



Proper management of waste generated in a health care setting begins with the identification and segregation of wastes that require special handling and treatment because of their biological, chemical, physical and/or radiological characteristics. **The waste generator is responsible for determining if their waste is regulated as medical waste, hazardous waste, radioactive waste, or ordinary solid waste, and if it is subject to air quality or water quality regulations.** This requires an understanding of federal, state and local statutes, regulations and policies, as well as policies and procedures used at the facility.

**Identification and segregation at the point of waste generation ensures that only those wastes that need special treatment and handling get it.** Misclassification and inappropriate treatment of wastes can result in significant harm to human health and the environment. Proper identification and segregation can be achieved through worker training, setting clear standards, policies, and procedures, and planning for waste segregation by providing the right number and kinds of waste containers in the right locations, signage that provides understandable on-the-spot instructions, and auditing of program compliance.

Medical waste includes wastes generated in a health care setting in the diagnosis, treatment, immunization, or care of humans or animals; generated in autopsy or necropsy; generated during preparation of a body for cremation or interment; generated in research pertaining to the production or testing of microbiologicals; generated in research using human or animal pathogens; or related to accident, suicide, or other physical trauma. "Health care setting" is used in a broad context and does not necessarily mean that these wastes are generated in a medical facility or clinic. Wastes presumed to be medical waste include certain radioactive wastes, blood and body fluids, potentially infectious waste, pathological waste, non-RCRA C (hazardous waste) waste pharmaceuticals and vaccines, sharps, trauma scene waste, and any additional waste determined to pose a sufficient risk of infectiousness as established by the Colorado Department of Public Health and Environment on a case-by-case basis. It also includes any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill or release of medical waste. Medical waste does not include wastes generated from routine facility maintenance or cleaning activities not involving a spill or release of medical waste or medical waste generated in the home.

There are several agencies that oversee different aspects of medical waste generation, management and disposal. For example, the Occupational Safety and Health Administration (OSHA) is primarily concerned with the prevention of occupational exposures to bloodborne pathogens; the U.S. Postal Service and U.S. Department of Transportation are concerned with the safe transportation of biohazardous materials; and the Colorado Department of Public Health and Environment is concerned with management standards in health care facilities, air emissions from waste treatment technologies, discharges to the sanitary sewer, and proper waste identification, management and disposal.

Wastes generated in a health care setting that do not pose an increased risk to human health or the environment are regulated as ordinary solid waste. This generally includes common wastes like office and cafeteria refuse as well as patient-related wastes such as saliva, nasal secretions, sweat, tears,

vomitus, urine or feces that are not contaminated with visible blood and/or are not related to isolation wastes, or lightly to moderately contaminated bandages, garments, bedding, etc. unless these wastes are soiled to the extent that the generator of the waste determines that they should be managed as medical waste. “Lightly to moderately contaminated wastes” are those not capable of releasing liquid or caked-on blood, body fluids, tissues, or other potentially infectious material in any form during handling.

## **Identification Process**

Before beginning the medical waste identification process, the waste generator should determine if the waste is exempt from regulation as medical waste. The only solid waste that is specifically exempt is household medical waste. Other wastes may be exempted as part of a definition or because the waste does not otherwise meet any of the definitions of waste regulated as medical waste.

If the waste is not household medical waste, Flowchart A and the following waste category definitions should be used together to determine if the waste is regulated as medical waste. The generator should assess whether their waste meets any of the categories of medical waste by comparing their waste to the definitions provided. If the waste is a radioactive waste, it must be managed, stored and disposed of as required by the Colorado Rules and Regulations Pertaining to Radiation Control (6 CCR 1007-1). If the waste is a hazardous waste, it must be managed, stored and disposed of as required by the Colorado Hazardous Waste Regulations (6 CCR 1007-3). If the waste is a waste pharmaceutical that contains controlled substances, it must be managed, stored and disposed of as required by the Controlled Substances Act (Title 21 Chapter 13 Subchapter I Part B (USC)). If the waste meets one or more of the medical waste categories, it must be managed, stored and disposed of as medical waste. If, after considering all categories of medical waste, the waste does not meet any of the above categories, the waste should be managed, stored and disposed of as ordinary solid waste (6 CCR 1007-2).

Due to special handling requirements, it is recommended that the first step in the identification process be to determine if the waste is radioactive. The remaining steps can then be taken in any order, as long as all of the medical waste categories are covered.

## **Medical Waste Categories**

**Radioactive medical waste** means low level radioactive wastes generated by administering radiopharmaceuticals, performing nuclear medicine procedures, performing radioimmunology procedures or by using radioactive traces in diagnostic procedures or medical research. This waste stream includes, but is not limited to, contaminated wastes from humans or animals undergoing procedures using low level radioactive materials, such as biological waste and discarded materials contaminated with blood, excreta, exudates or secretions; contaminated laboratory trash; and containers used to store radioactive materials.

Persons who use radionuclides for medical purposes are required to obtain a radioactive materials license issued by the Colorado Department of Public Health and Environment under the Rules and Regulations Pertaining to Radiation Control. As a radioactive materials licensee, the waste generator may be able to hold the waste for decay-in-storage under the provisions of 6 CCR 1007-1 Section 7.29 until the radioactivity cannot be distinguished from background levels as described in the regulations. If these requirements are met, the waste generator may continue in the process of determining if the waste is medical waste without regard for its radioactivity. Wastes contaminated with radioactive material should not be put into a standard medical waste container unless or until the radioactivity has

decayed to background levels. If decay-in-storage is not an option, the waste must be managed and disposed of as radioactive waste.

**Blood and body fluids** means waste containing unabsorbed human and animal blood or blood products, components of blood or blood products, and other body fluids. This waste stream includes, but is not limited to, human blood; plasma; serum; platelets; other blood components and blood products; body fluids including exudates, semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid and amniotic fluid; suction and irrigation fluids contaminated with blood or body fluids; liquid residues or contaminated water resulting from the cleanup of a spill of medical waste; tattoo ink contaminated or potentially contaminated with blood or body fluids; and blood and body fluids from animals known to be infected with diseases that are contagious to humans. It does not include saliva, nasal secretions, sweat, tears, vomitus, urine or feces that are not contaminated with visible blood and/or are not related to isolation wastes.

For identification and segregation purposes, the blood and body fluids category includes only liquid wastes. Colorado has limited this waste category due to the limited disposal method often available for liquid wastes.

**Infectious waste** means waste containing pathogens or biologically active material which because of its type, concentration and quantity could present a potential hazard to human health when improperly handled, stored, processed, transported or disposed of. Wastes presumed to be infectious medical waste include blood and body fluids, potentially infectious waste, pathological waste, sharps, trauma scene waste, and any additional waste determined to pose a sufficient risk of infectiousness as determined by the Department on a case-by-case basis. This also includes any residue or contaminated soil, water or other debris resulting from the cleanup of a spill of infectious medical waste.

**Potentially infectious waste** means any waste known or suspected to be contaminated with a transmissible infectious agent potentially capable of causing disease or injury. This waste stream includes, but is not limited to, cultures and stocks from pathological, medical, research, and industrial laboratories; wastes from the production of biologicals; devices used to transfer, inoculate, and mix cultures; isolation wastes; biohazardous waste; contaminated animal bedding from animals known to have been exposed to infectious substances during research, production of biologicals, testing of pharmaceuticals, or other exposures and those known or suspected of being contaminated with infectious substances contagious to humans. This category also includes items that are capable of releasing blood and body fluids in any form during handling or storage and items that are caked with dried blood and body fluids that could be released during handling or storage. This determination is not based on actual volume of blood or other material, but on the potential to release these materials during handling or storage. Visibly bloody sponges, dressings, drapes, surgical gloves, and bedding may fall into this category if there is evidence that they are capable of releasing blood or body fluids, such as pooled liquid in the waste container, or if dried blood or tissues flake off during handling. Also included may be unbroken blood vials, drainage sets, dialysis wastes, suction canisters, hemovac or IV bags and tubing (without needle attached) containing blood or body fluids.

Potentially infectious waste does not include lightly to moderately contaminated wastes that are not capable of releasing liquid or caked on blood and body fluids in any form during handling. These lightly to moderately contaminated wastes are regulated as ordinary solid waste. Potentially infectious waste also does not include contaminated animal bedding that is regulated as compost.

**Pathological waste** means all tissues, organs, limbs, products of conception, and other body parts removed from the whole body. This waste stream includes, but is not limited to, tissues; organs; body parts removed during surgery, autopsy or other medical procedures; and human anatomical remains. It also includes contaminated animal tissue (including animal carcasses and body parts) from animals known to have been exposed to infectious substances during research, production of biologicals, testing of pharmaceuticals, or other exposures and those known or suspected of being contaminated with infectious substances contagious to humans. Pathological waste does not include contaminated animal waste that is regulated as compost.

**Pharmaceutical** means any prescription or over-the-counter chemical product, vaccine or allergenic that is intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in humans or animals. This waste stream includes, but is not limited to, drugs, pills or tablets; medicinal gums or lozenges; medicinal liquids, ointments and lotions; intravenous (IV) or other compounded solutions; live vaccines; non-hazardous attenuated vaccines; allergenics; medicinal shampoos; antiseptics; medicinal dermal patches; and any delivery devices with the primary purpose to deliver or dispense a medicinal chemical product, vaccine or allergenic. This category includes drugs as defined by the Federal Food, Drug, and Cosmetic Act, as amended (21 USC Section 321(g)(1)).

Pharmaceuticals may be regulated under several different federal and state regulations, so it is especially important to provide worker training on standards, policies, and procedures to achieve proper identification and segregation of waste pharmaceuticals to ensure that these wastes are properly managed. Waste pharmaceuticals that contain controlled substances are regulated by the Drug Enforcement Agency (DEA). These wastes have specified management and disposal requirements under the Controlled Substances Act (Title 21 Chapter 13 Subchapter I Part B (USC)). Waste pharmaceuticals that contain an active ingredient(s) that appears on the P- or U-lists in the Colorado hazardous waste regulations or that exhibits one or more hazardous waste characteristics (ignitable, corrosive, reactive, toxic) have specified management and disposal requirements under Colorado's hazardous waste regulations (6 CCR 1007-3). Waste pharmaceuticals that are not controlled substances or hazardous waste are regulated as solid waste under Colorado's solid waste regulations (6 CCR 1007-2).

**Sharps** means any discarded article that may purposely or accidentally puncture or cut the skin or mucosa. This waste stream includes, but is not limited to, used needles; scalpel blades; syringes (with attached needle); pen needles; lancets; pasteur pipettes; broken blood vials; needles with attached tubing; suture needles; razor blades; tattoo pens and toothpicks; broken culture tubes and culture dishes, regardless of presence of infectious substances; broken and unbroken glassware that were in contact with infectious substances (e.g., used slides and cover slips); disposable trocars; and discarded unused or expired hypodermic needles, suture needles, syringes, and scalpel blades.

Sharps includes items that may not commonly be thought of as sharps, such as broken blood vials, culture tubes and other glassware that was, or may have been, in contact with infectious substances because of their potential to expose an injured party to infection or infectious disease if they cut or puncture the skin or mucosa.

**Trauma scene waste** means waste generated by the decontamination of accident scenes, crime scenes, suicides and other scenes of serious human injury or death. Trauma scene waste is a special category of medical waste that is comprised of other categories of medical waste, including blood and body fluids, pathological waste, pharmaceutical waste, potentially infectious waste and various types of

sharps. This waste stream includes, but is not limited to, contaminated flooring, furniture, drywall, clothing, bedding, cleaning solutions, personal protective equipment (PPE), wipes and absorbents, and sharps contaminated with blood and body fluids or other potentially infectious material. The classification of trauma scene waste can be determined by following Flowchart A for the individual types of waste encountered.

**The final category** includes substances that have been determined to pose a sufficient risk of infectiousness so as to be regulated as medical waste as established by the Colorado Department of Public Health and Environment on a case-by-case basis. There are currently no wastes in this category.

## **Related Definitions**

**Antineoplastic** – acts to prevent, inhibit, or halt the growth of a tumor.

**Chemotherapy waste** – any waste antineoplastic drugs, any non-empty containers of antineoplastic drugs (e.g., full or partially full vials, ampules, IV bags, tubing), and any material used to clean up a spill of antineoplastic drugs.

**Controlled substances** - a drug or other substance, or immediate precursor, included in schedule I, II, III, IV, or V of the Controlled Substances Act (Title 21 Chapter 13 Subchapter I Part B (USC)).

**Cultures** – microorganisms propagated on or in a solid or liquid medium for purposes of isolation, identification, diagnosis, research or storage.

**Drug** – substances defined by the Federal Food, Drug, and Cosmetic Act, as amended (21 USCS Section 321(g)(1)) including (1) substances recognized in the official United States Pharmacopoeia, official Homoeopathic Pharmacopoeia of the United States, or official National Formulary, or any supplement to any of them; (2) substances intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; (3) substances (other than food) intended to affect the structure or any function of the body of man or other animals; and (4) substances intended for use as a component of any substance specified in any of the above.

**Empty container** – a container or inner liner removed from a container that has been emptied by the generator as much as possible using methods commonly used to remove waste or material from containers (e.g., if the material was pourable, then no material can be poured or drained from the container; if the material was not pourable, then no material can reasonably be removed by scraping). In the case of a container that held an acute hazardous waste, the container is considered empty when the container or inner liner has been triple rinsed using a solvent capable of removing the product, the container or inner liner has been cleaned by another method that has been shown to achieve equivalent removal, or the inner liner that prevented contact of the product with the container has been removed.

**Isolation waste** – contaminated material from humans or animals that are isolated because they are suspected or known to be infected with an infectious agent capable of causing a highly communicable, possibly lethal disease. National biosafety guidelines developed by agencies such as the U.S. Department of Health and Human Services, National Institutes of Health or the Centers for Disease Control and other medical professionals should be referenced when making this determination.

**Medical waste generator** – any person whose act or process produces medical waste. This includes, but is not limited to, generators at medical, dental or veterinary offices, clinics, hospitals, or surgery centers; ambulances and other emergency medical responders; medical or research laboratories; facilities holding shot clinics or health fairs; other health-related facilities or events; educational and research facilities; pet shops; body art establishments, and trauma scene cleanup practitioners.

**Microbiologicals** – a diagnostic, preventive, or therapeutic preparation made from living organisms and their products, intended for use in diagnosing, immunizing, or treating humans or animals, or in related research.

**Stocks** - bacterial or other microbial strains that have been maintained under laboratory conditions as representative of its type.

**For more information please contact:**

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# Flowchart A Medical Waste Identification

