GLOBAL TASK FORCE ON
CHOLERA CONTROL

REPORT OF THE

ANNUAL MEETING OF THE GLOBAL TASK FORCE ON CHOLERA CONTROL WORKING GROUP ON CASE MANAGEMENT

26-27 September 2023 | Hybrid meeting

Contents

Acronyms and abbreviations

CFR	case fatality rate
CSP	GTFCC Country Support Platform
DRC	Democratic Republic of Congo
Gavi	Global Alliance for Vaccines and Immunization
GTFCC	Global Task Force on Cholera Control
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
ICG	International Coordinating Group
IPC	infection prevention and control
IRP	Independent Review Panel
IVI	International Vaccine Institute
JHU	Johns Hopkins University
LSHTM	London School of Hygiene and Tropical Medicine
M&E	monitoring and evaluation
MSF	Médécins Sans Frontières
NCP	national cholera plan
OCV	oral cholera vaccine
ORP	oral rehydration point
ORS	oral rehydration solution
ORT	oral rehydration therapy
RCT	randomized controlled trial
RRT	rapid response team
SDG	Sustainable Development Goal
SOP	standard operating procedure
US CDC	US Centers for Disease Control and Prevention
USAID	United States Agency for International Development
WASH	water, sanitation and hygiene
BFV	Blue flag Volunteer programme, Sierra Leone
CBS	community-based surveillance
CFR	case fatality rate
CHWs	community health workers
CRF	case report form
CSP	GTFCC Country Support Platform
CTC	cholera treatment centre
CTU	cholera treatment unit
DRC	Democratic Republic of Congo
FETP	field epidemiology training programmes
Gavi	Global Alliance for Vaccines and Immunization
GTFCC	Global Task Force on Cholera Control
HeRAMS	Health Resources and Services Availability Monitoring System
icddr,b	International Centre for Diarrhoeal Disease Research, Bangladesh
ICG	International Coordinating Group
IFRC	International Federation of Red Cross and Red Crescent Societies
IPC	infection prevention and control
IRP	Independent Review Panel
IV	intravenous
IVI	International Vaccine Institute

JHU	Johns Hopkins University
LSHTM	London School of Hygiene and Tropical Medicine
M&E	monitoring and evaluation
MSF	Médécins Sans Frontières
NCDC	Nigeria Centre for Disease Control and Prevention
NCP	national cholera plan
NIH	US National Institutes of Health
OCV	oral cholera vaccine
ORP	oral rehydration point
ORS	oral rehydration solution
ORT	oral rehydration therapy
PAMI	priority areas for multisectoral interventions
RCT	randomized controlled trial
RRT	rapid response team
SDG	Sustainable Development Goal
SDGs	Sustainable Development Goals
SOP	standard operating procedure
US CDC	US Centers for Disease Control and Prevention
US NIH	US National Institutes of Health
USAID	United States Agency for International Development
WASH	water, sanitation and hygiene
WD	watery diarrhoea

Day 1 opening – Measuring cholera mortality and risk factors

***Philippe Barboza**, GTFCC Secretariat / Team Lead WHO Cholera Team; **Iza Ciglenecki**, GTFCC Case Management working group Chair / Medecins Sans Frontieres, **Kate Alberti**, GTFCC Secretariat Case Management WG focal point /WHO Cholera Team;*

Cholera overview – September 2023 – Philippe Barboza

Dr Barboza opened the meeting with an overview of the global cholera situation. He highlighted that although cholera treatment is both available and simple, case fatality rates (CFR) are unacceptably high and increasing around the world.

Global cholera discussions are focussed on the severe lack of oral cholera vaccine (OCV) and water, sanitation and hygiene (WASH) infrastructure; but there is a pressing need to highlight the fact that in 2023 people are dying mainly because they cannot access basic healthcare.

In September 2023, 24 countries reported active cholera, compared to 18 in the same period in 2022. Climate change is increasing drought and cyclones, contributing to large outbreaks. Expected El Niño effects following an unprecedented three consecutive years of La Niña effects could lead to further outbreaks. Poverty, urbanization and the global geopolitical context also contribute to elevated outbreak risks, including in countries that have not reported cholera for many years.

Despite all this, cholera *can* be controlled.

All cholera deaths can be prevented with available tools. A multisectoral control strategy exists and has only to be implemented. Treatment is easy and inexpensive. People die because they cannot accesstreatment early enough.

Reducing CFR must therefore be among the GTFCC's highest priorities. Given the major current difficulties with OCV supply, improving case management must be the key goal of multisectoral response to outbreaks.

The work of the Case Management group – Iza Ciglenecki

Repeating the unacceptability of people dying from cholera when it is easy to prevent and treat, Dr Ciglenecki summarized the working group's task: helping reach the goals of *Ending Cholera: A Global Roadmap to 2030* (aka "the Roadmap"), which aims to decrease cholera deaths by 90% through improved clinical management and improved access to early care.

To do this, it is critical also to improve cholera data, which is of poor quality. Case fatality rates are known to be high, but there is not enough reliable data for a precise overview of the situation, and it is impossible to compare national figures because different countries report differently.

Dr Ciglenecki summarized the working group's recent achievements, which include:

- A scoping review of risk factors for cholera mortality (see next section)
- Production and revision of technical guidance, including an interim technical note on treating cholera in pregnant women; an updated technical note on using antibiotics to treat and control cholera; and updated sections of the GTFCC app
- Continuation of work to develop guidance on setting up and manging oral rehydration points (ORPs), including production of related training material and job aids
- An ongoing review of published literature on rehydration in children with severe acute malnutrition (SAM)
- Continued work by GTFCC partners on antibiotic use to treat a broader group of cholera patients, and as chemoprohylaxis
- Continued work on the development of case reporting forms to improve clinical data collection
- Continued joint work with the Surveillance Working Group to develop interim surveillance guidance
- Continued work by partners on innovations that may impact the future of cholera prevention and treatment, including phages, anti-diarrhoeal drugs and antibody-based products.

Current challenges include difficulties meeting in person in recent years; the fact that GTFCC partners also support outbreak responses, which limits time for the working group activities; and the continued neglect of case management as a pillar of cholera control, which means low donor interest and limited resources.

With all this in mind, the activities of the case management workplan are as follows:

- **Increase access to treatment – care in the community:**
    - Review of existing community models of care
    - Development of guidance to set up and manage ORPs
- **Improve clinical management (reducing mortality):**
    - Literature review on rehydration of children with SAM (ongoing)
    - Review of treatment of dehydration in the elderly
    - Continued work on use of antibiotics (both to model effects on transmission and research prophylactic use)
- Improve data collection to identify high risk groups:
    - Improve clinical data (patient records) and surveillance data (working with the Surveillance group)
    - Reviews (studies and retrospective data analysis) of recent outbreaks.

Risk factors for cholera mortality: scoping review

Despina Pampaka

Dr Pampaka presented the results of a scoping review done at the request of the Case Management working group to identify risk factors for cholera mortality. The outcomes of the review will help orient future activities.

Overall data quality was poor and there was insufficient data to identify clinical conditions or co-morbidities (e.g. heart disease and HIV) that may contribute to cholera deaths. Basic epidemiological data, including age and sex, were not always presented (although they could in some cases be extracted from the text), or they were presented in multiple, incomparable ways (e.g. age presented as continuous vs categorized, inconsistent age groups, etc.).

Despite these limitations, the review identified some key risk factors that contribute to cholera mortality:

1. age (especially in those older than 50 years;
2. gender (CFR is often higher in males, although this was context-specific); and
3. location (many deaths were reported to occur in the community or during transport to treatment).

A short discussion produced many questions about more granular conclusions from the review – such as why there is an increased proportion of deaths in males; relationships between CFR and OCV exposure; how to deal with relationships between time of death and time of admission to health facilities, etc. – but the underlying theme was that there is very little reliable data available through which to consider these questions, and that this data was inconsistently classified and analysed across the studies.

This session outlined the need to improve data collection, and the need for more real time data analysis during outbreaks to identify and adapt responses to context specific cholera mortality risk factors.

Improving understanding of cholera deaths

The objective of this session was to see how countries are working to improve data collection on cholera and cholera deaths.

Country example: Nigeria

***Fatima Saleh**, Nigeria Centre for Disease Control and Prevention (NCDC)*

Nigeria uses SORMAS, the Surveillance Outbreak Response Management and Analysis System, to digitize the integrated disease surveillance and response (IDSR) approach. SORMAS is a mobile e-health system for real time collection, reporting and analysis of disease/events data for public health action. It contains modules on data monitoring and analysis, case investigation, contact tracing, event-based surveillance, case management and sample testing, and is implemented on

two platforms: a mobile application for use in areas without internet access, and a web application for supervision and monitoring.

Dr Saleh briefly displayed some SORMAS screenshots and demonstrated how the app is used. It is hoped that the use of SORMAS will improve cholera data collection, timeliness and completeness of data as well as visualization and sharing of data – including case management data.

Nigeria is working to improve national cholera capacity. And has recently revised cholera case management guidelines, treatment protocols and standard operating procedures (SOPs). Challenges have included lack of supplies at subnational level and an inadequate number of dedicated treatment centres.

The next steps for the Nigeria Centre for Disease Control and Prevention (NCDC) will be to:

- disseminate cholera treatment guidelines (by December 2023);
- conduct advocacy campaigns in hotspot states to designate cholera treatment centres (CTCs) and units (CTUs);
- expand the cholera laboratory network across Nigeria's six geopolitical zones by the 2nd quarter of 2024;
- develop a preparedness plan and mobilize resources ready for the next outbreak cycle; and
- finalize the National Cholera Control Plan (NCP) and obtain GTFCC approval.

Country example: Mozambique

***M. Nhavane**, Mozambique Ministry of Health*

In a brief presentation, Dr Nhavane outlined the cholera situation in Mozambique. Between September 2022 and September 2023, 34 645 cholera cases and 144 cholera deaths in hospital (CFR 0.4%) were reported nationally. At the time of the meeting there were three active districts (of 67 affected districts) and one further district reporting new cases. Dr Nhavane provided detailed epidemiological updates for Nampula, Cabo Delgado, Zambezia and Tete provinces.

Dr Nhavane presented the cholera data collection system. The system only collects information on hospital deaths, so Mozambique does not report community deaths.

Cholera deaths during outbreaks in Uvira, Eastern DRC, Sep 2021-Jan 2023

***Espoir Bwenge Malembaka**, Johns Hopkins Bloomberg School of Public Health*

Dr Malembaka presented data on cholera deaths and case fatality from a study site in Uvira, Democratic Republic of Congo (DRC). Uvira is a small city on the north-eastern shore of Lake Tanganyika, where cholera has been endemic since 1978. Since September 2021 an enhanced surveillance system has been in place to evaluate the impact of mass vaccination campaigns. Culture/PCR are carried out on all suspected cholera cases in Uvira's two public CTCs. There is no active community-based surveillance and private hospitals are not included in the system.

In the 25-month period between September 2021 and September 2023 the system picked up more than 2000 cholera cases. 98% were tested by culture/PCR and 67.2% were positive by culture/PCR. There were 21 related deaths in health facilities and six community deaths reported through passive surveillance, of which two were culture positive.

Although overall CFR was close to 1% (1.2% using clinical and in RDT+ cases, 1% in culture confirmed cases) CFR in patients ≥60 years is >5% using any case definition and two-thirds (66.7%) of deaths happened after one or more days of hospitalization. These findings show the importance of local sub-analysis of cholera data and suggest that ensuring that CTCs offer comprehensive and person-centred care (not just dehydration-centred care) might contribute to the reduction of cholera CFR.

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The following presentations demonstrated a new tool to improve cholera data collection and highlighted new GTFCC surveillance recommendations.

WHO Global Clinical Platform for Cholera (and preliminary cholera findings from Malawi)

***Mike Nenani Chisema**, Malawi Ministry of Health; **Jamie Rylance**, WHO Clinical Management Unit*

The WHO Global Clinical Platform was launched in 2020 for use in the COVID-19 pandemic. It was designed as a flexible standardized surveillance platform for data collection under the framework of the International Health Regulations (2005). WHO Member States, heath care facilities and research networks could use it to share anonymized, patient-level data on hospitalizations using standardized data collection tools. Strict legal terms give platform users confidence and ownership of their data.

The platform's overall objectives are to describe clinical characteristics; allow systematic recording of therapeutic interventions (and adverse events); and explore the determinants of patient outcomes. Pre-defined subgroups for which data is collected include age, sex, pregnancy, HIV status and comorbidity. The platform generates outputs including statistical analysis plans, dashboards, regional reports and country, subpopulation reports and AMR data.

The GTFCC has helped develop cholera case report forms (CRF) to collect data for suspected, probable or confirmed cholera patients direct from patient examination and interview, or from review of hospital or clinical notes. The platform was used to pilot these CRFs in an outbreak in Malawi. Although included case numbers are low, the data shows the potential of the tool.

Key messages from the Malawi implementation include the fact that the pre-existing CRF can be deployed quickly, but needs resources to support implementation. The automated analysis pipeline and infrastructure is complete, and the addition of larger datasets will help define clinical features and potentially useful interventions. The Malawi experience demonstrated feasibility, although more work will be needed to adapt the form to identified needs for cholera.

Improving surveillance: how to report cholera cases and deaths?

***Andrew Azman**, Johns Hopkins University, on behalf of the GTFCC Epidemiology working group*

Timely, reliable cholera surveillance data is critical to early detection and quick outbreak response; to inform targeted multisectoral strategies in NCPs; and to track cholera control. The GTFCC Epidemiology Working Group has been working to update the February 2023 provisional GTFCC surveillance guidance, which defines minimum recommendations for national cholera surveillance.

Dr Azman outlined working group's thinking around analysis of surveillance data. While data from health facilities and community-based surveillance (CBS) programmes are reported and analysed separately, they should be interpreted together, describing cases and deaths by person (disaggregated by age and sex), place and time. Monitoring of key indicators should include incidence; percentage of patients hospitalized; dehydration levels; and clinic-based CFR. This disaggregated data is needed to understand deaths: who dies from cholera in health facilities, whether some facilities have higher CFR than others, and whether there are time trends in mortality risk in clinics. The GTFCC recommendations do not currently capture whether people arrive late at facilities; whether those with specific comorbidities are dying; and/or whether pregnant women die more often than others.

Surveillance data can help case management in several ways. It can inform case management in an outbreak, helping do things such as set up CTC/CTU/ORP and referral systems in the right places to improve access, and estimate their capacity needs; allow adaptive positioning of treatment supplies; trigger investigation of indicators of late access to health care/inadequate case management and determine corrective actions; and allow the tailoring of community engagement messages to affected groups. Surveillance data also supports preparedness and informs mid- to long-term planning by documenting groups at higher risk of death, informing national and global prevention and control strategies, allowing detailed assessment of the impact of interventions and tracking progress versus Roadmap targets.

Discussion

- The main discussion was about collecting comorbidity data. The aim has been to keep things simple, remembering that the goal is to create *minimum* standards and that the baseline is poor and inconsistent data. The guidelines' implications must be manageable in countries if they are to provide meaningful data, and must be compatible with every country's capabilities. Data must also be aggregated from regional facilities to national level. Simplicity is an important concern.
- Additional data areas (binary) were discussed. The data identified as of the most potential importance are pregnancy status and care needs, and malnutrition status in children under five.
- The balance between field capacity and the benefit of additional data for clinical management was also discussed. Additional resources are likely to be necessary in order to collect detailed clinical data.
- The importance of clear guidance on how to collect data on community deaths was emphasized.
- A call will be held in the coming weeks to discuss CRFs and prioritize related work.

Burden & differential features of cholera & non-cholera watery diarrhoea among under-5 children: a case-control study in Bangladesh

***Md Iqbal Hossain**, Consultant & Adjunct Professor, James P. Grant School of Public Health, BRAC University*

Dr Hossain presented the results of data analysis from paediatric diarrhoea patients in Bangladesh.

Liquid or watery diarrhoea (WD), caused by cholera or otherwise, is a universal health problem for infants and young children in Bangladesh; but data on epidemiology and differential features of cholera and non-cholera WD are limited. This data would allow proper management of WD and help avoid and/or control the unethical use of antibiotics (which are indicated in cholera if there is significant watery diarrhoea and dehydration).

This project analysed SinData systematically collected between 1996 and 2014 from more than 20 000 children under five with watery diarrhoea who presented to the icddr,b hospital in Dhaka, Bangladesh.

Key findings

- Associated or risk factors of cholera were as follows:
    - age of 12 months or older;
    - stool frequency of more than 10 per 24 hours;
    - Presence of some or severe dehydration;
    - admission in the warmer months (April-September); and
    - having a mother who was working.
- Protective factors of cholera were absence of abdominal pain and having been fed predominantly through breast feeding during the first six months of life.
- Relatively more children with cholera needed:
    - inpatient admission; and
    - intravenous fluid.
- Fatality rate was very low in both groups (0% in cholera and 0.1 % in non-cholera cases).

The associated or risk factors outlined above could help differentiate non-cholera watery diarrhoea cases (which do not need antibiotics) from cholera cases, which would help reduce overuse of antibiotics and support appropriate management of diarrhoeal illness in children under five.

Paediatric malnutrition and cholera rehydration review

***Rupa Narra**, UNICEF consultant*

Current GTFCC guidance on treatment of children with cholera and severe acute malnutrition (SAM) was put together based on limited, conflicting data on cardiac function and IV fluid administration, and developed according to available literature and expert opinion.

Dr Narra presented information on basic pathophysiology and challenges in clinical management of children with SAM and cholera; a review of current guidance and previous literature and rationales; and a summary of new literature in children with SAM addressing (a)

cardiac function and (b) intravenous (IV) rehydration. She also presented possible changes to current practices based on this work.

Children with SAM who present with severe purging and hypovolemic shock are at high risk of electrolyte deficits and death if not identified and rehydrated immediately. In these patients the highest case management priority is to stabilize severely dehydrated patients with IV rehydration, and, once they are rehydrated, transfer them to specialized nutritional care.

SAM in children presents several complications: they are thought to have decreased cardiac output and stroke volume; they are at higher risk for hypoglycaemia, hypothermia, hypernatraemia, hypokalaemia and infection; and they present unreliable signs of dehydration. One major concern for the rehydration of children with SAM is perceived lower cardiac capacity due to studies showing reduced heart size in this population. Two recent publications challenge previous studies and demonstrated no significant cardiac dysfunction, fluid overload or fatal arrhythmias.

Because there are so few cholera and SAM studies, the review was broadened to rehydration of children with SAM and diarrhoeal disease. Of the six studies included none showed evidence of fluid overload or other fluid-related adverse events (including in children managed on more liberal rehydration protocols).

Potential next steps to build the required evidence base could include further multicentre trials in various countries to continue addressing these questions/challenges; creation of algorithms to simplify management of SAM patients with cholera in any medical centre, focusing on stabilization and onward transfer; ensuring SAM screening for all patients under five in CTCs; improving surveillance to identify these patients; and discussing methods to improve data sharing with partners and other stakeholders.

Discussion

- This issue is urgent because current guidance (a) gives insufficient fluids to children with cholera and SAM, and (b) recommends fluids that are not helping with rehydration. So far, the new evidence supports the prevalent feeling that giving more fluid would not put children in short term danger.
- Much of the discussion focussed on challenges assessing dehydration in children with SAM and the lack of a gold standard to define severe dehydration in this population. WHO's operational nutrition guidance on assessing dehydration in children with SAM therefore highlights things that are more reliable – for example, a good history of weight loss; oedema; muscle wasting; etc. The pragmatic conclusion is that the current best approach is to use clinicians with experience and advocate for more and better training and supervision.
- WHO's child health department is working to develop guidelines on fluid management. It is unclear if this includes cholera. This to be explored.
- Health facilities should have paediatric scales, but CTU/CTCs often do not. The current review of the WHO/UNICEF standard cholera kits should consider including these in kit specifications.

In conclusion, the meeting felt that current guidance is not good enough and needs review. The next steps will be to finalise the literature review, then update and propose interim guidance using better data.

Evaluation of dehydration in children and adults

***Adam C. Levine**, Brown University*

Dr Levine presented proposed scores and trials to improve evaluation of dehydration in children and adults.

There were 6.5 billion cases of diarrhoea and 1.4 million deaths in 2019, with 75% of cases and 66% of deaths in patients under five. Diarrhoeal disease is the second most common disease in the world and is responsible for over 120 million healthcare visits each year in children alone.

Accurate assessment of dehydration and appropriate rehydration are the most important components of diarrhoea management, as both under- and over-treatment can have serious consequences, but few empirically derived tools exist to assess dehydration in young children with diarrhoea and none have been validated in low resource settings. No such tools exist to assess dehydration in older children or adults. WHO recommends using a four-symptom algorithm for this which has been in use for over 30 years. This was developed based on expert opinion, but was never validated against a physiological gold standard. Classification of hydration status guides treatment, including the amount and route (oral or IV) of fluid given and the need for hospitalization or ambulatory treatment – all with significant resource implications.

The DHAKA score was developed building on other clinical dehydration scales. It uses simple clinical evaluations and is designed to be easy to apply, so as to reduce differences in outcome based on the skill of the user. The score is based on four clinical signs set up to evaluate severe dehydration in children under five in resource limited settings. It has been tested in two clinical trials for children and is a good indicator for both moderate and severe dehydration, performing better than the full WHO algorithm.

A third study assessing dehydration in older children and adults (the NIRUDAK study) used machine learning to derive and validate new clinical diagnostic models for patients over five, and adapt those models into a mobile health app that could be used at the bedside by clinicians to predict dehydration categories and/or what IV fluids the patient should receive. One advantage of using the app is that it adds the different elements needed to calculate the score, reducing the risk of human error. This model also performed better than the full WHO algorithm. Results of this study were published in the Lancet the day after the presentation.

Adapting the clinical algorithms used to evaluate dehydration in both children and adults could have an important impact on clinical outcomes for cholera patients.

Discussion

A brief period of discussion covered several themes.

- There was good discussion on the capacity of the app and the tools it provides. Technically, it could be added to the GTFCC app. However, any major change needs to be in tandem across diarrhoeal diseases and not having different models used for different diseases.
- There was discussion around the application of this model for cholera. Different indicators might have been used if targeting cholera, but there are major disadvantages to having two different models for cholera or non-cholera patients.
- Relating to the above point it was noted that other groups from the IMCI and IMAI group to groups working on SAM should consider this new model. The current models have not been updated for more than 20 years.
- One challenge is the lack of gold standard to which new models can be compared. This is relevant for patients with diarrhoea and for those with diarrhoea and SAM. Additional research in this field would be useful.

GTFCC job aids and posters for case management

This session was designed to raise awareness on GTFCC case management resources currently in development. There is a particular call for information resources that can be quickly shared and easily printed and displayed in treatment centres for quick reference for clinical management of patients.

A series of posters were presented which will be shared for input , covering topics such as hydration protocols, hypoglycaemia, etc. The choice of these topics was based on a needs assessment in Malawi, and participants were encouraged to submit ideas for other tools that might be helpful.

GTFCC case management training for OpenWHO

***David Shih**, US CDC*

Ministries of health often request case management training materials during outbreaks. To meet this need, the GTFCC is developing updated comprehensive GTFCC-branded training materials for dissemination via OpenWHO.

These will consist of narrated slide decks, available in multiple languages, with the incentivizing possibility of certificates for those who complete the course. They are aimed at healthcare workers caring for patients at CTCs or CTUs, to help with the assessment of patients following field manual guidelines.

Participants will be requested to provide inputs on an outline for the proposed course, and to share any of their own case management training materials that might help improve the structure of the training.

Country Support Platform (CSP) research update

***Tonia Thomas**, GTFCC Senior Research Officer*

Dr Thomas started with an overview of the nature and role of the GTFCC Country Support Platform (CSP) and the Cholera Research Agenda, and an explanation of her role as Research Officer.

Cholera research generates the data and evidence needed to develop and use GTFCC tools and strategies more effectively, more efficiently and more sustainably. Investment in supporting research will enable faster progress towards cholera control, at lower cost. The GTFCC Cholera Research Agenda, developed between 2019 and 2021, identifies high priority areas for cholera research. It is organized around four pillars and 20 high priority research needs (i.e. a top five research needs per pillar). The agenda can be found here: Cholera Roadmap Research Agenda – Global Task Force on Cholera Control (gtfcc.org).

The GTFCC has also created the Cholera Research Tracker, an interactive, searchable online platform of ongoing and recently completed cholera research projects designed to support collaboration and highlight trends, knowledge and funding gaps so that resources can be used more effectively (https://www.gtfcc.org/cholera-research-tracker/).

A summary of the research funding landscape was also recently completed. Several funds are committed to cholera research, although all pillars may not be of equal interest.

Dr Thomas is currently working on an overview of existing research, key stakeholders to engage in research uptake, and how research is incorporated into NCP implementation. Once this is complete, she plans an analysis of how current approaches could be improved, how the CSP and others might help improve it, and how implementation can be facilitated and made sustainable.

Discussion

- The GTFCC aims to leverage existing data /research as much as possible, finding better ways to use it in countries – where possible, avoiding the burden of collecting new data. Starting with the CSP countries, the GTFCC will fund an exercise to map existing research to support those countries.
- It would be helpful if the research tracker could show what funding is available. Countries are often unaware of existing opportunities – a factor that is often particularly limiting for African researchers.
- Most NCPs have a research pillar, or research focus. The CSP will work with governments to understand how they intend to implement these plans, and how they can best be supported to integrate research into their programmes.
- There is a high level of engagement and a vibrant cholera research environment in many countries and often.
- Money for small studies is sometimes available in countries. Much of the research workstream is going to be focused on connecting the right people to benefit from these small but potentially valuable opportunities.

Day 2 opening – Improving access to treatment in the community

***Kate Alberti**, WHO*

The second day focussed on access to treatment, noting that many cholera deaths are recorded in communities (if at all). One of the main challenges in attempting to decrease mortality is making sure people can initiate treatment as soon as possible after symptoms appear. Work to improve access to treatment in the community is the responsibility of the GTFCC Case Management pillar.

A 2017 GTFCC case management working group technical note on the organization of case management during an outbreak was used to introduce the day (https://www.gtfcc.org/wp-content/uploads/2019/10/gtfcc-technical-note-on-the-organization-of-case-management-during-a-cholera-outbreak.pdf). This note presents the concept of treatment structures as a functional network. Networks differ in nature from context to context, but include treatment at home as well as in the community (by community health workers and at ORPss), stabilization centres, CTUs, CTCs, hospitals and other relevant resources. All spokes of the network are developed at the same time, not sequentially.

This model is still relevant although infrequently implemented. It recommends using epidemiological data to identify high risk areas (i.e. areas with poor access to WASH, high CFR, high numbers of cases, etc.) and addressing barriers to accessing health care – including non-physical, social and cultural barriers as well as geographic and economic ones.

Recent experience in the field as well as the results from the scoping review on cholera mortality presented on the previous day show that community treatment is frequently neglected. Improving access to treatment in the community was the focus of the second day.

Country examples of increasing access to care in the community

During this session countries were asked to present examples of how they improved access to care for cholera patients during recent outbreaks.

Lebanon

***Madonna Matar**, National Cholera Task Force, Lebanon Ministry of Health*

Lebanon's recent cholera outbreak was imported from Syria in early October 2022. Given the geopolitical context it was considered a serious threat to the Middle East, and Lebanon was highly vulnerable: the economy had collapsed and there were widespread power shortages and limited access to safe water. With more than 80% of the population living poverty, large numbers of people were at risk.

The Ministry of Health responded quickly, forming a National Cholera Control and Prevention Task Force on the day of the first case, and drafting a national action plan to contain the outbreak. The response was based on close collaboration with partners, who supported a multisectoral response, including by supporting laboratory and epidemiological surveillance, access to safe water and sanitation, case management and OCV provision. As cholera was

previously unknown in Lebanon, there was a strong emphasis on risk communication and community engagement, from daily radio and TV spots to village level outreach.

For case management, direct hospital support and training was provided for physicians and clinicians and primary health care centres, and infection prevention and control (IPC) was strengthened through a newly formed, newly-trained, dedicated team. External funding was provided to cover 100% of patient costs for hospital admission at nine hospitals (including government, private and field hospitals).

As a result of all this multisectoral, multipartner work, on June 5 2023 the ministry was able to declare the end of cholera outbreak in Lebanon.

Malawi

N. Chisema

Cholera has been endemic in Malawi, with near yearly outbreaks since 1998. The outbreak that began on 28 February 2022 caused 58 996 cases and 1768 deaths for a CFR of 3.0%. Climate change, including multiple cyclones, contributed to the severity of the outbreak.

The response was multisectoral and included surveillance and cross-border monitoring with Mozambique, enhanced WASH, multiple OCV campaigns, health promotion activities and an RCCE initiative called the *Tithetse Cholera ("End Cholera") Campaign*, which was launched by the President.

The CFR of the outbreak was high (approximately 3%), far higher than the recommended WHO CFR target of 1%. This required a targeted intervention. The key strategy was enhanced community case management through ORPs. All patients at ORP sites were deemed suspected cholera. ORPs were staffed by community volunteers (directly supervised by health surveillance assistants). All children under five, pregnant women, and moderate and severe cases were referred to CTUs or CTCs. All mild cases were managed at the ORPs. ORPs were supported by multiple partners using standardized kits, SOPs and standardized training. The ORPs, which were scaled up in March/April 2023, were a success, significantly contributing to reduced CFR.

There were many challenges in the response. For case management a lack of training and resources for reporting (data bundles/air time) made reporting difficult. ORPs did not have tablets or phones to capture and transmit, so used photos of paper forms or SMS to transmit information. Kits were expensive and procurement was donor-driven, and there was a general lack of incentives for training and for the work of volunteers. In future these challenges can be remedied by allocating appropriate resources and providing data management training for all surveillance officers.

Malawi's next steps, to ensure adequate preparation for the next cholera season, will be to strengthen emergency preparedness and preventive activities; continue community case management through ORPs; prepare an application to Gavi for a multiyear plan of action for preventive OCV campaigns; and build lab capacity for cholera surveillance (using culture) while maintaining use of RDTs in the field. Longer term recommendations include instituting supervision and mentorship programmes; carrying out a preparedness survey; providing a digital health platform to manage symptomatic patient data; and integrating ORPs as a

mainstay of primary health care in communities. For all of this, the underlying key activity will be to identify funding to sustain the programme.

Somalia

Mohamed Derow

Cholera is endemic in Somalia with vulnerabilities including poor access to quality health care exacerbated by an insufficient health workforce and weak surveillance. Poor access to clean water and poverty also contribute to the risk of cholera, which are exacerbated by the effects of climate change.

Somalia plans to build the health system towards universal coverage and achievement of the Sustainable Development Goals (SDGs). For cholera, this includes a cholera preparedness and response plan and strategy, a WASH sector policy and strategic plan and a national hygiene promotion strategy. One core objective is to create a resilient, sustainable community health system.

Cholera response is designed around ORPs staffed by community health workers (CHWs). The ORPs refer up to 20- to 30-bed CTUs /stabilization centres, and severe or complicated cases are transferred (after stabilization) to a CTC.

Progress to date towards achieving strategic cholera goals includes scaling up field epidemiology training programmes (FETP); activating a National Cholera Task Force; expanding national and state laboratory capacity; rolling out IDSR; and the 2017 publication of a cholera treatment guideline.

Operational challenges include (but are not limited to) financial constraints and competing priorities in an environment with high turnover of human resources, poor availability of supplies, and lack of access to on-the-job training and job aids. Immediate priorities include reviewing and updating protocols, including treatment guidelines and job aids for triage, treatment and training.

Discussion

- Countries are not consistent in whether patients attending ORPs are included in surveillance data. Despite challenges to implementation, the consensus was to include such patients as suspected cases. Testing and confirmation will take place elsewhere. This is consistent with the GTFCC Surveillance recommendation for outbreaks. Outside outbreaks the approach is more nuanced.
- The ORP package in development will be useful to support application and consistency.
- ORPs should be an integral part of any response strategy – all the time, but particularly during current OCV shortages.
- Prepositioning and decommissioning of ORPs are important aspects of their deployment and should be considered carefully in any response plan. They are a crucial part of community treatment pathways.
- The point was made that the capacity of community health workers or volunteers is often underestimated.

Exercise: bottlenecks to access treatment

During the previous discussion it was noted that ORPs are a crucial aspect of the community treatment pathway, but field experience shows that they are often very slow to be developed, and when a patient gets sick, the focus is on CTCs and CTUs.

In this exercise, participants who were physically present at the meeting separated into smaller groups and discussed factors that slow, restrict or prevent access to treatment in communities. They then reconvened and shared the results of their discussions, which fell broadly across the following themes and issues.

- Issues of transport and physical access
- Insecurity
- The need to address trust, perceptions and stigma through community engagement (ORPs can be perceived in communities as a suboptimal solution)
- Lack of awareness and knowledge
- Lack of funding and the fact that ORPs increase supervision and management needs
- The need for more and better incentives and training
- Continuity of services (ORP hours are often not adapted to community needs)
- Policy gaps: as these other issues suggest, integration of localized solutions within response structures is complex, and countries often do not have a clear idea of how to do it.

Additional concerns and comments

Some issues were raised that fell outside the remit of the discussion, but which were felt to be worth recording.

- Decentralized systems increase the complexity of surveillance, and impose a need for models and systems that collect data at local level and pass it on to relevant high-level data collection structures.
- Localized solutions often lack proper measures, supplies or good practices for IPC. Patients are often put together in confined spaces without thought for IPC, creating risk of spread and cross contamination.

Solutions and advocacy

There was a brief discussion of suggested solutions to some of the identified problems, almost of all which related to strengthening RCCE. There was general agreement that community engagement and empowerment are the keys to improving community treatment. Addressing issues of community trust, it was suggested that good practice could incorporate some training to build community health workers' empathy and people skills.

The group also felt there should be further reflection on other ways to decentralize care, looking at how to make the most of existing resources in the community to start activities quickly. Models invoked included an example from Zambia, where community volunteers, trained to use ORS, do house to house distribution of ORS, identify patients and make referrals.

The group then addressed possible priority areas for advocacy. Suggestions included the following.

- The frontline workforce should be part of national policy. Community health workers should be recognized and incentivized, creating trained, standing workforces within communities that are ready to be stood up in case of an outbreak.
- Governments and ministries should be made knowledgeable about the importance of a double response in cholera: both centralized and decentralized care should be part of a standard national cholera responses.
- Advocacy is needed to underline the fact that ultimate duty bearer in a country is the government: this is where coordination should come from, where policies should come from, and where control is exerted in order for all the parts of the health system to work together.
- The underlying point was emphasized that whether a preparedness plan is in place or not, if the kit is on the ground and training has not been done, then everything is slowed down dramatically.

Revision of guidance and recommendations

Suggestions for the GTFCC Guidance included addition of the following points or themes:

- Strategy – access to care
    - Importance of both centralized and decentralized care
    - Inclusion of stabilization centres whenever possible
    - Ensuring ORPs are included in logistics / supply planning
    - Including clear recommendations on when during an outbreak ORPs should be set up – this should help prioritise them as part of response
    - Including transport from ORPs to other treatment structures as part of the treatment network and addressed it clearly (e.g. ambulances, motorcycles etc).
    - Ensuring transport staff (ambulance drivers etc.) have the knowledge and means to protect themselves from cholera
    - Providing examples of additional models of care / treatment in the community
    - Working with RCCE colleagues to ensure early access to treatment is integrated into RCCE packages, maximizing the value of existing resources.
- High level advocacy – directly related to the work of the Case Management WG
    - Advocating with donors to have ORPs included by default in funding for cholera case management
- High level advocacy – indirectly related to the work of the Case Management WG
    - Advocating for time off for parents to take children for medical care
    - Ensuring all partners (UN, NGOs, security services etc.) are engaged in cholera response and that these relationships are continuously maintained, not just active during outbreaks.

Alternative models and tools to improve access to treatment in communities

Current GTFCC case management recommendations focus on ORPs as the key to improving access to treatment in the community. This session discussed alternative models or tools to address gaps in community access to treatment.

Improving access to pre-emergency care with telemedicine and medication delivery in low-resource settings: Motomeds

***Eric Jorge Nelson**, University of Florida*

Motomeds was developed to deliver early access to high quality pre-emergency care to children in order to avert later emergencies, including in acute and/or chronic crisis situations. The model, designed and refined in Bangladesh and Haiti, is a combination of telemedicine via a call centre and night-time medication delivery services using local motorcyclists. It is based on the hypothesis that when resources are limited, morbidity and mortality can be reduced at lower cost by facilitating early access to pre-emergency care compared to late access to emergency care alone, especially at night. Families call the call centre, where trained staff decide if the patient should seek immediate care or if the case can be managed at home with or without delivery of basic medication and fluids. If necessary, the medication and fluid are delivered within two hours of the call. To test the concept and efficacy of the concept, multiple studies have been carried out including a needs assessment, a safety, feasibility and desirability study, a scaled-up trial on safety, feasibility and desirability and ongoing scaled up deployment with digital clinical decision support. Motomeds implementation has since expanded to Ghana, with a small USAID-grant funding deployment in Accra.

In addition to good clinical outcomes, unanticipated benefits of the trials have included increased hope and positivity in people unused to having their calls for help answered; and capacity building for call handlers, “on call” providers, drivers and a research coordinator.

Dr Nelson ended his presentation by asking for information or ideas about any further opportunities to pilot the approach with GTFCC partners. The model is maturing and ready to launch beyond the scope of academic research. Expressions of interest should be emailed to eric.nelson@ufl.edu.

The Blue Flag Project: community-based Oral Rehydration Therapy

More than a decade ago, Sierra Leone developed the Blue flag Volunteer programme, or BFV, to treat diarrhoea in communities. The BFV were community volunteers, identified by a blue flag flying from the roof of their residence, trained to recognise diarrhoea, cholera and other waterborne illnesses in communities, treat with ORS (or sugar/salt solution) and advise on prevention. Teams of BFV are supervised by District Health teams and supported by government and partner agencies.
The International Federation of Red Cross and Red Crescent Societies (IFRC) is looking at the successes (i.e. high familiarity with and use of ORS and immediate access in the event of an outbreak) and challenges (i.e. the need to train and retrain and meet supervision, supply management needs) of this model, with the intent of developing a similar model in cholera priority areas for multisectoral interventions (PAMIs).. The idea is to build on community strengths using Red Cross/Red Crescent volunteers as the equivalent of Blue Flag volunteers, with activities scaling up or down according to whether there is an outbreak or not. Continuous activities would include promoting and demonstrating ORS, reporting diarrhoea case numbers

to health authorities and IFRC branches, delivering information on cholera and preventing diarrhoeal disease, and health and hygiene promotion. It is hoped that the continuity of the volunteers' presence will improve outbreak detection and provide a constant source of ORS in the community to prevent cholera deaths.

For these models to work, a few considerations are necessary. They must fit in with government systems already in place, and they require complete clarity among communities and all other stakeholders on the level of service to be expected, the voluntary status of the people providing it, and what those people are expected to provide. The IFRC must also be clear about the roles and support required for the volunteers.

This is a model to test in a country with identified cholera PAMI..

Health Resources and Services Availability Monitoring System (HeRAMS)

Sam Petragallo, WHO

The Health Resources and Services Availability Monitoring System (HeRAMS) initiative and strategic framework were developed to make core information on essential health resources and services readily available to national, regional and global decision makers. The HeRAMS mission is to support countries with standardization and continuous collection, analysis and dissemination of information on the availability and accessibility of essential health resources and services, and to strengthen health information systems. HeRAMS is rapidly deployable and scalable to support emergency responses and fragile states, and can be expanded to (or directly implemented as) an essential component of routine health information systems.

Dr Petragallo demonstrated an example of a rapid remote implementation of HeRAMS in collaboration with partners in Afghanistan in late 2021. He explained how HeRAMS can model health service accessibility and output the results in useful formats including accessibility maps, coverage statistics, and summary charts of accessibility and barriers to access.

An adaptation of the HeRAMS Standard Data Model to cholera would use all these HeRAMS services to support cholera response, including modelling of accessibility and the characterization and distribution of cholera response services.

Online HeRAMS resources and further information can be found via the following links:

- HeRAMS platform: https://herams.org
- HeRAMS Initiative website: https://www.who.int/initiatives/herams
- HeRAMS Baseline Report example: https://www.who.int/publications/m/item/herams-mali-baseline-report-2020
- HeRAMS platform user guide: https://docs.herams.org/en/latest/

GTFCC ORP guidance & planning package

***Javid Abdelmoneim**, GTFCC/WHO consultant*

This session was an opportunity to discuss draft GTFCC ORP guidance and planning resources, which had been shared in advance with participants by the Secretariat. The draft was introduced to anyone unfamiliar with it, then the group addressed key questions that will inform the next iteration.

The draft package consists of the following resources:

- ORP guidance and planning core document
- Job aids on:
    - case management;
    - ORS and safe water preparation;
    - health messaging;
    - IPC (handwashing and preparation of solutions); and
    - PPE.
- Further job aids in the form of:
    - checklists for ORP staff; and
    - sample stationery.
- Training PowerPoints
    - Training 1: ORP introduction, kits and IPC
    - Training 2: ORP case management and key health messages.

Feedback from the discussion and from additional written feedback will be incorporated into the next version to be shared.

There was general agreement that the most useful next step is to get resources into in the field for further testing, feedback and progress. Any feedback from the field will be used to improve the documents.

Way forward and workplan

Kate Alberti** & **Iza Ciglenecki

Dr Alberti closed the meeting with a summary of action points.

Increasing access to treatment – care in the community

There is a need to review existing models of care and develop GTFCC guidance. ORP guidance is near completion, and there was rich discussion around barriers to accessing decentralized care.

Concrete points were as follows:

- ORPs are one way of decentralizing care, but there are other means by which to improve the network of access to cholera care between communities and CTCs, and many other ways that patients in communities could be reached faster.
- There is a need to document different possibilities for improving access to and use of existing community delivery strategies using community health workers, household distribution models, etc.
- Stabilization centres should be added to the model, with qualified staff at ORP points able to put in IV lines. This step could probably save many lives when referral pathways are complicated.
- The group stressed the importance of the communicating and building trust and links with communities using community engagement strategies. The GTFCC should work to empower the localization agenda.
- Advocacy is needed for the importance of decentralized care, so that donors and funders see it as part of an essential package of case management. It should be embedded in request forms as an opt-out default.
- In addition, a note was made of the need for data on capacities to identify and reach groups beyond the reach of services.

Next steps

- The review of different models of decentralized will be completed, after which the next step is to expand decentralized care guidance beyond ORP.
- The working group will circulate the outline for case management training for group feedback.
- The updated technical note on antibiotics will be posted to the GTFCC Resources page.
- Working group members are reminded and encouraged to share whatever case management training materials they use.
- The working group will hold calls in the coming months to address access to care in communities.

The group will not prioritize community engagement work in the coming year, but it is important to ensure links into the existing localization agenda. Guidance on community leadership and localization will require adaptation, because a one-size-fits-all approach is impossible in communities.

Improving clinical care

The group agreed to use the results of the ongoing review on rehydrating children with cholera and SAM to revise current guidance and to encourage partners to engage in clinical trials that could generate further evidence. In the meantime, there was agreement in the group that current guidance is insufficient and must be changed now.

Treatment of elderly patients was not a key focus of the meeting, but improved understanding of clinical characteristics might provide some insights into their specific needs. This area has been deprioritized slightly as movement occurs on other topics.

The group will wait for partners' work on antibiotics to be finalised before reengaging with that discussion.

Data collection

There is clear ambition and will from countries and donors to re-examine what can be done with existing data.

On clinical data collection, the CRFs that have been prepared and made available are appreciated, but it was suggested that these be reviewed further after discussion of what is needed from a cholera standpoint, and what data would be interesting and/or feasible to collect in CTCs. Work on CRFs should look at the goals for analysis from cases and from retrospective data.

It would be a great improvement if all countries were doing the same retrospective analysis, not requiring them to collect and/or analyse detailed clinical data, but using the reports that might be generated from CRFs to identify trends between countries and at-risk groups. A call on the CRF topic will be organized in the coming weeks.

Regarding surveillance, there were agreements on some key aspects around reporting cases. Common agreement on how to report community deaths will greatly improve understanding of who dies and where, and help improve and harmonize key indicators. Cases from ORPs should be reported.

Basic description of cases can be used to improve clinical care and care during outbreaks. Basic analysis by sex, age and delays to care can be done during outbreaks for operational purposes and is very useful for case management.

All this work will have to be costed so that the working group chairs can find people to help implement the workplan.

The revised workplan will be shared with the group, with finance details added by the GTFCC secretariat as a basis for discussion of the resources needed to progress.

Closing

***Philippe Barboza**, GTFCC*

Dr Barboza closed with thanks to all. He emphasized the need for more evidence to document mortality and reinforce advocacy for countries to get more support. It is unacceptable that people are still dying of cholera when treatment is so simple.

Case management is implemented by health workers affected by many other issues and outbreaks, in very complex settings; but they do their level best to respond to cholera and the GTFCC values their work — and that of the group. Uniformity of GTFCC recommendations is very important, and this working group's role is absolutely critical.

This meeting has revealed some very positive ways forward and some objectives that can be reached in the short term.

Its work is highly appreciated.