Cholera Roadmap Research Agenda & Cholera Research Tracker
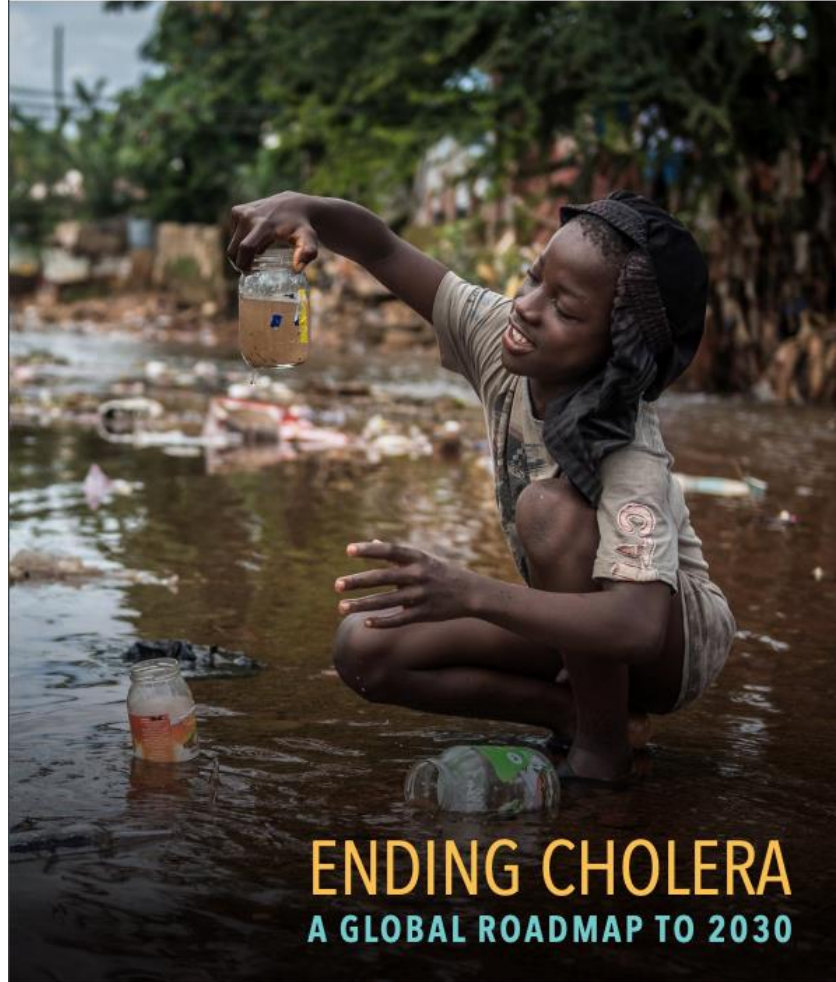
Elizabeth Klemm

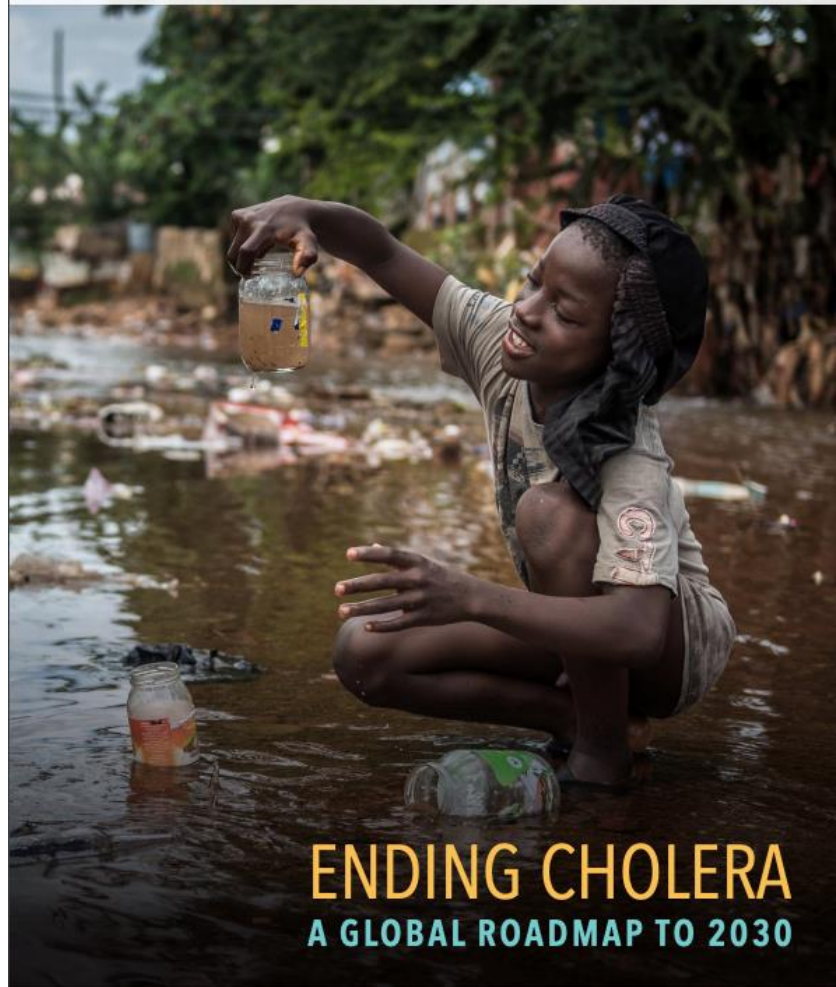9 June 2021

GLOBAL TASK FORCE ON
CHOLERA CONTROL

ENDING CHOLERA
A GLOBAL ROADMAP TO 2030

- Research can help us accelerate progress on cholera control: faster, better, at lower cost

- What research is most needed to help countries meet the goals of the Ending Cholera Roadmap to 2030?

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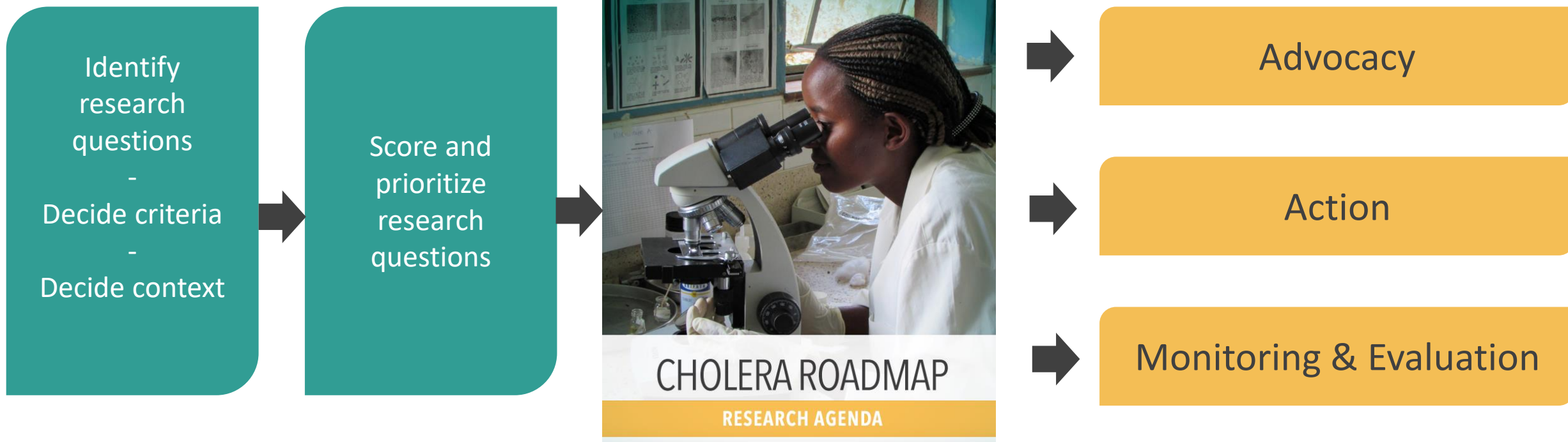
ENDING CHOLERA
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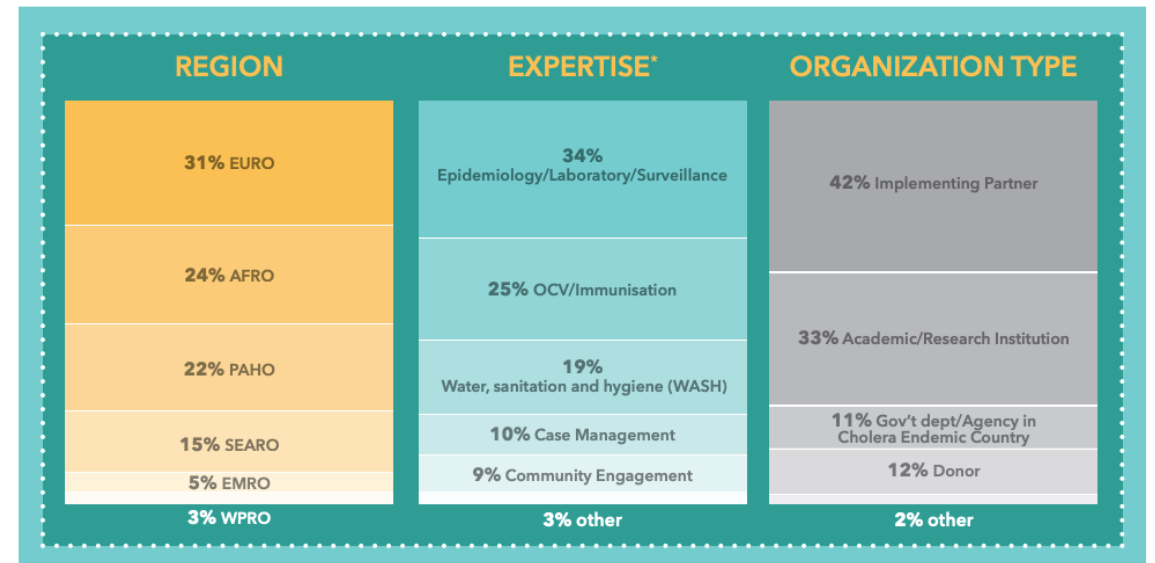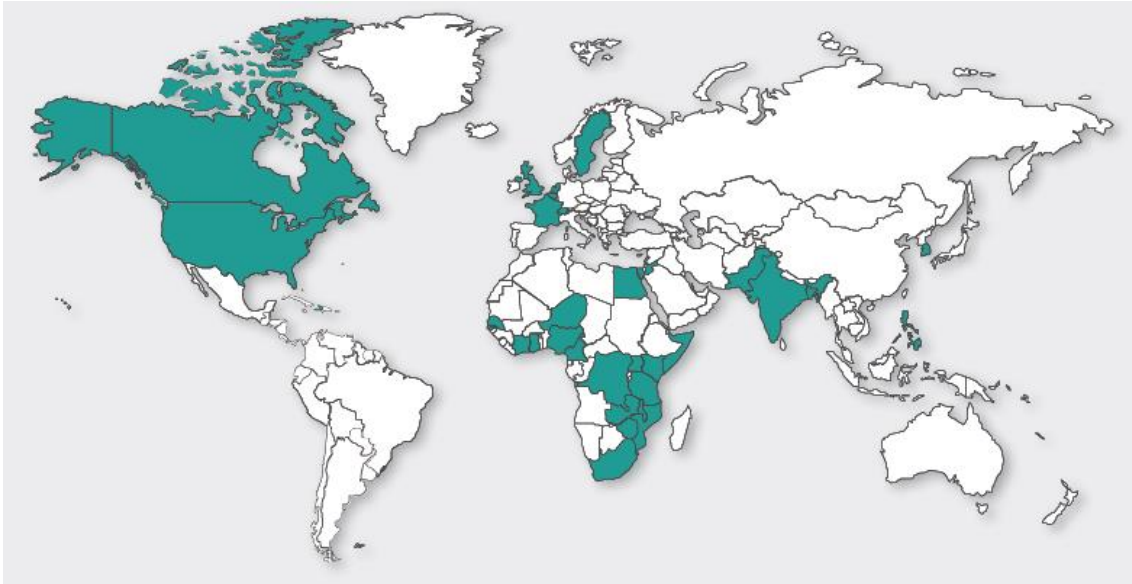
CHOLERA ROADMAP

RESEARCH AGENDA

Contributors

- 177 respondents
- Wide range of geography, expertise, and job function
- Capture the research needs of cholera-affected countries

REGION	EXPERTISE*	ORGANIZATION TYPE
31% EURO	34% Epidemiology/Laboratory/Surveillance	42% Implementing Partner
24% AFRO	25% OCV/Immunisation	33% Academic/Research Institution
22% PAHO	19% Water, sanitation and hygiene (WASH)	
15% SEARO	10% Case Management	11% Gov't dept/Agency in Cholera Endemic Country
5% EMRO	9% Community Engagement	12% Donor
3% WPRO	3% other	2% other

Top 20 Research Priorities

- Using existing tools most effectively
- Spanning all types (pillars) of cholera research
- Cross-cutting research questions highlighted in yellow

PILLARS	ORAL CHOLERA VACCINE	WATER, SANITATION & HYGIENE	SURVEILLANCE	COMMUNITY ENGAGEMENT	CASE MANAGEMENT	ALL PILLARS

RANK OVERALL	PILLAR	RESEARCH QUESTION
1	Oral Cholera Vaccine	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	Oral Cholera Vaccine	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	Oral Cholera Vaccine, Water Sanitation & Hygiene	Is there additional benefit to adding WASH packages, for example household WASH kits, to an oral cholera vaccine campaign?
4	Oral Cholera Vaccine	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	Oral Cholera Vaccine	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	Case Management	What are the barriers and enablers for integrating cholera treatment into community case management by community health workers?
7	Water Sanitation & Hygiene	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	Oral Cholera Vaccine	What impact does the timing of oral cholera vaccine use have on outbreak prevention and control?
9	Surveillance	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	Oral Cholera Vaccine	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	All Pillars	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	Oral Cholera Vaccine	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	Oral Cholera Vaccine, Water Sanitation & Hygiene	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	Water Sanitation & Hygiene	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	Oral Cholera Vaccine	Are there immunisation strategies other than repeated mass campaigns that will be effective in preventing endemic or epidemic cholera?
16	All Pillars	What is the role and added value of CORTs (community outbreak response teams) in enhancing case investigation and outbreak detection?
17	Oral Cholera Vaccine	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	Water Sanitation & Hygiene, Community Engagement	What are effective strategies to scale up the use of household water treatment in controlling cholera outbreaks?
19	Surveillance	How can we improve and fine-tune hotspot definition and identification at a district and sub-district level, such as micro-hotspots?
20	Water Sanitation & Hygiene	Is improved access to safe water (e.g., water points and distribution networks) effective in controlling and preventing cholera outbreaks?

Top 5 Research Priorities for each pillar

Case Management

Rank Within Pillar		Research Question
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[f]) 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

Rank Within Pillar		Research Question
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 *V. cholerae* be used to better understand transmission dynamics and inform epidemiological models?

Oral Cholera Vaccine

Rank Within 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 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

Rank Within Pillar		Research Question
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?

Key Discovery Research Priorities

- Developing new tools and databases
- Longer timescale to impact
- Critical to our ability to eliminate cholera

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.

Advocacy

Goal: Create awareness, foster understanding, and build engagement (leading to action)

Since its launch in January, the Research Agenda has been downloaded over 200 times

The Research Agenda can be used to raise the profile of cholera research

- Shows context of individual projects - the whole is greater than the sum of its parts
- Shows momentum and importance placed on research by the cholera community
- Provides direction with actionable recommendations

Please share with your network

- Share with <u>funders</u>:   reference the Research Agenda in grant applications
- Share with <u>policy-makers</u>:   raise awareness of importance of cholera research
- Share with <u>NGOs</u>:   connect research with implementation goals
- Share with <u>researchers</u>:   recruit new researchers doing relevant research

Action

Cholera Research Tracker

An interactive, searchable online platform for ongoing and recently completed cholera research projects

- Search for research projects by Pillar, Country, or Key Word(s)
- View information about individual projects:
  - Summary
  - Lead investigator
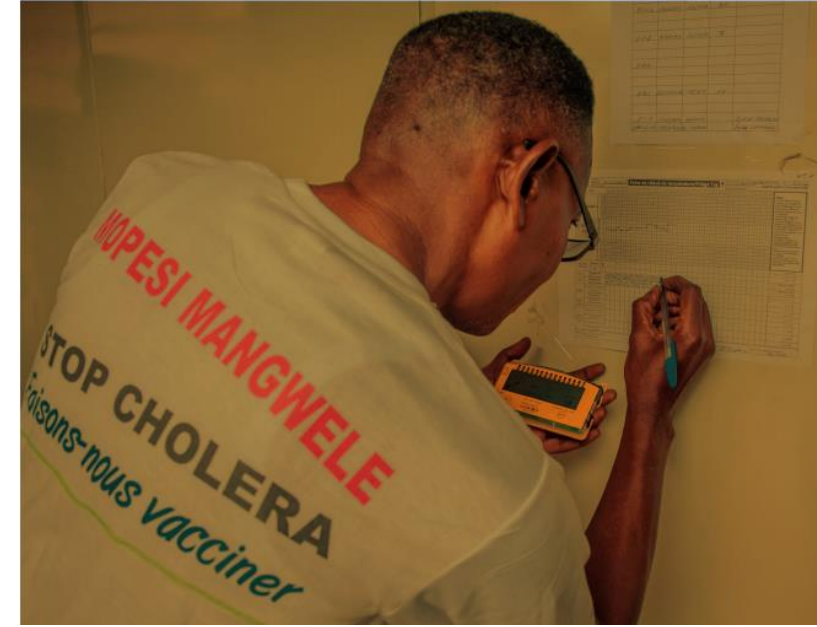 - Collaborating partners
  - Funding source

Goals

- Spread awareness of the breadth of cholera-related research
- Support and foster collaborations
- Avoid duplication of efforts
- Analyse research trends and identify gaps
- Monitor progress against the Research Agenda

Cholera Research Tracker

Thank you for submitting your projects: 50+ so far!

Launch planned for **July**

Please submit additional projects to: Helen Groves h.groves@wellcome.org

Send any feedback, comments, questions to:
cholera-research-tracker@gtfcc.org, gtfcc@fondation-merieux.org, or h.groves@wellcome.org

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