PAMIs for cholera control

Module 1

GLOBAL TASK FORCE ON
CHOLERA CONTROL

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

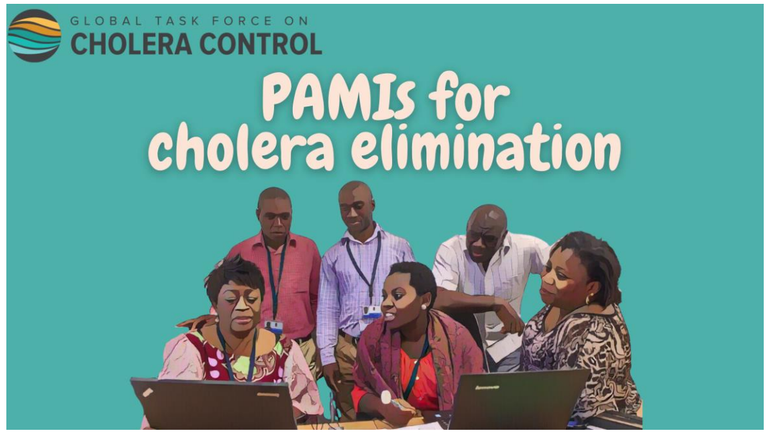
Countries where ≥ 5% of the geographic units reported cholera over the past 5 years

- 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**

Data driven phase

Calculation of the priority index

Photo adapted from: WHO

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
3	Unit C	5.2
4	Unit D	7.4
5	Unit E	19.5
6	Unit F	20.5
7	Unit G	53.4
8	Unit H	80.7
9	Unit I	120.7
10	Unit J	201.4

Median

50% of the geo units (=5 units) have an incidence below 20

80th percentile

80% of the geo units (=8 units) have an incidence below 100

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**

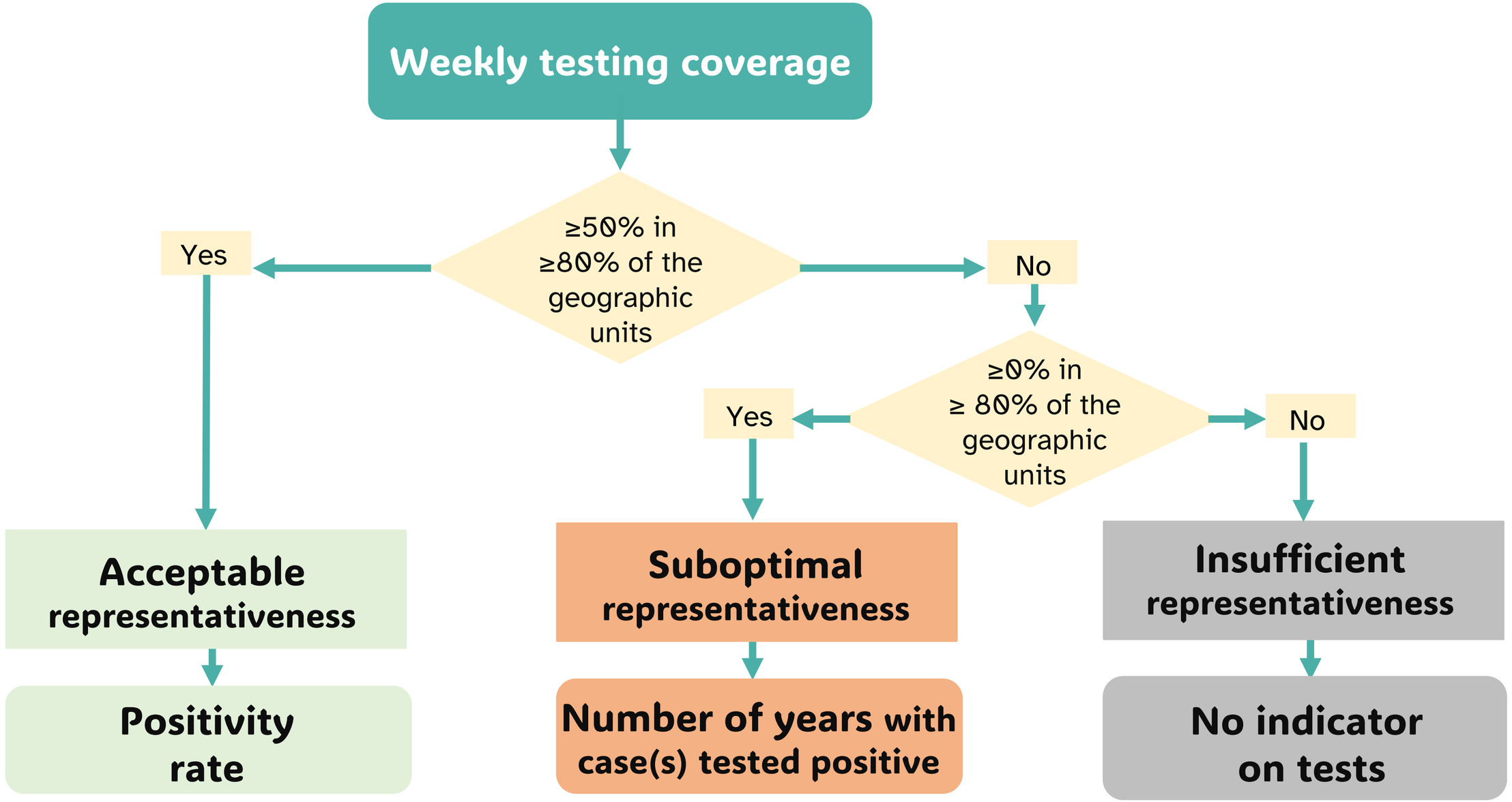
	Geo Unit	Incidence	
1	Unit A	0.01	Incidence score: **1**
2	Unit B	2. 3	
3	Unit C	5.2	
4	Unit D	7.4	
5	Unit E	19.5	
	Median (20)		
6	Unit F	20.5	Incidence score: **2**
7	Unit G	53.4	
8	Unit H	80.7	
	80th percentile (100)		
9	Unit I	120.7	Incidence score: **3**
10	Unit J	201.4	

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

Priority index = 8

(3+2+2+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

Decision-making phase

Building consensus

Photo adapted from: WHO

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

- High number of PAMIs

⚠**Feasibility of the NCP**

Threshold set high

- 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:

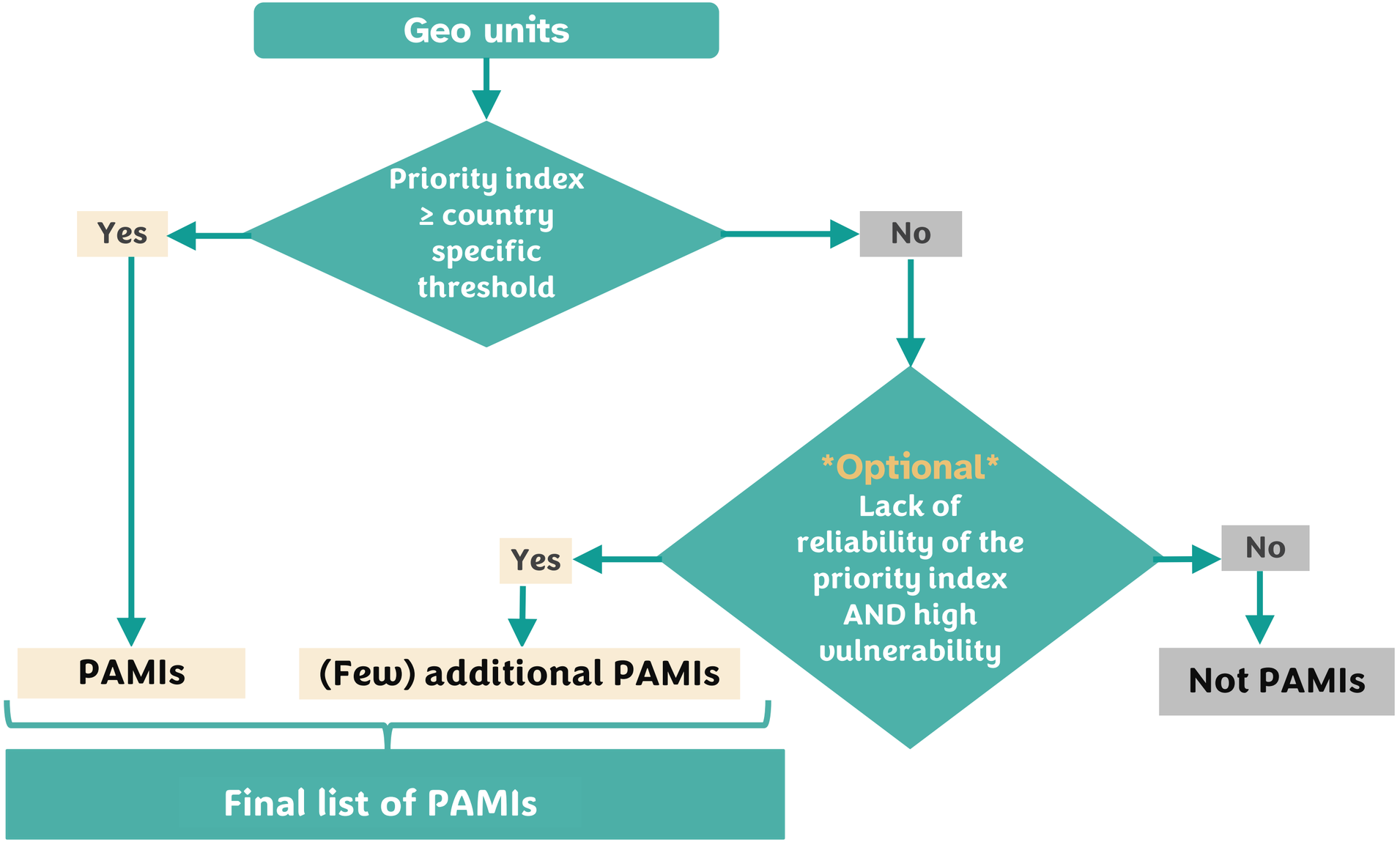
  - **Lack of reliability of the priority index**

    AND

  - **High vulnerability to cholera**

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

Final list of PAMIs



Next steps

Documentation and review

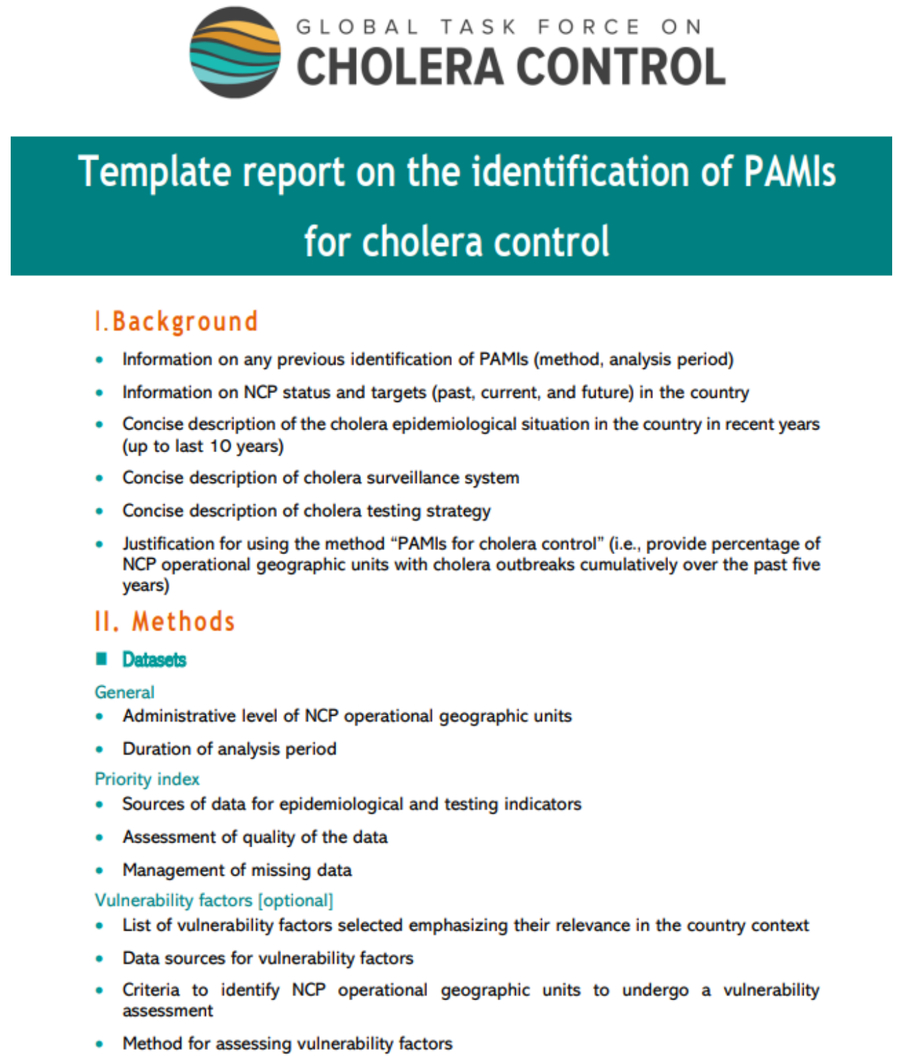
Photo adapted from: WHO / Lindsay Mackenzie

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



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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

General

- 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**


Quiz
time

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
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