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

**BMW 2019**
- 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 2016**
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
Segregation of Waste

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

All used masks including triple layer & N-95 masks

Head Cover/cap

Shoe Cover

Disposable linen gown

Any Non-plastic or Semi Plastic coverall
Segregation of Waste

- Goggles
- HAZMAT suits
- Face Shield
- Nitril Gloves
- Splash Proof gown
- Plastic Cover
Segregation of Waste

- Catheter
- Syringe Without Needle
- Heavy utility glove
- Tubing, IV bottles
- Any recyclable material
Segregation of Waste

- Viral Transport Media
- Vacutainer
- Plastic Vial
- Pipette Tip
- Testing Kits
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 biomedical 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
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 BMWM 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 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 BMWM 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

• 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 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 used syringes, medicines, etc., if any generated should be treated as biomedical waste – Collected in Yellow Bag – Provided by ULBs- Kept Separate dedicated dust bins.

• General solid waste should comprise of waste generated from kitchen, packaging material, waste papers, plastics, floor cleaning dust, etc. including left-over food, disposable utensils, water bottles, tetra packs, waste by suspected quarantined persons and COVID-19 patient at home quarantine.

• General solid waste (household waste) generated, securely tied and handed over to municipal 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.
In Quarantine camps BMW is collected by CBWTF on call basis as identified by ULB.

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

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.

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

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 6
Wear the inner Pair of gloves

Step 7
Wear the Apron
Donning the PPE

Step 8: Wear Mask & Googles

Step 9: Wear Hood

Step 10: Wear Second pair of gloves

Step 11: Sanitize the hands
Pre Requisites for Doffing
Doffing the PPE

Step 1
Sanitise the hands

Step 2
Remove the outer pair of gloves

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
Doffing the PPE

Step 5: Sanitize

Step 6: Remove the shoe cover

Step 7: Sanitize

Step 8: Remove Googles, Mask & Cap
Doffing the PPE

Notes:
- It's 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