CHOLERA SURVEILLANCE INDICATORS

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21 May 2024

DATA USE DURING AN OUTBREAK

- Describe cases and deaths by:
  - **Person** (sex, age groups)
  - **Place** (spatial distribution)
  - **Time** (epi curve)

- Monitor key indicators
  - Incidence
  - Cumulative incidence
  - Test positivity rate

  Morbidity

  - Case fatality ratio
  - Community deaths

  Mortality

INCIDENCE

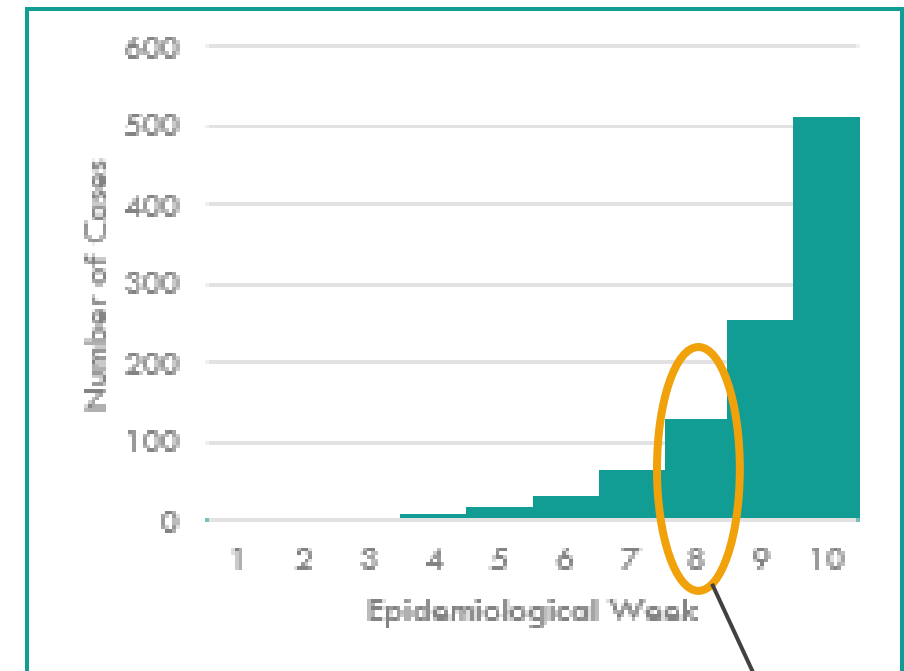Occurrence of new (suspected and confirmed) cholera cases reported in a population during a given period of time

■**How to Calculate**

o Calculated for a given time interval (e.g., week)

o and for a given geographic unit (e.g., surveillance unit)

$$\frac{\text{Number of new (suspected and confirmed) cholera cases}}{\text{Population}}$$

o Often expressed per 1,000, 10,000, or 100,000 population

Example Numerator

INCIDENCE

▪**How to Interpret**

○Indicates the speed of cholera transmission

○Allows for comparison of the speed of transmission by geographic areas

○Allows for assessment of whether transmission is increasing or decreasing over time

CUMULATIVE INCIDENCE

Proportion of the population that has contracted cholera over a given time interval
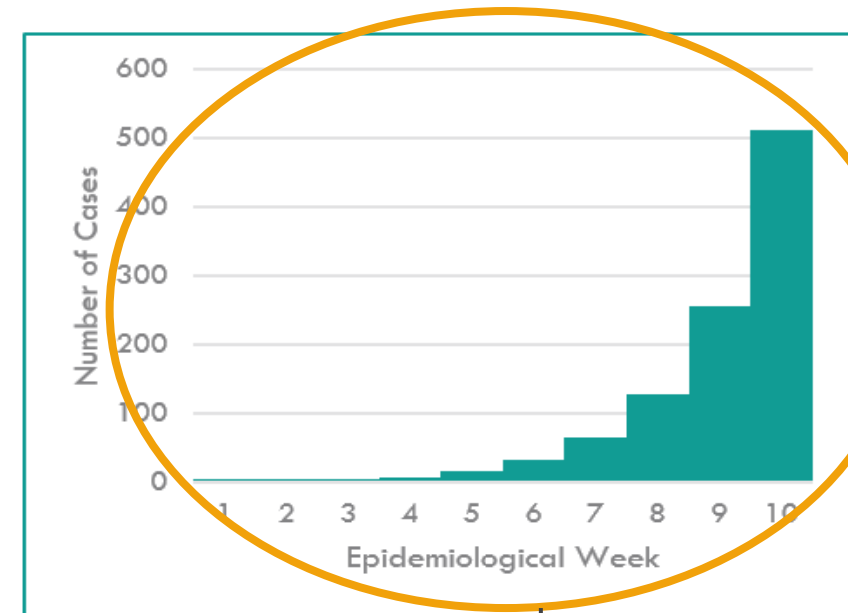
How to Calculate

For a given time interval (e.g. since the start of outbreak or year):

$$\frac{\text{Total number of (suspected and confirmed) cholera cases reported}}{\text{Population at the beginning of the time interval}}$$

How to Interpret

Indicates the impact of the outbreak in the population

⚠ Less informative for outbreak monitoring, for this incidence is the preferred indicator

Example Numerator

TEST POSITIVITY RATE

Proportion of tests performed (stratified by test method) that are positive
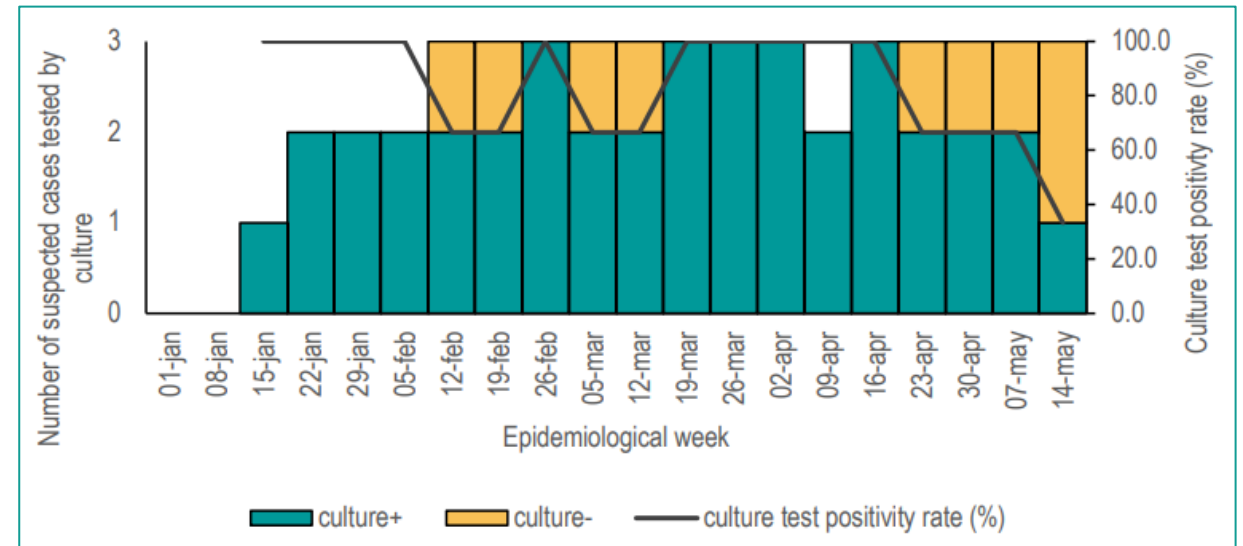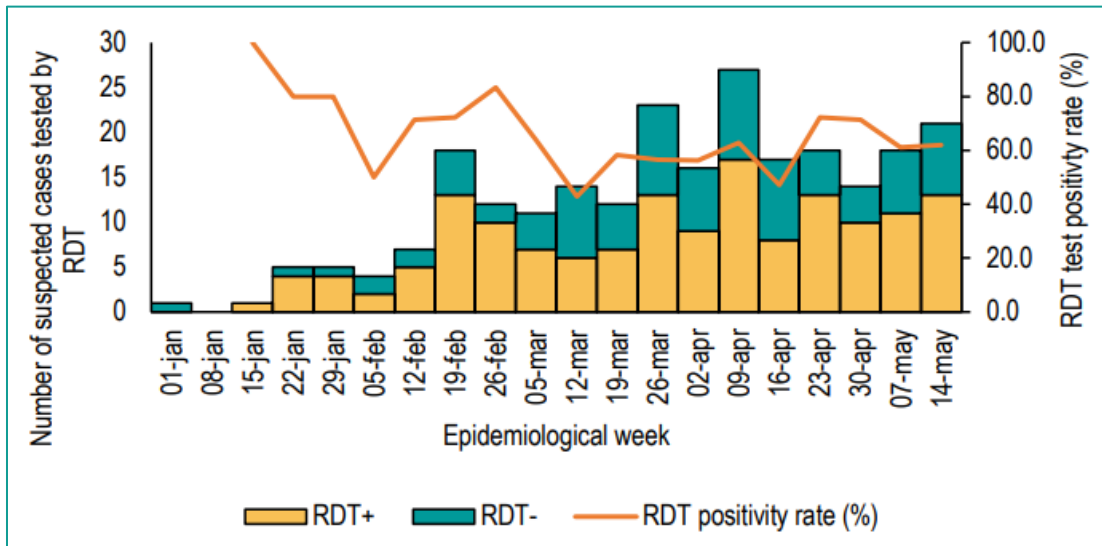
▪**How to Calculate**

○Calculated for

• a given time interval (e.g., week)

• a given geographic unit (e.g., surveillance unit)

• each test method separately (e.g. RDT, culture)

$$\frac{\text{Number of positive test results}}{\text{Number of tests performed}}$$

TEST POSITIVITY RATE

▪**How to Interpret**

Compare trends with the epidemic curve to interpret cholera outbreak trends

CASE FATALITY RATIO (CFR)

Proportion of **institutional cholera deaths** among (suspected and confirmed) cholera cases reported at health facilities during a specified time interval

▪ **How to Calculate**

○ For a given time interval:

$$\frac{\text{Number of institutional cholera deaths reported at health facilities}}{\text{Number of (suspected and confirmed) cholera cases reported at health facilities}}$$

- Institutional death ≠ dead on arrival at health facility
- Community deaths should not be included in the CFR

CASE FATALITY RATIO (CFR)

▪**How to Interpret**

o Indicator of adequate case management and access to cholera treatment

o A CFR >1% is usually due to one or several factors negatively impacting the quality of or access to cholera treatment

o High CFR reflects an urgent issue requiring investigation and supportive interventions
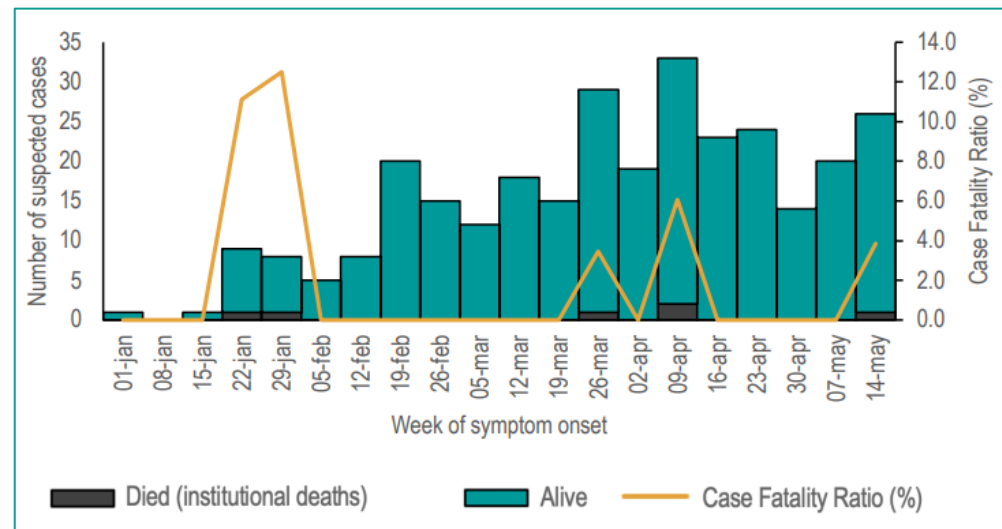
COMMUNITY DEATHS

How to Calculate

Number of community cholera deaths during a specified time interval

o Community deaths are cholera deaths that occur outside health facilities, including bodies brought to health facilities

How to Interpret

o Occurrence of any community death indicates insufficient access to care or challenges with care seeking. This should be addressed immediately.

VISUALISATION & INTERPRETATION

■ Stratify indicators by sex, age group, and place to **identify most affected population groups and areas**

■ Focus interpretation on:
   o **Why** the observed patterns occurred
   o **Implications for response**

Example: Cholera Epidemiological Report–Surveillance Unit Level

Below is an example of a cholera epidemiological report for a fictional surveillance unit (surveillance unit X) which was prepared using imaginary data. The purpose of this example is to illustrate how surveillance data can be analysed and interpreted at the surveillance unit level.

Example of a Cholera Epidemiological Report—Surveillance Unit Level
Name of Surveillance X, Admin-1, Country
Weekly epidemiological report n°20
Epidemiological Week 20, 2023 (May 15 to 21, 2023)

1. HIGHLIGHTS

Table 1. Summary of cumulative data, surveillance unit X, epidemiological weeks 1-20, 2023

Health facility-based surveillance			Community-based surveillance			Cholera epidemiological situation in the surveillance unit
Suspected cases	Deaths (institutional)	Case fatality ratio (%)	Cumulative incidence rate	Community cases	Community deaths	
300	6	2.0%	0.5%	21	0	Probable or confirmed cholera outbreak (community transmission)

Table 2. Summary of data for the reporting week, surveillance unit X, epidemiological week 20, 2023

Health facility-based surveillance				Community-based surveillance		Cholera epidemiological situation in the surveillance unit
Suspected cases	Deaths (institutional)	Case fatality ratio (%)	Weekly incidence rate	Community cases	Community deaths	
26	1	3.8%	0.5 per 1000 inhabitants	0	0	Probable or confirmed cholera outbreak (community transmission)

Describe key points, such as:

- Number of suspected cholera cases and deaths reported at health facilities, and case fatality ratios for the reporting week and for the cumulative period (since the beginning of the year or the start of the outbreak)
- Number of cholera cases and deaths reported in the community for the reporting week and for the cumulative period (since the beginning of the year or the start of the outbreak)
- Any key changes in the cholera situation (e.g., detection of a deterioration of the cholera outbreak)

Example:

- In week 20, 26 suspected cases including 1 death (CFR 3.8%) were reported in health facilities in surveillance unit X. There was a 30% increase in suspected cases compared with the previous week. No community cases or deaths were reported.