Global Task Force on Cholera Control (GTFCC) Working Group on Surveillance

Updates from sub-groups of the GTFCC surveillance working group: Hotspots and Regional surveillance and coordination approaches sub-groups

Webinar, 27 April 2021

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Acronyms and abbreviations

AMR	antimicrobial resistance
CSP	Country Support Platform
GTFCC	Global Task Force on Cholera Control
MAI	mean annual incidence
NCP	national cholera control plan
OCV	oral cholera vaccine
RSCP	regional surveillance and coordination platform
US CDC	US Centers for Disease Control and Prevention
WASH	water, sanitation and hygiene
WHO	World Health Organization

Participants

Alberti Kathryn
Azman Andrew
Barboza Philippe
Bonnet Sophie
Bouhenia Malika
Breakwell Lucy
Buliva Evans
Ciglenecki Iza
Debes Amanda
Didobeu Charles Etienne Dago
Dominguez Morgane
Dr Awal Nurullah
Gastellu-Etchegorry Marc
Gojon-Gerbelot Marianne
Goodermote Rachel
Greggio Ellen
Haag Justine
Hampton Lee
Handzel Thomas
Kumar Supriya
Lee Elizabeth
Luquero Francisco
Matar Ghassan

Medley Alexandra
Mintz Eric
Namseon Beck
Nelson Eric
Nunn Mark
Okon Anthony
Olson David
Parsons Michele
Pindyck Talia
Quilici Marie-Laure
Sauvageot Delphine
Schenkel Karl
Shewchuk Tanya
Siddiqui Ruby
Smirnova Anastasia
Smith Kyla
Steele Duncan
Tayyab Muhammad
Thomson Nick
Turnsek Maryann
Wendland Annika
Wilson Jones Megan

Hotspots sub-group update

Elizabeth Lee, John Hopkins University (sub-group lead)

Presentation

The workplan of the hotspot sub-group includes three main areas: i) revising the GTFCC hotspot methodology, ii) developing principles and criteria for strategic use of the oral cholera vaccine (OCV) stockpile for preventive vaccination (working alongside the OCV working group), iii) developing minimum standards for cholera surveillance in hotspots (with the surveillance and monitoring and outbreak sub-groups).

The presentation focused on the revisions of the GTFCC hotspot methodology which involves refining the hotspot identification methodology as well as developing guidance for assessing cholera control pillars.

The current GTFCC hotspot methodology (2019) is based on two epidemiological indicators: mean annual cholera incidence (MAI) and persistence, measured as the percentage of weeks with suspected cases. A five-year period of analysis is recommended for identification of hotspots, with countries deciding their thresholds for each indicator to place districts into one of three priority groups.

To date, the hotspots sub-group has conducted a review of historical hotspot identification exercises, defined the guiding principles of a revised methodology, and developed a general framework for the draft revised methodology. Identification of indicators to assess pillars under the revised methodology is ongoing.

A review of historical hotspot identification exercises was conducted to identify gaps and challenges with previous national level hotspot identification exercises in order to inform the revisions to the GTFCC hotspot methodology. A standardized questionnaire was developed to assess how the hotspot identifications were conducted and 22 analysis reviews were done, based on information from individuals and ministry contacts involved with the exercises. This review revealed challenges with data and methodology. Data takes a great deal of time to collect (usually 1-6 months); tends to be geographically incomplete and missing historical surveillance data; and lacks documentation on changing case definitions. On the methodology side, challenges came from a lack of guidance on setting thresholds for indicators; a need for better integration with non-epidemiological indicators; a need to clarify terminology (for example, which districts are "hotspots"?); and an uncertainty about how to extend hotspot analysis to target interventions (e.g. whether all high priority locations should be targeted for all interventions).

Based on this review, a number of guiding principles emerged for the revision of the GTFCC hotspot methodology:
- simplicity of approach;
- generalizability to different countries and cholera settings;
- flexibility to accommodate different indicators and country priorities;
- facilitating the prioritization of targeted, long-term planning (rather than emergency response);
- supporting decision makers as they develop national cholera control plans (NCPs).

Step 1 of the draft revised framework for hotspots identification is an epidemiological assessment to identify areas with high, medium, and low cholera burden. A minimum standard set of requirements is needed for data and analysis that maintains continuity with existing GTFCC hotspot methodology,

but which incentivizes improved surveillance data collection and flexibility to accommodate confirmed case data. The MAI and persistence indicators will remain the main indicators for the epidemiological assessment however, the assessment may be performed at three levels: improved, basic and minimum:
- "minimum" level data will consist of weekly suspected cases reported by each district for the past 3-7 years (or as available);
- "basic" level data will consist of minimum level data plus the presence or absence of at least one confirmed cholera case, reported by district;
- "improved" level data will consist of minimum level data plus systematically collected weekly confirmed cases and total number of tests performed, reported by district.

The details of the new epidemiological assessment methodology will be finalised over the summer after extensive testing. The main new areas in comparison to the current methodology are the incorporation of confirmed cases for higher quality indicators and the inclusion of guidance for setting indicators thresholds.

As a result of the epidemiological assessment, all districts in a given country will be categorized into high, medium, and low burden groups ("epidemiological assessment/EA groups"). Areas needing further investigation or data collection will also be identified. This will feed into Step 2.

Step 2, the assessment of NCP pillars, will determine whether any given location has an acute need for intervention under a given pillar and/or whether a location requires more data collection for adequate assessment. The aim of step 2 is to develop evidence-based guidance to assess district needs for each pillar and inform NCP development, combining the epidemiological assessment of burden from Step 1 with pillar assessment from Step 2. Indeed, districts may have different needs for interventions, even if they have similar cholera burden, and not all "high burden" districts will necessarily need the same combination of multisectoral interventions. The relative importance of the epidemiological assessment and indicators could differ by pillar—again, specific approaches for combining the epidemiological assessment groups and assessment by pillars will be tested over the summer.

The outcome of Step 2 will be a ranked list of districts to be prioritized under each pillar. Multiple pillars may be prioritized in a single district—this will be encouraged—and not all districts will need to be ranked. This outcome will inform detailed intervention planning in the development of the NCP. The new elements here are the assessment of the need for future interventions or additional data collection, the identification of key indicators for assessing each pillar, and the development of guidance for combining the indicators.

Hotspots identification and NCP pillars assessment fit the standard process for developing NCPs whereby each country, having declared a national commitment to NCP development, commences with a needs-focused assessment of hotspots and pillars before conducting a situational analysis, defining leadership and coordination mechanisms and formulating an NCP goal before developing an operational NCP that covers all pillars.

The next steps in the process will be as follows. In April and May 2021, working group representatives will propose indicators for each pillar and discuss them with the hotspot sub-group and working group representatives. In June and July, scoring methods for steps 1 and 2 will be proposed and subjected to data-driven exercises to find consensus on scoring methods. In August, a first draft of the proposed framework will be shared for discussion with other sub-groups and working groups, at which point the format of a revised "GTFCC tool" will be discussed.

Discussion

Regarding the epidemiological data classification (minimum, basic and improved) it is important to note that over longer periods of time it is likely that some districts may see cholera outbreaks that meet a mixture of data classifications (e.g., some outbreaks report only suspected cases, but others have systematic laboratory confirmation). Under these circumstances, the "lowest" common category would be used for the analysis. However, the goal of the proposed approach is to incentivize more pervasive testing and capacity building for laboratory confirmation and the systematic reporting of laboratory confirmation, perhaps by valuing basic and improved data more highly than minimum epidemiological data in the revised hotspot methodology. These methods will be examined and some of these issues will be tested when a scoring method is developed and data is available to reflect the heterogeneity across districts.

As the use of rapid diagnostic tests (RDTs) is expanded, they might contribute to some form of proxy for confirmed cases. It will be important to be clear about how different types of tests are incorporated into the classification of epidemiological data.

Regional approaches to cholera surveillance and coordination sub-group update

Alexandra Medley, US Centers for Disease Control and Prevention (US CDC) (sub-group lead)

Presentation

Outbreaks of cholera can be fuelled by any combination of factors including cross-border migration, environmental reservoirs, socioeconomic issues, climate change and political instability. Cholera elimination in one country is therefore unlikely to be sustainable unless all countries within connected regions are also working to prevent cross-border or regional spread. Strong collaboration and coordination between countries, subregions, and regions is a critical component to achieving cholera control and elimination.

The workplan of the sub-group on regional approaches to cholera surveillance and coordination is sub-divided into two main topic areas: epidemiologic and microbiologic criteria to define cholera connected regions, and a framework for regional and cross-border approaches to cholera surveillance.

The first topic area includes the following objectives: Ia) identifying research questions to contribute to the scientific evidence pertaining to border, cross-border or regional cholera connectivity over the past 15 years; Ib) identifying surveillance variables to identify cross-border spread, helping countries to identify and implement targeted measures for prevention and rapid response, and; Ic) determining how whole-genome sequencing can answer questions that cannot be answered by other information to demonstrate outbreaks with cross-border spread, retrospectively or in real-time, and identify the spread of antimicrobial resistance (AMR) and epidemiological meeting of lineages.

The second topic area includes the following objectives: IIa) conducting a landscape analysis of existing regional cholera surveillance and coordination platforms; IIb) establishing a framework for regional surveillance and coordination in support of cholera control and elimination, and; IIc) identifying the factors that inform prevention of cholera importation and which require more dedicated research.

The presentation focussed on the landscape analysis of regional surveillance and coordination platforms (RSCPs), primarily those covering the GTFCC target countries. The outcome of this analysis will help RSCP stakeholders, the GTFCC, and the Country Support Platform (CSP) address the future development, strengthening, and streamlining of RSCP activities, and assist the GTFCC surveillance sub-group's work on regional surveillance approaches to establish a framework for cross-border coordination and cholera surveillance. The landscape analysis is being done as follows. First, RSCPs were identified (WHO Regional Offices, regional cholera platforms, CSP); then, a harmonized set of recommended activities was drafted for the purpose of assessing RSCP activities; targeted discussions with RSCP focal points (to be held in early May); drafting of a report to summarize the landscape analysis findings, and; build on the landscape analysis and draft guidance on a framework for RSCP.

The harmonized set of recommended activities has been drafted as a "gold standard" for supra-national surveillance and coordination. The RSCPs featured in the landscape analysis may only partially meet given criteria. The evaluation process will be iterative, and the criteria may be adjusted and refined as the analysis continues. The adequate geographical level at which supra-national activities should be implemented (i.e. regional, sub-regional, or through an epidemiological hub) may vary for the different activities considered. Activities will be organised into surveillance, preparedness, and response categories with two levels of activities proposed for each category: regional support to

countries and regional-level activities. Regional support to countries by an RSCP may be direct support of activities or technical assistance to countries as they conduct activities at the national level. These are summarized below. A more detailed description of these activities can be obtained upon request.

Surveillance

Provision of support to countries as needed to enable:
- systematic data collection, analysis and reporting (weekly, monthly, and yearly)
- capacity to detect, investigate and confirm cholera cases and outbreaks
- in-country use of interoperable, real-time information systems
- development of national centralized cholera surveillance databases
- setup of information or alert sharing mechanisms on suspected outbreaks

Activities at the regional platform level:
- collect, compile and analyse regional cholera surveillance data with a regional perspective
- collect, assess and report regular surveillance system evaluation metrics

Preparedness

Provision of support to countries as needed to enable:
- development by countries of cholera preparedness plans and NCPs
- identification by countries of cholera hotspots
- prepositioning of required materials, identification of necessary logistics, and implementation by countries of preparedness interventions

Activities at the regional platform level:
- coordinated identification of regional priorities
- identification of regional or cross-border cholera outbreaks as areas for regional and national interventions
- establishment of communication lines between countries, the regional platform, and other relevant stakeholders
- identification of hotspots with the potential for cross-border importation or exportation within the region
- coordination of regular meetings between countries and regional partners
- provision of support for needed resources through relocation, aid in advocacy, or fundraising

Response

Activities at the regional platform level:
- communication and collaboration between regional platforms and globally
- coordinated sharing of resources during outbreaks

The next steps in this process are as follows. One-on-one discussions with the regional platforms are currently under way to obtain more detailed information on the implementation of this harmonized set of activities and clarify where the platforms are (or are not) conducting those activities. This will be reflected in the final report, which will include a summary for each platform describing its strengths, successes and challenges, both in the past and expected in the future. This will be accompanied by a "perspective" describing where they see their activities going in the future. Another section of the report will include a table for each platform called the "state of play" table that describes progress for each region for each activity in the full set, classified as "routinely implemented," "partly

implemented," "planned," "under consideration" or "not planned." The scope of platforms to include in the report is still under review. The draft report will be presented to the sub-group in May 2021, flagging activities in which CSP will be involved in the future. In terms of the regional framework guidance, surveillance variables to identify and characterize cross-border cases will be identified and "regional hotspots" defined, building on the landscape analysis evaluation criteria and findings to define the scope of the regional guidance.

Discussion

Designing regional platforms can be complex. In some places not all countries within a region are on one platform, and in others there is overlap. Some countries do not sit perfectly in a regional category, and a given country may belong to different regions. Suggestions on the best way to approach this are welcome.

Defining regions themselves, or where platforms should sit, what they should include, and under whose responsibility they should operate, is also a challenge. As it becomes clearer what the scope of the regional approach framework will entail, there will be discussions regarding the level at which recommendations are made.

Ideally, the focus of the regional framework will be on activities conducted at regional platform level, where the most guidance can be provided. It is challenging for a platform to conduct regional activities if the information from countries is insufficiently robust. The conversations currently taking place with RSCPs focal points should identify which country support activities are already implemented, which are planned -as well as which are outside of the scope of their interest. This will clarify the picture. The purpose of developing a regional framework is to allow regional platforms to strengthen existing activities and think about future ones. There is also the potential to support countries' activities, though this may not be the level of involvement and engagement that countries want with their regional platforms. It is a two-way relationship.

Cholera surveillance data can be challenging for RSCPs to obtain. The willingness of countries to share data, and the quality and consistency of data that comes in from countries, can be hugely variable. It may depend on whether countries have had recent outbreaks and are reporting up to a regional platform, or whether it has been some time since they last experienced an outbreak, and their reporting is no longer routine.

The sub-groups is thinking critically about what could be done and what should be done by an RSCP, and should be guided by the existing platforms that have worked in this area for a while. RSCP are all very different, with different platforms engaged in different activities at different levels. Decisions must also be taken between developing recommendations tailored towards regions or developing more generic guidance that could apply to all regions.

It is important to remember that district-to-district or smaller-scale cross-border information sharing can sometimes be more efficient than work with large platforms, partly because the people involved often know one another and are easier to convene. There is a need for more work on real-time information sharing, examining how different countries' surveillance systems are set up and how they can coordinate with each other at regional and national levels. There are also several informal regional platforms that use different media or social media platforms to share information data in a more real time fashion. These approaches should be included in global assessments of how to access and share data. The harmonized set of criteria does include draft language around real time information sharing compared to more formalized data reporting at country level, recognizing that these informal channels are used in many countries to operate at district or cross-border level. Suggestions on improving this integration are welcome.

There will be a regional aspect to the CSP structure, and it is important not to establish multiple networks that complicate coordination and communication. The data needed for hotspot identification and for good regional data surveillance are also similar, and duplication of similar efforts for different initial purposes should also be avoided. CSP plans have informed the discussion so far, and work is ongoing to flag activities in which it would be useful for the CSP to engage. Though the CSP will play a significant role, it was designed for a limited, targeted regional approach intended to increase buy-in from countries to the idea of sharing information with other countries. This is not mutually exclusive to a regional approach. There is a lot of work to do to define the different steps and the connexions between different structures, but clearly the CSP will have a key role to play. An enormous amount of work is still to be done in terms of epidemiological surveillance, laboratory surveillance and refurbishments, redefining the minimum standards of surveillance and interaction, and so on. It can at times be difficult to see the wider picture. Regional work could be very helpful in this regard.

A critical regional intervention is the monitoring of and response to prevention of cross-border transmission. Regional activities could therefore focus mainly on cross-border transmission—though thinking about cross-border transmission should not be focused exclusively on physical border zones. Cross-border transmission can also occur across the fastest and easiest connections and nodes that link countries.

There is much research to be done, including on the use of advanced methods—including laboratory methods—to understand cholera origin and the sites or areas of transmission. The introduction of cholera into communities is most likely to be through people coming in from outside. There are many interesting topics for research and this sub-group can start to explore them in service of improving the regional framework and guidance. Research can be used in the longer term to refine the guidance—it would take many years to answer all the questions of interest. This will be an iterative process.

Closing statement
Philippe Barboza, GTFCC

We are all convinced that the Global Roadmap strategy is the comprehensive, all-pillar strategy needed to reduce and eventually eliminate cholera. We are also taking into consideration the fact that not all hotspots are the same: they do not all have the need for similar interventions, even within the same country. Some pillars might be stronger or weaker than others, and assessing pillars is therefore an important step. Providing support to countries in identifying priority issues is a step in the right direction. It is important to remind ourselves that ultimately GTFCC tools aim to inform decision making at national level and help countries identify their priority issues and decide where to focus resources and attention.

Surveillance is the most cross-cutting issue of all, and we must all work until we have sustainable, reliable surveillance data – including laboratory confirmation and rapid diagnostic tests.

Resolving cross-border issues will take time, but it is important work. There is a clear need to focus first on high burden countries, but in order to reduce the cross-border transmission, a regional perspective has to be implemented early on, and we must work towards progressive integration of surveillance. Once countries see the benefits of this approach for themselves, they will be more inclined to share their information. Bringing surveillance to regional level is a move in the right direction.