Infection Control Nurses in each area should help to standardize the protocol.

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