GLOBAL TASK FORCE ON CHOLERA CONTROL

Cholera surveillance for health authorities

Transcript of online course

MODULE 1

Pivotal role of health authorities in cholera surveillance

Slide 1

Welcome to Module 1 of the GTFCC online course on cholera surveillance for health authorities.

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In this module, we will walk you through the objectives of cholera surveillance and the reasons why health authorities play such a pivotal role in cholera surveillance.

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After completing this module, you will be familiar with the objectives of cholera surveillance in different situations and you will be aware of the pivotal role that health authorities play to ensure that cholera surveillance continuously meets these objectives.

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Before we dive in, let us quickly remind you what cholera is and what surveillance is.

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Cholera is an acute diarrheal infection which spreads through contaminated food and water.

It is caused by the bacterium toxigenic Vibrio cholerae, serogroup O1 and O139.

Cholera can spread rapidly and cause large outbreaks.

Severe forms of the disease can lead to severe dehydration and death within hours if not treated. However, it is preventable and easily treatable.

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Disease surveillance is the continuous and systematic collection, analysis and interpretation of health-related data with prompt dissemination of results to guide public health response.

Surveillance is essential to understand the dynamics of disease outbreaks by describing who is affected, where and when. This understanding is critical to design effective interventions to control and prevent disease outbreaks.

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Let's look into the objectives of cholera surveillance more specifically.

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The general objective of cholera surveillance is always to generate information to guide an effective public health response in order to reduce the number of cholera cases and cholera deaths and limit the spread of cholera.

Then, depending on the cholera situation in a local geographic area, the specific objectives of cholera surveillance evolve.

In geographic areas where there is no ongoing cholera outbreak, surveillance aims to detect any cholera outbreak early so that it can be responded to rapidly.

In geographic areas where a cholera outbreak is starting but has not yet spread in the community and cholera cases are occurring in clusters, surveillance aims to track the clusters in order to interrupt transmission with highly targeted interventions around the cases.

Lastly, in geographic areas where there is an ongoing cholera outbreak, surveillance aims to monitor the outbreak in order to guide the public health response.

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Early detection is an essential surveillance objective because when outbreaks are detected early, they can be controlled rapidly which is critical to mitigate their spread and their impact.

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Let's illustrate the importance of early detection with a fictive example.

This epidemic curve represents the potential number of cholera cases by day if a cholera outbreak was detected with delay which would result in a delayed public health response.

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On the other hand, this epidemic curve represents the potential number of cholera cases by day if an outbreak was detected early which would enable a rapid public health response.

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If we compare the number of cases by day in these two situations, we can see that with early detection and rapid response, the number of cholera cases remained much lower compared to if the outbreak

would have been detected and responded to with delay. This illustrates that early detection and rapid response help prevent further cholera cases.

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Moving on to cholera clusters and the surveillance objective in that situation.

There is a cholera cluster when a group of cases infected one another or got infected by the same source. Clusters are more likely to occur at the very early stages of an outbreak following the introduction of cholera in a new geographic area.

If clustered transmission is not interrupted rapidly, cholera might spread in the community and cause a large outbreak that would be more challenging to control.

With robust surveillance that can guide highly targeted interventions around cases, it is possible to interrupt transmission at cluster stage before it spreads in the community.

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Going back to our previous example, if surveillance is sufficiently performant to track clusters in order to guide highly targeted interventions around cases, then the number of cholera cases that can be prevented is even higher.

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As the last surveillance objective, during an outbreak, if cholera has spread in the community, surveillance continuously generates information that is directly used to target effective multisectoral strategies to control and end the outbreak.

Surveillance is pivotal to guide interventions across all cholera control and prevention pillars from vaccination campaigns, to water, sanitation and hygiene efforts, community engagement, and case management.

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Health authorities play a pivotal role in cholera surveillance. Let's see why.

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Cholera surveillance is adaptive.

We have just seen that depending on the cholera situation, the objectives of surveillance evolve. As a result, the surveillance strategies to achieve the corresponding objectives also evolve depending on the cholera situation.

Adaptive surveillance means that surveillance strategies are adapted locally depending on the ongoing cholera situation. The local level considered is the surveillance unit level.

The surveillance unit level corresponds to the lowest administrative level at which decisions are made regarding cholera prevention and control in a given country. The corresponding level is determined by each country in its specific context.

Typically, countries often select administrative level 2 or administrative level 3 as their surveillance unit level. However, different levels may also be considered depending on what's most appropriate in a specific country.

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Let's illustrate the principle of adaptive surveillance with a fictive example.

This map represents the surveillance units of a fictional country. The southern part of this country is regularly affected by cholera outbreaks whilst the northern part has not been affected by large cholera outbreaks in decades.

Currently, in the southern part of the country, there is an ongoing cholera outbreak in several surveillance units. Those are represented in red on the map. In these surveillance units, the current surveillance objective is to monitor the outbreak to generate information to orient control measures to mitigate the impact and the spread of cholera.

In the northern part of the country, there is an ongoing cholera cluster in one surveillance unit. This surveillance unit is represented in orange on the map. In this unit, the current surveillance objective is to track this cluster in order to interrupt transmission before it becomes widespread in the community and more challenging to control.

In other surveillance units of the country, currently there is no cholera outbreak. Those are represented in yellow on the map. In these surveillance units, the current surveillance objective is to detect any cholera outbreak early in order to trigger rapid response measures.

Because the cholera situation is heterogenous in this country, different surveillance strategies currently apply in different surveillance units. This is adaptive cholera surveillance.

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Because cholera surveillance is continuously adapted to the ongoing cholera situation at the local level of surveillance units, local health authorities play a pivotal role to coordinate the implementation of adaptive surveillance.

Local health authorities ensure that at all times, in all surveillance units they are responsible for, surveillance is:

- Adapted to the ongoing cholera situation;
- Effectively implemented in accordance with applicable surveillance strategies;
- Continuously used to guide public health measures to prevent and control cholera.

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Importantly, although adaptive, cholera surveillance is implemented within a stable surveillance system.

Some surveillance core functions are implemented at all times independent of the cholera situation. This is the backbone of a robust and stable surveillance environment.

Some surveillance strategies are then adapted in a dynamic manner depending on the local cholera situation. This ensures that surveillance continuously achieves its objectives in an effective and efficient manner.

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In the next modules, you will learn more about the role of health authorities in cholera surveillance.

In module 2, we will walk you through the core surveillance functions that health authorities implement at all times.

Then, in the following modules, we will walk you through specificities to implement cholera surveillance depending on the ongoing cholera situation and the corresponding surveillance objective.

In Module 3, we will focus on surveillance for the early detection of cholera outbreaks.

In module 4, we will address surveillance to monitor cholera outbreaks.

Lastly, in module 5, we will cover surveillance to track cholera clusters.

Case studies will be offered in modules 3 to 5 to dive into the surveillance specificities depending on the ongoing cholera situation.

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As we wrap up this module, here are the important points to remember.

Depending on the cholera situation, surveillance has different objectives:

- detecting cholera outbreaks early so that they can be controlled rapidly;
- monitoring cholera outbreaks to generate information to guide effective strategies to control outbreaks;
- tracking cholera clusters to interrupt transmission before cholera spreads in the community.

Surveillance strategies are adapted in a dynamic manner according to the cholera situation at the local level of “surveillance units”.

Health authorities are responsible for ensuring that surveillance is effectively implemented in each surveillance unit according to applicable strategies depending on the ongoing local cholera situation.

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Before moving on to the next module, we encourage you to take a short quiz. There are three questions in this quiz.

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Question 1. In surveillance units where there is no cholera outbreak, surveillance is for the:

a) Early detection of outbreaks

b) Monitoring of outbreaks

c) Tracking of clusters

This is critical to:

d) Generate information to guide effective interventions across all cholera control pillars

e) Interrupt transmission before cholera spreads in the community

f) Respond rapidly to any new outbreak to mitigate its spread and impact

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The correct answers are a and f. In surveillance units where there is no cholera outbreak, surveillance is for the early detection of outbreaks, this is critical to respond rapidly to any new outbreak to mitigate its spread and impact.

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Question 2. In surveillance units where there is a cholera outbreak, surveillance is for the:

a) Early detection of outbreaks

b) Monitoring of outbreaks

c) Tracking of clusters

This is critical to:

d) Generate information to guide effective interventions across all cholera control pillars

e) Interrupt transmission before cholera spreads in the community

f) Respond rapidly to any new outbreak to mitigate its spread and impact

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The correct answers are b and d. In surveillance units where there is a cholera outbreak, surveillance is for the monitoring of the outbreak. This is critical to generate information to guide effective interventions across all cholera control pillars.

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Question 3. This is the last question. In surveillance units where cholera has just been introduced and hasn't yet spread in the community, surveillance is for the:

a) Early detection of outbreaks

b) Monitoring of outbreaks

c) Tracking of clusters

This is critical to:

d) Generate information to guide effective interventions across all cholera control pillars

e) Interrupt transmission before cholera spreads in the community

f) Respond rapidly to any new outbreak to mitigate its spread and impact

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The correct answers are c and e. In surveillance units where cholera has just been introduced and hasn't yet spread in the community, surveillance is to track clusters. This is critical to interrupt transmission before cholera spreads in the community.

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We have now completed this module.