



# **Acute Gastroenteritis Outbreak in Hyomang Village, Nuwakot district , Nepal, June 2023**

Presenter

Dr. Roshan Dhakal

Health Administrator

Health Directorate, Gandaki, Nepal

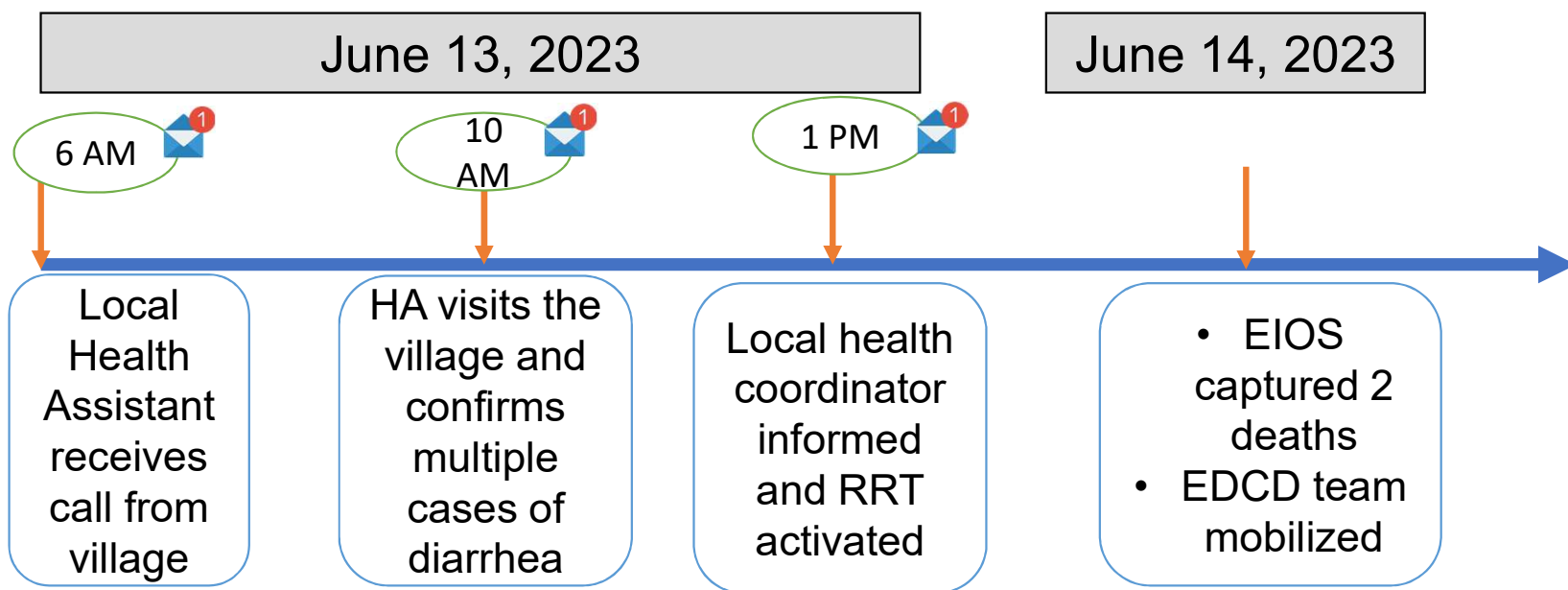


# Acute Gastro Enteritis (AGE) Outbreak in Nepal

- **Common illness** in Nepal, affecting all ages, higher burden in children < 5 years
- **Seasonal peak** : Monsoon season (June - September)
- **Source** : Often contaminated food or water
- Only **13 %** population have access to safe drinking water
- **Common pathogens** : *Escherichia coli*, *Salmonella*, rotavirus, norovirus etc

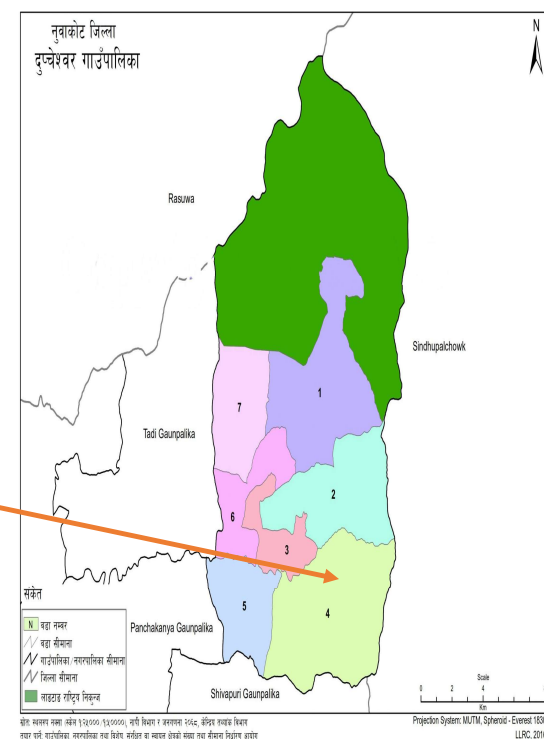
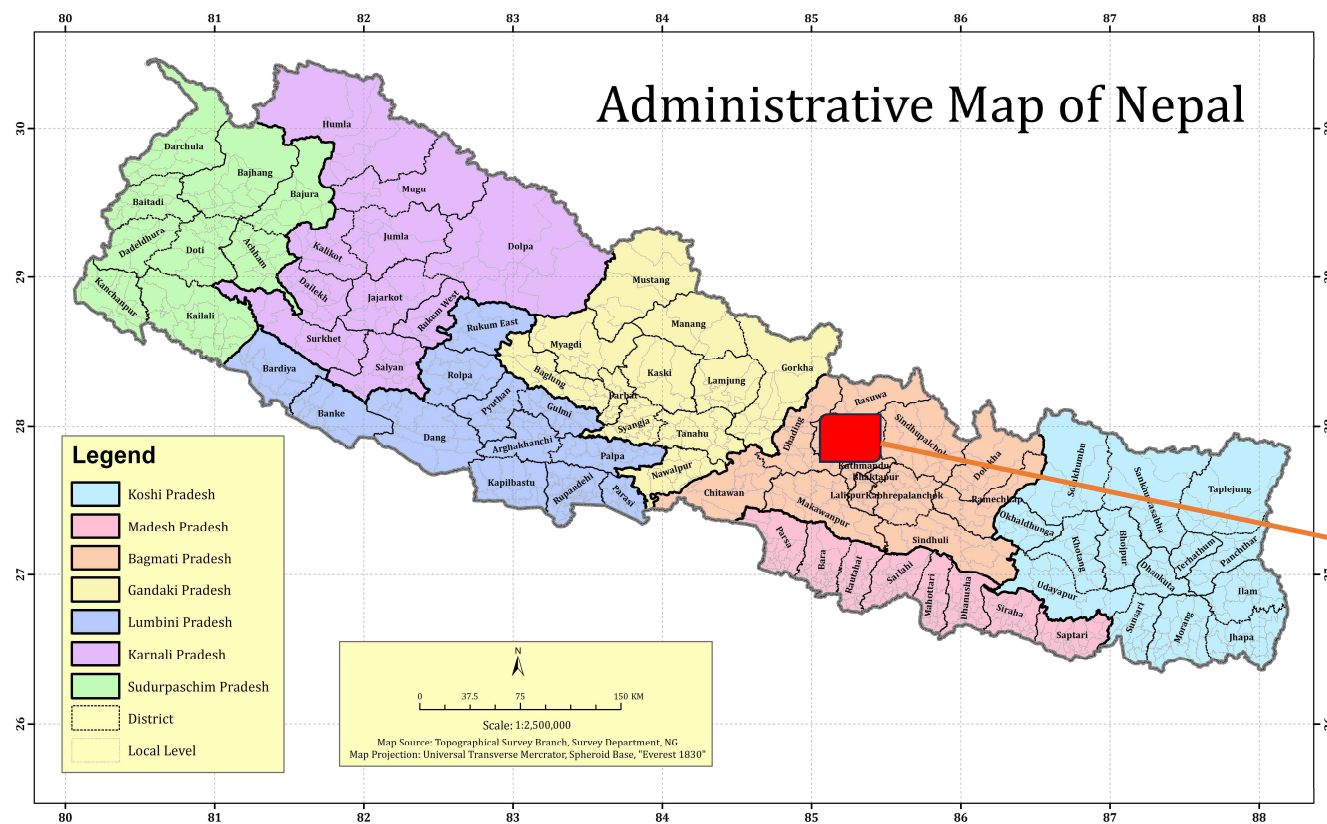


# Notification of Hyomang Village Outbreak





# Map of Hyomang Village, Nuwakot District, Nepal





# Objectives

- To confirm the outbreak's existence
- To characterize the outbreak [Time, Place , Person]
- To identify associated risk factors



# Method of investigation

- **Study Design** : Descriptive cross sectional
- **Investigation Period** : June 10 - June 25, 2023
- **Location** : Hyomang village , Dupcheshwor RM, Nuwakot



## Case definition

- **Suspected Case** : Any resident of Hyomang village who had >3 episodes of loose stool within 24 hours from June 3 - 25 , 2023



# Data Collection tools and technique

- Acute diarrheal syndrome case investigation form (WHO)
- Active Case search and line listing
- House visits and individual interviews
- Environmental inspection (water supply system, waste disposal practices, sanitation)



# Data analysis

- **Descriptive**

- Epi curve

- Sociodemographic characteristics

- Clinical characteristics



# Lab investigation

- **Lab investigation** : Stool test - Microscopy and Culture
- **Water sample test** : Analysis and Culture



# **Environment, Hygiene and Sanitation assessment**

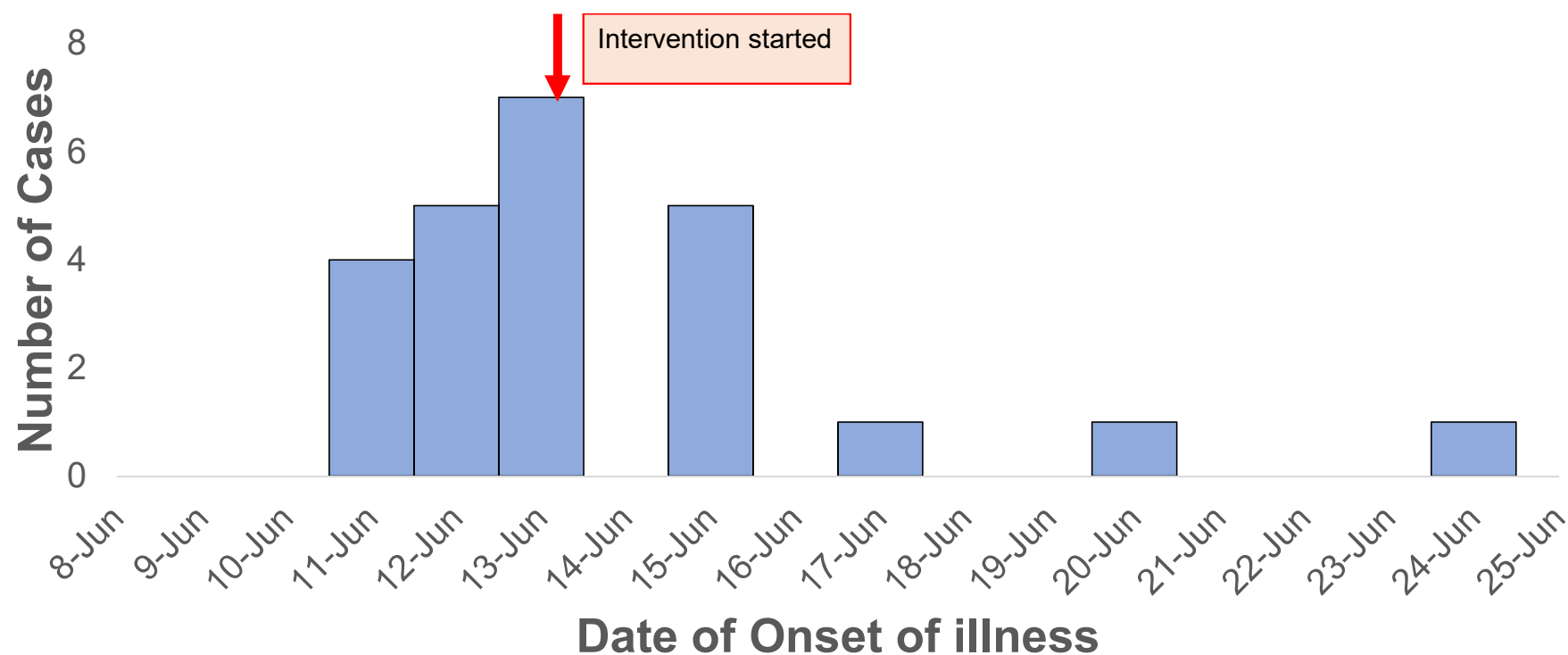
- Inspection of Water supply system
- Waste disposal practices
- Hygiene and Sanitation



# RESULTS



# Epi curve of AGE outbreak of Hyomang Village, Nuwakot, Nepal between 8-25 June, 2023





## Age distribution of AGE cases of Hyomang Village, Nuwakot, 10-25 June, 2023

| Age Group    | Number of Ill | Percentage   |
|--------------|---------------|--------------|
| <1 Year      | 5             | 24 %         |
| 1- 5 Years   | 7             | 33 %         |
| 6 -14 Years  | 3             | 14 %         |
| > 15 Years   | 6             | 29 %         |
| <b>Total</b> | <b>21</b>     | <b>100 %</b> |



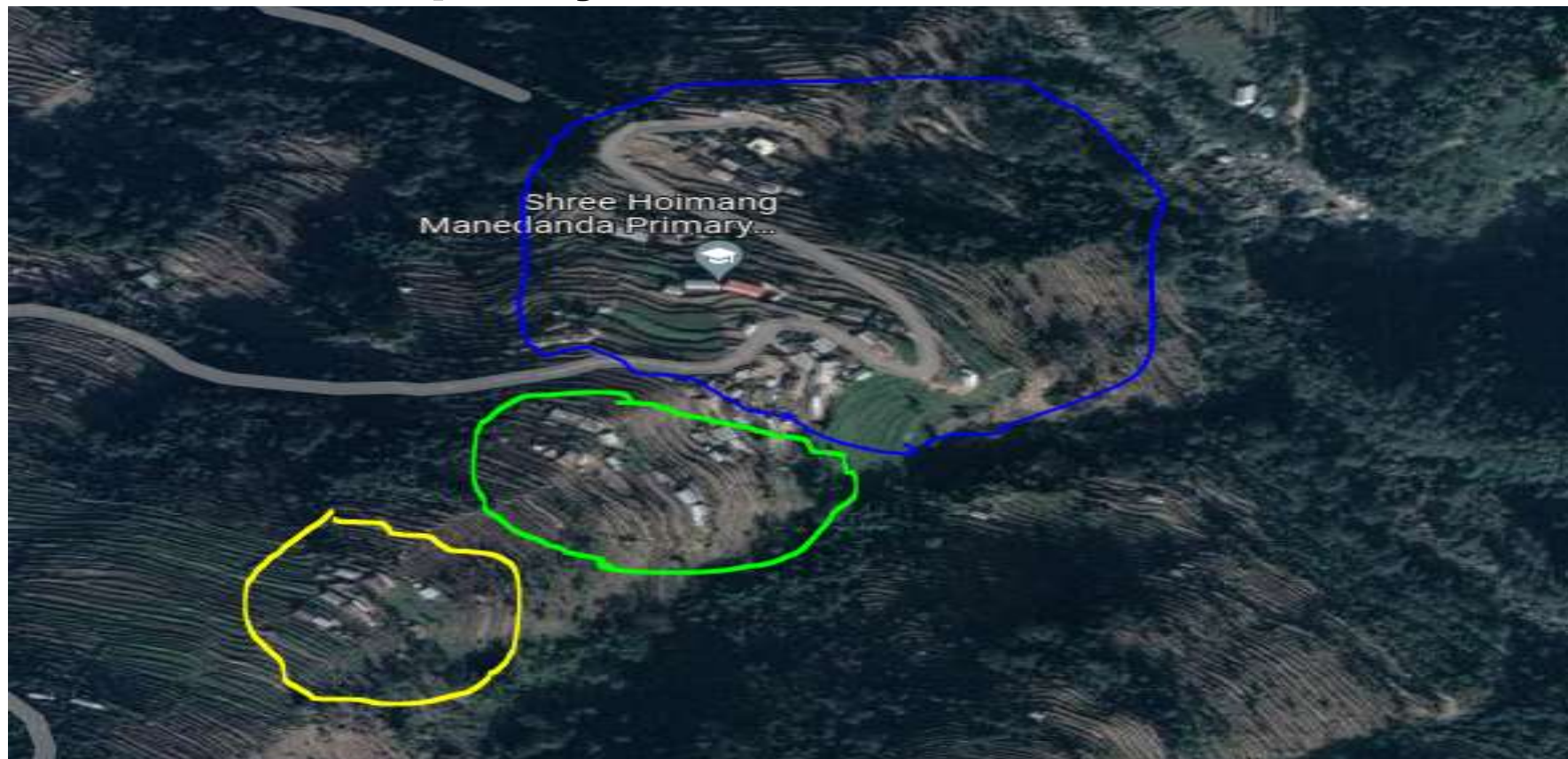
## Gender distribution of AGE cases of Hyomang Village, Nuwakot, 10-25 June, 2023

N = 21

| Gender | Number | Percentage |
|--------|--------|------------|
| Male   | 10     | 48 %       |
| Female | 11     | 52 %       |

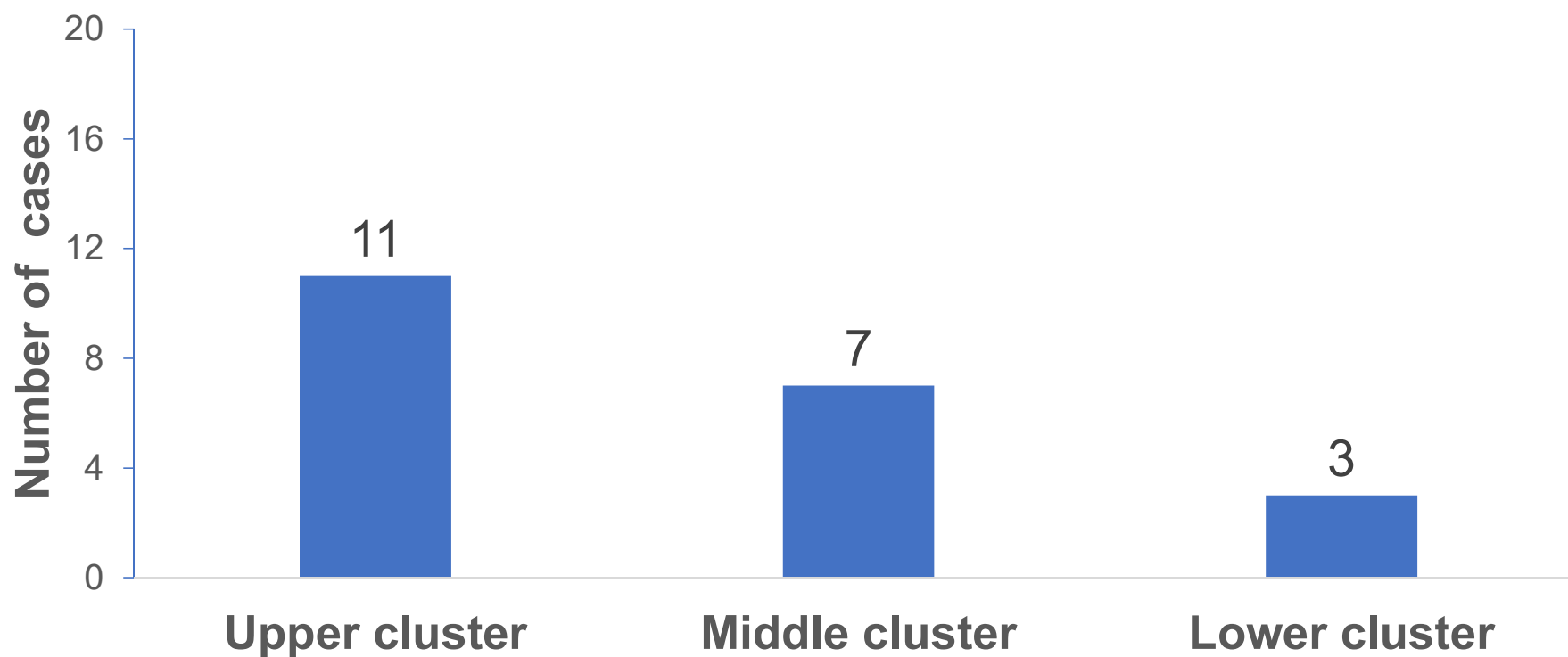


# Satellite map of Hyomang Village, Dupcheshwor Rural Municipality





## Cluster wise distribution of AGE cases of Hyomang village, Nuwakot, 10-25 June, 2023





## Cluster wise Attack Rate

| Cluster        | Number of Residents | Number of Ill | Attack rate |
|----------------|---------------------|---------------|-------------|
| Upper Cluster  | 60                  | 11            | 18 %        |
| Middle Cluster | 40                  | 7             | 17 %        |
| Lower Cluster  | 28                  | 3             | 11 %        |

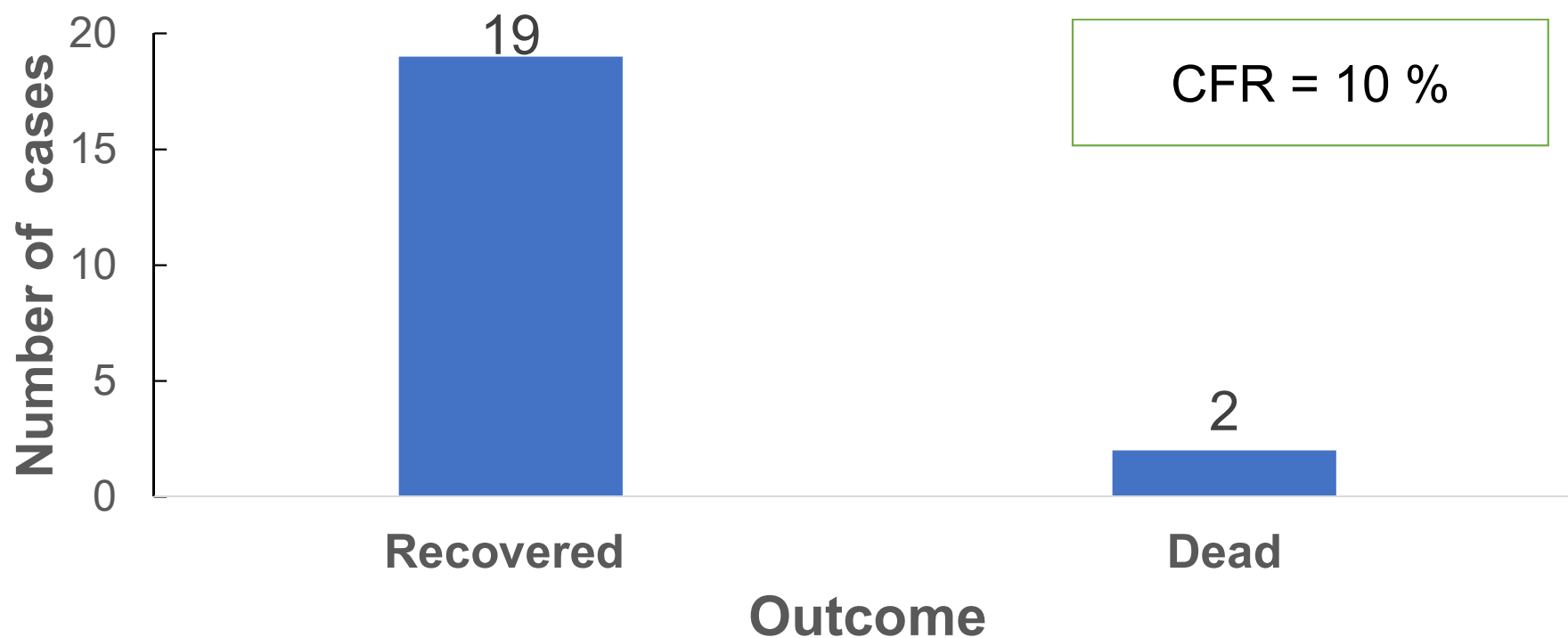


## Common signs and symptoms of the AGE cases in Hyomang village, Nuwakot, 10-25 June, 2023

| Signs/Symptoms        | Number | Percentage |
|-----------------------|--------|------------|
| Acute watery diarrhea | 21     | 100%       |
| Abdominal Pain        | 19     | 90%        |
| Vomiting              | 18     | 86%        |
| Fever                 | 17     | 81%        |
| Nausea                | 8      | 38%        |



## Outcome of the cases of AGE of Hyomang Village, Nuwakot, 10-25 June, 2023





## **Outcome of the cases of AGE of Hyomang Village, Nuwakot, 10-25 June, 2023**

- 5 cases were admitted in Rural community health unit and treated with IV infusion (Rehydration and antibiotic)
- Other cases were with mild symptoms , treated at home
- Two females of age 5 and 11 years referred to higher center
- Both died in tertiary hospital, probable cause reported was dehydration and shock



## Laboratory investigation result

| Sample Type     | Source         | Result                       |
|-----------------|----------------|------------------------------|
| Stool (1 of 4 ) | Patient        | <i>Entamoeba histolytica</i> |
| Stool (1 of 4 ) | Patient        | <i>Escherichia coli</i>      |
| Water           | Village Spring | E. coli & coliforms present  |



# Environmental, Hygiene and Sanitation Assessment

- **Environment** : Unprotected water sources, poor tank maintenance, no prior water quality testing
- **Hygiene** : Unsatisfactory personal/food hygiene, unclean toilets (lacking soap/water)
- **Beliefs** : Reliance on traditional healers



## Village spring and Water supply tank





# Response and Control Measures

- **Case Management** : 2 cases referred, 5 admitted ( IV fluids), others treated at home (oral )
- **Environmental Control** : Cleaned main spring/tank, chlorinated other water sources
- **Community Engagement** : Public awareness (miking), WASH orientation, meetings with school teachers and mothers' groups
- **Coordination** : Multisectoral RRT meetings held



## Community awareness program and patient treatment





# Limitations

- No blood culture done
- Incomplete water sampling (all sources/taps not tested)
- No food samples investigated
- Nutritional status/ medical history not assessed



# Conclusion

- This was a confirmed **AGE outbreak** in Hyomang village
- Primarily young children were affected
- **Probable Source** of the outbreak was contaminated spring water
- ***E.coli*** was the likely pathogen.
- Poor hygiene and sanitation were the contributing factors.



# Recommendations

## **Short-Term:**

- Implement water purification ( community & household )
- Conduct risk communication on hygiene & early care-seeking
- Continue active surveillance of diarrheal cases for one month

## **Long- Term:**

- Establish regular water quality monitoring
- Secure water infrastructure ( walls, roofs)
- Strengthen local outbreak response mechanisms



# Acknowledgement

- Residents of Hyomang Village
- Mentor
- Health Co-ordinator, Dupcheshwor Rural Municipality
- Staffs of Purgaun Rural Community Health Unit
- Epidemiology and Disease Control Division
- National Health Training Center
- District RRT, Nuwakot
- Health Office, Nuwakot
- FETP Resident Advisor



THANK

YOU