Third Meeting of the Global Task Force on Cholera Control

14-15 June 2016 – Amman, Jordan
Acknowledgements

This report of the third meeting of the Global Task Force on Cholera Control (GTFCC) was compiled by the Control of Epidemic Diseases (CED) Unit in the Department of Pandemic and Epidemic Diseases (PED) at WHO/HQ.

We wish to thank all our partners including other UN agencies, research institutions, universities, government and nongovernmental organizations (NGOs), donors, representatives of health ministries for attending this meeting and for providing technical input and comments to the report. We particularly want to thank WHO colleagues from the Eastern Mediterranean Regional Office for hosting the meeting and welcoming the GTFCC so warmly. A full list of participants is attached in Annex 3. CED also wishes to thank the collaboration and input of numerous experts within WHO, who are also listed in Annex 3.

For the third time, Professor David Sack, Department of International Health, John Hopkins University Bloomberg School of Public Health chaired the meeting and deserves a special mention.

Ms. Reem N. Bsaiso is gratefully acknowledged for taking notes during the meeting, which served as a base to write this report.

Finally, the GTFCC wants to remember Dr Jeroen Ensink who tragically passed away in 2015. Jeroen was a friend and member of the GTFCC WaSH WG. His work at the London School of Hygiene and Tropical Medicine focused on the dynamics between water and cholera, especially in Democratic Republic of Congo. He will be missed.
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# Abbreviations and acronyms

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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>APW</td>
<td>Alkaline Peptone Water</td>
</tr>
<tr>
<td>AWD</td>
<td>Acute Watery Diarrhoea</td>
</tr>
<tr>
<td>CTDA</td>
<td>Centres de traitement des diarrhées aiguës</td>
</tr>
<tr>
<td>EMRO</td>
<td>Eastern Mediterranean Regional Office</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographic Information System</td>
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<tr>
<td>GTFCC</td>
<td>Global Task Force on Cholera Control</td>
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<tr>
<td>ICG</td>
<td>International Coordinating Group</td>
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<tr>
<td>IFRC</td>
<td>International Federation of Red Cross and Red Crescent Societies</td>
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<tr>
<td>LSHTM</td>
<td>London School of Hygiene and Tropical Medicine</td>
</tr>
<tr>
<td>OCV</td>
<td>Oral Cholera Vaccine</td>
</tr>
<tr>
<td>OR</td>
<td>Oral Rehydration</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>MSF</td>
<td>Médecins Sans Frontières</td>
</tr>
<tr>
<td>NGO</td>
<td>Nongovernmental organization</td>
</tr>
<tr>
<td>PCR</td>
<td>Polymerase Chain Reaction</td>
</tr>
<tr>
<td>RDT</td>
<td>Rapid Diagnostic Tests</td>
</tr>
<tr>
<td>SAGE</td>
<td>Strategic Advisory Group of Experts</td>
</tr>
<tr>
<td>SAM</td>
<td>Severe Acute Malnutrition</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>WCARO</td>
<td>West and Central Africa Regional</td>
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<tr>
<td>WaSH</td>
<td>Water, Sanitation and Hygiene</td>
</tr>
<tr>
<td>WG</td>
<td>Working Group</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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</table>
Introduction

Cholera remains an important but neglected disease in spite of known, effective prevention and control interventions. Access to clean water and sanitation facilities combined with satisfactory hygiene are the key conditions to control cholera in populations most at risk. However, the vast majority of cholera control activities focus on emergency response, while there is very little investment in sustainable WaSH interventions which provide a longer term solution to cholera prevention.

The Global Task Force on Cholera Control (GTFCC) is a network of cholera experts which brings together governments, non-governmental organizations, UN agencies, and scientific institutions, who share the belief that collective action can stop cholera transmission and end cholera deaths. Since its revitalization in 2014, the GTFCC has created a dynamic around cholera, coordinating partners and activities, globally and at country level.

The third meeting of the GTFCC was held in Amman, Jordan on 14-15 June 2016. This meeting was the opportunity for all stakeholders to review achievements of the past year and to discuss the way forward. The first day was dedicated to sharing technical and country updates. Each Working Group presented the results of their work, triggering discussions on the coordination of activities across the groups. Different perspectives from countries were brought to the assembly as well as discussions around initiatives on cholera control. On the second day, GTFCC members discussed lessons learnt to date and ways to improve the GTFCC to deliver on its objective to control and prevent cholera, and to mobilize resources.

This document is a report of the proceedings of the third GTFCC meeting. Detailed updates from the Working Groups have been included in Annex 2. Presentations are also available upon request: GTFCCsecretariat@who.int
Proceedings of Day 1

Tuesday, 14th June 2016

Opening

Dr Abdinasir Abubakar, from the WHO Regional Office for the Eastern Mediterranean (EMRO), welcomed participants to Jordan. This is the 3rd meeting of the GTFCC since its revitalisation, the first meeting to take place in EMRO. In this region, 15 countries are currently affected by conflict, resulting in waves of displaced people in emergency situations. In fact 70% of the world’s refugees or internally displaced people (IDPs) are in EMRO. In 2015, a cholera epidemic in Iraq highlighted the vulnerability of the region to cholera and the importance of cholera prevention in fragile settings.

Dr Dominique Legros, Cholera Focal Point at WHO HQ, echoed Dr Abubakar’s remarks about the complex emergency situation and thanked all the participants for their attendance.

Prof. David Sack from Johns Hopkins University, the chair of the GTFCC also welcomed participants and commented on how the GTFCC has developed over the past two years. This 3rd meeting provides the opportunity to look at the GTFCC’s achievements and to reflect on how the GTFCC is operating as well as what and how adjustments should be made to make the network even more functional.

Prof. Sack was appointed chair of the meeting for the 3rd time.

Finally, participants introduced themselves (see Annex 3).

Review of activities of the GTFCC over the previous 12 months 2015-2016

Last year in review: update from GTFCC Secretariat (Lorenzo Pezzoli)

Following the opening of the meeting, Lorenzo Pezzoli from the GTFCC Secretariat summarized the activities of the GTFCC during the year 2015/2016.
The GTFCC’s vision is that collective action can stop cholera transmission and end cholera deaths. Its objectives are to:

- Support global strategies for cholera prevention and control
- Provide a forum for technical exchange, coordination, and cooperation on cholera-related activities to strengthen countries’ capacity to prevent and control cholera
- Support the development of a research agenda with special emphasis on monitoring and evaluating innovative approaches to cholera prevention and control
- Increase the visibility of cholera as an important global public health problem.
- Strengthen countries’ capacity to prevent and control cholera

Ultimately the GTFCC aims to control and prevent cholera in affected countries. To achieve this, GTFCC’s activities, coordinated through the different Working Groups (WGs) fall under three broad themes:

1. **Producing or reviewing evidence-based technical guidance**

   The GTFCC aims to provide updated, standard messages, guidance and advice to countries to control cholera. To do this, the WGs are developing specific technical notes or reviewing evidence on specific cholera control interventions, which will ultimately facilitate the update of more cross-sectoral cholera control documents and tools (e.g. revising the UNICEF Cholera Toolkit or the WHO Yellow Book on Cholera Outbreaks).

2. **Using the network of partners as a global resource for cholera control**

   As an example, members of the GTFCC sit on the Oral Cholera Vaccine (OCV) Strategic Advisory Group of Experts (SAGE). SAGE will review the WHO OCV position paper in 2017. Documents produced by the GTFCC OCV WG and evidence collected in the field by GTFCC partners will contribute to this review.

3. **Facilitating cholera control activities in countries affected by cholera.**

   GTFCC members work together on cholera prevention and control measures including the use of vaccination to respond to outbreaks and monitoring and evaluation of activities. Cholera control workshops were organised by WHO and GTFCC partners in:
   - Malawi – September 2015
   - Mozambique – September 2015
   - EMRO region / Iraq – October 2015 and April 2016
   - Haiti – April 2016
   - DRC – May 2016

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1 For more information on the GTFCC terms of reference, composition and way of working please refer to the GTFCC website: [http://www.who.int/cholera/task_force/en/](http://www.who.int/cholera/task_force/en/)
During the past year the Secretariat has also strengthened both internal communication among GTFCC partners and external communication to the wider global health community about GTFCC activities.

The GTFCC newsletter (Cholera Network News) is sent to all partners and can also be accessed online.

In the period since the 2nd meeting of the GTFCC two newsletters were issued:

- 06/30/2015 - GTFCC Newsletter - June 2015 - [http://us9.campaign-archive2.com/?u=0da3585d7bf57c6a6024e102f&id=a986f45a32](http://us9.campaign-archive2.com/?u=0da3585d7bf57c6a6024e102f&id=a986f45a32)
- 05/31/2016 - GTFCC Newsletter - June 2016 - [http://us9.campaign-archive1.com/?u=0da3585d7bf57c6a6024e102f&id=e2e57db676](http://us9.campaign-archive1.com/?u=0da3585d7bf57c6a6024e102f&id=e2e57db676)

The GTFCC Secretariat also has three social media accounts:

1. Twitter (@secgtfcc) – where news on cholera control activities are shared
2. Instagram (@secgtfcc) – to share photo updates of cholera control activities in the field
3. Flickr ([https://www.flickr.com/people/142195038@N02](https://www.flickr.com/people/142195038@N02)) – where photo albums can be created under one theme.

Figure 1 - Partners involved with the GTFCC.
Update from the Working groups

Of the seven WGs originally envisaged, five are now fully functional:

- Epidemiology and surveillance
- Laboratory and surveillance
- Patient care/case management
- WASH
- OCV

Detailed updates on the WGs can be found in Annex 2.

Laboratory and Surveillance Working Group (Marie-Laure Quilici)

Priorities

The Laboratory and Surveillance (Lab) WG has focused its efforts on defining procedures for rapid diagnostic tests (RDTs) and *Vibrio cholerae* molecular techniques used for cholera surveillance and to prepare two WHO briefing documents. Two other focus areas are the harmonization of antimicrobial susceptibility testing procedures (in collaboration with the Patient care/case management WG), and the ways to improve environmental surveillance (in collaboration with the WaSH WG).

The WG is also facilitating the establishment of a laboratory network for cholera surveillance and control within the GTFCC framework.

Update on activities

- Cholera RDTs: Given the limitations of currently available RDTs, the WG is developing a WHO briefing document, to provide recommendations to Ministries of Health and other organizations on the potential use of available cholera RDTs. The technical document will provide a description of the tests including limits and performance, and provide recommendations on how, when and where to use them, and how to interpret the results.
  
  In addition to the publication of a guidance note, the WG is working to facilitate the prequalification process for RDTs and to define a target product profile for the ideal RDT.

- Molecular methods: The WG is preparing a WHO briefing document with updated information on the use of DNA based molecular techniques in order to promote and enhance their use in the field.

- Antimicrobial susceptibility testing: Methods to assess drug sensitivity are critical for the surveillance of cholera. However, today, there is little guidance provided to countries. The WG agreed in previous meetings on the need to standardize testing practices. The WG will work around the harmonization of methods for the detection of resistance and verification that there are no conflicting results.
The GTFCC and its WGs on Surveillance are ideally placed to facilitate the establishment of a global cholera laboratory network, which could reinforce the capacity of cholera laboratory surveillance to improve and strengthen countries’ capacity to diagnose and report cholera disease in a reliable and timely manner; enhance cholera surveillance, investigation and response capacity; improve monitoring of *V. cholerae* strains; and provide a more accurate estimate of disease burden and geographical spread.

Further tasks of the WG are facilitating the establishment a cholera strains data bank (this activity is closely linked to the work on molecular techniques and on the establishment of the laboratory network), discussing recent developments in molecular epidemiology of *Vibrio cholerae* and consider if a revision of the classification is warranted, and on reviewing procedures surrounding food and environmental surveillance of *Vibrio cholerae* (in collaboration with the WaSH WG).

**Surveillance/Epidemiology Working Group (Martin Mengel)**

**Priorities**

The Surveillance/Epidemiology (Epi) WG was established to develop evidence based documents related to the epidemiology of cholera, to propose recommendations for cholera surveillance in both endemic and epidemic settings, and to promote synergy and standardization between actors in the field.

Closely interacting with the Lab WG, the Epi WG specific tasks are to review and validate a technical document on cholera surveillance, to update the relevant sections of the “WHO yellow booklet on cholera outbreaks”, and to propose mechanisms for collection and sharing of data and strains (including exploring Information Technology (IT) solutions for data collection and advanced statistical methods such as modelling for analysis).

In collaboration with the Lab WG, the Epi WG is aiming at bundling existing initiatives and networks (Africhol, IDEA, IDSR, Centre for Disease Control CDC, WCARO platform, African CDC, etc.) towards the establishment of a Global Cholera Surveillance Network.

**Activities**

The WG is working on the standardisation of surveillance terms, including case definitions, on the way forward to update existing guidance (e.g. “yellow book”), and on determining, in collaboration with the Lab WG, the best use of RDT and molecular diagnostic tools for cholera surveillance.

Updated definitions of cholera endemic area, cholera outbreak, cholera alert, Acute Watery Diarrhoea, suspected cholera case and confirmed cholera case have been finalised. Further discussion is needed to confirm the definition of cholera hotspots.
Patient Care/Case Management Working Group (Kate Alberti²)

Priorities

The objectives of case management are to reduce morbidity and mortality by ensuring rapid access to quality care. During its meeting on 15-16 March 2016 at icddr’b in Dhaka Bangladesh, the WG reviewed evidence based standards for the management of cholera patients. This included providing recommendations on the organization of care during cholera outbreaks, infection control practices, and clinical care of cholera patients.

Activities

The WG agreed on standard approaches to:

- The organization of case management during an outbreak
- Infection control practices at different levels of care
- Antibiotics in the treatment of cholera

Current recommendations on the use of Oral Rehydration Solution (ORS), zinc and intravenous fluid were reviewed and validated. Current recommendations on the treatment of children with severe acute malnutrition and cholera were also reviewed and validated.

A review of current knowledge on the treatment of pregnant women with cholera was presented. It was concluded that there is currently insufficient knowledge to make recommendations. This should be a research priority.

The revised Cholera Kits were presented and will be promoted by WG members.

Water Sanitation and Hygiene Working Group (Thierry Vandevelde)

Priorities

The Water Sanitation and Hygiene (WaSH) WG was established to share, plan and review key short, medium, and long term actions needed to achieve cholera control through WaSH related activities. The WG supports institutions and governments of endemic countries in their efforts to implement comprehensive and integrated strategies for the control of cholera.

The WaSH WG is divided into four subgroups focusing on:

- **WaSH strategies**: To identify specific WaSH interventions in various contexts including emergency response, ongoing

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² Kate Alberti delivered the presentation on behalf of the Chair of the Case Management WG, Pradip Bardhan from icddr,b, who could not attend the meeting.
preparedness, long term interventions in conjunction with OCV campaigns.

- **Efficiency of WaSH interventions**: To identify an investment case methodology for WASH intervention and plan for its development.
- **WASH Practices**: To formulate recommendations for key WASH practices to be implemented at local level for cholera control.
- **Advocacy and funding**: To identify evidence-based approaches including using essential personnel, material and budget to advocate for WASH interventions in high risk cholera areas.

The table below provides an overview of priority issues identified by the four sub working groups.

Table 3 – Priority issues to be addressed by the sub working groups of the WASH WG.

<table>
<thead>
<tr>
<th>SWG1</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>WASH strategic recommendation paper</td>
</tr>
<tr>
<td>#2</td>
<td>Cholera and resilience</td>
</tr>
<tr>
<td>#3</td>
<td>Targeting methodologies (epi-wash)</td>
</tr>
<tr>
<td>#4</td>
<td>Assessment, monitoring and evaluation processes, including impact study</td>
</tr>
<tr>
<td>#5</td>
<td>Support mechanisms, coordination and advocacy</td>
</tr>
<tr>
<td>#6</td>
<td>Cholera and social sciences</td>
</tr>
<tr>
<td>SWG2</td>
<td>Efficiency of WASH interventions</td>
</tr>
<tr>
<td>#7</td>
<td>Investment case</td>
</tr>
<tr>
<td>#8</td>
<td>Toolkit to compare alternative program approaches</td>
</tr>
<tr>
<td>#9</td>
<td>Case studies</td>
</tr>
<tr>
<td>#10</td>
<td>Sensitivity analysis</td>
</tr>
<tr>
<td>SWG3</td>
<td>WASH Practices</td>
</tr>
<tr>
<td>#11</td>
<td>Household disinfection, disinfection kits, and spraying</td>
</tr>
<tr>
<td>#12</td>
<td>NFI distribution kits</td>
</tr>
<tr>
<td>#13</td>
<td>Fecal sludge treatment</td>
</tr>
<tr>
<td>#14</td>
<td>Institutions and public gathering places</td>
</tr>
<tr>
<td>#15</td>
<td>Water quality (chlorine)</td>
</tr>
<tr>
<td>#16</td>
<td>Major under-researched transmission vectors</td>
</tr>
<tr>
<td>#17</td>
<td>Evidence base for common interventions</td>
</tr>
<tr>
<td>SWG4</td>
<td>Advocacy</td>
</tr>
<tr>
<td>#18</td>
<td>Calendar of opportunities to engage</td>
</tr>
<tr>
<td>#19</td>
<td>Prioritize opportunities to influence</td>
</tr>
<tr>
<td>#20</td>
<td>Work the GTFCC Social Mobilization and Advocacy WG</td>
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</table>
Update from the Oral Cholera Vaccine Working Group (David Sack)

Priorities

The overall objective of the Oral Cholera Vaccine (OCV) WG is to maximize the public health benefit of OCV through the collective activities of Ministries of Health and agencies involved with cholera control.

With expectations that there will be an increased supply of OCV within the next two years, the WG is working towards a common approach on how best to integrate OCV into global cholera control strategies, how to target the use of OCV, how to monitor its effectiveness and how to adapt to new knowledge about its use.

Activities

The WG provides the fora for partners to discuss OCV research projects. To facilitate the prioritization of projects, the WG defined a list of research priorities which can guide members’ organization’s agendas. The priorities include documenting the “impact” of OCV in emergency and non-emergency settings, documenting effectiveness, impact, cost and cost-effectiveness of different vaccine delivery strategies, understanding when a single dose strategy (vs two dose strategy) should be used, how to improve immune responses in children under five years, and the interactions between OCV and Oral Polio Vaccine (OPV).

During 2015/2016, the WG finalized two technical notes on the use of OCV in travellers and in pregnant women, which are available at the links below.

- http://www.who.int/cholera/vaccines/Risk_Benefits_vaccinating_pregnant_women_Technical_Note_13Jan2016.pdf?ua=1
- http://www.who.int/cholera/vaccines/OCV_use_International_Workers_Travelers_Technical_Note_13Jan2016.pdf?ua=1

GTFCC Cholera Training Platform (Kate Alberti)

The GTFCC has developed an online training platform to ensure access to key training materials to anyone in charge of the preparation and implementation of training on cholera.

The intended target population are trainers from Ministers of Health (MOH), international or national organizations who may be interested in developing and implementing training on cholera for programme managers, health staff, WASH staff, logistics staff, etc.

The platform is still in testing phase and will be launched shortly. The GTFCC Secretariat is grateful to UNICEF who initiated this project and also to the following partners, without the contributions of which the platform could not exist: AMP, ACF, CDC, Epicentre, ICDDR’B, Global Health Media Project, Save the Children UK, UNICEF, and WHO.
Strategy for advocacy (Alan Hinman)

The fourth objective of the GTFCC is "to increase the visibility of cholera as an important global public health problem through integration and dissemination of information about cholera prevention and control, and conducting advocacy and resource mobilization activities to support cholera prevention and control at national, regional, and global levels."

There is consensus on the need to develop an advocacy strategy for the GTFCC to improve communication around the GTFCC including the technical material developed by the WGs.

Because of the nature of the disease, cholera is a challenging topic to communicate about. The broad objectives of an advocacy strategy will be to:

- Prioritize financial and human resources for cholera prevention and control
- Pursue country ownership through the development of national plans
- Ensure increased production and use of OCV
- Support of the research agenda.

To achieve this, as a first step, a small Working Group on Advocacy will be established. This WG will be tasked to define advocacy objectives and roles of GTFCC and other stakeholders, map strategies and partners, and determine sources of support.

Global cholera control: Review of the epidemiological situation and of main cholera control activities, globally and in most affected countries

Update on the global cholera situation in 2015 (Dominique Legros)

Epidemiology

Data is still preliminary but there does not seem to be a significant decline of reported cholera cases expected in 2015 as compared to 2014. A high number of cases were reported in Haiti, Mozambique, Somalia, and DRC. In addition 2015 has seen the occurrence of long, country wide outbreaks in Tanzania and Kenya. Under-reporting remains significant in South Asia. Bangladesh reported zero cases in 2015; India reported 889 cases and four deaths. The quality of disease burden data still needs to be improved.

In terms of global control strategy the dichotomy between the highly active field of outbreak response and limited global engagement in endemic cholera control is still present.
Report on Cholera /Acute Watery Diarrhoea outbreaks

Between February 2015 and April of 2016, a total of 15 outbreaks of cholera/ Acute Watery Diarrhoea (AWD) have been reported with a total of 104,451 cases and 1,853 deaths.

Table 1 - Outbreaks of Acute Watery Diarrhoea/Cholera Reported in the period June 2015-June 2016.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Country</th>
<th>Area</th>
<th>Number of cases</th>
<th>Number of deaths</th>
<th>CFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 Feb - April 2016</td>
<td>Benin</td>
<td>Aguégués, Sô-Ava</td>
<td>94</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>20 Sept – May 2016</td>
<td>Democratic Republic of Congo</td>
<td>Nationwide</td>
<td>18,513</td>
<td>344</td>
<td>1.9%</td>
</tr>
<tr>
<td>7 Nov 2015 – May 2016</td>
<td>Ethiopia</td>
<td>Oromia, Somali</td>
<td>1,727</td>
<td>19</td>
<td>1.2%</td>
</tr>
<tr>
<td>1 June 2015 – 19 March 2016</td>
<td>Haiti</td>
<td>Nationwide</td>
<td>30,214</td>
<td>307</td>
<td>1.0%</td>
</tr>
<tr>
<td>8 Sept – Nov 2015</td>
<td>Iraq</td>
<td>15 governorates including Baghdad, Babil, Diwaniya and Muthanna</td>
<td>2,847</td>
<td>2</td>
<td>0.1%</td>
</tr>
<tr>
<td>1 June 2015 – May 2016</td>
<td>Kenya</td>
<td>Nationwide</td>
<td>14,878</td>
<td>234</td>
<td>1.6%</td>
</tr>
<tr>
<td>18 Dec 2015 – 20 May 2016</td>
<td>Malawi</td>
<td>Blantyre, Karonga, Kasungu, Lilongwe, Machinga, Mangochi, Mchinji, Nkhata Bay, Phalombe, Zomba</td>
<td>1,540</td>
<td>42</td>
<td>2.7%</td>
</tr>
<tr>
<td>Aug 2015 – Jan 2016</td>
<td>Mozambique</td>
<td>Nampula, Niassa, Zambezia</td>
<td>1,433</td>
<td>8</td>
<td>0.6%</td>
</tr>
<tr>
<td>October 2015</td>
<td>Myanmar</td>
<td>Karen</td>
<td>188</td>
<td>11</td>
<td>5.8%</td>
</tr>
<tr>
<td>7 Sept 2015 – April 2016</td>
<td>Nigeria</td>
<td>Borno, Jigawa, Kano</td>
<td>1,241</td>
<td>19</td>
<td>1.5%</td>
</tr>
<tr>
<td>Jan 2015 – April 2016</td>
<td>Somalia</td>
<td>Banadir, Bay, Lower and Middle Juba, Lower and Middle Shabelle, and Hiraan</td>
<td>7,343</td>
<td>366</td>
<td>5.0%</td>
</tr>
</tbody>
</table>
### Oral Cholera Vaccine update

Global production of OCV has been limited since the creation of the global stockpile in 2013. A third OCV, Euvichol®, produced by EuBiologics in South Korea, received WHO prequalification in December 2015. Euvichol® has the same characteristics as Shanchol™. The prequalification of Euvichol® will increase access to OCV, particularly for the use of vaccine in non-emergency settings (i.e. hotspots) through the GTFCC OCV WG.

Between February 2015 and March 2016, a total of 2,072,013 doses were shipped to nine different countries. The majority of OCV campaigns were organized in the context of outbreak response with 1,833,125 doses shipped. Table 2 provides an overview of doses shipped during this period.

Table 2 – Doses of OCV shipped from the stockpile to different countries and contexts, June 2015–June 2016.

<table>
<thead>
<tr>
<th>Request Date</th>
<th>Country</th>
<th>Context</th>
<th>Doses shipped</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2015</td>
<td>United Republic of Tanzania</td>
<td>Outbreak response</td>
<td>254,590</td>
</tr>
<tr>
<td>July 2015</td>
<td>South Sudan</td>
<td>Outbreak response</td>
<td>270,340</td>
</tr>
<tr>
<td>July 2015</td>
<td>South Sudan</td>
<td>Humanitarian crisis</td>
<td>66,780</td>
</tr>
<tr>
<td>July 2015</td>
<td>Cameroon</td>
<td>Humanitarian crisis</td>
<td>116,375</td>
</tr>
</tbody>
</table>
Country Perspective: Haiti (Jean Luc Poncelet)

Context

From 20 October 2010 to 27 May 2016, 779,815 cases of cholera (O1 Ogawa, El Tor) and 9,157 deaths were reported by the Ministry of Health. The overall attack rate (AR) for the whole period is 10.53% and overall case fatality is 1.17%.

In 2015, 82% of the national cholera caseload was registered in Ouest, Centre, Artibonite, and Nord departments. These four departments accounted for approximately 90% of caseload in 2014. To May 2016 the same four departments accounted for about 76% of national case load.

From 2011 to 2015, the number of suspected cases of cholera decreased by 90%, the hospitalization rate increased from 53% to 82% and institutional case fatality decreased from 1.04% to 0.75%.

In 2016 (SE 1 - SE 22 not complete), the number of cases (17,225) slightly increased compared to the same period in 2015 (16,696). The number of cases is three times higher compared to same period in 2014.
In addition 170 deaths from cholera were reported compared to 140 in 2015 and 35 in 2014 for the same period.

Response to Cholera

There are around 200 health structures providing cholera care (Centres de traitement des diarrhées aiguës-CTDA), delivered by MoH personnel. NGOs with surge capacity (pools of doctors, nurses and hygienists) intervene when MoH personnel is overwhelmed.

By the end of 2015, approximately 373,000 people had been vaccinated in Haiti. A further 400,000 people are expected to be vaccinated in 2016.

Participants at an expert meeting convened by the Ministere de la Sante Publique et de la Population (MSPP) and WHO in April 2016 concluded that OCV has shown impact when coupled with WASH interventions. The expected increase of OCV production as of 2016 provides an opportunity to deliver vaccines to larger target groups. The MSPP wants to use this opportunity to scale up vaccination in Haiti. All at risk areas nationally are to be considered.

Participants also agreed that universal access to chlorinated water at the household level should be coupled with OCV. This can be achieved, either by treatment in the distribution system (where possible) or by ensuring conservation and treatment of water at the household level. Residual chlorine and E. coli presence should regularly be monitored at the point of use.

In summary, Haiti has shown great progress with the response to cholera. However, the country is still facing some challenges. Case fatality is still around 1% and cases continue to be reported. There is inadequate treatment of comorbidities (no referrals, weak presence of physicians in the CTDAs) and a lack of proper medical care at night and during weekends. Regular and systematic rotation of health personnel to CTDAs is still insufficient in many health structures. There is an unjustified overuse of IV treatment as opposed to oral rehydration. This is because oral rehydration requires more time dedicated to patients to ensure adequate ORS intake. In addition, CDTA hygiene and function indicators are usually below standard without external support and strict monitoring (usually by NGOs and MoH).

Next steps

The response to the cholera epidemic in Haiti must be maintained and better integrated into the national system. Specifically, the treatment of patients with cholera has to be reinforced and integrated into the essential package of care of the national health system. Steps to improve treatment include conducting training, improving health personnel management, and more monitoring/supervision of staff. In addition work must continue to build a water distribution system. As the development of water systems is a long term investment, an interim solution must be implemented. The impact of co-provision of two complementary measures (household chlorination of water and OCV) has been shown at a small
scale and must be tested at a larger scale. Specifically, access to chlorinated water and OCV should be prioritised in two departments: Centre (750,000 inhabitants) and Artibonite (1.75 million inhabitants). Nationally all aspects of cholera control should be reinforced including health promotion campaigns, the coordination and quality of treatment, the promotion of chlorinated water, and a local production of sodium hypochlorite.

Country Perspective: Democratic Republic of Congo (Dominique Legros)

Context

The Democratic Republic of Congo (DRC) is characterized by the presence of highly endemic areas (« hotspots ») located in the east and southeastern part of the country; while elsewhere cholera transmission has an epidemic pattern, particularly along the Congo river.

Over the last 10 years, DRC reported an average of 23,953 cholera cases and 437 deaths per year a CFR of 1.8%.

The country is facing many challenges that weaken the already very limited capacity to detect (diagnosis, surveillance and lab capacity) and respond to (case management, WaSH) cholera. It is a very large country with limited infrastructure and “numerous priorities”. Many areas affected by cholera are characterised by “protracted crises”, insecurity and population movements.

Response to Cholera

The country has developed a plan for cholera elimination with interventions along four axes:

- « Hotspot » areas in the Great Lakes region: The 7 health zones targeted in the endemic areas are Bunia, Goma, Bukavu, Uvira, Kalemie, Bukama, and Kasenga. In total these areas have an estimated population of 4,825,438 (the total population in DRC is 65,705,000). In these areas the focus is on long term prevention and control and the response focuses on the following activities: response to seasonal peaks, «long term WaSH» (Uvira), pre-emptive vaccination with «short term WaSH», and cholera control in refugee camps.

- In outbreak zones: In these situations the main objective is to stop transmission by ensuring classical control measures such as access to health care, WASH, surveillance, social mobilization, etc.

- Along the Congo River (Kisangani to Kinshasa): The main objective is to prevent the spread of outbreaks along the river, by conducting
preparedness activities: reinforcing surveillance, social mobilization, ensuring WaSH especially on boats and at ports.

- Kinshasa: In the city of Kinshasa the focus is on classical control measures and, in addition, in planning reactive vaccination in areas especially at risk of cholera or which can function as amplifiers of outbreaks (e.g. slum areas along the river).

Next steps

WHO and the MoH are actively discussing the implementation of the national cholera elimination plan including planning OCV campaigns in the context of outbreak response as well as in endemic settings/“hotspots”.

Country Perspective: Somalia (Abdinasir Abubakar)

Context

Somalia is a Federal Government made of multiple states, resulting in multiple administrative authorities and continual political change. Elections are planned for August 2016. The country has multiple frontlines, population displacements, and isolated populations and is often afflicted by man-made and natural disasters (floods, drought and conflict). Protracted complex emergencies have occurred since 1991. A significant part of the population currently lives in areas controlled by anti-government entities (e.g. Al Shabab).

Insecurity and inaccessibility, major displacement of civilians, recurrent drought and flooding, poor access to basic social services including health, low access to safe water and sanitation or to vaccination, make the county at high risk for cholera.

Response to Cholera

Currently there are confirmed cholera cases in seven districts. The response is ongoing and it entails a multi-sectorial approach, with international agencies supporting response, and efforts to strengthen coordination of response at all levels. Unfortunately active case finding and sample collection are very limited and not all districts are implementing active surveillance. There is also limited in-country laboratory capacity, low coverage of training of health workers in case management and surveillance. Activities are also ongoing related to community engagement to adopt hygienic behavior, supply of hygienic kits to affected communities, and routine risk assessment and targeted interventions.

A WHO Surge Technical Team of consultants is supporting the MoH to develop an integrated response plan. However there is lack of earmarked, sustained funding for outbreak preparedness emergency response (CERF Emergency response has been requested and funds are due to be released). Further difficult access and insecurity delay the response resulting in many early deaths, limited coverage of WASH interventions, and low MoH presence and capacity. In addition there is weak presence of
health and WASH partners, which are underfunded and have limited capacity.

Next steps

In spite of the challenging context, activities related to cholera control need to be scaled up and closely monitored. Health workers need to be trained on case management, infection control and prevention, and surveillance. Active surveillance including sample collection and rapid response has to be sustained. Data collection and timely dissemination should be reinforced. Water and sanitation interventions in high risk districts need to be scaled up. Emergency medical and non-medical supplies have to be prepositioned (e.g. by establishing regional hubs). And to support this, fundraising activities have to be ensured.
Curbing the cholera curve: implementing multisectoral cholera control programmes

Existing initiatives: EMRO regional framework (Abdinasir Abubakar)

Some of the most challenging countries in the world are in the Eastern Mediterranean Regional. Approximately 76 million people in the Eastern Mediterranean Region live in countries with humanitarian crises or complex emergencies, resulting in 10 million people displaced. The region also sees the largest annual religious gathering in the world.

Cholera remains a major public health risk in the region. Eight countries are considered endemic for cholera within the region. Recent modelling and mapping exercises estimate that the cumulative number of cases is more than 860,000 with 3,500 deaths in the period between 2005 and 2015 (note that estimates are limited by incomplete data).

Cholera has been a persistent public health problem in some countries in the region for the past 10 years. There are no standardized preparedness and response activities and the region faces a wide variety of contexts, from endemic settings, protracted crises to refugees and epidemics. WHO is facilitating the development of a regional framework for cholera control to create a reference document that can be used by all.

The framework will provide key technical information to health providers and planners highlighting the importance of multisectoral response and collaboration.

The framework is based on seven thematic areas for prevention and control. It will outline outcomes, a narrative description of technical considerations, and a matrix of strategic priority activities by context (endemic, non-endemic, humanitarian):

- Coordination and planning
- Surveillance, laboratory investigation and reporting
- Water, Sanitation and Hygiene
- Community mobilization and risk communication
- Organization of health care
- Oral Cholera Vaccine
- Procurement, stockpiling and logistics
The Regional Strategic Framework for Cholera Prevention and Control should be used as a key reference document for guidance on cholera epidemic preparedness and response and provides common information materials.

**Existing mechanisms for the implementation of long term WaSH programs – the case of Uvira, DRC (Aurélie Jeandron)**

Uvira is a town of 220 000 inhabitants in eastern DRC, and has been affected by cholera for the last 10 years. In average since 2009, there were 72 suspected cholera cases reported per week per 100 000 inhabitants. In Uvira 83% of people report using tap water, shared or private, occasionally or regularly. There is one water treatment plant in town, but distribution is poor, equipment failures are frequent, and power supply is unreliable.

The results of a study led by the London School of Hygiene and Tropical Medicine (LSHTM) and funded by the Veolia Foundation and the French Development Agency, published in 2015, show a 2.5-fold increase in suspected cholera admissions over 12 days after tap water supply stops for a day. Preliminary results from spatio-temporal modelling seem to indicate that 1 extra liter of tap water supply per capita and per week is associated with a reduction in the number of suspected cholera cases admissions.

Water supply improvements are planned in Uvira for the period 2017-2018. An impact evaluation will aim to better understand what improvements in access to clean water are necessary to reduce severe diarrhoea and cholera incidence.

This is a unique opportunity to explore which water access improvements are most effective at preventing cholera (there are only six published intervention studies on WASH vs cholera since 1976). However, the GTFCC members flagged that the project would only look at water without taking into account other sanitation activities, and focuses exclusively on cholera. The impact evaluation duration is more than three years with already four years of preparatory work, raising the question about how to control cholera during the development stages of this type of project. One further challenge is the difficulty to measure behaviours affected by social desirability.

**Regional strategy for cholera prevention and control in West and Central Africa – WCARO Platform (Julie Gauthier)**

Cholera regularly affects 14 countries in West Africa, in cross-border epidemics in four epidemiological basins: Mano River, Gulf of Guinea, Niger River, and Lake Chad. On average 50 000 cases are recorded annually with an average CFR > 3%. Cholera epidemics are often associated with other humanitarian crises in the region.

A regional cholera strategy has been developed with the ultimate goal to eliminate cholera by building bridges between cholera epidemic response
and cholera control. It promotes a targeted and multi-sectoral approach for cholera prevention and control using data to identify hotspots, plan control measures, target the response, and guide the development programme, ensuring cross-border collaboration.

The strategy is known as “Sword and Shield”. The Sword stands for the early and targeted emergency response in affected areas and preparedness activities (transmission context, case mapping, population and identification of high risk practices). The Shield is for the integrated prevention activities in at risk areas not yet affected by cholera and long term interventions in hotspots.

To support the implementation of this strategy, the West and Central Africa Regional (WCAR) cholera platform was created in 2012. It brings in a regional dimension to national cholera outbreaks and greater efficiency to cholera preparedness, response and recovery activities. It is an ad hoc regional platform for knowledge and information-sharing, advocacy and coordination co-led by WHO and UNICEF. The platform focuses its activities on:

- Reinforcing data sharing and networking in-between countries
- Documentation and advocacy
- Strengthening field capacity for preparedness and response

The platform follows a risk-informed approach for cholera preparedness, providing decision makers with comprehensive and evidence based information to implement efficient cholera preparedness and resilience activities. It also increases the visibility of cholera as a public health issue and provides comprehensive information for advocacy purposes.

**Group Work Sessions**

The GTFCC was asked to reflect on ways to improve the way the network operates to really curb the cholera curve. GTFCC members were divided into four groups to brainstorm on:

- How to make the programmes more effective? What are the long term gaps to better control and prevent cholera?
- What are the strengths and weaknesses of the GTFCC? How could the GTFCC improve what already works well and identify what should be dismissed?
Session I - Curbing the cholera curve: implementing multisectoral cholera control programmes - How to organize our work?

Introduction

Cholera remains an important but neglected disease, which imposes disproportionate economic costs to developing countries. Endemic situations are not controlled in multiple settings and cholera outbreaks continue to spread, despite ongoing interventions. The persistence of cholera primarily reflects weaknesses of water and sanitation infrastructure, as well as at risk hygiene and social practices, shortcomings of surveillance and health care systems, lack of trained workforces to support outbreak response, and limited access to Oral Cholera Vaccines (OCV).

Effective cholera prevention and control interventions are however well established. Cholera is preventable and can be controlled where access to clean water and sanitation facilities, and satisfactory hygienic conditions are ensured and sustained for the populations most at risk. Ultimately however, only a strong engagement of governments, international donors and partners on comprehensive and targeted strategies for cholera control will bring the disease burden down, both in endemic and epidemic settings.

Feedback from the groups

Multisectoral interventions targeting cholera hotspots, if covering a large proportion of the population at risk of cholera, could achieve sustained cholera control locally within a few years to a level where the disease no longer represents a public health threat.

High quality, timely and consistent epidemiological and laboratory surveillance data are critical to improve targeting and guide immediate and long term cholera control interventions. Data, including the current and historical burden of cholera, the severity of cases, the dynamic of the transmission and geographical spread of cholera are needed to conduct local risk assessments...

The usual approach for cholera surveillance is based on the reporting of clinical cases of acute watery diarrhoea or suspected of cholera. Yet, the clinical presentation of most cholera cases is not specific to the disease and the epidemiological surveillance of clinical cholera cases must be complemented by bacteriological confirmation of cases. This in turn requires strong in country laboratory capacity.
A “technical platform for cholera surveillance, prevention and control”, would:

1. Reinforce the capacity of cholera endemic countries to control cholera by supporting the implementation of multisectoral cholera control interventions targeting cholera hotspots.

2. Maintain and further develop a strong cholera epidemiological and laboratory surveillance network, in order to better estimate cholera disease burden and best guide control interventions towards cholera hotspots.

3. Foster cross border sharing of comparable data as well as information on cholera prevention and control interventions especially in areas where cholera outbreaks are affecting contiguous countries.

4. Serve as a reference for technical support to partners and countries in all domains of cholera risk assessment and control, both for outbreak preparedness and response, as well as for long term cholera control in targeted hotspots.

5. Encourage exchange and collaboration between local partners.

6. Make adapted and practical technical guidance and training material readily accessible to countries and partners, and become an authoritative source of information.

7. Mobilize surge capacity and technical resources during response to cholera outbreaks, either directly or through institutions of the GTFCC network.

8. Identify and coordinate financial partners to support the implementation of sustained cholera control activities in targeted cholera hotspots, in coordination with countries’ governments.

Session II - Curbing the cholera curve: implementing multisectoral cholera control programmes - How to best use the capacity and resources of the GTFCC to support the implementation of cholera control programmes?

Introduction

The Global Task Force on Cholera Control (GTFCC) was launched in 1992 following the adoption of resolution 44.6 by the Forty-fourth World Health Assembly (WHA). The aim was to reduce mortality and morbidity associated with the disease and to address the social and economic consequences of cholera. The GTFCC brings together governmental and non-governmental organizations, UN agencies, and scientific institutions to coordinate activities and develop technical guidelines for cholera control. The GTFCC is administered by the WHO through its Department of Pandemic and Epidemic Diseases (PED). In 2011, the WHA resolution 64.15 recommended to the WHO to revitalize the GTFCC, which had become relatively inactive, and to strengthen WHO’s work in this area,
including improved collaboration and coordination among relevant stakeholders. The GTFCC was revitalized in 2014.

Two years “post revitalization” is an appropriate moment to pause and look at what has been done well, and what where gaps exist. We need to identify strengths and weaknesses in order to adjust the structure, mechanisms and strategies of the GTFCC in order to ensure it is adapted to meet the goal of effective implementation of cholera control programs in countries most at need.

Feedback from the groups

A dynamic on cholera has been created since the revitalization of the GTFCC in 2014 and cholera related activities are much better coordinated than they have been. The working groups, made up of a large, diverse group of experts, play an important role in information sharing and are very active in developing guidance for partners and countries involved in cholera control. The group would like to see further development of the linkages between working groups and with Ministries of Health of affected countries, and with other networks. The GTFCC secretariat was seen as playing a vital role and its capacity should be reinforced.

The development of guidance documents participates to the credibility of the GTFCC. By better branding the network, the secretariat would further increase the visibility and legitimacy of the network.

The role of the GTFCC is critical but more visibility / higher profile and a stronger strategic and political leadership are needed, in order to go beyond a strictly technical role. This could potentially be achieved by the creation of a high level External Advisory Group. The political leadership and high profile of such a group would be critical to better engage and empower countries on the implementation of cholera control programs. This would also help expand the group of donors supporting cholera and advocating for cholera control in general.

As a first step, an external review of the achievements of the last two years, involving all key stakeholders and donors should be carried out. The review should include recommendations on how to achieve higher visibility and stronger leadership for cholera control. Appropriate adaptations to the roles of the GTFCC, its Secretariat and the Working Groups to meet the objectives should also be proposed. This review should assess the impact of the work of the GTFCC and make recommendations to clarify GTFCC membership (rules, inclusion of MOH of endemic countries, of training institutions, etc.). Based on the results of this review, a business plan / strategy should be developed.
CONCLUSION

Over the past two years, the GTFCC has positioned itself as a key resource for all stakeholders involved in cholera control. The development and publication of technical guidance is an example of the successful collaboration within the GTFCC. The network provides key support to countries in their effort to control cholera. As a coordinating mechanism, the GTFCC improves information sharing, contributing to the global learning agenda on cholera control strategies.

Despite these achievements, today in Africa alone, 40 million people still live in highly endemic cholera settings. Increasing the global prominence of the challenge of cholera control remains difficult and more must be done to advance its place on the global public health agenda.

More technical guidance notes will be published in the coming months on different topics such as the use of antibiotics in the treatment of cholera and the use of rapid diagnostic tests. The GTFCC is also now better equipped to coordinate and support cholera control activities and OCV campaigns in affected countries. Now is also the time to use the dynamic created among cholera stakeholders and to reflect on whether the GTFCC is structured as effectively as possible to reach its objective to end cholera transmission and cholera deaths. In the coming months, WHO will be calling for an independent review of the GTFCC to better frame the role of the GTFCC and how to best use this powerful network to achieve key results in cholera control. Recommendations will be presented to GTFCC members during the 2017 annual meeting.
### ANNEXES

**Annex 1. Meeting Agenda**

#### 3rd Meeting of the Global Task Force for Cholera Control

**Amman, Jordan**

**14 - 15 June 2016**

**Agenda**

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Time</th>
<th>Activity</th>
<th>Person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.30 –</td>
<td>Welcome Coffee</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opening</td>
<td>9.00 –</td>
<td>Opening address</td>
<td>WR + chair</td>
</tr>
<tr>
<td></td>
<td>9.15</td>
<td>Introduction of participants and appointment of chairperson</td>
<td></td>
</tr>
</tbody>
</table>
| Review of activities of the GTFCC over the previous 12 months (2nd year since revitalization 2015/2016) | 9.30 - 10.00 | GTFCC Secretariat  
- Overview of meeting objectives and expected outcomes  
- Progress on technical work and general overview of WG activities  
- SAGE WG  
- OCV campaigns and stockpile  
- Revision of UNICEF Toolkit  
- Revision of WHO Yellow Book  
- New Cholera Kits | Lorenzo Pezzoli |
|             | 10.00 –  | Update from Surveillance/Laboratory Working Group + discussion           | Marie Laure Quilici |
|             | 10.30    | Coffee break (includes poster session for GTFCC partners to showcase their activities) |                    |
|             | 11.00    | Update from Surveillance/Epidemiology Working Group + discussion         | Martin Mengel      |
|             | 11.30    |                                                                           |                    |
|             | 12.00    | Update from Case Management Working Group + discussion                   | Kate Alberti       |
|             | 12.30    | Update from WaSH Working Group + discussion                              | Thierry Vandevelde |
|             | 12.30 –  | Lunch Break                                                               |                    |
|             | 14.00    |                                                                           |                    |
|             | 14.00 –  | Update from OCV Working Group + discussion                               | David Sack         |
|             | 14.30    |                                                                           |                    |
|             | 14.30 –  | Update on Training Repository + discussion                               | Kate Alberti       |
|             | 14.45    |                                                                           |                    |
|             | 14.45 –  | Strategy for advocacy + discussion                                       | Alan Hinman        |
|             | 15.15    |                                                                           |                    |
|             | 15.15 –  | Coffee break (includes poster session for GTFCC partners to showcase their activities) |                    |
## Global cholera control (Review of the epidemiological situation and of main cholera control activities, globally and in most affected countries)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.45 – 16.00</td>
<td>Update on the global cholera situation in 2015</td>
<td>Dominique Legros</td>
</tr>
<tr>
<td>16.00 – 16.20</td>
<td>Country Perspective: Haiti</td>
<td>Jean Luc Poncelet</td>
</tr>
<tr>
<td>16.20 – 16.40</td>
<td>Country Perspective: Malawi</td>
<td>Philippe Cavailler</td>
</tr>
<tr>
<td>16.40 – 17.00</td>
<td>Country Perspective: Somalia</td>
<td>Abdinasir Abubakar</td>
</tr>
</tbody>
</table>

**END OF DAY 1**
Social event with cocktails and nibbles

## Day 2

### Curbing the cholera curve: implementing multisectoral cholera control programmes

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00 – 9.20</td>
<td>Existing initiatives: EMRO regional framework</td>
<td>Abdinasir Abubakar</td>
</tr>
<tr>
<td>9.20 – 9.40</td>
<td>Existing mechanisms for the implementation of long term WaSH programs – the case of Uvira, DRC</td>
<td>Aurélie Jeandron</td>
</tr>
<tr>
<td>9.40 – 10.00</td>
<td>Existing initiatives: WCARO platform</td>
<td>Julie Gauthier</td>
</tr>
<tr>
<td>10.00 – 11.15</td>
<td>How to organize our work to curb the cholera curve?</td>
<td>Group work</td>
</tr>
<tr>
<td>11.15 – 11.45</td>
<td>Coffee break (includes poster session for GTFCC partners to showcase their activities)</td>
<td></td>
</tr>
<tr>
<td>11.45 – 12.30</td>
<td>Feedback from the group work and recommendations</td>
<td>Plenary facilitated discussion</td>
</tr>
<tr>
<td>12.30 – 14.00</td>
<td>Lunch break</td>
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</tbody>
</table>

### Role of the GTFCC

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.00 – 14.10</td>
<td>Introduction</td>
<td>Dominique Legros</td>
</tr>
<tr>
<td>14.10 – 15.00</td>
<td>How to best use the capacity and resources of the GTFCC to support the implementation of cholera control?</td>
<td>Group work</td>
</tr>
<tr>
<td>15.00 – 15.30</td>
<td>Coffee break (includes poster session for GTFCC partners to showcase their activities)</td>
<td></td>
</tr>
<tr>
<td>15.30 – 16.00</td>
<td>How to best use the capacity and resources of the GTFCC to support the implementation of cholera control? (Continued…)</td>
<td>Group work</td>
</tr>
<tr>
<td>16.00 – 16.30</td>
<td>Feedback from the group work and recommendations</td>
<td>Plenary facilitated discussion</td>
</tr>
</tbody>
</table>

### Roadmap for the 3rd year of GTFCC

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.30 – 16.50</td>
<td>Main recommendations and program of work for the coming year</td>
<td>Plenary facilitated discussion</td>
</tr>
<tr>
<td>16.50 – 17.00</td>
<td>Closing</td>
<td>Chair</td>
</tr>
</tbody>
</table>

**END OF MEETING**
Annex 2. Detailed Reports from the Working Groups

Working groups provided detailed reporting on their activities in the past year. The table below provides an overview of GTFCC Working Groups face to face meetings held to date.

<table>
<thead>
<tr>
<th>Working group</th>
<th>Meeting Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance/Laboratory</strong></td>
<td>19 December 2014</td>
<td>Institut Pasteur, Paris, France</td>
</tr>
<tr>
<td></td>
<td>27/29 November 2015</td>
<td>Translational Science and Technology Institute (THSTI), Faridabad, India</td>
</tr>
<tr>
<td></td>
<td>12-13 April 2016</td>
<td>Save the Children, London, UK (joint meeting of Lab &amp; Epi WGs)</td>
</tr>
<tr>
<td><strong>Surveillance/Epidemiology</strong></td>
<td>4-5 November 2015</td>
<td>AMP, Ferney Voltaire</td>
</tr>
<tr>
<td></td>
<td>12-13 April 2016</td>
<td>Save the Children, London, UK (joint meeting of Lab &amp; Epi WGs)</td>
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<tr>
<td>Case Management</td>
<td>15-16 March 2016</td>
<td>icddr’b, Dhaka Bangladesh</td>
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<td>Water Sanitation and Hygiene</td>
<td>4-5 May 2015</td>
<td>UNICEF, New York, USA</td>
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<td>Oral Cholera Vaccine</td>
<td>17-18 November 2014</td>
<td>Geneva, Switzerland</td>
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<td>22-23 September 2015</td>
<td>Johns Hopkins University, Baltimore, USA</td>
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Report from the Surveillance Laboratory Working Group

Rapid Diagnostic Tests RDTs

Through the publication of a WHO briefing document, the Lab WG’s is aiming to give recommendations to Ministries of Health and other organizations on the potential use of available cholera rapid diagnostic tests, when and where to use it, how to interpret the results, limits and performance.

The current cholera RDTs are not reliable for field use. Their performance is suboptimal and subject to variability (sensitivity ranges from 58 to 100%; specificity ranges from 60 to 100%). There are also no standard evaluation protocols, the quality of production is variable, and changes are regularly made to the commercial products.

RDTs do not replace culture and/or lab-based testing; any RDT positive results MUST be confirmed by culture or PCR. They should not be used for individual diagnosis but should serve as a screening tool for suspected cholera cases in situations where culture is not readily available. In areas where confirmed cholera cases have not been recently reported one positive RDT from one patient clinically suspect of cholera is sufficient to immediately launch a cholera alert and start control measures. If all RDTs test negative, cholera should be ruled out.

Confirmation by culture or PCR of any positive RDT(s) is necessary to declare cholera outbreaks and must be carried out as quickly as possible

In addition to the publication of a guidance note, the WG is working to facilitate the prequalification process for RDTs and to define a target product profile for the ideal RDT.

In terms of detection target, the capacity to distinguish between VC O1 and VC O139 antigen may be of interest in some areas where the two serogroups have been reported,
but O1 is sufficient in African countries and in the region of the Americas (AMRO). The WG agreed that RDT should have at least 90% sensitivity and 85% specificity.

Before introduction in each country, RDTs should be evaluated at the National Reference Laboratory with a well-characterized panel of positive and negative patient specimens.

In parallel, the WG is facilitating the work towards improving the RDTs. This entails setting up the process of prequalification of RDTs and also defining a target product profile (TPP) for the desirable RDT to be developed.

In terms of prequalification the next step will be to agree on a “concept note for the prequalification of cholera RDTs” as an advocacy tool to seek funding. In terms of the TPP, the WG agreed that the RDTs should be used for surveillance (outbreak detection and monitoring) on suspected cholera cases at primary health level, the intended users should be non-laboratory personnel, that both sensitivity and specificity should be at least 90%, that the time to result should be 15 minutes or less (30 minutes could be also acceptable), and that results should remain fixed ideally but that a stability window of 30 minutes is also acceptable.

Other activities to improve RDTs supported by the WG are field evaluations of RDTs (THSTI/NICED are working on bedside detection; Epicentre is working on RDTs evaluation in the field), test alternative method to increase specificity (e.g. APW enrichment), and urge manufacturers to continue to develop tests that meet higher standards.

**Molecular methods**

DNA-based molecular techniques can be helpful for cholera surveillance, with uses that range from identification of VC, its characterization (variants and virulence), and its genotyping.

The WG aims to provide updated information on DNA based molecular techniques available for identification and subtyping of *Vibrio cholerae* strains, in order to enhance the laboratory capacity to detect and diagnose cholera disease, and characterize the strains by typing methods giving comparable data that could be easily exchanged.

The WG is preparing a WHO briefing document to public health practitioners in order to promote/enhance their use in the field.

The consensus in the WG is that “molecular techniques” briefing note should include consecutive sections from less discriminatory techniques to identify cholera, to highly discriminatory techniques to type strains.

The note will include the presentation of the different techniques, modalities for their use, and information on how to route the samples towards the labs with capacity for testing.

The WG asked to provide a clearer vision on the added-value of molecular techniques to enhance control measures, establish if there is person to person transmission, and identify source of infection or reservoirs, both for surveillance and outbreak investigation.

Molecular typing techniques are more useful in hyperendemic countries to identify cholera hotspots rather that in countries rarely affected by cholera outbreaks. In
outbreak situations, they are useful when multiple outbreaks are seen at the same time to assess if the same or different strains are involved.

The primary goal is to detect and identify cholera O1 at the most peripheral level. For this PCR is an appropriate tool. To characterize the strains, some specific PCR, to be defined by the group, could give a first answer. To type the strains, techniques such as PFGE and MLST are not appropriate for cholera given their low discriminatory power and should be removed from the note. MLVA is of added-value and should be retained, but is complex and not always easy to implement. Whole genome sequencing (WGS) is the gold standard since it can do all that we need. However, it is a highly specialised and resource intensive technique, still inaccessible to most cholera endemic countries.

There are some procedural questions also for the group to consider, like which sequences should be used, the conditions for access to main databases, conditions to access molecular testing by a country/area confronted with a cholera outbreak, etc.

**Antimicrobial susceptibility testing**

Methods to assess drug sensitivity are critical for surveillance of cholera. However, today, there is little guidance provided to countries. The WG agreed in previous meetings on the need to standardize testing practices. This entails harmonization of methods for the detection of resistance and verification that there are no conflicting results.

Following the results of a survey on testing methods, questions for the group were: what are the consequences of the discrepancies on the interpretation of results, can a standard protocol be recommended, and what is the minimal set of antibiotics to be tested?

The WG agreed that the antibiotics to be tested should be the 4 or 5 used for cholera, on the need to define one standard (at least for reference labs) to avoid confusion and different results, and that further work has to be conducted on comparing the methods (e.g. comparing the breaking points of the different interpretation guidelines, CLSI, EUCAST, CASFM, ...).

**Global cholera laboratory network**

The WG recognises that in many cholera prone settings the ability to use culture-based diagnostic approaches is restricted by insufficient, or lack of appropriate, laboratory capacity. This constraint is determined by problems in staff management, lack of trained laboratory staff, and unavailability of laboratory supplies, challenges with storage and transport of samples, unreliable reporting, and overall financial support. In particular, culture confirmation is rarely accessible in peripheral health care facilities where most cholera patients present. These challenges result in delays in outbreak detection and in implementation of control measures, which in turn leads to higher morbidity and mortality burden. This also limits the capacities for outbreak investigations and for the monitoring of VC circulating strains, including for the detection of the emergence of new strains that may require immediate changes in the response (e.g. adapted antibiotics or vaccines).

The GTFCC and its WGs on Surveillance are ideally placed to facilitate the establishment of a global cholera laboratory network, which could reinforce the capacity of cholera laboratory surveillance to improve and maintain countries capacity to diagnose and report cholera disease in a reliable and timely manner; enhance cholera surveillance,
investigation and response capacity; improve monitoring of VC strains; and provide more accurate estimate of disease burden and geographical spread.

A first point is to define which regions or countries should be covered by the lab network. The aim should be reinforcing cholera epidemiological and laboratory surveillance, especially in Africa.

The WG recognised the need for a model based on connecting countries with realities already existing within the GTFCC (e.g. Africhol, IDEA, IDSR, CDC, WCARO platform). In parallel the GTFCC secretariat should start working on the legal and operational implications of building such a network. Reference laboratories in each region or country should be identified. Mechanisms to secure funding will have to be identified.

Further topics

Further topics of the WG are facilitating the establishment a cholera strains data bank (this activity is closely linked to the work on molecular techniques and on the establishment of the laboratory network), discussing recent developments in molecular epidemiology of Vibrio cholerae and consider if a revision of the classification is warranted, and on procedures surrounding food and environmental surveillance of Vibrio cholerae (in collaboration with the WASH WG).

Report from the Surveillance/Epidemiology (Epi) Working Group

In collaboration with the Lab WG, the Epi WG is aiming at bundling existing initiatives and networks (Africhol, IDEA, IDSR, CDC, WCARO platform, African CDC, etc.) towards the establishment of a Global Cholera Surveillance Network.

The main topics discussed so far were how to standardise case definitions, the common understanding of the main terms to use for cholera surveillance, opportunities and way forward to update existing guidance (e.g. “yellow book”), the best use of RDT and molecular diagnostic tools for cholera surveillance, and the coordination between actors involved in cholera surveillance.

The WG accepted the following definitions:

- **Cholera Endemic Area**
  “A cholera-endemic area is an area where confirmed cholera cases were detected during 3 out of the last 5 years with evidence of local transmission. The area can be defined as a region, a district or a small locality.”
  (Pending further modelling studies to be conducted to refine it)

- **Cholera outbreak**
  “A cholera outbreak/epidemic is defined by the occurrence of at least one confirmed case of cholera with evidence of local transmission. In areas with sustained transmission (year round), a cholera outbreak is a two-fold increase of cases – including of laboratory confirmed cases – over two consecutive weeks reported from the same geographical area”
  (Recommended to mention in the procedures that in settings where there is the risk of local transmission control measures should be taken anyway)

- **Cholera alert**
“A cholera alert is defined as the detection of a cluster of severe acute watery diarrhoea cases (persons aged ≥ 5 years in non-endemic areas and ≥ 2 years in endemic areas) from the same area within one week OR a two-fold increase of acute watery diarrhoea cases (persons aged ≥ 5 years in non-endemic areas and ≥ 2 years in endemic areas) compared to the previous week in two consecutive weeks in the same geographical area OR one death from severe AWD (persons aged ≥ 5 years in non-endemic areas and ≥ 2 years in endemic areas) OR one positive cholera case by rapid diagnostic test (RDT), culture or PCR” (The WG agreed that the threshold for declaring an alert should be acute watery diarrhoea in 2 years or above in endemic areas and 5 years or above in non-endemic areas).

- **Acute Watery Diarrhoea**
  “Acute watery diarrhoea is an illness characterized by 3 or more loose or watery (non-bloody) stools within a 24-hour period”

- **Suspected cholera case**
  “In areas non-endemic for cholera, any person aged 5 years or more presenting with acute watery diarrhoea and severe dehydration or dying from acute watery diarrhoea or when the clinician suspects cholera. In areas where cholera is endemic, any patient aged 2 years or more presenting with acute watery diarrhoea or dying from acute watery diarrhoea or where the clinician suspects cholera. In areas where a cholera outbreak/epidemic is declared, any person presenting with acute watery diarrhoea” (The WG agreed to add the clinical element – “when the clinician suspects cholera” - to the case definition)

- **Confirmed cholera case**
  A suspected case for which Vibrio cholerae O1 or O139 is confirmed by culture or PCR.

The WG agreed that the following definition requires more discussion:

- **Cholera hotspot**
  “A cholera hotspot is defined as a limited geographical area (administrative level 2 or health district catchment area) which is regularly affected by cholera (none to very few weeks with no cases reported each year). A hotspot area has a consistent high incidence rate of cholera with small variations between seasons” (The WG agreed on the need to work on a more specific definition that takes into consideration high incidence with cut-offs and frequency)

**Report from the Case Management Working Group**

The objectives of case management are to reduce morbidity and mortality by ensuring rapid access to quality care. From a cholera control perspective the Case Management WG logically continues the activities of the Lab and Epi WGs which revolve around detecting cholera patients.
Oral rehydration solution and zinc

Oral Rehydration Solution (ORS) is the mainstay of cholera therapy. The low osmolarity ORS is now the standard and is safe in all age groups (no adult hyponatraemia). Rice based ORS is most effective, but is not feasible in all contexts.

Some of the limitations are that ORS reduces dehydration but not diarrhoea and that intravenous fluids are sometimes seen as superior by patients.

Zinc helps reduce diarrhoea and prevent future episodes. Zinc is combined with ORS in the treatment of paediatric diarrhoea. To this effect WHO – UNICEF issued a joint statement in 2004. It is important that the approach is to ensure ORS and then zinc (not the other way around). The WG discussed about the importance of completing the treatment (many children vomit the first dose and this is important to take into account) and also on the fact that current co-packaging of ORS and zinc may provide too much zinc.

In general there is poor knowledge of management of diarrhoea and dehydration in many countries where cholera occurs. ORS and zinc are recommended, but uptake has been slow by both health care professionals and communities in many countries. There is the need for goof strategies to promote ORS and zinc. Bangladesh was successful in this endeavour by working both with professionals and in communities. Increasing the dialogue with global diarrhoea reduction programmes is also warranted.

Missed opportunities and investigate mechanisms to improve uptake of ORS and Zinc at country level (linked with Advocacy WG and other Diarrhoeal Disease groups) should also be looked at.

Intravenous fluids

The introduction of intravenous (IV) therapy with alkaline fluids in the treatment of cholera dramatically reduced mortality from 70% to 20% at the turn of the 20th century. Early in the 2nd half of the 20th century mortality was further reduced to less than 1% using exact measures of loss and replacement, isotonic, alkaline solutions and the introduction of ORS.

Ringer’s Lactate remains the recommended fluid for rehydration of severely dehydrated cholera patients.

ORS must be initiated as soon as possible in patients treated with IV for severe dehydration.

Hypoglycaemia is a relatively common severe complication of diarrhoea leading to severe dehydration. The possibility of using glucose solution was mentioned; however the group agreed that feeding is the best way to treat hypoglycaemia and patients should be switched to food as soon as they are able to eat.

The WG agreed that the use of IV fluids in moderate patients should also be further assessed.

Organisation of case management during an outbreak

The WG is developing a draft technical paper that describes the three main levels of cholera care:

1. ORS only (ambulatory - ORP)
2. ORS + IV (overnight - CTU)
3. ORS + IV + capacity to treat complications (overnight - CTC)

These levels should be viewed as a dynamic network of care that is adapted to each context. The WG is discussing the minimum standards for each level.

Further discussion is ongoing with regards to considering if home treatment should be considered as a 4th level since many deaths occur prior to accessing treatment. Also the WG acknowledged that transport between structures is an important, but unresolved issue.

The WG supports the idea of performing an assessment of health systems preparedness in terms of case management.

Cholera Kits

New Cholera Kits have been designed to be aligned with the levels of care conceptually described above.

Interagency Diarrhoeal Disease Kits were standard, designed for cholera and shigella. They came as one large kit. They were revised to facilitate field use for preparedness and first month of outbreak.

The new Cholera Kits (now in WHO catalogue) include: investigation, laboratory, community (ORP), periphery (CTU), central reference (CTC), hardware (beds, water tanks, fencing etc.).

The WG supports the idea to evaluate the transition to new cholera kits.

Infection control practices at different levels of care

The risk of transmission is high during epidemics due to the high \( V.\) cholerae load in stool and vomit and the large volume of fluid loss, often outside sanitary facilities. The potential for the bacteria to remain in the environment and to play a role in persistent transmission makes infection control even more important.

The WG is reviewing the infection control procedures for case management and making recommendations on changes or updates as necessary. This will result in a technical note to be produced in collaboration with other WGs such as the one on WaSH.

Antibiotics in the treatment of cholera

The WG is developing a draft technical paper to provide guidance with regards to the use of antibiotics for cholera treatment.

Overall the WG agreed that conservative approach is recommended with regards to antibiotics.

The first question to answer is: who should be given antibiotics?

The WG agrees that they should be considered for patients with severe dehydration and/or high purging. In endemic settings, children under 5 should have identified aetiology prior to administration.

The second question is: which antibiotics to use?
In general antimicrobial monitoring is recommended. Doxycycline can safely be given to all age groups and pregnant women, as a first choice. Ciprofloxacin or azithromycin can be alternatives.

The third question is: do antibiotics have a role in preventing cholera?

The assessment of the WG is that they should not to be used for mass chemoprophylaxis and that more research is needed with regards to their use in contacts of patients and that further research is needed on the use of antibiotics for contacts at household level compared with other interventions (WaSH).

Also documentation of antimicrobial resistance with a database (link with lab WG) is of high interest.

**Cholera in pregnant women**

The WG is also discussing the specificities of cholera treatment during pregnancy. A review of literature published since 1980 showed that the risk of foetal losses during cholera is 6-15% (up to 30%). The exact mechanisms are unknown and may be related to dehydration and vomiting. Unfortunately the current adapted protocols do not have significant effect. Also many losses happen prior to reaching care.

The WG agrees that more emphasis should be put on preventing cholera during pregnancy including the use of OCV. More research should also go into this topic. This could start with a review the evidence in order to produce guidance on management (also from a prevention point of view and factors that lead to fetal loss).

**Cholera in children with Severe Acute Malnutrition**

Children with severe acute malnutrition (SAM) are also at higher risk of cholera.

The WG agrees on the importance to give regular ORS and not ReSoMal (reduced sodium ORS for dehydration in children with SAM). In addition there is the need to maintain body temperature, feed the children regularly, provide broad spectrum antibiotics, and monitor for other infections.

**Report from the Water Sanitation and Hygiene Working Group**

The Water Sanitation and Hygiene (WASH) WG was established to share, plan and review key short, medium, and long term actions needed to achieve cholera control through WaSH related activities. The WG support institutions and governments of endemic countries in their efforts to implement comprehensive and integrated strategies for the control of cholera.

The WASH WG is divided into 4 subgroups that have identified a total of 20 priority issues to be addressed (Table 3.).

**WASH strategies**

Set up to identify specific WASH interventions in various contexts including: emergency response, ongoing preparedness, long term intervention and in conjunction with OCV campaigns. This subgroup held a 2 days meeting to define basis for the WASH strategic recommendations Paper, and all contributions received from the core group (12 members)
Efficiency of WASH interventions

Set up to identify an investment case methodology for WASH intervention and plan for its development. A concept note and ToRs for the investment case have been developed. A health economist has been recruited by UNICEF WCARO and is working on a common methodology for national investment case and its application to Niger. Funding for Guinea investment case has been secured (UNICEF WCARO/Veolia Foundation).

WASH Practices

Set-up to formulate recommendations for key WASH practices to be implemented at local level for cholera control. A review study on Household disinfection was conducted (LSHTM). Funds secured and ToR to be published soon for a planned field experiment (UNICEF WCARO). Planning to produce technical briefings on evidence based common interventions (e.g. dead body management, chlorination methods, etc.) in collaboration with Tufts University.

Advocacy and funding

Set up to identify evidence-based approaches including using essential personnel, material and budget to advocate for WASH interventions in high risk cholera areas. This subgroup is participating also in two other GTFCC working groups (OCV and Epidemiology) to emphasize the importance of a coordinated approach.

Despite the achievements described, the WASH WG is also facing some challenges. First of all the WASH related advocacy as part of the global GTFCC strategy has not been developed as planned and needs further work. Secondly, joint WASH/OCV missions have not yet happened in relation to mass vaccinations campaigns. There is still a need for it, and funding is required to secure it. However, the recent example of a meeting in the DR Congo to which the wash representatives were invited to the discussions on the introduction of OCV is a positive step. Finally funding of WASH priorities remains a need as some key defined priority issues are still unfunded.

Table 3 – Priority issues to be addressed by the 4 sub working groups of the WASH WG.

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<th>Strategy</th>
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<td>#2</td>
<td>Cholera and resilience</td>
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<td>#3</td>
<td>Targeting methodologies (epi-wash)</td>
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<td>#4</td>
<td>Assessment, monitoring and evaluation processes, including impact study</td>
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<td>Support mechanisms, coordination and advocacy</td>
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<td>#16</td>
<td>Major under-researched transmission vectors</td>
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</table>
## Report from the Oral Cholera Vaccine Working Group

The overall objective of the Oral Cholera Vaccine (OCV) WG is to maximize the public health benefit of OCV through the collective activities of Ministries of Health and agencies involved with cholera control, especially those planning to use OCV in their control efforts.

In the past year some major changes in the OCV landscape occurred. OCV was used by more countries. However this lead to continuing concerns about the balance for supply and demand. In December 2015, Euvichol was prequalified for use with the stockpile. This will result in an increased supply which will facilitate the use of vaccine in non-emergency settings (i.e. hotspots) through GTFCC.

With expectations that there will be an increased supply of OCV within the next two years, the WG is planning on how best to integrate OCV into the global cholera control strategy, how to target the use of OCV, how to monitor its effectiveness and how to adapt to new knowledge about its use.

The WG held its second meeting on 22-23 September 2015 at JHU in Baltimore. Issues discussed were: the need to cover operational costs for OCV campaigns more systematically, the fact that some countries request OCV to be licensed in country before it can be used (this may be an increasing issue with non-emergency use) and how the WG can facilitate this process, the need for countries to have simple models of well-executed OCV campaigns, not for research purposes (although M&E will always be necessary), and the importance to coordinate both the Disease Control and EPI units of MoHs. Further discussions related on the importance of clarifying cold chain requirements (e.g. instructions on label vs VVM14, the importance of not freezing the vaccines). Continued questions on how to integrate OCV with WASH were also addressed (examples of this integration are needed and should be published).

At the meeting the WG also agreed on certain research priorities, such as documenting “impact” of OCV in emergency and non-emergency settings, documenting effectiveness, impact, cost and cost-effectiveness of different vaccine delivery strategies, understanding when a single dose strategy (vs two dose strategy) should be used, how to improve immune responses in children under five years, and the interactions between OCV and OPV.

A specific meeting on Monitoring and Evaluation of OCV campaigns was organised in Geneva on 15-16 December 2015. Specific key research priorities for monitoring and evaluation that emerged during the two day meeting are described below.

### Vaccine coverage

It was recommended to revisit current approaches in collecting administrative and coverage surveys to effectively address gaps in coverage, acceptability, and feasibility.
Adverse Events Following Immunization (AEFI)

The Strategic Advisory Group of Experts (SAGE) recommendations on use in pregnancy will be released in early 2017. Shantha/Sanofi will be encouraged to change pregnancy comment from ‘not recommended’ to ‘not contraindicated’.

Acceptability/Feasibility

It was recommended to develop anthropological and qualitative tools to better understand reasons behind not getting vaccinated.

Economic analyses

GTFCC members are encouraged to plan, complete and share ongoing analysis on the economic evaluation of OCV campaigns.

Vaccine effectiveness

There is the opportunity to develop a reactive single dose protocol so that it is ready to use if a country decides to evaluate in an emergency setting.

Vaccination impact

It is very important to demonstrate the impact of OCV on cholera burden. To this effect protocols should be developed with special emphasis on group selection and on the methodology used in different contexts.

Alternative strategies

There was discussion also about possible alternative strategies for OCV delivery. This included assessing the circumstances for using a single dose, assessing alternative dosing intervals, piloting the self-administration of OCV, investigate the use of ring vaccination for rapid alert and response with ring vaccination, linking OCV with other health interventions, flexible timing of vaccination (early morning and evening sessions), and vaccination posts (fixed, temporary, and/or mobile teams). Protocols should be developed to assess all these alternative strategies whenever they are implemented.
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