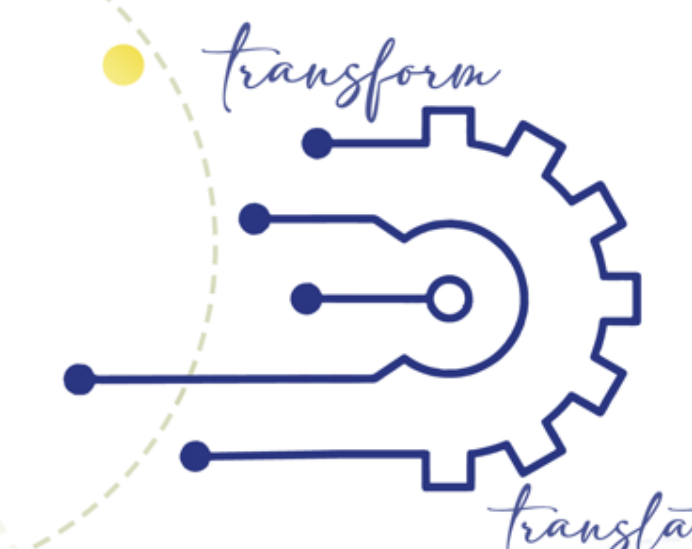


Suspected Waterborne Illness Outbreak in Chief Albert Luthuli sub-district, Mpumalanga Province, South Africa, December 2022 – February 2023

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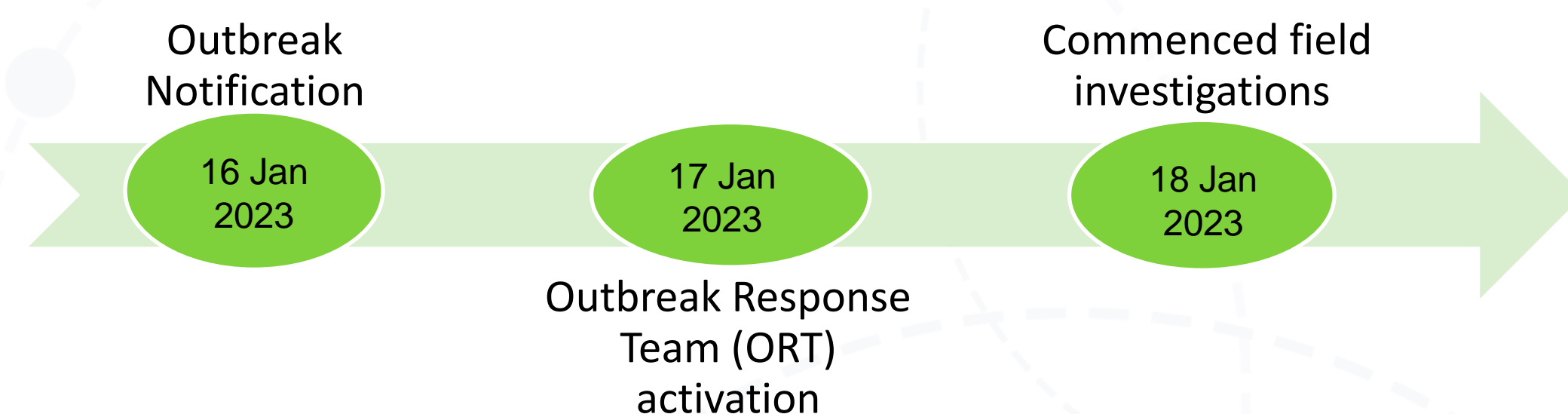
PHASA 2023
TRANSFORMING RESEARCH
TRANSLATION-
REIMAGINING
PUBLIC HEALTH EVIDENCE,
POLICIES, AND PRACTICE



BACKGROUND

- Annually, 1.7 billion diarrhoeal cases are reported in children globally
- Diarrhoeal disease ranks as the second main cause of death in children ≤5 years

OUTBREAK NOTIFICATION



OBJECTIVES

- To verify an outbreak and determine the extent of the outbreak.
- To determine the source of the outbreak.
- To determine the factors associated with hospital admission.
- To recommend and institute prevention and control measures.

METHODOLOGY

- Conducted a Cross-sectional Study

Case definition:

- Anyone presenting at a health facility with diarrhoea, abdominal cramps, fever, nausea, or vomiting in Chief Albert Luthuli sub-district from 26 December 2022



Data Sources:

- Medical Record Review
- PHC Diarrhoeal line lists.



Laboratory Investigations:

- 37 Stool samples



Environmental Investigations:

- 31 water samples from District Hospital, surrounding PHC facilities and water purification plant
- Assessment of the water purification plant



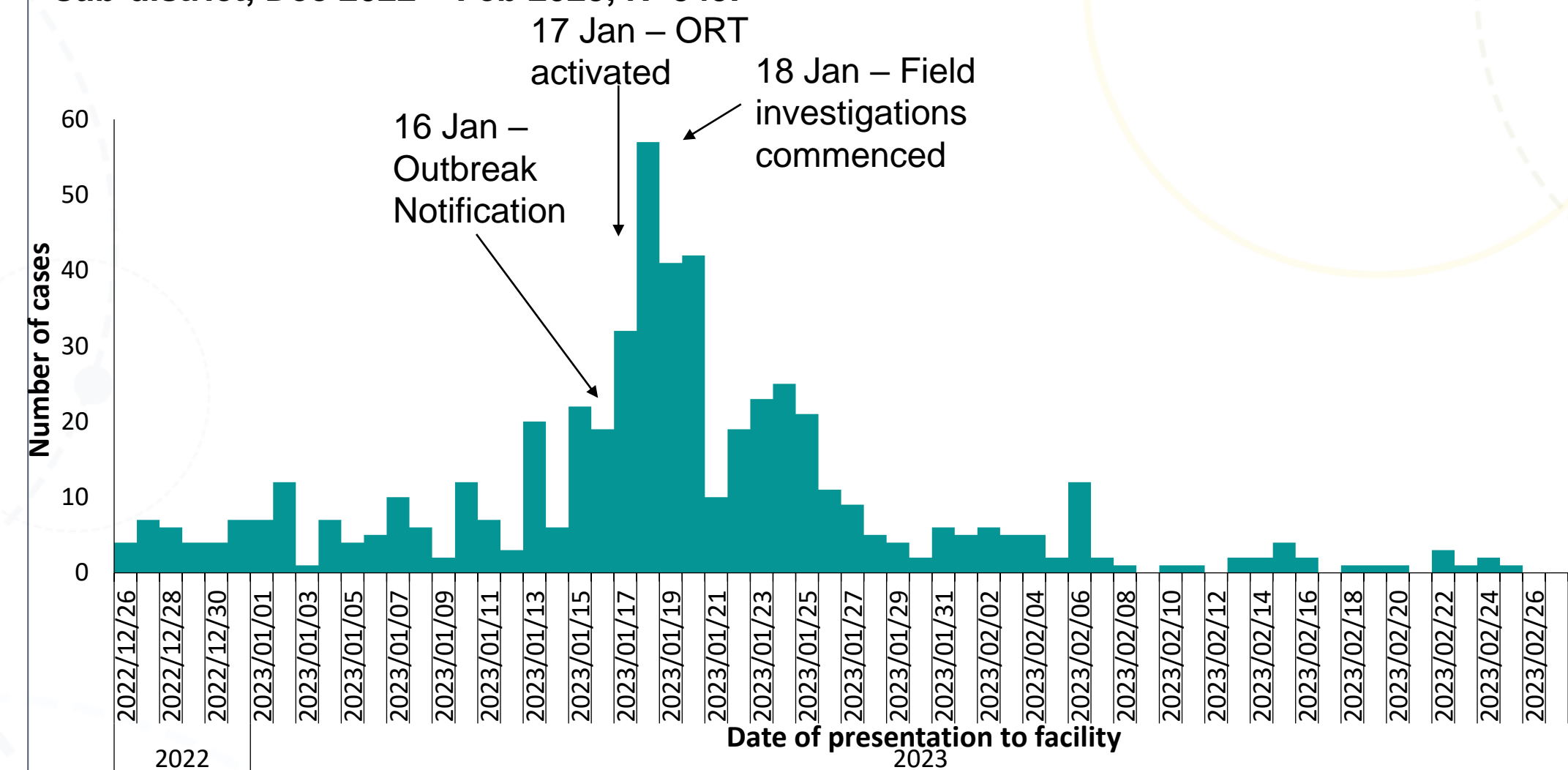
Data Analysis:

- STATA 17
- Microsoft Excel 2019
- Descriptive statistics, Attack rate (AR), Odds Ratios (OR), Confidence Interval (CI).



RESULTS

Distribution of suspected cases by date of presentation to a facility in Chief Albert Luthuli sub-district, Dec 2022 – Feb 2023, N=549.

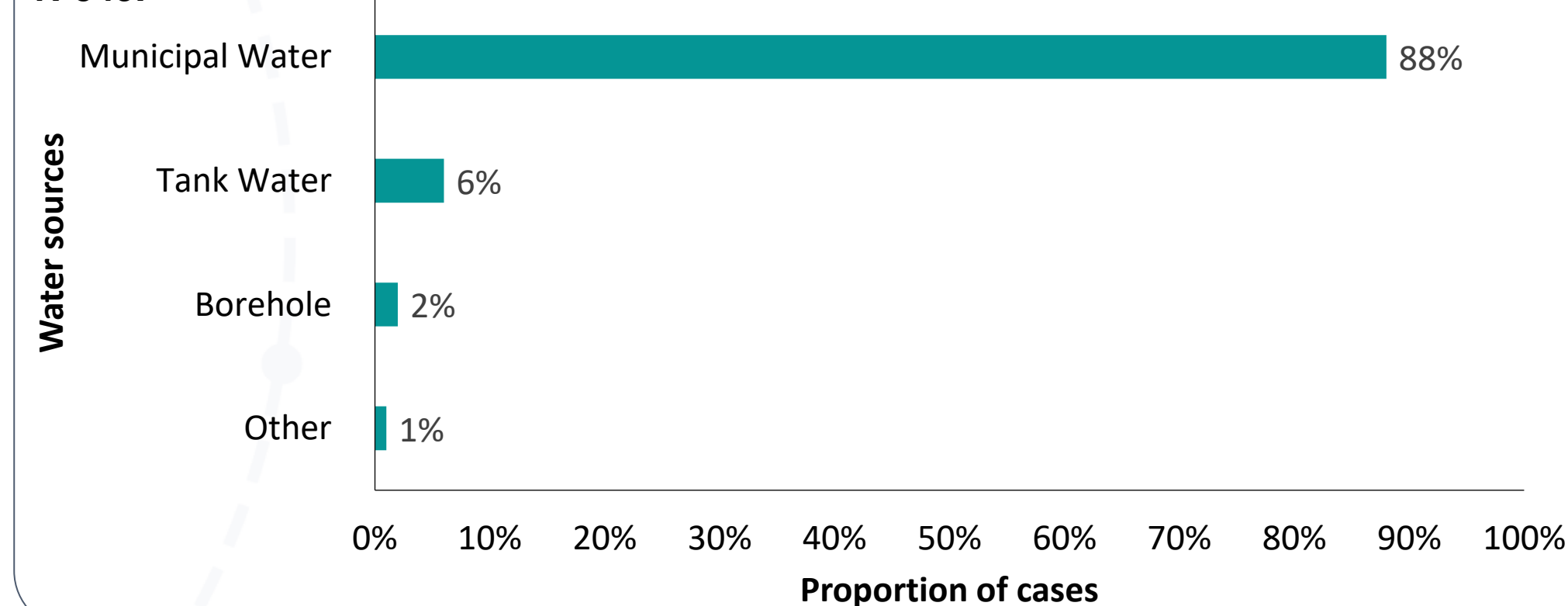


Distribution of suspected cases by age and sex, Chief Albert Luthuli sub-district, Dec 2022 – Feb 2023, N=549.

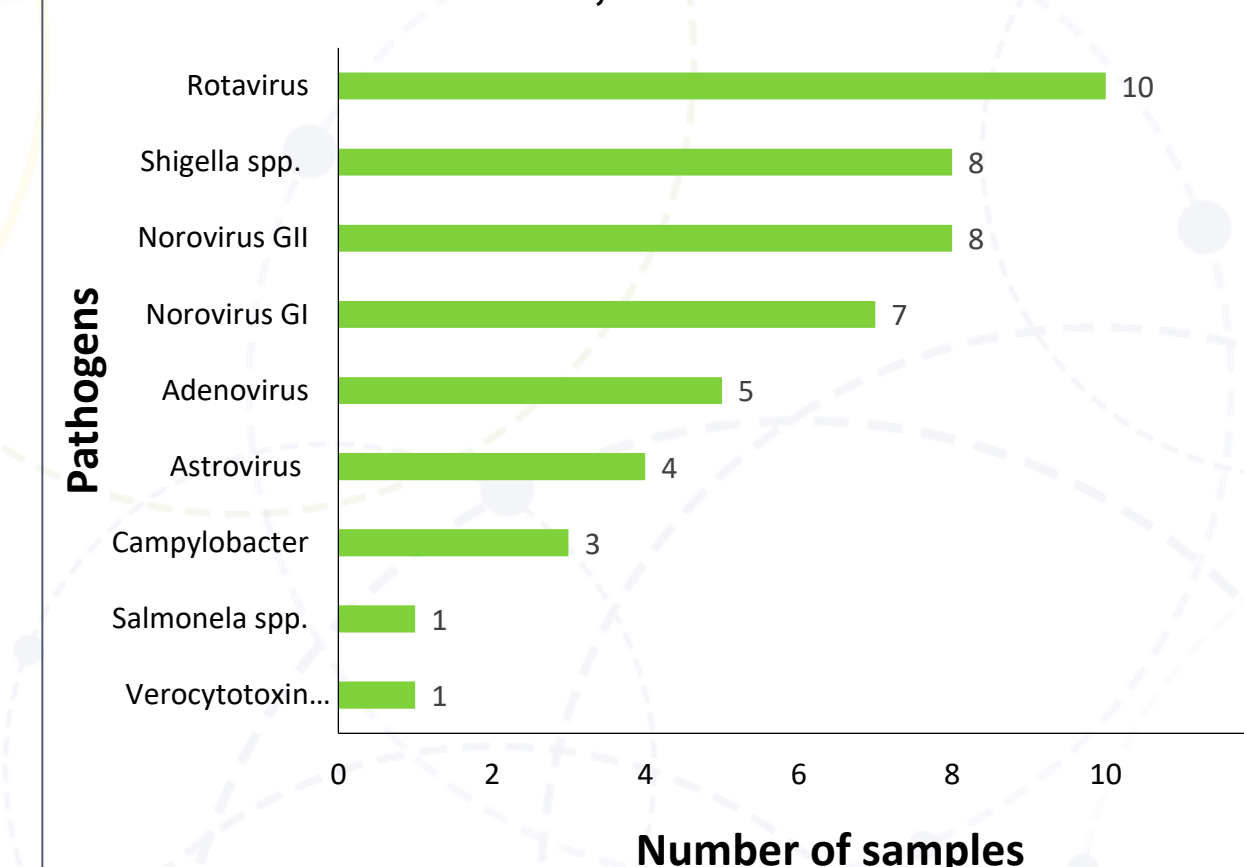


- **Attack Rate: 3.04 cases per 1000 persons**
- **Case Fatality Rate: 0.7% (< 2 years old)**
- **12 % Hospital Admissions**

Water sources of suspected cases in Chief Albert Luthuli sub-district, Dec 2022 – Feb 2023, N=549.



Pathogens found in stool samples of suspected cases in Chief Albert Luthuli sub-district, Dec 2022 – Feb 2023, N=37.



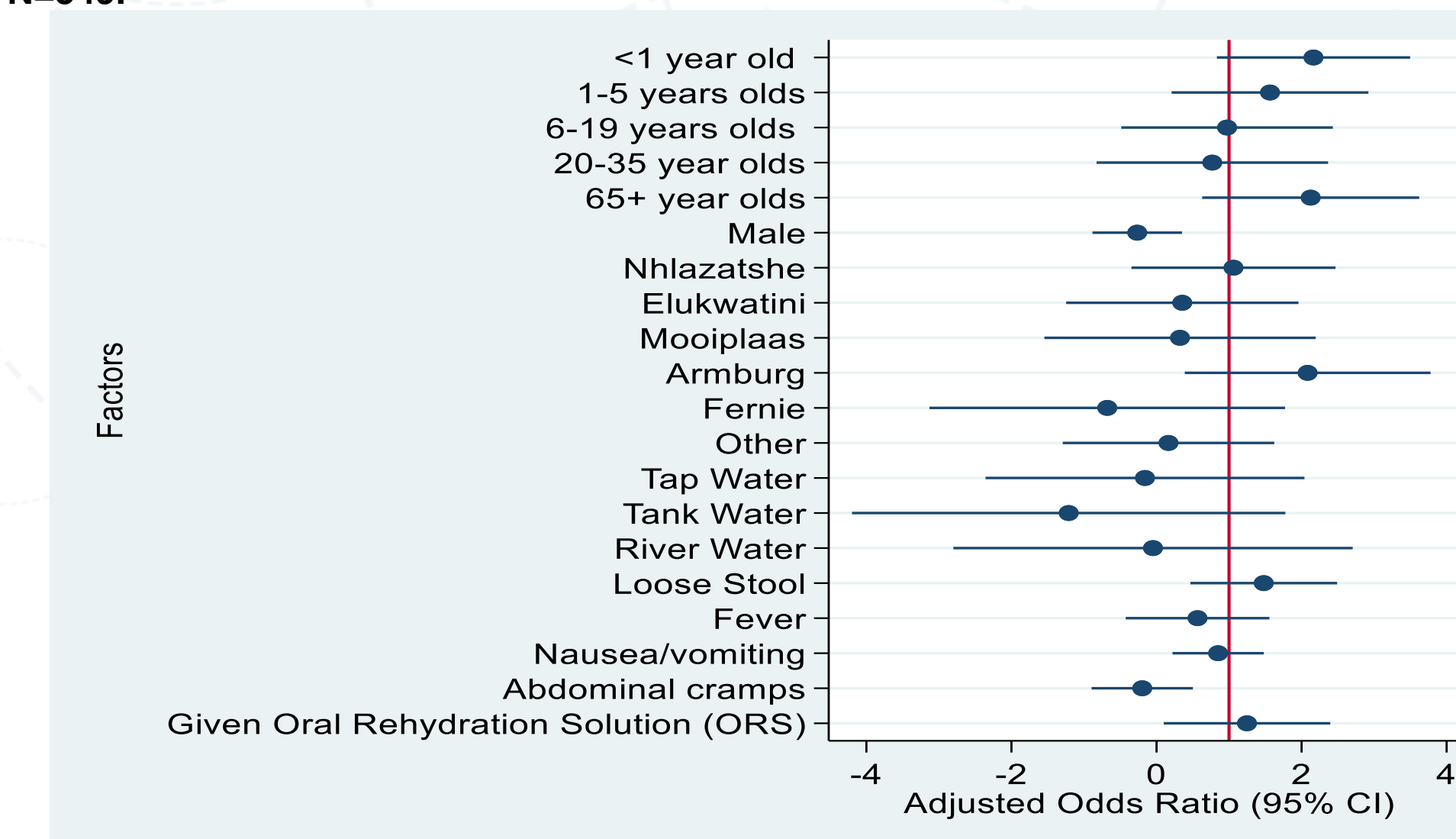
Laboratory Findings:

- ≥ 2 pathogens from 37% samples

Environmental findings:

- All 31 water samples detected E. coli and coliform species (Hospital, PHC facilities & Water purification plant)
- Loadshedding reported at purification plant

Forest plot of multivariable logistic regression for factors associated with hospital admission of suspected cases in Chief Albert Luthuli sub-district, Dec 2022 – Feb 2023, N=549.



CONCLUSIONS

- Confirmed the existence of a waterborne illness outbreak
- Hospital admission was associated with being <1 year, 1-5 years, and ≥65 years old, residing in Armburg, presenting with loose stool, and having received ORS.
- Intermittent chlorination due to power outages may have caused the outbreak.
- Chlorine dosing was increased at the purification plant
- Community members were educated on at-home water purification methods.
- We recommend the exemption of water purification plants from load-shedding

ADVOCACY MESSAGE

- Authorities must ensure clean water access and hygiene to prevent waterborne illnesses

ACKNOWLEDGEMENTS

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