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A STUDY OF BIOMEDICAL WASTE MANAGEMENT IN VARANDARAPPILLY GRAMA PANCHAYATH

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Abstract - Bio medical waste (BMW) collection and proper disposal has become a significant concern for both the medical and general community. Effective management of biomedical waste is not only a legal necessity but also a social responsibility.

A review of medical waste management systems was performed to understand (a) the various handling and disposal procedures (b) the knowledge and awareness of individuals involved in medical waste generation, handling and disposal, and (c) the potential impacts of the waste stream on both human health and the natural environment. The purpose of the study is to provide direction for further study. Information was collected mainly from primary health centres and online search. It was found that a variety of methods were used by the medical facilities to dispose their wastes including burning, burial, entombing, selling, dumping, and removal by municipal bins. The waste disposal practice was found to be quite unsafe, and both clinical and non-clinical wastes were found to be thrown together. There was insufficient awareness of the magnitude of the medical wastes issue by concerned individuals.

Key Words: Bio medical waste, Disposal procedures, potential impacts, waste haulers, Waste management

1. INTRODUCTION

Medical waste or clinical waste refers to the waste that is generated by health care premises such as hospitals , clinics , doctor's offices, veterinary hospitals and labs from Varandarappilly Grama Panchayath and is cannot be considered as general waste. Lot of instruments have come into existence in various operations for disease treatment. Such improvement and advances in scientific knowledge has resulted in per capita per patient generation of wastes in health care units. Waste generated in the process of health care are composed of variety of wastes including hypodermic needles, scalpels, blades, surgical cottons, gloves, bandages, clothes, discarded medicine and body fluids, human tissues and organs, chemicals etc., Other wastes generated in healthcare settings include radioactive wastes, mercury containing instruments, PVC plastics etc., These are the most environmentally sensitive healthcare by products and needs a greater attention which has to be monitored.

1.1 NEED OF THE STUDY

Poor management of health care waste potentially exposes health care workers, waste handlers, patients and the community at large to infection, toxic effects and injuries, and risks polluting the environment. So, it is essential that all medical waste materials are segregated at the point of generation, appropriately treated and disposed of safely.

1.2 AIMS AND OBJECTIVES

- The basic aim is to protect the public and the environment from potentially infectious diseases caused due to lack of management of medical waste.
- To find out the types of wastes produced by the hospital and how much it is affecting the living animals i.e. humans or animals.
- To find out the linkages between the clean area and dirty area in the hospital.

2. LITERATURE REVIEW

Poor management of health care waste potentially exposes health care workers, waste handlers, patients and the community at large to infection, toxic effects and injuries, and risks polluting the environment. Health-care waste contains harmful micro-organisms which can infect hospital patients, health-care workers and the general public other potential infectious risks may include the spread of drug-resistant micro-organisms from health-care establishments into the environment. Medical waste can potentially be re used without sterilization, this reuse of non-sterile waste material poses a serious threat of the diseases. It may also damage the environment (e.g. ,contamination of water, air, and food).in addition, if waste is not disposed off properly, members of the community may have an opportunity to collect disposable medical items (particularly syringes) and to re pack and sell these materials.

2.1 MAJOR SOURCES OF MEDICAL WASTE

1. St:Joseph Hospitals velupadam
2. PHC varandarapilly
3. PHC Velupadam
4. PHC Mupliyam
5. PHC sub center varandarapilly
6. PHC sub Center mupliyam
7. Homeopathy health center Mupliyam
8. Govt.Ayurveda hospital nandhipulam
9. Veterinary hospital varandarapilly
10. Smile Dental clinic Mupliyam
11. Rajeev clinic center

3 MATERIALS AND METHODOLOGY

FOUR MAIN PRINCIPLES ARE

- Sorting
- Handling
- Interim
- Disposal

3.1 CATEGORIES OF WASTE

Table-1: Categorization of Waste & treatment method

Waste Category No.	Waste Category Type	Treatment and disposal
Category No.1	Human Anatomical Waste (human tissues, organs, body parts)	Incineration/deep burial
Category No.2	Animal Waste	Incineration/deep burial
Category No.3	Microbiology & Biotechnology Wastes	Local autoclaving/microwaving/ incineration
Category No.4	Waste sharps	disinfection (chemicaltreatment/auto claving/ microwaving and shredding
Category No.5	Discarded Medicines and Cytotoxic drugs	incineration/destruction and drugs disposal in secured landfills
Category No.6	Soiled Waste (Items contaminated with blood, and body fluids including cotton, dressings)	Incineration autoclaving/microwaving
Category No.7	Solid Waste	Disinfection by chemical treatment
Category No.8	Liquid Waste	Disinfection by chemical treatment and discharge into drains
Category No.9	Incineration Ash	Disposal in municipal landfill
Category No.10	Chemical Waste (chemicals used in the production of biologicals, chemicals used in disinfection, as insecticides..)	Chemical treatement and discharge into drains for liquids and secured

3.2 COLOUR CODING, TYPE OF CONTAINER AND TREATMENT OPTIONS

Table-2: Classification by Color coding

Color Coding	Type of Container	Waste Category	Treatment options as per Schedule I
Yellow	Plastic bag	Cat.1,Cat2,Cat3,Cat6	Incineration /deep burial
Red	Disinfected container/plastic bag	Cat.3, Cat.6, Cat.7	Autoclaving/ Microwaving / Chemical Treatment
Blue/White	Plastic bag /puncture proof container	Cat.4, Cat.7	Autoclaving/ Microwaving & Chemical treatement
Black	Plastic bag	Cat.5, Cat.9, Cat.10	Disposal in secured landfill

4 RESULTS AND DISCUSSION

Table-3: Quantity of waste

NAME	Bio medical					General	
	Anatomical	Sharps	Solid (Compostable)	Solid (Recyclable)	compostable	Compostable	Recyclable
PHC (5-Beded)	200 gms	150 gms	600 gms	500 gms	2000 gms	1000 gms	600 gms
PHC Non-Beded	x	100 gms	150 gms	200 gms	300 gms	300 gms	200 gms
Privet Hospital 20 Beded	900 gms	500 gms	2000 gms	1000 gms	4000 gms	4000 gms	1200 gms
Clinics	50 gms	100 gms	300 gms	150 gms	200 gms	200 gms	100 gms

For bedded institution at the basic health care facility about 750 gm of waste is generated per day of which about 60% are general waste and 40% are Bio medical waste.
I n this study the waste disposal is not done at proper methods and the storage and disposal is not done by the guideline of authorities.

4.1 SUGESSIONS

- Create a incinerator for 3 or 4 health centers.
- Give a proper guideline for waste management
- Prove more storage containers
- Give proper class for hospital staffs about waste management.

5. CONCLUSIONS

After doing this dissertation and going through all the studies I concluded that there are various laws, standards, rules and regulations prescribed for medical waste management i.e. for segregation of medical waste, handling of medical waste, holding of waste in a hospital compound, disposal of waste and the treatment technologies for different type of medical wastes. But there is still lack of compliance of medical waste management rules and regulations in the practical field.

As the segregation of waste at the time of generation is not done properly or efficiently this leads to the risk of infections to the patients as well as for the other people or staff in the hospital premises. The litter bins for different types of wastes are sometimes placed to the close vicinity of the waiting areas where there is always a high risk to the people of getting infected from dangerous diseases.

Lying of waste here and there without being concealed in the respective color coded bags can also be seen in various health care facilities this is just due to the ignorance attitude of the staff members involved in management of medical waste. So, there is a special need of introducing various new technologies in management of medical waste to reduce the human interventions and therefore reducing the risk for staff members and most importantly to avoid the mistakes done by the or made by the human personnel in managing the waste.

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[6] **Links**

http://en.wikipedia.org/wiki/Biomedical_waste

https://www.gov.uk/healthcare-waste

http://www.who.int/topics/medical_waste/en/