

Title: Cholera Surveillance in the Greater Accra Region of Ghana

Activities: Assessment of surveillance systems; Collect data to assess magnitude and nature of the event; Integrate and analyze surveillance data; Train workforce in epidemic intelligence

Stakeholders: National and subnational health authorities; Academic researchers

Phases: Surveillance & preparedness; Detection

Years: 2011-2015

Countries: Ghana

Agent: *Vibrio cholerae*

Case study prepared by: Hannah Todd, July 10, 2020

Please include full case study text below this line.

Cholera is an acute diarrheal illness caused by the toxigenic bacterium *Vibrio cholerae*. Infected individuals may have mild or no symptoms. However, it can be severe, causing profuse watery diarrhea, vomiting, and leg cramps.¹ Health authorities in Ghana characterize the quality of their surveillance system in two cholera outbreaks between 2011 and 2015.

In Ghana, there were 10,628 cases and 100 deaths by the end of 2011. An assessment of the surveillance system in the Osu Klottey district in the Greater Accra Region of Ghana found that the system was achieving its objectives. It was sensitive, simple, stable, flexible, and acceptable. Moreover, it had a ‘good’ predictive value positive.²

Health authorities evaluated the surveillance system’s operations (attributes and performance) according to U.S. Centers for Disease Control and Prevention guidelines. To do this, they obtained surveillance data records from 2011 to 2013 from the disease control unit of the district health directorate. They scientifically reviewed and analyzed this information, including calculating infection frequencies from the records. Then, to further characterize the system, they conducted interviews with stakeholders and key informants at all levels using a structured questionnaire. As well, the investigators reviewed data registers from some health facilities at all (district, regional, national) levels.

¹ CDC. Cholera-*Vibrio cholerae* infection. 11 May 2018. <https://www.cdc.gov/cholera/general/index.html>.

² Adjei EY, Malm KL, Mensah KN, et al. Evaluation of cholera surveillance system in Osu Klottey District, Accra, Ghana (2011-2013). *Pan Afr Med J.* 2017;28:224. Published 2017 Nov 13. doi:10.11604/pamj.2017.28.224.10737.

The principal areas of the evaluation were data collection, analysis, and use of data, resources used to operate the surveillance system, flow chart, system's attributes, and objectives and usefulness of the system. The evaluators concluded that the system met its goals due to clear field guidelines and well-trained staff. They contextualized its strengths and weaknesses compared to another surveillance assessment in Nigeria. Finally, their general findings highlighted the need for better data management by disease control officers as the main area for improvement in the surveillance system.

Then, in summer 2014, the Ghana Field Epidemiology and Laboratory Training Programme and the Disease Surveillance Department investigated the ongoing epidemic, including its surveillance system. They aimed to establish the magnitude, cause, and source of the outbreak. The researchers observed a 'weak diarrhea disease surveillance system' as one of the primary factors behind cholera's continued prevalence in the region. Their findings suggest that the initial assessment may not have fully captured the efficacy of the surveillance system, particularly since the country had faced a resurgence of cholera just a few years later.

By the end of September 2015, there had been no cholera cases in the Greater Accra region for 13 consecutive weeks, suggesting the end of the outbreak.³ It is possible that, over time, the surveillance system improved and allowed the area to curb the epidemic through a more effective tracking system.⁴

Please include case study summary text below this line.

Cholera is an acute diarrheal illness caused by the toxigenic bacterium *Vibrio cholerae*. There were two cholera outbreaks in the Greater Accra region of Ghana between 2011 and 2015. Different health authorities assessed the response to these outbreaks, including the effectiveness of their surveillance system. Findings were mixed on the quality of surveillance, but the recurrence of cholera over this time span suggests that there is a need for improved tracking to keep the spread of disease in check.

³ OCHA. Ghana: Cholera Outbreak-Aug 2014. 23 Sep 2019. <https://reliefweb.int/disaster/ep-2014-000116-gha>.

⁴ Ohene-Adjei K, Kenu E, Bando DA, et al. Epidemiological link of a major cholera outbreak in Greater Accra region of Ghana, 2014. *BMC Public Health*. 2017;17(1):801. Published 2017 Oct 11. doi:10.1186/s12889-017-4803-9.