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Approved by: Dr. Aman Warr Director Health Services (MI) Govt. of Meghalaya 30/06/2022 Signature & Date	**MANUAL FOR** **BIO-MEDICAL WASTE MANAGEMENT** **(Government approval: No.Health.339/2021/211 Dated Shillong the 17th May 2022)**	Page 1 of 103

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AMENDMENT RECORD

Amendment		Document no.	Amendment Details	Issue by	Rev Status
No.	Date				

DOCUMENT CONTROL

Manual Preparation:

The Manual defines the guidelines and standard procedures for the management of Bio-Medical Wastes at different level of public health institutions

Manual Approval and Issue:

The Director is the approval authority for printing the Manual. Director Health Services (MI) is also the issuing authority for this Manual.

The present issue of this Manual is Issue '01' and Revision '01', with all subsequent revisions to the sections incremented consequently.

Manual Distribution: The Director Health Services (MI) shall maintain the latest version of this Manual as **"MASTER COPY"** (original print with signatures used for photocopying). It shall bear the stamp **"MASTER COPY"** with a red seal stamp on the front page.

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The present issue of the Manual is Issue '01' and Revision '01'.

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3	Director Health Services (Research), Pasteur Institute, Lawmali, Shillong
4	Joint Director Health Services (SS), Civil Hospital, Shillong
5	Joint Director Health Services (Specialized Services), Directorate of Health Services (MI), Health Complex, Laitumkhrah, Shillong.
6	Medical Superintendent (Jt.DHS) Ganesh Das Hospital, Shillong
7	Joint Director Health Services (Garo Hills, Division), Tura
8	Joint Director Health Services (MCH &FW) State Nodal Officer Quality Assurance Program, Health Complex, Laitumkhrah, Shillong
9	State T.B. Officer-cum-Superintendent, R.P.Chest Hospital, Shillong
10	Project Director, Meghalaya AIDS Control Society, Pasteur Hills, Lawmali, Shillong
11	District Medical & Health Officer, East Khasi Hills, Shillong/West Khasi Hills, Nongstoin, South West Khasi Hills, Mawkyrwat/ Ri Bhoi District, Nongpoh/West Jaintia Hills, Jowai/East Jaintia Hills, Khliehriat/West Garo Hills, Tura/East Garo Hills, Williamnagar/South Garo Hills District, Bagmara/South West Garo Hills, Ampati/North Garo Hills, Resubelpara.
12	Superintendent Civil Hospital, Jowai/Tura/Nongpoh/Nongstoin/Williamnagar/Tirot Sing Memorial Hospital, Mairang/ Bagmara/Khliehriat/MCH Tura/MCH Jowai/Additional Superintendent, MIMHANS, Shillong
13	Principal, Regional Training Center, Health & Family Welfare, Shillong
14	Joint Director, Nursing, Directorate of Health Services (MI), Shillong
15	Medical & Health Officer IC PHCs/CHCs/State Dispensary
16	Nursing Superintendent of all district

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A. SCOPE OF THE MANUAL

The Scope of the manual applies to:

- Management & Handling of Bio-Medical Wastes by the health care providers at various levels of public health institutions and private hospitals in compliance with the Bio-Medical Waste Management Rules 2016 and subsequent amendments thereof

- Handling of Covid-19 Bio-Medical Wastes by the health care providers at Corona Care Centre/Home Isolation, in accordance with the Central Pollution Control Board (CPCB) Guideline on Handling of Covid-19 BMW and General solid wastes dt. July 21 2020

B. INTRODUCTION

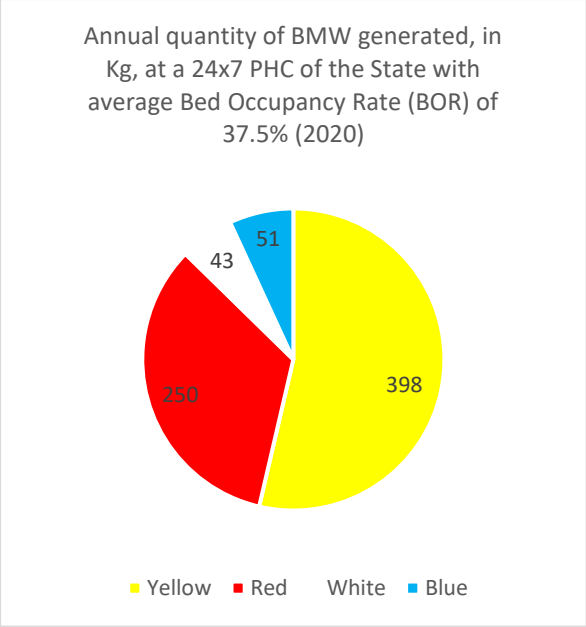
Bio-Medical Waste (BMW) management is one of the most important aspects of Infection Prevention and Control in a hospital setting. From time-to-time Central Pollution Control Board and State Pollution Control Board issue guidelines for strict compliance with the Bio-Medical Waste Management Rules 2016 and Bio-Medical Waste (Amendment) Management Rules 2018 & 2019 and these rules are notified under the provisions of the Environment Protection Act 1986.

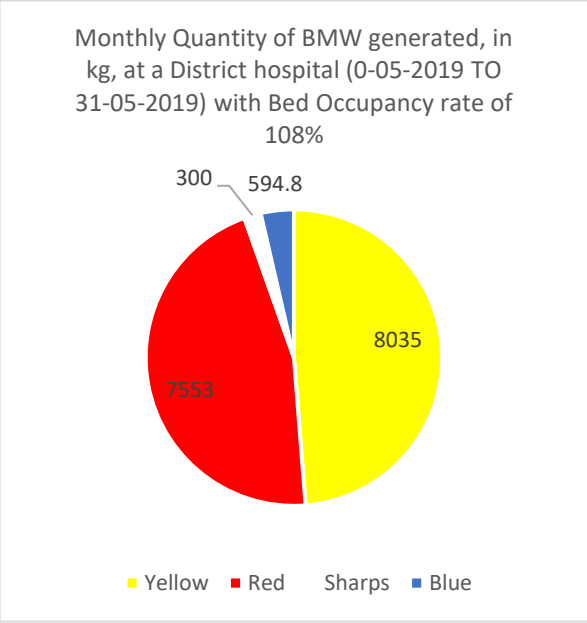
In the context of the on-going Covid-19 pandemic Bio-Medical Wastes generated out of diagnosis and care of Covid-19 suspects and patients are considered extremely infectious because of the high transmissibility of SARS-COV-2

Central Pollution Control Board (CPCB) has issued a number of guidelines for effective management of the Covid-19 BMW. An Apps based Covid19 BMW apps was created by the CPCB for daily monitoring of the generation, treatment & disposal of Covid-19 BMW.

Health and environmental risks arise out of poor infection control practices and unsound environment management systems such as inappropriate disinfection and poor Bio-Medical Waste handling, treatment, and disposal. The hazards associated with poor handling & management of BMW can never be underestimated and the outcome is often irreversible.

Considering the hilly terrain and the non-availability of a Common Bio-Medical Waste Treatment Facility (CBMWTF) in far flung districts of the state it is extremely challenging for the rural health facilities to provisionally manage the Bio-Medical Wastes.





However, the implementation of the Kayakalp Program by most PHCs/CHCs/DHs of the state has helped, to a great extent, in ramping up the institutional framework for effective implementation of the BMW Rules 2016 and subsequent amendments thereof.

C. HEALTH HAZARDS OF BIO-MEDICAL WASTES

The hazardous nature of Bio-medical wastes is due to the presence of the following:

i) Presence of infectious agents

ii) Presence of cytotoxic compounds

iii) Presence of used Sharps

Bio-medical wastes pose occupational hazards to the health care providers. The main people at risk of health hazards are:

i) Doctors, Staff Nurses, ANMs, Lab technicians, Dentist, Gr-IV. Housekeeping staffs, Chowkidar.

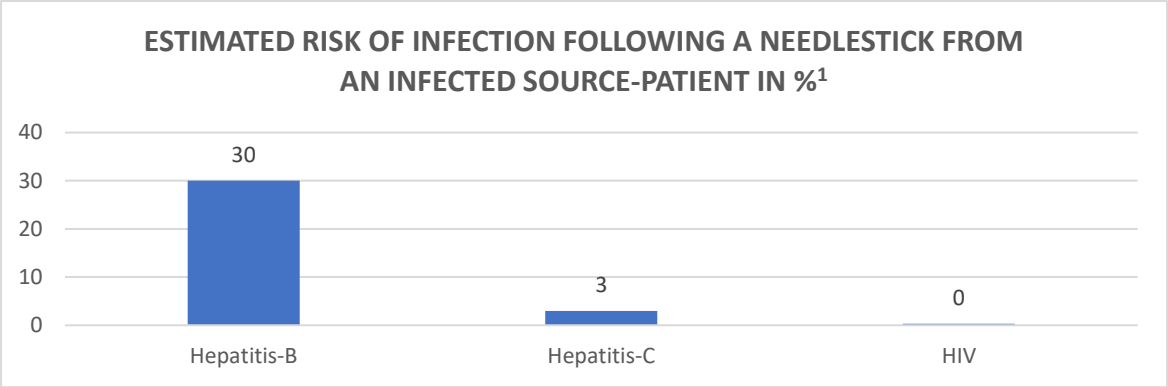
ii) Patients in health care facilities

iii) Visitors to health care facilities

Estimate indicate 600000 to 800000 needle stick injuries occur each year in the US. In India no concrete data is available. Amongst the health care workers staff nurses are the most vulnerable to needle stick injuries[1].

Staff prone to needle-stick injuries	**Relative % of injuries**
Staff nurses	34.6%
Interns	15.7%
Residents	11.7%

Trainee nurses	8.5%
Technical Staff	6%
Workers responsible for waste management / cleaning	19%
Others	4.5%



D. OVERVIEW OF BIO-MEDICAL WASTE MANAGEMENT RULES 2016

D.1. STATUTORY COMMITTEES:

Various committees are formed at various levels to oversee the implementation of the Biomedical wastes in accordance with the provisions of the BMW Rules 2016 and subsequent amendments thereof. The committees are integral & mandatory structural components pertaining to the effective and statutory compliance with the provisions of the rules. The following committees are formed at three levels in hierarchical order**:**

1. **State Level Advisory Committee (***see rule 11 of the Bio-Medical Waste Management Rules 2016***)**

Member	**Representation**
Chairperson	Chief Secretary/ Secretary Health & Family Welfare Govt. of Meghalaya
Member	Director Health Services (MI) / Joint DHS (MI) cum State Nodal Officer BMW
Member	Representative from Forest & Environment Department
Member	Representative from Meghalaya State Pollution Control Board
Member	Representative from Animal Husbandry Department
Member	Representative from Local Bodies/ Municipal Body
Member	Representative from IMA
Member	Representative from CBMWTF
Member	Representative from NGO
Scope/TORs: ➢ Oversee the overall implementation of the BMW Rules 2016 & Amendments thereof ➢ Give advice on structural & procedural improvements pertaining to the implementation of the BMW Rules 2016 & Amendments thereof	
Frequency of Meeting: 6 monthly	

2. **District Level Monitoring Committee (***see rule 12 (4) of the Bio-Medical Waste Management Rules 2016)*

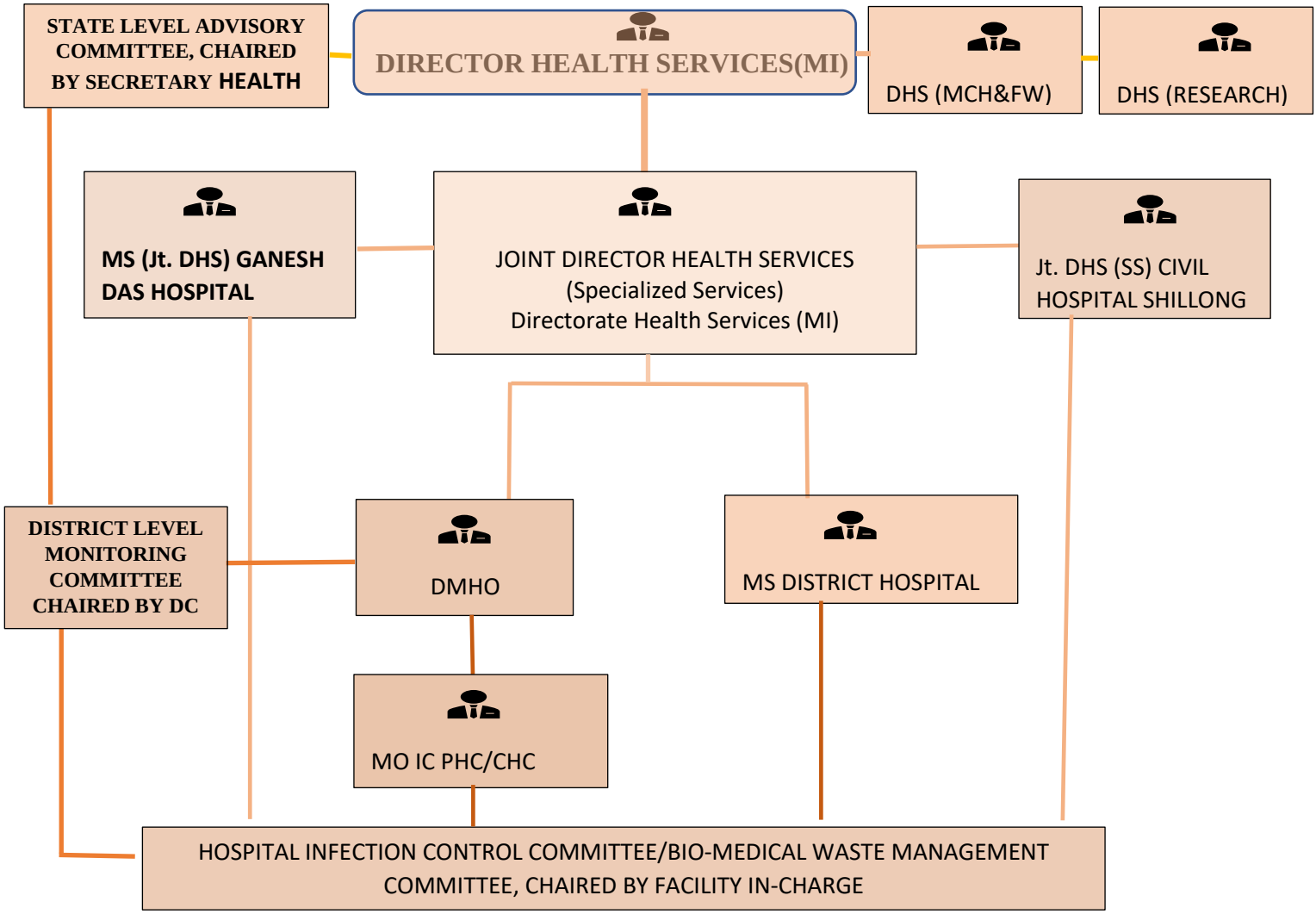
Member	**Representation**
Chairperson	Deputy Commissioner
Member Secretary	District Medical & Health Officer
Member	Representative from PHE Department
Member	Representative from Meghalaya State Pollution Control Board
Member	Representative from Local Bodies/ Municipal Body
Member	Representative from IMA
Member	Representative from CBMWTF if co-located in the district
Scope/TORs: ➢ Monitor the health institutions for their compliance with the provisions of the BMW Rules 2016 & Amendments thereof ➢ Monitor the pre-treatment, treatment & disposal of the Biomedical wastes in the district ➢ Submit a monitoring report to the State Advisory Committee every six months	
Frequency of Meeting: 6 monthly	

3. **Hospital Infection Control Committee (ICC)/Bio-Medical Waste Management Committee, (***mandatory for Health Care Facility (HCF) with 30 beds & above as per rule 4(r) of the Bio-Medical Waste Management Rules 2016* and with reference to the Kayakalp Guideline Govt. of India. For HCF <30 beds, shall designate a person to review/monitor the activities related to BMW as per the aforementioned proviso of the BMW rules 2016. (Under the Kayakalp Program similar committee shall be constituted by all participating HCFs)

Member	**Representation**
Chairperson	Medical Superintendent/ MO IC PHC/CHC
Convener	Infection Control Nurse (ICN)/ CHO PHC/CHC
Member	Pathologist/ Blood Bank In charge/ 2nd MO PHC/CHC
Member	OT In charge/ Sanitary Inspector PHC/CHC
Member	Microbiologist/Lab Technician
Member	Senior Pharmacist
Member	Quality manager/ Health Assistant PHC/CHC
Member	Gr-IV Staff (PHC/CHC
Scope/TORs: ➢ To prepare & approve the infection control policies & SOPs for BMW & Infection Control in the facility. ➢ To implement best infection control practices and BMW Rules 2016 & Amendments thereof ➢ To ensure Surveillance and collection of data related to hospital acquired infections and to conduct audit on the management of biomedical wastes ➢ To direct resources to address problems identified for effective management of infection control program. ➢ To ensure availability of appropriate supplies needed for IC at the facility. ➢ To facilitate & to support the training of the staff related to infection control & BMW. ➢ Ensure report outbreaks of Nosocomial infections in the facility to the district and/or state level as required.	

➢ Participate in outbreak investigations of Nosocomial infections ➢ To submit monthly/annual reports to the district and/ or State Pollution Control Board as required. ➢ To update the annual report of BMW on the facility website ➢ Ensure statutory compliance with the BMW Rules 2016 & Amendments thereof, by renewal of authorization.
Frequency of Meeting: 6 Monthly as per proviso to rule 4(r), or monthly for implementation of Kayakalp Program

ORGANOGRAM (BMW)



D.2. DEFINITIONS:(see rule 3 of the Bio-Medical Waste Management Rules 2016)

Bio-Medical Wastes: "bio-medical waste" means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or 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;

"**Act**" means the Environment (Protection) Act, 1986 (29 of 1986);

“Health care facility” means a place where diagnosis, treatment or immunisation of human beings or animals is provided irrespective of type and size of health treatment system, and research activity pertaining thereto

"Animal house" means a place where animals are reared or kept for the purpose of experiments or testing;

Occupier: Occupier means a person having administrative control over the institution and the premises generating bio-medical waste, which includes a hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, health care facility and clinical establishment, irrespective of their system of medicine and by whatever name they are called.

Authorization: means permission granted by the prescribed authority for the generation, collection, reception, storage, transportation, treatment, processing, disposal or any other form of handling of bio-medical waste in accordance with these rules and guidelines issued by the Central Government or Central Pollution Control Board as the case may be

Authorized Person: "authorized person" means an occupier or operator authorized by the prescribed authority to generate, collect, receive, store, transport, treat, process, dispose or handle bio-medical waste in accordance with these rules and the guidelines issued by the State Pollution Control Board, as the case may be.

Major accident: means accident occurring while handling of bio-medical waste having potential to affect large masses of public and includes toppling of the truck carrying bio-medical waste, accidental release of bio-medical waste in any water body but exclude accidents like needle prick injuries, mercury spills

Management: includes all steps required to ensure that bio- medical waste is managed in such a manner as to protect health and environment against any adverse effects due to handling of such waste

"**Biological**" means any preparation made from organisms or micro-organisms or product of metabolism and biochemical reactions intended for use in the diagnosis, immunisation or the treatment of human beings or animals or in research activities pertaining thereto;

"Bio-medical waste treatment and disposal facility" means any facility wherein treatment, disposal of bio-medical waste or processes incidental to such treatment and disposal is carried out, and includes common bio-medical waste treatment facilities;

“Form” means the Form appended to these rules;

“Handling” in relation to bio-medical waste includes the generation, sorting, segregation, collection, use, storage, packaging, loading, transportation, unloading, processing, treatment, destruction, conversion, or offering for sale, transfer, disposal of such waste;

"**Operator of a common bio-medical waste treatment facility**" means a person who owns or controls a Common Bio-medical Waste Treatment Facility (CBMWTF) for the collection, reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste;

"Prescribed authority" means the State Pollution Control Board in respect of a State and Pollution Control Committees in respect of an Union territory;

"Schedule" means the Schedule appended to these rules

Chronology of the BMW Rules & Guidelines

- ***July 20 1998****: Notification of Bio-Medical Waste (Management & Handling) Rules 1998 by the erstwhile Ministry of Environment & Forest*
- ***March 28 2016****: Notification of Bio-Medical Waste Management Rules 2016 by the Ministry of Environment, Forest & Climate Change*
- ***March 16 2018****: Notification of the Bio-Medical Waste Management (Amendment) Rules 2018*
- ***May 10 2019****: Notification of the Bio-Medical Waste Management (Amendment) Rules 2019*

- ***March 18 2020****: CPCB Guideline for Handling, treatment, disposal of Biomedical wastes generated during the diagnosis, treatment of Covid-19 patients: HCFs, quarantine camps/home-care, sample collection centres, labs, SPCBs, ULBs, CBMWTFs*
- ***March 25 2020, Revision-1****: CPCB Guideline for Handling, treatment, disposal of Biomedical wastes generated during the diagnosis, treatment of Covid-19 patients: specific duties of quarantine camps/homes, home-care, UL (c, f), states without CBMWTF.*
- ***April 18 2020, Revision-2****: CPCB Guideline for Handling, treatment, disposal of Biomedical wastes generated during the diagnosis, treatment of Covid-19 patients: requirements and responsibilities of persons operating* ***STP at HCFs, PPE disposal, lab waste and to clarify on management of general waste*** *from quarantine homes and* ***masks/gloves*** *from households*

- ***June 10 2020, Revision-3****: CPCB guidance on segregation of general solid waste and biomedical waste. Safety of waste handlers / sanitation workers associated with healthcare facilities, local bodies (ULBs) and CBWTFs in handling of biomedical waste and solid waste generated from quarantine centres /home-care/healthcare facilities treating COVID-19 patients*

- ***July 21 2020, Revision-4****: CPCB Revised guidance on segregation of general solid Waste and BMW from Quarantine centres/home-care/healthcare facilities treating COVID-19 patients*

Salient Features of the Bio-Medical Waste Management Rules 2016 and subsequent Amendments thereof:

The major salient features of BMW Management Rules, 2016 include the following:

Duties of Occupier: (*see rule 4 of the Bio-Medical Waste Management Rules 2016***)**

- *To provide a safe, ventilated and secured location for storage of segregated BMW within premises*
- *Phase out use of chlorinated plastic bags, gloves and blood bags within two years from the date of notification of these rules*
- *pre-treat the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or sterilisation on-site in the manner as prescribed by the World Health Organisation (WHO) or National AIDs Control Organisation (NACO) guidelines and then sent to the common bio-medical waste treatment facility for final disposal;*

- *dispose of solid waste other than bio-medical waste in accordance with the provisions of respective waste management rules made under the relevant laws and amended from time to time*
- *ensure segregation of liquid chemical waste at source and ensure pre-treatment or neutralisation prior to mixing with other effluent generated from health care facilities;*
- *ensure treatment and disposal of liquid waste in accordance with the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974)*
- *ensure occupational safety of all its health care workers and others involved in handling of biomedical waste by providing appropriate and adequate personal protective equipment*
- *conduct health check-up at the time of induction and at least once in a year for all its health care workers and others involved in handling of bio- medical waste and maintain the records for the same;*
- *maintain and update on day-to-day basis the bio-medical waste management register and display the monthly record on its website according to the bio-medical waste generated in terms of category and colour coding as specified in Schedule I;*
- *report major accidents including accidents caused by fire hazards, blasts during handling of biomedical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I to the prescribed authority and also along with the annual report*
- *Provide training to all its health care workers and others involved in handling of bio medical waste*
- *Immunization against Hepatitis B and tetanus for workers*
- *Establish a Bar-Code System for bags or containers containing bio-medical waste to be sent out of the premises*
- report major accidents including accidents caused by fire hazards, blasts during handling of biomedical waste and the remedial action taken and the records relevant thereto, (including nil report) in Form I to the prescribed authority and also along with the annual report
- make available the annual report on its web-site and all the health care facilities shall make own website within two years from the date of notification of these rules

Duties of Operator of common Bio-Medical Waste Treatment facility (CBMWTF) *(see rule 5 of the Bio-Medical Waste Management Rules 2016)*

- *Report major accidents and remedial measures to SPCB.*
- *Ensure timely collection of BMW from healthcare facilities*
- *Handing over of recyclable waste to after treatment by autoclaving and incineration*
- *Establish bar coding and GPS for handling within one year*
- *Assist health care facilities in training of workers*
- *Upgradation of existing incinerators and achievement of standards for secondary chamber*

Treatment & Disposal: (*see rule 7***)**

- *Bio-medical waste shall be treated and disposed of in accordance with Schedule I, and in compliance with the standards provided in Schedule-II by the health care facilities and common bio-medical waste treatment facility. (see rule 7(1))*

- *No healthcare facility shall setup onsite BMW treatment facilities if a CBMWTF exists within 75 kms of distance (see rule 7(3)*
- *In cases where service of the common bio-medical waste treatment facility is not available, the Occupiers shall set up requisite biomedical waste treatment equipment like incinerator, autoclave or microwave, shredder prior to commencement of its operation, as per the authorisation given by the prescribed authority (see rule 7(4)*
- *The Occupier or Operator of a common bio-medical waste treatment facility shall maintain a record of recyclable wastes referred to in sub-rule (9) which are auctioned or sold and the same shall be submitted to the prescribed authority as part of its annual report. The record shall be open for inspection by the prescribed authorities (see rule 7(10)*

Segregation, Packing Storage & Transportation:

- *No untreated bio-medical waste shall be mixed with other wastes.*
- *The bio-medical waste shall be segregated into containers or bags at the point of generation in accordance with Schedule I prior to its storage, transportation, treatment and disposal.*
- *The containers or bags referred to in sub-rule (2) shall be labelled as specified in Schedule IV.*
- *Bar code and global positioning system shall be added by the Occupier and common bio-medical waste treatment facility in one year time*
- *The vehicles used for transportation of bio-medical waste shall comply with the conditions if any stipulated by the State Pollution Control Board or Pollution Control Committee in addition to the requirement contained in the Motor Vehicles Act, 1988 (59 of 1988), if any or the rules made there under for transportation of such infectious waste.*
- *Untreated human anatomical waste, animal anatomical waste, soiled waste and, biotechnology waste shall not be stored beyond a period of forty –eight hours:*
- *Microbiology waste and all other clinical laboratory waste shall be pre-treated by sterilisation to Log 6 or disinfection to Log 4, as per the World Health Organisation guidelines before packing and sending to the common bio-medical waste treatment facility.*

  If required to store beyond 48 hours, the occupier shall ensure that it does not affect human health and inform the SPCB with reason

Authorization

- *One time Authorization for Non-bedded HCFs.*
- *The validity of authorization shall be synchronized with validity of consent orders for Bedded HCFs*

Monitoring of the Implementation of the Rules:

- *Every occupier shall submit an annual report to the prescribed authority by 30th of June every year*
- *Records of training of staffs on BMW should be submitted along with the annual reports*
- *The Annual reports shall be available on the websites of the occupier*

Maintenance of Records

- *Every authorised person shall maintain records related to the generation, collection, reception, storage, transportation, treatment, disposal or any other form of handling of bio-medical waste, for a period of five years, in accordance with these rules and guidelines issued by the Central Government or the Central Pollution Control Board or the prescribed authority as the case may be.*
- *All records shall be subject to inspection and verification by the prescribed authority or the Ministry of Environment, Forest and Climate Change at any time*

Accident Reporting:

- *In case of any major accident at any institution or facility or any other site while handling bio-medical waste, the authorised person shall intimate immediately to the prescribed authority about such accident and forward a report within twenty-four hours in writing regarding the remedial steps taken in Form I.*
- *Information regarding all other accidents and remedial steps taken shall be provided in the annual report in accordance with rule 13 by the occupier.*

Bio-Medical Waste Management Rules 2016 doesn't apply to the following types of wastes as they are covered under different acts enumerated below:

- Radioactive wastes
- Hazardous Chemicals
- Hazardous Waste
- E-Waste
- Lead Acid Batteries
- Municipal Solid Waste
- Hazardous microorganisms/genetically engineered microorganisms and cells

Salient Features of the Bio-Medical Waste Management (Amendment) Rules, 2018

- *all the health care facilities (any number of beds) shall make available the annual report on its web-site within a period of two years from the date of publication of Bio-Medical Waste Management (Amendment) Rules, 2018 (rule 3(iv)*
- *For disinfection of Bio-Medical waste with Sodium hypochlorite-based chlorine solution the final concentration of chlorine solution should be 1-2% (rule 7 (iii)(b) [therefore disinfection with 10% sodium hypochlorite with 30% final strength of chlorine solution as mentioned in Schedule-I Part-2(2) in the principal rules of 2016 is obsolete]*
- *Non bedded facilities to dispose of liquid waste after local disinfection (rule 8(4)*
- *Pre-treat to sterilize, biotechnology and other clinical laboratory waste (item 'h' under entry column 4 in Schedule-I), with non-chlorinated chemicals on-site as per World Health Organisation guidelines on Safe management of wastes from health care activities and WHO Blue Book, 2014, and thereafter sent for incineration (see rule 7 sub rule a(i)(C) of the Amendment Rules 2018.*

Salient Features of the Bio-Medical Waste Management (Amendment) Rules, 2019:

- *All bedded health care units, maintain and update on day-to-day basis the bio-medical waste management register and display the monthly record on its website according to the bio-medical waste generated in terms of category and colour coding as specified in Schedule I (Rule 2(i)*
- *All bedded health care facilities (any number of beds), make available the annual report on its web-site within a period of two years from the date of publication of the Bio-Medical Waste Management (Amendment) Rules, 2018;" (rule 2(ii))*
- *Health Care Facilities having less than ten beds shall have to comply with the output discharge standard for liquid waste by 31st December, 2019. (rule 3)*

D.3. SCHEDULES: There are 4 schedules (or parts) in the Bio-Medical Waste Management Rules 2016:

Schedule 1: Categorization and Management

Schedule 2: Standards for treatment and disposal of BMW

Schedule 3: Prescribed Authority and duties

Schedule 4: Label of containers, bags and transportation of Bio-Medical waste

D.4. CATEGORIZATION & MANAGEMENT (SCHEDULE-1)

Category	Type of Waste	Type of Bag or Container to be Used	Treatment and Disposal options
Yellow	**(a) Human Anatomical Waste**: Human tissues, organs, body parts and foetus below the viability period (as per the Medical Termination Act 1971, amended from time to time)	Yellow coloured non-chlorinated plastic bags	Incineration or plasma pyrolysis or deep burial
	(b) Animal Anatomical Waste: Experimental animal carcasses, body parts, organs, tissues, including the waste generated from animals used in experiments or testing in veterinary hospitals or colleges or animal houses.	-	-
	(c) Soiled Waste: Items contaminated with blood, body fluids like dressings, plaster casts, cotton swabs and bags containing residual or discarded blood and blood components.	Yellow coloured non-chlorinated plastic bags	Incineration or Plasma Pyrolysis or deep burial* In absence of above facilities, autoclaving or

			micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery.
	(d) Expired or Discarded Medicines: Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials etc.	Yellow coloured non -chlorinated plastic bags or containers	Expired `cytotoxic drugs and items contaminated with cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at $>1200^0$C or to common biomedical waste treatment facility or hazardous waste treatment, storage and disposal facility for incineration at $>1200^0$ C Or Encapsulation or Plasma Pyrolysis at $>1200^0$ C. All other discarded medicines shall be either sent back to manufacturer or disposed by incineration
	(e) Chemical Waste: Chemicals used in production of biological and used or discarded disinfectants	Yellow coloured containers or non-chlorinated plastic bags	Disposed of by incineration or Plasma Pyrolysis or Encapsulation in hazardous waste treatment, storage and disposal facility

	(f) Chemical Liquid Waste: Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, Silver Xray film developing liquid, discarded Formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, housekeeping and disinfecting activities	Separate collection system leading to effluent treatment system	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other waste water. The combined discharge shall conform to the discharge norms given in schedule-iii
	(g) Discarded linen, mattresses, beddings contaminated with blood or body fluid.	Non chlorinated yellow plastic bags or suitable packing material	Non- chlorinated chemical disinfection followed by incineration or Plazma Pyrolysis or for energy recovery. In absence of above facilities, shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery or incineration or Plasma Pyrolysis.
	(h) Microbiology, Biotechnology and other clinical laboratory waste: Blood bags, Laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures.	Autoclave safe plastic bags or containers	Pre-treat to sterilize with non-chlorinated chemicals on-site as per National AIDS Control Organisation or World Health Organisation guidelines thereafter for incineration

Red	**Contaminated Waste (Recyclable)** **(a)** Wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and fixed needle syringes) and vacutainers with their needles cut) and gloves	Red coloured non chlorinated plastic bags or containers	Autoclaving or microwaving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent to registered or authorized recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites. No
White (Translucent)	**Waste sharps** including Metals: Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharps	Puncture proof, Leak proof, tamper proof containers	Autoclaving or Dry Heat Sterilization followed by shredding or mutilation or encapsulation in metal container or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries (having consent to operate from the State Pollution Control Boards or Pollution Control Committees) or sanitary landfill or

			designated concrete waste sharp pit.
Blue	**(a) Glassware:** Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes.	Cardboard boxes with blue colored marking	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling
	(**b) Metallic Body Implants**	Cardboard boxes with blue coloured marking	

D.5. STANDARDS FOR TREATMENT OF BIO-MEDICAL WASTES

(See Schedule-II of Bio-medical Waste Management Rules 2016)

D.5.1. Standards for Autoclaving of BMW

Type of Autoclave	**Temperature**	**Pressure**	**Exposure/Residence Time**	
A -class (gravity driven)	121^0C	15 psi	60 minutes or more	*The air removed during the pre-vacuum, cycle should be decontaminated by means of HEPA and activated carbon filtration, steam treatment, or any other method to prevent release of pathogen
	135^0C	31psi	45 minutes or more	
	149^0C	52psi	30 minutes or more	
B-class (Pre-vacuum) *	121^0C	15 psi	45 minutes or more	
	135^0C	31psi	30 minutes or more	

- *Medical waste shall not be considered as properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process*
- *Attach an autoclave tape (process indicator) to each batch of waste as a routine test to see that the load has achieved the set sterilizing temperature through colour change of the process indicator, records should be maintained*
- *Conduct a weekly Spore test (biological indicator) and maintain records*

D.5.2. Standards for Chemical Disinfection**:**

Microbial inactivation efficacy is equated to "Log10 kill" which is defined as the difference between the logarithms of number of test microorganisms before and after chemical treatment.

Chemical disinfection methods shall demonstrate a 4 Log10 reduction or greater for Bacillus Subtilis (ATCC 19659) in chemical treatment systems

D.5.3. Standards for Liquid Waste:

The effluent generated or treated from the premises of occupier or operator of a common bio medical waste treatment and disposal facility, before discharge into the sewer should conform to the following limits

Parameters	**Permissible Limit**
Ph	6.5-9
Suspended Solids	100mg/l
Oil & Grease	10mg/l
BOD	30mg/l
COD	250mg/l
Bio-essay test	90% survival after 96 hours in 100% effluent

D.5.4. Standards for Deep Burial: (Deep burial is allowed only in far flung rural area where there is no access to CBMWTF)

- A pit or trench should be dug about two meters deep. It should be half filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil.
- It must be ensured that animals do not have any access to burial sites. Covers of galvanised iron or wire meshes may be used.
- On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes.
- Burial must be performed under close and dedicated supervision.
- The deep burial site should be relatively impermeable and no shallow well should be close to the site.
- The pits should be distant from habitation, and located so as to ensure that no contamination occurs to surface water or ground water. The area should not be prone to flooding or erosion. (7) The location of the deep burial site shall be authorised by the prescribed authority.
- The institution shall maintain a record of all pits used for deep burial.
- The ground water table level should be a minimum of six meters below the lower level of deep

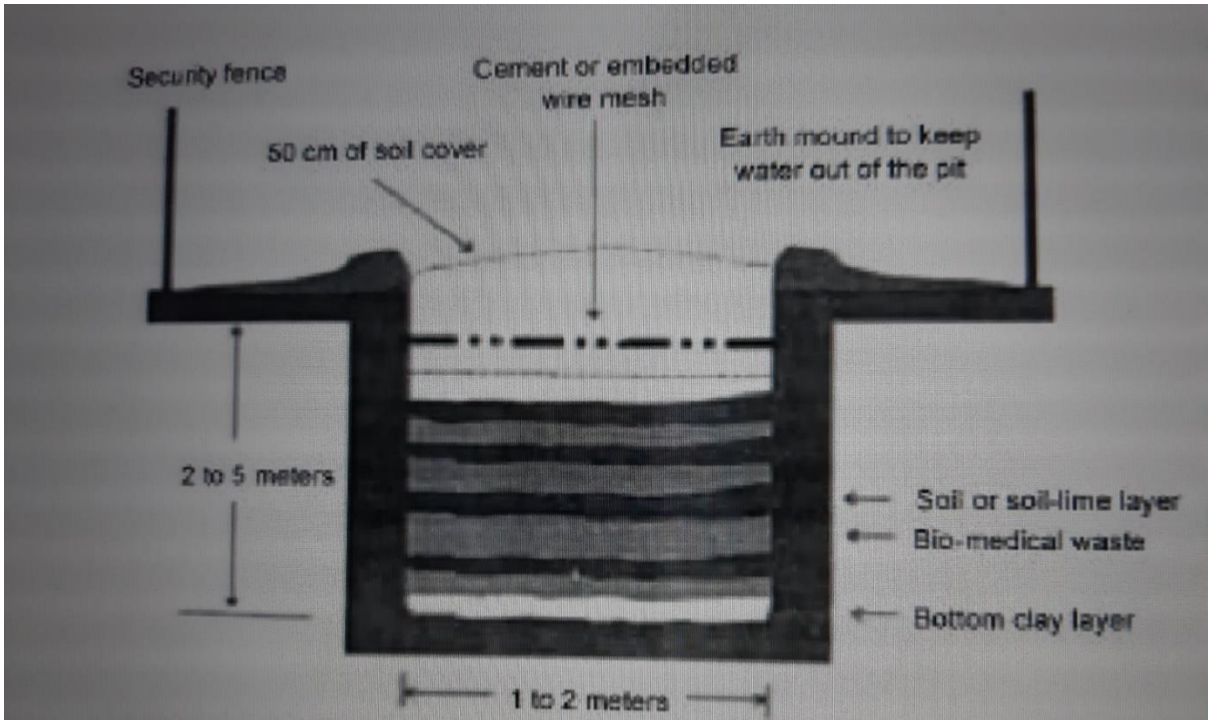


Figure 1: Layout of Deep Burial Pit

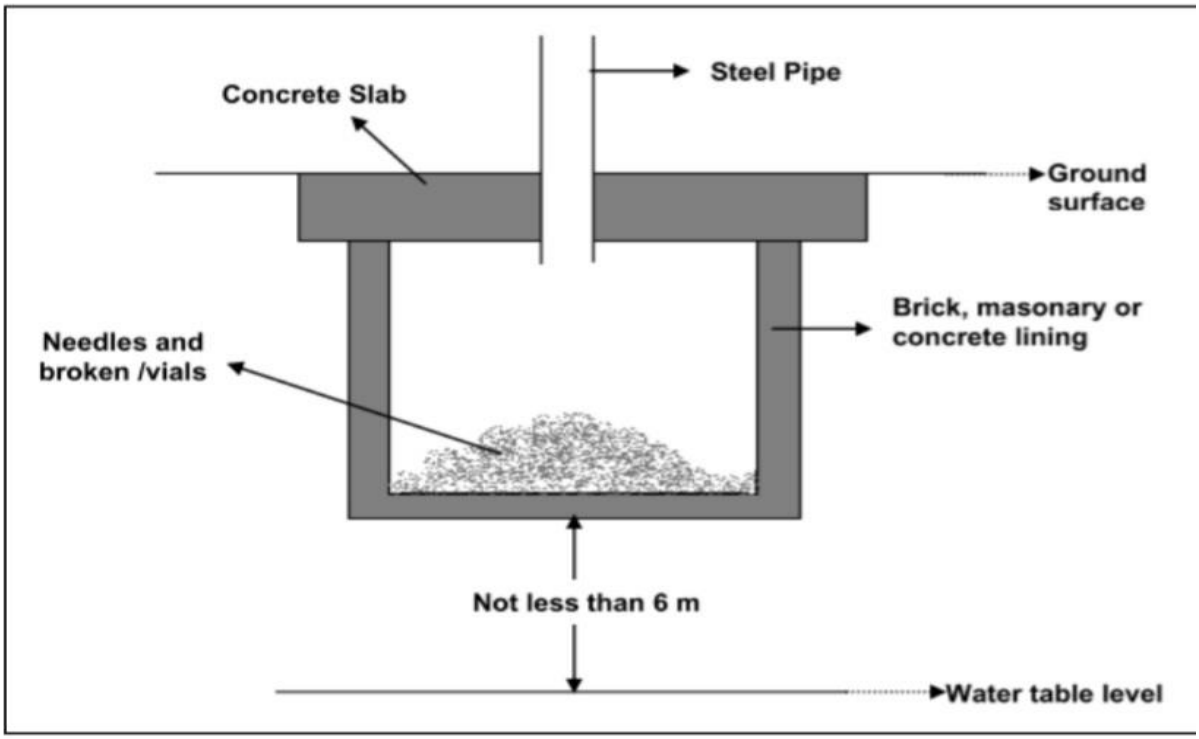


Figure 2: Layout of Sharps Pit

D.5.5. Standards for Incineration:

- Combustion efficiency (CE) shall be at least 99.00%.
- The Combustion efficiency is computed as follows (CE): $\frac{\%\,CO2}{(\%CO2+\%CO)}x100$

- The temperature of the primary chamber shall be a minimum of 800^{o}C and the secondary chamber shall be minimum of 1050^{o}C ±50^{o}C.
- The secondary chamber gas residence time shall be at least two seconds with minimum 3 % Oxygen in the stack gas.
- The Stack height should be minimum of 30 m above ground level and shall be attached with the necessary monitoring facilities as per requirement of monitoring of 'general parameters' as notified under the Environment (Protection) Act, 1986 and in accordance with the CPCB Guidelines of Emission Regulation Part-III.

D.6. LABELS FOR CONTAINER, BINS, TRANSPORTS VANS AND BAGS *(See Schedule-IV of the BMW Management Rules 2016)*

PART-A: Labels for Bio-Medical Waste containers or Bags

HANDLE WITH CARE

CYTOTOXIC HAZARDSYMBOL

HANDLE WITH CARE

Part B: LABEL FOR TRANSPORTING BIO-MEDICAL WASTE BAGS OR CONTAINERS

Day .....Month .....
Year .....
Date of generation .....
Waste category Number .....
Waste quantity……

Sender's Name and Address:	Receiver's Name and Address:
Phone Number	Phone Number .....
Fax Number.....	Fax Number .....
Contact Person	Contact Person .....

In case of emergency please contact:
Name and Address:
Phone No.
Note: Label shall be non-washable and prominently visible.

D.7. COLOR CODING OF CONTAINERS AND BAGS (*see Schedule-I of the BMW Management Rules 2016)*

Category of Bio-Medical Waste	**Type & Colour of Container**	**Type & Colour of Waste Bag**
Yellow		BIS Standards 
RED		BIS STANDARDS 
BLUE		BIS STANDARDS, BLUE
WHITE		NA

E. REQUIREMENT FOR THE MANAGEMENT OF BIO-MEDICAL WASTE AT HEALTH CARE FACILITIES

E.1. Man Power

Level of Facility	**Hospital Infection Control Committee (ICC)/Bio-Medical Waste Management Committee**	**Waste Handlers (existing staffs at all levels of facilities)**	**Capacity building**
Health & Wellness Sub Centre	Not required	ASHAs/ ANMs/MLHP/SWs	Training at time of induction or 6 monthly
PHC	Constitution of Hospital Infection Control Committee with representations from all allied department, to be chaired by Facility In-charge. Vide TORs in section D.1.3	Staff Nurses, Lab technicians, Doctors, ANMs, Grade-IV staffs, Pharmacists, ambulance drivers, Cold chain handlers, Dentists	Training at time of induction or 6 monthly
CHC	Constitution of Hospital Infection Control Committee with representations from all allied department, to be chaired by Facility In-charge. Vide TORs in section D.1.3	Staff Nurses, Lab technicians, Doctors, ANMs, Grade-IV staffs, Pharmacists, ambulance drivers, Cold chain handlers, Dentists, Radiographers	Training at time of induction or 6 monthly
DISTRICT HOSPITALS/STATE HOSPITAL/PVT HOSPITAL	Constitution of Hospital Infection Control Committee with representations from all allied department, to be chaired by Facility In-charge. Vide TORs in section D.1.3	Staff Nurses, sister in charge, Lab technicians, Doctors, ANMs, Grade-IV staffs, Pharmacists, ambulance drivers, Cold chain handlers, Microbiologists, Pathologists, Blood bank staffs, Mortuary staffs. Recruitment of	Training at time of induction or 6 monthly

		Infection control Nurse per 100 beds	
PASTEUR INSTITUTE	Constitution of Hospital Infection Control Committee with representations from all allied department, to be chaired by Facility In-charge. Vide TORs in section D.1.3	Pathologist. Microbiologists, Biochemist, Lab technicians, Staff nurses blood bank, Gr-iv staffs	Training at time of induction or 6 monthly

E.2. Infrastructure & Materials

Level of Facility	**Health Sub Centre**	**PHC**	**CHC**	**District Hospital/Pvt hospitals**	**Pasteur Institute**
Waste Storage room	Required	Required	Required	Required	Required
Deep Burial Pit	Required	Required	Required	Required if there is no access to CBWTF	Not required
Sharps Pit	Required	Required	Required	Required	Required
ETP	Local Disinfection	mandatory	mandatory	mandatory	Mandatory
Waste Bins	4	Red bin =7 Yellow bin=7 Blue bin=7 White translucent bin=7	Red bin =7 Yellow bin=7 Blue bin=7 White translucent bin=7	Red Bin = 24 Yellow Bin=27 Blue bin=16 White Translucent bin=17	Red Bin = 7 Yellow Bin=7 Blue bin=6 White Translucent bin=6
Waste Bags	Red bag @ 40/month; Yellow bag @40/month	Red bag @210 bags/month Yellow bag @210 bags/month	Red bag @210 bags/month Yellow bag @210 bags/month	Red bag @44 bags/24hrs = 1320 bags/month Yellow bags@58 bags/24 hrs = 1740 bags/month	Red bag @17bags/24hrs = 510 bags/month Yellow bags@17 bags/24 hrs = 510 bags/month

Sodium Hypochlorite Solution	1 litre/month	65x110 ml = 7150ml = **7.1 litres** /month. (A PHC generates approximately 65 KG/month of BMW. For disinfection, 1 kg of BMW requires approximately 110ml of Sodium hypochlorite solution (10% stock solution)	65x110 ml = 7150ml = **7.1 litres** /month. (A CHC generates approximately 65 KG/month of BMW. For disinfection, 1 kg of BMW requires approximately 110ml of Sodium hypochlorite solution (10% stock solution)	1306x110ml= 143,660ml = **144 litres**/month (a DH generates approximately 15666kg/year or 1306kg/month of BMW (red, yellow, white). For disinfection, 1 kg of BMW requires approximately 110ml of Sodium hypochlorite solution (10% stock solution)	840X110ml = 92400ml= **92.4 litres/month** (Pasteur Institute generates 10008kg/year or 840kg/month of BMW (Red, yellow, White & Blue). For disinfection, 1kg of BMW requires approximately 110ml of Sodium Hypochlorite solution (10% stock solution)
Spill Kit	1kit	2 kits	2 kits	5 kits	2 KITS
Bleaching Powder	400gm	65x40gm = **2600gm = 2.6 kg/ month*** (A PHC generates approximately 65 KG/month of BMW. For disinfection, 1 kg of BMW requires approximately 40gm of bleaching powder (25% label strength)	65x40gm = **2600gm = 2.6 kg/ month**. (A CHC generates approximately 65 KG/month of BMW. For disinfection, 1 kg of BMW requires approximately 40gm of bleaching powder (25% label strength)	1306 x40gm = **52240gm = 52 kg/ month**** (A DH generates approximately 1306 KG/month of BMW. For disinfection, 1 kg of BMW requires approximately 40gm of bleaching powder (25% label strength)	840X40gm = 33600gm= **33.6kg/month** (Pasteur Institute generates 10008kg/year or 840kg/month of BMW (Red, yellow, White & Blue). For disinfection, 1kg of BMW requires approximately 40gm of bleaching powder (25% label strength)
PPE	Required	Required	Required	Required	Required
PEP (Post Exposure Prophylaxis Kit)	Required	Required	Required	Required	Required

*BMW Record of Nartiang PHC (2019); ** BMW Record of Civil Hospital Ialong (2019)

E.3. Equipment.

Level of Facility	**Health Sub Centre**	**PHC**	**CHC**	**District Hospital/Pvt Hospitals**	**Pasteur Institute**
Autoclave	18 litre, portable vertical autoclave	25 litres portable vertical autoclave	25 litres portable vertical autoclave	50 litres portable vertical autoclave =2	50 litres portable vertical autoclave =2
Shredder	Not required	1	1	1	1
Waste Trolley	Not required	1	1	2	1
Hub Cutter	2 pieces	-	-	-	-
Needle Destroyer	1	7	7	20	6
Bar Code Scanner	Not required	Not required	required	1	Not required
Bluetooth enabled digital weighing machine	Not required	Not required	required	1	Not required

E.4. Statutory Requirement

Level of Facility	**Authorization**	**Approval for Deep Burial**	**Consent to Establish (CTE)**	**Consent to Operate (CTO)**
Health Sub Centre	One time Authorization	Prior approval from MSPCB	Not applicable	Not applicable
PHC	Renewal of Authorization annually	Prior Approval from MSPCB	mandatory	mandatory
CHC	Renewal of Authorization annually	Prior Approval from MSPCB	mandatory	mandatory
District Hospital/Pvt hospital/ Pasteur Institute	Renewal of Authorization annually	Prior Approval from MSPCB	mandatory	mandatory

E.5. BUDGET

Level of Facility	**Initial Expenses**												**Recurring Expenses**								
													Annual				**Monthly**				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
	Fee for CTE	**Hub Cutter**	**Needle Destroyer**	**Waste Bins (foot pedal)**	**Waste Trolley**	**Autoclave**	**Shredder**	**Bar code Scanner**	**Digital weighing Machine**	**Deep Burial Pit**	**Sharps Pit**	**ETP Installation**	**Authorization fee (annual)**	**Printing of Log Books**	**PPE**	**Training**	**Authorized collector's Fee**	**Sodium Hypo**	**Bleaching Powder**	**Waste Bags**	**Total (B ▼ U)**
Health sub centre	NA	@200x2 =Rs.400	0	@Rs.350x4 =Rs.1050	NA	Rs.10000	NA	NA	Rs.6000	Rs.148000	Rs.99850		Rs.650 one time	Rs.1000/year	Rs.1500	-	-	Rs.200	Rs.40	Rs.200	Rs.268890
PHC	Est	Rs.200	@Rs.2000x7 =Rs.14000	@Rs.350x28=Rs.9800	@Rs.8000	Rs.10000	Rs.150000	NA	Rs.6000	Rs.148000	Rs.99850	Est	Rs.1250	Rs.1500/year	Rs.1500	Rs. 2000	Rs.3000	Rs.1200	@Rs.40x7 packets = Rs.280	Yellow: Rs.1000 Red : Rs.1000 Total =Rs.2000	Rs.463080
CHC	Est	Rs.200	@Rs.2000x7 =Rs.14000	@Rs.350x28=Rs.9800	@Rs.8000	Rs.10000	Rs.150000	NA	Rs.6000	Rs.148000	Rs.99850	Est	Rs.1250	Rs.1500/year	Rs.1500	Rs. 2000	Rs.3000	Rs.1200	@Rs.40x7 packets = Rs.280	Yellow: Rs.1000 Red : Rs.1000 Total =Rs.2000	Rs.463080
DH	Est	@Rs200 x No. of Sharps Points	@Rs.2000x20 =Rs.40000	@Rs.700x84 =Rs.63000	@Rs.8000 x 2 =Rs.16000	@Rs.50000 x2 =Rs.100000	Rs.150000	Rs.4520	Rs.20510	Rs.148000	Rs.99850	Est	Rs.3500	Rs.2000	Rs.3000	Rs.6000	Rs.3000	Rs.28800	Rs.40x130 packets =Rs.5200	Yellow: Rs. 8800 Red: Rs.6600 Total= Rs. 15400	Rs.708980
PVT HOSPITAL	Est	-	-	-	-	-	-	-	-	-	-	Est	-	-	-	-	-	-		-	-
PASTEUR NSTITUTE	Est*		@Rs.2000x6 = Rs.12000	@Rs.750x26 =Rs.19500	@Rs.8000x1	@Rs.50000 x2 =Rs.100000	Rs.150000	NA	Rs.6000	-	Rs.99850	Est	Rs.3500	Rs.2000	Rs.3000	Rs.6000	-	Rs.18520	Rs.40x84 packets=Rs.3360	Red =Rs.2600 Yellow: Rs.2600	Rs.4,36,930

*Est: separate estimate

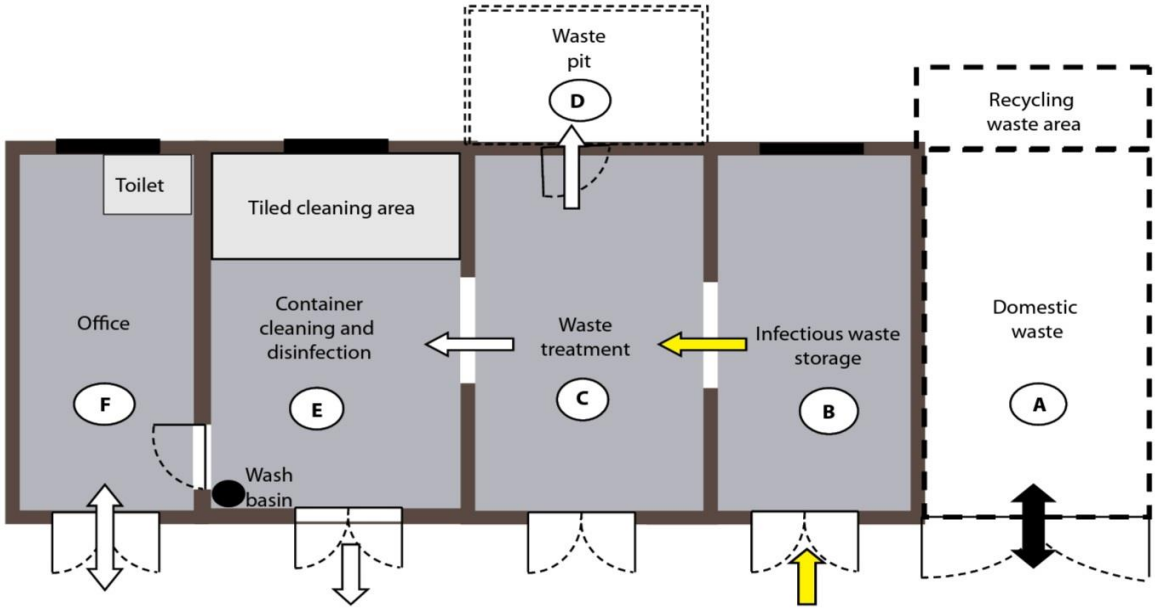


Figure 3: Layout of a Bio-Medical Waste Storage Room (WHO Blue Book 2014)

F. HANDLING OF BIO-MEDICAL WASTES AT VHNDs/RI SESSIONS/HEALTH CAMPS

F.1. SEGREGATION OF BIO-MEDICAL WASTES AT VHNDs/RI SESSIONS

Category	Type of waste	Colour of bag/container	Job Responsibility	Standard Precautions
Yellow (a)	Placenta (home delivery by SBA)	Yellow	ANM/MLHP	3 ply mask, gloves, hnd hygiene
Yellow (c)	Soiled waste including Cotton swabs	Yellow Bag	ASHA, ANM, SW	3 ply mask & gloves, hand hygiene
Procedure: ➢ ASHAs, ANMs, MLHPs segregate cotton swabs in Yellow Bag ➢ If delivery by SBA happening at home, placenta to be segregated in yellow bag				
Red	Syringes, Gloves	Red Bag	ANMs/MLHPs	3 ply mask & gloves, hand hygiene
Procedure: ➢ ANMs, MLHPs segregate syringes & gloves in Red Bag				
Blue	Used/broken diluent ampoules,	Card box	ANMs/MLHPs	3 ply mask & gloves, hand hygiene
Procedure: ➢ ANM, MLHP discard broken ampoules, medicine vials into a Blue container				

White	Needles	Hub cutter	ANMs/MLHPs	3 ply masks & gloves, hand hygiene
Procedure: ➢ ANMs, MLHPs cut hub of AD syringe in the Hub cutter				

F.2. COLLECTION & TRANSPORTATION OF BIO-MEDICAL WASTES AT VHNDs/RI SESSIONS

Category of Waste	**Mode of collection & on-site transport**	**Job Responsibility**	**Standard Precautions**
Yellow (a) , (c), (f)	Collection in Yellow bag at the end of RI sessions and transport from session site to PHC waste storage room	Chowkidar	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene
Procedure: ➢ At the end of RI sessions at VHND platform, the yellow bag is secured with a tie and chowkidar collects and carries the yellow bag back to the sub centre ➢ Upon arrival at the sub centre the ANM/MLHP records the weight of the waste and dispose of the waste into the deep burial pit located in the sub centre compound ➢ ANM/MLHP conducting delivery at home to take the yellow bag containing placenta and carry it back to sub centre, records the weight, and to dispose the waste into the deep burial pit of the sub centre ➢ The ANM/MLHP discards the empty yellow bags into a red bag for treatment & disposal by the PHC ➢ If deep burial pit is not available, chowkidar carry the wastes to the PHC for disposal by deep burial ➢ ANM/MLHP to collect all disinfecting fluid/housekeeping liquid in a house keeping bucket and record the quantity, treat the fluid with 1% chlorine solution and discharge into a soakage pit			
Red	Collection in Red bag, at the end of RI sessions, and transport from session site to PHC waste storage room	Chowkidar	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene

Procedure:

- At the end of RI sessions at a VHND platform, the red bag is secured with a tie and chowkidar collects and carries the red bag back to the PHC
- Upon arrival at the PHC waste storage room he/she informs the sister on duty and hands over the red bag.
  Sister on duty records the weight and makes entry in the PHC Waste Log book

White	Collection in a hub cutter, at the end of RI sessions, and take back from session site to PHC waste storage room	Chowkidar	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene

Procedure:

- At the end of RI sessions at a VHND platform, chowkidar collects the hub cutter back to the PHC along with the vaccine carrier.
- Upon arrival at the PHC waste storage room he/she informs the sister on duty and hands over the hub cutter.
- Sister on duty records the weight and makes entry in the PHC Waste Log book.
  The needles in the hub cutter are emptied into a Sharps bin in the PHC waste storage room and the hub cutter is disinfected with 1% chlorine solution for 30 minutes. The hub cutter is hand back to the chowkidar

Blue	*Procedure:* - At the close of the session the chowkidar collects the broken diluent ampoules, in a blue container, and take back to the PHC waste storage room,

G. **HANDLING OF BIO-MEDICAL WASTES AT HEALTH SUB CENTER**

G.1. **SEGREGATION**

Category	Type of wastes	Colour of container	Job Responsibility	Standard Precautions
Yellow (a)	Placenta generated in the LR	Yellow bin with foot pedal	ANM/MLHP	Delivery gown, 3 ply masks, gloves, hand hygiene
Procedure: - ANM/MLHP segregates the placenta in a yellow bin with foot pedal				

Yellow (c)	Soiled waste – cotton swabs, dressings	Yellow bin	ANM/MLHP	On-duty dress code, masks, gloves, hand hygiene
Yellow(f),	housekeeping, disinfecting fluid, liquid waste from sink of HWC lab. Lab sink or Labour room sink to have direct connection to a local liquid waste treatment facility (soakage pit)	Mop bucket	ANM/MLHP	On-duty dress code, 3 ply masks, gloves, hand hygiene
Procedure: ➢ *ANM/MLHP to collect the housekeeping fluid/disinfecting fluid in a mop bucket*				
Red	Syringe, distill water plastic container, gloves, IV lines & IV bottles , IV canula	Red bag	ANMs/MLHPs	On-duty dress code,3 ply masks, gloves, hand hygiene
Procedure: ➢ ANMs, MLHPs segregate the syringes and gloves in Red Bag				
Blue	Broken ampoules, medicine vials	Card box	ANMs/MLHPs	On-duty dress code, m3ply masks, gloves, hand hygiene
Procedure: ➢ ANM/MLHP store broken diluent ampoules in blue container, to be taken to the PHC waste storage room at the end of the session				
White	needles , lancets	Hub cutter	ANMs/MLHPs	On-duty dress code,3ply masks, gloves, hand hygiene
Procedure: ➢ ANMs, MLHPs cut the hub of AD syringes with the hub cutter				

G.2. ON-SITE COLLECTION, TRANSPORTATION & DISPOSAL OF BIO-MEDICAL WASTES AT HEALTH SUB CENTERS

Category of Waste	**Mode of collection & on-site transport**	**Job Responsibility**	**Standard Precautions**
Yellow	To be collected in a yellow bin	Chowkidar	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene

	equipped with foot pedal		
Procedure: ➢ ANM/MLHP to record the weight of the wastes and dispose of the wastes into the deep burial pit ➢ ANM/MLHP to collect all disinfecting fluid/housekeeping liquid in a mop bucket and record the quantity, treat the fluid with 1% chlorine solution and discharge into a soakage pit located in the premises of the sub centre ➢ Red bags are to be taken to the PHC by the chowkidar ➢ If deep burial facility is not available in the sub centre, the yellow category wastes are to be packed in yellow bags for transportation to the PHC by the chowkidar			
Red (syringes & gloves occasionally)	To be collected in Red Bag for transportation to the PHC	Chowkidar	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene
Procedure: ➢ At the end of sessions/activities, the red bag is secured with a tie and chowkidar collects and carries the red bag to the PHC ➢ Upon arrival at the PHC waste storage room he/she informs the sister on duty and hands over the red bag. Sister on duty records the weight and makes entry in the PHC Waste Log book			
White (needles)	Collection in a hub cutter. Treatment with 1% chlorine solution for 1 hour. If Sharps pit exists disposal at the Sharps pit. If Sharps pit does not exist, hub cutter is taken to the PHC for treatment & final disposal.	Chowkidar	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene
Procedure:			

➢ At the end of sessions/activities, ANM/MLHPs empty the sharps into a white translucent bin and pour a freshly prepared 1% chlorine solution, leave to act for 1 hour and the sharps are disposed of at the Sharps pit of the facility ➢ If sharps pit not available at the health sub centre the chowkidar takes the hub cutter to the PHC for treatment & final disposal of the sharps wastes	
Blue Broken ampoules, used medicine vials	*Procedure:* ➢ At the close of the session broken ampoules and used medicine vials are taken to the PHC by the chowkidar

H. HANDLING OF BIO-MEDICAL WASTES AT PHCs/CHCs

H.1. SEGREGATION

Category of Waste	**Type of wastes**	**Points of Generation**	**Colour of bag/container**	**Job Responsibilities**	**Standard Precautions**
Yellow (a),	Placenta, extracted tooth	Labour room, Dental clinic	Segregation in Yellow Bin, with foot pedal	Doctors & Nurses conducting the deliveries, dentists	On-duty PPE, hand hygiene
Yellow (c),	Dressing, gauzes, cotton swabs	Dressing room, Immunization room, Labour room, Laboratory	Segregation in Yellow Bin with foot pedal	Staff nurses on duty	On-duty PPE, hand hygiene
Yellow (d)	Expired medicines to be segregated in Yellow bin lined with Yellow bag	Store Room	Segregation in Yellow non-chlorinated Bags	Pharmacists	On-duty dress code, gloves, masks, Hand hygiene
Yellow (e)	Used or discarded disinfectants	Store room	Segregation in Yellow non-chlorinated bags	Store Keeper	On-duty dress code, gloves, masks, Hand hygiene
Yellow (f)	Liquid waste generated due to used or	Labour room, Laboratory,	All sink points to have closed pipe	Housekeeping staffs & sanitary	3 ply masks, gloves, gum boots, splash

	discarded disinfectants, Silver Xray film developing liquid, discarded Formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, housekeeping and disinfecting activities.	X-Ray room, Sink/hand hygiene points, Wards, laundry room.	connection to the Liquid waste treatment facility (ETP). Housekeeping fluid to be segregated in the 3rd bucket of three-bucket mop trolley	inspector of PHCs/CHCs	proof apron, goggles.
Yellow (g)	Discarded linens, mattresses contaminated with blood/body fluid	ER, Wards	Segregation in non-chlorinated Yellow Bags	Housekeeping staffs	3 ply masks, gloves, splash proof apron/boots, hand hygiene
Yellow (h)	Clinical Laboratory waste/blood bags	Laboratory, Blood Storage Unit	Segregation in Yellow Bags	Lab technicians/ Blood Storage staffs	On-duty PPE, hand hygiene
Yellow (h)	Live or attenuated vaccines – discarded vaccine vials containing live/attenuated vaccines	Cold chain room	Segregation in Yellow Bags	Cold chain handler/assistant cold chain handler	3ply masks, gloves, boots, apron, hand hygiene
Procedure: ➢ At the cold chain point, the cold chain handler/assistant cold chain handler takes out all the used vaccine vials /partially used vaccine vials which open vials policy is not applicable and which have passed 48 hours storage in the ILR after being opened at outreach/fixed session sites, in line with AEFI guideline. And discard the vials in yellow autoclavable bag ➢ At the cold chain point, the cold chain handler/assistant cold chain handler takes out the partially used vaccine vials which open vial policy is applicable and which have passed the 28 days open vial period and discard the vials in yellow autoclavable bags					
Red	gloves, IV bottles, IV lines,	Wards, ER, Laboratories, Dressing	Segregation in Red Bin with foot pedal	Staffs Nurses, Vaccinators, Ward boys	On-duty PPE, hand hygiene

	canula, syringes, catheters,	room, Immunization room	lined with Red Bag		
White	needles, metallic sharps	Nursing station, Laboratory, Immunization room	Segregation in Needle destroyer/hub cutter	Staff Nurses, ANMs, Lab technicians	-ditto-
Procedure: ➢ Staff nurses//lab tech/ANMs destroy the needles in the needle destroyer, the contents of which is emptied into a white translucent bin					
Blue	medicine vials, Treated vaccine vials, Intact/broken ampoules	Nursing station, Immunization room, Cold chain room	Segregation in Blue bin	Staff nurses, cold chain handlers	On-duty PPE, hand hygiene
Procedure: ➢ staff nurses discard used medicine vials into the blue container ➢ At Immunization clinic, ANM discard broken diluent ampoules in blue container ➢ *At the cold chain point, the cold chain handler discards the autoclaved and empty vial into a blue bin*					

H.2. COLLECTION & ONSITE TRANSPORT TO INTERIM WASTE STORAGE ROOM

Category of Waste	**Collection & mode of onsite transport**	**Job Responsibility**	**Standard Precautions**
Yellow, Red, Blue & White	The yellow bins, red bins, blue bins & white bins are collected from different points of generation and taken to the waste storage room in a trolley, through a predetermined route in the building, avoiding patients care area	Grade-IV staffs/housekeeping staffs	Masks, gum boot, leak proof apron, gloves, hand hygiene
Procedure:			

➢ At 7am, housekeeping or Gr-IV staffs on duty collect the yellow bins, red bins, blue bins & White bins from all the points of generation and load the bins onto a waste trolley ➢ The waste trolley is taken through a predetermined route of the hospital building avoiding patients care area. ➢ In the waste storage room, the yellow & red bags are taken out, and staff nurse on duty records the total weight of the bags. *The yellow bag containing blood bags & laboratory/microbiology wastes are to be kept separately for pre-treatment*. The sharps wastes are emptied into a storage room white bin and record the weight alike. The blue category wastes are emptied into a storage room blue bin and record the weight. The waste bins, collected from different points of generation, are disinfected with 1% chlorine solution and left to dry			
Yellow (f)	Closed pipe connection to ETP	Housekeeping staffs	3 ply mask, boots, gloves, splash proof apron, hand hygiene
➢ Housekeeping staffs to discard all the disinfecting fluids/housekeeping fluids into a sink with direct pipe connection to the ETP ➢ X-ray technician to discard the x-ray developing fluid into the drain system of the facility ETP			

H.3. PRE-TREATMENT & TREATMENT OF BIO-MEDICAL WASTES AT PHCs/CHCs

Category of Waste	Method of Pre-Treatment	Treatment option	Job Responsibility	Standard Precautions
Yellow (a) **Placenta, tissues**	Pre-treatment is not required as per the BMW Rules 2016*	Incineration if facility is accessible.	-	-
**In some culture of our state the placenta has a religious significance in which the patient party requested that the placenta should be handed over to them so that they can perform religious rites at home. Failing to oblige with the request of the patient party has discouraged some members of the community to go for institutional delivery. In such a*				

situation, it is better to pre-treat the placenta by chemical disinfection by soaking the placenta in a freshly prepared 1% chlorine solution for 1 hour, after which the placenta can be handed over to the patient party

Procedure for preparation of 1% chlorine solution: (vide section X.1, X.2)

Yellow (c) **(contaminated dressings, plater, masks, swabs)**	Pre-treatment is not required as per the BMW Rules 2016	Treatment is by incineration if facility exists	-	-
Yellow (h), Clinical laboratory & microbiology wastes	Pre-treatment by autoclaving or chemical disinfection	Treatment by incineration if facility exists	Lab Technicians, on-site	On-duty PPE, hand hygiene
Procedure for autoclaving: (vide section X.4.)				
Yellow (h): Live or attenuated vaccines -	Pre-treatment by autoclaving/chemical disinfection	See procedure below	Cold Chain Handler/Assistant Cold Chain Handler	Mask, gloves, apron.

Procedure for pre-treatment of discarded vaccine vials (containing vaccines) by autoclaving:

- At the cold chain point the yellow bags containing discarded vaccine vials are given pre-treatment by autoclaving (vide X.4.)
- After the cycle is over, the cold chain handler/assistant cold chain handler retrieves the autoclaved bags
- The cold chain handler/assistant cold chain handler peels off the metallic cap of the autoclaved vial and discard the metallic cap into a white bin
- The cold chain handler/assistant cold chain handler takes out the plastic cap of the autoclaved vial and discard it into a red bin
- At the cold chain point, the cold chain handler/assistant cold chain handler discards the vaccine content of the autoclaved vial into a sink which has connection to the ETP or to the liquid waste treatment plant of the PHC or discharge direct to a soakage pit
- *At the cold chain point, the cold chain handler discards the autoclaved & bare vaccine vial into a blue bin*
- At the cold chain point, the autoclaved bags are discarded into Red Bags

Procedure for Chemical Disinfection with 1 % Chlorine solution:

- Prepare a fresh solution of 1% chlorine solution (vide section X.1, X.2)
- At the cold chain point, the cold chain handler/assistant cold chain handler takes out all the used vaccine vials /partially used vaccine vials which open vials policy is not applicable and

which have passed 48 hours storage in the ILR after being opened at outreach/fixed session sites, in line with AEFI guideline.

- At the cold chain point, the cold chain handler/assistant cold chain handler takes out the partially used vaccine vials which open vial policy is applicable and which have passed the 28 days open vial period
- Soak all the vials in freshly prepared 1% chlorine solution for 30 minutes
- After 30 minutes discard the solution into a receptacle sink with connection to the ETP/ liquid waste treatment of the PHC/CHC
- At the cold chain point the cold chain handler/assistant cold chain handler peels off the metallic cap of the autoclaved vial and discard the metallic cap into a white bin
- The cold chain handler/assistant cold chain handler takes out the plastic cap of the autoclaved vial and discard it into a red bin
- The cold chain handler/assistant cold chain handler discards the vaccine content of the autoclaved vial into a sink which has connection to the ETP or to the liquid waste treatment plant of the PHC or discharge direct to a soakage pit
- The cold chain handler discards the autoclaved & bare vaccine vial into a blue bin which is to be taken to the interim storage room of the PHC/CHC for handing over to authorized collector

Red Category	Pre-treatment not required	If contaminated, treatment by autoclaving and mutilation	Housekeeping staffs	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene
White Category	Pre-treatment not required	Treatment by autoclaving/chemical disinfection	Housekeeping staffs	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene
Blue Category: used medicine vials	Pre-treatment not required	Treatment by chemical disinfection	Housekeeping staffs	3 ply masks, heavy duty gloves, gum boots, apron, hand hygiene

Procedure:

- The used medicine vials are washed with water and soaked in 1% chlorine solution for 1 hour. Store in blue container in the waste storage room for handing over to authorized recycler

H.4. BAR CODING*

Level of Facility	Category of Waste	Job Responsibility	Standard Precautions
PHCs	Red & Blue**	Authorized Collector	Mask, gum boot, gloves, and apron, hand hygiene

Procedure:

- The authorized collector, equipped with a blue tooth enabled digital weighing machine, scanner & printer, sticks a bar code sticker/label on to the red bags and blue bags
- The bar-coded bags are placed on the digital weighing machine.
- The authorized collector scans the bar code with the bar code scanner
- The authorized collector prints a receipt with his printer and hands over the receipt to the occupier. The data of the bar-coded bags gets lodged into the data base of the system automatically upon printing of the waste acceptance receipt.
- The occupier keeps the receipt as a record.

*****For CHC (30 beds &above) process of Bar Coding to be followed in line of a District Hospital)*

*****Note**: Bar coding is required only for the bio-medical wastes which are sent outside the facility for disposal. If Yellow & White categories are collected by an authorized collector same procedure for bar coding to be followed*.

H.5. DISPOSAL OF BIO-MEDICAL WASTES AT PHCs/CHCs

Category of Waste	Mode of Disposal	Job Responsibility	Standard Precautions	Formats/Document
Yellow (a), placenta	Deep burial if there is no access to incinerator/CBWTF	Chowkidar/ housekeeping staffs	Mask, gloves, gum boot, apron, hand hygiene	Log Book of Waste Disposal
Yellow (c)	Deep burial if there is no access to incinerator/ CBMWTF	Chowkidar/housekeeping staffs	Mask, gloves, gum boot, apron, hand hygiene	Log Book of Waste Disposal

Yellow (d)	Expired medicines to be handed over to district store for handing over to manufacturer for final disposal by incineration	Pharmacists	-	Log Book of Waste Disposal
Yellow (e) **Chemical waste (Bleaching powder etc)**	To be handed over to authorized collector for incineration	Store keeper	-	Log Book of Waste Disposal
Yellow (f), Liquid waste	Discharge into drain after treatment in the ETP, the effluent should meet the discharge norms as laid down by CPCB/SPCB	Lab technicians & sanitary Inspector	Mask, gloves, gum boot, apron, hand hygiene	Log Book of Waste Disposal
Yellow (g)	If CBMWTF does not exist, the wastes are shredded and dispose of at the approved Deep Burial pit located within the facility. Yellow bag to be discarded into a red bag	Sister In-charge and Gr-iv staffs	Mask, gloves, gum boot, apron, hand hygiene	Log Book of Waste Disposal
Yellow (h) clinical lab /microbiology waste	Pre-treated wastes to be handed over to authorized collector for incineration. If CBMWTF does	Sister In-charge & Sanitary Inspector	Mask, gloves, gum boot, apron, hand hygiene	Log Book of Waste Disposal

	not exist, the wastes are shredded and dispose of at the approved Deep Burial pit located within the facility. Yellow bag to be discarded into a red bag			
Red	Handing over to an authorized collector	Sister In-charge/Sanitary inspector	Mask, gloves, gum boot, apron, hand hygiene	Log Book of waste Disposal
White	Disposal into a Sharps Pit	Chowkidar/Gr-IV staffs	Masks, gloves, gum boots, apron, hand hygiene	Log book of waste disposal
Blue	Handing over to an authorized collector	Sister in-charge/sanitary inspector	Masks, gloves, gum boot, apron, hand hygiene	Log book of waste disposal

a). Procedure for disposal of yellow category by deep burial

- Bar coding is not required for disposal by deep burial in the facility
- Chowkidar/Gr-IV/assigned waste handler loads the yellow bin, containing placenta & other soiled wastes on to the waste trolley for disposal at the approved deep burial pit located within the facility.
- At the deep burial pit the waste handler dumps the wastes into the pit and adds a 10cm layer of soil on top of wastes every time he/she disposes of the wastes into the pit.
- The waste handler disinfects and clean the bins and the trolley
- The waste handler collects the used yellow bags into a red bag for autoclaving.
- The waste handler keeps the pre-treated laboratory waste (h) to be disposed of along with the red category

c). Procedure for disposal of red category

- The authorized collector scans the bar code labels of the red bags containing pre-treated laboratory waste/ red category of the PHCs/CHCs. The occupier of the district hospital scans the red bags of the hospital with a bar code scanner

- A waste acceptance receipt is printed by the authorized collector and hands over the same to the facility in-charge
- The authorized collector loads the wastes into his BMW van and leaves the facility

d). Procedure for disposal of blue category

- The authorized collector scans the bar code labels of the blue bags containing vials & glass wares. The occupier of the district hospital scans the blue bags of the hospital with a bar code scanner
- A waste acceptance receipt is printed by the authorized collector and hands over the same to the facility in-charge
- The authorized collector loads the wastes into his BMW van and leaves the facility

e) Procedure for disposal of white category

- The chowkidar/Gr-IV/assigned waste handler loads the white bin, containing sharps wastes which have been treated, on to the waste trolley for disposal at the Sharps pit located within the facility
- The aforementioned waste handler opens the lock of the GI pipe of the sharps pit and carefully channelize the sharps waste into the GI pipe of the sharps pit. After which the GI pipe is locked again
- The assigned waste handler gets back to the waste storage room and disinfect the white bin and the trolley

Note: If incinerator is installed in the facility, yellow category (a), (c), (d), (e), (g) & (h) are to be treated & disposed of by incineration, pre-treatment is to be given only for Yellow (h) category

I. HANDLING OF BIO-MEDICAL WASTES AT DISTRICT HOSPITALS/PVT HOSPITALS

I.1. SEGREGATION

Category of BMW	Type of Wastes	Point of Generation	Colour of Bag/Container	Job Responsibility	Standard Precaution
Yellow (a)	Placenta, Tissues	Labor Room, OT, Pathology Lab	Yellow Bags	Doctor/Staff nurse conducting deliveries, Scrub nurse in the OT, Pathologist	On-duty PPE, hand hygiene

Yellow (c)	Soiled wastes	Labor Room, OT, Pathology Lab	Yellow bag	Staff Nurses/Gr-IV	On-duty PPE, hand hygiene
Yellow (d)	Cytotoxic drugs	Cancer wing of the hospital	Yellow bag	Pharmacists/Store Keeper	On-duty PPE, hand hygiene
Yellow (e)	Chemical wastes	Store room	Yellow bag	Store keeper	On-duty PPE, hand hygiene
Yellow (f)	Liquid wastes	All Hand hygiene sink points, Laboratory, Laundry, Shower, X-Ray department, wards, corridors	Mop bucket, Closed pipe connection to ETP	X-ray technician/Housekeeping staffs	On-duty PPE, hand hygiene
Yellow (g)	Soiled Linens	Wards	Yellow bag or container	Ward in charge	On-duty PPE, hand hygiene
Yellow (h)	Clinical laboratory waste	Laboratory	Yellow bags	Lab technicians	On-duty PPE, hand hygiene
Yellow (h)	Blood bags	Blood Bank/ Wards	Yellow Bags	Ward in-charge/ Blood bank staff nurse	On-duty PPE, hand hygiene
Yellow (h)	Discarded vaccines	Cold chain Points	Yellow bags	Cold chain handler	On-duty PPE, hand hygiene

I.2. COLLECTION AND ONSITE TRANSPORT OF BIO-MEDICAL WASTES

Category of BMW	Mode of collection and onsite transport	Job Responsibility	Standard Precautions
Yellow (a), (c),	The yellow bags are collected in a waste trolley from different points of generation and are taken to the waste storage room, through a predetermined route in the building, avoiding patients care area	Housekeeping staffs	Masks, gum boot, leak proof apron, gloves, hand hygiene
Yellow (f)	Closed pipe connection leading to the ETP	Housekeeping staffs	-ditto-
Yellow (h)	Autoclaved yellow bags are collected with other waste bags (pre-treated onsite by autoclaving)	Housekeeping staffs	Masks, gum boot, leak proof apron, gloves, hand hygiene
Red	The red bags are collected in a waste trolley along with other wastes bags	Housekeeping staffs	Masks, gum boot, leak proof apron, gloves, hand hygiene
White	The hub cutter/needle destroyers are emptied into a white translucent bin which is collected in a waste trolley and is taken to the waste storage/treatment room	Housekeeping staffs	Masks, gum boot, leak proof apron, gloves, hand hygiene
Blue	The card box, containing Vials, is collected in a waste trolley which is taken to the waste storage room	Housekeeping staffs	Masks, gum boot, leak proof apron, gloves, hand hygiene

I.3. PRE-TREATMENT

Category of BMW	Type of Waste	Method of Pre-treatment	Job Responsibility	Standard Precautions
Yellow (h)	Clinical laboratory waste	Autoclaving, onsite (laboratory)	Lab technician	On-duty PPE, hand hygiene
Yellow(h)	Blood bags	Autoclaving, on site (blood bank)	Staff nurses	On-duty PPE, hand hygiene
Yellow(h)	Discarded vaccines	Autoclaving (cold chain room)	Cold chain handler	Gloves, masks, apron, hand hygiene

Procedure for pre-treatment of clinical laboratory wastes and blood bags:

- In the laboratory/Blood bank, yellow bags containing the clinical laboratory wastes or blood bags are loaded into an autoclave (vide section X.4 for autoclaving)
- After the cycle is over the yellow bags are retrieved and are taken to waste storage room and are handed over to authorized collector for incineration

Procedure for pre-treatment of discarded vaccines: (vide section H.3)

I.4. TREATMENT OF BIO-MEDICAL WASTES

Category of Waste	Type of waste	Method of Treatment	Job Responsibility	Standard Precautions
Yellow (a), (c)	Placenta, tissues, soiled dressings	If the wastes are to be stored beyond 48 hours due to delay in collection, the wastes are to be treated by autoclaving/chemical disinfection	Infection control Nurse	Mask, gum boot, gloves, and apron, hand hygiene
Red	Contaminated plastic/recyclable wastes	Autoclaving followed by	Infection control Nurse	Mask, gum boot, gloves,

		shredding of the wastes		and apron, hand hygiene
White	Sharps	Autoclaving or chemical disinfection with 1% chlorine solution	Infection control nurse	Mask, gum boot, gloves, and apron, hand hygiene
Blue	Broken ampoules, medicine vials	Chemical disinfection with 1% chlorine solution	Infection control nurse	Mask, gum boot, gloves, and apron, hand hygiene

Procedure for treatment of medicine vials:

- The used medicine vials are washed with water and soaked in 1% chlorine solution for 1 hour. Store in blue container in the waste storage room for handing over to authorized recycler

All the treated wastes are to be secured under lock and key in the storage room

I.5. BAR CODING

Category of Waste	**Job Responsibility**	**Standard Precautions**
Yellow (a), (c), (d), (e), (g), (h), Red & Blue	Facility in-charge/Infection control nurse & authorized collector	Mask, gum boot, gloves, and apron

Procedure:

- The occupier (Medical Superintendent) of the hospital procures the digital weighing machine & a bar code scanner. Also, the occupier purchases the bar code labels or stickers from the authorized collector
- The authorized collector procures the bar code waste management software and installs the same in the desk top platform of the occupier
- In the waste storage room, the infection control nurse sticks the bar code labels/stickers on the red bags & blue bags, and places the bags, separately on the digital weighing machine.
- The infection control nurse scans the bar code labels with the bar code scanner, which automatically transmits the data of the bar-coded bags into the bar code waste management system

- The authorized collector, equipped with a printer, prints out the waste acceptance receipt, and hands over the receipt to the infection control nurse. The data of the bar-coded bags gets lodged automatically into the data base of the system.

I.6. DISPOSAL OF BIO-MEDICAL WASTES

Category of BMW	**Mode of Disposal**	**Job Responsibility**	**Standards Precautions**
Yellow (a), (c).	Handing over to authorized collector for incineration. If CBMWTF does not exist, disposal is by deep burial at the approved deep burial pit	Infection Control Nurse	Mask, gum boot, gloves, and apron, hand hygiene
Yellow (d)	Expired drugs & cytotoxic drugs to be handed over to manufacturer or authorized collector for incineration at 1200^0C	Pharmacist	On-duty dress code, hand hygiene
Yellow (e)	Expired chemical wastes/ used or discarded disinfectants to be handed over to authorized collector for incineration	Store Keeper	On-duty dress code, hand hygiene
Yellow (f)	Discharge into municipal drain provided effluent meets discharge norms	Infection Control nurse	Mask, gum boot, gloves, and apron, hand hygiene
Yellow (g)	Discarded linens to be disposed of by incineration. If the facility has no access to Incinerator, the discarded linens are	Infection control nurse	Mask, gum boot, gloves, and apron, hand hygiene

	shredded and dispose of by Deep burial		
Yellow (h)	Pre-treated wastes are handed over to authorized collector for incineration. If CBMWTF does not exist, the wastes are shredded and dispose of at the approved Deep Burial pit located within the facility. Yellow bag to be discarded into a red bag	Infection Control Nurse	Mask, gum boot, gloves, and apron, hand hygiene
Red	Handing over to authorized collector for recycling	Infection Control Nurse	Mask, gum boot, gloves, and apron, hand hygiene
White	Disposal into a Sharps Pit located in the facility	Infection Control Nurse	Mask, gum boot, gloves, and apron, hand hygiene
Blue	Handing over to authorized collector for recycling	Infection Control Nurse	Mask, gum boot, gloves, and apron, hand hygiene

J. HANDLING OF BIO-MEDICAL WASTES AT PASTEUR INSTITUTE

J.1. SEGREGATION

Category of BMW	**Type of Wastes**	**Point of Generation**	**Colour of Bag/Container**	**Job Responsibility**	**Standard Precaution**
Yellow (a)	Discarded tissues	Pathology Lab	Yellow Bags	Pathologist	On-duty PPE, hand hygiene

Yellow (b)	Discarded animal waste	Animal lab	Yellow bag	Animal attendant	On-duty PPE, hand hygiene
Yellow (c)	Soiled wastes	Pathology Lab, Micro-biology lab, Bio-chemistry lab, Blood bank, Anti rabies clinic	Yellow bag	Lab technician, staff nurse blood bank, staff nurse anti-rabies clinic	On-duty PPE, hand hygiene
Yellow (f)	Liquid wastes	All Hand hygiene sink points, Laboratory, discarded housekeeping fluids	Mop bucket, Closed pipe connection to ETP	Housekeeping staffs	On-duty PPE, hand hygiene
Yellow (h)	Clinical laboratory waste Biotechnology and other clinical laboratory waste: Laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human and animal cell cultures used in research	Laboratory	Yellow bags	Microbiologists/ Lab technicians	On-duty PPE, hand hygiene

Yellow (h)	Blood bags, discarded blood samples	Blood Bank	Yellow Bags	Blood bank staff nurse	On-duty PPE, hand hygiene
Yellow (h)	Discarded vaccines (live or attenuated)	Cold chain Point	Yellow bags	Cold chain handler	On-duty PPE, hand hygiene
Red	Syringes, gloves,	Laboratory, Blood bank, anti-rabies clinic	Red bags	Lab technician, staff nurse	On-duty PPE, hand hygiene
Blue	Glass vials, broken/intact glass slides	Microbiology/parasitology lab, blood bank, anti-rabies clinic, cold chain point	Blue bin	Lab tech, staff nurse, cold chain handler	On-duty PPE, hand hygiene
White	Needles, lancets	Laboratory, blood bank, anti-rabies clinic	White translucent bin	Lab tech/staff nurse	On-duty PPE, hand hygiene

J.2. PRE-TREATMENT

Category of BMW	**Type of Waste**	**Method of Pre-treatment**	**Job Responsibility**	**Standard Precautions**
Yellow (h)	Clinical laboratory waste Biotechnology and other clinical laboratory waste: Laboratory cultures, stocks or specimens of microorganisms, live or	Autoclaving, onsite (laboratory)	Microbiologists/ Lab technicians	On-duty PPE, hand hygiene

	attenuated vaccines, human and animal cell cultures used in research			
Yellow (h)	Blood bags, discarded blood samples	Autoclaving, on site	Blood bank staff nurse	On-duty PPE, hand hygiene
Yellow (h)	Discarded vaccines (live or attenuated)	Autoclaving (cold chain room)	Cold chain handler	On-duty PPE, hand hygiene

Procedure for pre-treatment of clinical laboratory wastes and blood bags:

- In the laboratory/Blood bank, yellow bags containing the clinical laboratory wastes or blood bags are loaded into an autoclave (vide section X.4 for autoclaving)
- After the cycle is over the yellow bags are retrieved and are taken to waste storage room and are handed over to authorized collector for incineration

Procedure for pre-treatment of discarded vaccines: (vide section H.3)

J.3. COLLECTION & ONSITE TRANSPORT

Category of BMW	**Mode of collection and onsite transport**	**Job Responsibility**	**Standard Precautions**
Yellow (a), (b), (c),	The yellow bags are collected in a waste trolley from different points of generation and are taken to the waste storage room, through a predetermined route in the building, avoiding normal traffic of the building care area	**Housekeeping staffs**	Mask, gum boot, gloves, and apron, hand hygiene
Yellow (f)	Closed pipe connection leading to the ETP	**Housekeeping staffs**	Mask, gum boot, gloves, and apron, hand hygiene

Yellow (h)	Autoclaved yellow bags are collected, with other waste bags, from all the onsite pre-treatment points	**Housekeeping staffs**	Mask, gum boot, gloves, and apron, hand hygiene
Red	The red bags are collected in a waste trolley along with other wastes bags	**Housekeeping staffs**	Mask, gum boot, gloves, and apron, hand hygiene
White	The hub cutter/needle destroyers are emptied into a white translucent bin which is collected in a waste trolley and is taken to the waste storage/treatment room	**Housekeeping staffs**	Mask, gum boot, gloves, and apron, hand hygiene
The quantity of all the category of BMWs generated are recorded daily and entry made in the log books			

J.4. TREATMENT

Category of Waste	**Type of waste**	**Method of Treatment**	**Job Responsibility**	**Standard Precautions**
Blue	Glass vials, broken or intact glass slides	Soak in 1% Chlorine solution for 1 hour	Housekeeping staffs	Mask, gum boot, gloves, and apron, hand hygiene
Red	Contaminated syringes/gloves	Autoclaving followed by shredding of the wastes	Housekeeping staffs	Mask, gum boot, gloves, and apron, hand hygiene
White	Sharps	Autoclaving or chemical disinfection with 1% chlorine solution	Housekeeping staffs	Mask, gum boot, gloves, and apron, hand hygiene

Blue	Broken ampoules, medicine vials	Chemical disinfection with 1% chlorine solution	Housekeeping staffs	Mask, gum boot, gloves, and apron, hand hygiene

Procedure for treatment of contaminated glass slides/vials:

- The used glass slides/vials are soaked in 1% chlorine solution for 1 hour. After chemical disinfection the vials/slides are washed with water and are stored in blue container in the waste storage room for handing over to authorized recycler

All the treated wastes are to be secured under lock and key in the storage room

J.5. BAR CODING

Category of Waste	Job Responsibility	Standard Precautions
Yellow & Red	Authorized Collector	Mask, gum boot, gloves, and apron, hand hygiene

Procedure:

- The authorized collector, equipped with a blue tooth enabled digital weighing machine, scanner & printer, sticks a bar code sticker/label on to the red bags and yellow bags
- The bar-coded bags are placed on the digital weighing machine.
- The authorized collector scans the bar code with the bar code scanner
- The authorized collector prints a receipt with his printer and hands over the receipt to the occupier. The data of the bar-coded bags gets lodged into the data base of the system automatically upon printing of the waste acceptance receipt.
- The occupier keeps the receipt as a record.

J.6. DISPOSAL

Category of BMW	Mode of Disposal	Job Responsibility	Standards Precautions
Yellow (a, b, c, e, g, h)	To be handed over to authorized collector for incineration	Municipality/ CBMWTF collector	Mask, gum boot, gloves, and apron, hand hygiene

Yellow (f)	Discharge into municipal drain provided effluent meets discharge norms	In charge water testing laboratory	Mask, gum boot, gloves, and apron, hand hygiene
Red	To be handed over to municipality collector for recycling	Authorized collector	Mask, gum boot, gloves, and apron, hand hygiene
White	Disposal into a Sharps Pit located in the facility	Housekeeping staffs	Mask, gum boot, gloves, and apron, hand hygiene
Blue	Handing over to authorized collector for recycling	Housekeeping staffs	Mask, gum boot, gloves, and apron, hand hygiene

K. PICTORIAL GUIDE ON HANDLING OF BIO-MEDICAL WASTES AT HEALTH CARE FACILITIES

K.1. SEGREGATION AT POINTS OF GENERATION

K.2 COLLECTION AND ONSITE TRANSPORT

Collection

On-site transport

Interim storage

K.3. PRETREATMENT OF CLINICAL LBORATORY WASTE & TREATMENT OF CONTAMINATED RED CATEGORY WASTE BY AUTOCLAVING

Autoclaving process

Autoclaved pre-treated laboratory wastes ready for treatment & disposal by incineration/Deep burial

Autoclaved treated red category wastes to be shredded in a shredder, pack in red bag, bar coding and handing over to an authorized collector

K.4. BAR CODING

Pre-treated yellow, treated ***shredded red category*** & blue category

Stick the bar code labels on to the bags

At PHC, the ***authorized collector*** scans the bar code labels of the bags & the data of the bags (including weight) ***gets transmitted*** automatically into the data base of the bar code waste management system.

Scans completed

At CHC/District hospital, the ***occupier*** scans the bar code labels of the bags & the data of the bags (including weight) ***gets transmitted*** automatically into the data base of the bar code waste management system

Generation of ***waste acceptance receipt*** by the authorized collector. Data of the bags ***gets lodged*** into the data base of the bar code waste management system

Collector leaves the facility with the wastes

K.5. TREATMENT & DISPOSAL

K.5.1. TREATMENT & DISPOSAL OF YELLOW CATEGORY BIO-MEDICAL WASTE

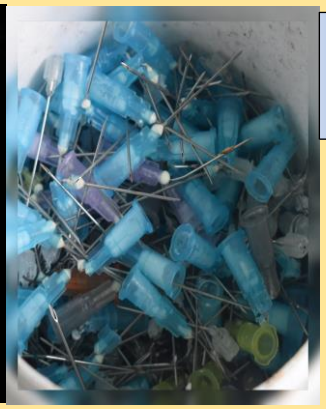
Yellow 'a', 'c', 'd', 'e', 'g', 'h'

Yellow 'a', 'c, 'g', 'h'

Incineration at a captive treatment facility

Deep burial if CBMWTF does not exist

K.5.2. DISPOSAL OF WHITE CATEGORY BIO-MEDICAL WASTE



Treated metallic sharps waste

K.5.3. TREATMENT & DISPOSAL OF LIQUID WASTES

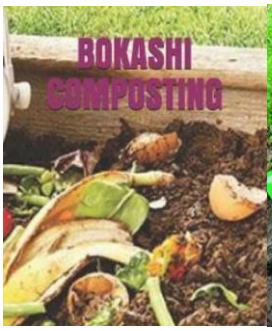
Liquid waste

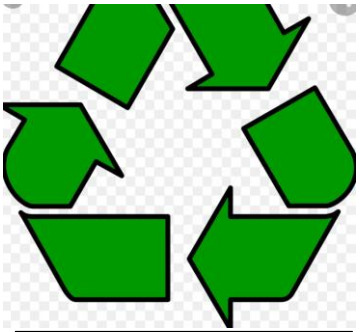
ETP

K.5.4. PICTORIAL GUIDE ON HANDLING OF GENERAL SOLID WASTES AT HEALTH CARE FACILITIES

BIODEGRADABLE

NON - BIODEGRADABLE

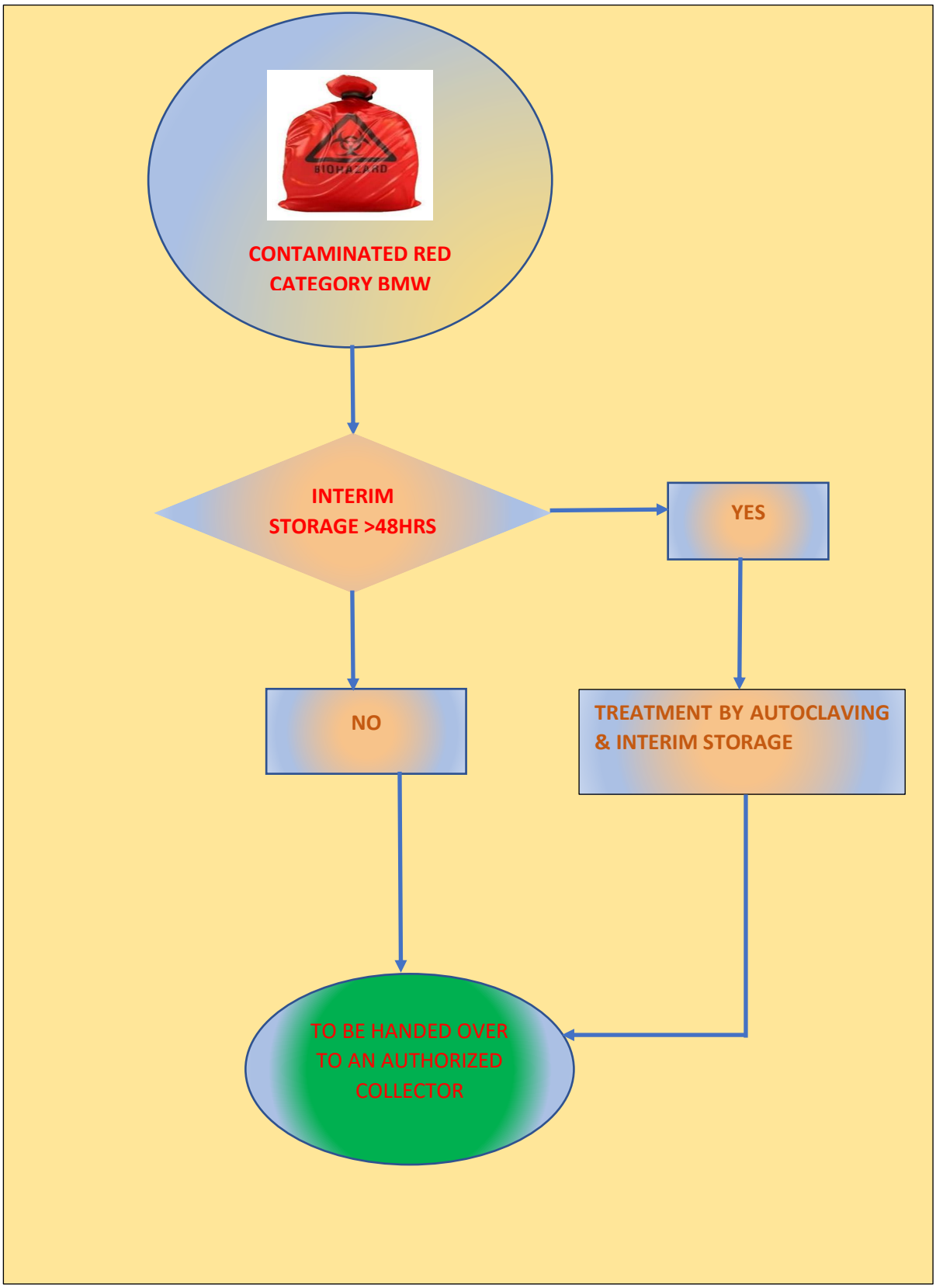




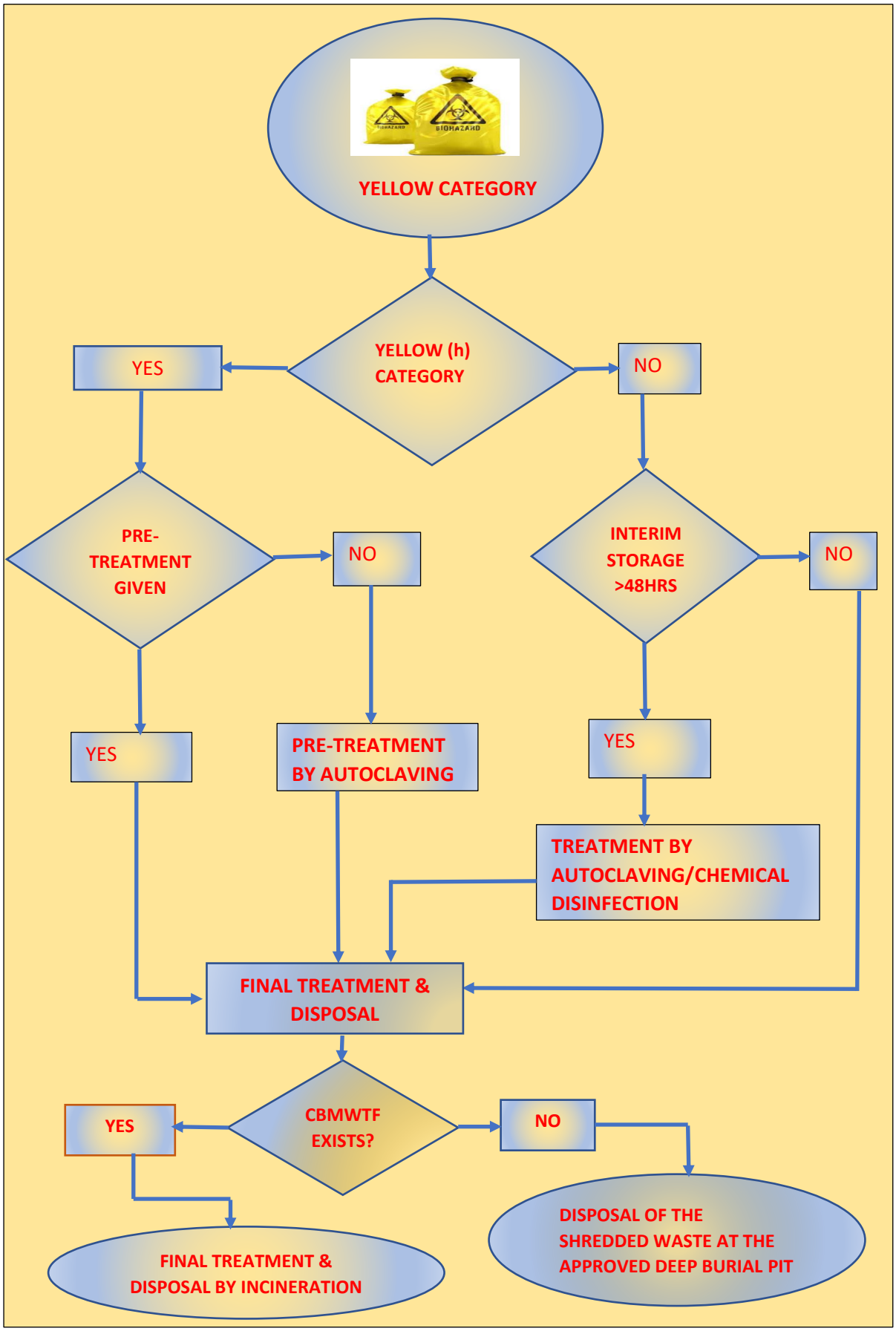
SEND TO AUTHORIZED RECYCLER

L. PROCESS MAPPING OF THE MANAGEMENT OF BIO-MEDICAL WASTES AT HEALTH CARE FACILITIES

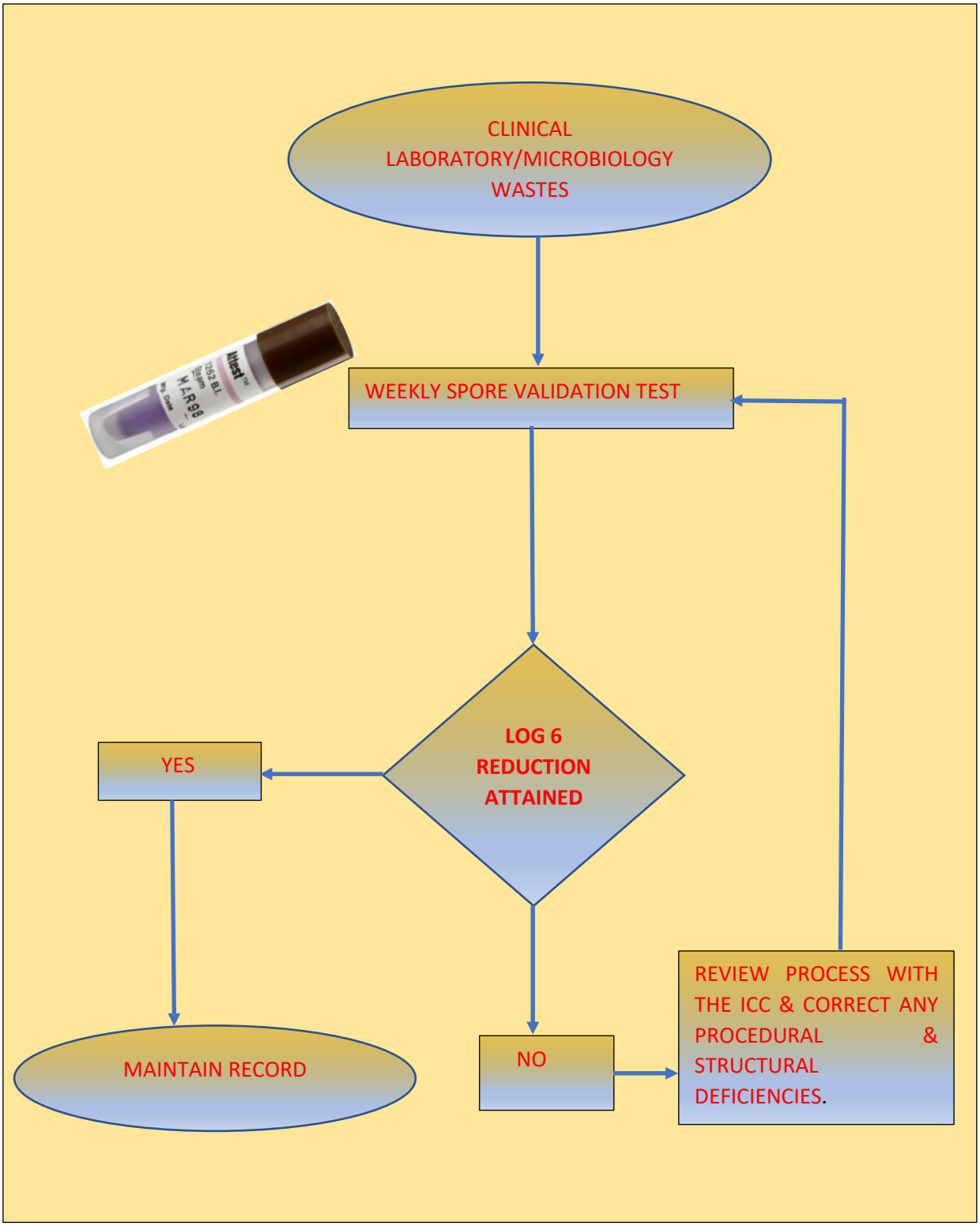
L.1. PROCESS FLOW FOR TREATMENT & DISPOSAL OF RED CATEGORY BIO-MEDICAL WASTES



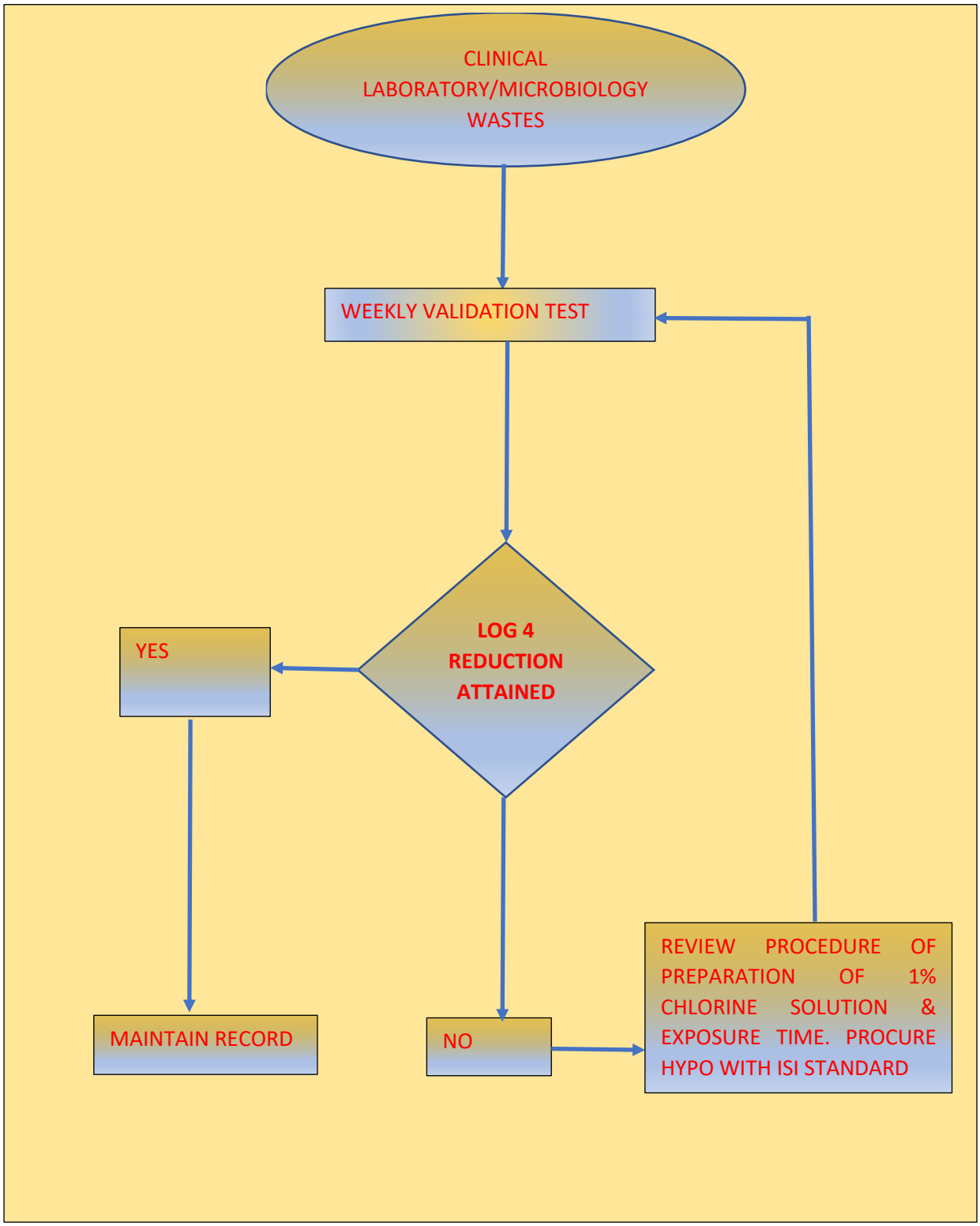
L.2. PROCESS FLOW FOR TREATMENT & DISPOSAL OF YELLOW CATEGORY BIO-MEDICAL WASTES



L.3 PROCESS FLOW FOR VALIDATION OF STERILIZATION OF PRE-TREATED YELLOW(h) CATEGORY/CONTAMINATED RED CATEGORY



L.4. PROCESS FLOW FOR VALIDATION OF CHEMICAL DISINFECTION OF PRE-TREATED YELLOW(h) CATEGORY/CONTAMINATED RED CATEGORY



M. HANDLING OF COVID-19 BIO-MEDICAL WASTES AT CORONA CARE CENTERS/ COVID-19 ISOLATION WARDS/COVID HOSPITALS

Segregation, Collection, Pre-treatment & Disposal

Process	Settings/Point of generation	Job Responsibility	Risk Level	Recommended PPE	Formats/Record
Segregation	Doffing Room, Patients' care area, laboratory	Doctors/Nurses/ Lab techs	Moderate Risk	Full Complement PPE (on duty direct patient care)	Log book of waste generation/ CPCB Covid-19 BMW App
Procedure for segregation of Yellow Category: ➢ On duty staffs discard blood bags, patients' napkins and used toiletries into a yellow bin kept at point of care marked with Covid-19 BMW and lined with two layers of yellow bags (to ensure occupational safety) ➢ *Lab technicians, in the laboratory/sample collection centre/active surveillance team discard viral transport media, NP swabs, test cards, Eppendorf tubes, vacutainers, plastic vials, pipette tips, cartridges of gene-expert, chips, & microtubes of TRUNAAT into a yellow bin marked Covid-19 laboratory wastes lined with double layers bags*. ➢ In the Doffing room of the facility, by following the Doffing buddy protocol, end-of-shift staffs/active surveillance staffs coming back from field discard the 3 ply masks, N95 masks, shoe cover, head cover and coveralls into a Yellow bin marked with Covid-19 BMW and lined with two layers of yellow bag **Procedure for segregation of Red Category**: ➢ Staff nurses on duty discard syringes, IV lines, IV bottles, drain bags, canula into the Red Bin, marked with Covid-19 BMW and lined with two layers of Red bags ➢ In the Doffing room of the facility, by following the Doffing buddy protocol, end-of-shift staffs/active surveillance staffs coming back from field discard Goggles, Face shields, Gloves, Plastic coveralls into the Red bin marked with Covid-19 BMW and lined with two layers of Red bag **Procedure for segregation of White Category (metallic sharps):** ➢ Staff nurses on duty destroy the needle part of the syringe in the Needle Destroyer and cuts the needle at the hub line. The needles drop into the sharps compartment of the Needle Destroyer. Lancets utilized for finger prick tests are discarded into the White translucent bin. ➢ Lab technicians discard the lancets, utilized for card tests, into a White sharps bin. **Procedure for segregation of Blue Category wastes (glass wares):** ➢ Staff nurses on duty discard used/broken vials ampoules into a Blue bin					
Collection & on-site Transport	Identified route for on-site transport	Housekeeping staffs	Moderate Risk	N95 masks, gloves, apron, gum boots	Log book of waste generation/ CPCB Covid-19 BMW App
Procedure for collection & on-site Transport: ➢ Housekeepers collect the Covid-19 BMW bins from points of generations in collection trolleys marked with Covid-19 BMW ➢ Using identified route in the hospital the bins are transported to the interim waste pre-treatment/storage room**.**					
Pre-Treatment, Disposal	Interim storage room	Lab technician /housekeeping staffs	Moderate Risk	N95 masks, gloves, apron & gum boots	Log book of waste generation/ CPCB Covid-19 BMW App
Procedure: ➢ The Lab technician takes out the yellow bags containing laboratory wastes and record the weight of the bags ➢ The laboratory wastes in the yellow bags are given pre-treatment by autoclaving (vide procedure for autoclaving in section X.4)					

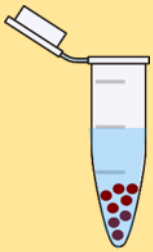
- The housekeeping staffs take out the yellow bags containing masks, PPEs, shoe cover, etc., and record the weight. The wastes are given treatment by autoclaving/chemical disinfection if interim storage period is beyond 48 hours
- The housekeeping staffs take out the red bags from the Covid-19 Red bins and record the weight of the bags.
- *If incinerator is not available in the facility or CBMWTF does not exist, the housekeepers shred the /treated contents of the yellow bags and dispose of the shredded contents by deep burial, however, the emptied yellow bags are to be segregated in RED BAGS.*
- *If the authorized collector for the RED CATEGORY does not collect the waste within 48 hours, the wastes are to be treated and store in the interim storage room till the collector arrives.*
- *The housekeepers disinfect the waste bins & collection trolleys with 1% Chlorine solution and washed with soap and water, dry and deploy the bins back to their points.*
- *Sister in-charge updates the LOG BOOK OF WASTE GENERATION and enters the weight of the respective bags. Also, she updates the LOG BOOK OF AUTOCLAVING/CHEMICAL DISINFECTION and the LOG BOOK OF WASTE DISPOSAL.*
- *The Facility In-charge collects the data of the wastes from the sister in-charge and enters the details in the CPCB Covid-19 BMW App.*

N. PICTORIAL GUIDE ON HANDLING OF COVID-19 BMW AT CORONA CARE CENTERS/COVID-19 ISOLATION WARDS/COVID HOSPITALS

N.1. YELLOW CATEGORY COVID-19 BIO-MEDICAL WASTES

N.2. YELLOW CATEGORY (h) COVID-19 BIO-MEDICAL WASTES

Viral Transport Media



EPPENDORF TUBES

VACCUTAINERS

RAT KITS/TRUNAAT,CBNAAT CATRIDGES

DOUBLE LAYER BAGS

N.3. RED CATEGORY COVID-19 BIO-MEDICAL WASTES

HAZMAT SUIT

GOGGLES

FACESHIELD

GLOVES

DOUBLE LAYER BAGS

N.4. ONSITE PRE-TREATMENT OF COVID-19 BIO-MEDICAL LABORATORY WASTES

Pre-treated (autoclaved) lab oratory wastes to be collected in RED BAG

O. PICTORIAL GUIDE ON HANDLING OF COVID-19 BIO-MEDICAL WASTES & GENERAL SOILID WASTES AT QUARANTINE CENTERS/HOME ISOLATION

O.1. SEGREGATION AND DISPOSAL OF COVID-19 BIO-MEDICAL WASTES GENERATED AT QUARANTINE CENTRES & HOME ISOLATION
generatQuarantine centres & Home Isolation



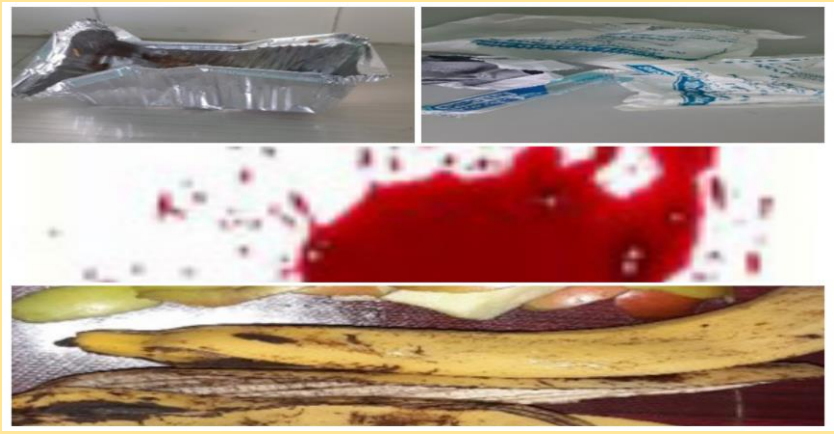

Used syringes, ampoules, vials	Expired/Discarded medicines	Used masks	Drain bags	Contaminated cotton

ONLY ABOVE ITEMS USED BY THE COVID-19 PATIENTS SHOULD BE SEGREGATED IN YELLOW BAGS AS ***DOMESTIC HAZARDOUS WASTE***

DOMESTIC HAZARDOUS WASTES

PRE-TREATMENT NOT REQUIRED. HAND OVER, AT DOOR STEP, TO MUNICIPAL/ULB AS DOMESTIC HAZARDOUS WASTE

O.2. SEGREGATION & DISPOSAL OF GENERAL SOLID WASTES CONTAMINATED WITH BLOOD/BODY FLUID OF COVID-19 PATIENTS AT QUARANTINE CENTRE/HOME ISOLATION



SEGREGATED IN YELLOW BAG AS DOMESTIC HAZARDOUS WASTE

DOMESTIC HAZARDOUS WASTE

PRE-TREATMENT NOT REQUIRED. HAND OVER, AT DOOR STEP, TO MUNICIPAL COLLECTOR/ULB

P. HANDLING OF LINENS AT CORONA CARE CENTERS/COVID-19 ISOLATION WARDS/COVID HOSPITALS

Type of Linens	Setting/Point of use	Job Responsibility	Risk Level	Recommended PPE	Formats/Record
Reusable non-contaminated linens	Patient wards	House keepers	Moderate Risk	N95, gloves, apron gum boot	Housekeeping Register
Procedure for Collection: ➢ Housekeeping staffs wear appropriate PPE ➢ Housekeeping staffs collect dedicated patients' linens in a container ➢ Do not shake **Procedure for on-site transportation**: ➢ Housekeepers collect the dedicated patients' linens in dedicated linen container ➢ Housekeeping staffs transport the linen container to the laundry room of the facility **Procedure for washing & drying**: ➢ Housekeeping staffs wash the linens with soap & water ➢ Housekeeping staffs dry the washed linens in the sun. ➢ Housekeeping staffs collect the cleaned & dried linens, sorted and hand over to the sister in-charge for storage in the linens bay. Sister in charge update the linens handling register					
Reusable Soiled Linens	**Patient wards**	**House keepers**	**Moderate Risk**	**N95, gloves, apron gum boot**	**Housekeeping Register**
Procedure for collection: ➢ Housekeeping staffs to wear appropriate PPE ➢ Housekeeping staffs carefully roll up the soiled linens, taking care not touch their body ➢ Housekeeping staffs load the soiled linens into a leak proof linen container(brite) ➢ Housekeeping staffs remove solid excreta, if any, and put in covered bucket to be disposed of in the toilet **Procedure for on-site transportation**: ➢ Housekeeping staffs transport the soiled linens in a dedicated linen container to the laundry room of the facility, never to carry the linens by hands. **Procedure for washing & drying**: ➢ In the laundry room, housekeeping staffs load the soiled linens in the washing machine with cycle. ➢ Using laundry detergent the soiled linens are machine washed at 60-90^{0}C (140-194^{0}F) ➢ If washing machine is not available, housekeeping staffs soak the linens in hot water with soap in a large drum, stir the linens with a stick taking care to avoid splashing. ➢ The used water is discarded into the closed pipe collection system of the hospital ETP plant/liquid waste treatment facility. ➢ The housekeeping staffs soak the linens in ***0.1% chlorine solution*** and wait for 30 minutes.					

- After 30 minutes, the housekeeping staffs discard the used chlorine solution into the closed pipe collection system of the hospital ETP plant/ liquid waste treatment facility and rinse the linens in clear water
- Housekeeping staffs dry the washed linens in the sun
- Housekeeping staffs collect the cleaned and dried linens, sorted and hand over to the sister in charge for storage in the linens bay
- Sister in charge update the linen handling register

Heavily soiled Linens	**Patient wards**	**House keepers**	**Moderate Risk**	**N95, gloves, apron gum boot**	**Housekeeping Register**

Procedure for collection:

- Housekeeping staffs don appropriate PPE
- Housekeeping staffs collect the heavily soiled linens and segregate the linens in yellow bag* and keep in BMW Collection trolley

Procedure for Transportation:

- Housekeeping staffs transport the yellow bags in the BMW collection trolley, using pre identified route in the hospital
- The housekeeping staffs collect the yellow bags containing heavily soiled linens and are taken in BMW transport trolley to the BMW waste Treatment & interim storage room of the hospital

Procedure for Treatment & Disposal:

- If Incinerator is co-located in the facility, the yellow bags containing heavily soiled linens are transported, by the housekeeping staffs, direct to the incinerator for incineration
- If there is no access to incinerator/CBMWTF/Captive facility, the housekeeping staffs pre-treat the linens by autoclaving, shredded and dispose of by deep burial.
- Housekeeping staffs update the Log Book of waste collection.

**(‘yellow (g) BMW Rules 2016)*

Q. REPORTING

Q.1. Incidental (major accidents)

Type of Reports	**Frequency**	**Format**	**Job Responsibility**
Incidental	Incidental	Form-I	Facility In charge

Procedure:

- Upon detection of a major accident the sister in-charge reports to the facility in-charge, who fills up Form-I and submits the same to Meghalaya State Pollution Control Board within 48 hours of occurrence of the accident

Q.2. Monthly Reports

Type of Report	**Format**	**Job Responsibility**
Monthly quantity of waste generated	Log Book of Waste generation to be displayed on the facility website on monthly basis	Facility In-charge/Sister In-charge/ Staff nurse on duty

Procedure:

- Staff nurse on duty update the Log book of waste generation on daily basis
- Sister in charge summaries the monthly generation and enter in the monthly abstract page of the Log Book of waste generation

- Facility In-charge scans the monthly abstract of the log book, pdf and upload the same on the website of the facility

Q.3. Annual Report

Type of Report	**Format**	**Job Responsibility**
Annual Report	Form-IV	Facility In-charge
	Facility website upload	Facility In-charge
Training Report	Facility format	Facility In-charge

Procedure:

- Facility In-charge fills up annual report in Form-IV and sends direct to Member Secretary Meghalaya State Pollution Control Board. Attach with reports of training of staffs, health check-up, major accidents report
- Facility In-charge scans the annual report along with attachments pdf and upload the file on the facility website.

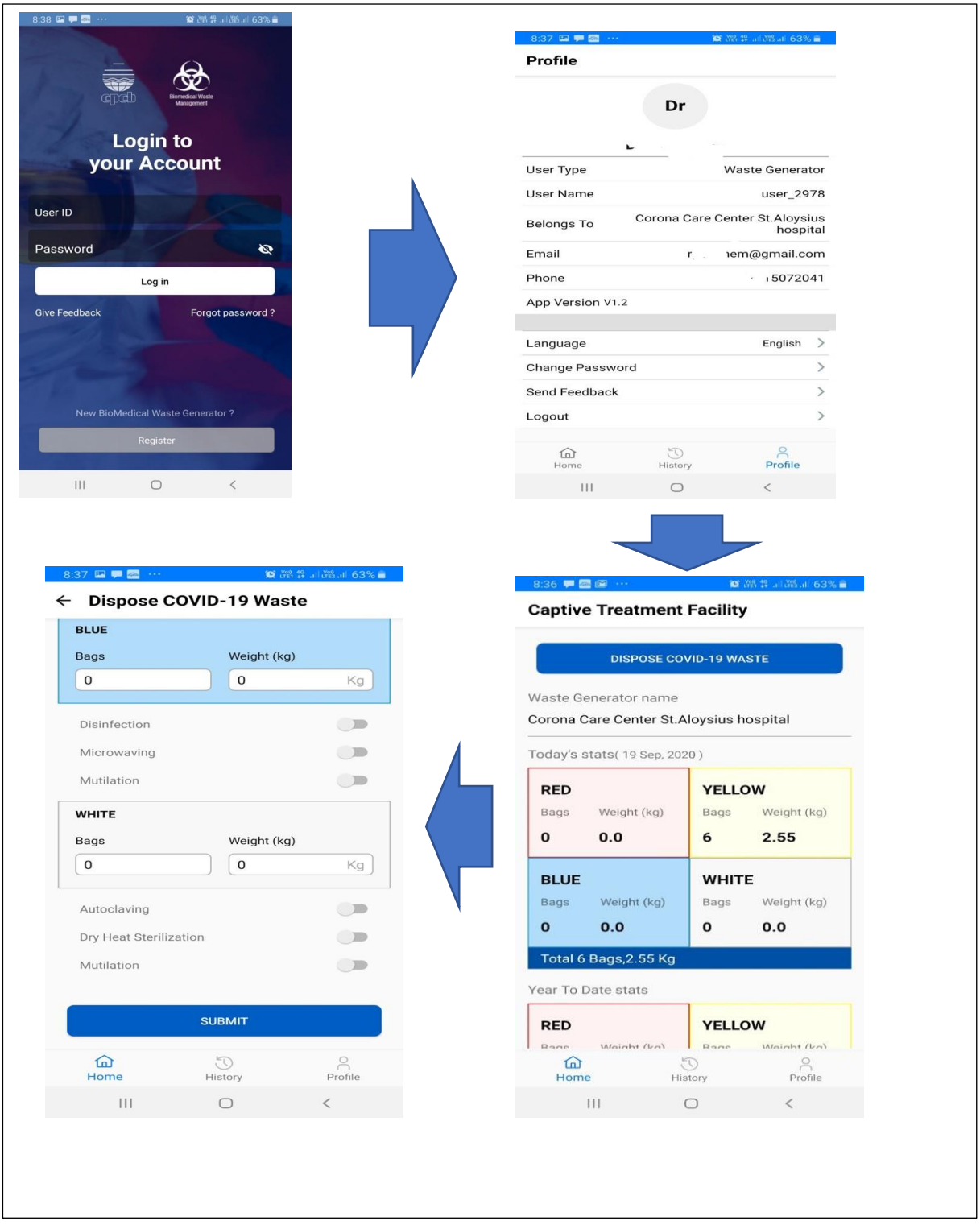
Q.4. Reporting of Covid-19 Bio-Medical waste

Type of Report	**Format**	**Job Responsibility**
Daily report on generation, treatment & disposal	CPCB Covid-19 BMW App	Facility In-charge Corona Care Centre/ Covid Hospital

Procedure:

- Log in to the App with user ID & Password
- On the home page enter the quantity of Red, Yellow, Blue & White Category wastes generated on that day
- On the home page click 'Dispose Covid-19 Waste and the page for pre-treatment & Disposal pops up
- Enter the quantity of bags in the space provided against each category of BMW
- Select mode of treatment & disposal for each category
- Click 'submit' (vide pictorial guide below)

Q.4.1. Pictorial Guide on reporting of Covid-19 BMW



R. DOCUMENTATION/RECORD KEEPING AT PHCs/CHCs/DH

Sl. No.	Type of Document/Record	Format Type	Minimum Retention Period
1	Application for Fresh/Renewal of Authorization	Form-II (Prescribed format)	5 Years
2	Accident Report	Form-I (Prescribed format)	5 Years
3	Authorization by State Pollution Control Board	Form-III (Prescribed format)	5 Years
4	Annual Report of Waste Generation	Form-II (Prescribed Format)	5 Years
5	Appeal	Form-V (Prescribed format)	5 Years
6	Authorization for deep burial pit	Format of State Pollution Control Board	5 Years
7	CTE/CTO	Prescribed authority format	-
8	Record of ETP/STP with analysis report of the effluent	Referral Lab format	5years
9	Minutes of the Infection Prevention & Control Committee	Facility format	
10	Log Book of Waste Generation	Facility Format	5 Years
11	Log book of Pre-treatment/Autoclave	Facility Format	5 Years
12	Log Book of Chemical Disinfection	Facility Format	5 Years
13	Log book of Waste Disposal	Facility Format	5 Years
14	Log Book of Waste Collection by authorized collector	Facility Format	5 Years
15	Autoclave Validation Report	Format of the referral Lab	5 Years
16	Chemical Disinfection Validation report	Format of the referral lab	5 Years
17	Training records	Facility format	5 Years
18	Health check- up records of staffs/waste handlers	Facility format	5 Years
19	Immunization Record of waste handlers	Facility format	5 Years
20	BMW Audit sheet	Facility Format	5 Years

S. HEALTH CHECK UP FOR WASTE HANDLERS

Category of Staffs	General Physical	NCD	Screening for Hep-B/Hep-C	RT-PCR/RAT	Responsibility	Format
Staff Nurses	Annual	If age >30yrs	Annual	Based on Risk of exposure/	Facility In charge	Facility format

				Symptom		
ANMs	Annual	If age >30yrs	Annual	Based on Risk of exposure/ symptom	Facility In charge	Facility format
Lab Technicians	Annual	If age >30yrs	Annual	Based on Risk of exposure/ symptom	Facility In charge	Facility format
Gr-IV/ Housekeeping/ Chowkider	Annual	If age >30yrs	Annual	Based on Risk of exposure/ symptom	Facility In charge	Facility format

T. IMMUNIZATION FOR WASTE HANDLERS

Category of Staffs	**Vaccine**	**Dose**	**Job Responsibility**	**Format**
Staff Nurses	Hep-B	3 doses (Stat, 1month, 6 months)	Facility In charge	Vaccination Register
	Tetanus	1 dose @10 years	Facility In charge	Vaccination Register
	Covid-19	2 doses, 12 weeks gap between the doses	Facility In charge	Covid-19 Vaccination certificate
ANM	Hep-B	3 doses (Stat, 1month, 6 months)	Facility In charge	Vaccination Register
	Tetanus	1 dose @10 years	Facility In charge	Vaccination Register
	Covid-19	2 doses, 12 weeks gap between the doses	Facility In charge	Covid-19 Vaccination certificate
Lab Tech	Hep-B	3 doses (Stat, 1month, 6 months)	Facility In charge	Vaccination Register
	Tetanus	1 dose @10 years	Facility In charge	Vaccination Register
	Covid-19	2 doses, 12 weeks gap between the doses	Facility In charge	Covid-19 Vaccination certificate
Gr-IV/Housekeeping staffs/Chowkiders	Hep-B	3 doses (Stat, 1month, 6 months)	Facility In charge	Vaccination Register
	Tetanus	1 dose @10 years	Facility In charge	Vaccination Register
	Covid-19	2 doses, 12 weeks gap between the doses	Facility In charge	Covid-19 Vaccination certificate

U. MANAGEMENT OF STAFFS' NEEDLE STICK INJURIES & OTHER EXPOSURE

Post-Exposure Prophylaxis following needle stick injuries & following exposure to body fluid should be initiated within 72 hours of the exposure, preferably within 2 hours. Exposed staffs should visit the ICTC as per protocol

Exposure type	**HIV Source Code (SC) (HIV status of exposure source)**	**HIV Exposure Code (EC)**	**PEP Recommendation**
Needle Prick	HIV Negative	Percutaneous exposure, superficial scratch	PEP not required
	HIV Positive	Percutaneous exposure, superficial scratch (EC2)	PEP recommended Tab Tenofovir 300mg +Tab Lamuvidine 300mg + Tab Efavirenz 600mg Once daily x28 days
	HIV Positive	Percutaneous exposure, more severe deep prick (EC3)	PEP recommended Tab Tenofovir 300mg +Tab Lamuvidine 300mg + Tab Efavirenz 600mg Once daily x28 days
Body Fluid at high risk (blood, semen, vaginal secretion, CSF, Synovial, pleural, pericardial, peritoneal, amniotic fluid	HIV negative	-	No PEP required
	HIV positive, low titer exposure Asymptomatic high CD4 (HIV SC1)	Mucous membrane or skin integrity, small volume few drops/ short duration (EC1)	PEP recommended Tab Tenofovir 300mg +Tab Lamuvidine 300mg + Tab Efavirenz 600mg Once daily x28 days
	HIV positive, low titer exposure Asymptomatic high CD4 (HIV SC1)	Mucous membrane or skin integrity, large volume major splash/long duration (EC2)	PEP recommended Tab Tenofovir 300mg +Tab Lamuvidine 300mg + Tab Efavirenz 600mg Once daily x28 days
	HIV positive, low titer exposure advanced disease low CD4 (HIV SC2)	Mucous membrane or skin integrity, small volume few drops/ short duration (EC1)	PEP recommended Tab Tenofovir 300mg +Tab Lamuvidine 300mg + Tab Efavirenz 600mg Once daily x28 days
	HIV positive, low titer exposure advanced disease low CD4 (HIV SC2)	Mucous membrane or skin integrity, large volume major splash/long duration (EC2)	PEP recommended Tab Tenofovir 300mg +Tab Lamuvidine 300mg + Tab Efavirenz 600mg Once daily x28 days
	HIV status unknown	Deep prick (EC3) or major splash (EC2)	PEP recommended Tab Tenofovir 300mg +Tab Lamuvidine 300mg + Tab Efavirenz 600mg Once daily x28 days

Procedure for management:

- Following exposure to needle stick or to fluids at high risk, the staff wash the skin with soap & water. If body fluid exposure rinse well the mouth, nose and eyes
- Staff report the exposure to sister in charge or infection control nurse or doctor on duty.
- Reporting authority to document the incident in the Incidents register of the facility
- The authority to test the blood of the source person and exposed staffs for Hep-B, Hep-C and HIV
- Based on the result and HIV status of source person (patient), HIV source code (HIV SC1/HIV SC2) and the HIV Exposure Code (EC1/EC2/EC3), take PEP as recommended above.

- The first dose of PEP regular should be taken preferably within 2 hours of exposure and the subsequent dose should be at bedtime, 2-3 hours after dinner and to avoid fatty food in dinner

V. OCCUPATIONAL SAFETY OF WASTE HANDLERS

Facility in-charge to ensure safety of staffs during the handling of Bio-medical wastes by providing them with appropriate and adequate personal protective equipment and also to impart hands on demonstration on the use of such PPEs

Type of Activity	**Recommended PPE**
Handling of non- Covid-19 Bio-Medical Wastes	3 ply mask, heavy duty gloves, splash proof apron, gum boots, surgical cap
Handling of Covid-19 Bio-Medical Wastes	N95 mask, heavy duty gloves, splash proof apron, surgical cap, gum boots, surgical cap
Large blood spill	3 ply masks, non-sterile latex gloves, gum boots, goggles, surgical cap, splash proof apron
Mercury spill	3 ply masks, nitrile gloves, gum boots, goggles, surgical cap, splash proof apron

W. BACKGROUND MEASURES/PRECAUTIONS FOR INFECTION PREVENTION & CONTROL:

Measures include Standard Precautions, Contact Precautions, Droplet Precautions and Airborne Precaution.

Measures/Precautions	**Components/ Specifications**
Standard Precaution: The basic level of IPC precautions/measures to be used for ***All*** patients at ***All*** times regardless of suspected or confirmed status of the patient.	• Hand Hygiene • PPE according to risk • Cough Hygiene • Safe Injection practices, sharps management and injury prevention • Safe handling, cleaning, and disinfection of patient care equipment • Environmental cleaning • Safe handling and cleaning of soiled linen • Biomedical waste management
Contact Precautions: It is the level of IPC which aims to prevent the spread of infection through contact with the patient and his/her environment	• Patient Placement: Private rooms with individual items for each patient • PPE (gown, gloves, shoe cover)
Droplet Precautions: It is the level of IPC which aims to prevent the spread of infection	• Patient Placement: Private room for patients • Masks for patients and masks for staffs during care and transport of patients

through droplets emanating from patients	
Airborne Precautions: It is the level of IPC which aims to prevent the spread of infection through aerosols emanating from patients	• Patient Placement: Airborne Infection Isolation Room (AIIR) or negative pressure room for patient, with Exhaust/HEPA filter • N95 respirator for staffs • Minimizing patient transport

X. WORK INSTRUCTIONS

X.1. PREPARATION OF 1% CHLORINE SOLUTION BY DILUTION METHOD

Concentration of commercially available hypochlorite solution	Required Chlorine concentration	To Prepare 1000 ml	
		Solution in ml	Add water in ml
5 %	2 %	400	600
	1 %	200	800
	0.5 %	100	900
10 %	0.5 %	50	950
	1 %	100	900
	2 %	200	800

Final concentration of chlorine solution	**Materials Required**	**Job Responsibilities**	**PPE Recommended**
1%	Sodium Hypochlorite solution, bucket, clean water, ml dispenser	Staff Nurse/ House keeping staffs	3 ply mask, Splash proof apron, nitrile gloves, gum boots

Procedure:

- Staff nurse/housekeeping staff don appropriate PPE & assemble all the materials required
- Add 800 ml of clean water in a bucket
- Add 200 ml of 5% Sodium hypo to 800 ml of water in a bucket
- Wait for sometime
- 1% solution is ready for use.
- Keep the solution covered in a dark corner. To be used within 24 hours.

X.2. PREPARATION OF CHLORINE SOLUTION BY FORMULA

Quantity (*e*) of Sodium Hypochlorite solution, with label concentration (*a*), required to prepare a desire concentration (*b*) of chlorine solution in any quantity of water (*f*), by using the formula:

e =$\frac{f(b)}{(a-b)}$ (*f* in ml, *a* & *b* in %)

Quantity (e)of Sodium Hypochlorite solution with a label concentration (5%) required to make 1% chlorine solution in 1 liter (1000ml) water is obtained by using above formula:

Here ***e***=? ***f***= 1000ml, ***a***=5%, ***b***= 1%

Therefore, ***e*** =$\frac{\mathbf{1000(1)}}{\mathbf{(5-1)}}$ = 250 ml.

Final concentration of chlorine solution	**Materials Required**	**Job Responsibilities**	**PPE Recommended**
1%	Sodium Hypochlorite solution (5% label concentration), bucket, clean water, ml dispenser	Staff Nurse/ Housekeeping staffs	3 ply mask, Splash proof apron, nitrile gloves, gum boots

Procedure:

- Staff nurse/housekeeping staff don appropriate PPE & assemble all the materials required
- Add 1000 ml (1 litre) of clean water in a bucket
- Using above calculation, add 250 ml of 5% Sodium hypochlorite.
- Wait for sometime
- 1% solution is ready for use.
- Keep the solution covered in a dark corner. To be used within 24 hours for chemical disinfection of BMW

Final concentration of chlorine solution	**Materials Required**	**Job Responsibilities**	**PPE Recommended**
0.1%	Sodium Hypochlorite solution (5% label concentration) solution, bucket, clean water, ml dispenser	Staff Nurse/ Housekeeping staffs	3 ply mask, Splash proof apron, nitrile gloves, gum boots

Procedure:

- Staff nurse/housekeeping staff don appropriate PPE & assemble all the materials required
- Add 1000 ml (1 litre) of clean water in a bucket
- Using above calculation, add 20 ml of 5% Sodium hypochlorite
- Wait for sometime
- 0.1% solution is ready for use.
- Keep the solution covered in a dark corner. To be used within 24 hours for disinfection of soiled linens of Covid-19 patients

X.3. PREPARATION OF 1 % CHLORINE SOLUTION WITH BLEACHING POWDER

Formula: ***Quantity of bleaching powder required to make a desired concentration of chlorine solution with a bleaching powder with a label strength, in 1 liter water***

$$= \frac{desired\ concentration\ of\ chlorine\ solution}{label\ strength\ of\ bleaching\ powder} \mathbf{x1000}$$

For example, if the strength of bleaching powder is mentioned '25% available chlorine' on the label of a packet of bleaching powder, therefore the **amount of bleaching powder**,with aforementioned strength, required to make a 1% chlorine solution is worked out as follows:

$$\frac{1}{25}\mathbf{x1000 = 40\ grams}$$

Final concentration of chlorine solution	**Materials Required**	**Job Responsibilities**	**PPE Recommended**
1%	Bleaching Powder (25% label concentration), bucket, clean water, digital weighing machine with accuracy down to 10 mg	Staff Nurse/ Housekeeping staffs	3 ply mask, Splash proof apron, nitrile gloves, gum boots

Procedure:

- Staff nurse/housekeeping staff don appropriate PPE & assemble all the materials required
- Measure 1 litre clean water by using a 1 litre used plastic bottle
- Using above calculation, make a paste of 40 grams bleaching powder in a mop bucket, using a small quantity of the measured water
- Add remaining water to the bucket & stir with a wooden stick
- Wait for sometime
- 1% solution is ready for use.
- Keep the solution covered in a dark corner. To be used within 24 hours for chemical disinfection of BMW

X.4. WORK INSTRUCTION FOR AUTOCLAVING

INDICATIONS FOR AUTOCLAVING:

- PRE-TREATMENT OF YELLOW (h) BMW (Clinical laboratory waste, blood bags, discarded vaccines, tissue cultures, diskettes)
- TREATMENT OF CONTAMINATED RED CATEGORY BMW
- TREATMENT OF WHITE CATEGORY BMW

REQUIREMENTS

Equipment	Cycle parameter	Process Indicator	Job responsibility	Documentation
Gravity/vertical type portable autoclave	15psi for 60 minutes	Autoclave tape	Staff nurse	Log book autoclave

PROCEDURES:

- Fill water in the base chamber up to the level of the Tripod stand kept inside the base chamber
- Attach a signal lock, a 2.5 cm stretch of the Comply Steam Indicator tape on to the bags, noting the batch no. & date on the signal lock
- Load bags into the autoclave, keep the bags open, and close the lid of the autoclave, by pressing the lid down and turning it clockwise.
- Connect the cord into the power socket
- Note the start time in the Log Book
- After few minutes steam will start generating and pressure will rise on the Pressure Gauge
- Wait till the pressure reaches 15psi.Note the time in the Log Book. This is the *Initial Time*. The steam will come out from the stop cock
- After the pressure has reached 15psi, wait for ***60 minutes***. After 60 minutes of exposure, switch off the power. This is the End Time. Note it down in the Log Book.
- Loosen the Vacuum release knob (blue knob). Let the entire water and steam escape from the knob outlet. The moment water stops coming out close the knob for 5-10 minutes. Thus, vacuum is developed in the chamber to dry the sterilized materials.
- Loosen the steam release knob (red knob) and make sure no more steam is left in the chamber and pressure gauge settles to zero PSI.
- Open the lid of the autoclave by turning it anti clockwise. Remove the autoclaved bags.
- Take out the indicator tape, look for colour change from off white(pre-sterilization) to grey (which indicates that materials have been exposed to sterilization temperature of 121 degree centigrade). Attach the indicator tape onto the remark column of the Log Book.

(vide Schedule-II Part 3 of the Principal rules – standards for autoclaving)

X.5. WORK INSTRUCTIONS FOR DONNING OF PPE

Level of Recommendation	Components	Level of Risk	High risk Activities
Full Complement PPE. Donning in a designated Donning room with facilities for hand wash	N95, goggles, face shield, cover all, shoe cover, gloves, head cover	Recommended for high-risk activities	Lab tech collecting NP samples, ICU staffs, ER staffs managing a SARI patient

Work Instructions

Step-1: Remove home clothes, jevellery, watches, etc., and wear scrubs
Step-2: Wash hands with soap and water, follow six steps
Step-3: Wear shoe cover
Step-4: Wear first pair of gloves
Step-5: Wear clean disposable non-permeable gown (neck cover if hood doesn't cover neck)
Step-6: Wear N95 mask
Step-7: Wear eye goggle (goggle/face shield)
Step-8: Wear hood
Step-9: Wear 2nd pair of gloves (should cover free end of gown sleeves)
Step-10: Perform gown fitness check

X.6. WORK INSTRUCTIONS FOR DOFFING OF PPE

Setting	Risk level	Prerequisites
Designated doffing room, with hand wash facility, BMW Bins	Moderate risk	Duffing buddy to observe all steps are done correctly, to dispense sanitizer.

Work Instructions

Step-1: Disinfect hands, while wearing gloves, using alcohol hand rub

Step-2: Sit on a dirty chair, remove shoe covers, touching outer surface, discard in yellow bin, perform hand hygiene

Step-3: Remove outer gloves, discard in red bin, perform hand hygiene

Step-4: Remove face shield discard in red bin, remove hood discard in yellow bin, and neck cover discard in yellow bin, perform hand hygiene

Step-5: Remove gown carefully using rolling inside out technique, discard in yellow bin, perform hand hygiene

Step-6: Remove eye piece holding strap, discard in red bin, perform hand hygiene

Step-7: Remove inner gloves, discard in red bin, perform hand hygiene

Step-8: Wear another pair of gloves and remove N95 mask slowly (to avoid aerosolization) using lower strap followed by upper strap – while bending forward, slowly, to prevent aerosolization discard in red bin

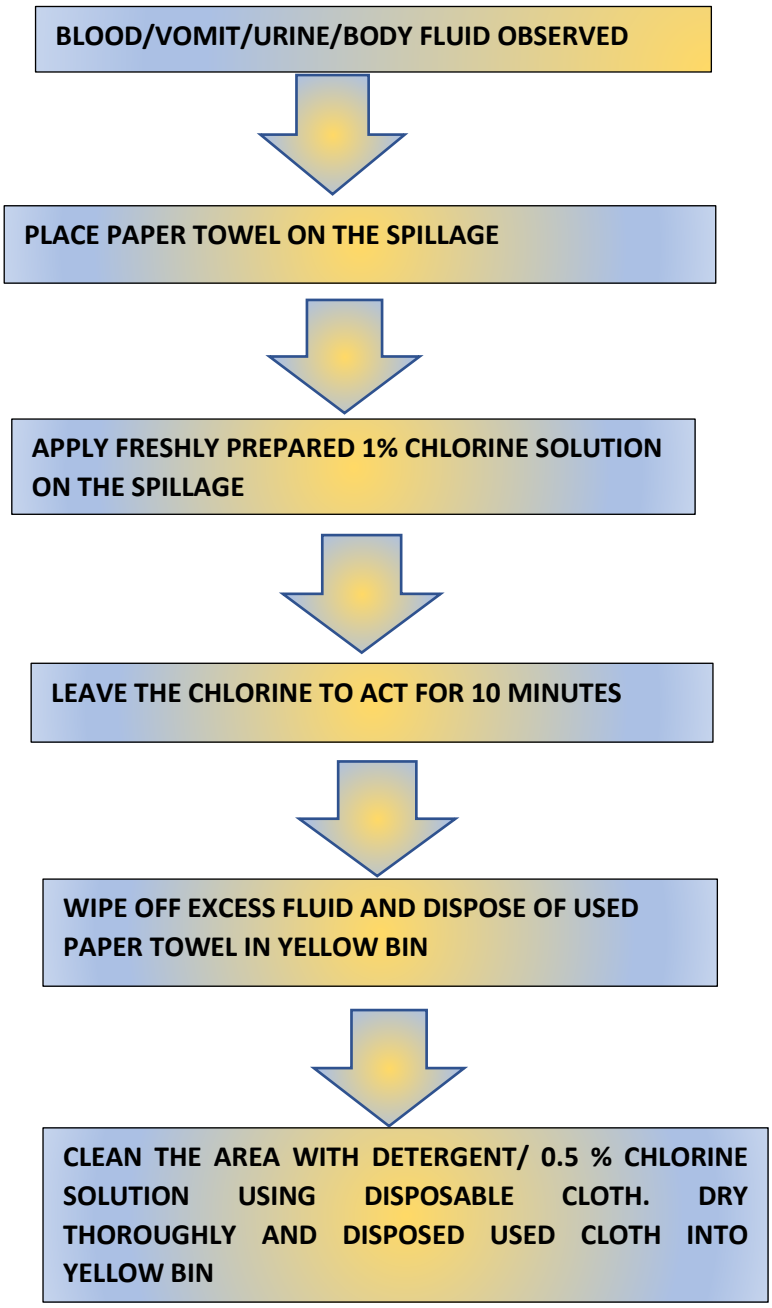
Step-9 Perform hand hygiene

Step-10: Sit over clean chair and clean your shoes with alcohol swabs

Step-11: Remove last pair of gloves discard in red bin and perform hand hygiene

X.7 WORK INSTRUCTION FOR HANDLING OF BLOOD/BODY FLUID SPILL

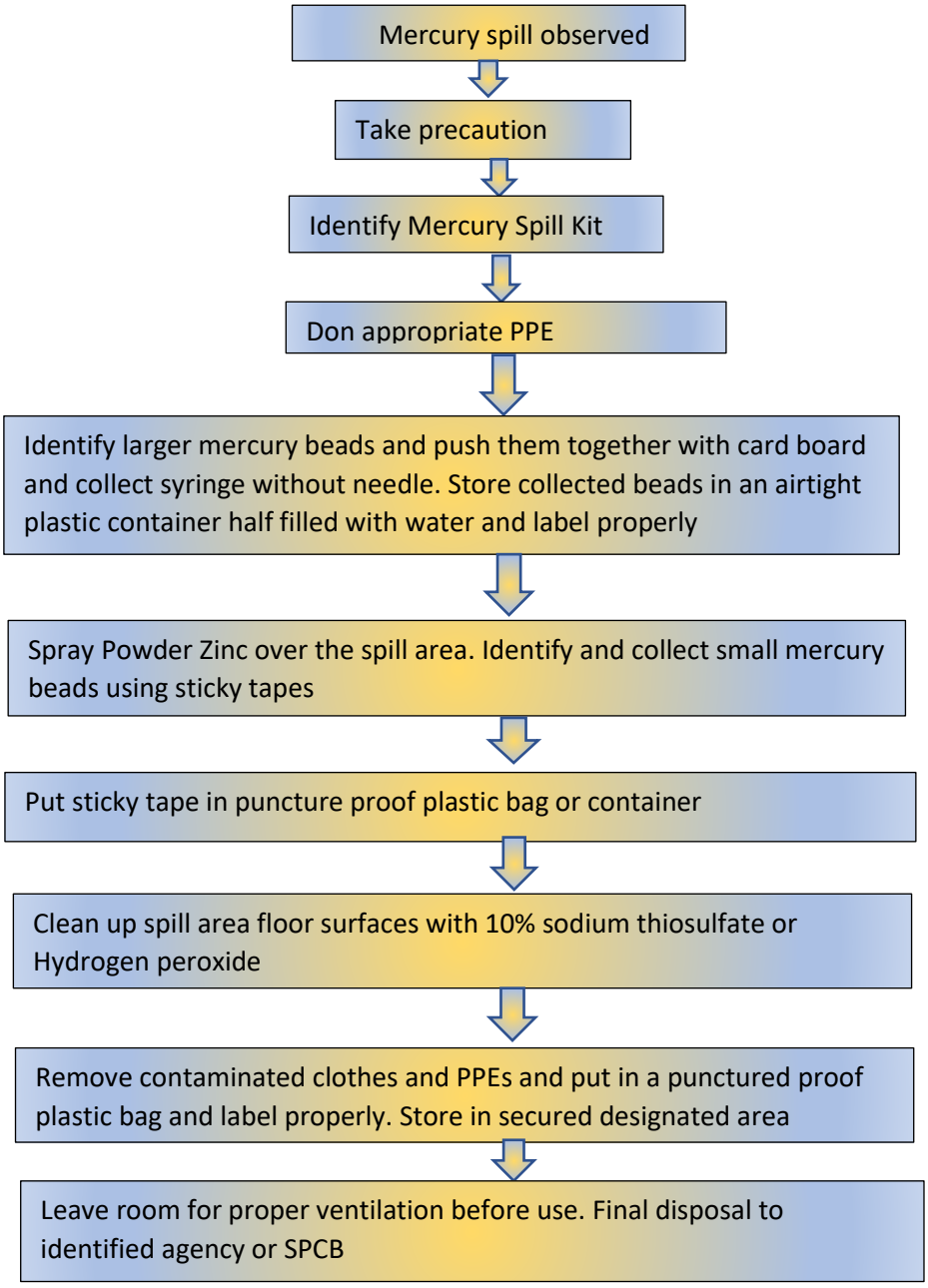
Type of spill	Components of Blood Spill kit	Job Responsibility
Blood spill, body fluid spill	PPE, Tissue Paper, 1% chlorine solution, 0.5% Chlorine solution, disposable cloth/gauze	Housekeeping staffs



X.8 WORK INSTRUCTIONS FOR HANDLING OF MERCURY SPILL

Type of spill	**Components of Mercury Spill kit**	**Job Responsibility**
Mercury spill	PPE, syringe without needle, cardboard, airtight plastic container half-filled with water, Zinc oxide powder, sticky tapes, puncture proof plastic bag, hydrogen peroxide.	Housekeeping staffs

WORK INSTRUCTIONS



Y. ANNEXURES

ANNEXURE-1

Form – I
[(See rule 4(o), 5(i) and 15 (2)]
ACCIDENT REPORTING

1. Date and time of accident:

2. Type of Accident:

3. Sequence of events leading to accident:

4. Has the Authority been informed immediately?

5. The type of waste involved in accident:

6. Assessment of the effects of the accidents on human health and the environment:

7. Emergency measures taken:

8. Steps taken to alleviate the effects of accidents:

9. Steps taken to prevent the recurrence of such an accident:

10. Does you facility has an Emergency Control policy? If yes give details:

Date..... Signature.....

Place..... Designation.....

ANNEXURE-II

FORM-II
(See rule10)
APPLICATION FOR AUTHORISATION OR RENEWAL OF AUTHORISATION
(To be submitted by occupier of health care facility or common bio-medical waste treatment facility)

To,
The Member Secretary
Meghalaya State Pollution Control Board
Arden, Lumpyngad
Shillong-793014

1. **Particulars of Applicant**:

(i) Name of the Applicant:

(In block letters & in full)
(ii) Name of the health care facility (HCF) or common bio-medical waste treatment facility (CBWTF) :

(iii) Address for correspondence:

(iv) Tele No., Fax No.:

(v) Email:

(vi) Website Address:

2. **Activity for which authorization is sought**:

Activity	Please tick
Generation,	
Segregation	
Collection,	
Storage	
Packaging	
Reception	
Transportation	
Treatment or processing or conversion, Recycling	
Disposal or destruction,	
use	
Offering for sale, transfer	
Any other form of handling	

3. Application for □ fresh or □ renewal of authorization (please tick whatever is applicable):

(i) Applied for CTO/CTE Yes/No

(ii) In case of renewal previous authorization number and date: ----------

(iii) Status of Consents:

i. under the Water (Prevention and Control of Pollution) Act, 1974 ----------

ii. under the Air (Prevention and Control of Pollution) Act, 1981: ----------

4. Address of the health care facility (HCF) or common bio-medical waste treatment facility (CBWTF):

(ii) GPS coordinates of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF):

5. Details of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF): (i) Number of beds of HCF: (#Interpretation – Census or Registered Beds)

(ii) Number of patients treated per month by HCF:

(iii) Number healthcare facilities covered by CBMWTF: _____

(iv) No. of beds covered by CBMWTF: _____

(v) Installed treatment and disposal capacity of CBMWTF:_____ Kg per day

(vi) Quantity of biomedical waste treated or disposed by CBMWTF:_____ Kg/ day

(vii) Area or distance covered by CBMWTF:_____

(pl. attach map a map with GPS locations of CBMWTF and area of coverage)

(viii) Quantity of Biomedical waste handled, treated or disposed_____

Category	Type of Waste	Quantity Generated or Collected, kg/day	Method of Treatment and Disposal (Refer Schedule-I)
Yellow	**(a) Human Anatomical Waste**:		
	(b) Animal Anatomical Waste :		
	(c) Soiled Waste:		

	(d) Expired or Discarded Medicines:		
	(e) Chemical Waste:		
	(f) Chemical Liquid Waste:, disinfecting activities		
	(g) Discarded linen, mattresses, beddings contaminated with blood or body fluid.		
	(h) Microbiology, Biotechnology and other clinical laboratory waste:		
Red	**Contaminated Waste (Recyclable**		
White (Translucent	**Waste sharps including Metals**		
Blue	**Glassware:**		
	Metallic Body Implants		

6. Brief description of arrangements for handling of biomedical waste (attach details):
   (i) Mode of transportation (if any) of bio-medical waste:
   (ii) Details of treatment equipment (please give details such as the number, type & capacity of each unit)

	No. of units	Capacity of each unit
Incinerators		
Plasma Pyrolysis:		
Autoclaves:		
Microwave:		
Hydroclave:		
Shredder:		

Needle tip cutter or destroyer		
Sharps encapsulation or concrete pit		
Deep burial pits:		
Chemical disinfection:		
Any other treatment equipment		

1. Contingency plan of common bio-medical waste treatment facility (CBWTF)(attach documents):
2. Details of directions or notices or legal actions if any during the period of earlier authorization.
3. Declaration

   I do hereby declare that the statements made and information given above are true to the best of my knowledge and belief and that I have not concealed any information.

   I do also hereby undertake to provide any further information sought by the prescribed authority in relation to these rules and to fulfil any conditions stipulated by the prescribed authority.

Date: Sign of the Applicant.

Place Designation of the Applicant

ANNEXURE-III

Form - IV
(See rule 13)
ANNUAL REPORT

[To be submitted to the prescribed authority on or before 30th June every year for the period from January to December of the preceding year, by the occupier of health care facility (HCF) or common bio-medical waste treatment facility (CBWTF)]

Sr.no.	Particulars	
1	Particulars of the Occupier	
	i)Name of the authorized person (occupier/operator):	
	ii)Name of HCF or CBMWTF	

	iii) Address for Correspondence	
	iv) Address of Facility	
	v) Tel. No. Fax.No	
	vi)E-mail ID	
	vii) URL of Website	
	viii) GPS coordinates of HCF or CBMWTF	
	ix) Ownership of HCF or CBMWTF	(State Government or Private or Semi Govt. or any other)
	x) Status of Authorization under the Bio-Medical Waste (Management and Handling) Rules	Authorization No…… ……. Valid up to……..
	xi) Status of Consent under Water Act and Air Act	Valid up to……
2	Type of Health Care Facility	
	i) Bedded Hospital	No. of Beds…….
	ii) Non-bedded hospital (clinic or Blood Bank or Clinical Laboratory or Research Institute or Veterinary Hospital or any other)	
	iii) License number and its date of expiry	
3	Details of CBMWTF	
	i) Number of healthcare facilities covered by CBMWTF	
	ii) No. of beds covered by CBMWTF	
	iii) Installed treatment and disposal capacity of CBMWTF	_____Kg/day

	iv) Quantity of biomedical waste treated or disposed by CBMWTF	_____Kg /day			
4	Quantity of waste generated or disposed in Kg per annum (on monthly average basis)	Yellow category			
		Red Category:			
		White:			
		Blue Category:			
		General Solid Waste:			
5	Details of the storage, treatment, transportation, processing and disposal facility				
	i) Details of the on-site storage facility	Size Capacity Provision of onsite (cold storage or any other provision)			
	Disposal facilities	Type of treatment	No. of units	Capacity Kg/Day	Quantity treated or disposed in Kg per annum
		Incinerators			
		Plasma Pyrolysis:			
		Autoclaves:			
		Microwave:			
		Hydroclave:			
		Shredder:			
		Needle tip cutter or destroyer			
		Sharps encapsulation or concrete pit			
		Deep burial pits:			

		Chemical disinfection:			
		Any other treatment equipment			
	ii) Quantity of recyclable wastes sold to authorized recyclers after treatment in Kg per annum	Red Category (like plastic, glass etc.,)			
	iii) No. of vehicles used for collection and transportation of bio-medical waste				
	iv) Details of incineration ash and ETP sludge generated and disposed during the treatment of wastes in Kg per annum		Quantity generated	Where disposed	
		Incineration ash			
		ETP sludge			
	v) Name of the common Bio-medical waste treatment facility operator through which wastes are disposed of				
	vi) List of member HCF not handed over bio-medical waste				
6	Do you have bio-medical waste management committee? If, yes, attach minutes of the meeting held during the reporting period				
7	Details of training conducted on BMW management				
	i)Number of training conducted on BMW management				
	ii)Number of personnel trained				
	(iii) number of personnel trained at the time of induction				
	(iv) number of personnel not undergone any training so far				

	(v) whether standard manual for training is available?	
	(vi) any other information)	
8	Details of the accident occurred during the year	
	(i) Number of Accidents occurred	
	(ii) Number of the persons affected	
	(iii) Remedial Action taken (Please attach details if any)	
	(iv) Any Fatality occurred, details	
9	Are you meeting the standards of air Pollution from the incinerator? How many times in last year could not met the standards?	
	Details of Continuous online emission monitoring systems installed	
10	Liquid waste generated and treatment methods in place. How many times you have not met the standards in a year?	
11	Is the disinfection method or sterilization meeting the log 4 standards? How many times you have not met the standards in a year?	
12	Any other relevant information	(Air Pollution Control Devices attached with the Incinerator)

Certified that the above report is for the period from ……
……
……

Name and Signature of the Head of the Institution.

Date:

Place:

ANNEXURE-IV

LOG BOOK BMW

Date:_____/ _____/_____

	Waste Generation												
Category	**Colour of Bin collected &type of waste**		**No. of bin collected**							**Quantity, in kg, of waste generated today**	**Signature of sister in-charge**	**Pre-treatment**	**Remarks/ signature of sister in-charge**
		Labour room/108 Ambulance/NAS ambulance	Nursing station	Injection room	Laboratory	Dental	Minor OT	OT	Immunization room / sub centre /Cold Chain room				
Yellow (check out **(√)**, where ever abin is collected	Yellow(a) (placenta, Dentures)												
	Yellow (c) (dressings, swabs,(h) expired or discarded vaccines), laboratory waste												
Red (check out **(√)**, where ever a bin is collected	Red (IV sets, gloves, IV bottles, syringes, RDTs)												
Blue (check out **(√)**, where ever a bin is collected	Glass wares(intact ampoules ,intact glass vials, slides)												
White (check out **(√)**, where ever a bin is collected	Sharps (needles, lancets, blades												
	Total waste generated today												

Signature of Sister In-Charge / Infection Control Nurse

Signature of Facility in-charge

ANNEXURE-V

BIO-MEDICAL WASTE AUDIT SHEET-I

DATE: NAME OF AUDITOR: DESIGNATION:

FACILITY/ DEPARTMNET	Availability of PPE		Availability of Yellow Bins		Availability of Red Bins		Availability of White Translucent Bin		Availability of Blue Bin		Availability of Colour Coded Bags		Availability of Functional Needle Destroyer/Hub Cutter		Availability of Waste trolleys		Availability of Waste Autoclave		Availability of Sodium hypochlorite		Availability of Blood Spill Kit		Availability of Mercury Spill Kit		Availability of Digital Weighing Machine & Bar Code Scanner		Availability of Waste Storage room	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N

BIO-MEDICAL WASTE AUDIT SHEET-II

DATE: NAME OF AUDITOR: DESIGNATION:

FACILITY/DEPARTMNET	Usage of PPE when handling BMW		Display of work instruction for segregation of BMW at point of generation		Display of work instruction for preparation of 1% chlorine solution		Display of work instruction for autoclaving		Disposal of microbiology waste as per guideline		Disposal of Laboratory waste as per guideline		Pre-treatment of liquid waste before disposal		Transport of BMW in closed containers		Valid Authorization		Segregation of BMW as per guideline		Bags are replaced when 3/4th filled		Bar coding by occupier/authorized collector		Staffs trained on BMW	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N

ANNEXURE-VI

LOG BOOK OF AUTOCLAVE

Date & Time	**Cycle No.**	**Batch No. of Load**	**Type of Load (Infected waste, Laboratory/microbiology waste, discarded vaccine vials.)**	**Cycle starts time (initial time when gauge reaches 15psi) T1**	**Cycle completion time (note time the gauge stays at ≥15psi for 60 minutes T2**	**Residence time of the load in minutes (T2-T1)**	**Colour change of the Process Indicator**	**Remarks & Signature of Sister In charge**

Z. REFERENCES

I.) IPC document, MoHFW Govt. of India
II.) MoHFW DGHS, Covid-19: Guideline for Rational Use of PPE, MoHFW
III.) Guideline for Implementation of Kayakalp Initiative, MoHFW, Govt. of India
IV.) Post Lockdown Lifting: Resumption of Hospital Services: A Protocol Document by Association of Healthcare Providers (India) & Public Health Foundation of India (PHFI)
V.) BMW Management Rules 2016
VI.) BMW (Amendment) Rules 2018
VII.) CPCB Revised Guidelines for Handling, Treatment and Disposal of Waste Generated During Treatment/Diagnosis/Quarantine of Covid-19 Patients, dt.21st July 2020
VIII.) National Health System Resource Centre (NHSRC) - Resource materials on Infection Prevention & Control
IX.) WHO Blue Book 2nd Edition 2014