

Biomedical Waste Management in COVID-19 Pandemic: An Emerging Issue in India

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Abstract

COVID-19 pandemic has allowed us to see the very new prospects of health issues. The biomedical waste management is such an important issue that has evolved rapidly in the COVID-19 pandemic. The issue ranges from identifying the biomedical waste to the management. The laws were formulated, policy has been changed but the ground-level changes are yet to be seen. The current manuscript focuses on the various important loopholes in the current policy in India and suggestions to improve the same.

Keywords: COVID-19 • Biomedical waste • Policy • India

Introduction

Biomedical Waste (BMW) is defined as “any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals, or in research activities pertaining thereto, or in the production or testing of biologicals” [1]. The main purpose of identifying the waste as a biomedical waste is to prevent the spread of infection. Thus, managing and handling such waste becomes an important way to prevent spread of the infection in the community. The first gazette notification regarding the biomedical waste management came in the year 1987 [2].

First case of COVID-19 in India was reported in January 2020. Since then, the country has seen two peaks with second been particularly severe. The total number of reported cases in India till date is around 30 million with around 400 thousand deaths till date [3]. The policy related to admission of COVID-19 positive and their discharge on recovery has changed from time to time. Govt. of India also allowed home isolation for patient who was asymptomatic and those with minimum symptoms to decrease the burden of the case load in the health care facilities [4]. The line between biomedical waste and general waste is greatly blurred in the situation where infectious patients are taking care in the home environment and specifically when suffering from highly contagious disease like COVID-19. Any material which is used by the person with possibility of contamination by infected individuals' saliva, sputum or any other bodily excreta is likely to carry the virus and may spread the infection to those encountering these items if left untreated or unattended. The use and availability of all the Personal Protective Equipment (PPE) without people by large having proper knowledge of disposal has further aggravated the issue of Biomedical Waste in the country. The issue of biomedical waste management is now not the issue of the health care facilities but now became the issue of most households given the scale of the pandemic and with recent ICMR serosurvey showing that over two-third population has antibodies against

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COVID-19. Thus, this manuscript is prepared to review the current methods of collection and disposal of biomedical waste in our country related to COVID-19.

Pandemic characteristics

The COVID-19 pandemic's first case reported in December 2019 in the Wuhan city, Hubei province of the Peoples Republic of China and spread to many countries within a short period of time [5]. The initial main symptoms of COVID-19 identified were cough fever and respiratory difficulty. Later it was identified the patients may present with a large constellation of symptoms starting from minor symptoms like loss of taste and smell to severe symptoms like respiratory failure [6]. Some patients presented even with no symptoms; thus, it was exceedingly difficult to differentiate the patients from uninfected individual, especially for the lay person.

Issues related to biomedical waste management

The first issue pertains to defining the biomedical waste. Recent guidelines issued by Central Pollution Control Board (CPCB) on 17th July 2020 [7]. The guidelines define the masks, gloves and tissues or swabs contaminated with blood/body fluids of the patient in home isolation including the syringes and medicine to be included in the biomedical waste. In the pandemic times it is very difficult to differentiate the asymptomatic patients and normal individuals all the biomedical waste generated should be treated in the similar manner.

The second issue is related to the gaps in biomedical waste management in rural areas. The guideline defines this to be the role of the urban local bodies. In country like India where over 60% of the population lives in the rural areas, the guideline is silent about this issue. Like the role of urban bodies are fixed in the guidelines there should also be guidelines for every panchayati raj institution to manage the biomedical waste locally by identifying the households with patients and their care takers and collection of biomedical waste from such houses and the entire village either directly or through intermediary while keeping oversight.

The third issue is related to disposal the waste which could potentially be biomedical waste. The PPE items like face mask is to be used by almost all individuals on a day-to-day basis, under the COVID guidelines of Ministry of Health and Family Welfare. However, in the evolving situation of gradually decreasing restrictions on travel, calibrated opening of markets and offices; people will inevitably move out of their houses for work or other reasons, and this will require a more widespread biomedical waste collection, transportation channel with more responsive guidelines for the management of such biomedical waste.

The last issue is related to the management of biomedical waste at the local level. India is a country of over 125 million people distributed in a vast

geographical area of over 3.2 million square kilometres. Exceptionally large tracts of this are in difficult to access, especially in the rainy season. It is a herculean task to provide biomedical waste management services to every nook and corner in the country daily. Therefore, there is need of simple practical guidelines for the general public to identify biomedical waste and ways of proper disposal of such waste by local bodies preferably at the panchayat level or at least at the block level.

Conclusion

Present COVID-19 pandemic poses many public health issues which need urgent attention and biomedical waste management is one of such issues. We recommend irrespective of the infection status of an individual all PPE items should be treated as the infectious biomedical waste and managed accordingly. Simple, practical and at the same time unified and comprehensive guidelines for the general public and also for the panchayat raj institutions (in addition to existing guidelines for urban local bodies) must be devised and notified to manage the pandemic of biomedical wastes. Local management of the discarded PPE items through proper and timely collection of the biomedical waste regularly from the rural as well as urban community is the need of the hour.

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Conflict of Interests

None.

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