

An outbreak of Measles in Techiman Municipality, Brong-Ahafo region, Ghana, 2014.

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Introduction

- Measles is a viral infection characterized by fever, rash, conjunctivitis, coryza or cough
- Globally, 145,700 measles deaths occur annually, 400 daily and 16 hourly
- Ghana 2013: 1081 suspected cases, 330 confirmed, no death
- On 13th January, 2014, there was a report of measles outbreak in Techiman municipal assembly.
- Municipal Health Director instituted statutory investigation



Objectives of the outbreak investigation

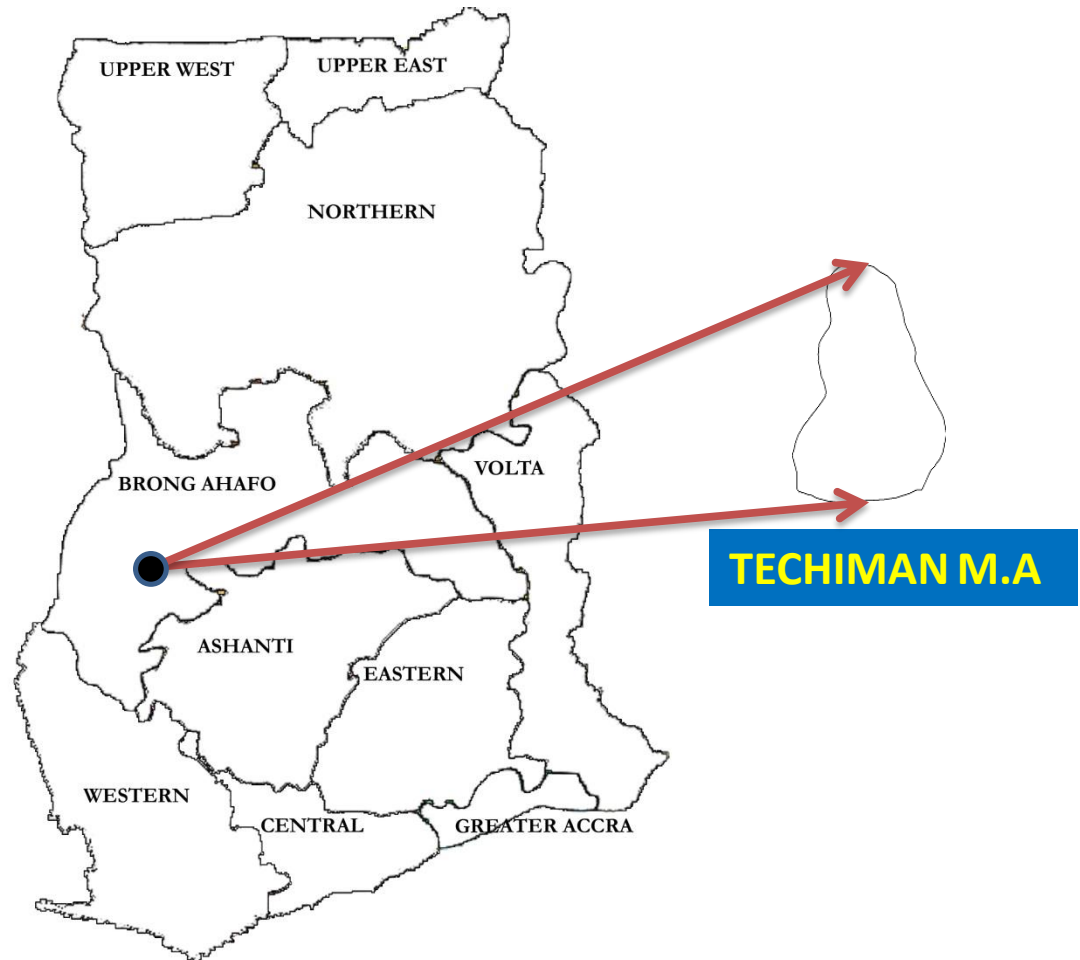
- To identify the source of the outbreak
- To determine the extent of the outbreak
- Identify possible risk factors
- Recommend and take control measures



Methods 1/2

Study area; Techiman in Brong –Ahafo region of Ghana.

- Population 156,868
- 669.7 km² land area
- Coordinates
7°35'13"N 1°56'06"W
- Leading market town in south Ghana



Methods 2/2

- Medical records review, active case search and interviews
- Blood samples for laboratory diagnosis
- Environmental assessment
- Study design- 1:2 unmatched case-control study (14:28)
- A case patient: Any child with history of fever, maculopapular rash, conjunctivitis, coryza or cough from 1st October, 2013 to 13th February, 2014
- Descriptive analysis and risk factors assessment using fisher-exact test at 95% confidence level.



Suspected case of Measles



Specimen Collection



Records Review



Interview: community entry



Assessing vaccination status



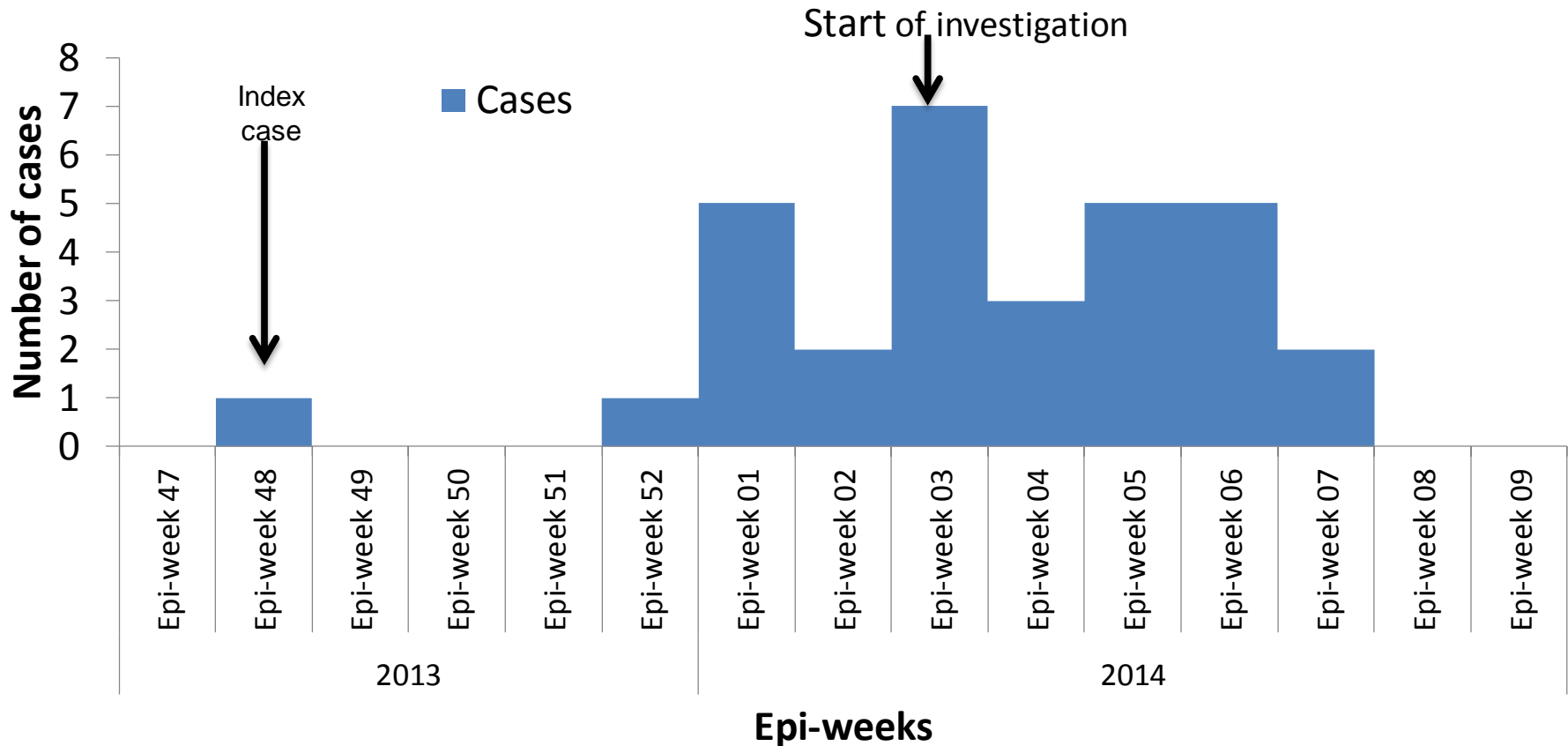
Results 1/4

- **Index case:**
 - 1 year old girl from Gyarko Community
 - Initially admitted at emergency ward
 - Had contact with a patient with symptoms suggestive of measles (*couldn't trace contact*)
 - Discharged
 - Developed similar symptoms as contact
 - Admitted into paediatric ward
 - Lab confirmed measles IgM positive



Results 2/4

Measles cases by week of onset, Techiman Municipality, Epi-week 47(2013) – Epi-week 09 (2014).



Results 3/4

- Cases (33): 8 confirmed; 25 were epidemiological linked
- Attack rate of 5/10000 with no fatalities
- Females cases—58% (19/33)
- Mean age of cases= 2 yrs; Range: 6mths – 13 yrs
- No isolation ward for cases
- Some children were paired on hospital beds.
- Measles immunization:
 - Cases – 28% (4/14)
 - Controls- 82% (23/28)



Results 4/4

Risk Factors associated with measles outbreak, Techiman Municipality, Epi-week 47(2013) – Epi-week 09 (2014).

Risk Factors	Cases	Controls	Odds Ratio	Confidence limit	
				Lower	Upper
No Immunization	N = 14(%) 10 (72%)	N = 28 (%) 5(18%)	10.7	2.1	68.9
Recent admission to Holy Family Hospital pediatric ward	10 (72%)	3 (11%)	18.7	3.7	119.4
Travel History	3 (21%)	1 (4%)	7.0	0.6	200.2

Footnote: A statistically significant association was observed for No Immunization and recent admission to the Facility.

The confidence interval and P-Value suggests that no significant association was observed between travel history and measles infection which means that the observed Odds ratio of 7.0 was due to chance.

The confidence intervals are wide due to the small sample size.



Discussion 1/2

- Most likely source of the outbreak was from the paediatric ward
- No measles vaccination and recent admission to paediatric ward prior to onset of illness were risk factors for acquiring the infection



Discussion 2/2

- Overcrowding, pairing and lack of isolation wards contributed to the spread of the infection.
- No measles vaccination among cases and controls
 - Poor knowledge of caregivers
 - Some cases (8) were not due for vaccination (< 9mths)



Conclusion

- There was a propagated outbreak of measles in Techiman municipality
- Paediatric ward was the likely source of outbreak
- Public Health Action
 - Setting up an isolation ward to manage cases
 - education of parents and guardians on control and preventive measures
- Recommendation
 - Measles immunization mop-up exercise by Ghana Health Service
 - MOH should consider vaccines that could be administered before 9 months (Nkrumah *et. al*, 1998)



Temporal Isolation ward



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