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Preliminary assessment of the suitability of commonly used antiseptics in the elimination of bacteria in bathing water

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Abstract

The use of antiseptics for the removal of bacteria in water has become pertinent given that most hand dug wells, boreholes, and surface waters are already contaminated in their in situ condition before being used. But, the efficacy of these skin disinfectants (antiseptics) is usually not well spelt out for the aforementioned purpose, and usage may yield no good report. This study assessed the suitability of use of two widely used antiseptics in Nigeria (Dettol and Izal) on *Bacillus* spp., *Escherichia coli* and *Klebsiella* spp., in eliminating bacteria in bathing water. The water which were tested at four different concentrations (0.4 ml, 0.8 ml, 1.2 ml, and 1.6 ml) and at six different contact times (0, 5, 10, 15, 30, and 60 min, respectively) within which bathing is meant to take place after antiseptics were applied. Overall, One hundred and Forty-four (144) samples were analyzed, and based on our null hypothesis of no bacteria should be found in bathing water after disinfection, results showed

that both antiseptics were not efficient in bacteria removal. However, the multivariable logistic regression model conducted revealed that both antiseptics were more active in destroying *Klebsiella* spp. than any other bacteria investigated with Izal showing more dominance (OR = 31.21; $p < 0.05$). The study further revealed that Izal is 3.6 times more likely to destroy bacteria than Dettol ($p < 0.05$), with more of the elimination occurring at contact time greater than 5 min (OR = 1.504; $p = 0.043$). Therefore, it is suggested that disinfectants and antiseptics of high motility and sufficient potency in a wide range of bacteria spectrum should be produced to meet the needs of consumers resulting in a better bathing water quality.

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