Proper Management of Infectious Waste

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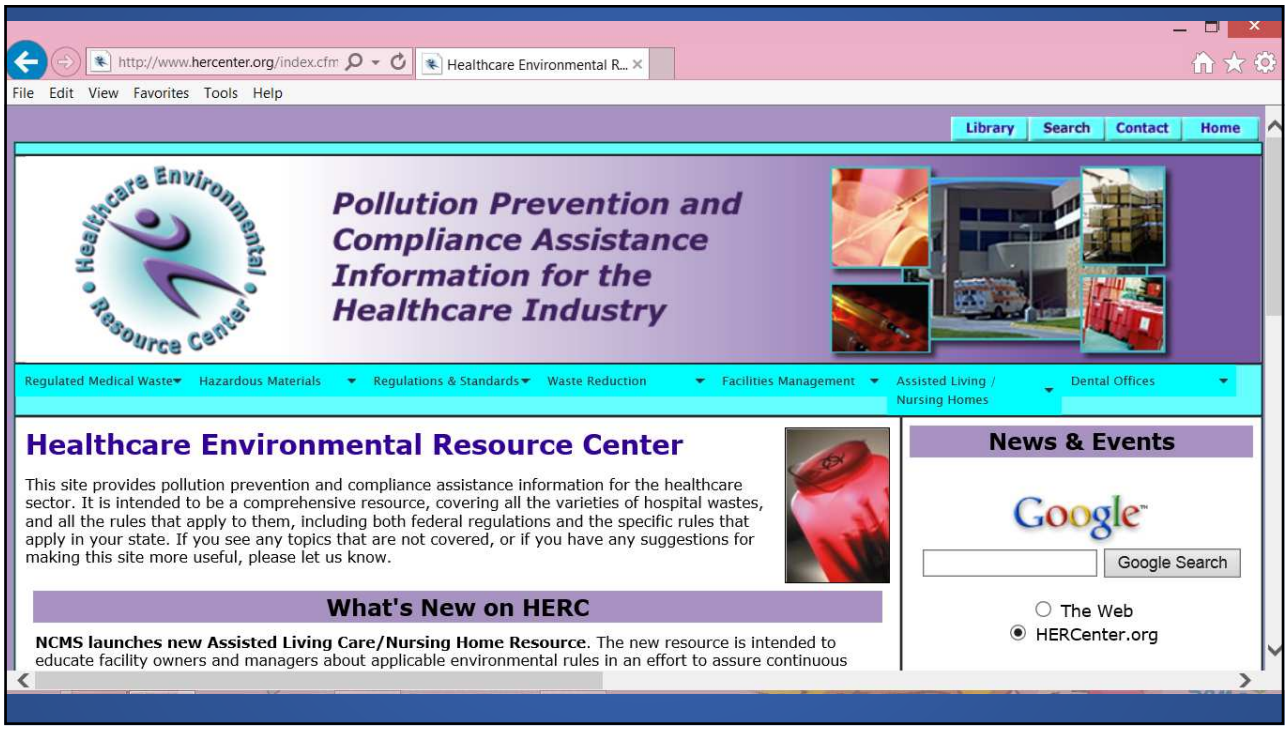
ประธานคณะกรรมการควบคุมโรคติดเชื้อในโรงพยาบาล
หัวหน้าหน่วยโรคติดเชื้อ กองอายุรกรรม
โรงพยาบาลภูมิพลอดุลยเดช

Waste Management

Must conforms to
- Federal
- State
- Local regulations

And
- Personnel and financial resources

And
- Evolving technologies
- Emerging diseases



Medical Waste : History in the US

- EPA played a central role in development of medical waste regulation during late 1980s
- Congress and EPA enacted the Medical Waste Tracking Act (MWTA)
  - Identified which wastes would be regulated
  - Established a cradle-to-grave tracking system
  - Required management standards for segregation, packaging, labeling, and storage of the waste
  - Established record-keeping requirements
  - Defined penalties that could be imposed for mismanagement

http://www.hercenter.org/rmw/rmwoverview.cfm

Medical Waste : History in the US

Lesson learned from MWTA

- The disease-causing potential of medical waste is greatest at the point of generation and tapers off after that point.
- The risk to the general public of disease caused by exposure to medical waste is likely to be much lower than the risk for the occupationally exposed individual.
- Medical waste could therefore be considered more of an ***occupational*** concern than an environmental concern affecting the general public

http://www.hercenter.org/rmw/rmwoverview.cfm

Medical Waste : History in the US

- EPA no longer plays a central role
- The states and other federal agencies (ex. EPA, OSHA, DOT, CDC, JCAHO, etc) have taken on that responsibility
  - Each with different approach or need
  - Paucity of scientific evidence
  - Leading to different practice
- ICPs must recognized which regulations are applicable for their setting and remain current

http://www.hercenter.org/rmw/rmwoverview.cfm

Comparison of Federal Waste Definition

Material	EPA[a] Regulation	DOT[b] Regulation	OSHA[c] Regulation	USPS[d] Regulation	PHS[e] Regulation	CDC[f] Guideline	EPA[g] Guideline
Cultures and stocks	Yes	Yes[h]	Yes		Yes	Yes	Yes
Pathological waste	Yes	Yes[i]	Yes		Yes	Yes	Yes
Human blood and blood products	Yes	Yes[i]	Yes		Yes	Yes	Yes
Sharps	Yes	Yes[i]	Yes	Yes	Yes	Yes	Yes
Contaminated animal waste	Yes	Yes[i]			Yes		Yes
Isolation waste	Yes	Yes[i]	Yes[j]		Yes		Yes
Other				Yes[k]			

Terminology

- **Hospital waste** : All waste, biologic or nonbiologic, that is discarded and not intended for further use
- **Medical waste** : Materials generated as a result of patient diagnosis, immunization, or treatment, such as soiled dressings or intravenous tubing.
- **Infectious waste** : Portion of medical waste that could potentially transmit an infectious disease.
- Congress and the EPA used the term **regulated medical waste** rather than infectious waste in deference to the remote possibility of disease transmission associated with this waste

Regulated medical waste : Definition

- Also known as **'biohazardous' waste, 'biomedical' waste** or **'infectious medical' waste**
- Waste that may be contaminated by blood, body fluids or other potentially infectious materials, thus ***posing a significant risk of transmitting infection***
- Responsible agencies define waste as infectious when it is suspected to contain pathogens in sufficient number to cause disease
- This subjective definition result in conflicting opinions

Type of Regulated medical waste

The following six medical wastes are commonly regulated

- Pathology and Anatomy Wastes
- Human blood and blood products
- Microbiological Waste (cultures and stocks of infectious agents)
- Sharps
- Isolation Wastes (Wastes from Highly Communicable Diseases)
- Animal Waste

กฎกระทรวง
ว่าด้วยการกำจัดมูลฝอยติดเชื้อ
พ.ศ. ๒๕๔๕

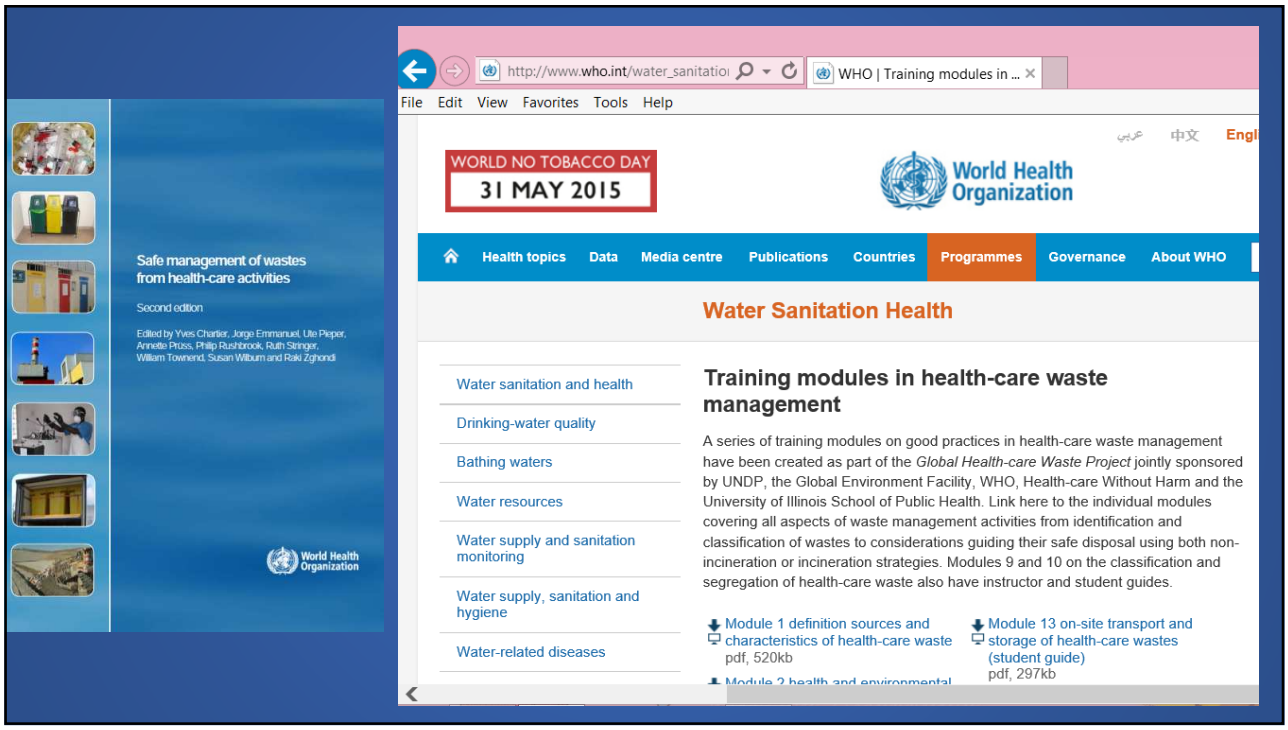
หมวด ๑
บททั่วไป

ข้อ ๓ ในกฎกระทรวงนี้

"มูลฝอยติดเชื้อ" หมายความว่า มูลฝอยที่มีเชื้อโรคปะปนอยู่ในปริมาณหรือมีความเข้มข้นซึ่งถ้ามีการสัมผัสหรือใกล้ชิดกับมูลฝอยนั้นแล้วสามารถทำให้เกิดโรคได้

กรณีมูลฝอยดังต่อไปนี้ ที่เกิดขึ้นหรือใช้ในกระบวนการตรวจวินิจฉัยทางการแพทย์ และ การรักษาพยาบาล การให้ภูมิคุ้มกันโรคและการทดลองเกี่ยวกับโรค และการตรวจชันสูตรศพหรือซากสัตว์ รวมทั้งในการศึกษาวิจัยเรื่องดังกล่าว ให้ถือว่าเป็นมูลฝอยติดเชื้อ

- ซากหรือชิ้นส่วนของมนุษย์หรือสัตว์ที่เป็นผลมาจากการผ่าตัด การตรวจชันสูตรศพ หรือซากสัตว์ และการใช้สัตว์ทดลอง
- วัสดุของมีคม เช่น เข็ม ใบมีด กระบอกฉีดยา หลอดแก้ว ภาชนะที่ทำด้วยแก้ว สไลด์ และแผ่นกระจกปิดสไลด์
- วัสดุซึ่งสัมผัสหรือสงสัยว่าจะสัมผัสกับเลือด ส่วนประกอบของเลือด ผลิตภัณฑ์ที่ ได้จากเลือด สารที่ได้จากร่างกายของมนุษย์หรือสัตว์ หรือวัคซีนที่ทำจากเชื้อโรคที่มีชีวิต เช่น สำลี ผ้าก๊อส ผ้าต่างๆ และท่อยาง
- มูลฝอยทุกชนิดที่มาจากห้องรักษาผู้ป่วยติดเชื้อร้ายแรง (ห้องรักษาผู้ป่วยซึ่งติดเชื้อร้ายแรงตามที่กระทรวงสาธารณสุขกำหนดโดยประกาศในราชกิจจานุเบกษา)


Safe management of wastes from health-care activities
Second edition
Edited by Yves Chartier, Jorge Emmanuel, Ute Pieper, Annette Prüss, Philip Rushbrook, Ruth Stringer, William Townend, Susan Wilburn and Raki Zghondi
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Water resources
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Water supply, sanitation and hygiene
Water-related diseases
Training modules in health-care waste management
A series of training modules on good practices in health-care waste management have been created as part of the Global Health-care Waste Project jointly sponsored by UNDP, the Global Environment Facility, WHO, Health-care Without Harm and the University of Illinois School of Public Health. Link here to the individual modules covering all aspects of waste management activities from identification and classification of wastes to considerations guiding their safe disposal using both non-incineration or incineration strategies. Modules 9 and 10 on the classification and segregation of health-care waste also have instructor and student guides.
Module 1 definition sources and characteristics of health-care waste pdf, 520kb
Module 13 on-site transport and storage of health-care wastes (student guide) pdf, 297kb


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Definition of Healthcare Waste
What is healthcare waste?
– Total waste stream from major healthcare establishments and from minor scattered healthcare activities
gef

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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)

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Types of Hazards of Healthcare Waste

- Hazardous nature of healthcare waste may be due to one or more of the following characteristics:
  - It contains infectious agents
  - It contains genotoxic or cytotoxic agents
  - It contains toxic or hazardous chemicals or pharmaceuticals
  - It is radioactive
  - It contains needles and other sharps

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Effects of Improper Healthcare Waste Disposal

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Categories of Healthcare Waste

- Sharps waste
- Infectious waste
- Pathological waste
- Pharmaceutical or cytotoxic waste
- Chemical waste
- Radioactive waste
- Non-hazardous/general waste

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Infectious Wastes

Healthcare wastes that are suspected to contain pathogens (or their toxins) in sufficient concentration to cause diseases to a potential host after exposure.

Review of Infectious Wastes

Waste categories	Descriptions and examples
Sharps waste	Used or unused sharps e.g. hypodermic, intravenous or other needles; auto-disable syringes; syringes with attached needles; infusion sets; scalpels; pipettes; knives; blades; broken glass
Infectious waste	Waste suspected to contain pathogens and that pose a risk of disease transmission , including • waste contaminated with blood and other body fluids • laboratory cultures and microbiological stocks • waste including excreta and other materials that have been in contact with patients infected with highly infectious diseases in isolation wards
Pathological waste	Human tissues, organs or fluids; body parts; fetuses; unused blood products

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Waste Contaminated with Blood/Body Fluids

- Examples:
  - Liquid waste blood
  - Cotton, gauze, or dressings saturated with blood or body fluids
  - Gloves, gowns, or face masks covered in blood

- Body fluids considered infectious
  - Blood, blood products (e.g., plasma, red blood cells), semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid, and body fluids that cannot be differentiated from the above-mentioned fluids

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Cultures and Stocks

- Examples:
  - Laboratory cultures used for growing microbiological agents
  - Culture dishes and devices used to transfer, inoculate and mix cultures
  - Stocks of infectious agents
  - Discarded live and attenuated vaccines

Pathological waste

- Subcategory of infectious waste, but is often classified separately
- Tissues, organs, body parts, blood, body fluids and other waste from surgery and autopsies on patients with infectious diseases
- Human fetuses and infected animal carcasses
- May include *healthy body parts* that have been removed during a medical procedure or produced during medical research

Chemical Wastes

- Hazardous chemical waste are chemicals with at least one of the following properties:
  - Toxic
  - Corrosive
    (e.g. acids of pH < 2 and bases of pH > 12)
  - Flammable
  - Reactive
    (explosive, water-reactive, shock-sensitive)
  - Oxidizing
- Non-hazardous chemical wastes do not have any of the above properties

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Chemical Wastes

- Examples of Hazardous Chemical Waste
  - Formaldehyde, glutaraldehyde
  - Photographic fixing and developing solutions
  - Laboratory solvents
  - Pesticides
  - Mercury in thermometers and sphygmomanometers
  - Disinfectants (phenols and bleach)
  - Toxic cleaners, degreasers
- Examples of Non-Hazardous Chemical Waste
  - Saline solution, glucose, amino acids, vitamins

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Pharmaceutical Wastes

- Waste that consists of expired, unused, split, and contaminated pharmaceutical products, drugs, vaccines, and sera that are no longer used
- Discarded items used in the handling of pharmaceuticals, such as bottle or boxes with residues, gloves, masks, connecting tubing, and drug vials
- Cytotoxic (chemotherapeutic or antineoplastic) drug waste

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Radioactive Wastes

- Solid, liquid, and gaseous materials contaminated with radionuclides
- Includes sealed radioactive sources, low-level waste (swabs, vials, etc.), residues, excreta from patients treated or tested with unsealed radionuclides, low-level radioactive wastewater from washing
- Body fluids of patients undergoing radiation therapy

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Non-Hazardous General Waste

- Waste that has not been in contact with infectious agents, hazardous chemicals, or radioactive substances, and that does not pose a sharps hazard
- Typically, more than half of non-hazardous general waste is paper, cardboard, and plastics

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General Wastes

- Recyclable waste
  - Mixing recyclables at point of generation with other wastes prevents recyclables from being recovered.
  - Collected, segregated and stored away from infectious and hazardous wastes to prevent cross-contamination.
- Biodegradable waste
  - Kitchen waste, food scraps, yard trimmings
- Non-recyclable waste
  - Aerosol cans may be included in general waste, providing that they are not destined for incineration.

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Steps in Healthcare Waste Management

- Waste classification
- Waste segregation
- Waste minimization
- Handling and collection
- On-site transport and storage
- Treatment and disposal

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Categories of Healthcare Waste

- Sharps waste
- Infectious waste
- Pathological waste
- Pharmaceutical or cytotoxic waste
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- Non-hazardous/general waste

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General Principles

Classifications are useful for deciding:

- Treatment approaches
  - Steam disinfection – infectious waste, blood or body fluids, microbiological waste
  - Burial – anatomical waste, human tissues
  - Incineration with pollution control – cytotoxic waste
- Waste minimization options
  - Recycling – paper, glass, aluminum
  - Composting – kitchen waste, yard waste
  - Materials recovery – silver from x-ray waste

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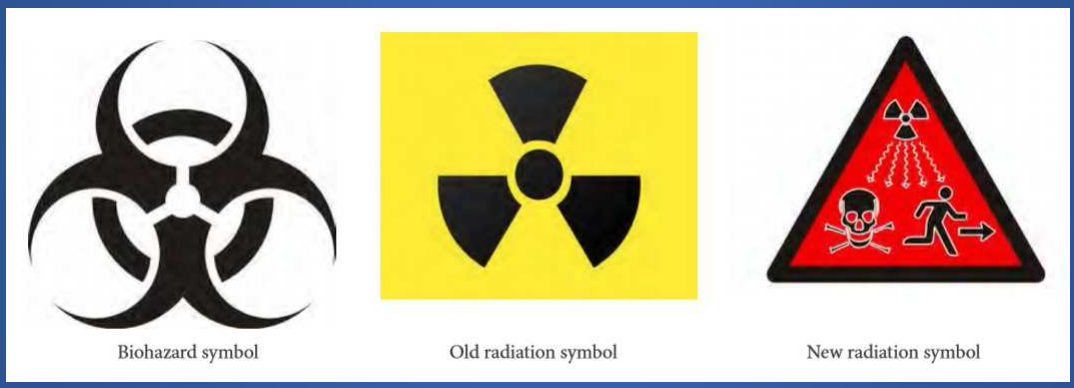
Why Segregate Healthcare Waste?

- To reduce the amount of waste that must be treated as hazardous waste
- To reduce the risks of exposure to hazardous healthcare waste for workers
- To lower the cost of treatment and disposal of healthcare waste
- To make possible the recycling of non-hazardous general waste

WHO-recommended segregation scheme

Type of waste	Colour of container and markings[a]	Type of container
Highly infectious waste	Yellow, marked "HIGHLY INFECTIOUS", with biohazard symbol	Strong, leak-proof plastic bag, or container capable of being autoclaved
Other infectious waste, pathological and anatomical waste	Yellow with biohazard symbol	Leak-proof plastic bag or container
Sharps	Yellow, marked "SHARPS", with biohazard symbol	Puncture-proof container
Chemical and pharmaceutical waste	Brown, labelled with appropriate hazard symbol	Plastic bag or rigid container
Radioactive waste[b]	Labelled with radiation symbol	Lead box
General health-care waste	Black	Plastic bag



Biohazard symbol

Old radiation symbol

New radiation symbol

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Steps in Healthcare Waste Management

- Waste classification
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Waste minimization :
The Waste Management Hierarchy

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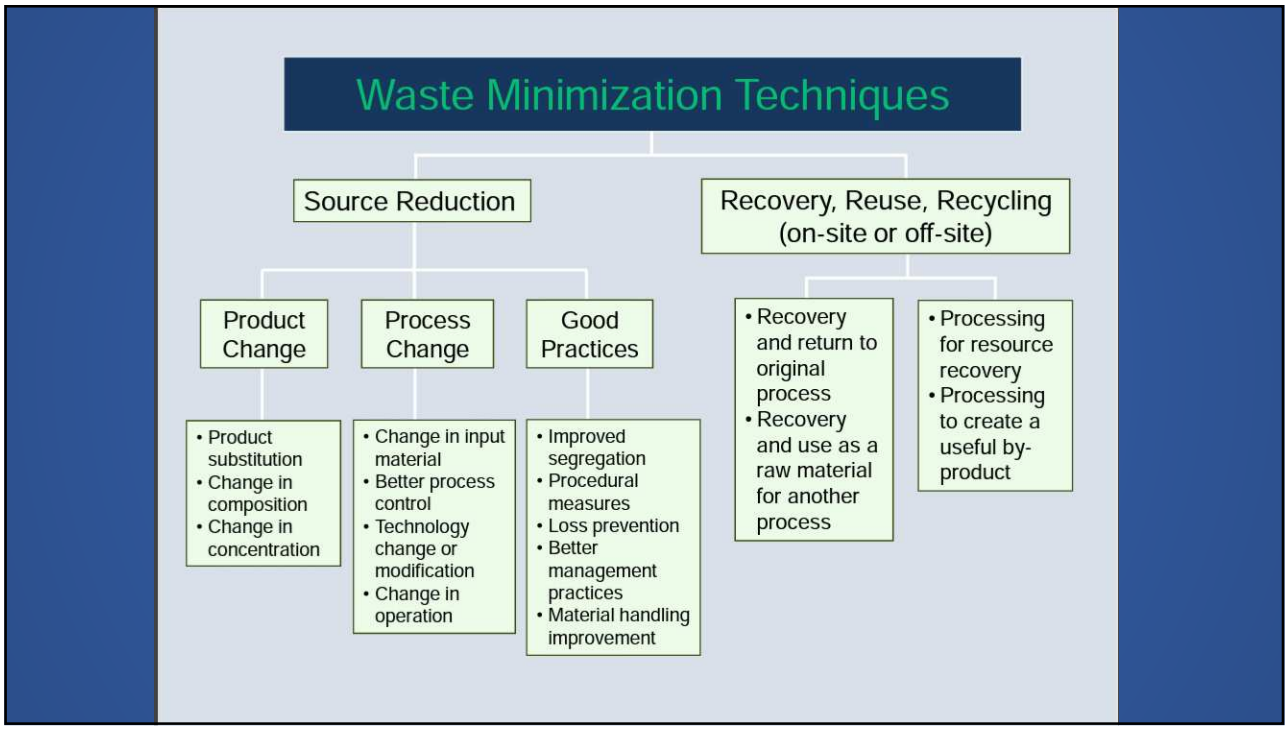
What is Waste Minimization?

- Preventing or reducing generation of waste through an emphasis on source reduction and recycling
  - source reduction is preferred, where possible
  - for lasting waste minimization, focus on working with the medical staff to make changes towards less wasteful clinical practices


Waste Minimization Techniques
Source Reduction
Recovery, Reuse, Recycling (on-site or off-site)
Product Change
Process Change
Good Practices
• Recovery and return to original process
• Recovery and use as a raw material for another process
• Processing for resource recovery
• Processing to create a useful by-product
• Product substitution
• Change in composition
• Change in concentration
• Change in input material
• Better process control
• Technology change or modification
• Change in operation
• Improved segregation
• Procedural measures
• Loss prevention
• Better management practices
• Material handling improvement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Specific Examples of Waste Minimization in Health Facilities
• Source Reduction
– Environmentally preferable purchasing
– Inventory control in pharmacy and stockroom
– Employing reusable and recycled products
• Recovery and Reuse
– Solvent recovery in the hospital laboratory
– Silver recovery in the x-ray department
• Recycling
– Recycling office paper, newspapers, aluminum cans, glass bottles, construction debris, printer toners, etc.
• Composting
– Composting of kitchen waste and yard waste

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Environmentally Preferable Purchasing (EPP)

- Purchasing products or services whose environmental impacts have been assessed and found to be less damaging to the environment and human health when compared to competing products/services
- Also called "green purchasing"
- Includes everything from recycled paper at the simplest level to medical equipment at higher levels
- Employs a 'life-cycle' approach to reduce overall environmental impact

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Plastics and Green Purchasing

- Healthcare facilities could investigate options for purchasing plastics that can be easily recycled, or goods supplied with less packaging material.
- The most easily recyclable plastics are:
  - polyethylene
  - polypropylene
  - polyethylene terephthalate
- Polyvinyl chloride (PVC) is the most difficult to recycle due to the many additives used in its different forms
  - PVC use should be avoided because of the potential toxicity of its additives and the formation of dioxins and furans from burning of PVC plastics.

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Safe Reuse of Materials

- In general, using non-disposable items for health services will help to minimize waste quantities
  - Reusable items should be emphasized over single-use items, so long as cleaning (or sterilization in the case of critical items) will prevent the risk of infection
- Single-use items should never be reused because they cannot be properly sterilized and pose a risk of cross-infection
  - Reusing disposable syringes and hypodermic needles pose great risk of spreading disease

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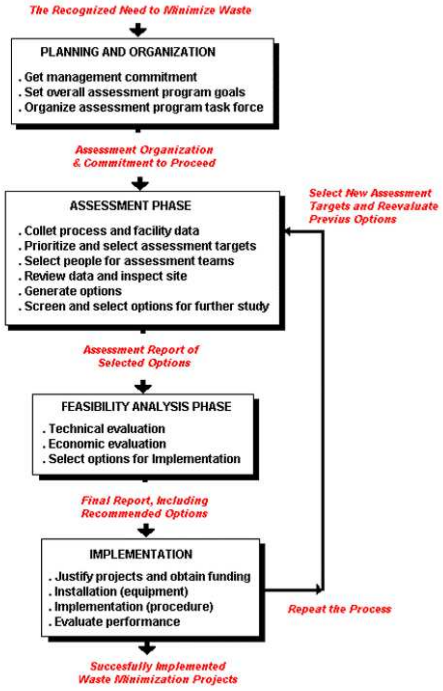
Examples of Single-Use vs. Reusable Products

Single-Use Disposables		Reusable Products
• Disposable gowns	→	• Washable cloth gowns
• Paper plates & cups, plastic spoons & forks	→	• Washable dishware, glass and cutlery
• Disposable bed pans	→	• Sterilizable metal pans
• Disposable wipes	→	• Washable cloth
• Single-use batteries	→	• Rechargeable batteries
• Single-use cardboard packaging	→	• Reusable plastic containers

Stages in the Waste Minimization Process



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Steps in Healthcare Waste Management

- Waste classification
- Waste segregation
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Infectious Waste Collection

- Wastes should be transported to the designated central or interim storage area
- Waste bags and containers should be labeled with the date, type of waste, and point of generation so that it can be correctly and easily tracked through to disposal
- Do not redistribute the waste contents by shaking the bag as this could cause liquids or aerosols to be released.

Interim (short-term) storage in medical departments

- Should be stored in utility rooms
- Designated location near to medical area but away from patients and public access (if utility rooms not available)
- Another possibility is a closed container stationed indoors, within or close to a medical area

Interim waste storage ready for collection

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Infectious Waste Containers

- Ideal infectious waste containers are those that have
  - Lids that remain closed except when waste is discarded
  - Pedal-operated devices to open the lids
  - Color-coded bags inside the containers

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Waste Labeling

- Should be established as part of a healthcare waste management plan
- Recommended waste label content:
  - Date
  - Type of waste
  - Point of generation (to allow tracking)
- Weight should be routinely recorded, where possible.

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Waste Handling

- Should be established as part of a healthcare waste management plan
- Waste handling
  - Requires use of proper PPE
  - Requires use of good body mechanics

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Waste Collection

- Should be established as part of a healthcare waste management plan
- Waste collection
  - Should ensure that waste from each area is collected at least daily (except for sharps)
  - Should ensure that containers are not overfilled
  - Should ensure segregation is maintained
- Sharp waste should be collected when the box is 3/4th filled

Onsite transport of waste

- Should take place during less busy times
- Set routes should be used to prevent exposure
- Regular transport routes and collection times
- Should use separate floors, stairways or elevators as far as possible
- Transport staff should wear adequate personal protective equipment
- Transprot hazardous and non-hazardous separately

Transport trolleys

- No sharp edges
- Labelled and dedicated to a particular waste type
- Easy to push and pull
- Easy to load and unload
- Easy to clean
- Not be too high
- Secured with a lock (for hazardous waste)

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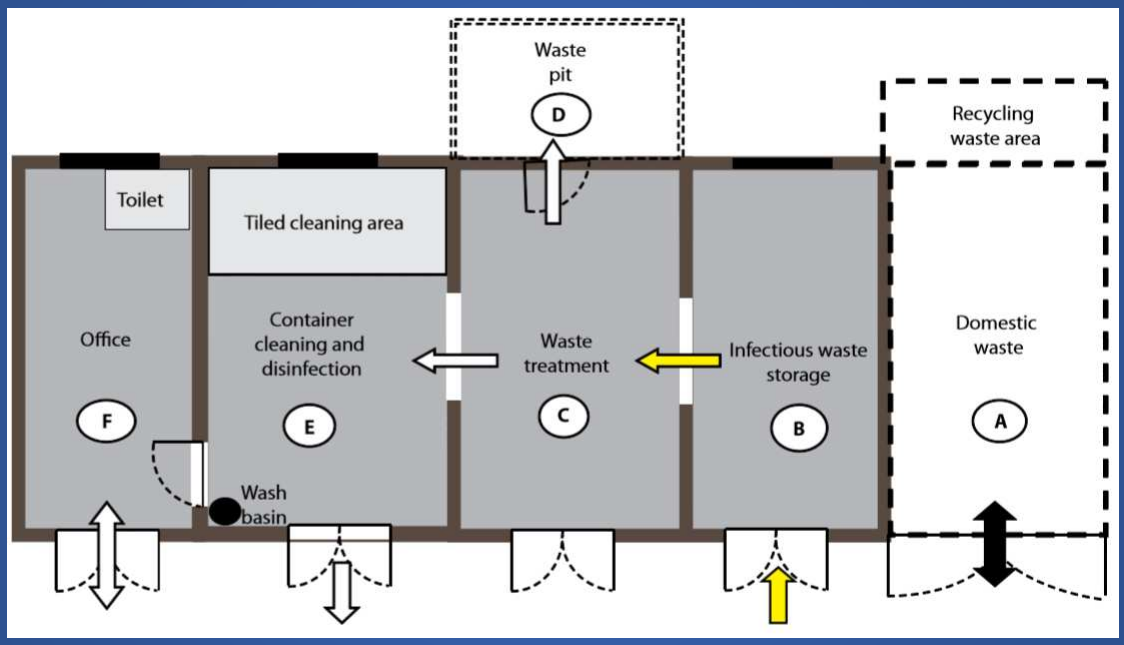
General Requirements for Storage Areas

The storage area should:

- have an impermeable, hard-standing floor with good drainage
- be easy to clean and disinfect (a tiled floor and walls are recommended)
- have facility to keep general waste separated from infectious and other hazardous waste
- have a water supply for cleaning purposes
- have easy access for staff in charge of handling the waste
- have a lock to prevent access by unauthorized persons
- have easy access for waste-collection vehicles
- be protected from the sun, rain or snow
- be inaccessible to animals, insects, and birds



Offsite transport of waste : The carriage of health-care waste on the public streets

- Drivers should have appropriate training about risks and handling of hazardous waste
- Vehicle should fulfil several design criteria
- Transport documentation should be prepared and carried by the driver

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Steps in Healthcare Waste Management

- Waste classification
- Waste segregation
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- Treatment and disposal

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Processes Used in the Treatment of Healthcare Waste

- Five basic processes are used for the treatment of hazardous healthcare wastes, particularly sharps, infectious and pathological waste:
  - Thermal
  - Chemical
  - Irradiation
  - Biological
  - Mechanical (used to supplement the other processes)

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Disposal Methods

- Healthcare wastes properly treated in autoclaves, hybrid steam-based systems, microwave units, frictional heat systems, and dry heat systems
  - are sterilized or decontaminated to high disinfection levels
  - have far fewer microorganisms or practically no microorganisms compared to household waste
  - can be discarded with regular waste in a landfill
- Special measures have to be taken for sharps waste (e.g., encapsulation or shredding) if discarded in a poorly controlled dumpsite

Examples of Healthcare Waste

Examples of Healthcare Waste

Department	Sharps	Infectious and pathological waste	Chemical, pharmaceutical and cytotoxic waste	Non-hazardous or general waste
Medical ward	Hypodermic needles, intravenous set needles; broken vials and ampoules	Dressings, bandages, gauze, and cotton contaminated with blood or body fluids; gloves and masks contaminated with blood of body fluids	Broken thermometers and blood pressure gauges; split medicines; spend disinfectants	Packaging, food scraps, paper, flowers, empty saline bottles, non-bloody diapers; non-bloody IV tubing and bags
Operating theatre	Needles, IV sets, scalpels, blades, saws	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	Spent disinfectants	Packaging, uncontaminated gowns, gloves, masks, hats and shoe covers
Laboratory	Needles; broken glass, Petri dishes, slides and cover slips; broken pipettes	Blood and body fluids; microbiological cultures and stocks; tissue; infected animal carcasses; tubes and containers contaminated with blood or body fluid	Fixatives; formalin; xylene, toluene, methanol, methylene chloride, and other solvents; broken lab thermometers	Packaging; paper, plastic containers

Examples of Healthcare Waste

Department	Sharps	Infectious and pathological waste	Chemical, pharmaceutical and cytotoxic waste	Non-hazardous or general waste
Pharmacy store	Broken bottles, broken thermometers		Expired drugs, Spilled drugs Empty containers	Packaging; paper, empty containers
Radiology			Silver; fixing and developing solutions; acetic acid; glutaraldehyde	Packaging, paper
Chemotherapy	Needles and syringes		Bulk chemotherapeutic waste; vials, gloves and other material contaminated with cytotoxic agents; contaminated excreta and urine. IV sets containing chemotherapy drugs are cytotoxic waste	Packaging, paper

Examples of Healthcare Waste

Department	Sharps	Infectious and pathological waste	Chemical, pharmaceutical and cytotoxic waste	Non-hazardous or general waste
Vaccination campaigns	Needles and syringes		Bulk vaccine waste; vials, gloves	Packaging
Cleaning Services	Broken glass		Disinfectants (glutaraldehyde, phenols, etc.), cleaners, spilled mercury, pesticides	Packaging, flowers, newspapers, magazines, cardboard, plastic and glass containers, yard waste
Engineering			Cleaning solvents, oils, lubricants, thinners, asbestos, broken mercury devices, batteries	Packaging, construction or demolition waste, wood, metal
Food services				Food scraps; plastic, metal and glass containers; packaging

Management of Specific Infectious Wastes

Sharps Waste

- Sharps are items that can cause cuts or puncture wounds, including:
  - needles, hypodermic needles, scalpel and other blades, knives, infusion sets, saws, broken glass, and pipettes

- ***Whether or not they are infected***, sharps are considered as highly hazardous health care waste

Sharps Waste Management

Sharps collection

- Sharps containers should be readily accessible in areas where sharps are used
- Sharps containers should only be filled up ¾ full

Handling sharps containers

- Check all sides for any holes or protruding needles before lifting the container
- If there are holes in the container, carefully place the container inside a larger puncture-resistant container
- Always ensure new container is available before removing the old one

Options for Sharps Waste Treatment

- Autoclaving followed by shredding of sterilized sharps waste to prevent needle stick injuries
- Autoclaving presents an opportunity for recovery and re-melting of sterilized plastic and metal parts

Options for Sharps Waste Treatment

Devices for needle destruction

- Needle melters
  - needle is melted and often the plastic nub of the syringe is cut
  - syringes still need to be disinfected
- Needle cutters
  - needle is cut manually and collected in a container
  - some needle containers may contain a chemical disinfectant
  - syringes are disinfected either by chemical disinfection, autoclaving, or microwaving
  - disinfected syringes can be shredded and re-melted

Example of Autoclaves and Re-melting

Hub cutter used to separate needles and plastic syringe parts

Sharps waste → Hub cutter

Hub cutter → Collect needles → Treat in an on-site autoclave → Bury in a pit

Hub cutter → Collect plastic syringe → Treat in an on-site autoclave → Shred

Shred → Recycle at plastics plant

Swiss Red Cross project in Kyrgyzstan

Plastics re-melted to make coat hangers, flower pots and electrical covers

Is this considered to be “Infectious waste”?

- Blood-tainted waste (materials with minor blood contamination that, if squeezed, would not drip even one drop of blood or other potentially infectious material
- Waste including excreta and other materials that have been in contact with patients infected with in isolation wards (ex. Non-bloody diapers)

Table 2.1 Categories of health-care waste

Waste category	Descriptions and examples
Hazardous health-care waste	
Sharps waste	Used or unused sharps (e.g. hypodermic, intravenous or other needles; auto-disable syringes; syringes with attached needles; infusion sets; scalpels; pipettes; knives; blades; broken glass)
Infectious waste	Waste suspected to contain pathogens and that poses a risk of disease transmission (see section 2.1.2) (e.g. waste contaminated with blood and other body fluids; laboratory cultures and microbiological stocks; waste including excreta and other materials that have been in contact with patients infected with highly infectious diseases in isolation wards)

What is *not* RMW?

- In some states, 'saturated' typically refers back to the OSHA blood borne pathogen standard, referring to "contaminated items that ***would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed***".
- It would be a misinterpretation is to assume that any medical product that comes into contact with blood, body fluids or other potentially infectious materials, no matter how minor the contact, automatically becomes RMW.

http://www.hercenter.org/rmw/rmwoverview.cfm

Medical Waste Best Management Practices

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Non-Infectious Medical Waste

This includes all non-infectious waste materials generated at health care facilities, such as:

- IV bags, tubing, foley bags
- non-bloody gloves
- packaging
- urine-soaked waste, feces, vomit
- blood-tainted waste (materials with minor blood contamination that, if squeezed, would not drip even one drop of blood or other potentially infectious material)

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Medical Waste
Best Management Practices

Disposal of Non-Infectious Waste

Non-infectious waste does not need to be disinfected and can be discarded with solid waste. It is recommended that staff who come into contact with both infectious and non-infectious medical waste receive adequate training to successfully identify both.

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Medical Waste
Best Management Practices

Infectious Medical Waste

This is waste that may be contaminated by blood, body fluids, or other potentially infectious materials. It is likely to transmit infection and endanger human health, agriculture, and the environment. Infectious medical waste is also known as *biohazardous waste* or *regulated medical waste*. Examples include:

Infectious Medical Waste

- **Blood-Saturated Waste.** Contaminated items that, if compressed, would drip or release blood or other potentially infectious materials in a liquid or semi-liquid state. (Blood-*saturated* waste is considered infectious; blood-*tainted* waste is not.)
- **Pathological and Anatomical Waste.** Tissues, organs, body parts, and body fluids removed during surgery and autopsy.
- **Human Blood and Blood Products.** Also known as *liquid medical waste.* Includes waste blood, serum, plasma, blood products, and other potentially infectious materials.
- **Cultures and Stocks of Infectious Agents.** Also called *microbiological waste.* Includes specimens from medical and pathology laboratories; culture dishes and devices used to transfer, inoculate, and mix; and discarded live and attenuated vaccines.
- **Sharps.** Contaminated hypodermic needles, syringes, scalpel blades, Pasteur pipettes, and broken glass.
- **Isolation Waste.** Generated by hospitalized patients who are isolated to protect others from communicable disease.
- **Contaminated Animal Carcasses, Body Parts, and Bedding.** Also includes related wastes that may have been exposed to infectious agents during research or pharmaceutical testing.

Pathology and Anatomy Wastes

- Pathological wastes : typically samples of tissues - very small tissues sections and body material derived from biopsies or surgical procedures that are then examined in the lab.
- Anatomical wastes : typically distinguished as recognizable human organs, tissue and body parts → may require special treatment under some state regulations

Some states do not consider hair, teeth and nails to be pathological/anatomical waste.

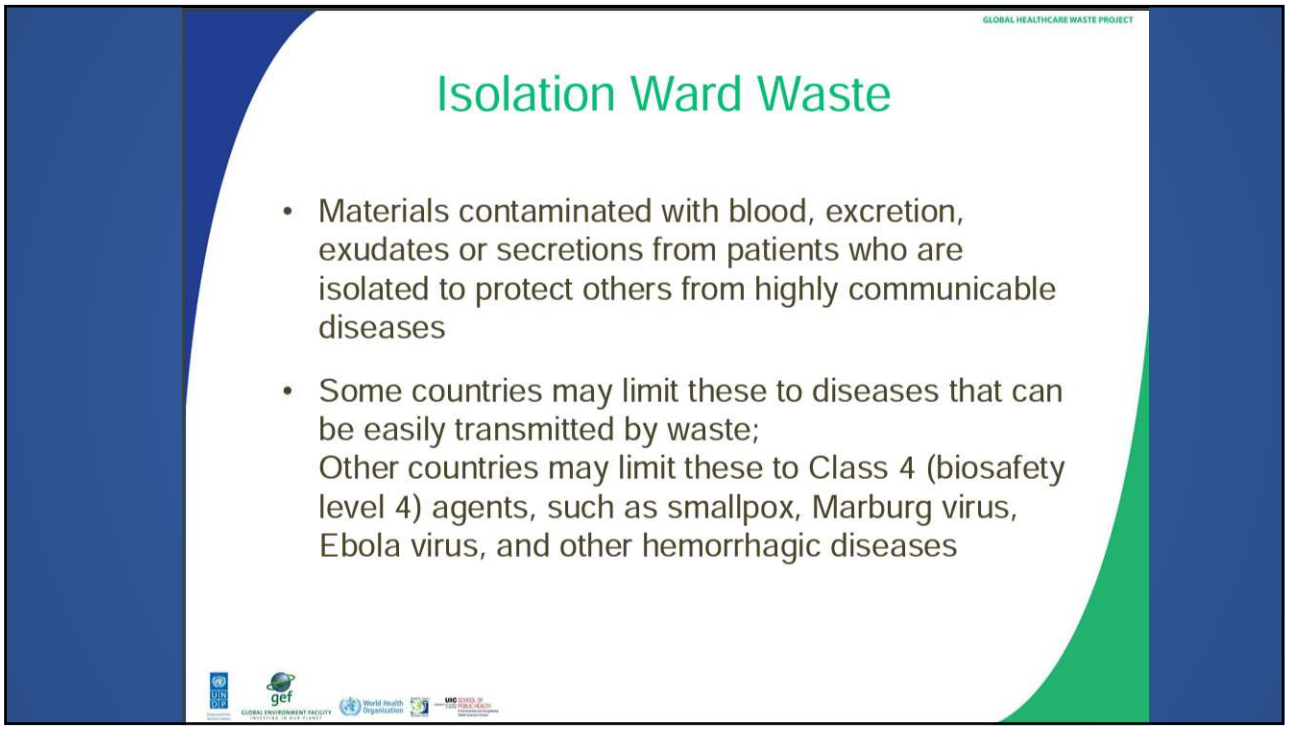
http://www.hercenter.org/rmw/rmwoverview.cfm

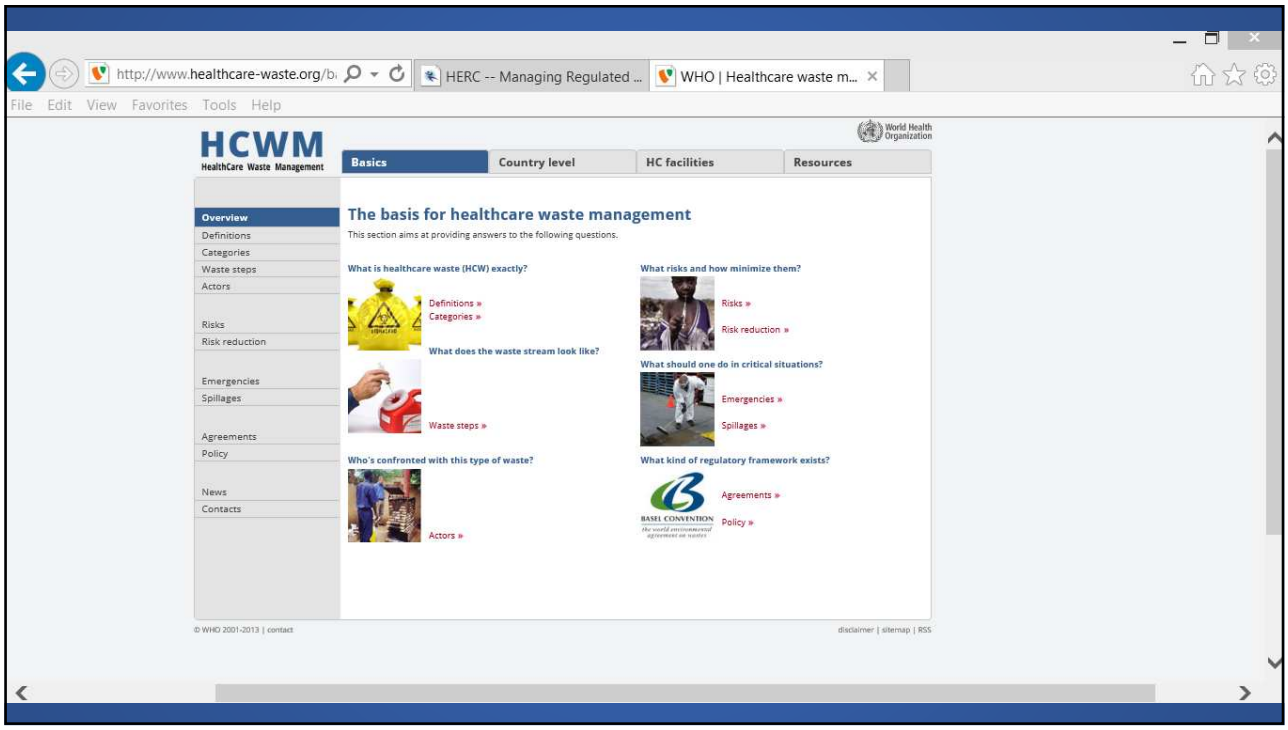
Isolation Wastes

- **Wastes from Highly Communicable Diseases**

- Biological waste and discarded materials contaminated with blood, excretion, exudates or secretion from humans or animals who are isolated to protect others from highly communicable diseases (Lassa fever virus, Marburg virus, monkey pox virus, Ebola virus and others (see list in Table 27- CDC)

http://www.hercenter.org/rmw/rmwoverview.cfm




http://www.healthcare-waste.org/b
HERC -- Managing Regulated ...
WHO | Healthcare waste m...
File Edit View Favorites Tools Help
HCWM
HealthCare Waste Management
World Health Organization
Basics
Country level
HC facilities
Resources
Overview
Definitions
Categories
Waste steps
Actors
Risks
Risk reduction
Emergencies
Spillages
Agreements
Policy
News
Contacts
The basis for healthcare waste management
This section aims at providing answers to the following questions.
What is healthcare waste (HCW) exactly?
Definitions »
Categories »
What does the waste stream look like?
Waste steps »
Who's confronted with this type of waste?
Actors »
What risks and how minimize them?
Risks »
Risk reduction »
What should one do in critical situations?
Emergencies »
Spillages »
What kind of regulatory framework exists?
BASEL CONVENTION
Agreements »
Policy »
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