

## A Cholera Outbreak in A Rural South-South Nigerian Community: A Case-Control Study

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### ABSTRACT

**Background:** Cholera remains a disease of public health importance in Nigeria associated with high morbidity and mortality. On the 4<sup>th</sup> of June 2024, the Nigeria center for disease and control prevention (NCDC) through the Disease Surveillance and Notification Officer (DSNO) reported an increase in the number of reported cases of vomiting and diarrhea in Toru-Orua village, Sagbama Local Government Area Council, Bayelsa State, Nigeria. A team of researchers was deployed to investigate the outbreak with the objectives of verifying the diagnosis, identifying risk factors and instituting appropriate control measures to control the outbreak.

**Methods:** A case-control study was conducted. A total of 93 cases and 118 controls were recruited. Structured questionnaires were administered to both cases and controls. Four stool samples from case-patients and two water samples from the community water source were collected for laboratory investigation. We performed univariate and bivariate analysis using Epi-Info version.

**Results:** The mean age of cases and controls was 20.3 years and 25.4 respectively (p value 0.09). Females constituted 50% (cases) and 60%(controls). The attack rate was 4.3% with a case fatality rate of 13%. Four stool (100%) specimen tested positive for *Vibrio cholerae*. The water source and environment were polluted by indiscriminate defecation. Compared to controls, cases were more likely to have drank from the river forcados (OR 14.2, 95% CI: 5.5-36.8) and living in households (HH) with more than 5 persons/HH (OR 5.9, 95% CI: 1.3-27.2). Good hand hygiene was found to be protective (OR 0.3, 95% CI: 0.1-0.7).

**Conclusion:** *Vibrio cholerae* was the cause of the outbreak in Toru - Orua. Drinking water from river forcados, living in overcrowded HH and poor hand hygiene were significantly associated with the outbreak.

**Keywords:** Cholera, Outbreak investigation, *Vibrio cholerae*, Case-control study, River forcados, Waterborne disease, Hand hygiene, Overcrowding, Public health, Bayelsa state, Nigeria

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