

Neglected Dimension of Health Care System: Biomedical Waste

Divya Agrawal

Research Scholar

Department of Public Administration

MLSU, Udaipur, Rajasthan, India

Abstract— During last few decade with increasing population and dependency on technology, health issues are increasing rapidly and to cater the problems hospitals are growing like mushrooms. Consequently there has been a proportionate increase in the quantum of waste generated by these health care centers. Bio medical waste generated by hospitals and other healthcare settings is being managed poorly and open risk to public. It causes air pollution and many diseases to humans also., The average waste ranges between 1.5 and 2.5 Kg. per day per bed. It constitutes plastics, paper, glass, linen, metal, human flesh and organic tissues. The percentage of wastes may vary from hospital to hospital, depending upon its practices. Due to lack of infrastructure this infectious, noninfectious and hazardous waste is get mixed with municipal waste and easily comes in contact with waste workers and rag-pickers. There are many examples and ample evidences that indiscriminate management of Bio-Medical Waste could cause serious hazards to health and environment. We must understand the gravity of the issue and difference between hospital waste and general waste and must educate the healthcare people as well as common men to avoid the disaster.

Key words: Bio Medical Waste, Hospital Waste Management, Hazardous, Non-Hazardous

I. INTRODUCTION

With the increasing complexities of life many health problems among the people are increasing rapidly. Modern hospitals are crucial to deal with these problem.

Hospital is one of the complex institutions which is visited by people from the society without any distinction between age, sex, race and religion. This is over and above the normal inhabitants of hospital i.e patients and staff. All of them produce waste which is increasing in its amount and type due to advances in scientific knowledge and is creating its impact .

According to World Health Organisation definition for hospital - "A hospital is an integral part of a social and medical organization the function of which is to provide for the population complete health care, both curative and preventive whose outpatient service reach out to the family and its home exit. The hospital is also a center for the training of health worker and biomedical research."

During last few decades, the need for better health-care has been felt globally and to cater the needs and demands of the increasing population, a rapid mushrooming of hospitals, both in private and Government sector has occurred. Consequently there has been a proportionate increase in the quantum of waste generated by these health care centers but it is ironic that the health care settings, which are meant to restore and maintain community health, are also threatening their well-being. Poor waste management practices pose a huge risk to the health of the public, patients, professionals and contribute to environmental degradation. Issues of improving the

management of biomedical wastes are receiving increasing attention throughout the world since healthcare institutions generate tons of biomedical waste each year. Due to the lack of investment and infrastructure, in some cases, waste water discharged from hospitals often runs directly into nearby water bodies and improperly discharged wastes to sewers generates waste water potentially dangerous to handlers. Moreover, most hospitals do not have incinerators and even if they have, not designed for the disposal of large quantities of waste and consequently have become overloaded, causing air pollution in surrounding areas. Thus poor waste management practices pose a huge risk to the health of the public, patients, professionals and contribute to environmental degradation.

According to World Health Organisation that portion of a healthcare or research facility's total waste stream that contains potentially infectious agent, hazardous chemical, or radioactive materials comes in categories of medical waste.

According to "Biomedical Waste" (Management and Handling) Rules, 1998 of India Bio Medical Waste means "any waste which is generated during the diagnosis, treatment or immunization of human- beings or animals or in research activities pertaining thereto or in the production or testing of biological and including categories mentioned in schedule-I."

About 75-90 percent of the biomedical waste is innocuous and as harmless as any other municipal waste. The remaining 10-25 percent differs from other waste and can be injurious to human or animal health and harmful to the environment. If both of these types mixed together then entire lot becomes harmful. Many of our hospitals neither have a satisfactory waste disposal system nor a waste management and disposal policy. The disposal of waste is exclusively entrusted to the junior most staff from the housekeeping unit without any supervision. Even pathological wastes are disposed of in the available open ground around hospitals with no regards to hygiene considerations.

World Health Organization (WHO), in its classification of waste, it classifies Bio-Medical Waste into the following categories: General waste, Infectious waste, Pathological waste, Radiological waste, Chemical waste, Pharmaceutical waste, Sharps and Pressurized waste. This categorization is on the basis of weight, density and constituents of the waste. As per the available documentation, in a given context of a modern hospital, the average waste ranges between 1.5 and 2.5 Kg. per day per bed. It constitutes plastics, paper, glass, linen, metal, human flesh and organic tissues. The percentage of wastes may vary from hospital to hospital, depending upon its practices.

II. THE IMPACT OF BIO-MEDICAL WASTE

Lack of infrastructure in most of the clinics results in mixing of infectious, non-infectious and hazardous wastes which

are then disposed into the community bins. Even though extremely hazardous and infectious waste constitute a small percentage of the total waste, when such waste is mixed with non-hazardous waste, the entire waste becomes hazardous/infectious, which drastically increases the chances of affecting the health of waste workers and rag-pickers. This also affects the normal management practices of municipal solid waste like composting and waste recovery/ recycling. The impact of Bio-Medical Waste is also connected with the fact that several of these categories are not recyclable.

There are many examples and ample evidences that indiscriminate management of Bio-Medical Waste could cause serious hazards to health and environment as follows

- 1) There are many harmful agents in the Biomedical waste. The most important are Biological agents, which pollute water and food and cause alimentary infections like cholera, typhoid, dysentery, infective hepatitis, polio, ascariasis and hook worm diseases etc.
- 2) Wastes breed vermin and pests. Examples are: a. Mosquitoes that transmit insect borne diseases like malaria and filaria. b. Common house flies which transmit infections mechanically. c. Many other insects and worms that cause nuisance e.g. cockroaches, ants. d. Rats thriving on refuse.
- 3) Dust may harbor Tubercle Bacilli and other germs, which cause diseases if inhaled.
- 4) Soil polluted by night soil may be rich in Tetanus spores.
- 5) Nosocomial infections and AIDS, Hepatitis B&C etc.
- 6) Aesthetic: Sullage water, refuse and night soil, all create intolerable nuisance of sight and smell.
- 7) Pathophysiology: The blood born pathogens have gained significant attention after the attack of HIV and HBV, HCV which can lead to AIDS and Hepatitis B, C etc in addition to other viral and bacterial infections. The Hepatitis B virus (HBV) carries the greatest risk of transmission as about 25% of HBV- infected persons develop acute Hepatitis with the possible complications of cirrhosis of liver and liver cancer. The HBV transmission is quite similar to HIV as it only occurs through direct contact between an open wound, nonintact skin or mucous membrane, contaminated blood and body fluids, sexual contact, transplacental route. The needle prick injuries and broken injection foils may cause the transmission of HBV. Similarly HIV is the most critical infection with no cure. The outbreak of TB among hospital employees and other nosocomial infections among patients are largely attributed to the low index of suspicion for TB and delayed diagnosis. The outbreak of cholera and other water born diseases are also attributed to indiscriminate management of Bio-Medical Waste.

III. CONCLUSION

We must understand the gravity of the issue and difference between hospital waste and general waste. We must ensure proper segregation at the source of generation, collection in prescribed coloured containers, safe transportation, appropriate treatment and environmentally sound disposal of Bio-Medical Waste. Health education of everyone involved in the management and handling of Bio-Medical Waste.

Motivation and sensitisation of waste generators and health care providers to make environment safe for living and to protect them from legal actions for violation of Bio-Medical Waste (M&H) Rules 1998. Make use of common facility treatment for economic reasons and keep Bio-Medical Waste management in priority list of policy making, starting from the very beginning. Last but not the least is effective implementation of rules by surprise visits and inspection by appropriate authorities and fixing the accountability of each and every person involved in management of Bio-Medical Waste.

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