

HOSPITAL WASTE MANAGEMENT ISSUES AND STEPS TAKEN BY THE GOVERNMENT OF PAKISTAN

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Sequence of Presentation

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Introduction

- **Hospital waste include** all waste arising from healthcare establishments.
- Studies in Pakistan show that large hospital's generate 2.0 kg of waste, per bed per day. Of this, 0.5 kg can be categorized as **biomedical risk waste**.
- There are many small hospitals and clinics which also generate risk waste in significant quantities.

Introduction (contd.)

- Daily Medical Waste Generation
(from both public & private sector hospitals):
Approx 0.8 million tons (Source: UN & HSA, MoH)
- Improper disposal practices results in reuse of discarded syringes, IV tubes, blood bags and other equipment which is not designed for either sterilization or reuse.
- If hospital waste is not properly managed and disposed of, it can result in injury by contaminated sharps and infection with **Hepatitis B, C, and HIV**.

Situational Analysis

1. In Pakistan there are about 92,000 beds in public sector hospitals
2. Pakistan –Population 160 million will rise to 250 million by year 2025
3. Amount of Hospital Waste generated will increase to alarming rates due to growth of population and healthcare facilities
4. No well established segregation system
5. Frequent dumping of hospital waste with municipal waste

Situational Analysis (contd.)

6. Major sources of water table pollutions
7. Lapses in Landfill designs
8. Maintenance and monitoring issues of incinerator technology
9. Issues related to behaviors change
10. Need proper integrated management, priority setting & infrastructure development





HOSPITAL WASTE MANAGEMENT PROJECT

(May 2004 – August 2006)



Main Objectives

- Review the existing conditions of HWM facilities
- Identify deficiencies in the major cities
- Propose a financially viable program for elimination of environmental and health hazards
- Consolidate the work already done in the area

Project Outcomes

- Hospital Waste Management Rules 2005
- Guidelines on Hospital Waste Management
- Specifications and Guidelines on Incinerators
- Training Manuals for Paramedics

Major Recommendations

Areas:

- a. Implementation of HWM Rules 2005 at all levels
- b. Improvement through HWM Guidelines at District Level
- c. SOPs: formulation by all healthcare facilities
- d. Regular Training Programmes / Refreshers (Cadre-wise)
- e. HWM component needs improvement in curriculum at MBBS/BDS/DVM & nursing / paramedics level
- f. Mass Awareness
- g. Stick & carrot policy
- h. Enforcement of laws needed to nudge hospitals into compliance
- h. Research

Responsibility for Waste Management

Waste Management Team of the Hospital/ Clinic/
Lab. shall be responsible to ensure proper
management of the waste generated in the
Hospital/ Clinic/ Lab.

Duties & Responsibilities of WMT

- Preparation and Monitoring of Plan
- Periodic Review
- Revision or updating
- Implementation of WMP
- Compliance

Type of Waste

Hospital waste can be broadly be defined into 2 categories

Risk Waste

- Infectious Waste
- Pathological Waste
- Sharps
- Pharmaceutical Waste
- Chemical Waste
- Radioactive Waste

Non – Risk Waste

Non – risk waste is that which is comparable to normal domestic garbage and presents no greater risk, therefore, than waste from a normal home i.e.

- Paper
- Packaging
- Food Waste

Waste Disposal

Treatment:

- Incineration
- Chemical Disinfection
- Autoclaving
- Encapsulation
- Microwave irradiation etc.,

Final Disposal

- Landfill
- Burying inside Premises
- Discharge into Sewer etc.,

Unsafe Acts -- Checklist

- Operating without authority
- Failing to secure objectives
- Failing to give adequate warning signals
- Operating or working at unsafe speed
- Warning on moving of dangerous equipment
- Engaging in horseplay
- Failing to use personal protective devices
- Tampering with safety devices
- Using unsafe equipment and using safe equipment unsafely
- Handling, lifting, or carrying unsafe loads
- Taking unsafe positions or postures

Waste Minimization

Waste *not* to be Incinerated

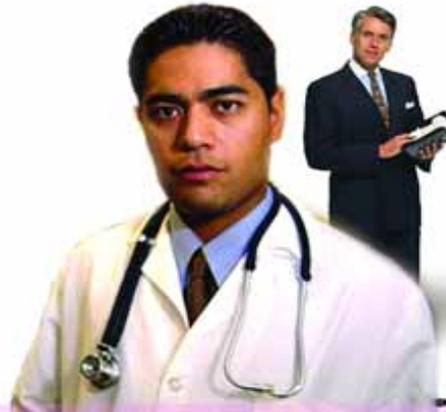
- Pressurized gas containers
- Large amounts of reactive chemical waste
- Radioactive waste
- Silver salts or radiographic waste
- Halogenated plastics (e.g. PVC)
- Mercury or cadmium
- Ampoules of heavy metals

Awareness &

Advocacy

- Awareness Through
 - * Posters
 - * Seminars
 - * Letters
 - * Web-Site
 - * Poster Competitions
- Advocacy
 - * Media
 - * Lobbying

● National Workshop Series



Training Manual for Doctors & Administrators

Hospital Waste Management Project

3RD PHASE OF 5-DAY TRAINING WORKSHOP

Venue

ICMS University Campus
Peshawar
18th to 22nd April, 2006.

Organized by

National University of Sciences & Technology (NUST), MoST
& Health Services Academy (HSA), MoH, Islamabad

in collaboration with

Federal Ministry of Environment



Environment Friendly Healthy Hospital Initiative

● National Workshop Series



Training Manual for Paramedics

Hospital Waste Management

SENSITIZATION PROGRAM

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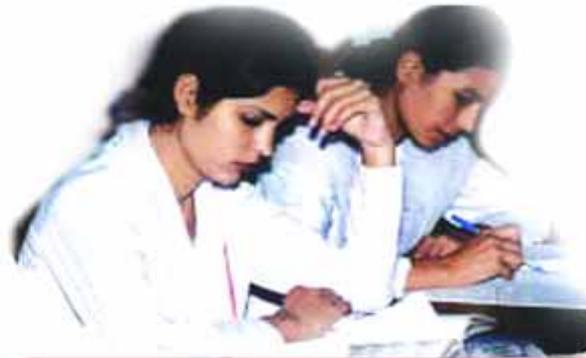
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● National Workshop Series



Training Manual for Nurses

Hospital Waste Management

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Training Manual for Lab / Medical
Technicians

Hospital Waste Management

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Training Manual for Sanitary Workers

Hospital Waste Management

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Environment Friendly Healthy Hospital Initiative

TRAINING COMPONENT

- **Three Kinds of Training Manuals Developed; English, Urdu & Pictorial**
- **Training Video**
- **Free Training Programme**
- **Refresher Courses**
- **4500 Health Professionals & Allied Staff provided free training in Govt. & Private Sector Hospital of Lahore.**

WHY SHOULD THIS PROJECT BE REPLICATED IN OTHER CITIES

- TO SHOW SOCIAL RESPONSIBILITY**
- IT IS A SUCCESSFUL MODEL**
- TO REDUCE THE BURDEN OF
DISEASES**
- TO PREVENT REUSE AND REPACKING
OF MEDICAL DISPOSABLES**

Steps Involved

- Waste Man. Team
- W -M. Plan
- Training
- Waste Segregation
- Waste Collection
- Waste Storage
- Transportation
- Disposal

Waste Segregation

- Different color coding has to be assigned to various waste for effective segregation, as:
 - i. **Black** : Non-Risk waste.
 - ii. **Red**: Risk waste with Sharps.
 - iii. **Blue**: Risk Waste without sharps.
 - iv. **Yellow**: Radioactive waste
 - v. **Green**: Chemicals like Mercury & Cadmium
- All this segregation should be done by the individual user.

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Waste Collection

- To be done by Sanitary staff on daily basis, and transferred to Central Waste storage facility of the Institute.

Waste Storage:

- Storage facility should be covered one, located within the hospital premises outside the main building, with easy approach for vehicles, and inaccessible to unauthorized persons and animals etc.
- Should have sufficient capacity to contain large amount of waste in case of incinerator failure.
- Separate storage room for radioactive waste (yellow Bags).
- As quoted in Rules, storage at temp 3 – 8C is not practicable.

Transportation

On-Site:

- All waste bags except yellow ones, should be transferred to W. Storage room on daily basis by the sanitary workers by Four –wheeled trolleys (three wheeled are quite uncomfortable).
- Different colored bags have to be segregated in the storage room.

Off – site:

- Should be arranged by concerned municipal / local authority. The waste should be transferred to the vehicle by sanitary worker under the supervision of WMO.

Waste Disposal

- Landfill: properly designed and properly managed.- Cheapest and easily available.
- Shredders: All the bulk waste of plastic including risk waste is disinfected and cut into small pieces and converted into compact form. (Cheaper than incinerator, No Pollution, cost effective).
- Autoclave: (expensive than Shredders ?)

Risk of Waste

All persons exposed to hazardous hospital waste are potentially at risk which includes all those who either handle the waste at any stage, or are exposed to it as a consequence of careless management.

Action Plan

Activity	Who	Outcome	Timeline	Benefits/ Risks
Team Formation	MS/Medical Director	Formalized Waste Management Plan	1 month	Participation of employees in HWM
Waste Management Plan	WMT	Planning for Waste Segregation	1 month	Guideline for Waste Related Procedures
Waste Segregation	Everyone, specifically the housekeeping staff	Color coded waste bags	2 weeks (includes training of staff)	Health Safety of employees and general public
Waste Collection	Sanitary staff	Facilitate storage	2 weeks	Secure Waste Collection
Transportation	Sanitary Staff	Safe Disposal of Waste	2 weeks	Documentation on Waste Disposal

Action Plan...continued

Activity	Who	Outcome	Timeline	Benefits/ Risks
Accidents and Spillages	Waste Management Officer	Safety	Anytime	Better Hygiene
Training for Hospital Waste Management	MS/Medical Director/Administrator	Awareness	Anytime	Better Management of HWM

Stakeholders Analysis

Who?	What?	Why?	How?
Hospital Staff	Trainings, Waste manag	Waste generat, At risk	Follow guidelines
Patients/attendants	BCC	Waste generator, At most risk	Counseling, poster, clips, charts etc.
Municipal Staff	Equip, BCC, Training	Involved in WM	Improving behavior, funding, incentives
Scavengers	Restriction, Punish, Education	Source of inf. Dissemination, at risk	Secured storage
Community Reps	Advocacy, Involve, Communicate	Political influence, responsible of comm	land, awareness, monitoring
Environ. agency	Tech assistance, training, Monitoring	Expert and Resources and policy makers	Inspect and monitor
Law Enf. Agency	Enforcement	Power to enforce	Proper enforc of rules
NGO	Advisory, Advocacy, Fincancing	Will, resources, impartial, expertise	Public-Private Partnerships
Media	Awareness, educat, monitoring	Influence on behaviour	Ads, messages, pictorals, awareness programs
Legislators	Effective Legislation	Basic responsibility	Effective updates, incentives, accreditation

THANK YOU VERY MUCH

