BIOMEDICAL WASTE MANAGEMENT

Definition, Facts, and Best Practices

Definition of Biomedical Waste

- "Medical waste that contains *potentially* infectious material."
- *1988 Medical Waste Tracking Act* defines it as, "waste generated during medical research, testing, diagnosis, immunization, or treatment of human beings or animals."

Names for Biomedical Waste

- Biomedical Waste
- Bio Medical Waste
- Clinical Waste
- Medical Waste
- Biohazardous Waste
- Infectious Medical Waste
- Regulated Medical Waste
- Healthcare Waste

Types of Biomedical Waste

- Sharps (needles, scalpels, lancets, broken glass, etc.)
- Infectious Waste (swabs, lab cultures, excreta, etc.)
- Pathological (human fluids, body parts, animal carcasses)

Non-Biological Hazardous Waste

- Pharmaceuticals
- Chemicals (cleaning products, mercury from broken thermometers)
- Genotoxic Waste (e.g. cytotoxic drugs for cancer treatment)

Regulated Biomedical Waste vs Unregulated

- Regulated Medical Waste
  - Biomedical Waste (Sharps, swaps, tissues, body fluids, parts)
  - Other Hazardous Waste (Pharmaceuticals, radioactive, chemical)
- Unregulated Medical Waste
  - Other waste generated by health care facilities, including disposable tissues, paper waste, food waste, etc.
  - This accounts for 85% of all health care waste, or about 5 million tons per year.

Risk to Human Health

- Needle sticks (800,000 per year)
  - Nurses, doctors, housekeepers, janitors, recycling employees, general public
- Microorganisms
- Poisoning from bio toxins
- Contaminated drinking water and environment

On-Site vs Off-Site Treatment

- On-Site: Limited to large, well-funded facilities (high cost, regulation)
- Off-Site: Cost effective. Third-party vendors own and maintain equipment and assume regulatory burden.

Types of Off-Site Biomedical Waste Management

- Truck Services – Biomedical waste is packaged in special containers, then hauled away to a dedicated disposal facility.

- Mail-Back or Box Services – Biomedical waste is shipped via USPS. Generally most cost-effective.

Five Biomedical Waste Management Options

- Incineration – Once the method of choice. Still the only method for human/animal tissues and body parts.
- Autoclaving – Steam treatment. Once treated, waste can be disposed of normally in solid-waste landfills.
- Microwaving – High-powered microwave renders waste inert. Can then be disposed of normally.
- Chemical – Works for some biomedical waste but mostly for chemical waste.
- Biological – Uses enzymes. Still experimental.

Best Practices for Biomedical Waste Management

- Know the Laws – EPA, DOT, OSHA, DEA.
- Classify Correctly – Don't mix with non-hazardous waste.
- Separate by Type – Sharps, pathological, non-hazardous, chemical, pharma.
- Use the Right Containers – Certified cardboard boxes, tubs, or even locked up.
- Prepare for Shipment – Follow DOT regs. Label. Store in secure, dry area.
- Correct Documentation – Correct documents accompany each container.
- Color Code – Right waste in right color container.
- Hire the Right Partner – Right vendor for regs, hazards, type, insurance level.

Color Coding of Medical Waste

- Yellow - Human, Animal Anatomical Waste, solid waste, chemical and expired medicine waste.
- Red - Contaminated waste
- White - Waste sharps including metals
- Blue - Metal body implants and Glassware waste

Who Creates Biomedical Waste?

- Physician Practices
- Retail Health Clinics
- Dental Offices
- Urgent Care Clinics
- Veterinary Practices
- Medical Research Labs
- Nursing Homes
- Home Health Care
- Home Infusion Situations
- Funeral Homes
- Hospitals
- Commercial Offices
- Commercial Buildings

Conclusion

- Biomedical waste is potentially infectious.
- AKA: medical waste, clinical waste, bio-hazardous, RMW
- Types: Sharps, infectious waste, pathological waste
- 1 million tons per year
- 800,000 needle sticks per year (per NIOSH)
- On-Site or Off-Site Treatment
- Incinerate, autoclave, microwave
- Know the laws, package, and color-code correctly