



GLOBAL TASK FORCE ON
CHOLERA CONTROL



OVERVIEW OF


























CHOLERA ROADMAP

RESEARCH AGENDA

The Cholera Roadmap Research Agenda identifies knowledge gaps most important to cholera experts and stakeholders and establishes a prioritized list of research questions that, when answered, will have a significant impact on achieving the Cholera Roadmap goals. Together, the cholera control community can align our efforts and resources to answer the most pressing cholera research questions of our time and encourage discovery research and innovation.

JANUARY 2021

The Cholera Roadmap Research Agenda identifies 20 key research priorities which when addressed will aid progress in fulfilling the GTFCC strategy *Ending Cholera: A Global Roadmap to 2030*.

PILLARS						
	ORAL CHOLERA VACCINE	WATER, SANITATION & HYGIENE	SURVEILLANCE	COMMUNITY ENGAGEMENT	CASE MANAGEMENT	ALL PILLARS
RANK OVERALL	PILLAR	RESEARCH QUESTION				
1		What are the optimal oral cholera vaccine schedules (number of doses and dosing intervals) to enhance immune response and clinical effectiveness in children 1 to 5 years of age?				
2		What are potential delivery strategies to optimise oral cholera vaccine coverage in hard-to-reach populations (including during humanitarian emergencies and areas of insecurity)?				
3	 	Is there additional benefit to adding WASH packages, for example household WASH kits, to an oral cholera vaccine campaign?				
4		What is the optimal number of doses of oral cholera vaccine to be used for follow up campaigns in communities previously vaccinated with a 2-dose schedule?				
5		Can the impact of oral cholera vaccine on disease transmission, morbidity and mortality be maximized by targeting specific populations and/or targeted delivery strategies?				
6		What are the barriers and enablers for integrating cholera treatment into community case management by community health workers?				
7		What levels of coverage for relevant water, sanitation and hygiene interventions is required in cholera hotspots to control and ultimately eliminate the risk of cholera?				
8		What impact does the timing of oral cholera vaccine use have on outbreak prevention and control?				
9		What is the impact of early diagnosis of cholera using a rapid diagnostic test at the point of care in a community setting compared to testing only in health facilities?				
10		How can the use of oral cholera vaccine in the controlled temperature chain (i.e., outside the cold chain) be leveraged to maximize the coverage or impact of vaccination in a field setting?				
11		What is the incremental benefit of implementing a comprehensive interventions package (including water, sanitation and hygiene, antibiotics, oral cholera vaccine, oral rehydration therapy) to reduce cholera mortality during an epidemic?				
12		What is the effectiveness and impact of different vaccination strategies for rapid response to cholera outbreaks (e.g., ring vaccination, case-area targeted interventions, etc.)?				
13	 	What is the most cost-effective package of water, sanitation and hygiene and oral cholera vaccine in different situations, based on transmission dynamics in cholera hotspots?				
14		What are the most essential (or what is the minimum set of) infection, prevention and control (IPC) interventions in cholera treatment facilities and oral rehydration points to reduce risk of transmission within these facilities?				
15		Are there immunisation strategies other than repeated mass campaigns that will be effective in preventing endemic or epidemic cholera?				
16		What is the role and added value of CORTs (community outreach response teams) in enhancing case investigation and outbreak detection?				
17		Can oral cholera vaccine be co-administered safely and without interference with other vaccines during mass campaigns or during routine immunization visits (measles containing vaccines, yellow fever, typhoid, meningitis, pneumococcal conjugate vaccine)?				
18	 	What are effective strategies to scale up the use of household water treatment in controlling cholera outbreaks?				
19		How can we improve and fine-tune hotspot definition and identification at a district and sub-district level, such as micro-hotspots?				
20		Is improved access to safe water (e.g., water points and distribution networks) effective in controlling and preventing cholera outbreaks?				

■ Cross-cutting Research Priorities which involve more than one pillar

Background

In October 2017, the partners of the GTFCC endorsed a call to action to end cholera through the implementation of a new strategy known as “Ending Cholera: A Global Roadmap to 2030” (the Cholera Roadmap). The Cholera Roadmap utilizes a multisector approach: epidemiology and laboratory (surveillance) to detect and monitor the disease, oral cholera vaccine (OCV) and water, sanitation and hygiene (WASH) to prevent the disease and respond to outbreaks, case management to treat the disease, and community engagement to improve the uptake of all interventions. The main goals of the Roadmap are to reduce cholera deaths by 90% and eliminate the disease in 20 countries by 2030.

To achieve the ambitious goals of the Cholera Roadmap, the partners of the GTFCC and cholera-affected countries need to accelerate progress in the coming years. The cholera research community – among the GTFCC partnership’s greatest strengths – is eager to contribute by generating evidence on the effectiveness of existing tools and interventions and on how to optimize their implementation, further research into cholera epidemiology, and the development of new tools to fight cholera. In response to requests by the cholera prevention and control community, GTFCC partners launched a process to develop a prioritized Cholera Roadmap Research Agenda utilizing the Child Health and Nutrition Research Initiative (CHNRI) approach. A prioritized list of cholera research questions was identified through consultations with more than 177 cholera experts and other stakeholders operating at global, regional and country levels.



The Global Task Force on Cholera Control (GTFCC) is a partnership of more than 50 institutions, including NGOs, academic institutions and UN agencies, all working together to end cholera.

Call to Action

The GTFCC partners call on all stakeholders to use the Cholera Roadmap Research Agenda as appropriate to their role:

- **Researchers:** Use the Research Agenda to prioritize design and execution of research activities
- **Donors:** Fund research projects that will have the most impact on practice and policy
- **National Policy-Makers:** Incorporate research priorities, goals and findings into National Cholera Plans (NCPs)
- **Programme Implementers:** Incorporate research priorities, goals and findings into operational plans

These efforts will provide more effective tools and strategies and a stronger evidence base to accelerate progress towards the goals of the Cholera Roadmap and, ultimately, towards a world free from the threat of cholera.

For the full Cholera Roadmap Research Agenda, please visit www.gtfcc.org.

KEY DISCOVERY RESEARCH PRIORITIES

Discovery research can take many years to come to fruition, making it challenging to compare it directly with implementation research that can have a more immediate impact in the field. However, discovery research is no less important and will ultimately be critical to our ability to eliminate cholera. **The three highest priority areas for discovery research are as follows:**

Research for the discovery and development of novel and innovative diagnostic tests to increase speed, efficiency and quality of detecting and confirming cholera

Research for the discovery and development of new or improved vaccines to strengthen the bridge between emergency response and long-term cholera control and prevention

Research to contribute to the collection of genomic data to create a global *V. cholerae* sequences database to map and understand long-range transmission routes.

Pillar Priorities

The Research Agenda also outlines the top 5 research priorities for each of the Roadmap Pillars.

Rank	Research Question
 Case Management	
1	What are the barriers and enablers for integrating cholera treatment into community case management by community health workers?
2	What effect does treatment with antibiotics have on cholera transmission?
3	What is the optimal treatment schedule for antibiotic prophylaxis given to household contacts of cholera patients and does this have an effect on the magnitude, transmission and secondary attack rate of cholera outbreaks?
4	What are the common cholera treatment complications in vulnerable populations (for example: pregnant women, the elderly, those with severe acute malnutrition)?
5	Would rehydration solution for malnutrition (ReSoMal) formulated with higher sodium, or standard oral rehydration solution containing high potassium, result in lower mortality or morbidity, compared to the standard WHO rehydration solution, in children with severe acute malnutrition?
 Epidemiology, Surveillance and Laboratory	
1	What is the impact of early diagnosis of cholera using a rapid diagnostic test at the point of care in a community setting compared with testing only in health facilities?
2	How can we improve and fine-tune hotspot definition and identification at a district and sub-district level?
3	What are the optimal designs for surveillance systems (e.g., indicator-based, event-based, community-based, environmental, sentinel site surveillance) to monitor progress of the Cholera Roadmap?
4	What are the optimal surveillance tools (e.g., laboratory methods, case definitions, etc.) to monitor progress of the Cholera Roadmap?
5	How can combined epidemiological and genomic analysis of <i>V. cholerae</i> be used to better understand transmission dynamics and inform epidemiological models?
 Oral Cholera Vaccine	
1	What are the optimal oral cholera vaccine schedules (number of doses and dosing intervals) to enhance immune response and clinical effectiveness in children 1 to 5 years of age?
2	What are potential delivery strategies to optimize oral cholera vaccine coverage in hard-to-reach populations (including during humanitarian emergencies and areas of insecurity)?
3	What is the optimal number of doses of oral cholera vaccine to be used for follow-up campaigns in communities previously vaccinated with a two-dose schedule?
4	Can the impact of oral cholera vaccine on disease transmission, morbidity and mortality be maximized by targeting specific populations and/or targeted delivery strategies?
5	What impact does the timing of oral cholera vaccine use have on prevention and control of an outbreak?
 Water, Sanitation, and Hygiene	
1	What levels of coverage for relevant water, sanitation and hygiene interventions is required in cholera hotspots to control and ultimately eliminate the risk of cholera?
2	What are the most essential (or what is the minimum set of) infection prevention and control (IPC) interventions in cholera treatment facilities and oral rehydration points to reduce risk of transmission within these facilities?
3	Is improved access to safe water (e.g., water points and distribution networks) effective in controlling and preventing cholera outbreaks?
4	How can "design thinking" be used to improve the delivery and uptake of water, sanitation and hygiene interventions? Design thinking focuses on understanding the needs of people who will use the intervention and working with them to improve it.
5	What are the factors and determinants that lead to sustainable investments in water, sanitation, and hygiene at the country level?