WHO/WHE/IHM/EMI/2018.2

GLOBAL TASK FORCE ON CHOLERA CONTROL

Fourth Annual Meeting of the Global Task Force on Cholera Control

Cape Town, South Africa

21–22 June 2017

Fountains Hotel, Cape Town

Suggested citation. GTFCC 4th Annual Meeting Report, Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Contents

Abbreviations

AEFI	adverse events following immunization
Epi Working Group	Epidemiology and Surveillance Working Group
GPS	global positioning system
GTFCC	Global Task Force on Cholera Control
IDSR	integrated disease surveillance and response
IHM	Infectious Hazard Management
kOCV	killed whole-cell oral cholera vaccine
Lab Working Group	Laboratory and Surveillance Working Group
M&E	monitoring and evaluation
NGO	nongovernmental organization
OCV	oral cholera vaccine
OCV Working Group	Oral Cholera Vaccine Working Group
PCR	polymerase chain reaction
RDT	rapid diagnostic test
SAGE	Strategic Advisory Group of Experts on immunization
SDG	Sustainable Development Goal
TPP	target product profile
UNICEF	United Nations Children's Fund
WASH	water, sanitation and hygiene
WASH Working Group	Water, Sanitation and Hygiene Working Group
WHO	World Health Organization

Background to the meeting

The Global Task Force on Cholera Control (GTFCC) is a network of cholera experts, including governments, nongovernmental organizations (NGOs), United Nations agencies, scientific experts and others, who share the belief that collective action can stop cholera transmission and end cholera deaths. In 2011, by resolution WHA64.15, the World Health Assembly recommended that the World Health Organization (WHO) revitalize the GTFCC and strengthen the work of WHO in combating cholera, including through improved collaboration with and coordination among relevant stakeholders. The GTFCC was accordingly revitalized in 2014 with the support of the Bill & Melinda Gates Foundation.

The fourth meeting of the GTFCC was held at the Fountains Hotel, Cape Town, South Africa, on 21–22 June 2017[1]. The meeting was attended by around 40 members of the GTFCC, representatives of the ministries of health from Zambia, Zimbabwe, Zanzibar and Malawi, and representatives of WHO from South Sudan and Somalia country offices, the WHO Regional Office for Africa and headquarters. A full list of participants is contained in Annex 1 to the present report. The meeting was co-chaired by Professor David Sack from Johns Hopkins University and Dr Frew Benson, Chief Director for Communicable Diseases, National Department of Health, South Africa.

The overall aim of the meeting was to continue the process of revitalization in order to increase the effectiveness of the Task Force in combating cholera globally. The specific objectives of the meeting were:

- to review the activities of the GTFCC and its working groups in the previous 12 months, and update on the activities of partners;
- to present and discuss the WHO renewed strategy for cholera control and the role of the GTFCC in supporting that strategy;
- to present and discuss the advocacy strategy, with the development of a global cholera roadmap;
- to present and discuss the draft conclusions and recommendations of the independent review of the GTFCC, and discuss how the GTFCC could be adapted to best support the implementation of the renewed strategy at both the global and country levels.

Opening of the meeting and agenda

The meeting was opened at 8.40 a.m. on Wednesday, 21 June 2017 by the Co-Chair, Dr Frew Benson, who welcomed the participants to Cape Town on behalf of the Ministry of Health and the Government of South Africa. He recalled that during the last cholera outbreak in southern Africa, in 2008/2009, the lack of coordination at the regional level was apparent. Challenges continue to be faced in coordinating regional action to combat disease, as demonstrated during the outbreak of Ebola virus disease in West Africa, 2014–2016. It is encouraging therefore to see the efforts being made, through the development of frameworks and guidelines, to adopt an integrated approach in combating cholera, which is very noticeably a disease of developing rather than developed countries, and thus needs to be viewed in the context of economic and social development.

The second Co-Chair, Professor David Sack, said that the intent is to have the meetings of the GTFCC in areas where cholera is still present. On the positive side, that assists an understanding of the challenges presented by the disease and what strategies are most

[1] Meeting reports from GTFCC annual meetings are available on the WHO website : http://www.who.int/cholera/task_force/en/

effective, though on the other hand it is discouraging to see that major outbreaks are still occurring, and the difficulties still faced in counteracting the disease.

Following the opening addresses, the meeting decided to adopt the following agenda. The full programme of work for the meeting is contained in Annex 2 to the present report.

Agenda of meeting

Session	Item
	Day 1: Wednesday 21 June
	Opening of meeting and introduction of participants
1.	Review of GTFCC activities over last 12 months
2.	Renewed strategy for cholera control
	Day 2: Thursday 22 June
	Feedback from day 1
3.	Preliminary results of independent review of GTFCC
4.	Country presentations, perspectives on WASH programmes and way forward
	Next steps - GTFCC roadmap

1. Session 1: Review of GTFCC activities over last 12 months

1.1 Update from GTFCC Secretariat

Mrs Johanna Fihman, from the GTFCC Secretariat at WHO, presented a review of GTFCC activities over the previous 12 months. A number of technical notes and guidance materials have been published by the Working Groups: on cholera Rapid Diagnostic Tests (RDTs) and on the use of molecular techniques by the Laboratory and Surveillance (Lab) Working Group and guidance on cholera surveillance by the Epidemiology and Surveillance (Epi) Working Group. A note on organization of case management was also finalized by the Case Management WG. GTFCC newsletters were issued on a quarterly basis. The various working groups have convened a number of meetings, and a meeting on cholera was organised aroundat the World Health Assembly. Country visits were organized to Angola, Cameroon, Democratic Republic of the Congo, Ethiopia, Haiti, Kenya, Malawi, Mozambique, Nigeria, Somalia, South Sudan, United Republic of Tanzania, Viet Nam, Yemen, Zambia and Zimbabwe. The training platform has been launched, and oral cholera vaccine (OCV) training organized. The OCV Working Group has been very active – requests for OCV in non-emergency settings were reviewed for Cameroon, Haiti, Malawi, Somalia and South Sudan; and a review of the process for OCV allocation was conducted after the decision to ship 1 million OCV doses to Haiti following Hurricane Matthew in October 2016.

The expected outcomes of the present meeting include:

- endorsement of the renewed strategy for cholera control;
- identification of opportunities for collaboration between the working groups;
- proposals for the way forward based on the recommendations of the independent review of the GTFCC;
- agreement on the work plan for the coming 12 months and beyond.

1.2 Update from the OCV Working Group

Professor David Sack gave an update on the activities of the Oral Cholera Vaccine (OCV) Working Group, which held its third meeting on 13–14 December 2016, in Geneva. That meeting

considered a preliminary analysis of OCV efficacy and effectiveness developed by the GTFCC following its third meeting in Amman, Jordan; the full report will be available soon. The Working Group also anticipated the development of new recommendations at the upcoming meeting of the Strategic Advisory Group of Experts on immunization (SAGE) in April 2017.

Vaccine production and demand from countries is increasing, with demand currently outstripping supply. The average size of shipments is also increasing – from around 200 000 doses per shipment in 2013/2014 to over 800 000 in 2017. Many countries in Africa have recently used OCV. A systematic review and meta-analysis of protection against cholera from killed whole-cell oral cholera vaccines (kOCV) (Qifang, Azman et al.) found an average two-dose efficacy of about 58% (lower for children) and effectiveness of 76%, and that for outbreak control, short-term protection with one dose is as effective as two doses, though the duration of protection for a single dose is not known.

The SAGE meeting in April 2017 recommended that, given the current availability of prequalified kOCV and data on their safety, efficacy, field effectiveness, feasibility, impact and acceptability in cholera-affected populations, those vaccines should be used in areas with endemic cholera, in humanitarian crises with high risk of cholera and during cholera outbreaks, in conjunction with other cholera prevention and control strategies. Pregnant women should be included in OCV campaigns, as evidence indicates high potential benefit and minimal risks. Certain key questions remain, however, in such areas as indirect protection to unvaccinated individuals, and the potential of OCV to reduce the overall risk of cholera in vaccinated areas (including the risk of future outbreaks). Further evidence is also needed on the effectiveness of various dosing regimens, including the standard vaccination schedule of two doses, two weeks apart; a delayed second dose (as used in Haiti and Zambia); or a single dose (as used in South Sudan). Operational research needs to be carried out on the duration of protection offered by those regimens and on vaccine efficacy by age, supported by analysis of data from previous campaigns to aid understanding of longer-term impacts. Other questions relate to the constraints countries face in requesting OCV; maintenance of the cold chain for vaccine delivery; integration with water, sanitation and hygiene (WASH) interventions; and how to ensure that supply of OCV matches demand. Both supply companies – Shantha and Eubiologics – are increasing production, and presentation in plastic vials should be available soon, leading to benefits of increased supply, simplified distribution, easier administration, and lower purchase and delivery costs.

The process of approving allocation of OCV for use in countries to control cholera in hotspots, which is a responsibility of the OCV Working Group, is being reviewed to assess whether it needs to be streamlined and improved.

Suggested tasks for the coming year include:

Operations research:

- continue to evaluate impact as well as effectiveness;
- document immune response to different dose intervals;
- refine options for monitoring and evaluation (M&E) activities.

Functions of the Working Group:

- evaluate and modify application and approval processes;
- improve collaboration with the Water, Sanitation and Hygiene (WASH) Working Group;
- develop strategies for incorporating OCV into national cholera control plans.

Countries that already have in place an action plan for cholera will benefit from reviewing the plan and anticipating the circumstances in which an outbreak may occur, including identification

of hotspots, and how the country would respond to such an outbreak. The OCV Working Group could give consideration to the recommendations on cholera of the Advisory Committee on Immunization Practices, which provides advice and guidance on the use of vaccines to the Centers for Disease Control in the United States of America. New ideas for administering vaccines and for developing vaccine programmes merit consideration to see if they can improve on current practice.

1.3 Update from WASH Working Group

Mr Tim Grieve, United Nations Children's Fund (UNICEF), gave an update on the activities of the WASH Working Group. The leadership of the WG transitioned from the Veolia Foundation to UNICEF early 2017. At its second meeting, in Dakar, Senegal, February 2017, the Working Group reviewed and simplified its activity structure, with revised objectives. Key areas for discussion included the importance of water safety and handwashing with soap at the household level in epidemic and humanitarian response settings; and adoption of a "sword and shield approach" for short-term and long-term actions in endemic settings. The importance of enhancing links with other working groups and strengthening the research agenda was also noted. A key outcome of the meeting was the development of the WASH Working Group action plan, containing the following elements:

Governance action points:

- set up Working Group communication plan;
- review Working Group membership;
- recruit consultant to support coordination of WASH Working Group.

Technical activities action points:

- revise draft WASH strategic paper;
- review evidence and develop WASH investment case;
- develop WASH and OCV integration concept note, and develop process to review OCV requests;
- finalize WASH cholera fact sheets;
- develop WASH programme guidance for outbreak and endemic settings, and guidance for development of national WASH cholera strategies;
- build capacity, develop and share training on WASH in cholera treatment centres (as developed in the Somalia response);
- develop M&E framework and indicators;
- fill key evidence gaps on household disinfection, transmission vectors, and WASH and OCV integration.

A small group of partners volunteered to support UNICEF in establishing a workplan for the WASH WG. The importance of collaboration between stakeholders was highlighted, not only in responding to an outbreak, but also in gathering knowledge, identifying gaps, and documenting response and impact in order to inform and guide future cholera response activities. It is crucial to incorporate WASH in the global cholera response.

The alignment of the activities in the action plan with those of the OCV Working Group and the Case Management Working Group was viewed positively, as was the focus on monitoring and evaluation, national-level coordination and capacity-building. It is important to go beyond a reactive approach and ensure that every health facility has safe water and adequate sanitation, in line with the Sustainable Development Goals (SDGs). Consideration of WASH should include not only general public health aims, but also what WASH elements require particular focus during a cholera outbreak, or at times or in settings when there is higher risk of cholera occurring.

Further work is needed on infection prevention and control in cholera treatment centres and effective case management, and to streamline assessment procedures and reduce duplication of activities among agencies.

1.4 Update from Case Management Working Group

Ms Kate Alberti, Technical Officer, WHO headquarters, Geneva, gave an update on the activities of the Case Management Working Group on behalf of MD Iqbal Hossain, Chair of the WG. Guidance documents have been developed on organization of patient care and use of antibiotics in cholera, and on WASH pratices in cholera treatment centres is under review, in collaboration with the WASH Working Group. The cholera kit has been revised to facilitate field use for preparedness and the first month of the outbreak, and feedback from the field has been positive. WHO has completed transition to the new kit, and UNICEF is also in the process of switching. WHO published a revised Model List of Essential Medicines in March 2017; doxycycline is now approved for use in children aged below 8 years for some conditions, and doxycycline and azithromycin are recommended for cholera in both adults and children. On the way forward, an enlarged Working Group is envisioned with more representation from endemic countries, and further collaboration will take place with the WASH Working Group on infection control, and with the Lab Working Group on surveillance of antimicrobial resistance. Research priorities include treating cholera in children with severe acute malnutrition and in pregnant women, and use of antibiotics in household contacts versus other interventions (such as WASH).

Following the presentation, there was discussion on the use of antibiotics among family and neighbourhood contacts in the case of a cholera outbreak. WHO does not recommend it, due to the risk of increased antibiotic resistance, but it is practised in certain countries. The matter is among the issues that will be reviewed by the Working Group. On the issue of cholera kits, all countries can order them from WHO as part of their cholera preparedness plans. They can be requested through WHO country offices and through national ministries of health.

1.5 Update on training

Ms Alberti provided an update on training activities coordinated within the GTFCC through an informal group. An open-access training platform was launched at the end of 2016, providing a central resource of training programmes that have been provided by partner institutions. The resources comprise presentations, videos, case studies, training packages and training methodologies. The WHO Regional Office for Africa has developed a training course on epidemic-prone diseases, available online at www.OpenWHO.org. A three-day training course was conducted for OCV coordinators in Geneva in November 2016, attended by participants from NGOs, ministries of health, United Nations agencies and other institutions. There are plans for additional training courses in case management and WASH, and further materials are being developed for the online platform.

1.6 Update from Laboratory and Surveillance Working Group

Ms. Marie Laure Quilici, of the Institut Pasteur, Paris, gave an update on the activities of the Laboratory and Surveillance (Lab) Working Group, which had held four meetings since 2014, in Paris, Faridabad (India), London and Tunis. The main objective of the Lab Working Group is to reinforce cohesion, coordination and capacity at laboratory level to support global cholera control. Specific tasks and outcomes include the following:

- presenting results and recommendation for validation during GTFCC meetings and developing guidance notes on rapid diagnostic tests (RDTs), *Vibrio cholerae* molecular typing techniques and antibiotic resistance testing;
- facilitating the establishment of a laboratory network for global cholera surveillance and control within the GTFCC framework;
- building a cholera strains databank to assist surveillance of *V. cholerae*.

An interim guidance note on RDTs has been published in conjunction with the Epi Working Group, providing recommendations to ministries of health and other organizations on the use of available cholera RDTs. Current use of RDTs for individual diagnosis is limited, and they are mainly used for outbreak detection. Of 24 commercial products identified, only nine have available data on performance in the field. Priorities identified by the Working Group include in vitro evaluation of commercially available RDTs, followed by field evaluation of well performing products, and testing procedures that could improve the specificity of RDTs.

An in vitro evaluation was performed by the Institute of Tropical Medicine, Antwerp, Belgium, on nine products from four manufacturers, with the results highlighting the limitations of currently available RDTs. Three products – SD Bioline, Span Crystal VC and CTK Biotech – demonstrated better performance. The guidance note on RDTs describes the tests, gives recommendations on how, when and where to use RDTs, and provides guidance on how to interpret the results.

The next steps for RDTs include:

- develop new RDTs with improved sensitivity and specificity;
- develop tests that meet high standards for production, including quality management systems and post-market surveillance measures;
- engage in a prequalification process for RDTs;
- perform field evaluations of RDTs.

A target product profile (TPP) for cholera RDTs was developed, recognizing the benefits for improved management and surveillance of cholera outbreaks. The draft TPP template was reviewed by the London meeting of the Working Group in 2016, and an expert group was set up, with the priorities of ensuring that new products would match the specific needs of the management of cholera outbreaks in resource-limited settings, and calling for standardization of the development and production of new cholera RDTs. The draft TPP document produced by the expert group was reviewed at the Tunis meeting of the Lab and Epi Working Groups in May 2017. The final version of the TPP would soon be ready for publication and circulation among test developers and producers, who would be invited to submit expressions of interest in a process that would offer the possibility of a stringent assessment of commercially available tests, leading to the selection of the most appropriate products for procurement by WHO and other interested institutions.

The Lab and Epi Working Groups also undertook significant work on DNA-based molecular techniques, and produced in June 2017 a technical note for public health practitioners and field microbiologists on DNA-based identification and typing methods for epidemiological investigation of cholera. The note presents information on the different techniques, guidance on which methods are most appropriate for specific purposes, and information on how to route the samples towards laboratories with capacity for testing. The note will help public health practitioners to understand the sources of cholera infection, the linkages between outbreaks, and the geographical spread of strains in a particular country or subregion. In the next stage, an additional guidance note is being developed for a laboratory audience, within the context of the Cholera Laboratory Network, giving details on each technique, including advantages and disadvantages, ideas for alignment and standardization, and data management options.

Other topics under consideration, in cooperation with various other working groups, include antimicrobial susceptibility testing, case definition of cholera, environmental surveillance, and development of a laboratory network and strains databank. Interactions with other working groups, particularly the Epi, WASH and Case Management Working Groups, have proved fruitful, and joint meetings were held with the Epi Working Group in London and Tunis.

In the ensuing discussion an additional use of RDTs was alluded to, namely case control studies of the effectiveness of different interventions, for which it is useful to have culture-confirmed cases. RDT results can also be of use to the Epi and OCV Working Groups. In remote locations where RDTs prove problematic, a useful technique is the application of a molecular polymerase chain reaction (PCR) procedure to detect *Vibrio cholerae* in stool samples.

1.7 Update from Epidemiology and Surveillance Working Group

Dr Martin Mengel, Agence de Médecine Préventive, Paris, France, gave an update on the activities of the Epidemiology and Surveillance (Epi) Working Group. The objectives of the group, developed at its first meeting, are:

- to review cholera surveillance challenges and guide discussion on cholera surveillance procedures;
- to review the guidance document on cholera surveillance;
- to propose recommendations for a case definition and other concepts needed for the surveillance of cholera;
- to propose recommendations for the surveillance of cholera in hotspots, during humanitarian crises and during outbreaks;
- to identify new methods and opportunities for innovation in surveillance practices;
- to update the outbreak preparedness and response guidelines – the “yellow book on cholera outbreaks”.

The second meeting of the Epi Working Group, in London, April 2016, focused on developing and updating surveillance tools, including definitions of technical terms, preparation of a technical note on surveillance (with the Lab Working Group), updating the yellow book, and modelling to guide cholera control measures and assess their impact.

The third meeting, in Tunis, May 2017, overlapped with a meeting of the Lab Working Group to discuss topics of shared relevance, such as environmental surveillance (including use of RDTs), national capacity-building, referral and transport, and aligning laboratory and surveillance networks. The new guidance document on cholera surveillance aims to place surveillance as the main pillar towards the final goal of cholera elimination, and supports key aspects of the renewed strategy for cholera control, including integrated action at national level, routine long-term surveillance as the backbone of informed decision-making and well adjusted interventions, and health systems strengthening as a central component of national planning.

In addition, the updated guidance reflects the new paradigm whereby surveillance moves beyond alert and response to embrace such considerations as cost-effectiveness, monitoring and evaluation of OCV campaign impact (in line with the SAGE recommendations), and funding needs (reflecting the Vaccine Investment Strategy of Gavi, the Vaccine Alliance). As a bottom line, cholera elimination requires a well functioning epidemiological and laboratory surveillance system. Targeted interventions are becoming more feasible as new methods of data gathering, including use of the global positioning system (GPS), provide richer contextual information at larger-scale mapping levels. Such modelling increases the ability to predict and anticipate outbreaks, to make reasonable projections on the duration, magnitude and risk of expansion of an outbreak, and to assess the impact of population movements on the spread of an outbreak.

As noted above, interaction with the Lab Working Group had brought dividends in terms of updated guidance on RDTs and development of the TPP; aligning laboratory and surveillance networks; and improvement of molecular diagnostics. Looking ahead, the Epi and Lab Working Groups aim to build a cholera surveillance network that enables real-time surveillance and automated reporting for cholera cases and deaths.

In summary, the epidemiological context of cholera has operational consequences, given the need to adjust interventions to each setting (epidemic, endemic, emergency), and to prioritize interventions by area and population group. Linkages with other working groups need to be enhanced, including in the areas of WASH, case management and communications. Priorities for the coming year include:

- application of new surveillance guidance and tools to high-priority countries;
- integration of new diagnostic recommendations;
- establishment of a laboratory network and modelling subgroup;
- integration of new groups and methods;
- revision of the yellow book.

In the discussion following the presentation, the central importance of surveillance was recognized. There are challenges to effective surveillance, including lack of funding, and surveillance is typically poor in most cholera-affected countries, exacerbated by the political pressure felt in some countries to downplay the seriousness of outbreaks. Some countries also are reluctant to share data, hampering proper surveillance.

Reinforcing surveillance does not stand alone, but is an integral component of the reinforcement of the whole health system and its structures, as clearly stated in the new strategy for cholera control. Basic investigation of a cholera outbreak, and the data to collect on various indicators, are relatively straightforward matters, but lack of resources for administration of those activities is a major constraint in many countries. Funding is crucial to support the development of an effective and efficient cholera surveillance system.

Systems of data collection can be flexible. The systematic collection of national data at treatment centres is central, but that can be supported by data gathering by rapid response teams, which can provide accurate local data on such matters as location and type of patient, aiding an understanding of the nature of the outbreak. It is also important to avoid a silo approach and to share resources and administrative functions, for example by adding other diarrhoeal pathogens to the African Cholera Surveillance Network. Funding modalities would need to adapt to such a holistic approach. Continuity of effort to enhance information systems is also crucial, so that surveillance, data gathering and data sharing continue even in the absence of cases or treatment programmes. Capacity-building for accurate diagnosis and case definition is an essential component of a well functioning surveillance system. Finally, to support the goal of eliminating cholera by 2030, it would be useful to develop indicators that can measure the steps along the route to elimination.

1.8 Discussion on opportunities for collaboration

Having been informed of the activities of the various working groups, the meeting then discussed the important issue of collaboration between the groups and with other stakeholders. In a modern setting, working groups need to look beyond their own issues and adopt a holistic view of cholera control. A wide range of issues require multisectoral and multidisciplinary collaboration, including surveillance of water quality, environmental surveillance, WASH, rapid diagnostic testing, and data gathering and sharing. In addition, there is significant variation in the appropriate activities pertaining to different settings, different types of cholera occurrence, and the timescale, ranging

from an immediate short-term response in the event of an outbreak to long-term, strategic planning for cholera control, with different actors and actions involved in each instance. Epidemic, endemic and humanitarian settings all require strengthened collaboration and partnership between the relevant actors in order to see rapid, targeted responses.

To develop such cooperation further, it would be useful to undertake a case study based around national planning, with various stakeholders discussing how their sectors would contribute to the plan and its implementation. Context is important, with each country planning its actions and deploying its resources in the manner most appropriate to its own circumstances, and taking account of administrative responsibilities at all levels of government, from local to national. The use of the vaccine is only one component of the overall package of interventions to be implemented to control cholera. Progress in eliminating cholera depends on translating changes in strategic planning into changes in the field.

One area where collaboration would be beneficial is use of antimicrobials for case management (especially in the family context), which is often practiced though not encouraged. Gathering further data to build knowledge of the pros and cons of the practice would involve collaboration between the Epi, Lab and Case Management Working Groups, working in the broader context of antimicrobial resistance, which is a topical issue capable of generating funding.

Further collaboration between the working groups is essential for the development of the renewed strategy for cholera control, and most importantly to support its global, regional and national implementation. Cross-sectional activities at country level are a particular priority, employing the technical capacity of institutions and actors in a national setting. Such cooperation is already the case for the OCV Working Group, but is less practised by the other working groups. Matters related to collaboration between the working groups should also be considered in the overall context of the GTFCC and the review of its governance structure and methodologies for sharing information, so that a balance is achieved between beneficial sharing of relevant information on the one hand, and information overload on the other hand.

As demonstrated by their reports, the working groups have made impressive advances in recent years. While this is encouraging, coordinating the activities into a holistic approach with long-term impact still requires contributions from a wide range of actors, supported by capacity-building and training at all levels. The key is to enhance buy-in by countries, and ensure ownership and engagement by national-level institutions, utilizing their capacity to combine cholera elimination with overall achievement of public health goals.

2. Session 2: Renewed strategy for cholera control

2.1 Presentation of WHO renewed strategy for cholera control

Dr Dominique Legros, GTFCC Secretariat, WHO, presented the renewed strategy for cholera control, commencing with background information on the global status of cholera over the recent time period. Cases reported by year during the period 1989–2015 showed considerable variation, with strong peaks in 1991 and 2011, though there is significant underreporting, especially in South Asia. In 2015, for example, Bangladesh reported zero cases, though the WHO estimate is 300 000 cases with 5300 deaths per year; and India reported 889 cases and 4 deaths, compared to an estimated 830 000 cases per year. For the period 2010–2014, there were an estimated 1.3 million to 4 million cases of cholera or acute watery diarrhea with 20 000 to 140 000 deaths occurring each year (taking into account over reporting or underreporting due to variations in surveillance, case definition and diagnosis), mainly in Africa, South and East Asia, and Haiti. In some settings, for example the WHO Eastern Mediterranean Region, security concerns make surveillance and sustainable control activities particularly difficult.

There is no sign of a decline in the number of cholera cases reported globally, and cholera remains endemic in many settings. Potential worsening factors in coming years include climate change, urbanization, increased population density, and widening social inequalities. Cholera control measures are well known, but actual implementation on the ground remains challenging. Since 2010, WHO has recommended use of OCV in conjunction with other long-term prevention and cholera control strategies in highly endemic countries to reduce transmission of the disease, as well as a reactive strategy during outbreaks to help stop the spread of the disease to new areas. However, providing access to safe water and sanitation remains the key action for preventing and controlling cholera.

In the face of such continued challenges, a renewed strategy for cholera control is needed, with the objective of eliminating predictable cholera epidemics by 2030.

Advocacy is vital to raise the profile of cholera and mobilize governments, decision-makers and donors, and will be a central theme of the high-level meeting on cholera organised on 4 October 2017, at which the global roadmap to eliminate cholera epidemics by 2030 will be further articulated.

At national level, the aim is to move cholera prevention and control programmes from preparedness and response to prevention and control. This can be achieved by:

- pre-emptive action, given that cholera occurrence can be predicted in many settings;
- focus on areas that are regularly affected by cholera (“hotspots”);
- multisectoral action within and outside the health sector, including WASH;
- large-scale OCV use, as a trigger mechanism for longer-term control.

The intended outcome is a global cholera control programme with the capacity to ensure strategic leadership and coordination among partners; raise the profile of cholera on the global public health agenda; mobilize development donors; and encourage development of large-scale cholera control programmes at country level. Financial support for activities at country level could be channelled through a dedicated funding mechanism or “cholera fund”. The role of the GTFCC in the implementation of the renewed strategy would be to ensure leadership and coordination, and to reinforce the capacity of countries to control cholera. Specific challenges that need to be overcome include raising the profile of cholera; integration with WASH; and data gathering and monitoring. Finally, to establish indicators of success and progress, it is essential to develop more accurate baseline data.

The issue of national-level action figured highly in the ensuing discussion. The need to reinforce cholera control at the national level is commonly cited, but the means to achieve that remain elusive. Funding is important, but perhaps more important is the political will and leverage to include cholera in national budgeting and overall priorities. Advocacy will help to ensure that policy-makers and decision-makers are aware that prevention of cholera is not costly when compared to the cost of treatment in the event of an outbreak. Political engagement and committed leadership are necessary precursors of funding in order to ensure that cholera strategies are fully implemented and to secure donor buy-in.

To fight the disease it is necessary to have a reasonably accurate measure of the scale of the problem, but currently many cases remain unreported. Stronger country representation in the GTFCC can help build linkages with countries and encourage full reporting. It is particularly important to engage the ministry of health as a first stage in building the multisectoral approach that is required to change the current dynamic. Also, further thought needs to be given to the development and application of indicators that accurately measure progress, and guide the application of resources in locations where they are most needed. Furthermore, combining data on cholera with data on other diseases would help sell the argument for an integrated approach.

Social considerations are important in combating cholera, including issues of equity and human rights. As well as being a disease in its own right, cholera is also an indicator of a range of social problems, including poor living conditions, deficient infrastructure, lack of proper water and sanitation, and inadequate energy provision, and thus provides an advocacy leverage to address the wider development community from a health perspective. While cholera is of direct relevant to SDG 3 on good health and well-being, and SDG 6 on clean water and sanitation, countries also need to be mindful of SDG 10 – Reduce inequality within and among countries – which cannot be achieved without action on cholera within wider public health planning. Countries are becoming increasingly aware of the costs involved in attaining the SDGs by 2030, and the need to streamline and combine activities to make those costs manageable. Major international organizations also need to take this into consideration in developing and funding projects by ensuring that vulnerable population groups are fully represented in a holistic development agenda.

Integration with WASH activities is a basic necessity to combat cholera within a broader public health programme. However, while the actions that need to be taken to eliminate cholera are clear and well defined, there is less clarity on how to effectively align specific actions and WASH measures, and coordinated implementation of such multisectoral interventions remains a challenge. In addition, the greater complexity of coordinated programmes makes it more difficult to measure their cost-effectiveness against agreed indicators, which is an obstacle to donor engagement. There is an argument for a coalition of partners for epidemic-prone diseases, including cholera that could assist in maintaining stockpiles availability to combat outbreaks, particularly in vulnerable urban settings.

Finally, it is important to clarify and define the message being presented to stakeholders. The problem is both specific and general – the specific target is cholera, for which there are well defined tools, such as OCV. The general goal is to prevent waterborne diseases, which are more expensive, time consuming and difficult to maintain. The challenge then is defining the specific tools needed to solve the short- to medium-term problem of combating cholera events, and the more general, longer-term tools needed to ensure public health and social settings that preclude the occurrence of waterborne diseases. It was also discussed the need to include in the messaging the broader impact of interventions beyond cholera including nutrition, education…

In summary, the main objective of the renewed strategy for cholera control is to eliminate predictable cholera outbreaks by 2030. The principal components of the strategy are:

- intervene in priority, highly specific and relatively small geographical areas with a recurrent and predictable pattern of cholera outbreaks (“hotspots”);
- adopt a multisectoral approach at local, national, subregional and regional levels;
- use cholera as an indicator for waterborne diseases and strengthening WASH;
- adopt a comprehensive, integrated, technical approach comprising emergency response and prevention and control measures;
- use OCV at a large scale for immediate impact, to attract other actors in a comprehensive approach, and as a trigger for longer-term control;
- Define a few key, most efficient WASH measures to be implemented with the OCV and other tools;
- take advantage of the added value of partners in the leadership and implementation of the renewed strategy;
- develop a strong database, supported by a clearly defined baseline and M&E activities;
- set up or enhance national cholera control programme in affected countries.

2.2 Policy and advocacy: presentation of global cholera roadmap

Ms Megan Wilson Jones, WaterAid, London, gave a presentation on the GTFCC policy and advocacy agenda, including development of the global roadmap to eliminate cholera epidemics by 2030. A number of opportunities have been taken during 2017 to raise the profile of cholera within the public health agenda and develop ideas around the proposed roadmap, including a side meeting at the World Health Assembly in Geneva in May 2017, co-hosted by the GTFCC, the Bill & Melinda Gates Foundation and WaterAid. The meeting highlighted the growing burden of cholera and the renewed efforts of GTFCC and WHO to combat the disease, and introduced the global roadmap on cholera, which would be officially launched at a high-level meeting to be held in Annecy, France, on 4 October 2017. The meeting focused on how to strengthen prevention of cholera through better integration of WASH and OCV, and targeting WASH investments to cholera hotspots. The aim of the side meeting was to engage countries, partners and donors ahead of the high-level meeting and encourage them to come prepared to support the renewed strategy.

A cholera roadmap is needed:

- as an effective advocacy tool to bring attention to am old, neglected issue, inspire action and mobilize resources;
- to set ambitious milestones within an action plan, thus helping to prioritize actions and align stakeholders behind a shared mission.

The vision of the roadmap is a world in which there are no (predictable) cholera epidemics by 2030. The “predictable” proviso recognizes that some cases will still occur, but we can ensure that large-scale outbreaks do not occur in humanitarian and crisis settings. The roadmap supports a coordinated, multisectoral and comprehensive approach to cholera control in different settings, realized through an evidence-based action plan with key milestones and sustainable outcomes. Equity is a key consideration, given that cholera disproportionately affects the poorest and most marginalized. Progress on cholera prevention is a proxy for progress in attaining SDGs 3, 6 and 10.

The roadmap encourages partners to set realistic targets and enables mutual accountability. A validation process is being developed to allow countries to achieve “cholera-free” status through national elimination in endemic settings. The action plan for the roadmap defines the roles and responsibilities of stakeholders and key research priorities, and proposes global, regional and national actions to combat cholera.

The roadmap is underpinned by two strategic pillars, recognizing that achieving the roadmap target requires action at both political and technical levels:

- Pillar I: Increase political and financial commitments to cholera;
- Pillar II: Strengthen multisectoral prevention, preparedness and control.

Under each pillar, governmental and GTFCC actions are proposed, as outlined in the following tables.

Key actions, pillar I: political

Government actions	GTFCC actions
Attend 2017 high-level meeting to announce plans and domestic resource commitments	Convene high-level meeting in October 2017 and subsequent meetings to sustain momentum for achieving roadmap Raise profile of cholera in key health and development forums
Develop and support a World Health Assembly resolution on cholera in 2018 Governments raise the profile of cholera nationally	Develop a GTFCC cholera control programme Develop a cholera investment case Strengthen communication and media engagement on cholera
Raise profile of cholera in regional meetings and initiatives (including regional development banks, regional political and health forums)	Establish and link with existing coalitions, initiatives and platforms
Establish regional parliamentary networks and parliamentary champions	Support development of national plans (convening stakeholders, providing technical input) Support increased prioritization of cholera within SDG efforts as a key measure of health equity
Annually publish data on progress and investment	Enhance the GTFCC Structure to support the roadmap

Key actions, pillar II: technical

Government actions	GTFCC actions
Develop and update multisectoral, costed national plans, policies and guidelines for cholera control linked with relevant plan, adopting a context-specific approach (e.g. sanitation/disease control plan)	Active participation through the GTFCC to target technical support to countries and coordinate in-country activities Update guidelines on OCV/SAGE recommendations for OCV and WASH; issue operational guidance on integrating OCV with WASH
Establish cholera elimination teams and cross-ministerial institutional mechanisms to coordinate and deliver plans at national level, including M&E	Develop adaptable technical tools and approaches for plan implementation Appoint WHO cholera focal points at national level
Strengthen epidemiological and disease surveillance	Channel funding in alignment with national plan and targeted focus areas, in a way that contributes to health systems strengthening Functional multisectoral cholera platforms at regional level, including cross-country surveillance
Set up and participate in functional multisectoral cholera platforms at regional level	Develop and deliver a comprehensive operational research agenda in response to defined evidence gaps Support operational research through collaborating centres

Integrate cholera control into national health, WASH and development plans and initiatives in endemic settings	Establish mechanism to share regional and country learning based on case study analysis of successful approaches

The proposed accountability framework for the roadmap comprises milestones and core indicators defined at global and national levels; links with SDGs reporting processes; incentivizing reporting of annual cholera cases and deaths; and monitoring and reporting progress. In finalizing the milestones and key actions, the following questions need to be addressed:

- Are the draft indicators, milestones and targets appropriate – what is missing or needs modifying?
- What should the baseline, 2020 milestone and 2030 targets be for each indicator?
- Are the key activities and actions relevant to achieving these milestones?

2.3 Group work: reaching elimination of cholera epidemics

In group work, the participants considered the key actions proposed for the two strategic pillars of the global roadmap to eliminate cholera epidemics by 2030 – pillar I (political) and pillar II (technical) – as outlined in the tables in section 2.2 above. The main tasks of the group work were to consider if the suggested actions are appropriate, or if they require any changes or additions; and to propose milestones for achievement of the suggested actions. The outcomes of the working groups, as reported by the rapporteurs, are summarized in the following tables.

Pillar I, political: outcomes of group work

Theme	Outcomes
General points	Change mentality in relation to WASH and cholera to facilitate parallel changes in legislation, for example inclusion of toilets in new housing Promote long-term, sustainable environment versus short-term programmatic interventions Strengthen communication and media engagement, basing advocacy on social science evidence, and finding the appropriate branding – for example, cholera as a means to achieve the SDGs
Government actions: overall	Support development of multisectoral action plans, engaging a broad spectrum of participants Establish a high-level advisory group Develop a clear and strong strategic vision, and leverage investments to match that vision – strategy should shape donor investment, not the opposite Investment case must be specific, strategic and measurable, with strong indicators, and with cholera and WASH elements clearly defined Support investment advocacy with case studies Target longer-term investments, and set realistic goals in relation to funding realities Engage the private sector Train health workers on combating diarrhoeal diseases, including cholera
Government actions: timeline	Define the public needs and objectives: target long-term reduction of waterborne diseases, of which cholera is the first step

GTFCC actions	Increase the political weight of the GTFCC Promote buy-in from non-health sectors – United Nations General Assembly as well as World Health Assembly Ensure that attention is not diverted from the primary objective of the GTFCC – elimination of preventable cholera outbreaks At the same time, take advantage of cholera as a marker for public health objectives Ensure that the high-level meeting is convened by a range of key partners, in addition to the GTFCC Participants in high-level meeting should include relevant ministries, civil society, regional development banks, and countries with success stories as well as those severely affected GTFCC should be in position to clearly delineate the cholera prevention and control programme at the high-level meeting

Pillar II, technical: outcomes of group work

Theme	Outcomes
General points	Decide which countries are going to be targeted for cholera interventions Build on existing platforms, for example Joint Cholera Initiative for Southern Africa Focus on cholera as a context-specific problem, but within the broader SDG agenda Ensure that investment plans are realistic to justify advocacy
Government actions: overall	First priority should be to establish cholera elimination teams in order to develop national action plan Plan should address subnational as well as national levels, and target areas at highest risk for cholera Strengthen WASH component of multisectoral plans Institutional mechanism needs to operate at highest level, ministry of health or president's office, to ensure advocacy, supported by cost-benefit analysis Develop broad, varied partnerships at national level Strengthen surveillance and data gathering for advocacy Improve cross-border surveillance and data sharing to inform country-level actions
Government actions: timeline	Strengthen epidemiological surveillance to ensure timely detection and reporting, as part of general surveillance system (by end of 2018) Undertake extensive assessment of cholera epidemiology, policies and plans, social and geographical contexts (by mid-2019) Combine the planning actions: (a) develop plans, policies and guidelines for cholera control, along with (b) integrate cholera control into national health, WASH and development plans in endemic settings Start with health, WASH and development plans and adapt them into a national plan (by mid-2020) to reach cholera elimination objective Divide government action into small, doable activities to reach short-term and long-term targets; each activity has an indicator by which to measure progress

	against time and the key principles and objectives of the activity
GTFCC actions	Gather more case studies of successful approaches in eliminating cholera, improve understanding of WASH component Provide guidance and help build capacity to develop country-specific processes and planning for cholera

In conclusion, there was general agreement with the global cholera roadmap and action plan, though a number of substantive comments aided further development of the agenda. It is important to prioritize actions at the national level, identify institutional responsibilities and modalities for planning and implementation, and make initial efforts to mobilize relevant funding.

3. Session 3: Preliminary results of independent review of GTFCC

3.1 Preliminary results of GTFCC review: presentation and discussion

At its third meeting, the GTFCC had discussed how its structure could best be adjusted to its revitalized role. Relevant issues include the role of the working groups; the need for stronger strategic and political leadership to move beyond a strictly technical role; and possible creation of a high-level advisory group to assist in that process. To provide guidance on those issues, the GTFCC had engaged Cambridge Economic Policy Associates (CEPA) to conduct an independent review of the GTFCC and assess to what extent its current format enable it to achieve its objectives, and what changes in that format might enhance its ability to achieve its objectives.

The review was presented by Kaveri Kumar and Laura Grobicki of CEPA. The specific objectives of the review were:

- to review the achievements of the GTFCC since its revitalization in 2014;
- to assess the effectiveness and value added of the current governance structure of the GTFCC and consider how it can be adapted to better deliver its goals;
- to identify strengths and weaknesses, document lessons learned, and recommend improvements.

The review methods included a desk-based review of documentation, and stakeholder consultations. The review commenced with a summary description of the GTFCC, which is managed by WHO through the Infectious Hazard Management (IHM) Department and is not an independent legal entity. The work of the GTFCC is supported by a number of working groups.

The review received almost unanimous feedback that the GTFCC had created an important dynamic around cholera and had played a critical role in partner coordination following its revitalization. Significant progress has been made in the area of technical guidance, with seven technical documents completed, though lack of clear prioritization is noted.

On the key findings related to progress and achievements, there are some good examples of country support, including provision of guidance to support policy-making, but most activities are ad hoc and dependent on Secretariat capacity, and there is a lack of technical clarity and coordination in countries. For the working groups, there has been variable success in producing technical outputs, holding meetings and engaging in a participatory manner. Factors affecting progress include group dynamics, funding and chair leadership. Strengths of the working groups include broad stakeholder input and opportunities for collaboration, generally the groups would benefit from improved coordination.

On the key findings related to efficacy of design and structure, strengths include status of the GTFCC as a credible technical authority on cholera, its flexible structure, and strong leadership, though there are challenges related to lack of clarity and communication on objectives and scope of work; lack of definition of the key elements of the GTFCC structure; unclear membership structure and limited country involvement; unclear lines of separation from between the cholera team at WHO and the GTFCC secretariat; challenges with functioning of the working groups; and limited capacity and sustainability risk of the GTFCC Secretariat.

The review recognized the positive functioning of the GTFCC since its revitalization, and made recommendations to improve its effectiveness going forward. The recommendations cover three broad areas: governance; core activities and areas of work; and ways of working and management. Any reforms, however, need to be cognizant of the flexible, nimble and participatory structure of the GTFCC that has worked well to date. The Secretariat will develop an implementation plan to action the recommendations. The table below outlines the recommendations in the key areas (sub-recommendations were also put forward but are not elaborated here).

Independent review of GTFCC: summary of recommendations

Key area	Recommendations
Governance	1. Better define GTFCC objectives, scope of work, structure and working mechanisms, and communicate this clearly to stakeholders
	2. Create a steering committee or advisory group to guide and monitor the GTFCC, and carry out advocacy activities
	3. Further define GTFCC membership structure
Core activities and areas of work	4. Ensure strong focus on WASH within the GTFCC
	5. Adopt innovative ways to further advocacy and profile-raising objectives of the GTFCC
	6. Consider ways to enhance country-level support
	7. Enhance information-sharing systems
Ways of working and management	8. Consider ways to enhance the working methodology of the working groups
	9. Enhance Secretariat capacity

In the ensuing discussion, there was broad consensus that the findings of the review were accurate and perceptive, and should form the basis of further action. Some of the recommendations can be implemented in the short term, for example increased coordination between the working groups, while others would require longer-term action, for example concerning the sustainability of the GTFCC.

Care should be taken not to lose the advantages of the current way of working of the GTFCC, which was flexible and inclusive, with membership very loosely defined in practice. When the Task Force was revitalized in 2014, members were asked to sign a memorandum of understanding on behalf of an institution, reflecting the aim of institutional membership, while the working groups were more individual based. In that scenario, the GTFCC was intended as an institutional framework while the working groups had a more flexible, expert-based mode of operation. In reality, such a clear functional separation has not materialized, giving the current flexible structure. The advantage of clarifying roles and responsibilities through a formal engagement should not be lost sight of, however, as it helped support long-term institutional sustainability.

Members have their roles and responsibilities, and there are also advantages to being a member, such as information sharing and opportunities for coordination and linkage with current work on cholera-related matters. A more formal membership approach may make the GTFCC easier to direct, but must not be so prescriptive that the functionality of the Task Force is lost. However, more focused terms of reference would clarify the purpose and functions of the GTFCC, and its areas of work, enhancing the effectiveness of its activities. On the matter of the proposed steering committee, it should be a small group, with a clear mandate.

There is a need for greater country involvement and linkage, particularly in the core countries. From an operational perspective, the focus should be on dissemination of materials that are accessible to countries. Other possible areas of engagement for the GTFCC are regional meetings, intercountry meetings, and government ministries other than health. In addition, there is benefit in increased participation of NGOs and others that are familiar with what is happening at country level. Countries themselves have a responsibility to ensure ownership by translating the efforts of the GTFCC into interventions on the ground and making progress in developing national cholera action plans, taking account of the materials produced by the GTFCC. A notable gap still exists, however, between cholera research and findings, and integration of that information in country-level guidance documents and plans.

Clearer funding mechanisms are needed, with greater diversity of funding and more emphasis on WASH. Currently, 90% of the funding comes from Gavi, the Vaccine Alliance, and the Bill & Melinda Gates Foundation, and the activities of the GTFCC inevitably reflect that bias.

In conclusion, the presenters said they would take the outcomes of the discussion into account in updating their report and recommendations.

3.2 Group work: adapting the GTFCC to deliver on the renewed strategy

Following up on the recommendations arising from the external review of the GTFCC, and taking into account the discussions around the governance structure of the Task Force, the role and function of the Secretariat and the working groups, and the need to formalize country engagement and efficiently disseminate information, the participants worked in groups to discuss three key questions:

- What might be the role and functions, and membership, of the proposed GTFCC steering committee?
- What adaptations need to be made to the role, functions and membership of the Secretariat to increase its effectiveness in carrying out its mandate?
- How can country engagement best be formalized?

The outcomes of the working groups, as reported by the rapporteurs, are summarized in the following table.

Key questions	Outcomes
GTFCC steering committee: role, functions, membership	Is the name most appropriate? Or is it a board of directors or advisers? Role of long-term oversight, definition of strategic issues, advice on overall direction Endorses work plan of GTFCC Ensure some independence of the high-level agenda, separate from WHO politics Size important – not too large and unwieldy, but broad representation – 10 members?

	Would assist accountability for progress towards high-level goals, for example elimination of cholera by 2030 and SDGs Would assist in advocacy and fundraising, mobilizing resources and donor support, raising political will and engaging in political leverage Membership: representatives from selected countries, influential leaders, donors in different sectors, heads of organizations such as WHO, UNICEF, Médecins Sans Frontières, academics, key organizations such as African Union Country representatives could be nominated by cholera-affected region Country representation could go beyond ministry of health – ministry of water or finance, for example Donor membership – advantageous, or too much influence? Civil society membership – maybe, but hard to identify
GTFCC Secretariat: role, functions, membership	Role to facilitate flow of information between working groups, board and members, and to act as the public face of GTFCC activities Strengthens links and relationships between working groups Provides information and support to countries, connecting them with human and financial resources and technical support Coordinates and facilitates development of global strategy Portal to share information between countries Membership of GTFCC still under debate – current mix of institutions and individuals – but would be a loss if one or the other excluded To what extent should the functions and membership be formalized? A key question
Country engagement	Facilitate establishment of country-level multisectoral task force, assisted by GTFCC with guidance, documents, etc., but ensure country ownership Make support to countries more operational, engaging all partners Ensure communication of working group outputs to countries Tailor messages and actions to national and local circumstances Incentivize country buy-in Country representation on steering committee would enhance engagement Country dialogue to assist with training, supported by regional interface for countries asking for specific types of support Countries assisted with a fundamental set of cholera preparedness and response materials, with some select countries given additional support? Routes for country engagement – WHO or UNICEF offices, or direct linkage?

The outcomes of the discussions would provide input to further development of the WHO renewed strategy for cholera control, and further refinement of the role, structure and functions of the GTFCC to enable to fulfil its mandate most effectively.

4. Session 4: Country presentations, WASH and way forward

The importance of country-level activities was stressed in the introduction to the session. The GTFCC has been conducting three main types of activities: support for development of cholera response activities; support for vaccination-related projects; and support for workshops in affected areas.

Three country presentations were made – from Somalia, Zanzibar (United Republic of Tanzania) and Malawi.

4.1 Country presentation: Somalia

Mr Khalif Bile gave a presentation on the cholera situation and response in Somalia. The current situation is complex, due to drought, famine, conflict, internal migration and inaccessibility of much of the country. A total of 63 741 cholera cases have been reported, with 1063 deaths. A number of prevention and control interventions have been put in place, including early warning and disease surveillance through sentinel sites, operationalization of cholera treatment centres, training of health workers in case management and surveillance, deployment of emergency response teams, implementation of WASH activities, and distribution of emergency supplies.

Somalia is a cholera endemic situation with continued risk of infection, and case management and access remain problematic. A request for assistance was submitted by the government to the GTFCC, and an OCV plan developed by the Ministry of Health, WHO and UNICEF. Two million doses of vaccine have been received. During the actual campaign in March and April 2017, around 1 million people were vaccinated in various hotspots. A mix of fixed, temporary and house-to-house vaccinations was used to reach the target population, with internally displaced persons prioritized.

Factors contributing to the success of the OCV campaign in Somalia included:

- government leadership, coordination and partnership building, resulting in ownership and sustainability at country level;
- use of trained teams (several with polio vaccination experience) knowing their respective local contexts;
- high OCV acceptance due to the perceived gravity of the outbreak, intensive advocacy, and house-to-house vaccination strategy;
- successful partnership building among health, WASH, nutrition and other teams.

Several challenges were encountered, such as problems opening the OCV vials, lack of uniform for vaccinations teams and delayed budget implementation. A number of lessons were learned – community acceptance was high and contributed to the campaign's success; supportive supervision and campaign monitoring are critical; the support of local authorities and community leaders is highly useful; the strategic use of polio-experienced teams was beneficial; and early preparation and planning are crucial. On the way forward, future considerations include improving preparedness; addressing the behavioural and environmental determinants of cholera outbreaks; scaling up OCV campaigns in hotspots to interrupt transmission; including WASH interventions to boost OCV outcomes; and employing integrated disease surveillance and response (IDSR) measures.

4.2 Country presentation: Zanzibar, United Republic of Tanzania

Dr Fadhil Abdallah gave a presentation on the Zanzibar Comprehensive Cholera Control Plan, 2016/2017. Cholera occurs regularly in Zanzibar following heavy rains, with 17 major outbreaks in recent history. The current outbreak has resulted in 294 cases reported and three deaths. The

most-affected populations are in peri-urban areas with poor living and sanitary conditions, and among mobile fishing communities in the coastal areas. Previous initiatives have shown that mass cholera vaccination is feasible and well accepted in Zanzibar, and should be coupled with long-term WASH strategies for sustainability.

The Zanzibar Comprehensive Cholera Control Plan is a five-year programme to eliminate indigenous transmission of cholera in Zanzibar through a multisectoral approach. The programme is under the leadership of the Vice-President's Office, with the Ministry of Health as the lead ministry. There are three main components – OCV throughout as an additional public health tool; improvement in water, sanitation and hygiene to safeguard against cholera resurgence; and strengthening surveillance through IDSR. The objective is to achieve at least 70% vaccination coverage of two doses of OCV in the main hot spots, accompanied by significant improvements in clean water supply and access to basic sanitation.

The plan includes the following objectives:

- introduction of OCV while strengthening the long-term strategies to prevent diarrhoeal diseases in Zanzibar;
- increased access to clean and safe water supply and environmental sanitation (WASH project), including the School WASH (SWASH) programme and establishment of hygiene and sanitation clubs;
- household WASH through promotion of water treatment using affordable techniques;
- improved managerial and financial capacity of the Zanzibar Water Authority to provide efficient and sustainable water services throughout Zanzibar;
- provision of leadership and legislative support to reinforce sanitation and environmental health regulations;
- strengthened Health Promotion Programme on sanitation and hygienic practices;
- strengthened IDSR for effective surveillance of diarrheal diseases.

4.3 Country presentation: Malawi

Mr Maurice Mbangombe gave a presentation on cholera in Malawi. Since 1998 Malawi has experienced cholera outbreaks nearly every year, particularly during the rainy season. During the 2016/2017 outbreak there were 90 registered cases, with one death. As a land-locked country, Malawi faces problems with cross-border transmission, with over 30% of cases coming from neighbouring countries. Flooding is common in the wet season, presenting challenges in supplying clean water and proper sanitation. Cultural and religious beliefs are an obstacle to cholera treatment, for example the misconception that cholera is like a "wind" that cannot be controlled but will eventually pass.

A number of interventions and actions have been carried out to combat cholera, including identification of hotspots, risk assessment, social mobilization, case management, cross-border surveillance, provision of safe water, and administration of OCV. The first OCV campaign in Malawi was in Nsanje district, March and May 2015, with over 160 000 people targeted with one-dose and two-dose regimes. By mid-May 2015, no new cases were reported. A second campaign around Lake Chilwa in February and March 2016 used three different vaccine distribution strategies, according to different community settings: conventional two-dose distribution of vaccine in the harbour areas; self-administration in the floating homes (mainly young fishers); and community-based in six islands, with the first dose taken under the supervision of health personnel and the second dose given to community leaders and stored in large cool boxes pending distribution and the required interval. A third campaign involved a pre-emptive expansion of the Lake Chilwa campaign, with over 90 000 targeted. A fourth widespread campaign, starting in June 2017, targets 1.65 million people. Areas where improvements can be

made include cross-border collaboration; surveillance; development of WASH indicators; further distribution of OCV in areas prone to cholera; and raising awareness on behaviour change.

4.4 Discussion of country presentations

Issues arising out of the country presentations were discussed, with the presenters responding to the issues raised.

In Somalia, vaccination has had both a direct effect, in controlling the outbreak, and an indirect effect, in that it led to community mobilization for increasing the uptake of health-promoting practices and encouraging care-seeking behaviour. In Zanzibar the 2009 vaccination campaign, combined with WASH activities, had led to a five-year period with no cases, but then a large outbreak had occurred, starting in the urban areas and spreading to much the same areas that had previously been affected, highlighting the need for continued vigilance and public health improvements. In Malawi, the three-pronged strategy around Lake Chilwa had been prompted by the highly mobile population in various lakeside settings, though the campaign had been complex and required considerable follow-up among the communities to ensure full coverage.

With regard to local capacity-building in order to enable future sustainability, training in Zanzibar is focused on health system strengthening and disease prevention activities; in Malawi, capacity-building has been undertaken where resources are available; and in Somalia, attention has been given to those actions that could be implemented by local institutions, including district-level implementation of WASH activities. In Somalia the polio campaign helped build capacity among civil society and in the private sector.

In the various country campaigns, the assistance of the GTFCC, WHO and other organizations has been beneficial and has been appreciated, but there is a need for stronger linkages with country-level counterparts, and more effective channels of communication to translate international assistance into local-level action. More interaction, including through workshops, would help clarify the tasks that need to be undertaken at national and subnational level, enabling a less top-down approach.

4.5 Presentation on WASH

Mr Tim Grieve, UNICEF, gave a presentation on WASH. In 2015, more than one in five people globally still used unimproved sources of drinking-water, with a particular concentration in sub-Saharan Africa. On the other hand, 16 countries have reduced open defecation rates by at least 25 percentage points, showing that even poor countries can make great progress on WASH. Analysis has shown that investment in WASH through government budgets is in fact very considerable among developing countries – the main challenge is ensuring more efficient and targeted expenditure. In terms of financial support, those countries with lower WASH coverage and with endemic cholera are receiving proportionately less donor aid commitments. In addition, donor aid platforms are very complicated, with many countries having a large number of active donors in the WASH sector, making national planning complex and difficult to coordinate. There were however opportunities for GTFCC engagement in instances where donor platforms or forums were convened at national level. A number of countries have set targets for water-related diseases that could provide models for other countries wishing to establish similar targets. Improved mapping techniques offer opportunities to assess the effectiveness of WASH interventions at local level and to gather information on problem areas and hot spots, enabling targeted action. Finally, equity issues are of crucial importance, ensuring that the poorest families and communities receive basic water supply and sanitation.

4.6 National roadmaps for cholera control

Dr Dominique Legros gave a presentation on developing national roadmaps for cholera control. Countries need to develop a national plan following a series of steps starting with the assessment of the present situation, matching the needs to the situation, and establishing clear indicators, goals and timelines. The following table presents a suggested framework for such a checklist.

Activity	Issues to be addressed	Key questions
National situational analysis	Data, categorization, current initiative and programmes	What key information is needed?
National goals, targets, indicators	Impacts, inputs, processes	What data are needed? Are they available?
Implementation plan and strategy	Activities, capacity, governance, budget, approach	Who should be involved? Are data available? What guidance is needed?
Financing and funding arrangements	Domestic and external sources	Who to engage? What to present?
Monitoring and accountability	Monitoring framework and reporting	What tools, data and systems are needed?

In following the roadmap, all partners must be involved from the beginning in the development of the implementation plan and the associated budget. It is crucial to garner support, use the expertise of partners at country level, ensure that sufficient levels of funding are available, and adapt WASH interventions to local conditions. The situational analysis is an important first step in order to assess the current situation, including the existence and location of hotspots. For the GTFCC, a key question relates to what support governments need in developing national roadmaps, and how the GTFCC can best provide that support.

4.7 GTFCC Secretariat work plan

Ms Johanna Fihman gave a presentation on the GTFCC Secretariat work plan. The most urgent priority is the preparation for the call to action meeting on 4 October 2017, including consideration of logistics, development of materials, items to be considered (including the funding mechanism), and mobilization of partners, governments and donors. Another priority is the finalization and publication of the external review of the GTFCC, and preparation of a plan for implementation of the recommendations. A fact sheet would be issued summarizing any proposals. Key areas requiring further discussion in the coming months included development of work plans for the working groups, including proposals for greater coordination; how to improve engagement with countries; and how to improve communication and advocacy, include selection of a new logo, branding, and options for improved information sharing. Other upcoming meetings included the OCV Working Group, 12–13 October 2017, Portugal; the Case Management Working Group, 15–16 November; and the next GTFCC meeting, 12-14 June 2018, Annecy, France.

Annex 1. List of participants

Name and institution	Contact
Andrew Azman Johns Hopkins University	Email: azman@jhu.edu
Eric Barte de Sainte Fare ALIMA	Email: ebsf@alima.ngo
Nam Seon Beck International Vaccine Institute	Email: namseon.beck@ivi.int
Théophane Boutrolle Save the Children	Email: thephane.boutrolle@savethechildren.co.uk
Lois Fergusson Medair	Email: lois.fergusson@medair.org
Tim Grieve UNICEF – WASH	Email: tgrieve@unicef.org
Laura Grobicki CEPA	Email: laura.grobicki@cepa.co.uk
Alan Hinman Task Force for Global Health	Email: ahinman@taskforce.org
Louise Ivers Massachusetts General Hospital	Email: livers@pih.org
Karen Keddy National Institute for Communicable Diseases, South Africa	Email: karenk@nicd.ac.za
Melissa Ko Gavi, the Vaccine Alliance	Email: mko@gavi.org
Kaveri Kumar CEPA	Email: kaveri.kumar@cepa.co.uk
Francisco Luquero Epicentre	Email: francisco.luquero@epicentre.msf.org
Stefano Malvoti MMGH	Email: malvoltis@mmglobalhealth.org
Martin Mengel Africhol, AMP	Email: mmengel@aamp.org
Eric Mintz Centers for Disease Control	Email: edm1@cdc.gov
Renaud Piarroux Aix Marseille University	Email: mpiarroux@yahoo.fr
Valentina Picot Fondation Mérieux	Email: valentina.picot@fondation-merieux.org
Jean-Luc Poncelet Independent	Email: jlpponcelet@gmail.com
Marie-Laure Quilici Institut Pasteur	Email: quilici@pasteur.fr
David Sack (Chair) Johns Hopkins University	Email: dsack1@jhu.edu
Mercedes Tatay Médecins Sans Frontières	Email: mercedes.tatay@geneva.msf.org
Megan Wilson Jones WaterAid	Email: meganwilson-jones@wateraid.org

WHO regional offices and ministries of health	
Fadhil Abdalla Director of Preventive Services and Health Education – Head of Cholera Outbreak Ministry of Health United Republic of Tanzania/Zanzibar	Email: fadhilabdalla@yahoo.com
Frew Benson (Co-Chair) Chief Director for Communicable Diseases Ministry of Health South Africa	Email: frew.benson@health.gov.za
Khalif Bile Emergency Advisor to WHO, Somalia	Email: khalif.bilemohamud@gmail.com
Linda Haj Omar WHO Regional Office for Africa Epidemiologist, Republic of the Congo	Email: hajl@who.int
Matilda Kakungu Ministry of Health Zambia	Email: mkakungusimpungwe@yahoo.co.uk
Maurice Mbangombe Epidemiologist/Disease Surveillance Officer Ministry of Health Malawi	Email: mbangombe@yahoo.com
Isaac Phiri Deputy Director, Communicable Diseases Ministry of Health and Child Welfare Zimbabwe	Email: drisaacphiri@yahoo.com
Jamala Adam Taib Director-General Ministry of Health United Republic of Tanzania/Zanzibar	Email: jamalataib@gmail.com
Joseph Wamala WHO Regional Office for Africa Epidemiologist, South Sudan	Email: wamala@who.int
WHO headquarters	
Kathryn Alberti Technical Officer, HQ/IHM	Email: alberti@who.int
Johanna Fihman Technical Officer, HQ/IHM	Email: fihmanj@who.int
Tracy Goodman Manager, HQ/EPI	Email: goodmant@who.int
Dominique Legros Team Leader, HQ/IHM	Email: legrosd@who.int
William Perea Manager, HQ/IHM	Email: pereaw@who.int
Lorenzo Pezzoli Technical Officer, HQ/IHM	Email: pezzolil@who.int
Kelly Ronan Administration/Logistics, HQ/IHM	Email: ronank@who.int
Rapporteur : John Dawson Independent Nairobi, Kenya	Email: johndawson.jd@gmail.com

Annex 2. Programme of work

Day 1: Wednesday 21 June		
Opening of meeting		
08.30–09.00	Opening address Introduction of participants	Co-Chairs
Session 1. Review of GTFCC activities over last 12 months		
09.00–09.15	Update from GTFCC Secretariat	Johanna Fihman
09.15–09.35	Update from OCV Working Group + discussion	David Sack
09.35–09.55	Update from WASH Working Group + discussion	Tim Grieve
09.55–10.15	Update from Case Management Working Group + discussion	Kate Alberti
10.15–10.25	*Coffee break*	
10.25–10.35	Update on training	Kate Alberti
10.35–10.55	Update from Surveillance/Laboratory Working Group	Marie Laure Quilici
10.55–11.20	Update from Surveillance/Epidemiology Working Group	Martin Mengel
11.20–11.45	Discussion on opportunities for collaboration	Plenary discussion
11.45–12.00	Conclusion of the session	Co-Chairs
12.00–12.30	Presentation of posters	
12.30–14.00	*Lunch break*	
Session 2. Renewed strategy for cholera control		
14.00–14.10	Introduction	Co-Chairs
14.10–14.30	Presentation of WHO renewed strategy for cholera control	Dominique Legros
14.30–15.00	Policy and advocacy: presentation of global cholera roadmap	Megan Wilson Jones
15.00–15.10	Introduction to group work: reaching elimination of cholera epidemics	Dominique Legros
15.10–16.00	Group work	
16.00–16.15	*Coffee break*	
16.15–17.00	Feedback from group work, recommendations and next steps	Rapporteurs
	End of day 1	
Day 2: Thursday 22 June		
Session 3. Preliminary results of independent review of GTFCC		
09.30–09.40	Introduction	Co-Chairs
09.40–10.20	Preliminary results of GTFCC review: presentation and discussion	Kaveri Kumar
10.20–10.40	*Coffee break*	
10.40–10.45	Introduction to group work: adapting the GTFCC to deliver on the renewed strategy	Johanna Fihman
10.45–11.25	Group work	
11.25–12.00	Feedback from group work, recommendations and next steps	Rapporteurs
12.00–13.30	*Lunch break*	
Session 4. Country presentations, WASH and way forward		
13.30–13.40	Introduction	Co-Chairs
13.40–14.00	Country presentation: Somalia	Khalif Bile
14.00–14.20	Country presentation: Zanzibar, United Republic of Tanzania	Jamala Adam Taib
14.20–14.40	Country presentation: Malawi	Maurice Mbangombe
14.40–15.00	Discussion of country presentations	Plenary discussion
15.00–15.30	Presentation on WASH	Tim Grieve
15.30–16.00	National roadmaps for cholera control	Dominique Legros
16.00–16.30	GTFCC Secretariat work plan	Johanna Fihman
16.30–17.00	Final remarks and closure of meeting	Co-Chairs
	End of meeting	