BIO- MEDICAL WASTE

Waste: Anything is made for intended purpose. Anything that is not meant for further use, is termed as waste.

Hospital waste: Any waste that is generated in diagnosis, treatment and immunization of human beings or animals or research in a hospital is termed as biomedical waste.

Hospital waste management means management of hospital waste in techniques that will help to check the spread of disease through.

WHO CLASSIFICATION OF WASTE

Non-Hazardous waste

General waste; No harm to human beings eg paper, food remains, general sweepings etc

Hazardous waste

Pathological waste; Human tissue or body fluids, blood, bloody fluids,

Sharps; scalpel, knives,blades

Infectious waste; which may transmit bacteria, viral or parasitic infections to human beings, anything considered/suspected to have pathogens eg swabs, lab cultures,bandages.

Chemical waste; laboratory reagents, film developers

Radioactive waste; chemical remains from radiotherapy, contaminated glasswares.

CLASSIFICATION OF HOSPITAL WASTE

Non- hazardous: biodegradable and non- biodegradable, accounts for 80%

Potential infections:dressings, lab swabs,bandages, instruments used, accounts for 15%

Potentially toxic: chemical waste, Radioactive waste, pharmaceutical, accounts for 5%

SOURCES OF WASTE IN HOSPITAL

Wards

Theatre

Laboratory

Outpatient

Offices

Radiology department

General compound

Health Risk from poor hospital waste management

1. Injuries from sharps leading to risk of infections to all categories of personell and waste handlers in the hospital

2. Risk of infection outside the hospital for the waste handlers and scavengers, at times to the general public that is living within the hospital vicinity.

3. Risk associated with hazardous waste of chemicals and drugs for the waste handlers at all levels.

WHO ARE AT RISK?

Clinicians

Doctors

Nurses

Ward staff

House keepers

Patients and visitors

Community

Environment

HEALTH HAZARDS

Infections

Genotoxicity - any property of chemical agents that damages genetic information within a cell causing mutations that may lead cancer. cytotoxicity - quality of being toxic to cells.

Chemical toxicity

Radioactivity hazards

Physical injuries

Public sensitivity

MANAGEMENT OF HEALTHCARE WASTE

Effective management of waste needs;

1. National policy, strategy, plan, guidelines, and standard operating procedures

2. Rules/ legislation of waste management

3. Political committment

4. Committed manpower

5. Good management

6. Proper budgetary allocations

WASTE MANAGEMENT HIERARCHY

Most preferred to the least preferred

Prevent

Reduce - lowering the amount of waste produced

Reuse - using the materials repeatedly

Recycle - use materials to make new items

Recover - recovering Energy from waste

Treat - }. Safe disposal to a landfill.

Dispose -}

WHO HOSPITAL WASTE MANAGEMENT CYCLE

1. Waste minimisation

2. Waste identification

3. Waste segregation

4. Waste handling

5. Waste treatment and disposal

6. Record keeping

7. Training

8. Supervision and monitoring

STEPS OF HOSPITAL WASTE MANAGEMENT

Training and awareness

Generation

Segregation and separation

Collection

Transportation

Storage

Treatment

Final disposal

WASTE MINIMIZATION: process of elimination that involves reducing the amount of waste produced in a society and helps to eliminate the generation of harmful and persistent waste.

WASTE IDENTIFICATION: An appropriate way of identifying waste is by sorting the waste into different colour code. Colour code is for easier identification hence enable safe handling, transportation and safe treatment of the waste. Colour codes differ from country to country.

Colour code in Kenya

Red - highly infectious

Yellow - infectious waste

Black - general waste

White - sharps.

WASTE SEGREGATION: dividing or separating waste at the earliest opportunity possible, at the point of origin. Not allowing hazardous waste to mix with Non-Hazardous waste.

If waste is properly segregated small amounts requires disposal hence the related manpower, related cost and related cost lowered.

If proper segregation is not done, a small amount of Hazardous waste may have a chance of mixing with non- hazardous waste making the large amount of general waste Hazardous.

WASTE HANDLING: links between packing, storage and transportation of medical waste from all areas of the institution by designated individuals.

OUT-FIT OF WASTE HANDLERS

Thick gloves

Masks

Long- sleeved shirts

Plastic aprons

Trousers

Boots

WASTE COLLECTION: collectors must wear protective materials. Collection of waste in coloured bags or coloured covered bins. Content of containers should not exceed three quarters full of its capacity. If the bag is used for waste tie the neck tightly. Avoid throwing, dragging on the floor or holding at the bottom of the containers.

TRANSPORTATION: Waste should be carried by designated individuals with a trolley designated for waste transportation and follows a designated route and time as scheduled by the institution.

RECORD KEEPING: Accurate record keeping is needed for effective waste management. Record keeping shall be important to give information like; the current expenditure on waste management, quality and quantity of waste generated.

TREATMENT AND FINAL DISPOSAL OF HOSPITAL WASTE

The principles are;

Incineration/ destruction with temp above 850 degrees centigrade

Chemical disinfection

Render inert

FINAL DISPOSAL METHODS

1. General non- Hazardous waste - secure landfills

2. Liquid waste - Chemical disinfectant, neutralisation with reagents and discharging to the sewerage system.

3. Human anatomical waste - Incinerated and sent to landfills

4. Sharps - needles can be destroyed by needle cutters and contained 1% bleach solutions then disposed into a landfill

5. Microbiology waste - autoclave, microwave, incineration and landfill

6. Infectious solid waste - incineration then landfills

7. Radioactive waste - solid wastes are disposed by concentration and storage

Thank you.

Wish you all the best.