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Connecting the dots: Advancing Human, Animal, and Ecosystem Health

# A Case Study on Cholera Linked to Consumption of “Raw Fish” in a Highly Urbanized City, Northern Luzon, Philippines, September 2022

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Field Epidemiology Training Program Intermediate Course  
Northern Luzon, Philippines

# Introduction:

BGHMC\* reported an ESR report Cholera case

Epidemiologic investigation  
By FETP-IC

**Epidemiology Bureau**  
Event-based Surveillance and Response (ESR)  
Tel: 021-511-5100 ext. 2029  
E-mail: ebr\_omsa@gmail.com

**Verification Form**  
October 5, 2022

Code: 2022-10-03

Classified Document:  
This document is distributed only to limited number of DOH and selected NDO staff in order to improve common awareness on reports and rumors or events which may have national/international implications. Please send new or additional information on this or other public health events.

Document Status: **INTERNAL**

Type of Internal Document: Verified

1 Report date and time: 10/05/2022 6:00PM

2 Verification date and time: 10/05/2022 4:00PM

3 Type of Health Event: Check what is applicable:  
 Suspect  Outbreak  NA  
If an outbreak, who:  ES-DOH  DOH-RESU  LGU  
 Others specify: validated?  Yes  No Was a report made?  Yes  No

4 Health event: **CONFIRMED CHOLERA CASE**

5 Location: Baguio General Hospital and Medical Center

6 Start date: October 24, 2022

7 Number of cases: 1

Description of cases: Case was sixty-seven-year-old (04011955), female, residing at 201 Prg... San Carlos Heights Irian Baguio City who was admitted on September 25, 2022 at 11:23 PM due to severe body weakness caused by bouts of vomiting and watery stools with initial diagnosis of... symptoms with severe sign of dehydration... acute kidney injury (glomerular... hyponatremia).



1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>October 2022</b>													

\*BGHMC: Baguio General Hospital and Medical Center



# Objectives:

- To verify the diagnosis
- To profile case
- To determine the source and mode of transmission
- To recommend<sup>+</sup> control and preventive measures



# Methodology:

## *Descriptive Study*

- Records Review
- Active case finding
- Key informant interview
  - Food Trace Back History
- Environmental Scanning
- Laboratory Examinations
  - Rectal swabs: households and food handlers
  - Water sample: food establishment and household



## Case Definitions:

- **Suspect case** – a previously well resident of Irisan, Baguio City who had 3 or more episodes of acute watery diarrhea or has severe dehydration from September 14 to October 14, 2022.
- **Confirmed case** – a suspected case that is laboratory confirmed for *Vibrio Cholerae* thru stool culture and sensitivity



# Results

## Profile of Case

Baguio City, September 24 - October 10, 2022

- 65 years old
- Female
- With DM
- No known travel history to any known cholera endemic area



# Results

## Timeline of Confirmed Cholera Baguio City, September 24 - October 10, 2022

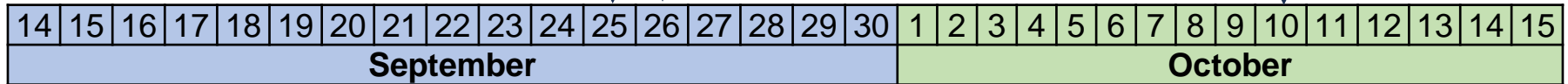
11:55AM: Dined at Camp John Hay  
Afternoon: (+) symptoms

- Abdominal pain
- Diarrhea: rice watery stool
- Vomiting

11:23 PM: Admitted at  
BGHMC

Specimen collection:  
NPS (+) SARS CoV2  
Stool (+) *Vibrio cholerae*

Case was  
discharged



## Food Specific Attack Rate of Laboratory Confirmed Cholera case and relatives (N=9\*)

Food Establishment, Baguio City, September 24, 2022

Food	Number of Person who ate				Number of Person who did not ate				Difference in AR
	Ill	Well	Total	AR (%)	Ill	Well	Total	AR (%)	
Buko juice	1	8	9	11%	0	0	0	0%	11%
Crab	1	1	2	50%	0	7	7	0%	50%
Fried Chicken	0	4	4	0%	0	5	5	0%	0%
Fried Rice	0	4	4	0%	0	5	5	0%	0%
Gulaman	0	1	1	0%	0	8	8	0%	0%
Mackerel ceviche	1	0	1	100%	0	8	8	0%	100%
Pineapple	0	3	3	0%	0	6	6	0%	0%
Pork Barbecue	0	5	5	0%	0	4	4	0%	0%
Rice	0	3	3	0%	0	6	6	0%	0%
Seaweeds (Ararosip)	0	3	3	0%	0	6	6	0%	0%
Shrimp	1	4	5	20%	0	4	4	0%	20%
Turon	0	4	4	0%	0	5	5	0%	0%

*\*Multiple Responses*





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Fried Chicken	0	4	4	0%	0	5	5	0%	0%
Fried Rice	0	4	4	0%	0	5	5	0%	0%
Gulaman	0	1	1	0%	0	8	8	0%	0%
<b>Mackerel ceviche</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>100%</b>	<b>0</b>	<b>8</b>	<b>8</b>	<b>0%</b>	<b>100%</b>
Pineapple	0	3	3	0%	0	6	6	0%	0%
Pork Barbecue	0	5	5	0%	0	4	4	0%	0%
Rice	0	3	3	0%	0	6	6	0%	0%
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Shrimp	1	4	5	20%	0	4	4	0%	20%
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\*Multiple Responses



# Food Trace Back

## Food Establishment, Baguio City, September 24, 2022

Wednesday	Thursday	Friday	Saturday	Sunday
21	22	23	24	25
	5:00 - 7:00 AM	Supply Delivery		
	7:00 - 7:30 AM	Quality Check		
	7:30 - 8:00 AM	Seafoods were gutted, gilled, scaled and washed		
	8:00 - 8:15 AM	Wrapped and stored		

### STORAGE and PACKAGING



# Food Trace Back

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Thawed for 15 min



Washed with hot water



Portioning/diced



Soaked with premixed vinegar for 10-15 min

### STORAGE and PACKAGING

### PREPARATION and SERVING



# Environmental Scanning

- Food handlers have no health certificates and unupdated work permits
- Discrepant freezer and refrigerator temperatures
- Presence of cleaning materials and uncovered trash bins beside the food preparation area



# Environmental Scanning

- Most of the houses in the barangay were adjacent with the road and other houses
- Water-sealed, sewer septic tank
- Zero Open Defecation Barangay



# Laboratory Test Results

## Baguio City September 24-October 10, 2022

- Case
  - Stool specimen: (+) *Vibrio Cholera*
  - NPS/OPS: (+) *SARS CoV-2*
- Household Members and Food Handlers
  - Stool specimen: *All negative for enteric pathogen*
- Water Sample
  - 2/3 water sources: (+) *Total Coliform*



# Conclusion and Discussion

Elderly people are at Higher RISK



**Cholera + COVID-19  
result to  
Severe Symptoms**

Protect them through

**FOOD SAFETY**



Coronavirus: What you need to do



SARS-CoV-2 virus exacerbate existing symptoms and worsen the prognosis.

- Megyeri et al

# Recommendations:

To continue active surveillance including reporting and monitoring of Acute Gastroenteritis cases

To enhance laboratory-based case surveillance

To continue routine monitoring of food establishments

- adhere to strict food safety practices
- ensure health certificates of all food handlers





# Follow Up:

- No further cases identified.





**“Safe food  
...clean food  
...will save lives”**

Thank you very much



# Follow Up:

- No further cases identified.

“The cholera infection may have been caused by ingestion of raw or uncooked fish however it can be prevented through adherence on proper food safety practices”

