Cholera surveillance for health authorities

Module 5

GLOBAL TASK FORCE ON
CHOLERA CONTROL

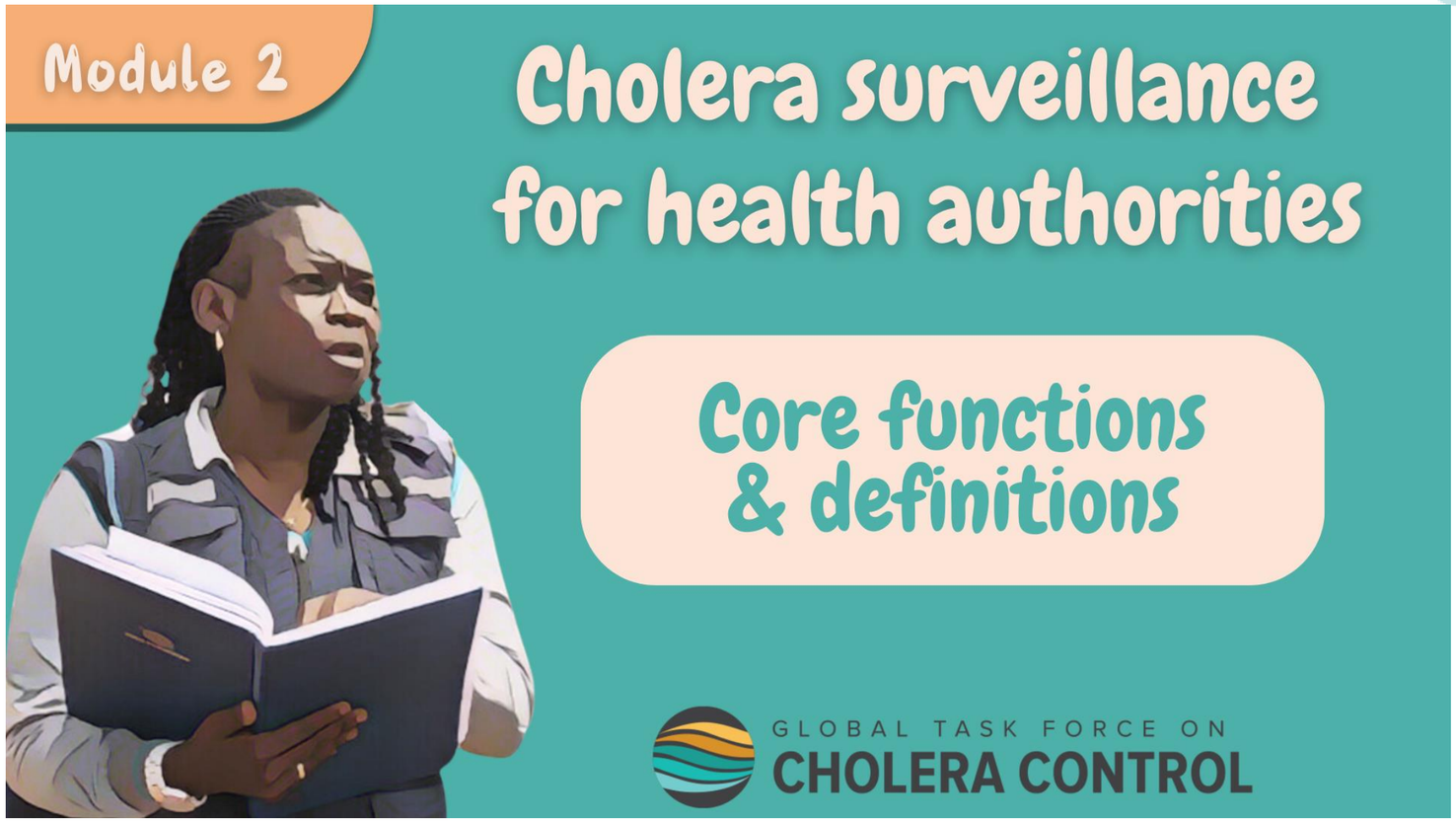
Cholera surveillance for health authorities

Tracking of clusters

With case studies

Get ready for this module

Before taking this module, complete Module 2 ‘Core functions’



What will you learn?

- **Surveillance strategies** to track clusters of cholera cases
- How health authorities
  - **Monitor** that these strategies are **effectively implemented**
  - **Analyze** surveillance data
  - **Investigate cholera cases** to understand epidemiological links
  - Disseminate findings to **guide highly targeted interventions**

Get ready to practice

➨ Case studies

- **Based on fictional scenarios**
- **To deepen your understanding of how health authorities track cholera clusters**

Use the GTFCC Surveillance Guidance

https://tinyurl.com/cholerasurv2024

Cluster of cholera cases

All cholera cases have epidemiological links

- A group of cases
  - Infected one another

    or
  - Were infected with the same source

➡ More likely to occur at the **very early stage of an outbreak**

- Following cholera introduction in a new geographic area

➡ **Surveillance aims to**

- **Guide quick and highly targeted interventions**
- **Interrupt transmission before it spreads in the community**

Tracking clusters

Tracking cholera clusters is not performed in all countries

- **Recommended in countries which**
  - **Are not frequently affected by cholera (“non endemic”)**
    or
  - **Used to be endemic but are on the path to eliminate cholera**
- **To prevent the (re)emergence of large outbreaks**

By default, OTHER countries implement surveillance to monitor a cholera outbreak regardless of the type of transmission

Learn about surveillance to monitor cholera outbreak in Module 4

Surveillance to track clusters

Where

- In surveillance units **where there is clustered transmission**
- In non endemic countries or countries on the path to eliminate cholera

Why

- To **rapidly generate information** to guide highly targeted interventions to
  - **Interrupt transmission**
  - Prevent the onset of transmission in the community

How

- In accordance with this module

Reporting and testing strategies

Photo adapted from: WHO / Mulugeta Ayene

Case definition

Suspected cholera case

- **Any person with AWD (or who died from AWD)**

NO criteria on age or severe dehydration

- **Comprehensive identification of suspected cases**
- **Increased chances to effectively interrupt transmission**

Reporting

Any suspected cholera case reported to the health authority within 24 hours

- Reporting within a day is essential permit timely interventions around cases

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 to track clusters

ALL suspected cholera cases are tested

Screening by RDT

- **If RDTs ARE available**
  - **ALL** suspected cholera cases

Confirmatory testing

- **If RDTs ARE available**
  - **ALL RDT+**
- **If RDTs NOT available**
  - **ALL** suspected cholera cases
- By culture (including seroagglutination) or PCR

Photo adapted from: WHO / Genna Print

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 pratice

Oversight of reporting & testing
by health authorities

Practice

You are a public health officer in a surveillance unit with a confirmed cholera outbreak with clustered transmission

You review surveillance performance indicators

Health facility-based surveillance	Week 1
Completeness of reporting	100%
Timeliness of reporting	33%
Community-based surveillance	
Completeness of reporting	95%
Timeliness of reporting	90%
Testing	
Adherence to testing strategy (Culture and/or PCR)	100%
Timeliness of sample receipt by the laboratory	100%

1) What is the issue you are most concerned about?
2) What can be the impact of this issue?
3) What would you do?

Answers

1) Most concerning issue

Timeliness of health-facility based reporting

- Very low (33%)

2) Potential impact

Cholera is likely to spread

- Health authorities not able to take timely measures to mitigate the risk of transmission

3) What to do

Contact the health facilities reporting with delay

- Sensitize them on the importance of timely reporting
- Understand and resolve any issue preventing timely reporting

If that is not sufficient, **actively contact** health facilities on a daily basis

- Until timeliness of reporting improves

Data analysis and interpretation

Photo adapted from: WHO / NOOR / Alixandra Fazzina

Analysis

As soon as a suspected cholera case or a test result is reported, health authorities analyse and interpret the data

Data considered

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

Descriptive analysis

Cholera cases described by person, place, and time at a fine scale

Person

- Number of **suspected cases**
- Number of **confirmed cases**
- Number of **health facility deaths**
- Number of **community deaths**

Place (map)

- **Place** of residence

Time (epidemic curves)

- By **date of onset**

Case investigation

Photo adapted from: WHO / Christopher Black

Case investigation

Identify epidemiological links between cases to characterize transmission (clustered or community transmission) and guide interventions

Epidemiological link

If in the **5 days before the onset** of illness, a case:

- Had **contact with a confirmed case** during their infectious period that plausibly led to infection

  or

- Was **exposed to the same source or vehicle of infection** as a confirmed case

Contact that plausibly led to infection

- Contact with vomit/feces
- Provision of direct care or bedside visit
- Shared housing or shared sanitary facilities
- Shared meal or consumed food/beverage prepared or handled by a case

Case investigation

At a minimum on ALL confirmed cases
and any suspected case for which a specimen for testing was not collected

Investigation of all confirmed cases

- All suspected cases tested
- **Confirmed cases** considered to establish epidemiological links

Suspected cases with no specimen for laboratory testing

- **Specimen collected** as part of the investigation

Pragmatic approach

- Given **laboratory confirmation delays**, undertake case investigation on all suspected cases
- Consider only confirmed cases to determine transmission chains

Interpretation

Findings of analysis of surveillance data & case investigations are interpreted daily

Understand cholera transmission

- **Is there clustered transmission?**
  - All confirmed cases epidemiologically linked

  or

- **Is there community transmission?**
  - Any confirmed case without an epidemiological link

Determine how to end transmission

- If there is clustered transmission
  - What is/are the transmission chain(s)?
  - Which interventions could interrupt it/them rapidly?

Let's pratice

Interpret surveillance data and findings of case investigations to characterize the transmission type

Practice

You are a public health officer in a surveillance unit in a country where the previous cholera outbreak was reported 3 years ago

In the last 10 days, 4 suspected cholera cases were reported, tested, and investigated

On 21 June, **Mr M returned from a cholera affected area** in a neighboring country and went directly back to his home with improved WASH facilities in the capital city where he lives with his wife (Ms M)

During the night of 21-22 June, **Mr M started having AWD**. **Ms M cared for him.** On the morning of 22 June, he was transferred by ambulance to the capital hospital. This hospital has very high IPC standards. On 23 June, Mr M's PCR test results returned positive for cholera

On 24 June, **Ms M had AWD**. **Her aunt** rapidly came from a neighboring village (same surveillance unit) to **take care of her**; they both stayed at home.
On 25 June, Ms M was transferred by ambulance to the capital hospital and tested positive for cholera by PCR on 26 June

On 27 June, **Ms M's aunt went back to her village**, in a rural area with unimproved WASH facilities. She **had AWD** on 28 June. She tested positive for cholera by PCR on 29 June

A suspected cholera case was reported in Ms M's aunt hometown village on 30 June. **Case investigation did not identify direct or indirect contact with Ms M's aunt**. On 01 July this suspected case tested negative for cholera by PCR

What is the cholera situation in your surveillance unit as of:

1) **23 June?**
2) **26 June?**
3) **29 June?**
4) **01 July?**

Answers

1) As of 23 June

- Confirmed case (Mr M): internationally imported

Not a confirmed cholera outbreak (case not locally acquired)

2) As of 26 June

- Confirmed case (Ms M): locally acquired
- Epidemiological link with a confirmed case (Mr M)

Confirmed cholera outbreak with clustered transmission

3) As of 29 June

- Confirmed case (Ms M's aunt): epidemiological link with a confirmed case (Ms M)

Remains a **confirmed cholera outbreak with clustered transmission**

4) As of 01 July

- Suspected case without established epidemiological links tested negative
- Not considered to determine transmission chains

Remains a **confirmed cholera outbreak with clustered transmission**

Epidemiological links between confirmed cases

Dissemination of outcomes and response

Photo adapted from: WHO / NOOR / Billy Miaron

Update stakeholders

Situation reports disseminated daily

Stakeholders

- Upper-level health authority
- Multisectoral stakeholders, partners, agencies involved in the response
- Health facility workers, community health workers / volunteers
- Etc

Discussed daily in a multisectoral manner for quick decision-making on interventions

Targeted interventions

Highly targeted interventions rapidly implemented to prevent secondary cases and interrupt transmission

Cases-Area Targeted Interventions (CATIs)

- At and around the household of cases
  - Promotion of hand washing with soap, treatment of water, food safety, etc
  - Distribution of WaSH kits

Infection prevention and control (IPC)

- Sensitization of health workers

Targeted measures oriented by investigation

- Nature of epidemiological links
- Source(s) or vehicle(s) of infection
- Individuals identified as at-risk of exposure

End of clustered transmission

Clustered transmission is usually a temporary situation

End of outbreak

- **Transmission ended**
  - **No more cases**

For a minimum of **4 consecutive weeks,**
ALL suspected cases tested negative
(RDT, culture, or PCR)

Community transmission

- **Transmission continues**
  - **Cases no longer in clusters**

No epi links between **ALL** confirmed cases

- **No longer established**
  - Epidemiological links not identified
- **No longer investigated**
  - Overstretched investigation capacities

Adaptive surveillance

End of outbreak

Surveillance strategies adapted for the early detection of an outbreak

Inform and train surveillance stakeholders

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

Learn about surveillance for early detection in Module 3

Adaptive surveillance

Community transmission

Surveillance strategies adapted to monitor the outbreak

Inform and train surveillance stakeholders

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

Learn about surveillance outbreak monitoring in Module 4

Let's pratice

Orient highly target interventions
to interrupt transmission

Practice

You are a public health officer in a surveillance unit with a confirmed cholera outbreak with clustered transmission

The scenario is the SAME as the previous one

On 21 June, Mr M **returned from a cholera affected area** in a neighboring country and went directly back to his home with improved WASH facilities in the capital city where he lives with his wife (Ms M)

During the night of 21-22 June, **Mr M started having AWD**. **Ms M cared for him.** On the morning of 22 June, he was transferred by ambulance to the capital hospital. This hospital has very high IPC standards. On 23 June, Mr M's PCR test results returned positive for cholera

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On 25 June, Ms M was transferred by ambulance to the capital hospital and tested positive for cholera by PCR on 26 June

On 27 June, **Ms M's aunt went back to her village**, in a rural area with unimproved WASH facilities. She **had AWD** on 28 June. She tested positive for cholera by PCR on 29 June

1) What is your assessement of the greatest risk for onset of community transmission?
2) What would you have recommended to prevent this and when?
3) What are other risks for secondary transmission?
4) What would you have recommended to prevent this?

Answers

1) Greatest risk for onset of community transmission

Village of the aunt of Ms M

- Unimproved sanitation facilities

2) Recommendations to prevent this and when

As soon as the investigation indicated that Ms M's aunt provided care to Ms M

- **Before she became symptomatic**

For example, Ms M's aunt:

- Informed about how cholera is spread and what to do if she developed AWD
- Provided with hygiene kits
- Encouraged to stay at her niece's home during the incubation period depending on the sanitation facilities she could have access to in her village
  - 5 days / at least until 30 June

Answers

3) Other risks for secondary transmission

Ambulances

- Mr and Ms M may have contaminated the ambulances with feces/vomits
- Ambulance drivers and other patients transported in the vehicles (if not cleaned according to appropriate protocols) could be at risk of exposure

Hospital

- Reportedly high IPC standards, but breaches in IPC protocols cannot be excluded

4) Recommendations to prevent this

For example

- **Trace** the ambulance drivers that transported Mr and Ms M
- **Trace** the hospital staff who provided care to Mr and Ms M
- **Interview** them to assess the risk of exposure and **determine how to mitigate risks**

Wrap up

Oversee reporting and testing	Transmit, analyze, interpret data	Investigate	Disseminate outcomes	Respond
				
Monitor that suspected cases are **reported daily** and that **ALL** suspected cases are **tested**	**Analyze** the reported data and test results **daily**	Determine **epidemiological links between confirmed cases** with case investigation	**Inform** all stakeholders of the cholera situation on a **daily basis**	**Guide highly targeted interventions** to interrupt transmission


Quiz
time

Question 1

- **When the surveillance objective is to track cholera clusters, 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 track cholera clusters, 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 track cholera clusters, health authorities:***

  a) Analyze reports of suspected cholera cases, test results, and findings of case investigation as soon as they are available to rapidly orient highly targeted interventions

  b) Compile and analyze reports of suspected cholera cases, test results, and findings of case investigation on a weekly basis to characterize transmission dynamics in a robust manner

Question 2 – Answer

- **When the surveillance objective is to track cholera clusters, health authorities:**

  a) Analyze reports of suspected cholera cases, test results, and findings of case investigation as soon as they are available to rapidly orient highly targeted interventions

  b) Compile and analyze reports of suspected cholera cases, test results, and findings of case investigation on a weekly basis to characterize transmission dynamics in a robust manner

Question 3

- **To characterize the type of cholera transmission in a surveillance unit (clustered transmission or community transmission), health authorities determine epidemiological links (or lack of thereof) between:**

  a) Suspected cholera cases

  b) Suspected cholera cases tested positive by RDT

  c) Confirmed cholera cases

Question 3 – Answer

- **To characterize the type of cholera transmission in a surveillance unit (clustered transmission or community transmission), health authorities determine epidemiological links (or lack of thereof) between:**

  a) Suspected cholera cases

  b) Suspected cholera cases tested positive by RDT

  c) Confirmed cholera cases


Together we can
#Endcholera
GLOBAL TASK FORCE ON
CHOLERA CONTROL