

## THE CONCERNS OF MEDICAL WASTE MANAGEMENT DURING COVID-19 PANDEMIC

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### Abstract

The COVID-19 pandemic had a significant impact not only to the social, legal, behavioural and medical fields, but to the environment and to a waste management system as well. The COVID-19 pandemic “reported 356 million cases globally with a staggering rise in biomedical waste. India has recorded a rise of 200 tons per day of biomedical waste generation” (Kaushal, R., et al., 2022), therefore the situation of the increase of plastic in biomedical waste, was caused by the raising numbers of usage of gloves, PPE kits, masks etc., which were used to cope with the spread of the pandemic. According to the Olaniyi F. C., et al., “The nonenforcement of medical waste management are currently unable to cope with the enormous amount of the medical waste. Medical waste are being generated and illegal dumping in unapproved sites” (2018), thus after the pandemic this problem has increased significantly.

**Purpose** - the purpose of this research is to identify the main concerns of the medical waste management during the COVID-19 pandemic and to point out the challenges of medical waste disposal system dysfunctions, by addressing what kind of practices must be implemented to prevent the negative effects of ineffectively managed medical waste, not only in involving countries, but by analysing this issue globally.

**Design/methodology/approach** – the research review paper is based on qualitative-comparative document analysis method for comparing researches data, statistical data, publications and legislation policies of different countries.

**Finding** – the challenges of medical waste disposal management must be addressed and the practices must be corrected to forestall the adverse effects of poorly managed medical waste. There is a need to develop a medical waste policies to improve in the management of such waste. Therefore, there are some discussions, of several ways for treating the problems of the increasing of medical waste, which were analysed in scientific literature. Thus, according to Rajneesh Kaushal, et al. “Plasma gasification has emerged as an attractive and viable option to treat biomedical waste” (2022), which is generated during the diagnosis, treatment or immunization of human beings, and which numbers have also increased during the pandemic. Also, the artificial intelligent is one of the solutions to be used for more effective medical waste management (Madhav A.V. S., et. al., 2021). Jinquan Ye, et. al., indicates, that policy recommendations provide a scientific basis for controlling medical waste pollution “If it is disposed by distillation sterilization, it will produce a large amount of wastewater and waste residue. The strict control of medical wastewater discharge, reduction and transformation of the emitted acidic gases, and attention to the emission of metallic nickel in exhaust gas and chloride in soil should be applied” (2022). Therefore, more studies must be initiated to find the most efficient solutions for such waste management, thus, in failure to address this issue with effective approach, in case the medical waste, resulting from COVID-19, will be completely incinerated, it will have a large impact on the air quality.

It should be pointed out, that safe waste management protects the society, and the environment, so the handling poorly the medical waste management during the pandemic, by exhibiting poor waste segregation, transportation, storage, and disposal, could lead to environmental and occupational risks, air pollution and health problems in near future.

**Research limitations/implications** – to indicate the main concerns of medical waste management during COVID-19 pandemic, it is crucial to investigate and point out the main dysfunctional areas, which are to blame for ineffective management of such waste, whether it is due to gaps of legislation policies implementation, human errors, technological shortages,

inadequacy of consumer, malfunction of restrictions, corruption or lobbying possibilities or other circumstances.

**Practical implications** – the comparative analysis and research review results provides the main grounds on further discussions concerning possibilities for improvement of medical waste management during COVID-19 pandemic and afterwards, and applying additional measures, such as artificial intelligence to enhance collection, disposal and more affective sorting of medical waste in future perspective.

**Originality/Value** – thus, there are several scientific research carried out in which the concerns of medical waste management during COVID-19 pandemic were analysed for the past few years, therefore no practical decisions were applied or implemented so far. The absence of a national policies to pursue the medical waste management practices are identified as the main problem. Poor practices were reported in various countries from the point of medical waste generation to disposal. The dysfunctional areas should be analysed with more detailed approach, by pointing out the solutions which could solve this issue and be applied globally as well as in involving countries. The accuracy of applicable instruments, could lead to less polluted air, the better environment and a lower incidence of various diseases, as a result of exposure to polluted air and environmental factors.

**Keywords:** medical waste, policies, pollution, waste management.

**Research type:** research review paper.

## References

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