Assessment of *Escherichia Coli* and *Vibrio Cholerae* in Household Water and Street Vended Foods in Selected Communities In Accra

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ABSTRACT

Food and waterborne diseases are of major international public health concern and an important source of reduced economic growth. According to the World Health Organization more than 200 diseases are spread through food and water alone. *E. coli* and *V. cholerae* are among the many pathogens that have been implicated in food and water. A descriptive cross sectional study was conducted in four communities; Shiabu, Alajo, Old Fadama and Bukom in Accra between the months of May and August 2012. The cluster sampling method was used to select 20 households in each community and household water was collected and analyzed in the laboratory. A systematic random sampling was used to select 20 vendors from whom food samples were collected and analyzed in the laboratory. The results indicated that the ranges of count of *E.coli* in household water for each community were 0 to 3.19,0 to 2.21,0 to 2.05 and 0 to 2.74 10glO cfu/100ml for Shiabu, Alajo, Old Fadama and Bukom respectively. Ranges of *Vibrio* count were 0 to 3.15, 0 to 2.14, 0 to 2.78 and 0 to 2.47 Log_{10} cfu/lOOml in Shiabu, Alajo, Old Fadama and Bukom, respectively. Directly sourced pipe water samples had minimal contamination and were generally safe for consumption as there were significant differences in the means of directly sourced pipe water and stored water at $p<0.05$from the ANOV A analyses. Street vended foods indicated that *E. coli* ranges in food were 0 to 2.51,0 to 2.31,0 to 2.05 and 0 to 2.23 10gIO cfu/g in Shiabu, Alajo, Old Fadama and Bukom respectively. *Vibrio* contamination also ranged from 0 to 2.36, 0 to 2.02, 0 to 2.0 I and 2.70 10glO cfu/g in Shiabu , Alajo, Old Fadama and Bukom, respectively. Vegetable salad, ground pepper and spaghetti had highest levels of contamination with hausa koko (millet porridge) and koose (bean cake) recording no presence of both *E. coli* and *Vibrio spp.*throughout the sampling period. The commonest *Vibrio cholerae* strain detected in both food and water samples from the selected communities is Ogawa. Inaba recorded minimal presence in food with a complete absence of the 0139 strain. *Vibrio cholerae* and *E. coli* recorded a general trend of having peak levels of contamination in July and reduced levels in

August which corresponded to the rainfall pattern. Structured interviews and observational studies was conducted among 250 household members and 80 food -yendors who were randomly sampled to investigate their perception of food and waterborne diseases, storage, handling and hygiene practices that could predispose them to these bacterial infections. The results indicated that majority (82.5%) of community members knew about diarrhoeal diseases however they did not associate its transmission with stored household water. The type of storage receptacle, the way water was fetched from the larger container, type of toilet facilities used could be responsible for household water contamination. Lack of knowledge and unhygienic practices of vendors could also contribute to the contamination levels in food however from a chi square test it was established that the level of education of vendors did not affect how they displayed their food for sale. It was recommended that the Ghana Water Company Limited improved on the provision of continuous flow of water into communities which could minimize the practice of storing water. Also, instead of concentrating on the source of water, post source interventions of household water was also recommended. Continuous education of vendors as well as rigorous monitoring from regulatory bodies like food and Drugs Authority were encouraged to inculcate food safety practices in vendors

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