

Evaluating Poor Biomedical Waste Management Practices in a Hospital at Jammu

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Abstract—Health care is essential for our life, however, the waste generated from various medical activities poses a serious problem to various living forms in particular and to our environment in general. A serious impact can occur on health of individuals because of improper management of hazardous as well as non-hazardous wastes generated out of health care institutions. This improper management of waste is occurring not only in India but in other parts of the world as well. In order to combat with the threats posed by these wastes proper strategies needs to be followed so as to avoid the havoc which otherwise could be caused due to negligence in following proper management facilities. Moreover, final disposal also remains a matter of grave concern as there are hardly any safety measures followed. The practical information on proper handling, management and disposal of wastes arising from healthcare sector is very scanty or poor. Also lack of appropriate measures and lack of specialized staff also remains an issue. This was also found true at Government Hospital Gandhinagar, Jammu. After conducting periodic visits it was found that biomedical wastes generated are being handled and disposed in improper way. Thus, it is concluded that strict implementation of legislation measures to be followed and training and awareness to be given to the associated workers for improvement in the healthcare facilities.

Keywords: hazardous, biomedical waste management and healthcare.

1. INTRODUCTION

A variety of wastes are produced in a healthcare Centres which pose a serious threat to life as well as to the environment. These include wastes like sharp syringes, vaccines, laboratory samples, solid waste, disposables, anatomical waste, cultures, discarded medicines & chemical wastes. [4]. Such waste is commonly called as bio-medical waste (BMW) in India, though it is also known by various other names such as clinical waste, medical waste and healthcare waste in different parts of world. Such waste constitutes merely 15 to 25% of total waste generated in a hospital, the remaining being general waste such as waste paper, wrapper of drugs, cardboard and left-over food etc[3]. The local municipality follows the same treatment procedures for biomedical wastes as for treating house-hold waste. However, special precautions and treatment methods should be followed to treat biomedical wastes so as to prevent human beings and environment from any harm from them. As many as 40 patho-

gens have been documented to be transmitted by biomedical wastes[1, 2], its well documented propensity to cause transmission of 3 pathogens namely Human Immunodeficiency Virus (HIV), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) makes it essential that due care is exercised while handling and disposing it [3]. Therefore, it becomes important that proper practices for the effective management of biomedical waste to be followed by associated staff. The present study was carried out with the objective to evaluate biomedical management practices at source of generation in a hospital of Jammu district of Jammu and Kashmir.

2. MATERIALS AND METHODS

For the present study of biomedical waste generation, composition and management of solid waste, the hospital was further divided into two sites. Site 1: includes emergency ward, casualty officer ward, blood bank and pathology laboratory. Site 2: It was further sub-divided into 2 floors. Ground floor including children's ward, surgical ENT and ortho ward, two general wards, X-ray room, store room and operation theatre, Ultra-sonography room and OPD. First floor including gyne ward and labour room. Samples of waste were taken on weekly basis, for a period of three months (April 2010 to June 2010). Solid waste generated during 24 hours from each ward was collected in polythene bag and segregated into 2 broad categories viz. **Biodegradable waste** including packing boxes, disposal cups, fruit peels, dressings, food waste, paper waste. **Non-Biodegradable waste** including injection bottles, syringes, needles, polythene, glucose bottles, drip sets, glass bottles, plastic bottles.

Various items in the solid waste were weighed with the help of spring balance. At the time of sampling, number of beds per ward was recorded for further analysis. The average waste generated per bed/month was also calculated.

3. CONCLUSIONS

Percentage of Biomedical waste generation.

Percentage generation of biomedical waste from the study area has revealed high percentage of biodegradable waste (66.04%)

followed by non-biodegradable waste (33.88%). Among various constituents of biodegradable waste, food waste has shown maximum percentage (27.73%) followed by fruit wastes (21.5%), dressings (11.12%), disposal cups (2.89%), paper waste (1.52%) and packing boxes (1.28%). Glucose bottles (9.47%), among non-biodegradable waste, have shown dominance over glass bottles (7.52%), injection bottles (5.21%), drip sets (4.76%), plastic bottles (2.34%), polythene waste (1.89%), syringes (1.52%) and needles (1.17%)

Average Biomedical waste generation (g/day/bed):

In the study area, the average solid waste generated (per day/bed) has been observed to be 283.31g with 187.2g of biodegradable waste and 96.11g of non-biodegradable waste. Food waste (78.58g), among biodegradable waste, has shown maximum per day/bed generation followed by fruit waste (60.95g), dressings (31.5g), disposal cups (8.19g), paper waste (4.31g) and packing boxes (3.65g). Among non-biodegradable waste, glucose bottles (26.84g) have shown maximum per day/bed generation followed by glass bottles (21.31g), injection bottles (14.76g), drip set (13.5g), plastic bottles (6.63g), polythene (5.38g), syringes (4.33g) and needles (3.33g).

Average Biomedical waste generation (g/day/ward):

On an average per day/ward solid waste generation of 2974.82g with 1965.66g of biodegradable waste and 1009.16g of non-biodegradable waste. Among biodegradable waste, food waste (825.16g) has shown maximum per day/ward generation followed by fruit waste (640g), dressing (330.83g), disposal cups (86g), paper waste (45.33g) and packing boxes (38.33g). Glucose bottles (281.83g), among non-biodegradable waste, showed maximum generation followed by glass bottles (223.83g), injection bottles (155g), drip set (141.83g), plastic bottles (69.66g), polythene (56.5g), syringes (45.5g) and needles (35g).

Biomedical waste management system followed in the present area of study includes

1. **Segregation**:-No proper segregation of waste is done in the study area. Biodegradable and non-biodegradable, infectious and non-infectious wastes are put in the same dustbins.
2. **Storage**:-In the study area, biomedical waste is stored with the help of different coloured dustbins.
3. **Collection**:-Collection is done by sweepers, from different sites of hospital and transport it to storage site with the help of wheel barrows. This manual loading and unloading of waste is very harmful.
4. **Dumping**:-Solid waste is dumped in open without any treatment of infectious waste.

5. **Transportation**:-Transportation of solid waste is done by open municipal trucks. These trucks transport the solid waste to proper dumping sites at Bhagwati Nagar.

It has been observed that Government Hospital Gandhi Nagar, the present area of study, lacks proper waste management system. The non-biodegradable and toxic waste is dumped along with biodegradable and non-toxic waste in the dustbin and most of the waste is dumped around the hospital. This waste is also produced due to the carelessness of patients, their attendants and medical professionals. The waste is dumped in the vicinity of the hospital for days which provide breeding grounds for germs and rodents. This hospital waste, consisting of toxic waste and non-biodegradable waste is finally mixed with municipal waste. Waste consisting of a number of surgical blades, cotton with blood, contaminated syringes, needles etc. has also been recorded in municipal waste.

Therefore, it is suggested that strict legislation to be followed according to Bio-Medical Waste (Management and Handling) Rules, 1998 so as to ensure the health of the environment and of the life there in.

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