ASSESSMENT OF SOLID HEALTHCARE WASTE MANAGEMENT AND RISK OF RELATED INFECTIONS AMONG CLINICAL STAFF AND WASTE HANDLERS IN GREATER ACCRA REGION

Improper solid healthcare waste management (SHCWM) poses significant risks to human health and the environment. Deficiencies in waste segregation, logistics, knowledge, and compliance with national guidelines can lead to the proliferation of Antimicrobial-Resistant (AMR) pathogens. Clinical Staff (CS) and Waste Handlers (WH) who are directly exposed to healthcare waste increases their occupational health risks. The overall objective of the study is to evaluate SHCWM practices, identify microbial risks, and determine their relationship to waste-related infections among CS and WH in the Greater Accra Region, Ghana. A multi-site cross-sectional mixed-methods design was employed to randomly select three public facilities: Shai-Osudoku Hospital (primary), Tema General Hospital (secondary), and Korle-Bu Teaching Hospital (tertiary). Out of the 645 targeted healthcare workers, 536 participated (504 clinical staff; 32 waste handlers). Data collection tools included an adapted WASHFIT 2.0, structured questionnaires on self-reported infection symptoms, and one focused group discussion with waste handlers. Environmental samples were collected from waste bins, surfaces, and personal swabs, then analysed at the National Public Health Reference Laboratory using standard culture techniques and VITEK® 2 systems. Structural Equation Modelling (SEM) was used for mediation analysis. Sub-optimal SHCWM performance was recorded across all facilities; the primary facility outperformed secondary and tertiary levels. *Acinetobacter baumannii, Escherichia coli, Enterococcus facium and Staphylococcus spp.* were detected, with contamination exceeding the hygienic threshold of 5 CFU/mL on surfaces and healthcare worker hands. Clinical staff demonstrated better SHCWM knowledge than waste handlers. Overall practices were moderately good, with clinicians outperforming waste handlers in waste storage, collection, and transportation. Workers with adequate knowledge were 18 times more likely to demonstrate good practice. Waste handlers reported difficulties identifying correct waste streams, citing mixed waste, limited logistics, poor segregation, and needlestick injuries as major challenges corroborating the quantitative findings. SHCWM practices were associated with reduced gastrointestinal (GI) infection among healthcare workers, and this association was mediated by knowledge. Solid healthcare waste management remains a critical public health challenge in Ghana. Immediate and sustained action is required, including targeted government financial allocations to the Ministry of Health for procurement of appropriate waste treatment technologies, strengthening of healthcare worker training particularly for waste handlers and establishment of a robust national SHCWM surveillance system aligned with AMR control priorities.

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