

Cholera surveillance for health authorities

Module 3



GLOBAL TASK FORCE ON
CHOLERA CONTROL

Cholera surveillance for health authorities

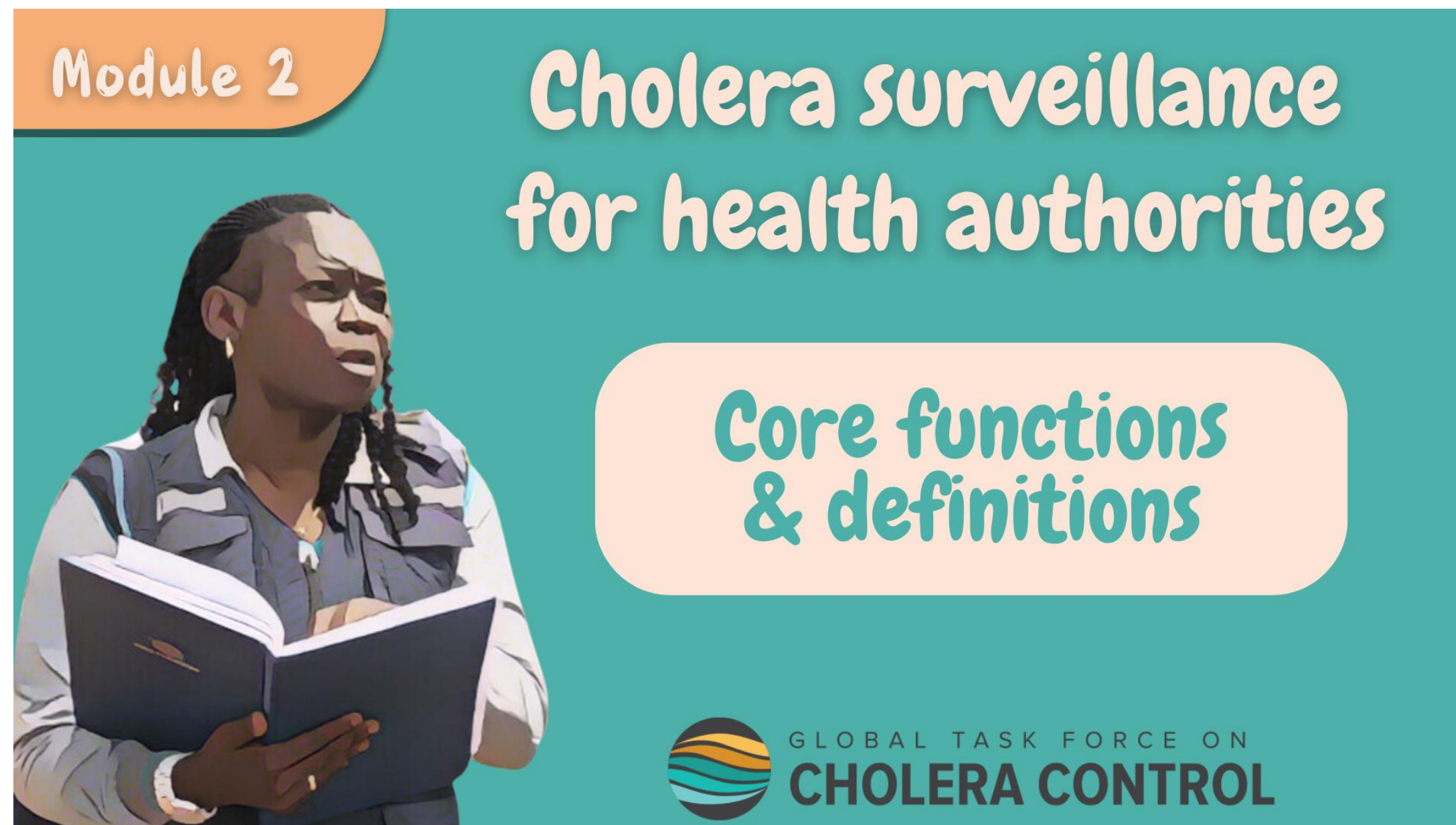
Early detection
of outbreaks

With case studies



Get ready for this module

Before taking this module, complete **Module 2 'Core functions'**

The graphic is a teal-colored rectangular box. In the top-left corner, there is an orange rounded rectangle containing the text 'Module 2' in white. To the left of the center is a stylized illustration of a Black woman with braided hair, wearing a grey vest over a white shirt, and holding a blue folder. To the right of the woman, the text 'Cholera surveillance for health authorities' is written in large, white, sans-serif font. Below this, there is a light orange rounded rectangle containing the text 'Core functions & definitions' in teal. At the bottom right, there is a logo consisting of a stylized globe with orange and blue waves, followed by the text 'GLOBAL TASK FORCE ON CHOLERA CONTROL' in white, all-caps, sans-serif font.

Module 2

Cholera surveillance for health authorities

Core functions
& definitions

 GLOBAL TASK FORCE ON
CHOLERA CONTROL

What will you learn?

- **Surveillance strategies** for the early detection of cholera outbreaks
- How health authorities
 - **Monitor** that these strategies are **effectively implemented**
 - **Analyze, verify, and interpret** data to detect a potential outbreak
 - **Investigate, disseminate findings, and coordinate rapid response** if an outbreak is detected

Get ready to practice



➔ Case studies

- Based on fictional scenarios
- To deepen your understanding of how health authorities detect cholera outbreaks

Use the *GTFCC Surveillance Guidance*



<https://tinyurl.com/cholerasurv2024>

Surveillance for early detection

Where

- In surveillance units where there is **NO probable or confirmed outbreak**

Why

- To **detect a cholera outbreak early**
- For **response measures** to contain its spread to be **implemented rapidly**

How

- In accordance with this module

A photograph showing a temporary medical facility. In the foreground, a person is lying on a green metal cot, wearing a light blue shirt and dark pants. A red bucket is on the ground next to the cot. In the background, another cot is visible with a person lying on it. The setting appears to be outdoors or in a large tent. A teal text box is overlaid on the left side of the image.

Reporting and testing strategies

Case definition

Suspected cholera case

- ➔ Person $\geq$ 2-year-old with AWD and severe dehydration
or
- ➔ Person $\geq$ 2-year-old who died from AWD

➔ Various diseases can cause AWD, especially in young children

Criteria on age & severe dehydration

- **Avoid** triggering frequent **false alarms**
- Make surveillance and testing for **early detection more efficient**

Reporting

Suspected cholera cases reported to the health authority **within 24 hours**

- ➡ Reporting within a day is essential **not to delay the detection** of an outbreak

Time is key!

- ➡ If on a given week, no suspected cholera case was seen
 - **Absence of suspected cases** reported to the health authority **weekly**
 - **Zero reporting**
 - Health facility-based surveillance and community-based surveillance

Testing

ALL suspected cholera cases are tested

Screening by RDT

- ➡ **If RDTs ARE available**
 - On **ALL suspected cases**

Confirmatory testing

- ➡ **If RDTs ARE available**
 - On **ALL** suspected cases **RDT+**
- ➡ **If RDTs NOT available**
 - On **ALL suspected cases**
- ➡ By **culture** (incl seroagglutination) and/or **PCR**

Additional tests

- ➡ **On first sample culture+ and/or PCR+**
 - **Antimicrobial susceptibility testing**
 - **Testing for toxigenicity**
 - if no confirmed outbreak in other surveillance unit(s)
and
 - no epidemiological link to a confirmed case or source of exposure in another country



Oversight of
reporting & testing
by health authorities

Oversight



► Awareness and capacity building

- Health authorities ensure that
 - **All reporting sites and laboratories** in the surveillance unit
 - Are **aware and in capacity** to implement reporting and testing in accordance with applicable strategies



► Monitoring

- Health authorities **monitor surveillance performance indicators**
 - At least on a **weekly** basis
 - Take supportive measures as needed

Let's practice



Oversight of reporting & testing
by health authorities

Practice

You are a local health authority officer in a surveillance unit with no cholera outbreak

It's Monday, on week 4

You review surveillance performance indicators for the previous week

Surveillance performance indicators	Target	Week 1	Week 2	Week 3
Reporting - Health facility-based surveillance				
Completeness	80%	95%	90%	95%
Timeliness	80%	90%	85%	90%
Reporting - Community-based surveillance				
Completeness	80%	90%	95%	70%
Timeliness	80%	85%	95%	69%
Testing				
Testing by RDT	0%	0%	0%	0%
Testing by culture or PCR	80%	100%	100%	100%
Timeliness of sample receipt at laboratory	80%	85%	90%	90%

- 1) Do you have any concern regarding how reporting and testing have been implemented on week 3?
- 2) If so, what would do next?

Answers

1) Concerns on week 3

► Completeness and timeliness of community-based reporting

- Dropped below the target on week 3

Surveillance performance indicators	Target	Week 1	Week 2	Week 3
Reporting - Health facility-based surveillance				
Completeness	80%	95%	90%	95%
Timeliness	80%	90%	85%	90%
Reporting - Community-based surveillance				
Completeness	80%	90%	95%	70%
Timeliness	80%	85%	95%	69%
Testing				
Testing by RDT	0%	0%	0%	0%
Testing by culture or PCR	80%	100%	100%	100%
Timeliness of sample receipt at laboratory	80%	85%	90%	90%

- For **other performance indicators, minimum performance targets have been reached**
 - Overall health facility-based reporting and testing performed according to applicable strategies
- **Absence of testing by RDT does not raise concerns**
 - Target for RDT testing is 0: RDT testing not implemented in the surveillance unit

Answers

2) What to do

- **Break down the indicators of concern** at a finer geographic scale
 - To better assess where the issue might be
 - Will help investigate the issue to resolve it

End of case study (hypothetical scenario)

- 4 geographic areas in the surveillance unit
- Indicators of concern for **each geographic area**

Reporting - Community-based surveillance Week 3	
Completeness	
Area A	90%
Area B	5%
Area C	95%
Area D	90%
Timeliness	
Area A	90%
Area B	1%
Area C	95%
Area D	90%

- **Issue:** In **Area B**
- **Area B contacted by health authority**
 - Most **volunteers had their phone stolen**
 - Reporting performed by text messages
- **Next step:** Volunteers rapidly **reequipped**



Data analysis and interpretation

Analysis

Health authorities **immediately analyze and interpret the data** to detect a potential suspected, probable, or confirmed outbreak



Learn about outbreak definitions in Module 2

➡ Data considered



- Data reported by **health facility-based surveillance**
- Data reported by **community-based surveillance**
- Test results reported by **laboratories**
- Signals from **event-based surveillance**

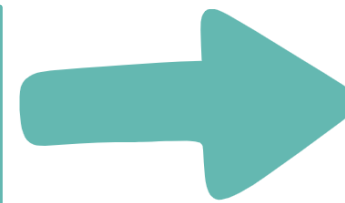
Verification & notification

As soon as a potential suspected, probable, or confirmed cholera outbreak is detected, health authorities undertake **verification** and **immediate notification**

Verification

Verify that case definition and outbreak definition are met

- Including by contacting reporting site(s)/laboratories



Immediate notification

Immediately notify next upper level

- Verified suspected, probable, or confirmed cholera outbreak

Let's practice



Analyze and interpret surveillance data
to detect a suspected cholera outbreak

Practice

You are a local health authority officer in a surveillance unit with no cholera outbreak so far

RDTs: Not available in your surveillance unit

On 10 October, you have received 2 cholera case report forms from one hospital

First suspected cases reported in October

Key information from case report forms

Case A

- Sex: Male
- Age: -
- Date of onset: 09 October
- Dehydration: Severe

Case B

- Sex: Female
- Age: 43 years old
- Date of onset: 09 October
- Dehydration: Some



- 1) What is your interpretation of the cholera situation?
- 2) What would you do next?

Answers

1) Cholera situation



➤ Unclear

- Two patients have been reported as suspected cholera cases
 - May correspond to a suspected cholera outbreak
- **Insufficient information** to assess if they match the suspected case definition
 - Age of case A?
 - Dehydration level of case B?

➤ **Premature** to conclude that there is a suspected outbreak

➤ **Imprudent** to conclude that there is no suspected outbreak

2) What to do next



➤ **Contact the hospital** reporting focal point

- To learn more and better assess the situation
- **Verification**

Practice

Continuation of scenario

The hospital reporting focal point provided additional information

Additional information

Case A

- 6 years old

Case B

- Respiratory distress at admission



- 1) Is there a verified suspected cholera outbreak?
- 2) What are your key messages to the reporting focal point?

Answers

1) Is there a verified suspected cholera outbreak?

- Case A is $\geq$ 2-year-old
- Case B had one danger sign indicating severe dehydration
- Suspected cholera case definition met

➤ **Verified suspected cholera outbreak**

Severe dehydration

One or more danger signs

- Lethargic or unconscious
- Absent or weak pulse
- **Respiratory distress**

OR at least two of the following

- Sunken eyes
- Not able to drink or drinks poorly
- Skin pinch goes back very slowly

Answers

2) Key messages to reporting focal point

➤ Congratulate on

- Cholera case report forms sent to local health authorities in a **timely** manner



➤ Sensitize on

- Criteria to **assess the level of dehydration**
- How to **fill cholera case report forms** in a comprehensive manner



➤ Check whether

- Patients **rehydrated by IV** considering severe dehydration
- Samples collected and sent to a **laboratory for testing**

Let's practice



Analyze and interpret surveillance data
to detect a probable cholera outbreak

Practice

You are a local health authority officer in a surveillance unit with no probable or confirmed cholera outbreak so far

Today is 16 November

You review the data reported in the last 14 days (data was verified)

Period	Date	Number of suspected cases	Number of suspected cases tested by RDT	Number of suspected cases tested RDT +
Last 14 days	03 November	0	0	0
	04 November	0	0	0
	05 November	0	0	0
	06 November	0	0	0
	07 November	0	0	0
	08 November	0	0	0
	10 November	0	0	0
	09 November	0	0	0
	11 November	1	1	1
	12 November	0	0	0
	13 November	0	0	0
	14 November	0	0	0
	15 November	0	0	0
	16 November	3	3	2



1) What is the cholera situation as of 16 November?

Answers

1) Cholera situation as of 16 November

Probable outbreak

# of suspected cases tested	# of RDT+
3-7	≥ 3 RDT+
8-10	≥ 4 RDT+
11-14	≥ 5 RDT+
15-17	≥ 6 RDT+
18-21	≥ 7 RDT+

- In the **past 14 days**
 - **4** suspected cases **tested by RDT**
 - **3** tested **positive by RDT**
- Threshold for a probable outbreak reached
- **There is a probable cholera outbreak**
- Make sure that samples were collected for confirmatory testing
- Respond without waiting for laboratory results



Investigation

Case investigation

As soon as a verified (suspected, probable, or confirmed) cholera outbreak is detected, health authorities conduct **case investigation on ALL suspected cases** within 24 hours



➡ Classify suspected cases by **origin of infection**

- Locally acquired
- Imported
 - Domestically or internationally

➡ Rapidly orient **field investigation**

Field investigation

► If

- Verified (suspected, probable, or confirmed) cholera outbreak detected and
- Case investigations did not conclude that all cases were imported

Multisectoral **field investigation** within 24 hours



► **Assess**

- Source(s) of contamination
- Context of transmission
- Risk factors for spread

Let's practice



Use the findings of case investigations
to classify cases by origin of infection

Practice

You are a local health authority officer in a surveillance unit with a verified suspected cholera outbreak

1 suspected cholera case reported and tested positive by RDT

No other suspected cholera case reported so far

Case investigation performed

Case report form

- **Gender:** Female
- **Age:** 39 years old
- **Date of onset:** 25 July
- **Date of visit:** 28 July
- **Deydration:** Severe
- **RDT result:** Positive O1
- **Specimen for testing:** Yes (result pending)

Case investigation

- **Travel in the 5 days before onset:** Yes
- **Dates of travel:** 10–27 July
- **Destination:** Village with cholera outbreak in a neighboring surveillance unit (same country)
- **Comments:** Purpose of travel, attend funeral of a relative who died from cholera



1) What is the geographic origin of infection of this case?

2) If this case is laboratory confirmed, will there be a confirmed cholera outbreak in your surveillance unit?

Answers

1) Classification of geographic origin of infection

➤ Domestically imported

➤ Imported

- Not in the surveillance unit before onset of illness
 - Not infected in the surveillance unit

➤ Domestically imported

- Did not travel abroad
 - Infected in another surveillance unit

2) Cholera situation if this case is confirmed

➤ **No confirmed cholera outbreak** in this surveillance unit

- Confirmed cholera outbreak if a confirmed case was locally acquired in the surveillance unit considered

Let's practice



Use the findings of case investigation
to orient field investigation

Practice

You are a local health authority officer in a surveillance unit with no outbreak so far

Today is 27 March, 3 suspected cholera cases have just been reported (verified)

Suspected case 1

- Reporting facility: Hospital A
- Gender: Male
- Age: 21 years old
- Place of residence: Village 1
- Date of onset: 25 March
- Date of visit: 27 March
- Deydration: Severe
- RDT result: Positive O1
- Specimen for testing: Yes

Suspected case 2

- Reporting facility: Clinic B
- Gender: Female
- Age: 32 years old
- Place of residence: City 2
- Date of onset: 26 March
- Date of visit: 27 March
- Deydration: Severe
- RDT result: Positive O1
- Specimen for testing: Yes

Suspected case 3

- Reporting facility: Clinic C
- Gender: Female
- Age: 17 years old
- Place of residence: Village 3
- Date of onset: 25 March
- Date of visit: 27 March
- Deydration: Severe
- RDT result: Not performed
- Specimen for testing: Yes



- 1) What is the current cholera situation in your surveillance unit?
- 2) What would you do to better characterize the situation?
- 3) In which locality the field investigation team should go first?

Answers

1) Current cholera situation



➤ Suspected cholera outbreak

- ≥ 2 suspected cases reported within 7 days
- ≥ 1 suspected case tested RDT+ (but probable outbreak threshold not met)

2) To better characterize the situation



➤ Determine whether there is a probable outbreak

- Contact clinic C to follow up on RDT testing

➤ Determine if any suspected case is locally acquired

- Perform case investigations

➤ Determine if there is confirmed cholera outbreak

- Follow up on results of confirmatory testing

3) Locality the field investigation team should go to first



➤ No solid recommendation can be made

- Case investigations are required to orient the field investigation

Practice

Continuation of previous scenario

You performed case investigations

Suspected case 1

- **Travel history:** Village 3 (19 – 22 March)
- **Occupation:** Seller at principal market of Village 3
- **Main source of drinking water:** Piped into dwelling
- **Other source:** Water kiosk at Village 3 market

Suspected case 2

- **Travel history:** Village 3 (17 – 21 March)
- **Occupation:** Seller at principal market of Village 3
- **Main source of drinking water:** Piped to neighbor
- **Other source:** Water kiosk at Village 3 market

Suspected case 3

- **Travel history:** None (stayed in Village 3)
- **Main source of drinking water:** Piped into dwelling
- **Other source :** Water kiosk at Village 3 market
- **Comment:** Visited the principal market on 22 March



- 1) **In which locality the field investigation team should go first?**
- 2) **Which location of this locality the team should pay attention to?**

Answers

1) Locality the field investigation team should go to first



➡ Village 3

- All suspected cases have been in Village 3
- One suspected case has only been in Village 3

2) Location the field investigation team should pay attention to



➡ Village 3 market, including water kiosk

Dissemination of outcomes and response



Inform stakeholders

**As soon as a (suspected, probable, or confirmed) cholera outbreak is detected
all stakeholders immediately informed**

**Essential to trigger prompt actions
to rapidly respond to the outbreak**



► Stakeholders

- Upper-level health authority
- Multisectoral stakeholders, partners, agencies involved in responding to cholera
- Health professionals, community health workers / volunteers
- Etc

Response to a suspected outbreak

Suspected cholera outbreak

**Immediate public health measures for acute diarrhoeal diseases
without waiting for laboratory confirmation**

► Not specific to cholera



- Raising awareness on rehydration protocols
- Promoting handwashing with soap
- Raising awareness on food hygiene
- Education about how diarrhoeal infections spread
- Etc

Response to a probable or confirmed outbreak

Probable or confirmed cholera outbreak

Rapid, comprehensive, and multisectoral cholera outbreak response

► Triggered without waiting for laboratory confirmation if it is a probable outbreak



► Including

- Case management
- Surveillance
- Community engagement
- WaSH
- Vaccination

Adaptive surveillance

Suspected outbreak

No change in surveillance strategies

Increase awareness of surveillance stakeholders on surveillance strategies

► Surveillance stakeholders

- Health facilities
- Community health workers / volunteers
- Laboratories

► Surveillance strategies

- Case definition
- Data collection
- Reporting timelines
- Testing strategy

Adaptive surveillance

Probable or confirmed outbreak

Surveillance strategies **adapted**



➡ **Inform and train** surveillance stakeholders

- Health facility workers
- Community health workers / volunteers
- Laboratories



Learn about surveillance strategies in Modules 4 & 5

Wrap up

Routinely

Oversee
reporting
and testing



Monitor that suspected cases are **reported daily** and that **ALL** suspected cases are **tested**

Transmit,
analyze,
interpret data



Analyze, verify, and interpret the reported data and test results **immediately** to detect a potential outbreak

If suspected, probable, or confirmed outbreak detected

Investigate



Perform **case investigation** on all suspected cases and **field investigation**

Disseminate
outcomes



Rapidly inform all stakeholders on the cholera situation

Respond



Coordinate **rapid response**



Question 1



► **When the surveillance objective is to detect a cholera outbreak, health authorities review surveillance performance indicators to monitor that:**

Select all that apply

- a) Suspected cholera cases are reported within 24 hours
- b) Suspected cholera cases are reported on a weekly basis
- c) The absence of suspected cholera cases is reported within 24 hours
- d) The absence of suspected cholera cases is reported on a weekly basis
- e) All suspected cholera cases are tested for cholera
- f) A subset of suspected cholera cases selected according to a systematic sampling scheme are tested for cholera

Question 1 – Answers



► When the surveillance objective is to detect a cholera outbreak, health authorities review surveillance performance indicators to monitor that:

- a) **Suspected cholera cases are reported within 24 hours**
- b) Suspected cholera cases are reported on a weekly basis
- c) The absence of suspected cholera cases is reported within 24 hours
- d) **The absence of suspected cholera cases is reported on a weekly basis**
- e) **All suspected cholera cases are tested for cholera**
- f) A subset of suspected cholera cases selected according to a systematic sampling scheme are tested for cholera

Question 2



■ **When the surveillance objective is to detect a cholera outbreak, health authorities:**

- a) Analyze, verify, and interpret reports of suspected cholera cases and test results immediately to detect a suspected, probable, or confirmed cholera outbreak
- b) Compile and analyze reports of suspected cholera cases and test results weekly to interpret the disease situation in a robust manner

Question 2 – Answer



■ **When the surveillance objective is to detect a cholera outbreak, health authorities:**

a) Analyze, verify, and interpret reports of suspected cholera cases and test results immediately to detect a suspected, probable, or confirmed cholera outbreak

b) Compile and analyze reports of suspected cholera cases and test results weekly to interpret the disease situation in a robust manner

Question 3



- **At the onset of a verified suspected, probable, or confirmed cholera outbreak, health authorities perform case investigation:**
- a) On all suspected cholera cases
 - b) On all confirmed cholera cases
 - c) On a subset of suspected cholera cases

Question 3 – Answer



- **At the onset of a verified suspected, probable, or confirmed cholera outbreak, health authorities perform case investigation:**
 - a) On all suspected cholera cases**
 - b) On all confirmed cholera cases
 - c) On a subset of suspected cholera cases

Together we can
#Endcholera



GLOBAL TASK FORCE ON
CHOLERA CONTROL