

A review towards developing a hierarchical model for sustainable hospital solid waste management in rural areas of Zimbabwe

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Abstract

Management of solid waste from rural hospitals is amongst problems affecting Zimbabwe due to diseases, population, and hospital increase. Solid waste from rural hospitals is receiving little attention translating to environmental health problems. Therefore, 101 secondary sources were used to write a paper aiming to proffer a hierarchical model to achieve sustainable solid waste management at rural hospitals. Rural hospitals' solid waste encompasses electronic waste, sharps, pharmaceutical, pathological, radioactive, chemical, infectious, and general waste. General solid waste from rural hospitals is between 77.35 and 79% whilst hazardous waste is between 21 and 22.65%. Solid waste increase add burden to nearly incapacitated rural hospitals. Rural hospital solid waste management processes include storage, transportation, treatment methods like autoclaving and chlorination, waste reduction alternatives, and disposal. Disposal strategies involve open pits, open burning, dumping, and incineration. Rural hospital solid waste management is guided by legislation, policies, guidelines, and conventions. Effectiveness of legal framework is limited by economic and socio-political problems. Rural hospital solid waste management remain inappropriate causing environmental health risks. Developed hierarchical model can narrow the route to attain sustainable management of rural hospitals' solid waste. Proposed hierarchical model consists of five-layered strategies and acted as a guide for identifying and ranking approaches to manage rural hospitals' solid waste. Additionally, Zimbabwean government, Environmental Management Agency and Ministry of Health is recommended to collaborate to provide sufficient resources to rural hospitals whilst enforcing legal framework. Integration of all hierarchical model's elements is essential whereas all-stakeholder involvement and solid waste minimisation approaches are significant at rural hospitals.

Keywords: Rural hospital solid waste management, Environmental risks, Health risks, Hierarchical model, Zimbabwe