

## Chapter 6

# Generation and Management of Biomedical Waste

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### ABSTRACT

*Biomedical wastes (BMWs) are generated by the treatment of living organism as well as during research activities. With the increase of population in developing countries, generation of BMWs is increasing, but with inappropriate disposal management technologies. BMWs pose threats to the humans and also degrade the quality of environment. Handling of the BMWs by inexperienced and untrained staff increases the risk of accumulation of waste at the source as well as increases the chances of the spread of the dreadful diseases. The implementation of BMWs regulations is inadequate and unsatisfactory in developing countries: a major concern. Safe and reliable methods for management of BMWs are of utmost importance. The proper management of BMWs can be helpful in maintaining the overall quality of the environment. In order to get good results, the need is to increase the involvement of the ecofriendly techniques as well as increase awareness among the citizens, staff, and the workers directly involved in the management of the BMWs.*

## **INTRODUCTION**

Biomedical waste is produced from various activities (Chatraborty et al., 2014) of human beings such as treatment or immunization of patients (Rutala & Mayhall, 1992). The waste can also be generated from diagnosis of human beings, animals or testing of biological activities (Liu et al., 2016). The health care facilities like dialysis available at household level are also the source of biomedical waste (Szycher, 2017). Medical waste includes all the waste produced from hospitals, clinics and laboratories that is discarded and is of no use (Anurag et al., 2013). The waste produced in the hospital is mostly nonhazardous (85%) while as infectious (10%) and noninfectious waste (5%) contribute in small amount to overall biomedical waste (Mathur et al., 2012). The biomedical waste contains small quantity of infectious waste but has high potential to transmit diseases (Ghasemi & Yusuff, 2016). Infectious waste is hazardous in nature and if mixes up with the general waste, entire waste will be treated as infectious waste (Chowdhary, 2018). The waste poses great risk to the living organisms and particularly to the workers involved in the management of the hazardous waste (Li & Jenq, 1993). Peoples having poor nutrition, inability to afford healthcare facility and lack of timely vaccination are more susceptible to infection from improper management of biomedical waste (Patwary et al., 2011b). Therefore, the hospital waste in addition to the risk for patients and workers associated with the management of wastes poses a serious threat to public health and almost all components of the environment (Mathur et al., 2012). Activities undertaken to achieve the aims of reducing health related problems leads to the production of the biomedical waste which is hazardous as well as infectious (Patil & Pokhrel, 2005). Different types of the waste are managed with different treatment techniques but are lacking the effective new techniques in the management of biomedical waste. Biomedical waste was not considered a major problem (Hegde et al., 2007) but the exposure to viruses from waste has raised concern about the risk associated with the medical waste (Gershon et al., 1995). The raising concerns related to the biomedical waste is putting pressure on the existing government policy, citizens and environmentalist to think for safe disposal of the biomedical waste (Misra & Pandey, 2005). Developed countries are well aware about the concerns associated with the biomedical waste thus are enforcing strict guidelines related to waste segregation, storage and transportation from time to time (Marinkovic et al., 2008; Tudor et al., 2005) but developing countries are lacking the timely measures needed for the proper management of the medical waste (Pittet et al., 2006). There are strict guidelines for the segregation of biomedical waste by using different types of dustbins (Table 1.) within the hospitals so that the disposal of the waste can be done in an economical way (Da Silva et al., 2005). Developing countries are not only lacking the new and cheap techniques but are also lacking skills necessary for the proper waste management (Porter and Van der Linde, 1995). The timely measure necessary for efficient management of the waste (waste minimization and segregation) can be helpful in reducing the biomedical waste footprint (Jain et al., 2017). Thus, hospital waste management is of prime importance as the impact of the improper management is not only restricted to patients and hospital staff but all the components of environment as well as human being are affected (Hegde et al., 2007).

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