



## **GLOBAL TASK FORCE ON CHOLERA CONTROL**

### ***9<sup>th</sup> meeting of the Laboratory Working Group report***

**21 – 23 May 2024 | CAIRO - EGYPT**

# Foreword

The global cholera situation has worsened in recent years, with WHO declaring cholera a grade 3 emergency at the global level in 2023. In this context, improved surveillance is critical to identifying, confirming, and monitoring cholera outbreaks to better guide response measures and mid to long-term strategies against cholera. Enhanced surveillance enables reliable, timely evidence to be captured, stored and disseminated to shape targeted interventions, enable early detection of potential cholera outbreaks, and facilitate rapid responses. Together, the GTFCC's Epidemiology and Laboratory surveillance working groups play a pivotal role in developing data-driven strategies, guidance and resources for cholera-affected countries that help them implement, adapt and develop robust responses to outbreaks, reduce deaths and, eventually, eliminate cholera entirely. The GTFCC Laboratory working group provides strategic guidance and technical support to cholera-affected countries to improve laboratory capabilities, increase capacity and resources, and enhance coordination at all levels.

This report offers a summary of the 9th Meeting of the Laboratory Working Group of the Global Taskforce on Cholera Control (GTFCC), which was held in Cairo, Egypt, on 21-23 May 2024. This meeting brought together technical experts, GTFCC partners, regions, and countries and was an opportunity to present the progress of the Laboratory Working Group of the GTFCC and to discuss the way forward to continue to strengthen cholera surveillance to better inform multisectoral strategies to “End cholera”.

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# Overview of progress of the GTFCC

## Laboratory working group

Over the period June 2023 – May 2024, the working group has made significant progress in a notably busy year. Updates were provided by the chair of the Laboratory working group, Marie-Laure Quilici (Institut Pasteur), on the following:

- **Publication of 2024 GTFCC recommendations for cholera surveillance and assessment of cholera surveillance**

Revised surveillance guidelines for Public Health Surveillance of Cholera were published together with supporting tools outlining the minimum recommendations for countries to implement adaptive cholera surveillance. They advise that the use of Rapid Diagnostic Tests (RDTs) should be expanded to support early outbreak detection and monitoring, accompanied by culture and/or PCR for confirmation. The definition of the causative agent of cholera and the level of strain characterization required for confirmation of a cholera epidemic, which varies according to the epidemiological context, have been further clarified in these guidelines. Strengthening cholera surveillance in accordance with this guidance is essential for the early detection and rapid response to outbreaks and for monitoring outbreaks to inform multisectoral strategies to control and eliminate cholera.

The Laboratory working group also participated in the development of the Interim guidance document on Assessment of Cholera Surveillance.

- **GTFCC laboratory job aids and fact sheets published**

Several job aids and fact sheets were updated, finalized and published, including

- a job aid and fact sheet for culture of *Vibrio cholerae* (VC) [[here](#)],
- a job aid and fact sheet for antimicrobial susceptibility testing (AST) [[here](#)]
- a job aid for the use of RDTs [[here](#)] .

Three documents, a Laboratory reporting form, a Laboratory referral form and an Isolate submission form to accompany shipment of isolates were also published [[here](#)].

A job aid for stool specimen collection and a job aid for the preservation of VC isolates are currently being drafted.

- **Minimum laboratory capacity standards and laboratory capacity assessments project**

May 2023 saw the initiation of a project funded by the US Centers for Disease Control and Prevention (US CDC) to address minimum laboratory capacity standards and capacity assessments. A WHO consultant was recruited to develop tools and guidance, and assessments were piloted in two priority countries – the Democratic Republic of the Congo (DRC) and Cameroon.

- **Diagnostics training for cholera launched**

A US CDC-funded project was launched in July 2023, when a WHO consultant was recruited to develop a comprehensive training package for training of trainers (ToT) in cholera laboratory diagnostics in priority countries.

ToT events have been organized in three high priority countries: South Sudan, Somalia and Comoros.

- **Target product profiles (TPP) for cholera diagnostic tests and evaluation protocol**

As part of their remit to support the work of WHO and GAVI to strengthen diagnostics, some Laboratory working group members reviewed the TPP for RDTs [[here](#)], developed the TPP for cholera molecular diagnostics [[here](#)] and developed an evaluation protocol for cholera molecular diagnostics.

## Challenges and way forward from a regional perspective

**Positive laboratory strengthening trends were reported** across many cholera-affected countries throughout the meeting and included increased and improved use of RDTs and culture confirmation; strengthened capacities; and improvements in lab infrastructure for cholera. To cite a few examples:

- Haiti reported delivering training on use of RDT in communities; Uganda noted how RDTs have accelerated responses; Sudan and Nigeria have both received GAVI approval for support of procurement of RDTs; and Bangladesh has distributed RDTs to all sub-district hospitals.
- Mozambique reported establishing culture capacity in public health laboratories in all provinces and Malawi has improved turn around times for culture confirmation nationally and subnationally.
- Capacity improvements were highlighted in Nigeria where states are receiving laboratory support for cholera testing, in Zambia which launched enteric disease surveillance in five cholera hotspot districts, and Uganda where regional referral hospital labs can now carry out stool cultures for all suspected cholera cases.
- Infrastructure improvements were highlighted in Pakistan with technical and logistical support to strengthen the laboratory network across all of provinces; in Sudan through the reestablishment of the national laboratory in a new city, in Haiti with strengthening of the national specimen transport network, and in Malawi through empowerment of district laboratories to transport cholera samples from peripheral to district level.

### Challenges faced by cholera laboratories

During a breakout session where participants were divided by geographical regions, participants reported the following main challenges faced by cholera laboratories today and reflected on what the GTFCC laboratory working group could do to continue to support these laboratories. Briefly, these challenges relate to the following aspects:

#### Coordination and Communication

- Limited communication and coordination between laboratories and surveillance teams;
- Challenges with reporting of laboratory results:
  - Lack of internet connectivity particularly in the regions hinders dissemination
  - Multiplicity of reporting channels leading to confusion and duplication of data
  - No or little data cleaning or quality control
  - Lack of integration/interoperability with epidemiological/clinical data; no LIMS or shared epi/lab data systems
  - Data sharing needs to be emphasized in non-endemic regions
  - Limited expertise in data management

#### Laboratory testing

- Challenges with sample quality due to inappropriate collection/storage/transport procedures and lack of transport systems;
- No decentralization, lack of capacity (RDT or culture) in periphery;
- No or little capacity in molecular and genomic testing for cholera;
- Lack of quality control/quality assurance, including in many reference public health laboratories;

#### Human resource and competency

- Shortage of laboratory personnel capacitated for cholera testing;
- Knowledge gaps, inadequate training in all aspects of laboratory surveillance and laboratory management and also on the testing strategies and algorithms applied to cholera;

#### Infrastructure and equipment

- Lack of allocated budgets and resource shortages (funding and supplies);
- Chronic challenges with equipment maintenance and supply chain including issues with inventory management;
- Poor infrastructure, electrical issues;

### **Country expectations from the GTFCC LWG**

#### Technical Support, capacity building and resource sharing

- Facilitate the development and adoption of standardized tools for laboratory surveillance;
- Offer technical support for identifying and resolving issues with cholera diagnostics, ensuring timely and accurate detection;

- Provide resources and expertise to establish and maintain high standards of quality control for cholera diagnostic testing, including rapid tests, culture, and molecular methods;
- Support countries in building human capacity through training programs on the use of diagnostic methods such as RDTs, culture techniques, molecular testing, and genomics;
- Provide guidance to promote sharing of existing resources such as molecular testing platforms, to support cholera diagnostics at both national and regional levels;
- Technical knowledge sharing to improve the supply chain for laboratory reagents, consumables, and diagnostic tools, addressing gaps in procurement and distribution;
- Identify pathways to support improved maintenance of laboratory equipment to ensure consistent and reliable functionality in cholera testing;
- Encourage and assist countries in conducting comprehensive assessments of their laboratory capacity to identify strengths, gaps, and areas for improvement;
- Assist countries in mapping relevant partners and stakeholders within the laboratory and diagnostic space to enhance collaboration and resource-sharing;
- Promote and support the organization of simulation exercises to test cholera laboratory preparedness and response, improving overall operational readiness.

#### Strategic guidance

- Provide advocacy and expert guidance on the GTFCC's testing strategy to ensure global alignment and effectiveness in cholera diagnostics;
- Facilitate the adoption of standardized tools for laboratory surveillance;

## Priorities for the GTFCC Laboratory working group

The Laboratory working group strives to support cholera-affected countries through the development and dissemination of guidance and a broad range of tools as well through direct implementation of strengthening activities in countries when possible (trainings, assessments).

The main priorities **over the period June 2024 – June 2025** were discussed in a closed session of the Laboratory working group members and are to include:

- **Laboratory job aids and fact sheets**
  - Finalize tools for laboratories performing cholera diagnostics, namely:
    - the job aid for stool specimen collection;

- the job aid for preserving isolates of *Vibrio cholerae*.

- **Laboratory capacity assessments**

- Refine the capacity assessment tools considering feedback received following the first piloting of the tools
- Resume delivery of assessments in priority countries beginning with Mozambique and Bangladesh

- **Diagnostics training for cholera**

- Finalize and disseminate a comprehensive training plan and package for ToT on cholera diagnostics
- Develop associated online training modules
- Execute ToT programmes with WHO in priority countries

- **Strengthening and evaluation of diagnostic tools**

- Support the work of WHO, GAVI and partners to strengthen diagnostics for cholera through development of an evaluation protocol for commercially available molecular kits for cholera

- **Guidance for genomics and cholera**

- Review and update existing guidance on genomics and cholera testing (Interim technical note on an introduction of DNA-based identification and typing methods to public health practitioners for epidemiological investigation of cholera outbreaks)

- **Guidance for laboratory testing for cholera**

- Develop a laboratory manual for testing cholera or revise existing manual (for example WHO manual)

Additionally, the Laboratory working group discussed and agreed the set up of a Community of Practice of cholera reference laboratories where directors or managers of cholera reference laboratories will be invited to engage with the Laboratory working group members in online meetings, twice a year. The Community of Practice will foster linkages between laboratories that share functions and experience similar challenges and provide a platform to receive support from GTFCC Laboratory working group partners through facilitating the sharing of critical guidance and opportunities for support. Country laboratories will also be invited to review and provide key input to the development of any new guidance.



# Conclusion

The current global cholera crisis calls for renewed commitment from all stakeholders to invest in and implement a comprehensive, multisectoral approach to detecting, containing, and preventing the disease. Strengthening surveillance, including laboratory surveillance, is essential to meet the goals of the GTFCC. To that end, the annual meetings of the GTFCC Laboratory Working Group provide a unique platform for open and constructive multilateral dialogue, allowing stakeholders to collaboratively shape strategies for strengthening surveillance and, ultimately, improving cholera control.

The GTFCC Laboratory Working Group has developed essential guidance and technical resources, establishing the framework for the minimum requirements for cholera testing and reporting. While these efforts will extend into the coming year, the working group will place increased emphasis on identifying gaps and needs, as well as strengthening capacities in countries. The progress of key laboratory documents and the successful execution of specific activities rely heavily on the mobilization and active engagement of group members. Both regions and countries will play a crucial role in the implementation of these activities. By establishing a Community of Practice for country cholera reference laboratories, the working group aims to facilitate the dissemination of its recommendations, encourage local adaptation, and foster a problem-solving mindset. This initiative will create a network of experts who share common goals and face similar challenges, promoting collaboration and knowledge exchange.