

SHORT COMMUNICATION**ZERO WASTE MODEL: A SUSTAINABLE APPROACH TO SAFE HEALTH CARE WASTE MANAGEMENT SYSTEM**

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ABSTRACT**Background**

Improper management of healthcare waste is one of the significant problems facing Nepalese Hospitals. This paper presents a safe healthcare waste management solution based on the zero-waste principle. This is a sustainable approach to a secure healthcare waste management system using non-burn technologies pioneered by HECAF360 since 1999.

Method

A Diagnostic waste assessment is the first step in designing a safe healthcare waste management system on a zero-waste principle basis. This assessment will allow us to understand the waste generation scenario, including quantity and types of waste, existing occupational practices and disposal methods, etc. Based on this, a waste management system is designed with several steps from waste segregation at source to separate risk from non-risk, then the risk waste to waste treatment and disposal.

Results

Implementation of a zero waste-based system at the 700 bedded hospital has converted 68 % of waste to a circular economy by sending 40 % for recycling, equivalent to the monetary value of around USD 500 /month, and 28 % to bio digester generating biogas, equivalent to USD560/year, preventing 82 tons of carbon dioxide emissions annually. Only the remaining 32% of waste were sent to landfill. This is considered a successful, sustainable model of Zero Waste, a safe healthcare waste management system.

Conclusion

This system has successfully reduced 68 % of waste prevented from being sent to landfills and burnt, which prevented 82 tons of carbon dioxide emissions annually. The system is sustainable as waste is recycled as a part of a circular economy. Also, the methane gas is recovered, which prevents its release to the environment and will contribute to reducing climate change. So, zero waste is the best solution for sustainability.

Keywords: Waste reduction, sustainability, circular economy, zero waste