MODULE 1:
Definition, Sources and Characteristics of Healthcare Waste
Module Overview

• Define healthcare waste
• Describe sources and examples of healthcare waste
• Describe general characteristics of healthcare waste
Learning Objectives

• Identify where wastes are generated in your facility
• Categorize the wastes into two general categories based on whether or not they pose a risk
• Describe general characteristics of the wastes
Definition of Healthcare Waste

What is healthcare waste?

– Total waste stream from major healthcare establishments and from minor scattered healthcare activities
General Types of Healthcare Waste

Healthcare waste can be

- Non-hazardous general wastes comparable to domestic waste (75-90% of healthcare waste in a health facility)

- Potentially hazardous waste or waste that is associated with some health risks (10-25% of healthcare waste in a health facility)
Sources of Healthcare Waste

- Hospitals
- Clinics
- Laboratories
- Research activities
- Nursing homes
- Acupuncturist
- Paramedic and ambulance services
- Animal research
- Blood banks
- Mortuaries
- Autopsy centers
Other Sources of Healthcare Wastes

• Physicians’ offices
• Dental clinics
• Chiropractors
• Psychiatric hospitals
• Cosmetic piercing and tattooing
• Institutions for disabled persons
• Funeral services
• Home healthcare
Which Institutions Generate the Most Amount of Healthcare Waste?

- Hospitals
- Physicians' offices
- Nursing homes
- Outpatient clinics
- Medical labs
- Dental offices
- Research labs
- Blood banks
- Veterinary facilities
- Prisons
- Fire and rescue stations
- Residential care
- Health units in industry
- Funeral homes
- Police stations

Legend:
- % of the total number of facilities
- % of the total annual healthcare waste generated
Categories of Healthcare Waste

- Sharps waste
- Infectious waste
- Pathological waste
- Pharmaceutical or cytotoxic waste
- Chemical waste
- Radioactive waste
- Non-hazardous/general waste
# Examples of Healthcare Waste

<table>
<thead>
<tr>
<th>Department</th>
<th>Sharps</th>
<th>Infectious and pathological waste</th>
<th>Chemical, pharmaceutical and cytotoxic waste</th>
<th>Non-hazardous or general waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical ward</td>
<td>Hypodermic needles, intravenous set needles; broken vials and ampoules</td>
<td>Dressings, bandages, gauze, and cotton contaminated with blood or body fluids; gloves and masks contaminated with blood of body fluids</td>
<td>Broken thermometers and blood pressure gauges; split medicines; spent disinfectants</td>
<td>Packaging, food scraps, paper, flowers, empty saline bottles, non-bloody diapers; non-bloody IV tubing and bags</td>
</tr>
<tr>
<td>Operating theatre</td>
<td>Needles, IV sets, scalpels, blades, saws</td>
<td>Blood and other body fluids; suction canisters; gowns, gloves, masks, gauze, and other waste contaminated with blood and body fluids; tissues, organs, foetuses, body parts</td>
<td>Spent disinfectants</td>
<td>Packaging, uncontaminated gowns, gloves, masks, hats and shoe covers</td>
</tr>
<tr>
<td>Laboratory</td>
<td>Needles; broken glass, Petri dishes, slides and cover slips; broken pipettes</td>
<td>Blood and body fluids; microbiological cultures and stocks; tissue; infected animal carcasses; tubes and containers contaminated with blood or body fluid</td>
<td>Fixatives; formalin; xylene, toluene, methanol, methylene chloride, and other solvents; broken lab thermometers</td>
<td>Packaging; paper, plastic containers</td>
</tr>
<tr>
<td>Pharmacy store</td>
<td>Broken bottles, broken thermometers</td>
<td>Expired drugs, Spilled drugs Empty containers</td>
<td>Packaging; paper, empty containers</td>
<td></td>
</tr>
<tr>
<td>Radiology</td>
<td></td>
<td>Silver; fixing and developing solutions; acetic acid; glutaraldehyde</td>
<td>Packaging, paper</td>
<td></td>
</tr>
<tr>
<td>Chemotherapy</td>
<td>Needles and syringes</td>
<td>Bulk chemotherapeutic waste; vials, gloves and other material contaminated with cytotoxic agents; contaminated excreta and urine. IV sets containing chemotherapy drugs are cytotoxic waste</td>
<td>Packaging, paper</td>
<td></td>
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<tr>
<td>Vaccination campaigns</td>
<td>Needles and syringes</td>
<td>Bulk vaccine waste; vials, gloves</td>
<td></td>
<td>Packaging</td>
</tr>
<tr>
<td>Cleaning Services</td>
<td>Broken glass</td>
<td>Disinfectants (glutaraldehyde, phenols, etc.), cleaners, spilled mercury, pesticides</td>
<td>Packaging, flowers, newspapers, magazines, cardboard, plastic and glass containers, yard waste</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
<td>Cleaning solvents, oils, lubricants, thinners, asbestos, broken mercury devices, batteries</td>
<td>Packaging, construction or demolition waste, wood, metal</td>
<td></td>
</tr>
<tr>
<td>Food services</td>
<td></td>
<td></td>
<td></td>
<td>Food scraps; plastic, metal and glass containers; packaging</td>
</tr>
<tr>
<td>Other sources:</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Physicians’ offices</td>
<td>Needles and syringes, broken ampoules and vials</td>
<td>Cotton, gauze, dressing, gloves, masks and other materials contaminated with blood or other body fluids</td>
<td>Broken thermometers and blood pressure gauges; expired drugs; spent disinfectants</td>
<td>Packaging, office paper, newspapers, magazines, uncontaminated gloves and masks</td>
</tr>
<tr>
<td>Dental offices</td>
<td>Needles and syringes, broken ampoules</td>
<td>Cotton, gauze, gloves, masks and other materials contaminated with blood</td>
<td>Dental amalgam; spent disinfectants</td>
<td>Packaging, office paper, newspapers, magazines, uncontaminated gloves and masks</td>
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<tr>
<td>Home healthcare</td>
<td>Lancets and insulin injection needles</td>
<td>Bandages and other material contaminated with blood or other body fluids</td>
<td>Broken thermometers</td>
<td>Domestic waste</td>
</tr>
</tbody>
</table>
General Characteristics of Healthcare Waste

• Total waste generated in hospitals:
  ➢ 2 - 4 kg per bed per day

• Infectious waste generated in hospitals with good segregation:
  ➢ 0.2 - 0.4 kg per bed per day

• Average bulk density of healthcare waste:
  ➢ About 100 - 200 kg per cubic meter
General Characteristics of Healthcare Waste

• Typical breakdown of material constituents in healthcare waste (excluding food)
Country-specific HCW Generation
Country-specific Sources and Other Characteristics
Discussion

• What do you consider as major or minor sources of healthcare wastes? Give some examples of healthcare wastes from these sources.

• How does your facility deal with the major categories of healthcare wastes (sharps, chemical, etc.)? Do you know of any interventions that can reduce exposure to healthcare wastes?

• Can you site some examples of mismanagement of wastes in your facility? If so, what can you do about this?