Biomedical waste

Biomedical waste is any waste generated from the diagnosis, treatment, or immunization of humans or animals. It can also include waste from research activities, the production of biological, or health camps.

Examples of biomedical waste

- **Human waste**: Urine, feces, blood, and other body fluids
- **Animal waste**: Carcasses, body parts, and bedding
- **Sharps**: Needles, syringes, scalpels, and other sharp objects
- **Pharmaceutical waste**: Expired or unused medications, empty containers, and packaging
- **Microbiological waste**: Cultures, stocks, and other materials that have come into contact with infectious agents
- **Pathological waste**: Human tissues, organs, and body parts removed during surgery, biopsy, and other medical procedures
- **Chemical waste**: Solvents, reagents, disinfectants, and heavy metals
- **Cytotoxic waste**: Substances with genotoxic properties, such as cytostatic drugs

Causes of biomedical waste

- **Infectious waste**

Waste contaminated with bodily fluids, such as blood, or waste from patients with infections. This includes bandages, swabs, and other disposable medical devices.

- **Chemical waste**

Liquid waste containing chemicals like disinfectants, solvents, reagents, sterilants, and heavy metals.

- **Pathological waste**

Infectious materials like dead tissue, blood, bodily fluids, tissues, organs, body parts, human fetuses, and animal corpses.

- **Radioactive waste**

Products contaminated by radionuclides, such as radioactive diagnostic or radiotherapeutic materials.

- **Cytotoxic waste**

Waste associated with cytotoxic drugs, which contain chemicals that are toxic to cells.

Improper management and disposal of biomedical waste can lead to the spread of diseases and injuries to healthcare personnel and waste handlers.

Harmful effects of biomedical waste

- **Infectious diseases**: Biomedical waste can contain bacteria, viruses, and parasites that cause infections like HIV, hepatitis B and C, tuberculosis, cholera, and pneumonia
- **Sharps injuries**: Needles, syringes, and other sharp objects in biomedical waste can cause injuries to medical staff, waste handlers, and the public
- **Toxic exposure**: Biomedical waste can contain toxic substances like mercury, dioxins, and pharmaceutical products
- **Chemical burns**: Disinfection, sterilization, and waste treatment can cause chemical burns
- **Thermal injuries**: Open burning and incinerators can cause thermal injuries
- **Radiation burns**: Biomedical waste can cause radiation burns

Biomedical waste Management

Biomedical waste management is the process of collecting, treating, and disposing of waste generated from healthcare facilities. This waste can be hazardous and infectious, so it's important to manage it properly.

Steps in biomedical waste management

Collection: Use different containers for different types of waste, and place them in a way that ensures 100% collection.

Segregation: Separate waste into different categories and store it in identifiable containers.

Transportation: Use covered wheelbarrows or trolleys to transport the waste. Avoid manual loading.

Treatment: Use technologies like incineration, autoclaving, or microwave heating to treat the waste.

Disposal: Dispose of the waste at a Common Biomedical Waste Treatment Facility (CBMWTF).

Biomedical waste management guidelines

- The Biomedical Waste Management & Handling Rules, 1998 came into force in 1998.
- The World Health Organization (WHO) has classified medical waste into eight categories.
- Sharps must be kept in puncture-proof containers.
- Storage duration should not exceed 8-10 hours in big hospitals and 24 hours in nursing homes.
- The storage area should be marked with a caution sign.