

Management of Acute Gastroenteritis (AGE) Outbreak in Tenom District Sabah 2023



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Background

Gastroenteritis is a highly contagious disease. The occurrence of AGE cases in Malaysia is a trend that has existed for a long time and almost every day AGE cases have been reported throughout Malaysia. A surveillance system is important to detect an unusual event thus prompt control action is essential in an AGE outbreak. Environmental sampling is equally essential in support of an outbreak investigation which can help determine etiological agents and appropriate control measures.

Introduction

Public health efforts to control and prevent an outbreak have focused primarily on outbreak detection and control. The surveillance system complied with the "Event-based Surveillance Protocol" guidelines established by Malaysia¹. The Tenom Health District Office has received a notification regarding an unusually surged increase of AGE incidents from a private clinic in the Tenom district on 05/01/2023. There are many individuals reported to attend private clinics to seek treatment suffering from acute symptoms of gastroenteritis such as abdominal discomfort, vomiting, nausea, and/ or diarrhea. These cases have involved a range of ages with different residential addresses. This report aims to describe in detail the AGE outbreak management in Tenom and to provide recommendations for the control and prevention of the unusual AGE event.

Methods and Materials

A total of 865 cases were included in this study. The study's notification period was from 05/01/2023 to 20/01/2023, with a case definition of any person in the Tenom District who begins experiencing AGE symptoms on or after 01/01/2023, such as abdominal discomfort, vomiting, nausea, and/ or diarrhea. Case detection was done through active and passive case detection which involved all the health facilities in Tenom District. Clinical, non-clinical, and environmental samples were taken for laboratory testing to confirm etiological agents. Treated water with in-situ testing was taken to ensure that the source of water supply was safe for consumers. Samples of food and beverages were collected from the premises, including water vending machines that were highly accessible to the community. Investigation and control measures were conducted in accordance with Malaysia guidelines "Garis Panduan Pengurusan Wabak Keracunan Makanan Jilid 4"². Data were analyzed descriptively.

Results

The AGE outbreak in Tenom district reported a total of 865 cases. The AGE outbreak has occurred sporadically, involving 6 out of 7 sub-districts in Tenom. The age distribution varied from all age ranges of 0-5 years to 81-85 years old. A total of 135 (22.9%) stool samples were taken from 590 cases that experienced symptoms of diarrhea. *Vibrio cholerae* were ruled out in all the samples. *E.coli* was detected in food and water samples. Details of laboratory findings as shown in Table 1.

As for the environmental sampling, there was an in-compliance of the routine water sample taken on 3/1/2023 which reported zero residual chlorine reading with the presence of *Total coliform* on the microbial test.

The epidemiologic curve showed a continuous common source where cases were exposed to the same source of infection. The supply of contaminated water continuously (repeatedly) every day from the same source, causes a continuous onset and an increase in cases beyond the incubation period of the causative agent.

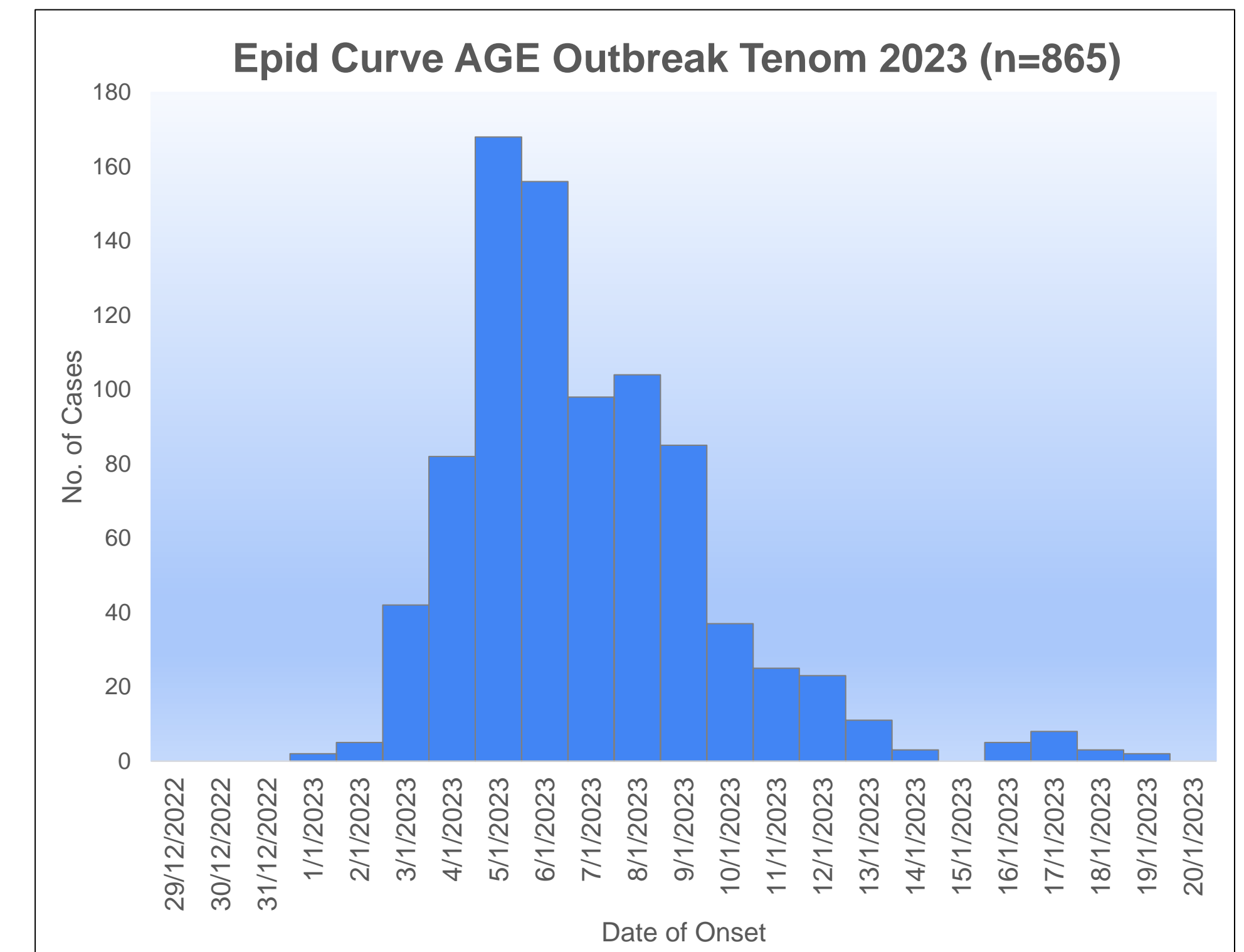
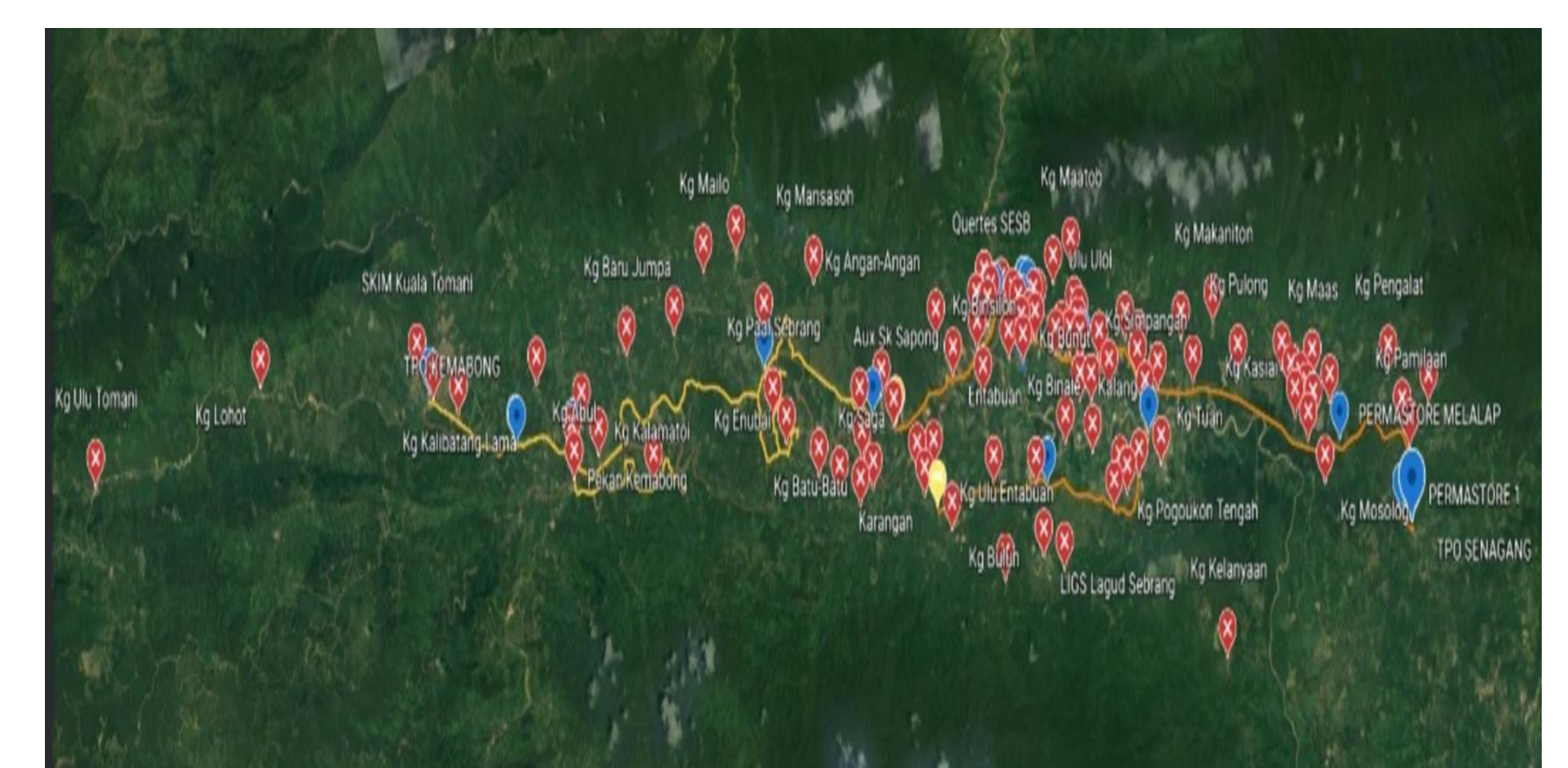


Chart 1. Epid Curve of AGE Outbreak in Tenom 2023

Discussion

Following the discovery of the in-compliance in water quality monitoring on 3/1/23, an increase in AGE cases was reported with different residential addresses. Environmental samples which showed in-compliance findings occurred at SRO Batu Tiningkang and SRO Kallang sampling points which were supplied by the Senangang water plant. The Senangang water plant's water distribution system covers 3 sub-districts in Tenom, contributing to most of the cases in this area. Reported feedback from the authority stated a leak in the drum chlorine pipeline caused the treated water that was channeled to have no residual chlorine. Following the implementation of control measures, the trend of cases began to decline over time.



Pic 1. Overview Spot map AGE Outbreak in Tenom 2023

Conclusions

Based on the occurrence of the significant increase in AGE cases occurring sporadically, it is likely that the cause of the spread is through contaminated water sources. Appropriate preventive measures have been taken by the Tenom Health District Office together with multiple agencies to ensure that the AGE outbreak does not recur in the future.

Clinical Sample			
	RSVC	Stool Sample	Remarks
No. of Sample, n	65	70	Samples were taken from 22.9% of cases that experience symptoms of diarrhea.
Positive Sample, n (%)	0 (0%)	8 (11.43%)	6 – <i>Shigella sonnei</i> 2 – <i>Salmonella sp</i>
Negative Sample, n (%)	0 (100%)	62 (88.7%)	-
Non-clinical Sample			
	Water	Food	Remarks
No. of Sample, n	4	4	-
Positive Sample, n (%)	2 (50%)	1 (25%)	<i>E.coli</i> detected. Water vending machine (WVM) WVM1: 6 CFU/100mL WVM2: Detected (less than 4CFU/100mL) Food Sample (Soto) – 10 CFU/g
Negative Sample, n (%)	2 (50%)	2 (75%)	-
Environmental Sample			
	Treated Water (Routine water sample)		Remarks
No. of Sample, n	15		-
Positive Sample, n (%)	2 (13.33%)		Zero residual chlorine and pathogenic microbiology (<i>Total coliforms</i>) detected on 3/1/2023. Samples were from SRO Batu Tiningkang & SRO Kallang sampling points.
Negative Sample, n (%)	13 (86.67%)		-

Table 1. Lab investigation findings on clinical, non-clinical, and environmental sampling

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References

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