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Vibrio Cholerae Strikes Training Academy Through contaminated Water

BACKGROUND



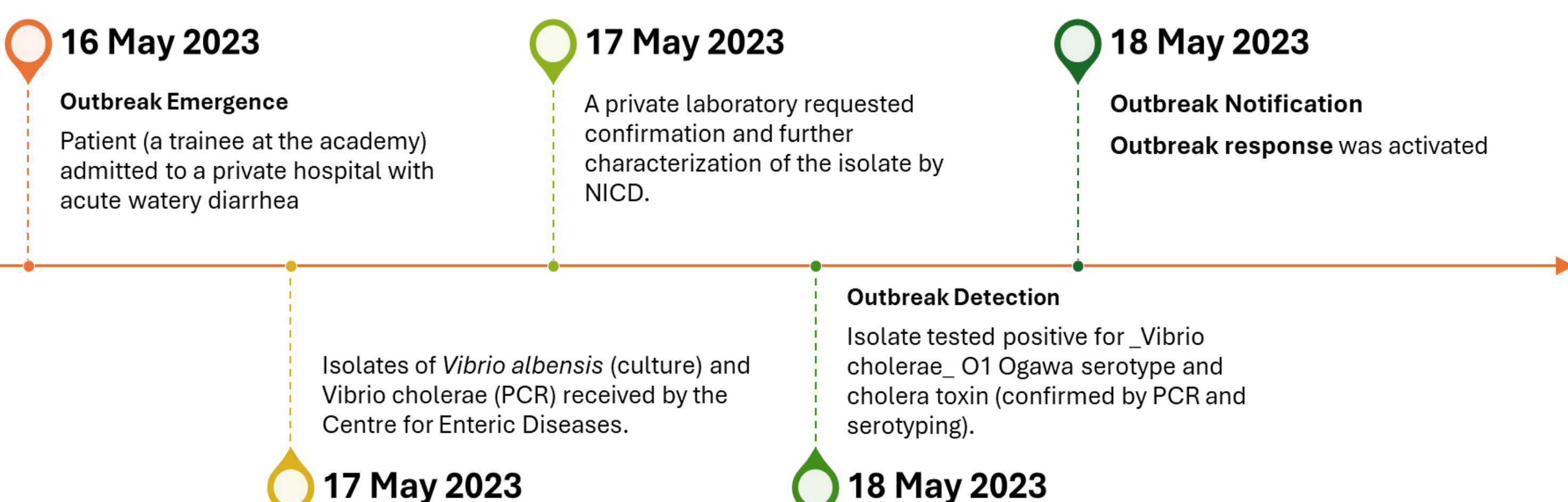
Cholera is a diarrheal disease caused by *Vibrio cholerae*.
 Annually it causes 1.3-4.0 million cases and 21,000-143,000 deaths globally.
 It is transmitted through contaminated water/food in areas with poor sanitation/hygiene practices.



Areas in Gauteng province faces persistent water shortages and contamination problems.
 Residents lack access to clean and safe drinking water.



We aimed to determine the source of the outbreak.
 To determine factors associated with illness
 and to provide recommendations to prevent future cholera outbreak



METHODS

Study site and population

- ❖ The training academy is situated in Gauteng Province.
- ❖ The academy enrolled 466 trainees on 8 May 2023.

Data Collection

- ❖ Collected 71 stool samples/ rectal swabs
- ❖ Created a questionnaire using Google forms
- ❖ The questions focused on events from 8 – 18 May, collecting data on demographics, illness, food sources, and water sources.

Epidemiological investigations

- ❖ We conducted a 1: 2 case control study
- ❖ Cases: Any trainees with gastrointestinal symptoms from 8th to 18th May 2023
- ❖ Controls: Any trainee without history of acute watery diarrhoea
- ❖ Univariate and multivariable logistic regression analysis was conducted
- ❖ Administered the questionnaire to all trainees at the academy

Laboratory investigations

- ❖ Performed culture on the samples

RESULTS

- From the stool samples, two of the 71 cases were positive on culture for *Vibrio Cholerae* O1 Ogawa.

Table 1: Demographic Characteristics of Cases and Controls at a Training Academy in Gauteng Province, May - June 2023

Characteristics	Cases (N = 88)	Controls (N = 150)	Total(N=238)
Age			
Mean (SD)	36 (8)	35 (7)	35 (7)
Median (Min, Max)	35 (23, 54)	33 (22, 51)	34 (22, 54)
Missing	3 (3.4%)	12 (8.0%)	15 (6.3%)
Sex			
Male	67 (76.1%)	90 (60.0%)	157 (66.0%)
Female	21 (23.9%)	60 (40.0%)	81 (34.0%)

RESULTS CONTINUED

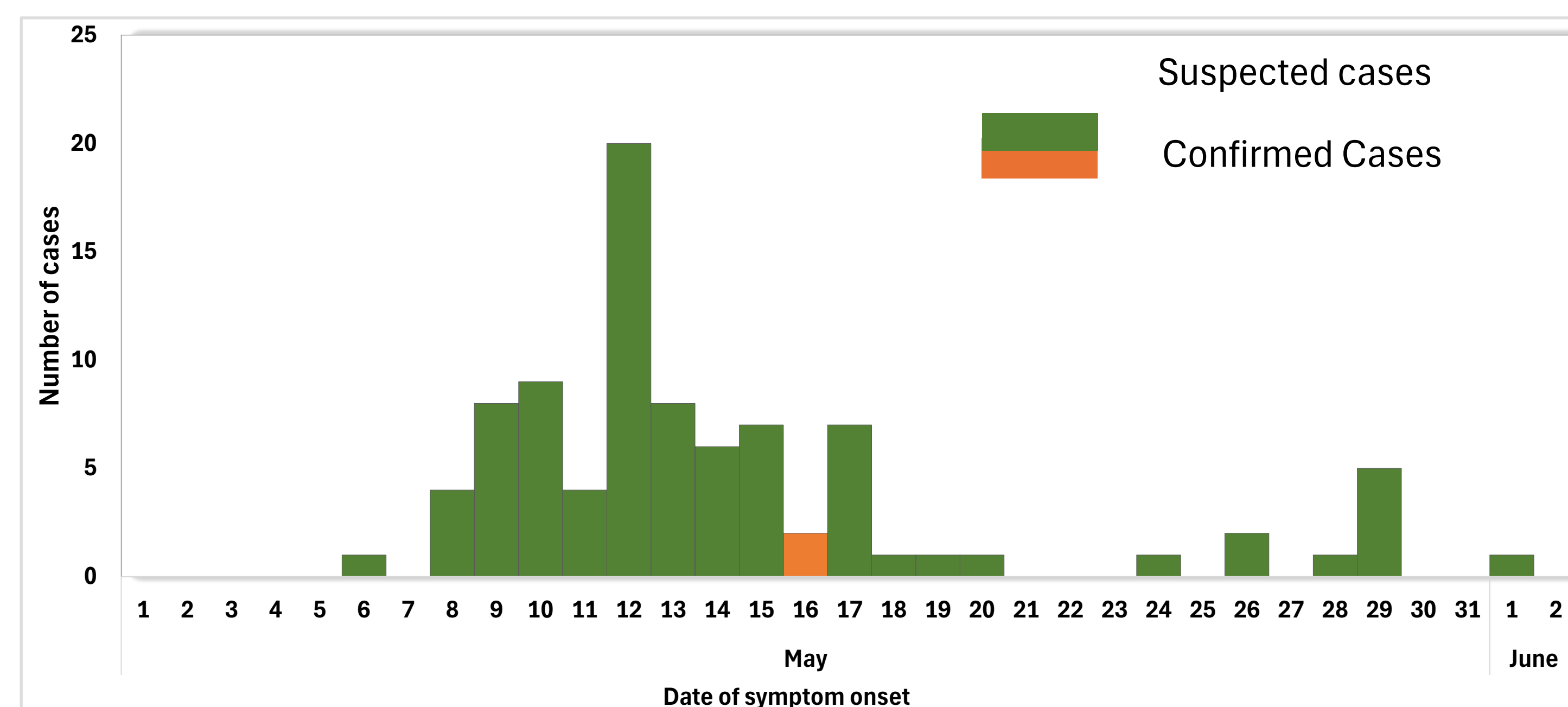


Table 2: Factors associated with illness at a Training Academy in Gauteng Province, May - June 2023

Exposure variable	N	Cases	Controls	OR (95% CI)	P-value	aOR (95%CI)	P-Value
Brushing teeth with tap water							
No	116	30 (26)	86 (74)	Ref			
Yes	122	58 (48)	64 (52)	2.6 (1.5-4.5)	0.001	2.5 (1.4-4.5)	0.002
Soap available in bathrooms at all times							
No	150	70 (47)	80 (53)	Ref			
Yes	88	18 (20)	70 (80)	0.3 (0.2-0.5)	<0.001	0.3 (0.2-0.6)	<0.001
Sex							
Female	81	21 (26)	60 (74)	Ref			
Male	157	67 (43)	90 (57)	2.1 (1.2-3.8)	0.012	2.1 (1.1-4.0)	0.017
Eating food bought outside the college							
No	39	23 (59)	16 (41)	Ref			
Yes	99	32 (32)	67 (68)	0.3 (0.2-0.7)	0.005		

CONCLUSIONS

- This outbreak was likely caused by *Vibro Cholerae* with the use of contaminated water being the likely vehicle of infection.
- Illness was associated with the brushing of teeth using municipal tap water.
- Being of male sex was associated with illness.
- The availability of soap in the bathrooms at all times on the college was protective against illness.

PUBLIC HEALTH ACTION

- Health Education
- Soap was consistently made available in the Academy's bathrooms
- Bottled drinking water was made available to the trainees

RECOMMENDATIONS

- Trainees should be reminded to brush their teeth with safe water only.
- Hand washing soap should be made available at all times in all the bathrooms on the college premises
- Provision of safe water to the trainees until municipal water is safe.