Cholera surveillance for health authorities

Pivotal role

What will you learn?

- **Ojectives** of cholera surveillance in different situations

- **Pivotal role of health authorities** to ensure that cholera surveillance meets its objectives

Background

Photo adapted from: WHO /Mark Nieuwenhof

Cholera

Photo adapted from WHO/Mulugeta Ayene

- **Acute diarrhoeal infection**

- Spread through contaminated food and water

- Caused by the **bacterium** *Vibrio cholerae* (toxigenic, serogroup O1 or O139)

- Can **spread rapidly** and cause large outbreaks

- Severe forms of the disease can lead **to severe dehydration** and **death** within hours if not treated

- It is **preventable** and **easily treatable** (rehydration)

Disease surveillance

Continuous and systematic **collection, analysis, and interpretation** of health-related data with prompt dissemination of results to **guide public health response**

▶ **Essential to**

- **Understand outbreak dynamics**
  - ○ **Who is affected, where, when**

- **Design effective interventions**

Objectives
of cholera
surveillance

Photo adapted from: WHO /Enric Catala

Overview

Cholera surveillance **generates information to guide an effective response** to reduce the number of cholera cases and deaths, and limit the spread of the disease

Depending on the **cholera situation** in an area,
the **surveillance objectives** evolve

▶ In geographic **areas without an outbreak**
  • Surveillance is for the **early detection** of any new outbreak **for rapid response**

▶ In geographic **areas with an outbreak that is not yet widespread** ("**cases in cluster**")
  • Surveillance is to **track clusters to stop transmission** with targeted interventions

▶ In geographic **areas with an outbreak** ("**community transmission**")
  • Surveillance is to **monitor the outbreak to guide the response**
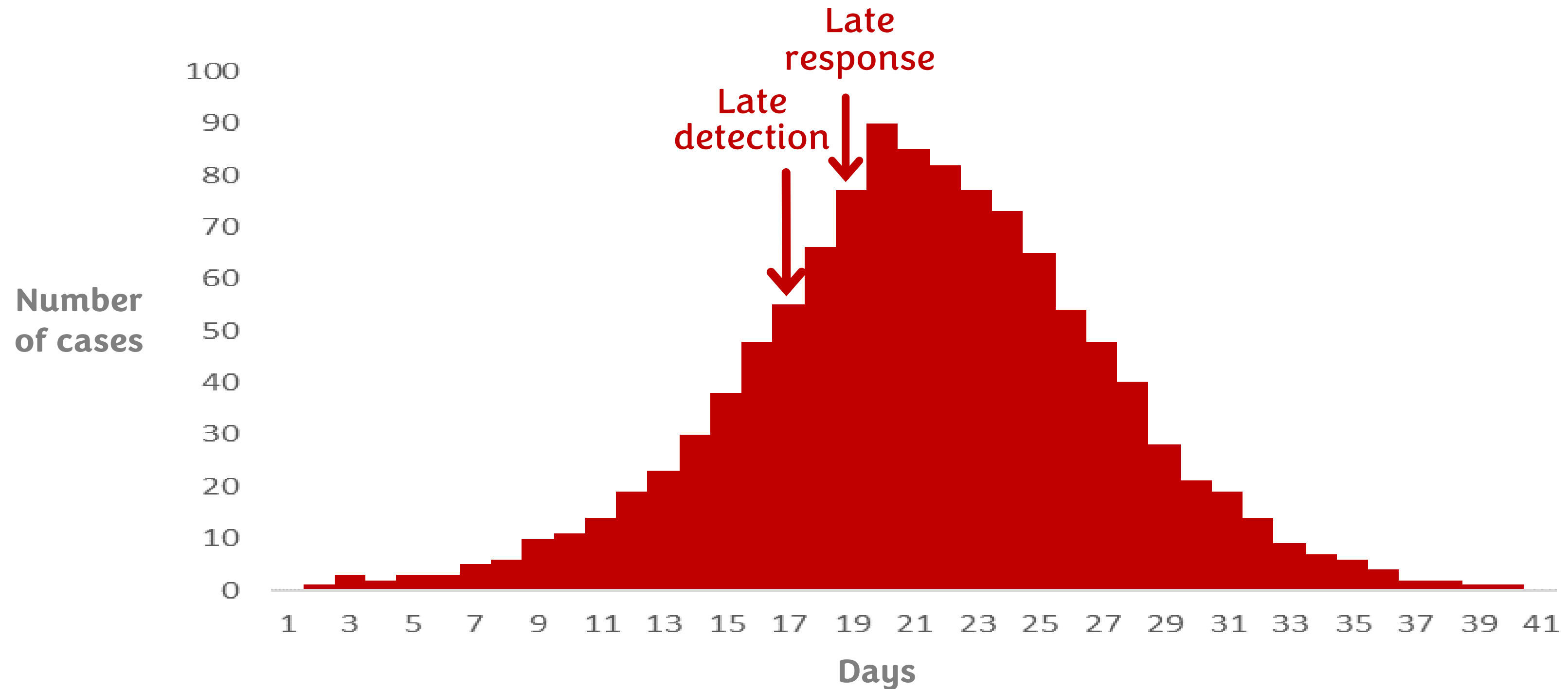
Early detection

Outbreaks **detected early** can be **controlled rapidly**
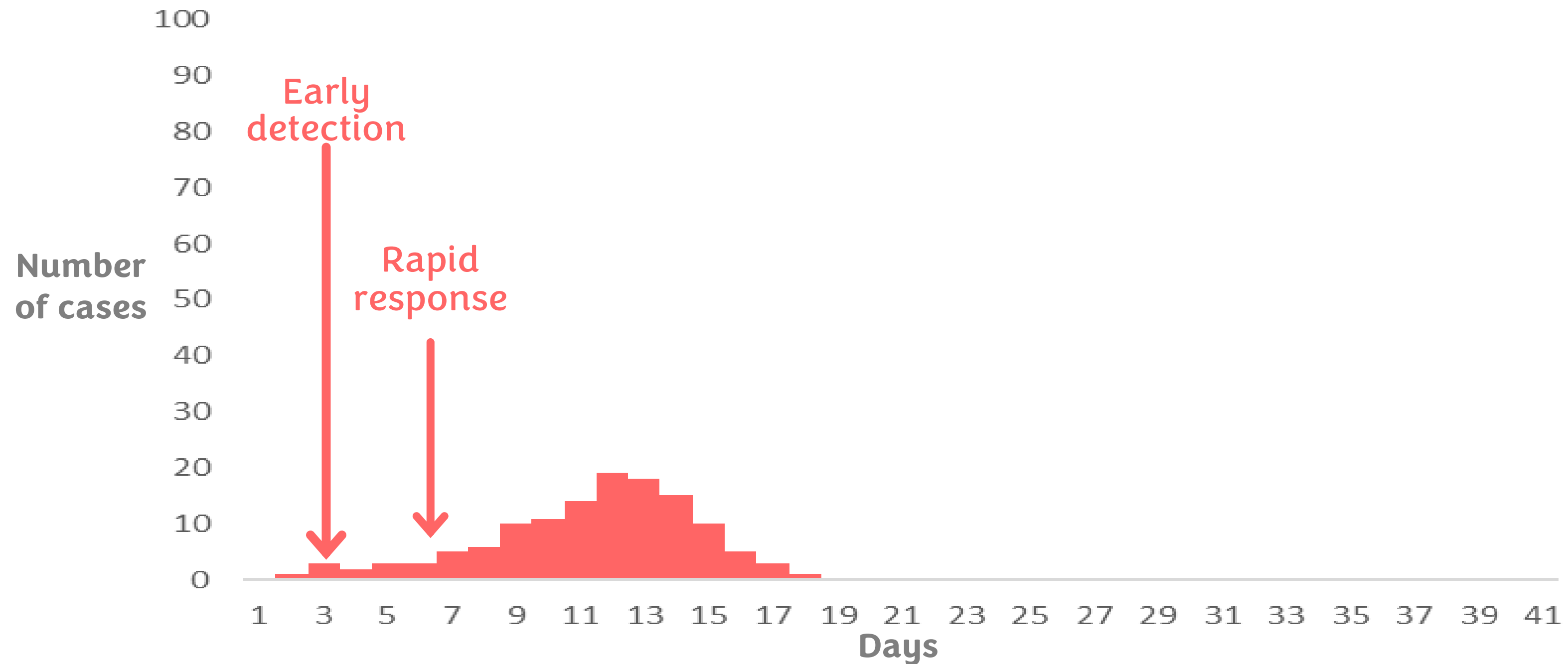
➡ **Spread & impact mitigated**
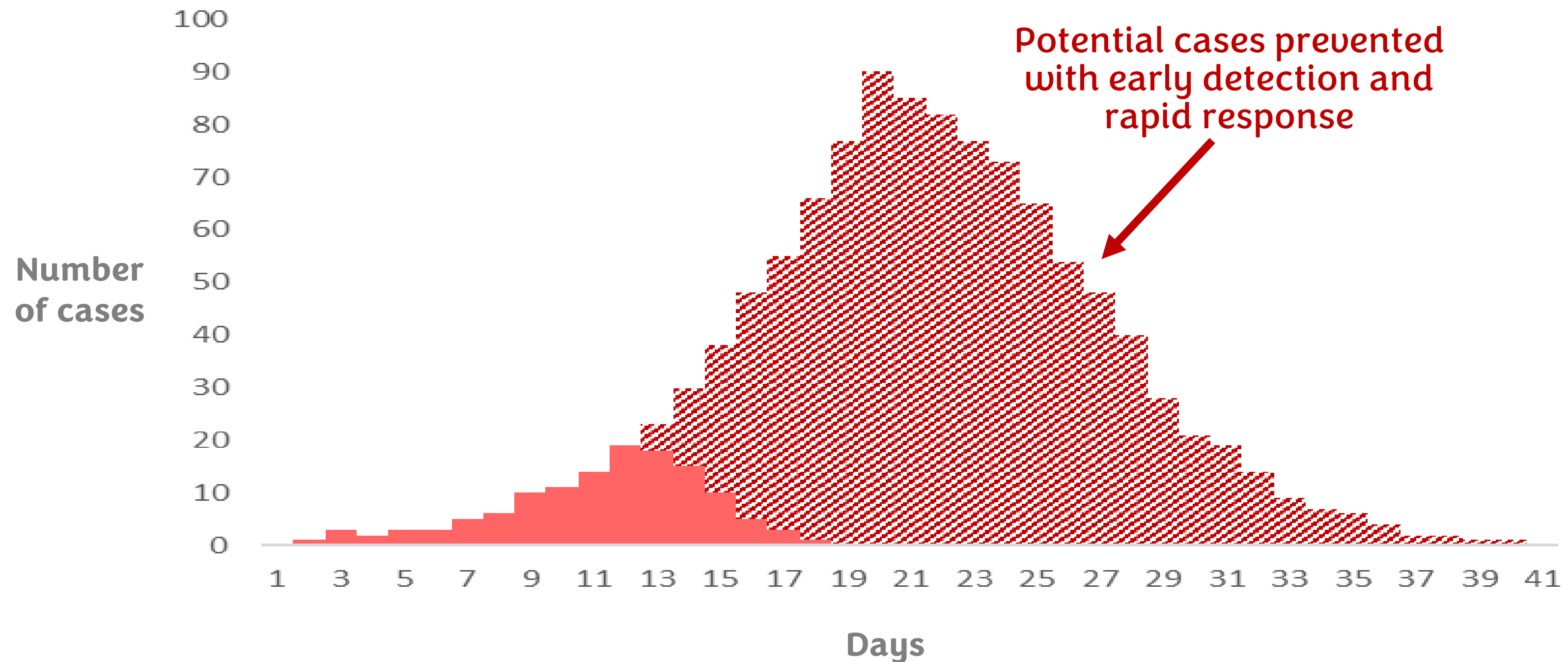
Early detection

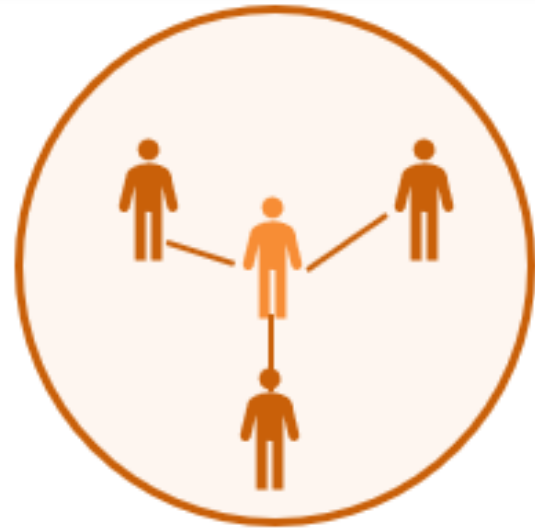Illustration

Early detection

Illustration

Early   Delayed

Potential cases prevented
with early detection and
rapid response

Number
of cases

Days

Tracking clusters

Cluster

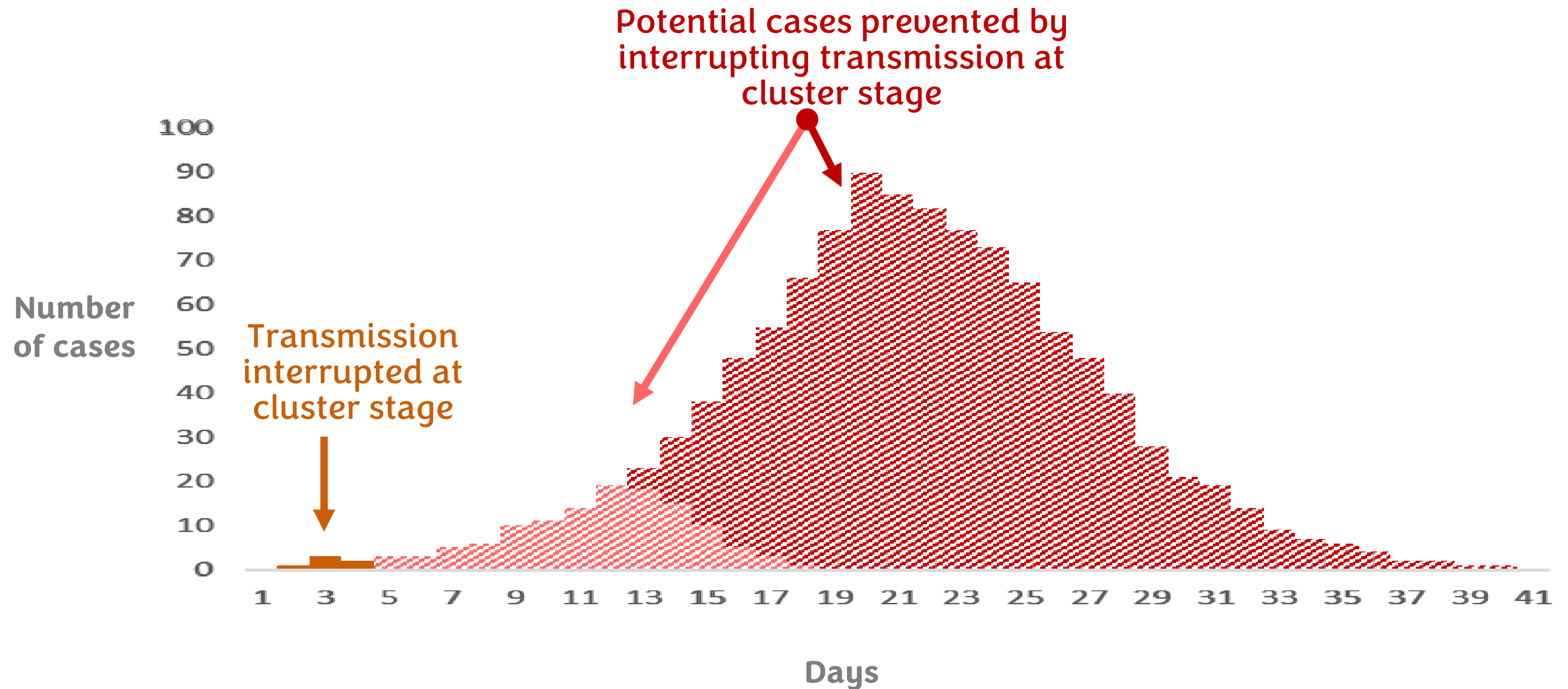**Widespread outbreak in the community**

▶ **Cluster**

- A group of cases
    - ○ infected one another

      or

    - ○ got infected by the same source

- Usually at the **very early stage of an outbreak**

    - ○   Following cholera introduction in a new geographic area

With robust surveillance and highly targeted interventions, it is possible to interrupt transmission at cluster stage before it spreads in the community

Tracking clusters

Illustration

Number of cases

Potential cases prevented by interrupting transmission at cluster stage

Transmission interrupted at cluster stage

100
90
80
70
60
50
40
30
20
10
0

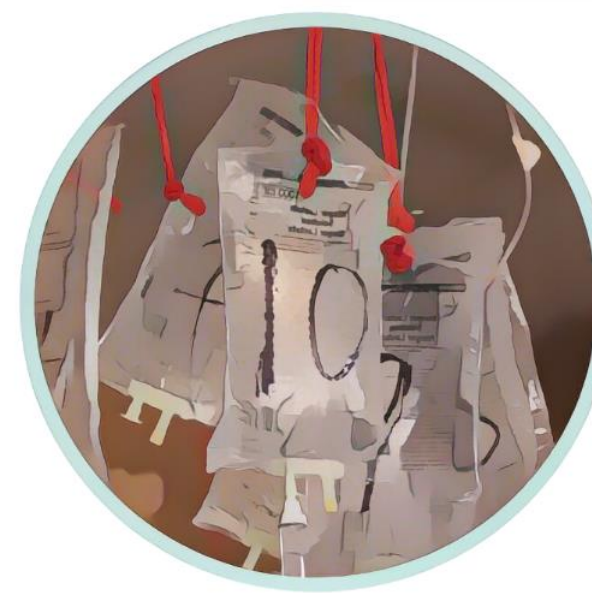1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41

Days

Monitoring outbreaks

During an outbreak, the information generated by surveillance is used to **target multisectoral strategies to control the outbreak**

➡️ Surveillance guides **interventions across all pillars**

- Vaccination campaigns, water, sanitation and hygiene (WaSH), community engagement, case management

Health authorities' role in cholera surveillance

Centro de Informações Estratégicas em Vigilância em Saúde

Photo adapted from: WHO / Julio Takayama

Adaptive surveillance

Different cholera situations	→	Different surveillance objectives	→	Different surveillance strategies to reach the surveillance objective

Adaptive cholera surveillance

Surveillance strategies adapted locally depending on the cholera situation in "surveillance units"

◤**Surveillance units**

- Lowest administrative level at which decisions are made on cholera prevention and control
- **Corresponding administrative level is country-specific**
  - Typically, **administrative levels 2 or 3**

Adaptive surveillance

Illustration

■ **Units where there is an ongoing cholera outbreak (community transmission)**

- Surveillance aims to **monitor the outbreak**

■ **Unit where there is a cluster of cholera cases**

- Surveillance aims to **track the cluster**

□ **Units where there is no ongoing cholera outbreak**

- Surveillance aims to **detect any outbreak early**

Local level health authorities

Because cholera surveillance is adapted at the **LOCAL level**,
LOCAL health authorities play a pivotal role in its implementation

➠ **Local health authorities** ensure that, **at all times**, cholera surveillance is:

- Adapted to the ongoing cholera situation
- Effectively implemented
- Used to guide prevention & control

Operationalisation

Adaptive surveillance is implemented in a **stable surveillance system**

Stability

Some **core functions** are implemented at all times

Adaptability

Some **strategies** are adapted depending on the local cholera situation

Learn more

Stability

➡️ **Core functions applicable at all times**

- **Module 2. Core functions** of health authorities in cholera surveillance

Adaptability

➡️ **Surveillance strategies adapted to the local cholera situation**

- **Module 3.** Surveillance for **early detection**
- **Module 4.** Surveillance to **monitor outbreaks**
- **Module 5.** Surveillance to **track clusters**

Case studies

Wrap up

- **Depending on the cholera situation, surveillance has different objectives**
  - **Detect cholera outbreaks early** so that they can be controlled rapidly
  - **Monitor cholera outbreaks** to generate information to guide effective control strategies
  - **Track cholera clusters** to interrupt transmission before spread in the community

- **Surveillance strategies are adapted** according to the cholera situation at the local level of **"surveillance units"**

- **Health authorities** ensure that cholera surveillance is **effectively implemented** in each surveillance unit according to the ongoing cholera situation

Quiz time

▶ **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

Question 1 – Answers

▶ **In surveillance units where there is no cholera outbreak, surveillance is for the:**

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    c) Tracking of clusters

▶ **This is critical to:**

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    e) Interrupt transmission before cholera spreads in the community

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

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:**

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e) Interrupt transmission before cholera spreads in the community

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Question 2 – Answers

➡ **In surveillance units where there is a cholera outbreak, surveillance is for the:**

  a) Early detection of outbreaks

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  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

Question 3

▶ **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

➡ **In surveillance units where cholera has just been introduced and hasn't yet spread in the community, surveillance is for the:**

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