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IN REPLY REFER TO
BUMEDINST 6280.1B
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BUMED INSTRUCTION 6280.1B

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical Department Personnel

Subj: MANAGEMENT OF REGULATED MEDICAL WASTE

Ref: (a) Navy Environmental Health Center Pharmaceutical Waste Management Guidelines
(b) 29 CFR 1910.1030, Occupational Exposure to Bloodborne Pathogens

Encl: (1) Guidelines for Management of Regulated Medical Waste
(2) Medical Waste Disposal and Treatment Methods

1. Purpose. To provide standards for management of regulated medical waste (RMW) (used interchangeably with infectious waste) at Navy shore medical treatment facilities (MTFs) and dental treatment facilities (DTFs). Shipboard medical personnel are governed by and shall comply with the current Afloat Medical Waste Management Guide for afloat practices regarding RMW. Pharmaceutical wastes have additional considerations and shall be managed per reference (a). Reference (b) provides guidelines that Navy Shore MTFs and DTFs will incorporate to protect medical personal from occupational exposures to blood or other potentially infectious material. This is a complete revision and must be read in its entirety.

2. Cancellation. BUMEDINST 6280.1A.

3. Background. Concern about potential adverse environmental and public health effects of RMW noticeably increased after isolated incidents of improper disposal gained widespread media attention in the late 1980s and early 1990s. Scientific evidence indicates infectious waste poses no greater threat to public health and environment than residential waste. However, medical facilities are perceived to be a source of pollution, prompting several States to enact severely restrictive infectious waste disposal regulations. Identifying wastes for which special precautions are indicated is largely a matter of judgment about the relative risks of disease transmission.

a. In this document medical waste is classed as either non-RMW or RMW.

(1) Non-RMW is solid material intended for disposal, produced as the direct result of patient diagnosis, treatment, therapy, or medical research. Examples include soiled dressings, bandages containing very small amounts of blood or other body fluids, disposable catheters, swabs, used disposable drapes, gowns, masks, and empty used specimen containers/urine cups. Non-RMW requires no further treatment and is disposed of as general waste/trash.

(2) RMW is generated during diagnosis, treatment, or immunization of humans or animals and is capable of causing disease or would pose other adverse health risks to individuals or the community if improperly handled.

b. RMW is organized into nine groups based on associated risks and handling, treatment and disposal requirements provided in enclosure (1).

c. Enclosure (2) includes a table that provides disposal and treatment methods for medical waste.

4. Action. Commanders, commanding officers, and officers in charge of MTFs and DTFs shall comply with State and local regulations or status of forces agreements regarding RMW and shall ensure guidelines in this instruction are adopted where State or local regulations are less restrictive or absent.



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GUIDELINES FOR MANAGEMENT OF REGULATED MEDICAL WASTE

1. Introduction. Workers in the health care setting must be protected from infectious exposures. This instruction complies with reference (b) to protect health care staff and others from exposures to bloodborne pathogens. The guidelines below update regulated medical waste (RMW) management standards for Navy MTFs consistent with health care industry best practices currently in effect.

2. Non-RMW/Trash. These items are generated in the health care setting but are non-infectious and require no additional treatment before disposal. Non-RMW can be processed as general waste, using accepted methods of collection, storage, transport, and disposal. Examples include:

- a. Used personal hygiene products (e.g., diapers, facial tissues, and sanitary napkins*).
- b. Absorbent materials containing very small amounts of blood or other body fluids.*

*Note: Any medical wastes originating from medical isolation rooms and/or sanitary napkins originating from post partum suites or gynecological surgical wards are handled as RMW.

3. RMW

- a. Definition. RMW includes Regulated Waste and Other Potentially Infectious Materials.

(1) Regulated Waste. Liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious wastes.

(2) Other Potentially Infectious Materials:

(a) The following human body fluids; semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.

(b) Any unfixed tissue or organ (other than intact skin) from a human (living or dead).

(c) Human Immunodeficiency Virus (HIV) - containing cell or tissue cultures, organ cultures, and HIV- or Hepatitis B Virus (HBV) - containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

(3) Nine groups of RMW, each with specific treatment and disposal criteria, are currently recognized:

- (a) Group 1: Cultures, Stocks, and Vaccines.
- (b) Group 2: Pathological Waste.
- (c) Group 3: Blood and Blood Products.
- (d) Group 4 and 7: Sharps.
- (e) Group 5: Animal Waste (from animals exposed to infectious agents during research, production of biologicals, or testing of pharmaceuticals).
- (f) Group 6: Isolation Wastes (including bedding from patients or animals from BioSafety Level 4 (BSL 4) agents).
- (g) Group 8: Other (including fluids that are designated by the local infection control authority).
- (h) Group 9: Chemotherapy Trace Wastes.

Note: Pharmaceutical wastes have separate requirements and shall be managed per reference (a).

b. Collection/Segregation. Separate RMW from other waste at its point of origin. RMW shall be placed in containers, bags, or sharps containers (as appropriate for the waste) that are either labeled with the universal biohazard symbol and the word "BIOHAZARD" or red in color.

(1) Line containers with plastic bags of sufficient thickness (typically 3 millimeters), durability, puncture resistance, and burst strength to prevent rupture or leaks. Bags shall be of sufficient quality and thickness so that a single bag will handle most situations. Bags shall be labeled or color coded red. Do not overload bags.

(2) Dispose of Sharps (used and unused) waste as well as discarded vaccines/vaccine containers in rigid, puncture resistant sharps containers. Never clip, cut, bend or recap needles, or overfill sharps containers. Close Sharps containers before removal or replacement to prevent spillage or protrusion of contents during handling, storage, or transport.

c. Packaging and Handling

(1) Place Sharps containers in a second container (plastic bag or rigid box) which is labeled and/or color coded per paragraph 3b of this enclosure before treatment and disposal.

(2) Minimize human exposure to RMW during transport to treatment or storage areas. Do not transport RMW in chutes or dumbwaiters.

(3) Place all anatomical pathology waste into double-wall corrugated boxes or equivalent rigid containers that are double-lined with plastic bags for transport and incineration in an infectious waste incinerator. Containers shall be labeled or color coded per paragraph 3b of this enclosure.

Note: Ethical considerations may dictate using alternate means of disposal such as cremation or burial by a licensed mortician.

d. Storage

(1) Store RMW (excluding pathological waste) in RMW storage areas. Pathological wastes must be refrigerated or frozen in dedicated cold storage units. Storage of non-pathological RMW shall not exceed 7 days.

(2) RMW storage areas shall be constructed to prevent pest access, and to allow for easy cleaning, especially of spills. The entrance(s) to the main storage area shall have a "RMW" and a Universal Biohazard Sign. Additional warnings or instructions necessary for safe operation of the space should be posted prominently.

(3) Pathological wastes not immediately processed for treatment and disposal must be refrigerated and must be frozen if stored for more than 24 hours. Frozen storage of RMW (applies only to pathological wastes) shall not exceed 30 days.

(4) RMW storage must not exceed storage times specified in current contracts for removal/disposal. If existing local, State, or country rules and regulations for storage are more stringent, they should be followed. When conflicts exist between storage retention times, the most stringent storage time limits take precedence.

e. Transportation

(1) Place RMW into rigid, leak-proof containers before transporting off-site. Containers shall be labeled or color-coded per paragraph 3b of this enclosure.

(2) Comply with Federal, State, and local laws, regulations, or status of forces agreements for transportation requirements such as licensing and vehicle labeling.

f. Treatment and Disposal. RMW treatment is achieved through destruction, such as by incineration, or through inactivation by heat, chemicals, or radiation. In the absence of Federal treatment regulations activities shall comply with State and local regulations. Enclosure (2) provides generally accepted treatment and disposal methods for RMW.

(1) Group 1: Cultures, Stocks, and Vaccines

(a) These include cultures and stocks of infectious agents and associated biologicals, including cultures from medical/pathological laboratories; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures. Separate microbiologic waste such as cultures and stocks of etiologic agents from general waste for decontamination.

(b) Liquid wastes, e.g., liquid culture media, may be either steam sterilized and disposed of in the sanitary sewer system or kept in original glass containers and placed in sharps containers for treatment and disposal via the sharps disposal procedure. Discard partial and empty vaccine vials in sharps containers. Full vials of vaccine should be returned to Pharmacy for vendor return. Dispose of nasal mist vaccine dispensers in non-sharps RMW containers. Dental procedure carpules that are broken or contain visible blood will be discarded in sharps containers. Unbroken carpules without visible blood are non-regulated waste.

(2) Group 2: Pathological Waste. Examples include human pathological wastes, tissues, organs, body parts, extracted human teeth, and body fluids removed during surgery or autopsy, or other medical procedures, and specimens of body fluids. Dispose of pathological waste inside an RMW container lined with a plastic bag or double bag in RMW bags.

(3) Group 3: Blood and Blood Products. Examples include free-flowing liquid human blood, plasma, serum, and other blood derivatives (e.g., blood in blood bags or bloody drainage in suction containers); absorbent materials soaked or dripping with saliva or blood; and items caked with dried blood, capable of releasing blood if handled. Unless prohibited by local, State or host-nation laws, bulk blood may be disposed via the sanitary sewer. Dispose of breakable containers of bulk blood/blood products in rigid, puncture-resistant, leak-proof containers. Use plastic RMW bags to dispose of blood products such as blood bags and blood filter tubing, and items saturated, dripping or caked with blood. Remove needles from the tubing (avoiding unsafe manipulation) and place in sharps container for disposal.

(4) Groups 4 and 7: Sharps. Used (Group 4) and Unused (Group 7) Sharps. Examples include sharps used in animal or human patient care, treatment in medical research or support laboratories, or when used for live training purposes. This includes hypodermic needles, syringes (with or without the attached needle), Pasteur pipettes, scalpel blades, blood collection tubes and vials, test tubes, needles attached to tubing, and culture dishes (regardless of presence of infectious agents). Other examples include broken or unbroken glassware that was in contact with infectious agents, such as used slides and cover slips. Discard all sharps directly into sharps containers immediately after use. Discard disposable needles and syringes intact, do not cut, break, bend by hand, or recap using a two-hand method. Sharps containers must be tamper resistant and either secured to the wall or maintained under continuous supervision by health care personnel. Wall mounted sharps containers will be at a height that promotes safe usage by staff. Remove and seal sharps containers when $\frac{3}{4}$ full or above fill line.

(5) Group 5: Animal Waste. Examples include contaminated animal carcasses, body parts, and bedding of animals known to have been exposed to infectious agents during research, productions of biologicals, or testing of pharmaceuticals. Carcasses of road kills, euthanized animals, animals dying of natural causes and waste produced by general veterinary practices are not considered Group 5 Animal Waste. Animal wastes specified above must be managed as RMW and shall be incinerated.

(6) Group 6: Isolation Wastes (including bedding from patients or animals infected with BSL Level 4 agents). Examples include biological waste and discarded materials contaminated with blood, excretion exudates, or secretions from humans who are isolated to protect others from highly communicable disease, or isolated animals known to be infected with highly communicable diseases caused by BSL 4 agents including pox viruses and arboviruses. Consult the facility Infection Control (IC) Directives and/or the IC Committee on handling isolation waste, especially waste that contains BSL Level 4 agents.

(8) Group: Other. Fluids that are designated as RMW by the local infection control authority. They may include but are not limited to semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid. These designated fluids would be RMW when free-flowing, dripping, or saturated on substrates. Consult the facility IC Directives and/or the IC Committee on handling RMW fluids. Free-flowing fluids may need to be collected in containers as designated by the IC Committee. Items dripping or saturated with infectious agents should be placed in RMW bags.

(9) Group 9: Chemotherapy Trace Wastes. Items such as needles, empty vials, and syringes, gowns, and tubing that contained chemotherapeutic pharmaceuticals or were exposed to chemotherapeutic pharmaceuticals during treatment of the patients. Do not mix trace chemotherapy wastes with non-chemotherapy RMW or Hazardous Waste. Deposit chemotherapeutic trace wastes in containers (normally containers are yellow) provided by the medical waste disposal contractor. Consult the facility chemotherapy drugs protocol or contact the IC Committee and/or Safety Office for additional guidance.

g. Manifesting and Recordkeeping

(1) Each MTF/DTF must develop and document a system to monitor disposal of RMW per local, State, and Federal regulations. Federal regulations require facilities maintain shipping paperwork/manifests for 2 years after the RMW was accepted by the waste carrier. State requirements may be stricter. The facility system for tracking shall include: date, type of waste, amount (weight, volume, or number of containers) and disposition.

(2) If RMW is transported off-site, the receiving facility shall provide written documentation of proper treatment and disposal to the MTF. This documentation will be maintained by the MTF Department responsible for tracking RMW disposal.

h. Training. All employees with occupational exposure to RMW shall receive training prior to beginning work, and at least annually thereafter. Training must be provided at no cost to the employee and during working hours. Reference (b) outlines the content and documentation requirements for this mandated training. Employees shall receive supplemental training whenever new processes, procedures and/or new equipment are incorporated into the RMW process.

i. Cleanup of Spills

(1) Clean up RMW spills immediately.

(2) Post staff members to prevent personnel from entering the area and potentially spreading infectious material while responders gather materials and any needed assistance for the clean up.

(3) Personnel shall wear appropriate personal protective equipment (PPE) including required levels of gloves, coveralls, masks, and goggles to prevent exposure to RMW during clean up.

(4) Place leaking or broken containers in a new, double-lined container. The container shall be labeled or color-coded as noted in paragraph 3b of this enclosure. Remove blood and body fluid spills with an absorbent material and disinfect the area with an EPA-approved disinfectant or a solution of household bleach diluted 1:10 with clear water.

j. Safety and Occupational Health. Consult your facility's Occupational Health provider and reference (b) for additional safety and occupational health requirements for personnel with occupational exposure to RMW.

MEDICAL WASTE DISPOSAL AND TREATMENT METHODS

Type of Medical Waste	Regulated?	Treatment/Disposal Method
Microbiologic stocks/cultures	YES	Incineration ¹ , Thermal inactivation, Chemical disinfection (liquids only) Steam Sterilization ³ followed by incineration ¹ or grinding ⁴
Pathological Wastes (includes surgery and autopsy wastes)	YES	Incineration ¹ , Steam Sterilization ³ followed by incineration ¹ or grinding ⁴
Blood/Blood Products, caked blood including blood bags and tubing	YES If free flowing, saturated, dripping, or caked with blood	Incineration ¹ Steam Sterilization ³ , Sanitary Sewer System for liquids
Sharps (Used & Unused)	YES	Incineration ¹ , Steam Sterilization ³ followed by incineration ¹ or grinding ⁴
Vaccines	YES	Incineration ¹ , Steam Sterilization ³ followed by incineration ¹ or grinding ⁴
Contaminated animal carcasses, body parts & bedding	YES	Incineration ¹ , Steam Sterilization ³ followed by incineration ¹ or grinding ⁴
Communicable disease isolation wastes	NO except for Biosafety Level 4 or WHO Risk Group 4 agents	Check with Infection Control, Incineration ¹ , Steam Sterilization ³
Dialysis Wastes	Optional	Steam Sterilization ³
Treatment/Exam Room Waste ²	NO	General Waste
General Patient Care Areas Waste ²	NO	General Waste
Dental Operator ²	YES but only if free flowing, item saturated, dripping, and/or caked with blood	Incineration ¹ , Steam Sterilization ³ , Sanitary Sewer System for liquids
Intravenous bags and tubing	Check State Regulations	Incineration ¹ , Steam Sterilization ³

¹ RMW Incinerator operations have stringent EPA requirements and must comply with 40 CFR Part 60, Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources.

² Unless wastes fall into categories above (e.g., sharps in treatment room must be treated as sharps).

³ Steam sterilization requires temperatures of at least 121° C (250° F) for at least 90 minutes at 15 pounds per square inch of gauge pressure to be effective. *Geobacillus stearothermophilus* spore strips must be used weekly to test the sterilization process.

⁴ Check State/local regulations and laws if end product should be unrecognizable.