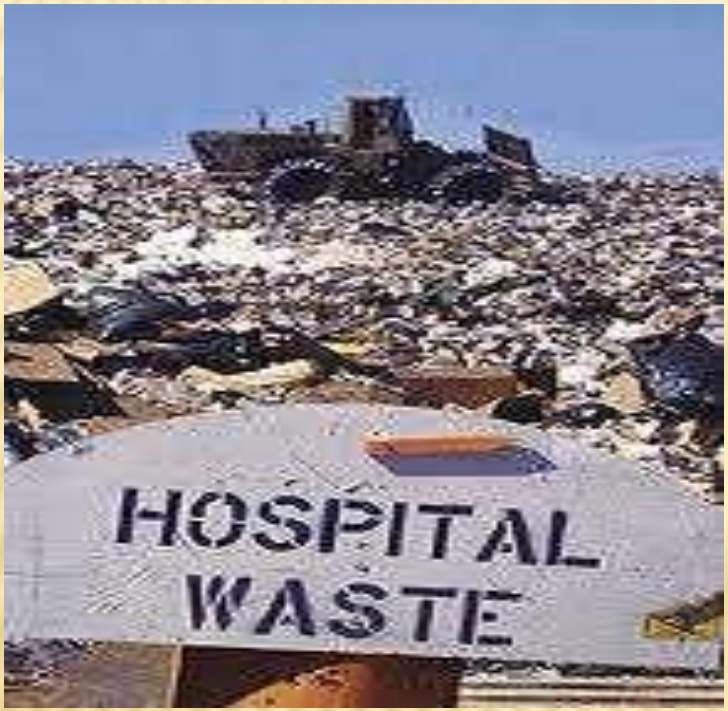
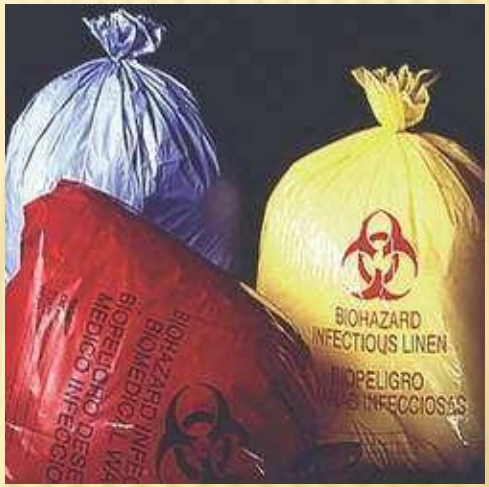
Subject: Advance Services

Topic: Waste Management

Presented by: Kavita Nagpal

HOSPITAL WASTE MANAGEMENT





DEFINITION

- Hospital waste are the waste produced in the course of health care activities during Treating,Diagnosing,and Immunizing Human being or animals or while doing Study/Research activities.

- 75-90% Non-Hazardous/General Waste
- 10-15% -Hazardous

WHO CLASSIFICATION

Waste Categories	Description and Examples
1.General Waste	No risk to human health eg:office paper,wrapper,kitchen waste,general sweeping etc.
2.Pathological Waste	Human Tissue or fluid eg:body parts,blood,body fluids etc.
3.Sharps	Sharp waste eg:Needle,scaples,knives,blades etc.
4.Infectious waste	Which may transmit bacterial,viral or parasitica disease to human being,waste suspected to contain pathogen eg:labrotory culture,tissues(swabs)bandage etc.
5.Chemical waste	Eg:Labrotory reagent,disinfectants,Film Developer
6.Radio-active waste	Eg: unused liquid from radiotherapy or lab research,contaminated glasswares etc.

Waste Categories	Description with examples
7.Pharmacutical Waste	Expired outdated drugs /chemicals
8.Pressurized container	Gas cylinder,aerosal cans etc
9.Genotoxic Waste	Waste Containing Cytotoxic Drugs(often Used In Cancer Therapy)

SOURCE OF HEALTH CARE WASTE

- Governmental Hospital
- Private Hospital
- Nursing Homes
- Physician’s Office
- Dentist Office
- Dispenseries
- Mortouries
- Blood Bank and collection center
- Animal Houses
- Labrotories
- Research Organizations

AVERAGE COMPOSITION OF HOSPITAL WASTE IN HOSPITALS

Types of Waste	Percentage
Medical General waste	62%
Infectious Hazardous waste	23%
Non-degradable medical waste (saline Bottle)	12%
Bio-Medical sharp	3%

GENERATION,SEGREGATION,COLLECTION,STORAGE,TRANSPORTATION AND TREATMENT OF WASTE

SOPs for this system may differ from Hospital to Hospital/Nation wise.

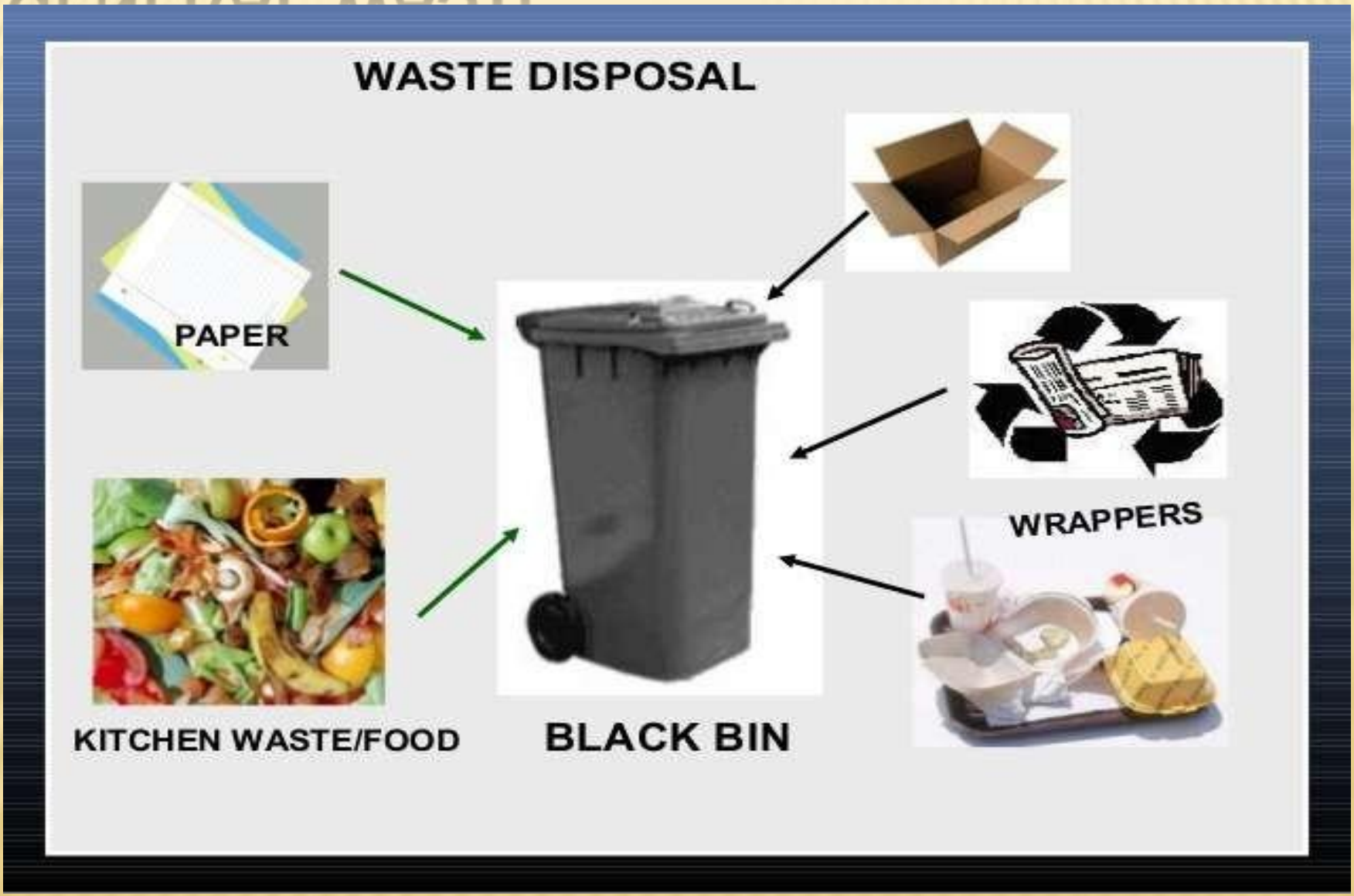
- 1.Generation:

Type	Site of Generation	Disposal By
Non-Hazardous waste/General waste	Office,Kitchen,Administration,Hostels,Stores,Rest rooms etc	Muncipal/Public Authority
Hazardous (Infectious & toxic waste)	Wards,Treatment room, Dressing room, OT, ICU,Labour room, Labrotory, Dialysis room, CT scan, Radio-imaging etc	Hospital itself

- 2.Segregation:

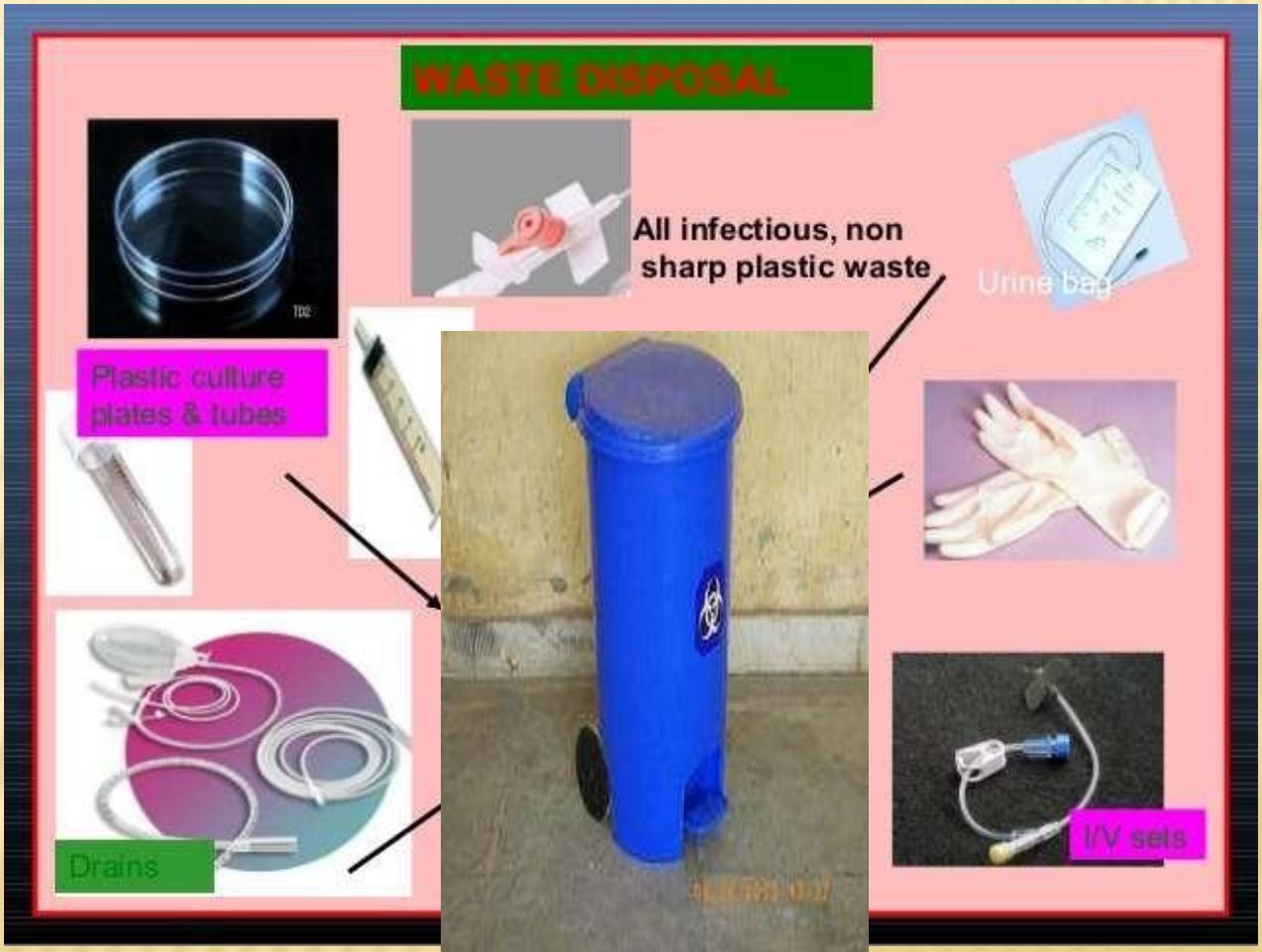
  Done at point of Generation of waste and put in separate coloured bags.Color coding varies from nation to nation.For eg. In AIIMS hospital,New delhi, Following color code bags are practised.

GENERAL WASTE



INFECTIOUS WASTE/PATHOLOGICAL WASTE

SHARP AND DISPOSABLE WASTES



- 3.Collection of waste:
- Centralized sanitation staffs or any other sanitation staffs should collect the waste during morning afternoon or evening under the supervision of nursing staff and sanitation supervisor; documentation should be done in register; Garbage bin should be cleaned and disinfected regularly.

- 4. Storage of Waste:
- Waste should not be stored in the generation area for more than a period of 4-6 hours.
- It is responsibility of paramedic/sanitation staff to check for segregation
- Waste collected in various areas should be transported for disposal/Treatment.

- Transportation:

- There should be separate corridor and lift in hospital to carry and transport waste.
- General waste are deposited at municipal dumps.
- Waste for autoclaving and incineration are dumped at separate site for external trasport (should have separate coloured plastic bag for these waste)
- Transportation should be done in sealed container/sanitation supervisor should ensure for leakage.

TREATMENT & DISPOSAL TECHNOLOGIES

- 1.Incineration
- 2.Chemical Disinfection
- 3.Wet and dry thermal treatment
- 4.Microwave irradiation
- 5.Land disposal
- 6.Inertization

1. Inceneration:

- High tempreture dry oxidation process that reduce organic and combustible waste into inorganic incombustible matter. Resulting in significant reduction in waste volume and weight.

--Process is selected to treat waste that cannot be recycled,reused or can be disposed in land.

- 2.Chemical disinfection:
- Commonly Used for treatment of liquid infectious waste eg.blood,urine,stool and hospital sewage
- Chemicals are added to waste to kill or inactivate the pathogen it contains.

3.Wet and Dry thermal treatment:

- Wet thermal treatment/steam disinfection is based on exposure if infecious waste to high tempreture and high pressure steam similar to process of autoclaving, inapropriate for treating anatomical waste, chemical and pharmaceutical waste.

.

- 4. Microwave radiation

- Microwave of frequency 2450MHZ and wave length 12.24cm used to destroy the microorganism. water contained in the waste is rapidly heated by microwave and infectious components are destroyed by heat conduction.

5. Land Disposal:

- A.Open Dumps: risk for public health
- B.Sanitary landfills: designed and constructed to prevent contamination of soil,surface,ground water and direct contact with public.

6. Inertization

- Process of mixing waste with cement and other substances before disposal in order to minimize the risk of toxic substance migrating into surface water or ground water and to prevent scavenging.

- Proportion of 65% waste 15%lime 15% cement and 5% water is used.