

Cholera outbreak in Addis Ababa, Ethiopia: A case-control study

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Abstract

Background: Cholera remains a significant public health problem in more than one-third of the countries of the world. Cholera outbreak has become more common in Addis Ababa particularly in the rainy seasons; however, there is a paucity of data on risk factors associated with cholera outbreaks rendering interventions difficult. We investigated the outbreak to identify its etiology, source, risk factors and to control the outbreak.

Methods: We compared cases with health facility-based unmatched controls (1:2). Cases were patients aged ≥ 5 years with acute watery diarrhea, with or without vomiting while controls were persons aged ≥ 5 years without history of acute watery diarrhea. We interviewed our study participants using structured questionnaire to collect demographic and cholera risk factors data. We described the outbreak over time, and then tested our hypotheses using unconditional logistic regression.

Results: The outbreak began on 7 September 2017 reaching its peak on 23 September 2017 and ended on 01 October 2017. We identified a total of 25 cases (Median age: 38 years; IQR: 20 years) and recruited 50 controls (Median age: 35 years; IQR: 29 years). All case-patients had acute watery diarrhea and dehydration requiring intravenous fluids, with admission to cholera treatment centers but there were no deaths. Stool and water samples yielded isolates of *Vibrio cholerae* O1 of serological subtype Ogawa. Consumption of contaminated holy water (AOR: 21.81, 95%CI: 2.34, 203.10) and raw vegetables (AOR: 16.15, 95%CI: 2.52, 103.72) were independent risk factors whereas washing hands with soap after visiting latrine (AOR: 0.06, 95%CI: 0.008, 0.47) was independent protective factor.

Conclusion: Our findings demonstrated cholera foodborne transmission via consumption of raw vegetables, and its waterborne transmission via consumption of contaminated holy water. Washing hands with soap after visiting latrine was protective. We recommended cooking of vegetables and promoting hand washing.

Biography:

Getachew Dinede received Doctor of Veterinary Medicine (DVM) from Jimma University, Ethiopia in 2008 and Master of Public Health in Field Epidemiology from Addis Ababa University, School of Public Health, Ethiopia in 2018. He joined Ministry of Agriculture (MoA) in 2015 as Epidemiologist. Currently, he has been serving as In-service Applied Veterinary Epidemiology Training (ISAVET) program coordinator. Prior to joining MoA, he served as regional veterinarian at Agricultural and Rural Development Bureau, Benishangul-Gumuz Regional State, Asoka, Ethiopia (2013-2014); as college instructor in Oromia Pastoral Areas Technical and Vocational Education and Training College, Yabello, Oromia, Ethiopia (2010-2012) and in Mickey Leland College, Gimbi, Oromia, Ethiopia (Oct. 2008-Aug. 2009). He has about 10 years work experience with expertise areas, including surveillance, surveillance system evaluation, outbreak investigation, data analysis, epidemiology, zoonoses, risk analysis, scientific writing, and college teaching. Dr. Getachew has publications on peer-reviewed journal.

Speaker Publications:

1. "Rubella outbreak in the school children, Addis Ababa, Ethiopia: February–April 2018".
2. "Cattle Fasciolosis and Hydatidosis".
3. "Hematological Parameters of sheep: An Aid in the Diagnosis of Gastrointestinal (GIT) and Respiratory Diseases".
4. "Epidemiology of Cattle Trypanosomosis and Associated Anaemia in Mandura District".
5. "Trypanosomosis in Cattle Population of Pawe District of Benishangul Gumuz Regional State, Western Ethiopia: Anemia, Vector Density and Associated Risks".

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