PAMIs for cholera control



Module



PAMIs for cholera control



Method

What will you learn?

- How the priority index is calculated
- **■** How the priority index guides decision-making
- When and how additional PAMIs might be considered
- How the final list of PAMIs is determined at the stakeholder validation
- Next steps following the stakeholder validation

PAMIs for cholera control

■ Identification of PAMIs for cholera control

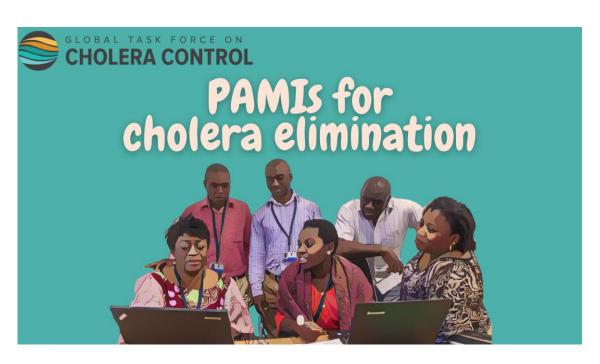
• For countries with **moderate to high** cholera transmission

Countries where ≥ 5% of the geographic units reported cholera over the past 5 years

To target spatially an NCP to control cholera

Other countries

- Identify PAMIs for cholera elimination
- Develop an NCP to eliminate cholera
- **■** Cholera control is an intermediate objective until elimination becomes a realistic objective



https://tinyurl.com/coursePAMIelimination

PAMIs for cholera control - Overview

PAMIs for control are the geographic units with the highest cholera burden

Data-driven phase

- All geographic units are scored according to a priority index
- Captures multiple dimensions of the cholera burden
- Guides objective decision making to prioritize geographic units acccording to burden

Decision-making phase

- Stakeholders from:
 - Multiple sectors
 - Multiple levels
 - Multiple organizations
- Decide based on consensus on a threshold for the priority index
- ■All geographic units with a priority index above the threshold are PAMIs



Priority index - Principles

The priority index is calculated for each geographic unit based on retrospective surveillance data

■Space

- Most appropriate geographic level to implement the NCP
- Country-specific
- Typically, administrative level 2 or administrative level 3

■Time

- Retrospective surveillance data
- Usually, 5 to 15 years

■Indicators

Epidemiological indicators and (if possible) a test positivity indicator

Epidemiological indicators

Three epidemiological indicators are included in the priority index

Incidence

Number of cholera cases (suspected and tested positive)

Persistence

% of weeks with cholera cases (suspected and tested positive)

Mortality

Number of cholera deaths (suspected and tested positive)

Scoring of epidemiological indicators

Each epidemiological indicator is scored according to its distribution

- Distribution parameters
 - Median
 - 80th percentile
- Calculated taking into account the geo units where cases/deaths were reported

Distribution parameters

Illustration

- A (very small) country has 20 geo units
- Over the analysis period, cholera was reported in 10 geo units

	Geo Unit	Incidence		
1	Unit A	0.01		
2	Unit B	2.3	Median	
3	Unit C	5.2		
4	Unit D	7.4	50% of the geo units	
5	Unit E	19.5	(=5 units) have an	80th percentile
6	Unit F	20.5	incidence below 20	
7	Unit G	53.4		80% of the geo units
8	Unit H	80.7		(=8 units) have an
9	Unit I	120.7		incidence below 100
10	Unit J	201.4		

Scoring of epidemiological indicators

Incidence, mortality, persistence scores based on distribution parameters

0 cases or deaths:
 0 point

>0 and <median:1 point

• ≥median and <80th percentile: 2 points

• ≥80th percentile: 3 points

Scoring of epidemiological indicators

Illustration

In 10 geo units, no cholera case: Incidence score: 0

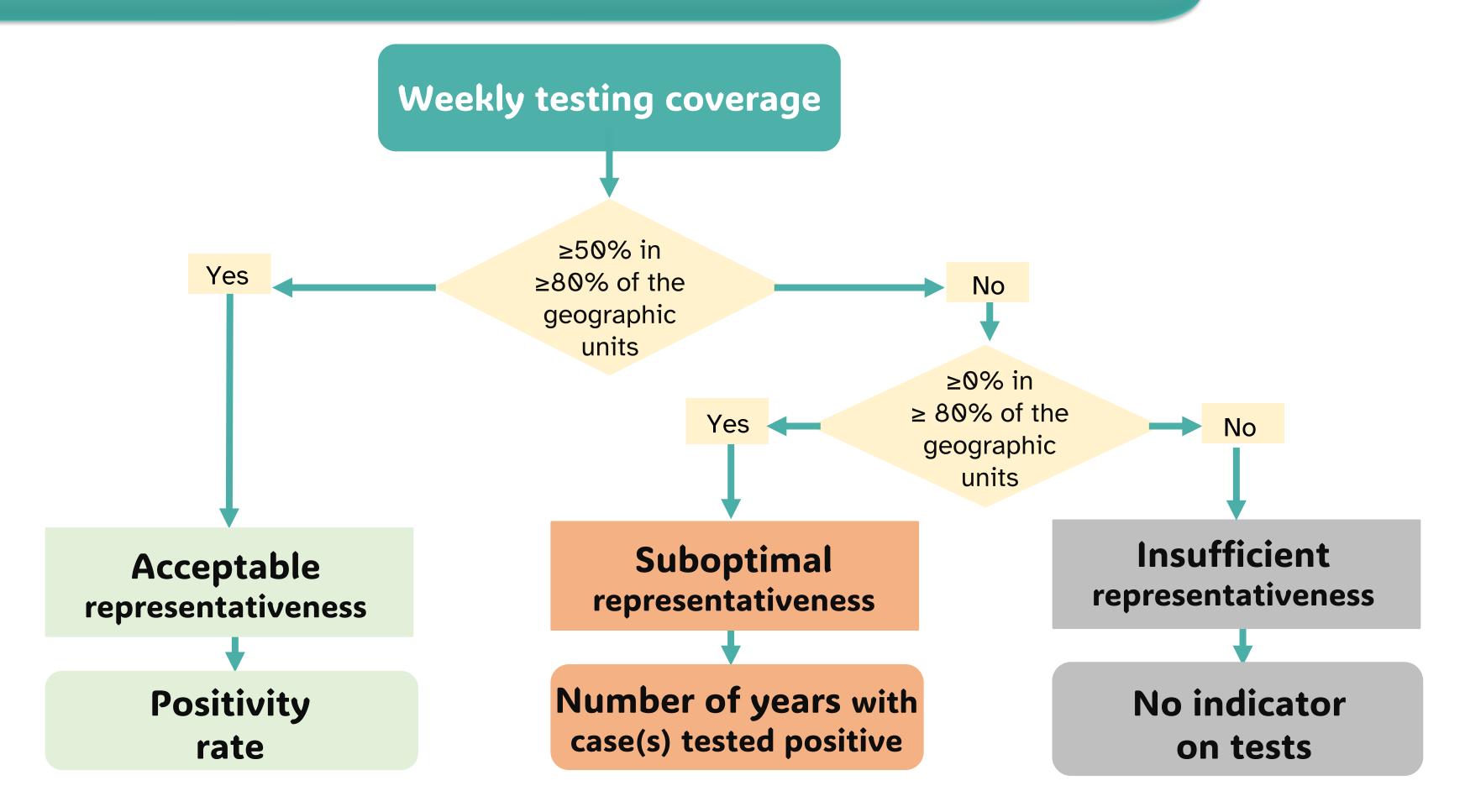
		Geo Unit	Incidence	
	1	Unit A	0.01	
	2	Unit B	2. 3	
	3	Unit C	5.2	Incidence score: 1
	4	Unit D	7.4	
Median	5	Unit E	19.5	
(20)	6	Unit F	20.5	
	7	Unit G	53.4	Incidence score: 2
80 th percentile	8	Unit H	80.7	
(100)	9	Unit I	120.7	Incidence score: 3
	10	Unit J	201.4	Theidence score.

Test positivity indicator

Whether test positivity can be included in the priority index depends on the representativeness of testing for cholera

- Representativeness is how comparable testing for cholera has been across geo units over the analysis period
- Lack of representativeness introduce biases in the indicator on tests and biases in the priority index
- To determine if test positivity can be included in the priority index, the representativeness of testing is assessed

Representativeness & test positivity indicator



Scoring of test positivity indicator

Representativeness acceptable					
Positivity rate	Score				
• 0%	0				
• ≤10%	1				
• >10% - ≤30%	2				
• >30%	3				

Representativeness suboptimal					
Number of years with case(s) tested positive	Score				
• 0	0				
• 1	1				
• >1	2				

Representativeness insufficient

- No test positivity indicator
- No score on cholera tests

Calculation of priority index

The priority index is the sum of the scores of all indicators

Example

In a geo unit:

- Incidence score = 3
- Persistence score = 2
- Mortality score = 2
- Test positivity score = 1



PAMI Excel tool



A PAMI Excel Tool computes all calculations (indicators, scores, priority index)

Learn about:



- How to prepare the data in Module 2
- How to use the PAMI Excel tool in Module 3

Reliability of priority index

- In some geo units, the priority index may underestimate the cholera burden/risk
 - For example:
 - Geo units with major underreporting
 - Geo units with recent OCV campaigns without WaSH improvements
- Specific geo units where the priority index is likely to be less reliable are identified
 - For example with:
 - Surveillance performance indicators
 - Records on OCV campaigns
 - WaSH level

If it is determined that the priority index may lack reliability in specific geo units, it is advisable to assess their vulnerability to cholera

Assessment of vulnerability

- **► Vulnerability factors** associated with an **increased cholera risk**
- For example:
 - Literature review, expert consultations
 - GTFCC indicative list of generic vulnerability factors

- **■** Recent and reliable data sources
- To assess the presence/absence of each vulnerability factor



Stakeholder validation

The list of PAMIs is identified by consensus among multiple stakeholders using the priority index for decision-making

- **■** To determine the list of PAMIs, stakeholders:
- Agree on a priority index threshold

 Agree on any additional PAMIs (this is optional)

Learn about how to organize and facilitate a PAMI stakeholder validation in Module 4

Priority index threshold

- **■**Priority index guides objective decision-making on PAMIs
 - Priority index threshold set by consensus
 - All geo units with priority index ≥ threshold are PAMIs

Threshold balances the feasibility and the impact of the NCP

Threshold set low

Threshold set high

High number of PAMIs

△Feasibility of the NCP

Low number of PAMIs

⚠ Impact of the NCP

Priority index threshold

Proxy on feasibility and impact are considered

Proxy for the feasibility of the NCP

- Number and % of geo units that are PAMIs
- Population in PAMIs

Proxy for the impact of the NCP

- % of cholera cases in PAMIs
- % of cholera deaths in PAMIs

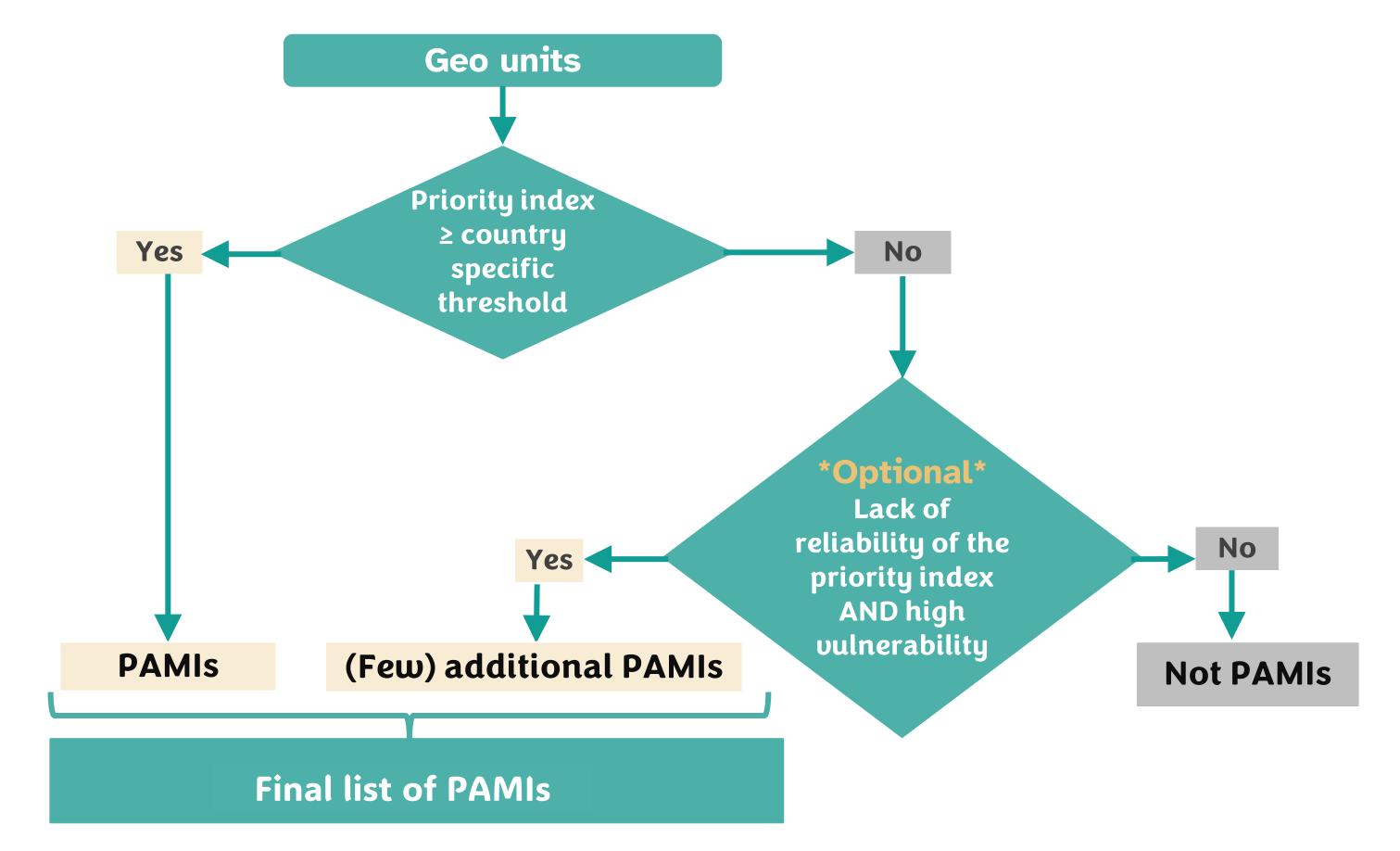
Additional PAMIS

Optionally, geo units with a priority index below the priority index threshold may be additional PAMIs if they meet the following criteria:

- Lack of reliability of the priority index AND
- High vulnerability to cholera

The **feasibility** of targeting these additional geo units as PAMIs should be assessed

Final list of PAMIS





Documentation

- PAMI identification is documented in a report to describe:
 - Method and outcomes
 - Decisions and justifications

To prepare a comprehensive report, follow the GTFCC template report



Learn how to prepare a report on PAMI identification in Module 5



Template report on the identification of PAMIs for cholera control

I. Background

- Information on any previous identification of PAMIs (method, analysis period)
- . Information on NCP status and targets (past, current, and future) in the country
- Concise description of the cholera epidemiological situation in the country in recent years (up to last 10 years)
- Concise description of cholera surveillance system
- Concise description of cholera testing strategy
- Justification for using the method "PAMIs for cholera control" (i.e., provide percentage of NCP operational geographic units with cholera outbreaks cumulatively over the past five years)

II. Methods

Datasets

Genera

- Administrative level of NCP operational geographic units
- Duration of analysis period

Priority index

- Sources of data for epidemiological and testing indicators
- Assessment of quality of the data
- Management of missing data

Vulnerability factors [optional]

- List of vulnerability factors selected emphasizing their relevance in the country context
- Data sources for vulnerability factors
- Criteria to identify NCP operational geographic units to undergo a vulnerability assessment
- Method for assessing vulnerability factors

GTFCC PAMI reviews

- Independent technical reviews of PAMI identification for countries to receive:
 - Independent technical feedback
 - Practical advice and recommendations

- **Mandatory** for countries planning to
- Request OCV for preventive use
- Submit their NCP for GTFCC endorsement
- Learn about GTFCC PAMI reviews in Module 5

Wrap up

For countries where ≥ 5% of the geographic units reported cholera over the past 5 years

Data driven phase: Calculation of the priority index

- Represents the cholera burden
- Includes epidemiological indicators (incidence, mortality, persistence) and, if testing representativeness allows, an indicator on cholera tests

Decision making-phase: Consensus on the list of PAMIs

- Stakeholders agree on a priority index threshold that balances feasibility and impact
- All geo units with a priority index above the threshold are PAMIs
- Optionally, a few additional geo units may be included as PAMIs if justified by lack of reliability of the priority index AND high vulnerability to cholera



Question 1



- What does the "priority index" represent in the context of PAMIs for cholera control?
 - a) The economic impact attributed to cholera in a geographic unit
 - b) The level of access to healthcare in a geographic unit
 - c) The cholera burden in a geographic unit
 - d) The clinical severity of a patient with suspected cholera and the corresponding priority level for treatment

Question 1 - Answer



- What does the "priority index" represent in the context of PAMIs for cholera control?
 - a) The economic impact attributed to cholera in a geographic unit
 - b) The level of access to healthcare in a geographic unit
 - c) The cholera burden in a geographic unit
 - d) The clinical severity of a patient with suspected cholera and the corresponding priority level for treatment

Question 2



Which indicators are included in the calculation of the "priority index"?

- a) Population size, access to healthcare, test accuracy, and recovery rate
- b) Incidence, persistence, mortality, and if possible an indicator on cholera tests
- c) Climate, sanitation, vaccination coverage, and test positivity
- d) Mortality, persistence, healthcare infrastructure, and population density

Question 2 – Answer



- Which indicators are included in the calculation of the "priority index"?
 - a) Population size, access to healthcare, test accuracy, and recovery rate
 - b) Incidence, persistence, mortality, and if possible an indicator on cholera tests
 - c) Climate, sanitation, vaccination coverage, and test positivity
 - d) Mortality, persistence, healthcare infrastructure, and population density

Question 3



What is the key objective of the stakeholder validation for PAMI identification?

- a) Stakeholder review of the cholera preparedness and response plans
- b) Stakeholder validation of the allocation of resources across regions for cholera control
- c) Stakeholder decision on a threshold for the priority index
- d) Stakeholder validation of intervention plans for all cholera control pillars in PAMIs

Question 3 – Answer



- What is the key objective of the stakeholder validation for PAMI identification?
 - a) Stakeholder review of the cholera preparedness and response plans
 - b) Stakeholder validation of the allocation of resources across regions for cholera control
 - c) Stakeholder decision on a threshold for the priority index
 - d) Stakeholder validation of intervention plans for all cholera control pillars in PAMIs

Together we can #Endcholera

