



A REVIEW ON PHYSICO-CHEMICAL ANALYSIS OF SOLID BIOMEDICAL WASTE PRODUCT OF DIFFERENT HOSPITALS OF METRO CITIES

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Abstract: This work discussed about Bio-medical waste' means any solid and/or liquid waste including its container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals or in research pertaining thereto or in the production or testing thereof. The physico-chemical and biological nature of these components, their toxicity and potential hazard are different, necessitating different methods / options for their treatment / disposal. Hospital waste refers to all waste generated, discarded and not intended for further use in the hospital. Improper handling of this waste affects not only medical personnel, doctors who came in contact with medical waste, but also Nurses, Para-medical staff, Ward Boy, Workers, Waste pickers and citizens at large. Solids waste generated from medical institutions need to be handled very carefully as these wastes may contain infectious material.

Keywords: Biomedical waste, Waste disposal, Waste management, Physicochemical

Introduction: Hospital produces a wide range of waste, solid waste is one of them for western numbers, and about 15-20% of their hospital waste is dangerous and infectious. Although there are not many detailed studies conducted in India, this proportion in our country may be

much higher than reasonable waste Segregation does not exist. Hospital solid waste includes anatomical, pathological, infectious, non-infectious, sharp objects, kitchen waste and general waste (Paper, cardboard, plastic, etc.). Despite the existence of laws and the provision of the sentence, biomedical waste is still not with the clinical attention required to avoid the dangers. With this goal of the present we have learned about the state of biomedical waste management at Chhatrapati Shivaji Subharti Hospital. Likely effects of management strategies and hospital waste also discussed in this document.

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Literature Review: An review by B. Ramesh Babu, A.K. Parande, R. Rajalakshmi, P. Suriyakala, M. Volga [1] 2001 was conducted to review Biomedical waste management in India to improve Waste management. The goal of the study was to classify the characteristics of the waste and create the implementation structures, different methods are used for the disposal of BMW. The review was conducted to find biomedical waste management. Also for survey for the treatment of medical waste. Many factors as hospital type, specialization, reusability Waste management plan and articles were examined in waste generation assessment in India, especially in Delhi.

Dr. C. Periya Ganesh 2015 [2] focuses on several terminologies of biomedical waste management and clinical waste management in private hospitals in India. This includes waste transportation, accumulation and storage of waste, waste Minimization techniques. A main problem related to present BMWM in some hospitals is that the execution of Bio-Waste regulation is unsatisfactory as some hospitals are disposing of waste in a haphazard, inadequate and indiscriminate manner. Inadequate Bio-Medical waste, the recycling of throw away syringes, needles, IV sets and other article like glass bottles without proper sterilization are accountable for Hepatitis, HIV, and other viral diseases. He recommended need for education as to the hazards associated with improper waste disposal.

S.B.Abitha, R.Dhanapal [3] 2014, published a paper on BWM in rural areas using solar powered thermal autoclave technique. Authors introduce a technique of BMWM, Solar thermal powered autoclave with EWS system. This system is suitable for wet sterilization of medical instruments in remote and rural areas of developing countries. This system acquires energy from daylight collected through semi parabolic black mirrors. The extracted energy transported to aluminum plate through required transmission. The high forced autoclave in presence of water kills all microbes, spores and

viruses. This system utilizes solar energy directly. It can be extremely utilized in areas of large rural population associate small hospitals and clinics with lack of reliability to electricity. It is cost-effective sustainable way to minimize pollution in rural areas of developing nations.

No sheen Arched, Shamail Nayyar, Dr. Fatima Amin and Dr. Khawaja Tahir Mahmood accompanied a survey on all existing methods for handling and management of medical waste disposal in Pakistan. A cross-sectional study was conducted in 2 private and 3 governments' hospital, Sheikh Zayed hospital, Shaukat Khanum hospital, Mian Munshi hospital, Shalamar hospital of Lahore in July 2010. Different types of waste produced in hospitals including radioactive. Various methods of segregation of bio-medical wastes are surveyed and found the effective result like proper segregation with need for raising awareness about medical waste and its related issues.

Patan S, Mathur P presents acurrent management practices of HCW in the Janna Got hospital of Ajmer city. Information regarding generation, segregation, transference, and disposal of biomedical wastes is provided and discussed. The main treatment method used in the final disposal of infectious waste is incineration. Non-infectious waste is disposed of using land disposal method. The wastes are not properly segregated, collected and disposed in all the services of the hospital, which may lead to a negative impact on public health and on the environment. This paper presented an assessment of biomedical waste management. Authors suggested that comprehensive training programs regarding Bio-Medical waste management are highly recommended to all hospital staff.

Material and Method: Waste samples were collected from CSS Hospital. For representation, Quantification and evaluation of waste produced from hospital a 10 days survey spread over a month was conducted. The waste produced was first of all separated at the source by providing colour coded bag. Red, Yellow,

and white coloured bags are used for every ward.

Yellow bag contain: Anatomical anthropological waste, such as human tissues, organs and body parts. Animal waste such as animal tissues, organs, body parts, corpses, bleeding parts, blood fluids and laboratory animals used in research. Microbiological and technological waste and dirty waste such as blood and body fluid contaminated items, including cotton, bandages, dirty coatings, etc.

Red bag contain: Microbiological and technological waste, soiled waste and solid waste like Waste generated from disposable items other than the waste sharps such as tubing, catheters, intravenous sets etc.

White bag contain: Waste sharp and solid waste like Needles, syringes, scalpels, blades, glass, and disposable items treated catheters, intravenous sets and Kitchen waste was collected separately.

Result and Discussion: It is noted that almost 101.6 kg of waste are generated daily by the hospital, amount and percentage of different categories shown in table 01 Non-hazardous waste separated and managed correctly. Untreated hospital waste is a source for diseases Hospital waste can cause air pollution, water and soil pollution. It can spread infections as hospital waste is the ideal place for breeding of disease vectors. Most of the time people are busy collecting these the waste is affected by various diseases.

Waste management strategy:

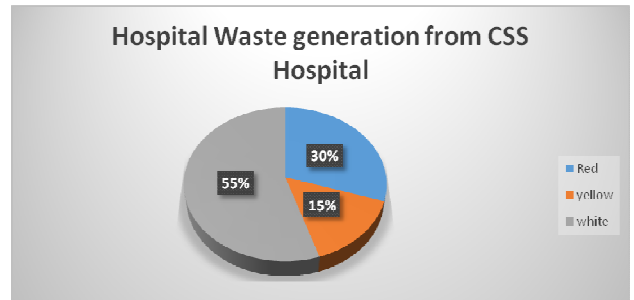
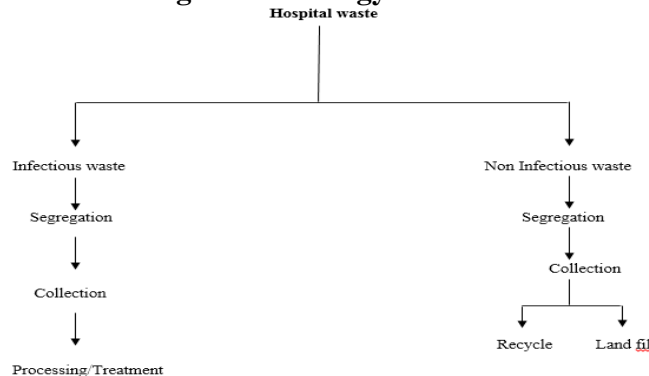


Figure 1: Waste generation From CSS Hospital

Conclusion: Hospitals produce a considerable amount of waste, which includes infectious and non-infectious waste. Hospital waste should not be stored or disposed of without proper treatment. Hospitals need to be responsive and follow the BWM and manage the rules to manage their waste. If the problem of hospital waste can be overcome, we can protect ourselves from future pathogenic catastrophes. Provide adequate training programs for hospital staff and health professionals. Monitoring and Assessment of Hospital Waste Management Interventions The need to plan the management of waste in healthcare to facilitate the implementation of the measures needed to improve the current state of waste management in healthcare.

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