Poster No: FRI_285

Outbreak of Foodborne Gastroenteritis in Pongching Village, Longleng District Nagaland, India, June 2023

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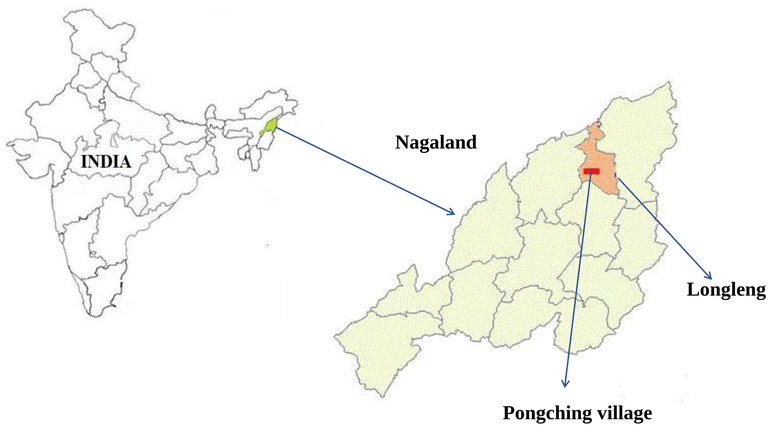
BACKGROUND

- **Global burden (2015):** 600 million foodborne diseases (FBDs)
  0.4 million deaths
- **India in 2015:** 450 (23%) acute diarrhoeal disease (ADD) outbreaks
  328 (17%) were FBD outbreaks
- **Nagaland on June 16, 2023**: Yachem community health centre reported 47 admitted cases of diarrhoea to State Surveillance Unit (SSU)

Outbreak Location



Timeline of Events

- **June 16, 2023 (afternoon):** Yachem community health centre, Longleng, Nagaland reported 47 admitted cases of diarrhoea
- **June 17, 2023:** District initiated the investigation
- **June 17, 2023 (evening):** Chief Medical Officer from Nagaland University, Kohima, Nagaland, India joined the investigation

Objectives

- To describe epidemiological characteristics of the outbreak
- To determine associated risk factors

METHODS

Case Finding

- **Case definition:** diarrhoea (>3 stools in 24 hours) or vomiting in a resident of Pongching village, Longleng, Nagaland from June 10 – 19, 2023
- **Enhanced passive surveillance:** reviewed records from all sub-centres, community health centre and District hospital
- **Active Surveillance:** house to house survey

Analytical Study

- **Study design:** retrospective cohort study
- **Cohort:** resident of Pongching village who attended or ate food from the paddy sowing event on June 15, 2023
- **Data collection:** collected socio-demographics and exposure history interviews with pre-structured questionnaire
- **Data analysis:** relative risk (RR) and 95% confidence Interval (95% CI) using Epi Info 7.2

Laboratory and Environmental Investigations

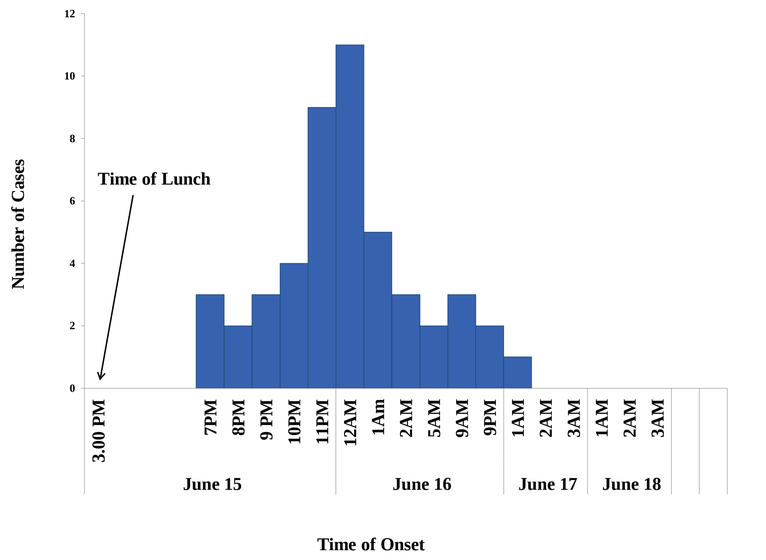
- **Laboratory:** Two cooked fish samples for testing of pathogens
- **Environmental:** Hygiene of kitchen preparing food
  Hygiene and history of illness of all the food handlers

RESULTS

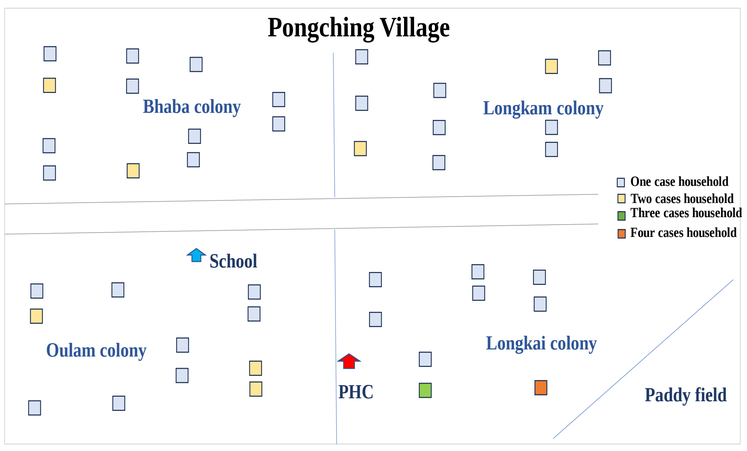
Descriptive Epidemiology

Characteristics	Findings
Cases	48
Overall attack rate	89%
Gender- Male	28 (52%)
Median age (range)	22 years (5-75 years)
Hospitalization	47 cases (87%)
Deaths	None

Foodborne Gastroenteritis Cases by Time of Onset



Foodborne Gastroenteritis Cases by Residence



Age Group, Gender and Illness Wise Distribution of Cohort (n=54)

Age group (in years)	Ill		Total (%)	Not Ill		Total (%)
	Female	Male		Female	Male	
5-15	1	3	4 (8)	0	0	**0**
16-30	19	18	**37 (77)**	3	0	3 (50)
31-45	2	3	5 (10)	1	0	1 (17)
46-60	0	0	0	1	1	2 (33)
61-75	1	1	2 (4)	0	0	0
Total	23	25	48 (89)	5	1	6 (11)

Risk Factors Associated with Foodborne Gastroenteritis Cases

Characteristics	AR among Exposed % (n/N)	AR among Unexposed % (n/N)	RR	95% CI
Gender (Male)	96 (25/26)	82 (23/28)	1.0	0.7-1.6
Tap water at home	88 (43/49)	100 (5/5)	0.9	0.7-1.3
Food items				
Cooked fish	100 (47/47)	14 (1/7)	**6.9**	**1.1-42.4**
Rice	96 (46/48)	100 (2/2)	1.2	0.6-2.2
Raw gram sprout salad	100 (45/45)	33 (3/9)	**2.9**	**1.1-7.5**
Dal	96 (44/46)	100 (4/4)	1.1	0.8-1.5
Bottled water	95 (42/44)	100 (6/6)	1.0	0.8-1.3

Laboratory Findings

Name of Pathogen	No. of positives by culture
Staphylococcus Aureus	13
Escherichia Coli	232
Yeast & Molds	120
Standard plate count	> 300 CFU/mL

Environmental Findings

- Hygiene and sanitation of the kitchen was not satisfactory
- Soaked raw gram in untreated water overnight and was not kept refrigerated next morning

Limitations

- Food items and bottled water served at the paddy sowing event were not available for testing
- Only two cooked fish samples were tested

CONCLUSION

- Foodborne gastroeneteritis outbreak due to mixed bacterial and fungal toxins occurred following a paddy sowing event at Pongching village
- Analytical study indicates strong association with consumption of cooked fish and raw gram sprout salad

RECOMMENDATION

- Intensify awareness on hand hygiene safe cooking, food handling and storage in the community
- Educate people regarding dangers of raw/ inadequate cooking of food
- Testing of food items if available in all suspected foodborne outbreaks

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