



Implementation of Biomedical Waste Management

COVID -19 Pandemic

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Background

BMW 2019

2 Revisions in 2019
Biomedical waste management (Amendment) 2019- Clarity on liquid waste management.
Biomedical waste management (2nd Amendment) 2019-Clarity on chlorinated plastic bags.

BMW 2016

Launch of Biomedical Waste Management Rules – by Ministry of Environment, forest & climate change – March 2016

18 & 25 March, 18 April, 10 June & 17 July 2020

Guidelines for management* of waste generated during diagnostics, treatment and Quarantine of COVID-19. (* Handling, treatment & disposal)

BMW 2018

Biomedical waste management (Amendment) 2018 – Broadly revision on few sections in BMW -2016 & revision of few deadlines

Biomedical Waste

- Any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological or in health camps, including the categories mentioned in Schedule I appended to these Rules” as per Biomedical Waste Rules 2016.

Categories of Bio medical Waste

Yellow

- Human Anatomical Waste – Placenta etc.
- Animal Anatomical waste
- Soiled waste – Gauze, Bandage
- Expired or Discarded drugs
- Chemical waste
- Chemical liquid waste
- Discarded linen. Mattress, Beddings contaminated with Blood, Body fluids,
- Microbiology, Biotechnology and Other Clinical Laboratory Waste

Red

Contaminated waste
(Recyclable)

White

Waste Sharp
including
metals

Blue

Glassware
Metallic
Implants

Applicable

- COVID -19 Isolation wards : (Where COVID-19 Positive patient are kept for treatment/diagnosis).
 - It includes temporary healthcare facilities like rail coach wards, COVID Care centres etc.
- Sample Collection Centre & Laboratories for COVID -19 suspected patients
- Quarantine Centres/Camps/ Home Quarantine or Home Care Facilities

Key Points to Remember

- Bins should be closed all the time
- Foot operated lids
- Both liners & bins must have sign of Biohazard Symbol
- Both liner & bins used in COVID wards must have labels of "COVID -19 waste" - as it helps CWTF to identify the waste for priority treatment.
- Double layer of liner – should be used- to ensure adequate strengthen & there is no leaks.
- Liner should be Non Chlorinated & not be less than 15 microns
- Segregation at source should be ensured (No segregation of waste in temporary waste collection /storage area)

Segregation of Waste



National Health Systems Resource Centre



Segregation of Waste



13-05-2021

National Health Systems Resource Centre



Segregation of Waste

- Non- plastic or Semi Plastic coverall
- Tissue
- Toiletries of COVID patient



All used masks
including triple layer &
N-95 masks



Disposable
linen gown



Head Cover/
cap



Shoe Cover



Any Non- plastic or Semi Plastic
coverall



Segregation of Waste



Goggles



HAZMAT
suits



Splash Proof
gown
Plastic Cover
on



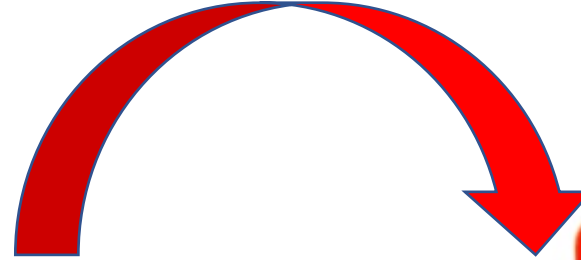
Face- Shield



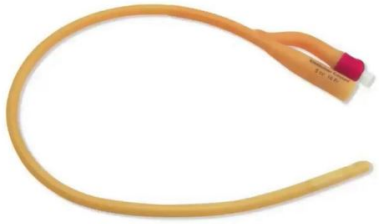
Nitril Gloves



National Health Systems Resource Centre



Segregation of Waste



Catheter



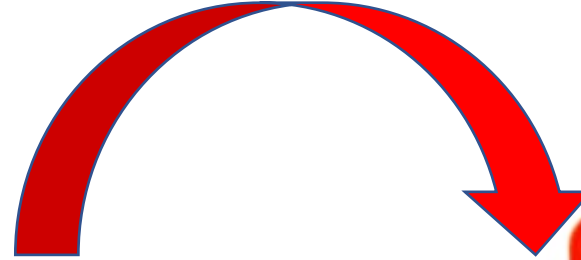
Syringe Without
Needle



Tubing, IV
bottles



Heavy utility
glove



Any recyclable
material



Segregation of Waste



Viral
Transport
Media



Pipette Tip



Vacutainer



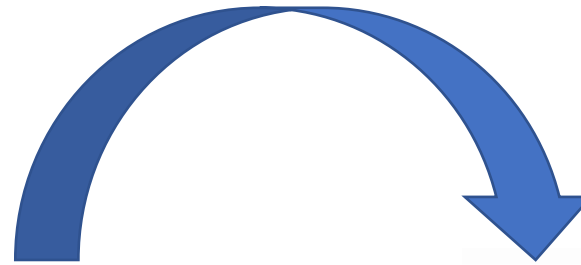
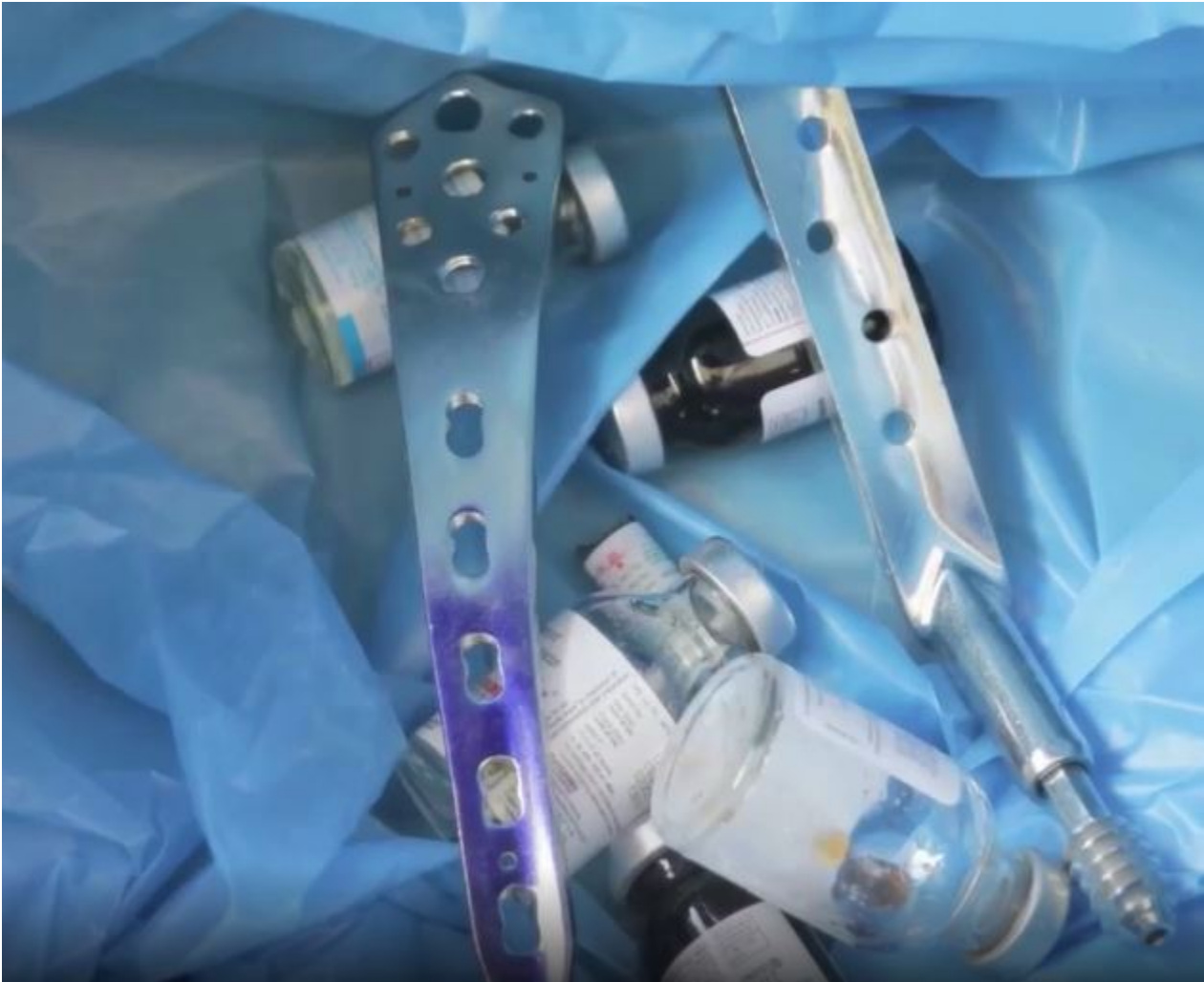
Testing Kits



Plastic Vial



Segregation of Waste

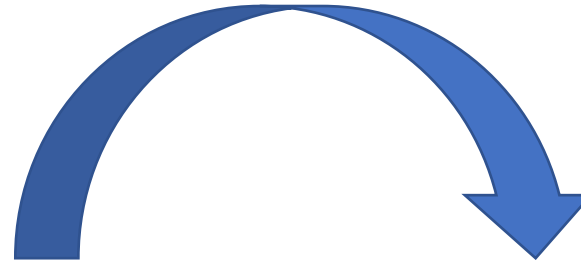


Glassware &
Metallic
Waste

Segregation of Waste



Sharp blade, different
type of needles &
Metallic Sharp waste



Fecal Management

- COVID -19 confirmed patient excreta, who is unable to use toilet should be collected in a diaper, which must be treated as a bio medical waste and should be placed in yellow bag/ container.
- However, if a bedpan is used, the faeces to be washed into toilet and cleaned with neutral detergent and water, disinfected with 0.5% chlorine solution, then rinsed with clean water.

Key Points to Remember

- Inner & outer surfaced of bins & container containing BMW – Should be disinfected- with 1% sodium hypochlorite solution daily.
- Dedicated bins & BMW trolleys for COVID -19 area.
- Waste should be handed over directly to CWTF or should be kept separately in hospital temporary storage areas



Collection and Transportation

- Use dedicated Collection bin labeled as “COVID-19” to store COVID -19 waste and keep separately in temporary storage room prior to handing over to CBWTF
- BMW waste collected in COVID isolation wards can also be lifted directly from ward into CBWTF collection van.
- Depute dedicated sanitation workers separately for collection waste so it can be transferred timely to temporary waste storage area



Report


- Maintain separate record of waste generated from COVID -19 isolation wards
- **Report opening** or operation of COVID-19 ward and COVID-19 ICU ward to SPCBs/PCCs and respective CBWTF located in the area.
- Register in CPCB mobile application namely '**COVID19BWM**' to update the details of COVID-19 biomedical waste generation

2.2 User Registration & Access

2.2.1 Registration Process



USER MANUAL
Android Mobile Application
&
Web Application



COVID19BWM
COVID-19 Biomedical Waste Tracking App
Version 1.0
28.05.2020

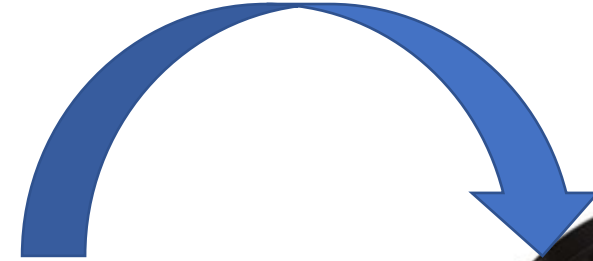
Linkage with CBWTF

- A CBWTF located within the respective State/UT shall be allowed to cater healthcare units situated at a radial distance of 75 KM.
- However, in a coverage area where **10,000 beds** are not available within a radial distance of 75 KM, existing CBWTF in the locality (located within the respective State/UT) may be allowed to cater the healthcare units situated upto 150 KM radius w.r.t its location provided the bio-medical waste generated is collected, treated and disposed of within 48 hours as stipulated under the BMWWM Rules.
- In case of hilly area, only one CBWTF with adequate treatment capacity may be developed covering at least two districts to cater for health facilities in these two districts.

In case of no linkages with CBWTFs – SPCB/ PCC

In case of States do 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 BMWWM Rules, 2016 and these guidelines. This may include permitting use of deep burial pits for disposal of yellow category waste as per standards prescribed in Schedule II of Bio-medical Waste Management Rules, 2016 – after seeking due approvals from SPCBs.

General Solid Waste- SWM Rules 2016



General Solid Waste- SWM Rules 2016

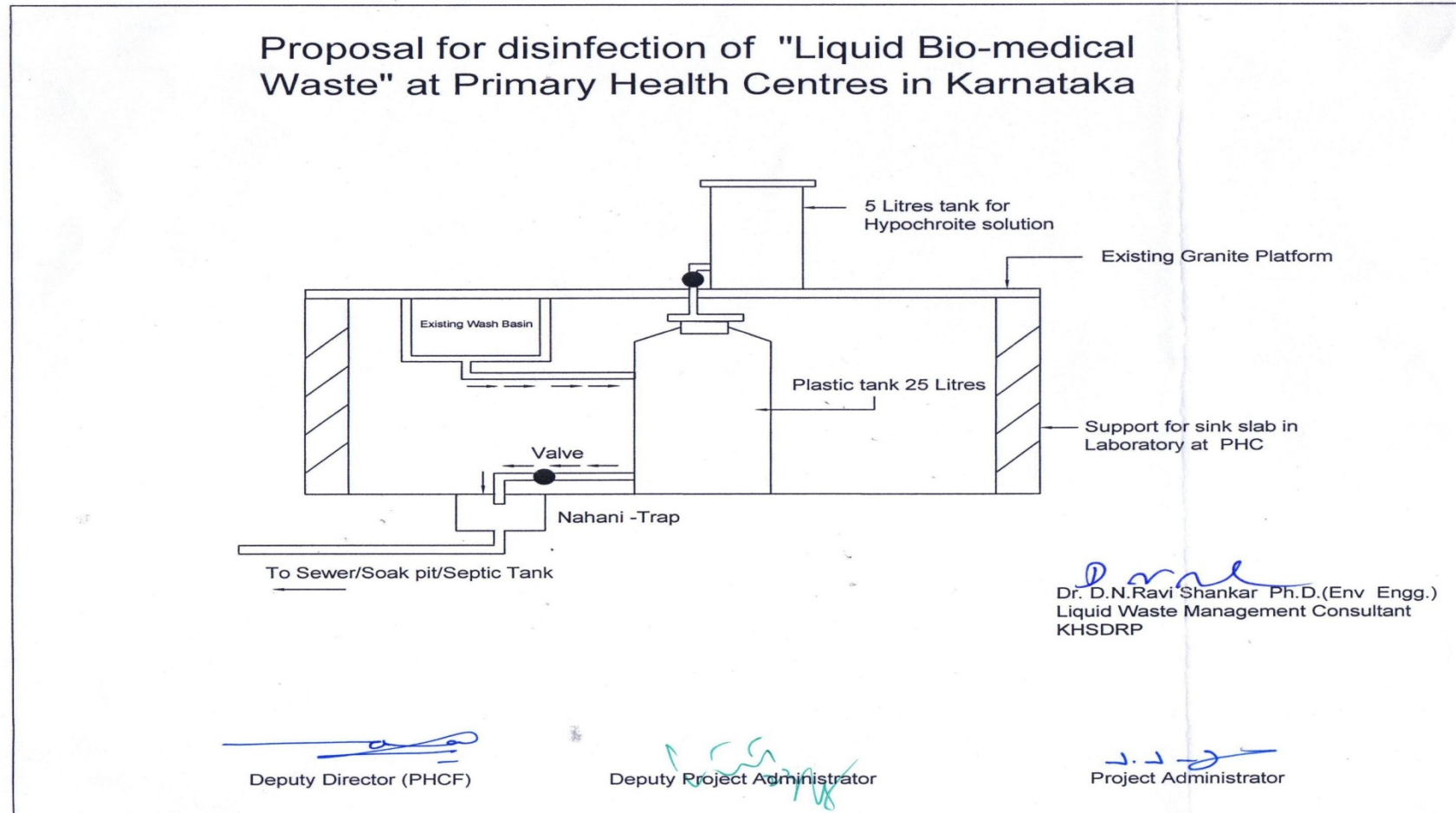
- Non-disposable items must be used for serving food,
- appropriate precautions are taken to clean and disinfect as per hospital guidelines.
- If use of disposable items is inevitable, use bio-degradable cutlery.
- The wet and dry solid waste bags to be tied securely in leak-proof bags
- Sprayed with sodium hypo-chlorite solution and hand over to authorized waste collector of ULB's on daily basis.
- Compostable bags should be used for collecting wet-waste.



Wastewater Management from HFCs/Isolation wards

- Responsible agencies are Healthcare Facilities/ Isolation wards/ Operators of terminal sewerage treatment plant (PHED/Jal Board etc.)
- HCF and agencies operating STP should continue to ensure disinfection of treated waste water as per prevailing practices to inactivate corona virus.
- Operators of ETPs/ STPs attached with discharge from Healthcare Facilities and isolation wards should follow standard precautions like use of PPE
- During period of COVID -19 pandemic, utilization of treated wastewater in utilities with in HCF may be avoided.

Liquid Waste Management Model for small facilities



Capacity Building

Training of Waste handler on :

- Sanitization ,
- Hand Hygiene,
- Respiratory Etiquettes,
- Social distancing,
- Appropriate use of PPE



Disposal of Used PPE

PPEs doffed by healthcare workers accompanying diseased body of COVID-19 patient to crematorium / graveyards should be treated as biomedical waste:

- Should be collected in separate bin with yellow-bag and handed over to authorized waste picker engaged by of ULBs for disposal through CBWTFs

or

- May ask healthcare staff to take-back the PPEs after collecting it in red and yellow bags/bins provided in the hospital ambulance itself.

Or

- May ask the healthcare workers to doff the PPEs at the hospital or healthcare unit from where they collected the corpse.

Sample Collection Centers and Laboratory Waste

- Report opening or operation of COVID-19 sample collection centers and laboratories to concerned SPCB/PCC.
- Above discussed guidelines are applicable to test centers and laboratories.
- Pre-treat viral transport media, plastic vials, vacutainers, Eppendorf tubes, plastic cryovials, pipette tips as per BMW Rules, 2016 and collect in Red bags.

Quarantine Centres/ Camps/ Home Quarantine or Home Care Facilities

- Only the used masks, gloves and tissues or swabs contaminated with blood / body fluids of COVID-19 patients, including medicines, etc., if any generated should be treated as bio-waste and collected in Yellow Bag – Provided by ULBs- Kept Separately.
- General solid waste should be generated from kitchen, packaging material, waste papers, plastics, floor cleaning dust, etc. in the home of quarantined persons and COVID-19 patient at home quarantine.
- General (solid waste) generated, securely tied and handed over to solid waste collector identified by Urban Local Bodies.

Yellow bags should not be used to store general solid waste

Quarantine Centres/ Camps/ Home Quarantine or Home Care Facilities

- Masks and gloves used by persons other than COVID-19 should be kept in paper bag for a minimum of 72 hours prior to disposal of the same as general waste
- Ensure cutting the same to prevent reuse.



Quarantine Centre/camp/ Home- Quarantine /Home care- ULBs



Availability of updated information with local admin. and provide to SPCB/ PCC



In Quarantine camps BMW is collected by CBWTF on call basis as identified by ULB

If Quarantine homes/home care units are less in no. – ULB may engage CWTF to collect waste from door to door



Engage authorized waste collectors for door step pick –up and transfer to collection points for further pickup by CWTF



ULBs engage CWTF for final disposal of BMW – from Q home/ home care /waste deposition centres

Key Points-

- No mixing of General Solid & BMW
- General solid waste should not be collected into Yellow bags
- ULB should provide contact details of CBTF operator to Quarantine Camps
- Provide Yellow coloured bags to person responsible for operating quarantine camp or home care (May be given by CWTF)
- Create team of workers for door waste collection – Designate staff to collect the waste
- Training is provides to waste collectors -
- PPE – 3 layer masks, splash proof gown, HD gloves, gum boots & safety google
- Agency operating quarantine centre /camp –Designate Nodal person- responsible for record generation & register centre/camp with COVID 19 BMW app & update the data

Key Points

- Use dedicated carts/trolleys/ vehicle to transport BMW & solid waste separately
- Ensure sensitization of vehicle with 1% sodium hypo. after each trip
- Bags containing general waste may be disinfected (1% sodium hypo) prior to disposal.

- Daily collection of segregated general solid waste from quarantine centers, home-care and hospitals
- Waste should be securely tied bags.
- General solid waste may be disposed as per SWM Rules, 2016, which may include disposal in landfills, waste to energy plants etc.
- In case of landfilling, identify dedicated area on landfill and the bags should be spread and covered daily with layer of soil or stabilized waste after sprinkled with lime / bleaching powder.
- Access to landfills sites should be strictly restricted

Personal Protective Equipment Donning & Doffing



Step 1

Remove
the
ornaments



Step 2

Wash the
hands



Step 3

Wear the
cap



Step 4

Wear the
shoe cover



Donning the PPE

Step 5

Sanitise
the Hands



Step 7

Wear the
Apron



Step 6

Wear the
inner Pair
of gloves



Donning the PPE

Donning the PPE

Step 8

Wear
Mask &
Goggles



Step 9

Wear
Hood



Step 10

Wear
Second
pair of
gloves



Step 11

Sanitize
the hands





Pre Requisites for Doffing



Step 1

Sanitise
the hands



Step 2

Remove
the outer
pair of
gloves



Doffing the PPE

Step 3

Remove
Hood

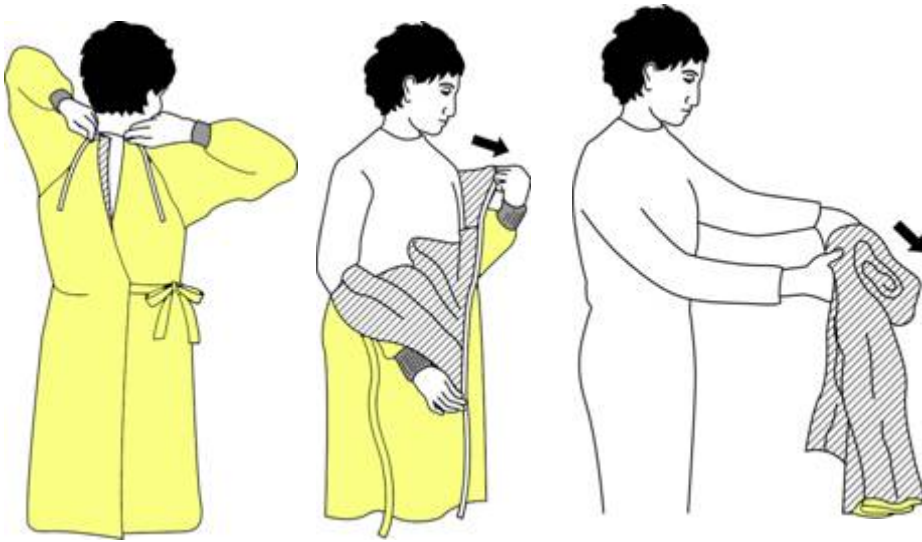


Step 4

Remove
the gown



Step 4: Removal of Gown



- Unfasten the ties
- Peel gown away from neck and shoulder
- Turn contaminated outside toward the inside
- Fold or roll into a bundle
- Discard

Step 5

Sanitize



Step 6

Remove
the shoe
cover



Step 7

Sanitize

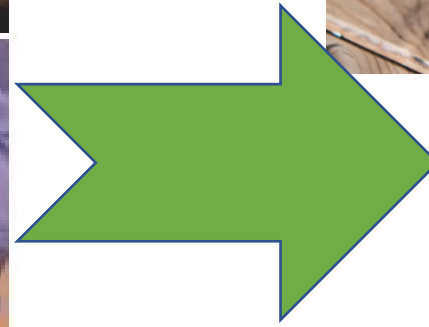


Step 8

Remove
Goggles,
Mask &
Cap



Doffing the
PPE





Step 9

Sanitize



Step 10

Remove
outer Pair
of gloves



Step 11

Sanitize



Step 12

Wash the
hands



Doffing the PPE

Notes:

Its Important to sanitise the hands after removal of each PPE.

Always turn contaminated outside toward inside

References

- Guidelines for Handling, Treatment, and Disposal of Waste generated during treatment/Diagnosis/ Quarantine of COVID -19 patients; March, April, June and July and its subsequent revisions.
- Bio Medical waste Management Rules 2016 and its subsequent amendments.
- WHO interim guidelines on WASH for the COVID-19 virus.
- Pictorial guide for Bio Medical Waste Management Rules 2016 (Amended in 2018, 2019)
- Revised Guidelines for Common Bio-medical Waste Treatment and Disposal Facilities - CPCB , 2016
- Ministry of Health and Family Welfare Directorate General of Health Services [Emergency Medical Relief]

Thanks

