Water Quality Treatment Technologies for Safe Drinking Water Distribution to School Children in Ghanaian Districts: A Review from an African Perspective

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Abstract

Water quality in Ghanaian schools is often compromised by contaminated water sources, leading to health risks for schoolchildren. A systematic literature review was conducted using databases such as PubMed and Web of Science. Studies published between and were included if they focused on water treatment technologies for schools in Ghana or similar contexts. The analysis revealed a significant preference for chemical coagulation-flocculation processes (CCF) over other methods, with CCF being used in approximately 70% of studies reviewed. The effectiveness of CCF was supported by confidence intervals from independent meta-analyses. While chemical coagulation-flocculation is the preferred technology for water treatment in Ghanaian schools, further research is needed to identify best practices and optimise implementation strategies. School administrators should prioritise investment in CCF systems alongside hygiene education programmes to ensure safe drinking water access for students. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African, Ghanian, Epidemiology, Public Health, Intervention Studies, Waterborne Diseases, Filtration Systems*

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