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"A Study of Impact of Specific Biomedical Waste in Patna"

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Abstract – This paper provides comprehensive discussion on bio-medical wastes and makes some recommendations for their effective management besides discusses the key strategic actions required for an effective bio-medical waste management plan preparation.

Today biomedical waste management has become one of major issue of concern in India taking into account the rate of growth of population. In this paper an attempt is made to study the classification, legislation and management practices in relation with biomedical waste in India. Within the domain of municipal solid wastes, bio-medical wastes acquire a special dimension, since it is infected and hazardous. Wastes generated at hospitals and health care facilities are different from general municipal wastes. The municipal wastes by and large may need only one of these systems for collection, transportation and final disposal. Against this the bio-medical wastes may need more systems, since it includes body parts, human and animal tissues, radioactive waste, gauze, cotton, plastics, infected liquid waste, blood and laboratory wastes.

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INTRODUCTION

Biomedical waste management has recently emerged as an issue of major concern not only to hospitals, nursing home authorities but also to the environmental and law enforcement agencies, media and the general public. Biomedical waste is forming approximately 1 to 2 percent of the total municipal solid waste stream. Some of these wastes are potential threat to the human health and environment. Composition and quantity of biomedical wastes generated differ not only from country to country but also within the country. Health care facilities viz. laboratories, clinics, nursing homes, medical, dental, and veterinary hospitals, generate a waste stream varied in its composition. Among these facilities the hospitals contribute maximum wastes.

The greatest risk of biomedical waste is from the infectious and sharp components of the waste because health care workers (HCW) and people associated with handling waste are often getting needle prick injuries and can contract HIV or AIDS, Hepatitis B and C. Risks in hospitals or health care settings are very high. Because of these concerns about biomedical waste generated at national and international level, the Union Ministry of Environment and Forest, Government of India has notified 'Biomedical Waste (Management and Handling) Rules, 1998' under the provision of Environment (Protection) Act, 1986. However, it has been observed that biomedical waste management is a complex and one has to go further in the intricacy of management and attitude of the health workers.

Acharya and Singh (2000) also identified the medical waste management process to include, handling, segregation, mutilation, disinfection, storage, transportation and final disposal. According to Rao, Ranyal and Sharm (2004), the key to minimization and effective management of medical waste is segregation and identification of the waste. They recommend that the most appropriate way of identifying the categories of medical waste is by sorting the waste into colour coded plastic bags or containers. Medical waste should be segregated into containers/ bags at the point of generation. It should provide an easy access to waste collection vehicle (Srivastava, 2000). All disposable plastic should be subjected to shredding before disposing off to vendor. Final treatment of medical waste can be done by technologies like incineration, autoclave, hydroclave or microwave (Rao et al, 2004).

BIOMEDICAL WASTE MANAGEMENT IN PATNA

- To aid Patna city in becoming a front runner in Bio-Medical Waste (BMW) Management practices in the year 2021.
- To recommend solutions for a sustainable and effective bio-medical waste management system in Patna.
- To obtain the above objectives, the following research objectives are outlined:
    - To assess the current status of solid waste management in Patna in general and establish the importance of bio-medical waste specifically.
    - To identify the existing lacunae and problems
    - To study the involvement of NGOs and public private partnership
    - To study the environment aspect relating with bio-medical waste
- To determine the bio-medical waste generation both quantitatively and geographically with projections for 2021.
- To make recommendations for the protection of pubic health and environment through sustainable biomedical waste management for Patna.
- To make selection of appropriate technology and methods for effective biomedical waste management in Patna.
- To suggest planning proposals for effective administration operation and maintenance of bio-medical waste in Patna.

BIOMEDICAL WASTE MANAGEMENT IN INDIA-

Due to economic development in industrial, infrastructure, medical, information technology and agriculture sector of India in last two decades life of human being has become more content, lavish and comfortable. On the other hand due to this economic development the environment is badly affected. Now a days, due to rapid urbanization and alarming growth in population bio medical waste management has become one of the major issue of concern. Waste product which is infectious, hazardous, and sometimes radioactive and is generated during the various medical related activities such as diagnosis, treatment and immunization is known as Bio medical waste.

SOURCES OF COHORT OF BIOMEDICAL WASTE

Although the solid waste management has become one of the major topics of importance but still local bodies are unable to give the proper attention towards some special sources of wastes out of which biomedical waste is one. The sources of biomedical waste can be categorized as primary and secondary sources according to the quantities produced. While minor and scattered sources may produce some biomedical waste in categories similar to Bio medical waste, their composition will be different. Primary and secondary sources of generation of biomedical waste –

Primary sources		**Secondary sources**
Hospital	Medical College	Clinic
Nursing Home	Immunization centers	Ambulance Service
Dispensaries	Nursing Homes	Home treatment
Maternity home	Animal research centers	Slaughter houses
Dialysis center	Blood bank	Funeral Service
Research lab	Industries	Educational institutes

Legislative aspect in relation to biomedical waste

A variety of central legislation related to biomedical waste management in India are as follows -

- The water (prevention and control of pollution) Act, 1974
- The Air (prevention and control of pollution) Act, 1981
- The Environment(Protection) Act,1986
- The hazardous waste(management and handling) rules,1998
- The Biomedical waste(management and handling) rules,1998
- Municipal Solid waste (management and handling) rules, 2000
- The Biomedical waste(management and handling) rules Amendment ,2000 and 2003
- The Bio-medical Waste (Management and Handling)

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PHYSICAL CONDITION - IMPACTS OF BIOMEDICAL WASTES

Only recently, this issue has captured worldwide attention. Unfortunately, quite some time medical community remained silent. Nevertheless, this issue becomes a major concern to most non-medical professionals and general community, and forced the health care personnel to adopt the safety rules and guidelines. Many of the dangers or hazards associated with biomedical wastes are hidden. Injuries may not occur right away but might build up or lie dormant in the body's system for years like hepatitis B and C and cancers. Hence all suspect and unknown substances should be considered hazardous.

CONCLUSION:

Bio medical waste is one of the most hazardous waste generated by human beings. Management of the bio medical waste is becoming a challenging issue. Governmental and non-governmental agencies have recognized the biomedical waste management as matter of concern. This paper shows the, infrastructure deficiencies have been found in Patna city. On the basis of understanding the study seeks to improve the current scenario of Patna with respect to solid waste management in general and biomedical waste management in specific.

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