2021

Multi-Sectorial Cholera Elimination Plan Ethiopia 2021 - 2028

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Abbreviations

CBS	Community Based Surveillance
CFR	Case Fatality Rate
CSD	Climate Sensitive Disease
CTC	Cholera Treatment Centre
CTU	Cholera Treatment Unit
EHPI	Ethiopian Public Health Institute
EPSA	Ethiopian Pharmaceutical Supply Agency
FDA	Food and Drug Administration
FDRE	Federal Democratic Republic of Ethiopia
FMHACA	Food, Medicine and Health Care Administration and Control Authority of Ethiopia
GoE	Government of Ethiopia
GTFCC	Global Task Force on Cholera Control
GTP	Growth and Transformation Plan
HAD	Health Development Army
HEP	Health Extension Program
IBS	Indicator Based Surveillance
IDP	Internally Displaced People
IDP	Internally Displaced Persons
IHR	International Health Regulations
IRP	Independent Review Panel
LIMS	Laboratory Information Management System
M&E	Monitoring and evaluation
MOH	Ministry of Health
MOU	Memorandum of Understanding
MOWIE	Ministry of Water Irrigation and Energy
NAPHS	National Action Plan for Health Security
NCP	National Cholera Plan for Control or Elimination
NDRMC	National Disaster Risk Management Commission
NHSC	National Health Security Council
O&M	Operation and Maintenance
OCV	Oral Cholera Vaccine
PCR	Polymerase Chain Reaction
PHEM	Public Health Emergency Management
PHEOC	Public Health Emergency Operating Centre
RDT	Rapid Diagnostic Test
RF	Results Framework
RRT	Rapid Response Team
SDG	Sustainable Development Goals
SOP	Standard Operating Procedure
TWG	Technical Working Group
UN	United Nations
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WHO	World Health Organisation

Forward

Cholera is an acute intestinal infection caused by ingestion of food or water contaminated with the bacterium *Vibrio cholera* unless treated promptly it quickly leads to severe dehydration and death. In Ethiopia one confirmed case of cholera is enough to declare an outbreak. Therefore, health workers at all levels have to clearly understand the case definitions of this disease and manage the outbreaks in a standardized manner. If the management, including treatment of patients, infection prevention and overall outbreak containment procedures do not follow standard procedures the effect of cholera outbreaks even becomes worse.

The purpose of this National Cholera Elimination Plan (NCP) is, therefore, to enable all the concerned sectors and partners involves in NCP way. This NCP has six building blocks in it: Leadership and Coordination, Water, Sanitation and Hygiene (WASH), Surveillance and Reporting, Use of Oral Cholera Vaccine (OCV), Healthcare System Strengthening and community engagement.

This NCP sets standards down the structure with the aim of closely collaboration, monitoring interventions and their evaluation at different time reference. Based on the mandate given to the Federal Ministry of Health to prepare and distribute health and health related standards, this NCP is prepared by Ethiopian Public Health Institute (EPHI), Public Health Emergency Management (PHEM) Canter, Disease and Health events Surveillance and response Directorate, Bacterial Disease Surveillance and Response Case Team in collaboration with the Cholera Technical Working Group members which represents all partners involved in Public Health Emergency Management. The technical working group includes members from the Public Health Emergency Management and Directorates of Infectious and Non-infectious Diseases Research of EHNRI, Health Promotion and Disease Prevention General Directorate of MOH, WHO, UNCEF, and MSF. EPHI hopes that this NCP meets the needs of health workers and the different partners who are participating in cholera outbreak management.

Acknowledgements

The development of the Ethiopian National Cholera Elimination Plan was a concerted effort which brought together several line ministries, governmental agencies, non-governmental organisations, developmental partners, and donors. The Ministry of Health along with the Ethiopian Public Health Institute would like to acknowledge all governmental stakeholders who were involved in the development of this plan including but not limited to the Ministry of Water, Irrigation, and Electricity, the National Disaster Risk Management Commission, Ethiopian Pharmaceuticals Supply Agency, Ethiopian Food and Drug Administration Authority, and Regional Health Bureaus.

Additionally, the significant contribution of all partners and donors engaged during the preparation of this plan is acknowledged including but not limited to the World Health Organization (WHO), the Global Taskforce for the Control of Cholera (GTFCC), the United Nations Children's Fund (UNICEF), U.S. Canters for Disease Control and Prevention (US-CDC), Save the Children, International Rescue Committee, and GOAL.

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Executive Summary

Cholera which disproportionally impacts poor countries and the most vulnerable continues to affect at least 47 countries across the globe, resulting in an estimated 1.3 – 4 million cases, and 21,000 - 143,000 deaths per year worldwide. In Ethiopia, despite major improvements seen in the increasing access to healthcare, clean water, and improvement in maternal and child health, the country continues to be significantly affected by cholera outbreaks. From 2015 – 2021 for example, several outbreaks of cholera have occurred in multiple parts of the country resulting in over 105,000 cases and thousands of deaths. Some of the risk factors associated with cholera in Ethiopia include inadequate access to clean water, practice of open defecation, poor household and environmental sanitation, unhygienic latrine and weak sanitation practise among communities.

While preparedness and response efforts largely driven by the health sector have usually been successful in controlling cholera outbreaks, they have failed to comprehensively address the root cause of the repeated outbreaks. This missing link with other sectors has resulted in recurrent outbreaks. Cognizant of this weak link with other sectors and the need for a coordinated and multi-sectorial effort for the control of cholera, Ethiopia, along with other WHO Member States, passed a resolution at the 71st World Health Assembly in 2018, committing to the Global Roadmap for the Control and Elimination of Cholera. The Global Roadmap to 2030 aims to achieve the overall objective of reducing the mortality resulting from cholera by 90% by 2030 through strong commitment from all stakeholders.

In line with the Global Roadmap for the Control and Elimination of Cholera, Ethiopia has prepared its National Cholera Elimination Plan - NCP (2021 – 2028) with aims to achieve interruption of cholera cases (zero cases) in cholera hotspot areas by 2028. The NCP was prepared through the collaborative efforts of several line ministries in addition to the Ministry of Health, governmental agencies and organisation, health and WASH partners, and donors. In addition to reviewing past responses to outbreaks, the process of designing the NCP also included analysis of the current situation in Ethiopia along with existing opportunities and threats, while also reviewing existing strategies and programs for alignment and better synergy.

The NCP is based on the six main pillars of intervention in line with those identified by the Global Roadmap which are: Leadership and Coordination, Water, Sanitation and Hygiene (WASH), Surveillance and Reporting, Use of Oral Cholera Vaccine (OCV), Healthcare System Strengthening, and Community Engagement. As Ethiopia has one of the largest populations in Africa, a targeted approach has been adapted which prioritises the most vulnerable and high-risk areas according to a hotspot analysis conducted based on disease prevalence and persistence. While the hotspot analysis will be revised annually, the main targets of the NCP will remain similar throughout the NCP period. The six main targets of the NCP are: (i) have an effective leadership and multi-sectorial coordination for cholera elimination; (ii) improve surveillance and laboratory capacity at all levels for early detection and confirmation of cases by 2028; (iii) reduce the overall mortality resulting from cholera by 90% in hotspot woredas by 2028 and ensure that there is no local transmission in the hotspot woredas; (iv) conduct oral cholera vaccination campaigns with a coverage of 97% in hotspots (preventive) and in outbreak situations (reactive); (v) improve access to basic water supply, sanitation and hygiene at all levels of high risk kebeles within cholera hotspot woredas by increasing basic water supply from 65% to 90% and sanitation and hygiene practices coverage from 6% to 80% by 2028; (vi) increasing the adoption of desired behaviours among hotspot woredas population that will contribute the reduction of Cholera deaths by 90%.

For each of the six pillars, indicators and targets have been identified as part of a robust monitoring and evaluation framework. Additionally, the estimated budget for the plan has been prepared which amounts to a total of USD 390,450,934 for a period of 8 years. The operationalization of this NCP will be through the preparation of implementation plans as well as integration into annual sectorial plans.

1 History and Current Status of Cholera in Ethiopia

Historical Background and Disease Epidemiology

Cholera, an acute diarrheal disease caused by the ingestion of *Vibrio cholerae* contaminated food and water, remains a major public health threat with research suggesting that each year an estimated 1.3 – 4 million cases, and 21,000 - 143,000 deaths occur worldwide due to cholera[1].

In Ethiopia, cholera has affected different parts of the country repeatedly and relatively frequently throughout history. Although well documented evidence is scarce, some historical accounts of the 18th century indicate the disease was brought into the country through traders and travellers[2]. In the 19th and early 20th century, literature indicates that there were five major epidemics of the disease, which cumulatively resulted in tens and thousands of deaths, with this period also marking the southward spread of the disease[3].

In more recent history and prior to the start of the Integrated Disease Surveillance and Response (IDSR) system in Ethiopia in 1998, information on outbreaks was mainly available from regional health bureaus and health facilities in a disintegrated manner. In the 1990s, after several years of absence, cholera emerged in 1993. This outbreak started in Dire Dawa city and in subsequent months, cases were also reported from Oromia and Somali regions, and in the city of Addis Ababa. Overall, studies suggest the attack rate for this outbreak was around 2–15 per 1000 with an average case-fatality rate of 2.5%[4].

Current Cholera Situation in Ethiopia

Over the last two decades, Ethiopia has made major improvements including in increasing access to healthcare, clean water, and improvements in maternal and child health. Furthermore, Ethiopia has developed the National Health Adaptation Plan to Climate Change with the aim of building a climate-resilient health system. Despite these efforts, poor Water, Sanitation, and Hygiene (WASH) conditions and practices persist, along with gaps in the surveillance and case

1 Ali M, Nelson AR, Lopez AL, Sack D. (2015). PLoS Negl Trop Dis 9(6): e0003832. doi:10.1371/journal.pntd.0003832.
2 A. Hirsch, Handbook of Geographical and Historical Pathology, London, 1883, I, 423
3 Pankhurst R. The history of cholera in Ethiopia. Med Hist. 1968 Jul;12(3):262–269
4 Scrascia, M., et al., Cholera in Ethiopia in the 1990s: Epidemiologic patterns, clonal analysis, and antimicrobial resistance. Int. J. Med. Microbiol. (2008), doi:10.1016/j.ijmm.2008.10.004

management system which continue to contribute to cholera remaining a major public health threat in Ethiopia.

In the five-year period from 2015 – 2021 for instance, there have been several outbreaks in different regions of the country. The outbreak in 2015 spread across the country, with over 26,000 cases, and 217 deaths (CFR 0.66%) and in 2017 alone there were over 48,000 cases with 878 deaths (CFR 1.8%) recorded (Figure 1). The distribution of the outbreak by place is different from year to year, although some areas saw repeated outbreaks (Figure 2). In the year 2017, Somali region was the most affected accounting for about 75% of the total cases and 87% of the total deaths reported nationally. During the same year, population movement related to religious pilgrimages to holy sites and seasonal labourers moving across the country to work on commercial farms and mines greatly contributed to the resurgence of outbreaks in Afar, Amhara and Tigray regions.

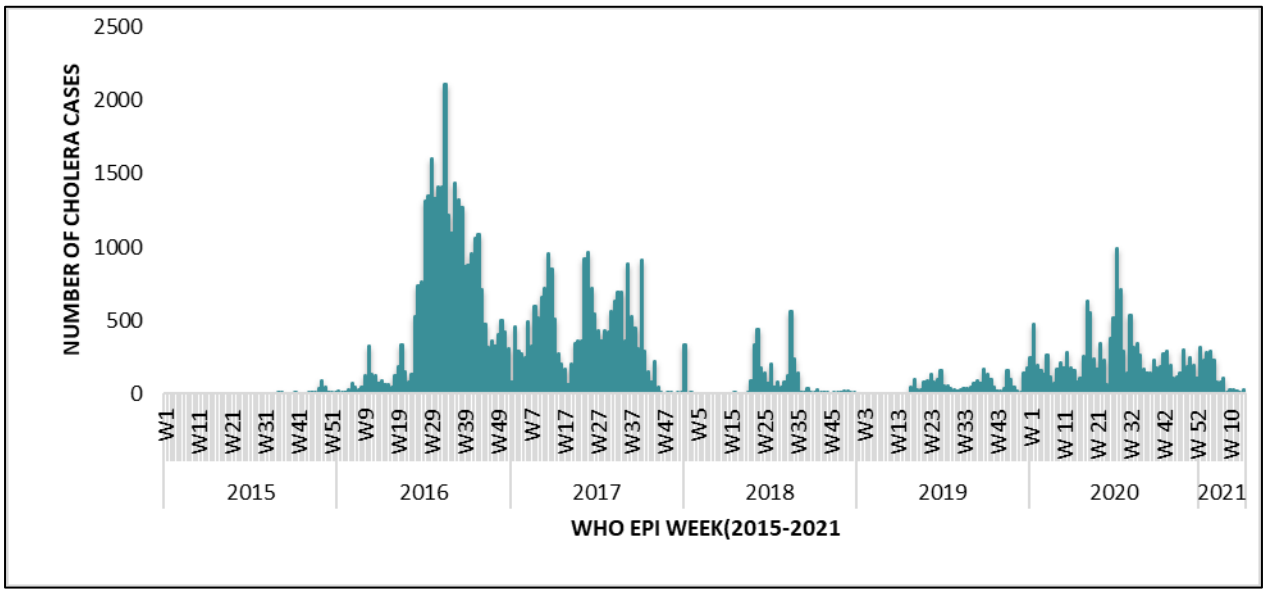


Figure 1: Epidemiological curve for cholera outbreaks in Ethiopia from 2015 – 2021.

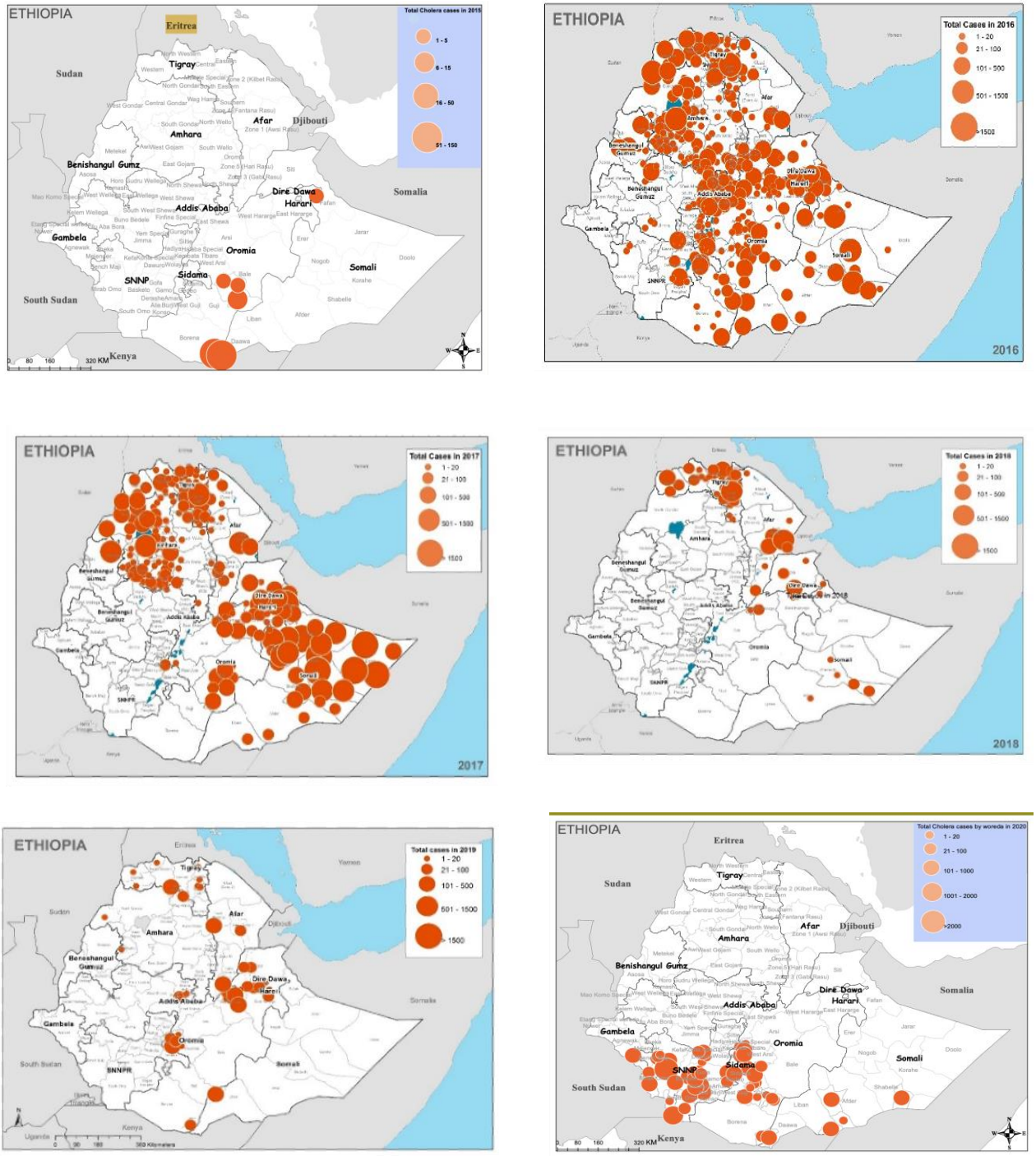


Figure 2: Distribution of cholera cases in Ethiopia in 2016 – 2020

In 2021, cholera outbreaks are ongoing in multiple parts of the country, and the number of cases has exceeded 19,808 until the week 14 of the year. In a shift from previous years' trends, most of the cases are from the Southern Nations Nationalities and Peoples' region, followed by Oromia and Somali regions.

Currently, over 15.9 million Ethiopians (approximately 15% of the total population) reside in woredas which in the past have been repeatedly and extensively impacted by cholera outbreaks, subsequently putting them at high-risk for future outbreaks as well.

Ethiopia's Commitment to Eliminate Cholera with a Multi-Sectorial Approach

Ethiopia, along with other WHO Member States, passed a resolution at the 71st World Health Assembly in 2018, committing to the Global Roadmap for the Control and Elimination of Cholera. The Global Roadmap to 2030 aims to achieve the overall objective of reducing the mortality resulting from cholera by 90% by 2030 through strong commitment from all stakeholders[5].

Since passing this resolution, Ethiopia has taken steps to bring together major stakeholders to ensure the commitment of all for the ambitious goal of eliminating cholera from repeatedly and extensively affected areas by 2028. In July 2019, a high-level briefing on cholera elimination was held, bringing together sectorial Ministries, WASH partners, UN agencies, donors and developmental partners. The meeting was also attended by high level government officials including, State Minister of the Ministry of Health (MOH), State Minister of the Ministry of Water, Irrigation and Energy (MoWIE), and Director and Deputy Director Generals of the Ethiopian Public Health Institute. This platform was used to highlight the commitment of the Government of Ethiopia to end deaths due to cholera with all present calling and committing towards a concerted multi-sectorial effort backed by meaningful investment in the necessary infrastructure.

5 Ending Cholera – A Global Roadmap to 2030. GTFCC

Figure 3: High-level meeting on cholera elimination, July 2019 (left to right: WHO cholera focal point, Deputy Director General of EPHI, UNICEF Ethiopia Health Systems Specialist, State Minister of MoWIE, the State Minister of MOH, Director General of EPHI, WHO

Following this high-level meeting, the Government of Ethiopia called for the development of the National Cholera Elimination Plan (2021 – 2028) with the engagement of relevant partners. This plan is a further testament to the commitment towards a multi-sectorial approach for the elimination of cholera along with the need to establish a high-level administrative structure to provide general oversight for its implementation.

Often, if not always, public health problems stem from issues and factors arising across multiple sectors, which is why a multi-sectorial approach is key to addressing these issues. To this end, the health sector has taken the lead in establishing coordination mechanisms such as the National One-Health Steering Committee which oversaw signing of a Memorandum of Understanding (MOU) between the MOH, Ministry of Agriculture, Environment, Forest and Climate Change Commission, and the Ethiopian Wildlife Conservation Authority.

Additionally, Ethiopia launched its National Action Plan for Health Security (NAPHS) in March 2019 with the endorsement and presence of high-level government representatives including the Deputy Prime Minister, Minister for Health, State Minister of Finance, State Minister of Agriculture and Livestock, and donors and partners. As a multi-sectorial plan which aims to strengthen all International Health Regulations (IHR) core capacities, including surveillance and laboratory capacity, EPHI has taken the initiative to facilitate the formation of a National Health Security Council (NHSC) which is to be chaired by the Deputy Prime Minister to oversee the implementation of the NAPHS. While the formation of the NHSC is under negotiation, the implementation of the National Cholera Elimination Plan in the interim is proposed to be managed through the Disaster Risk Management (DRM) Council. While the DRM Council has in the past been activated in times of national emergencies (such as the cholera outbreak of 2016/17, internal displacement crisis of 2019, and COVID-19 outbreak in 2020), efforts will be made to ensure the Council remains active regardless of emergencies to an extent where it can oversee the implementation of this plan.

Cholera Elimination in the Time of Coronavirus Disease (COVID-19)

On December 31st, 2020, the World Health Organisation (WHO) received a report of a cluster of viral pneumonia cases of unknown cause in Wuhan, Hubei province, China. The WHO later confirmed that the illness was caused by a novel coronavirus, which in February was officially

named Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-COV-2) while the disease it caused was named Corona Virus Disease 2019 (COVID-19).

Preparedness and response activities for COVID-19 in Ethiopia began prior to the outbreak being declared a Public Health Emergency of International Concern (PHEIC) on January 30th, 2020 and it being confirmed as having fulfilled the criteria of a pandemic on March 11th, 2020. In nearly 11 months since the start of the outbreak, over 200 countries and territories have been affected with over 60 million cases and over one million deaths reported worldwide.

The COVID-19 pandemic has drastically changed lifestyles around the world and has also significantly impacted on health service delivery. Given predications that a new norm must be adopted as COVID-19 is expected to remain a major public health threat for a long time, health service delivery as well as health program implementation must be ready to adapt to such a scenario. This National Cholera Elimination Plan is cognizant of the challenges and opportunities COVID-19 presents for its implementation. While detailed considerations will be made during the operationalization of the plan, some of the core considerations include: challenges to mass vaccination campaigns and associated need for Personal Protective Equipment (PPE) and maintenance of social distancing; rethinking how Cholera Treatment Centres operate and are managed, modalities of conducting trainings and other capacity building activities, and opportunities to build synergies and align investments with COVID-19 related WASH interventions.

The COVID-19 response in Ethiopia has brought to the forefront challenges in coordinating multi-sectorial response and have subsequently resulted in the establishment and revitalisation of platforms to engage different sectors in a public health response. This presents a unique opportunity to advocate for the adoption of such platforms in the long-term, both at the national and sub-national levels, to coordinate the National Cholera Elimination Plan and similar health plans requiring multi-sectorial engagement.

As a new disease with evidence around its control and transmission frequently evolving, efforts will be made to ensure that all interventions and activities incorporated in this plan are aligned and in adherence to the most up-to-date recommendations.

2 Cholera Elimination Strategy and Situational Analysis

Elimination Strategy by Pillar

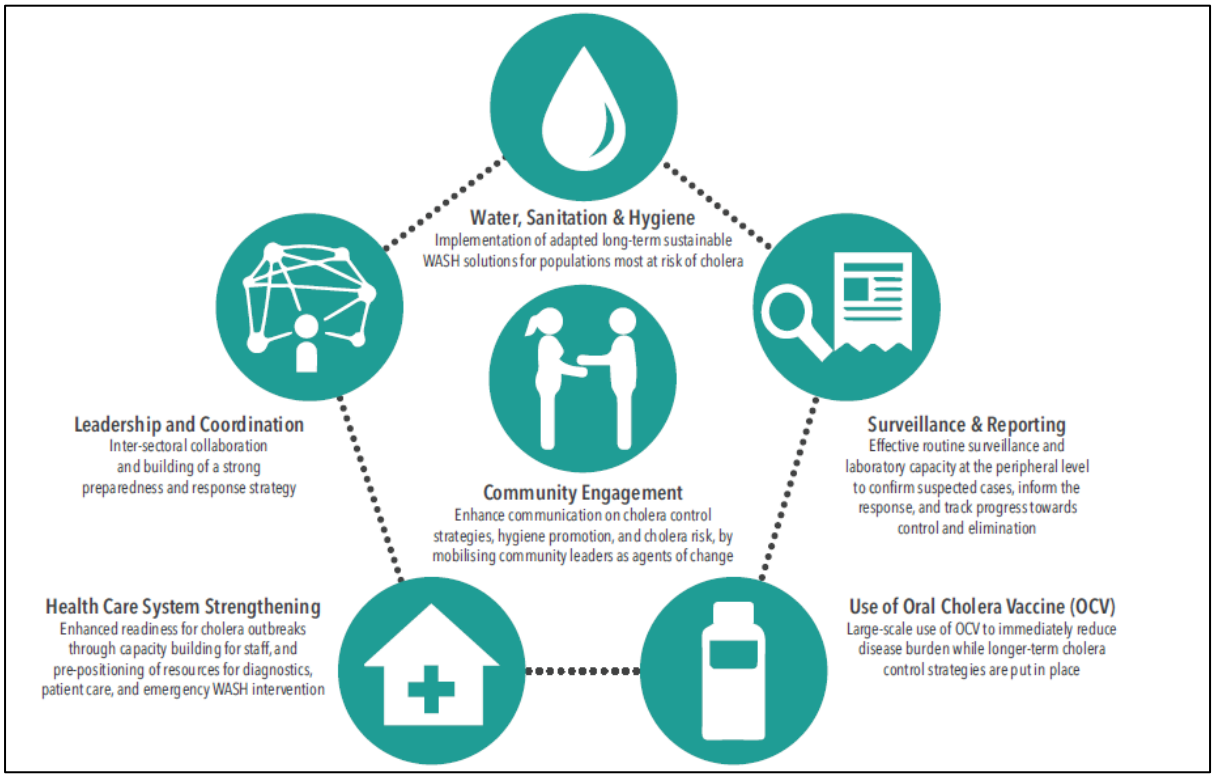
The Global Roadmap to 2030 highlights the need for early detection and response, implementation of evidence-based interventions across multiple sectors, and effective coordination both at the local and global levels. According to the Roadmap, the overall objective of the renewed strategy is to reduce the mortality resulting from cholera by 90% by 2030, and to eliminate[6] cholera in as many as 20 countries. This will be achieved through multi-sectorial interventions to (I) prevent cholera through the implementation of a set of measures such as long-term WASH in areas most affected by cholera ("hotspots") and (ii) by containing outbreaks through early detection and rapid response to alerts.

The Ethiopian strategy is derived from the Global Roadmap and is thus based on multi-sectorial interventions across the following six pillars of the Roadmap are:

- Leadership and Coordination
- Water, Sanitation and Hygiene (WASH)
- Surveillance and Reporting
- Use of Oral Cholera Vaccine (OCV)
- Healthcare System Strengthening
- Community engagement

[6] Elimination: Any country that reports no confirmed cases with evidence of local transmission for at least three consecutive years and has a well-functioning epidemiologic and laboratory surveillance system able to detect and confirm cases.

I. Community Engagement



This national cholera elimination plan is also aligned with the GoE's Growth and Transformation Plan II, Health Sector Transformation Plan II (HSTP-II), National Action Plan for Health Security (NAPHS), One WASH Plan, and other national strategies and initiatives. It is also consistent with Ethiopia's international commitments, including the Sustainable Development Goals (SDG).

Identification of Cholera Hotspot Woredas

A targeted approach to the implementation of cholera control and elimination programs is key as it allows countries like Ethiopia to prioritise the most vulnerable and direct scarce resources where significant impact can be made.

Subsequently, hotspot analysis was conducted with the purpose of identifying woredas which are at a relatively higher risk for cholera based on historical epidemiological data. These hotspots are used as a starting point for targeting interventions like preventive vaccination campaigns. The risk assessment to identify the hotspot woredas was conducted based on two quantitative measures: (I) mean annual incidence and (ii) mean annual persistence over the period of 2015 to 2019. The mean annual incidence refers to the number cholera cases per 100,000 populations per year over the given time. An incidence rate of above 100 cases per 100,000 populations was considered as high incidence. Persistence refers to the percentage of

weeks in the period of interest that reported more than zero cholera cases. Occurrence of cases in 5% or higher of weeks under consideration was considered as high persistence. Subsequently, specific thresholds were set for the mean annual incidence and persistence metrics[7].

Woredas were classified as Priority one if both mean annual incidence and persistence exceeded the respective thresholds for each metric. Woredas were classified Priority 2 if mean annual incidence exceeded its threshold but the persistence did not exceed its threshold. All other woredas were classified as Priority 3. Additionally, for woredas affected by cholera outbreaks in 2020, the CFR was taken as an additional categorization criterion. Woredas which reported over 100 cases with a CFR of above 1% were considered as Priority one woredas.

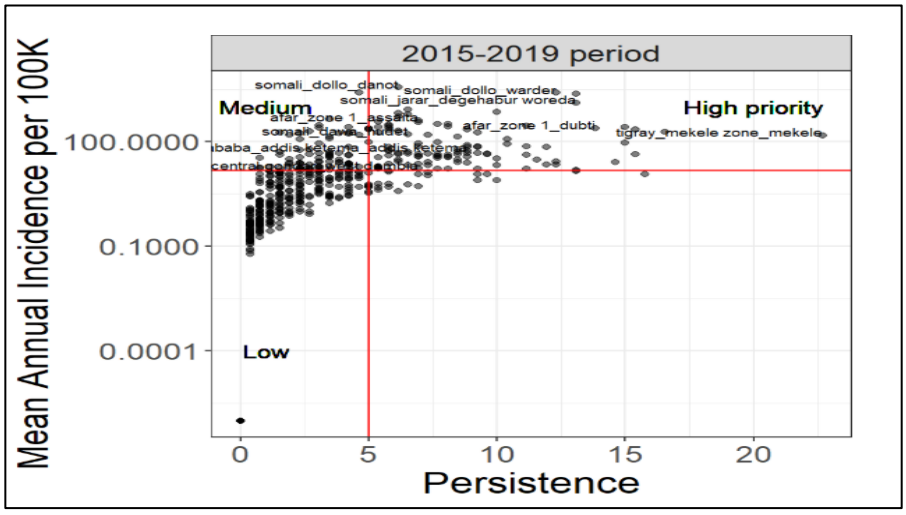
The distribution of these woredas, classified across the three groups is provided. Of the over 1000 woredas in Ethiopia, 118 woredas have been classified as high priority cholera hotspots with an estimated total population of 15.9 million (Table 1). These 118 woredas were identified from 10 different regions and city administrations and are found distributed across varying natural and socioeconomic contexts which include pastoralist and semi-pastoralist areas, agrarian areas, urban slums, and towns. Some hotspots are also impacted by the presence of Internally Displaced Persons (IDPs) and refugees residing in camps or among the host population.

The hotspot woredas analysis and categorisation will be done once annually. This not to miss if there are new dynamics development terms of the disease burden. Newly developed outbreaks and level of efficient multisectoral intervention would contribute to the dynamic shift. Unless the newly burdened woredas addressed, it would be difficult to achieve reduction of 90% mortality by 2028. The implementation of the NCP in this woredas will be done xxxxxxxxx

[7] Lessler et al., Mapping the burden of cholera in sub-Saharan Africa and implications for control: an analysis of data across geographical scales. The Lancet. (2018), doi:10.1016/S0140-6736(17)33050-7

CHOLERA HOTSPOT

Cholera “hotspots” are specific and relatively small areas where the cholera burden is most concentrated and that play a central role in the



Mean annual incidence versus persistence, 2015-2019. The red lines indicate the present persistence threshold (vertical line) and mean annual incidence threshold (horizontal line). Each point represents one woreda.

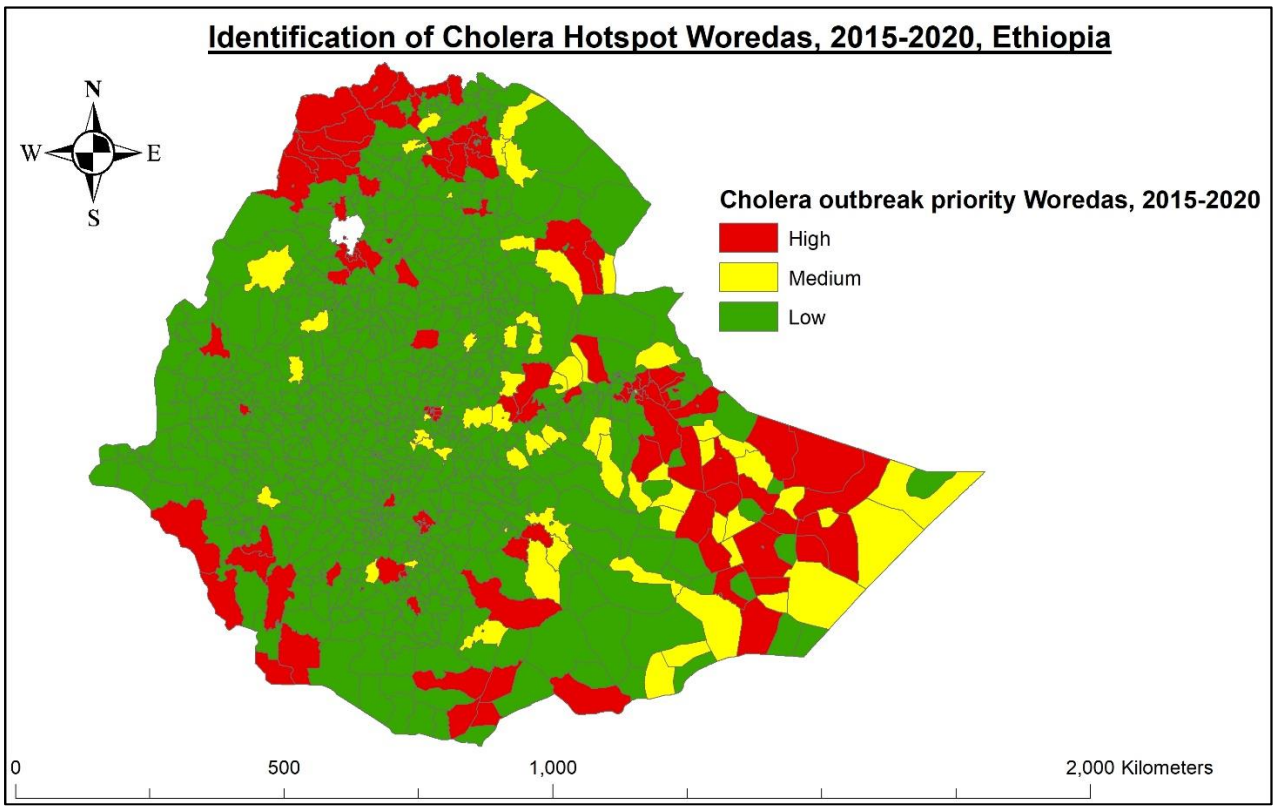


Figure 4: Hotspot analysis by woreda for 2015-2021.

Table 1. The projected populations of hotspot woredas by regions.

Regions	Population Estimate (Central Statistics Agency)
Addis Ababa	**3,686,068**
Afar	**216,079**
Amhara	**2,244,292**
Gambella	**27,395**
Harari	**69,976**
Oromia	**3,688,931**
Sidama	**208224**
SNNP	**766881**
Somali	**2,273,710**
Tigray	**2,757,019**
Grand Total	**15,938,575**

Situation Analysis

2.1.1 Leadership and Coordination

Cholera is among the major public health challenges in Ethiopia resulting in morbidity and mortality and exerting enormous resource burden on the health system and the broader economy. Its burden extends from households and communities to investment farms and mass gathering sites (religious gatherings, settlement camps for displaced populations) where safe water and basic sanitation coverage is far below the standard.

Preparedness and response activities for cholera and other public health threats are mainly led by the center for Public Health Emergency Management (PHEM) of the Ethiopian Public Health Institute (EPHI). The center provides technical as well as material support before, during, and after public health emergencies. It is also responsible to monitor and evaluate overall outbreak response in the country. In addition to annual budget allocated for public health emergency management, in times of active outbreaks requiring additional financial resources, the Government of Ethiopia, through the Ministry of Finance, is able to mobilize funds from its contingency budget. For instance, during 2019 cholera outbreak, the

Government of Ethiopia was able to mobilize an additional 48 million ETB (1.5 million USD) for the response, on top of the financial and material resources mobilized by EPHI.

In addition to commitment from governments, cholera elimination in a country requires the involvement of partners, donors, and the engagement of communities. In this respect, a strong political leadership and coordination system at all levels is critical. Mapping and directing the roles of stakeholders, integrating sectorial efforts from national to woreda level, and mainstreaming the cholera elimination strategy to sectorial activity plan is crucial for effective implementation of the elimination plan. To ensure alignment with existing emergency and developmental coordination platforms, a summary of current leadership and coordination modalities (directly or indirectly linked with cholera disease management) as well as opportunities, gaps, and threats is provided in Annex B.

2.1.2 Surveillance and Reporting

Ethiopia's PHEM system has prioritised 23 diseases and events to be included in the national Indicator-Based Surveillance (IBS) system by using the following main prioritization criteria: diseases which have high epidemic potential; diseases with international reporting requirements under IHR 2005; diseases targeted for eradication or elimination; diseases which have a significant public health importance and diseases that have effective control and prevention measures for addressing the public health problem they pose. Based on these criteria, cholera is one of the diseases prioritized and included under surveillance. Surveillance data for diseases and health events is collected and reported either immediately (report is sent to next health system level within 30 minutes of detection) or on a weekly basis. Of the 23 prioritized diseases and events, 15 are immediately reportable and 8 are weekly reportable, with cholera being one of the immediately reportable diseases.

Despite the implementation of IBS system all the way to the health facility level to collect public health emergency related data, it has been a challenge to obtain data from communities at the onset of an outbreak. Subsequently, it has often been the case that outbreaks, including cholera, spread widely among communities causing substantial morbidity and even death before they are picked up by the surveillance system. To improve on this, implementation of Community-Based Surveillance (CBS) has begun in Ethiopia with the aim of achieving timely detection of public health emergencies.

In addition to CBS, considering the impact of climate change on diseases like cholera, Ethiopia has started implementing Climate Sensitive Disease (CSD) surveillance and early warning project since 2017. Under this project, 11 sentinel sites in eight regions of the country have been established. These sentinel sites focus on five prioritized climate sensitive diseases (cholera, yellow fever, malaria, dengue fever and meningitis). Cholera is identified as a priority disease in 10 of the sentinel sites. Even though more progress is required, these CSD sentinel sites have started collecting and analysing disease data by integrating it with climate, WASH and other related data. The objective of integrating meteorological and environmental data /information is to develop outbreak prediction model. One of the main goals of this analysis is to be able to predict cholera outbreak in advance using cholera prediction model. This will allow improving the early warning system leading to mitigation activities including prioritising these areas for the implementation of interventions such as WASH infrastructure improvement. The country is also working to increase the number and capacity of such sentinel sites.

When it comes to laboratory surveillance and detection capacity, currently, there are a total of nine laboratories in six regions of the country which are capable of performing stool culture, Polymerase Chain Reaction (PCR) and antimicrobial sensitivity test for cholera (Annex D). In addition to these laboratories, the national laboratory at EPHI serves as a referral centre to test samples shipped from any of the regions. There is also a national environmental laboratory located at EPHI which tests environmental samples collected from all parts of the country. Sanitary surveillance and water quality monitoring (residual chlorine and faecal coliform) are of paramount importance for identifying cholera risks. In this regard regional public health laboratories and some woredas have the capacity to perform water quality monitoring tests as long as the consumables such as reagents and portable test kits are available. In the majority of cases, laboratory capacity is concentrated in regional capitals while outbreaks often occur far away from these cities in rural woredas. To ensure the rapid analysis and confirmation of outbreaks, Rapid Diagnostic Tests (RDTs), transport media, and other supplies must be provided to all hotspot woredas. Furthermore, capacity building and decentralisation of laboratories to the zonal and woreda level is required.

While the PHEM system extends from the federal level all the way to the woreda and health facility level, the capacity of the system (both in terms of logistics and human resources) weakens when going from federal to regional, zonal, woreda, and health facility level. At the woreda level, the PHEM case team is under the woreda health office and is often staffed with

1 – 2 PHEM officers. At the health facility level, there is no dedicated PHEM Officer and instead a staff of the facility is assigned as a PHEM Focal Person and is expected to carry out PHEM duties in addition to his/her routine work. There is therefore the need to strengthen the PHEM system at lower administrative levels and health facilities through training and deploying of surveillance officers, data managers, and laboratory technicians.

In the Ethiopian medical supply management system, the Ethiopian Pharmaceutical Supply Agency (EPSA) is responsible to purchase and avail all necessary supplies needed by the health sector. EPSA is also responsible to dispatch this logistics to its regional hubs and it is from these hubs regions will be able to access the required supplies. Mostly, in emergency situations EPHI/MOH can directly purchase supplies that are needed for emergency management. In addition to this, partners working in the health sector also provide supplies for emergency response and preparedness. These supplies can be dispatched to the lower level by EPHI/MOH or by implementing partners. Some of the issues associated with the aforementioned logistics system include lack of some required supplies at EPSA, weak or no emergency procurement system, and transportation and accessibility issues at lower administrative levels.

Once the surveillance system picks up a possible outbreak of cholera, response activities which will be performed include active case search; contact tracing; follow-up; household disinfection; outbreak investigation; laboratory sample testing; surveillance data analysis; and feedback provision through SITREP production. Rumours are also collected from the community through the call centres. These rumours are registered on a rumour logbook and investigated by Rapid Response Teams (RRTs). Following the COVID-19 outbreak in Ethiopia, all regions and city administrations have now established regional call centres. This provides the opportunity to further strengthen event-based surveillance in regions through the utilisation of these hotlines by the regions to receive rumours, investigate, and appropriately respond to situations directly. In line with this, there is the need to further improve these call centres, including through the introduction of a computerised system. The strengths and challenges within the surveillance system are summarised in Annex C.

2.1.3 Case Management and Infection Prevention and Control

Healthcare service in Ethiopia is a combination of public, private and non-governmental sectors. Currently, the healthcare system is a three-tier structure (Figure 7), which is organised into Primary Health Care Units (PHCUs), District/Woreda Hospitals, General Hospitals and

Specialised Hospitals. The PHCU is a Health Centre surrounded usually by five satellite Health Posts. Each Health Post serves approximately 5,000 people and the five together total 25,000 people who are looked after by each Health Centre[8]. The system is designed along basic principles to work together simultaneously to bring about a better health outcome for the entire population.

The aim of management of cholera is to improve the quality of care by increasing early access to effective treatment (reduction of Case Fatality Rate below 1%) and improve infection prevention and control in health facilities, treatment centres, and community at large. Management of cholera cases is done in treatment centres called Cholera Treatment Centres/Units (CTCs/CTUs). The CTCs and CTUs are usually improvised tents or spaces provided in a place which is convenient to manage cholera patients. In the past, inadequate infrastructure and resources like tents, medical supplies and human resource have resulted in substandard care and management of cholera cases especially in remote areas. This has led to substandard management of cholera cases at treatment centres which resulted in high Case Fatality Rates (CFR) higher than 1% in the past. For instance, the 2019 cholera outbreak in Ethiopia led to CFR as high as 1.9%[9] and up until November 2020 the CFR stood at 1.8%. These problems are compounded by the weak health seeking behaviour of the individuals, inaccessibility of treatment centres especially among pastoralist communities who are often located in hard-to-reach areas, and comorbidities like malnutrition in under-five year olds. This high CFR is unacceptable, and Ethiopia aims to reduce this to the minimum acceptable standards and eventually eliminating the disease in the identified cholera hotspot areas altogether.

[8] Ethiopia Health Sector Transformation Plan 2015

9 The National Cholera Situation report 2020

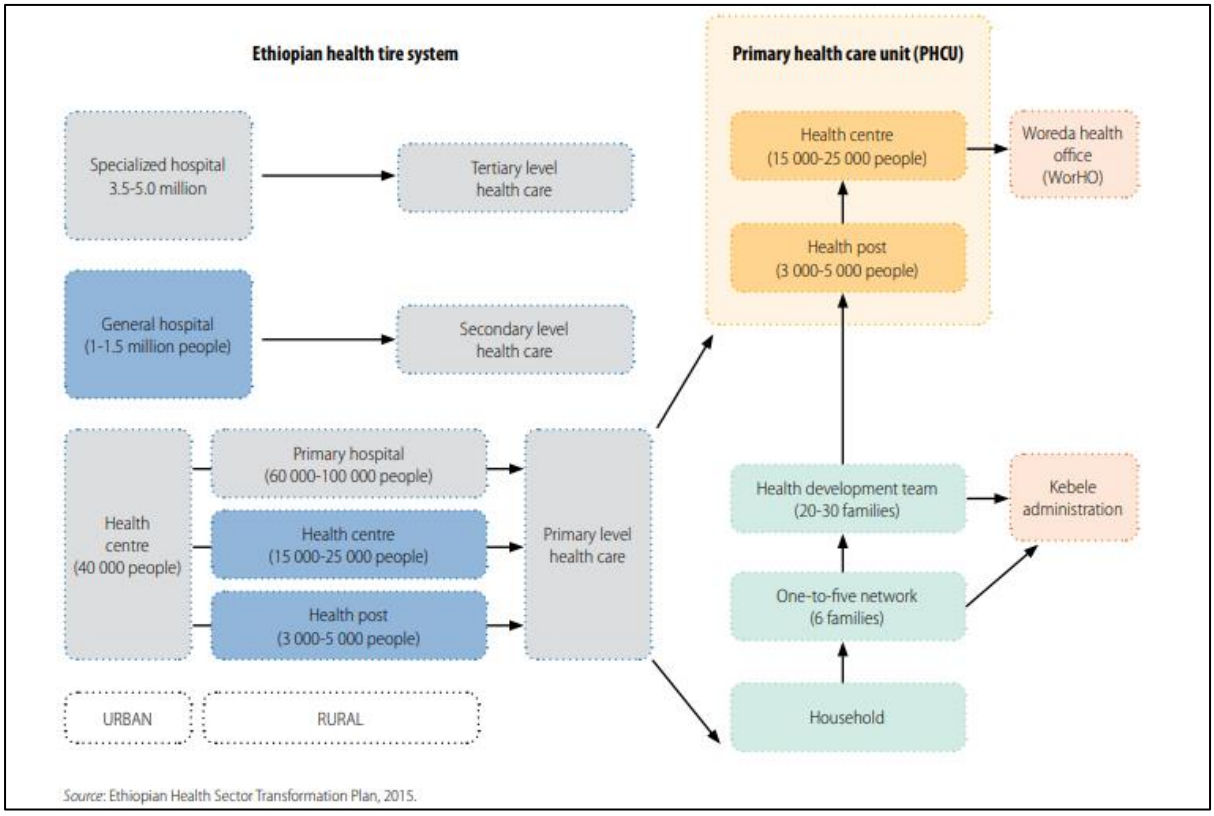


Figure 5: Ethiopia's three-tier healthcare system

2.1.4 Use of Oral Cholera Vaccine (OCV)

The 2018/19 internal displacement of people all around Ethiopia resulted in some of the Internally Displaced Persons (IDPs) living in highly congested camps with little to no WASH facilities, and at a very high risk for cholera. Given these risk factors, along with the prevalence of high malnutrition rate and weak immunity of some of these communities, Ethiopia was able to secure 778,665 doses of OCV from the International Coordination Group (ICG) and another 145,000 doses of OCV from the South Korean Government, for emergency preventive vaccination campaign. A combination of factors such as majority of the IDPs being returned to their areas of origin, the onset of outbreaks in other parts of the country, and re-assessment of risk, the OCV campaign was delivered to respond to active outbreaks instead. Subsequently, cholera affected areas in the country were prioritised and the vaccine was subsequently administered in Oromia region (West Hararghe zone), Sidama region (Hawassa city), SNNP region (Gofa zones), Afar region (Zone 3 & 4) and Somali region (Shebele, Siti, and Dawa zones). In West Hararghe zone of Oromia region, OCV campaign was conducted to cover two doses while the rest of the OCV campaigns covered only one OCV dose due to shortage of the vaccine. The woredas targeted for reactive OCV campaigns are given in Figure 8.

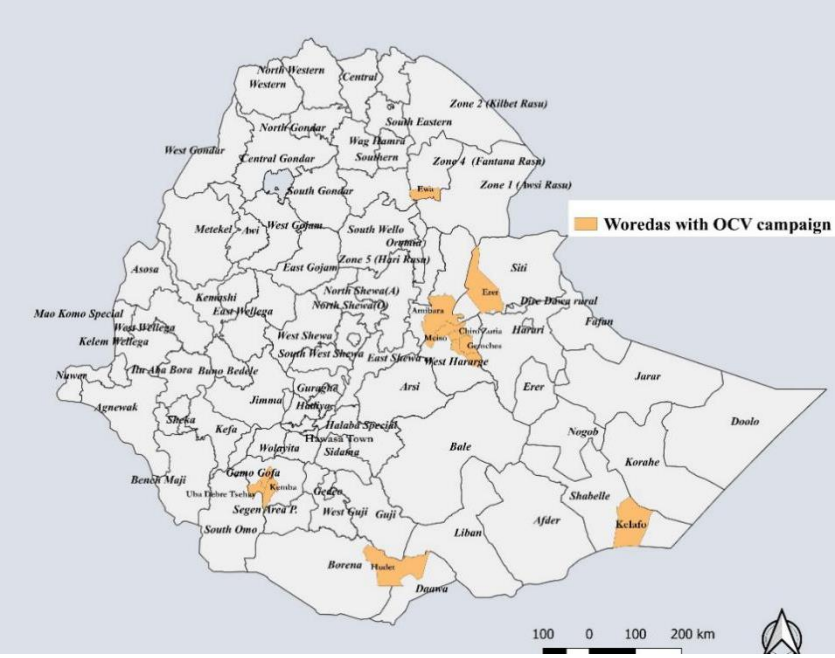


Figure 6: Woredas where reactive Oral Cholera Vaccine was provided in 2019/20

Table 2: List of woredas covered by reactive OCV campaigns in 2019/20

Region	Woreda	Target	1st round Achievement	1st round Percentage	2nd round Achievement	2nd round Percentage
Oromia	Meiso	78,739	78,688	99.9	78488	100
	Chiro	96,000	98,532	102.6	96281	97.3
	Odubultum	60,077	57448	95.6	55762	99.4
	Gemechis	29,050	28937	99.6	28881	94.2
	Bedessa	27,138	27,136	100.0	25942	97.7
Afar	Amibara	61,000	50190	82.3	-	-
	Ewa	36500	29209	80.0	-	-
SNNPR	Hawassa	34,000	23,322	68.6	-	-
	Uba Debretsehay	18,000	17,820	99.0	-	-
	Zala	14500	14065	97.0	-	-
	Kamba	12,200	12148	99.6	-	-
	Selemago	26,300	26,196	99.6	-	-
Addis Ababa		18762	17,324	92.3		-
Somali	Kelafo	58947	54,231	92.0	-	-

Region	Woreda	Target	1st round Achievement	1st round Percentage	2nd round Achievement	2nd round Percentage
	Hudet	32500	32286	99.3	-	-
	Erer	47000	46040	98.0	-	-
Total		**650,713**	**613,572**	**94.3%**	**285,354**	**98.1%**

Total vaccine received was 923,665 dose and OCV utilized for the campaign was 898,926 doses which is 97.3% (Table 2). In the areas which received OCV vaccine, there was no cholera outbreak reported since the campaign. This is encouraging sign for the country to pursue more OCV campaigns for both prevention and outbreak response in other high-risk woredas as well.

First round OCV reactive campaign in 2020 in Ethiopia

First round OCV campaign was conducted in active Cholera affected woredas and prioritized IDP sites in Oromia, SNNP, Gambella, Sidama and Somali regions starting on December 28, 2020. The total vaccinated population was 1,632,461 with 97.3% coverage in targeted woreda.

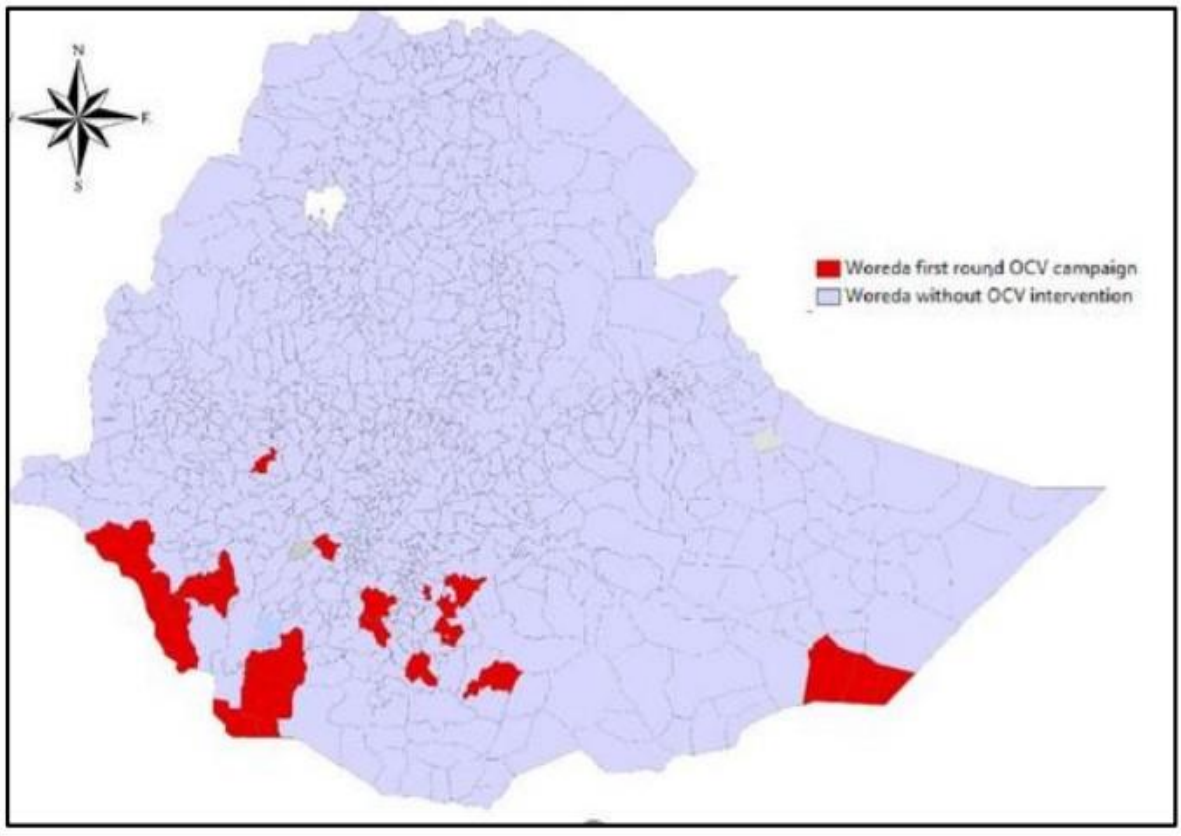


Figure 7 First and second round OCV vaccinated woredas in SNNP, Sidama, Gambela, Oromia 2020/21

Second round OCV reactive campaign in 2021 in Ethiopia

Second round OCV campaign was conducted in areas which received first round of OCV doses from February 28, 2021 - March 6, 202 1. The total vaccinated population for Second round was 1,610,356 with 98.6% coverage in targeted woreda.

Table 3 Total OCV doses received and utilized during first and second round Campaign 2020/21

Vaccine indicator	Number
Total Vaccine received from ICG	3354400
Total vaccine used for 1st round	1632461
Total vaccine used for 2nd round	1610356
Total Vaccine used	3242817
Wastage (%)	3.3
Percent of vaccine utilization (%)	96.3

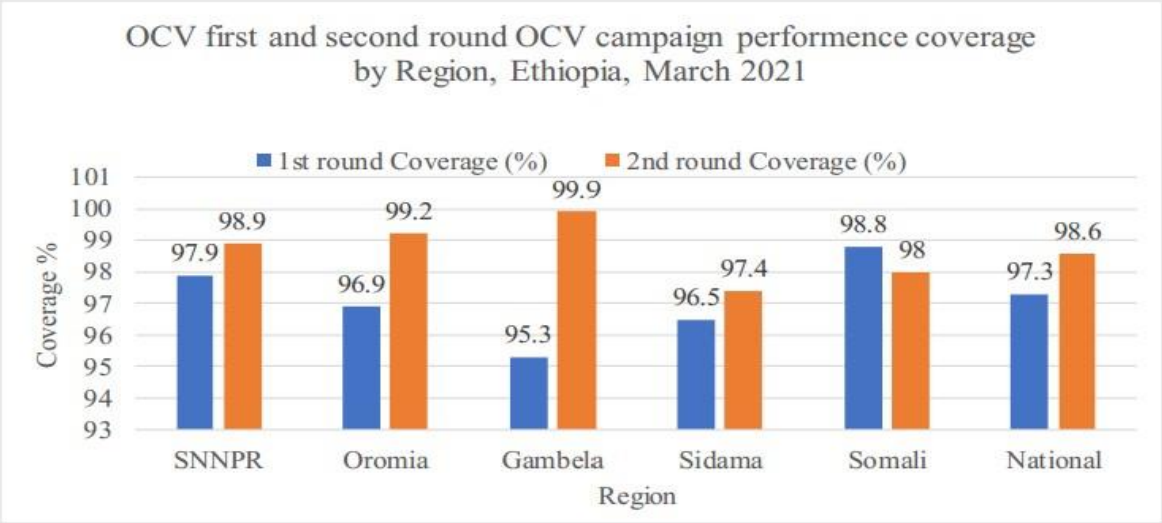


Figure 8 OCV round one and round two coverage by region 2020/21

Some of the key lessons learnt from the aforementioned OCV campaigns as well as action points identified for subsequent campaigns are summarised in Table 3.

Table 4. Lessons learnt and action points for upcoming campaigns

Lessons learned in previous campaigns	Action points for upcoming campaigns
Community acceptance of the vaccine was very strong which facilitated the high coverage of OCV (≈97%)	Continued social mobilization and risk communication

Lessons learned in previous campaigns	Action points for upcoming campaigns
A detailed OCV micro-plan helped to address high risk, vulnerable groups and special groups such as street children in places like Addis Ababa.	Decentralized detailed micro planning
Social mobilization activities used for OCV also contributed for improvement in utilization of hygiene, sanitation and other cholera interventions	Strengthening engagement and collaboration of immunization actors at various organization, MOH, EPHI, and partners.
Challenge of cold chain due to big vaccine volume	Inventory of cold chain availability and cold chain assessments as part of planning and budgeting
OCV campaign reports included disaggregated data by sex and age which helped to assess barriers to OCV access due to gender, age groups, etc. No such barrier was identified from this data.	Post campaign assessments and documentation of lesson learnt

With regards to the current supply chain capacity for immunisation, Ethiopia has developed immunization supply chain management strategic plan in 2018 comprising of complementary and overlapping five fundamental areas of GAVI's immunization supply chain; (i) supply chain design, (ii) cold chain equipment, (iii) supply chain leadership, (iv) continuous improvement and planning, and (v) supply chain data for management. The overall goal of this strategy is to strengthen supply chain management and to ensure the availability of quality vaccines and immunization supplies for effective programme delivery.

Moreover, the Ethiopian Pharmaceuticals Supply Agency (EPSA) has been engaged in installing and maintaining cold rooms, procuring cold trucks, updating Laboratory Information Management System (LIMS), carrying out system design and delivering vaccines to 912 woredas (over 97% of woredas), and 922 hospitals and health centres in February, 2020 and with a target of reaching 1,500 health facilities by the end of 2020.

The Ministry of Health and EPHI quantify vaccine needs with relevant partners and stakeholders by target population and coverage area estimation. The forecasted number of vaccines is procured by UNICEF and stored in EPSA central cold rooms and distribution of voluminous vaccine from the centres to hubs is done by refrigerated trucks to ensure timely, accurate and safe delivery of potent vaccines and related supplies at all levels.

Overview of The Current Capacity at Country Level

In addition to the ongoing public health and WASH related measures to control cholera epidemics, MoH and EPHI, under the joint initiatives with WHO and International Vaccine Institute, carried out a reactive mass Oral Cholera Vaccination (OCV) campaign in 2019-2021 focused on most vulnerable and highly cholera-affected. During this campaign, a total of 4,872,365 people above the age of 1 year old were vaccinated using two doses of Euvichol-plus.

No cholera cases were confirmed from any health facility or vaccinated previously until 2021 (now). These results may be attributed to the positive impact of the OCV campaign and moderate improvements in access to clean and safe water in these areas. While the true cause of this reduction is unknown, current evidence shows that OCV provides moderate to high-levels of protection against cholera for at least three years. This experience highlighted the capacity of the EPHI to conduct OCV campaigns, and the acceptance of the vaccine in the community.

However, it has to be emphasized that Oral Cholera Vaccine is an additional public health measure to control and eliminate cholera but not a substitute to improved water and sanitation situation in Ethiopia. As the OCV provides a temporary protection for up to three years, the infrastructure development for improving access to safe water supply, environmental sanitation and access to improved latrines together with enforcement of the public health laws on food vending and construction of residential and public buildings should be intensified at all times. These will bring a sustainable cholera elimination in Ethiopia.

2.1.5 Water, Sanitation, and Hygiene (WASH)

Despite significant efforts undertaken in the last decades in Ethiopia, the WASH conditions still remain unsatisfactory. The general population has poor access to safe and adequate water and basic sanitation facilities, and the situation is worse for those in rural areas. Health services records and community-based surveys indicate that diarrhoeal diseases are major causes of morbidity and mortality in Ethiopia because of low access to safe water and adequate

sanitation. Diarrhoea is a leading cause of under-five mortality in Ethiopia with at least 70,000 deaths per year i.e., 23% of under-five deaths attributed to it[10].

According to the 2020 WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation, 50% of Ethiopia's population (around 57.9 million people) does not have access to basic drinking water services while 91% (around 104.6 million people) does not have access to basic sanitation services. An estimated 17% of the population practices open defecation. Some 92% of households do not have access to a hand washing facility with soap and water. As regards access to WASH services in schools, 85% and 59% of the schools' lack access to basic water supply and basic sanitation service, respectively. Figure (3) shows the coverage of basic WASH services in Ethiopia.

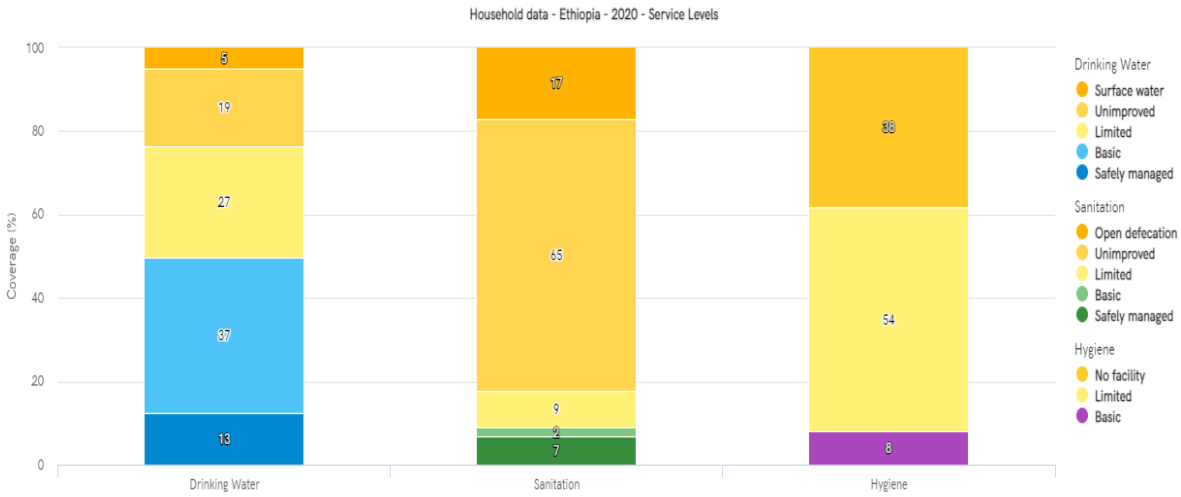


Figure 3: Percentage of population with access to drinking water, sanitation and hygiene services

Reference documents such as Joint Monitoring Programme (JMP) for Water Supply and Sanitation[11] and Ethiopian Demographic Health Survey[12] pointed that only 7% and 6 % of people have access to improved sanitation (while most of the assessed households used unimproved latrines), respectively, and 41% and 65% have access to improved water, respectively.

The sanitation situation of specific sites where a lot of people gather such as market places, bus stations, pilgrimage and religious gathering sites, investment sites, and schools also have low

[11] Joint Monitoring Programme (JMP) for Water Supply and Sanitation, 2019
[12] Ethiopian Demographic Health Survey (EDHS), 2016

WASH coverage which is a factor that potentially contributes to the spread of cholera. For instance, the water supply and latrine coverage in schools is low as indicated from the 2018 One-WASH database which showed a 27% water supply coverage and 35% sanitation coverage in 45 woredas now classified as cholera hotspots. Similarly, an assessment in 2020 showed that markets also have poor WASH with a minimum presence of public latrines, no proper dumping sites, limited access to water and insufficient sanitary rules for daily vendors. Investment sites are also potential sites where large numbers of people gather. According to the Ethiopian Investment Commission (EIC), there are over 300 official investment sites across the country with most of them mainly oriented for farming and manufacturing purposes. In 2019, EPHI and WHO conducted a WASH assessment in 19 of these sites located across seven regions. On average, the visited sites hosted 1,100 workers. These workers stayed in camps where access to safe water was estimated to be 79% but in limited quantities while access to latrines was at 72%. In the camps where the water supply was unsatisfactory, workers depended on surface water from rivers. The situation was more concerning at work sites where only 16% have safe water available and only 22% have access to latrines which subsequently leads to open defecation practices. In addition to this, the report pointed that 84% of the water used in investment sites was not chlorinated and 61% of sites had no hand washing facilities near the toilet[13].

When it comes to WASH conditions at health facilities, a Health Resources Availability Monitoring System (HeRAMS) assessment conducted in Somali region of Ethiopia in 2017 showed that out of 89 health facilities assessed, just 29 had piped supply network while the remaining used tube well/borehole, tanker truck, and unprotected dug well (HeRAMS Ethiopia). The JMP also showed only 30% of the healthcare facilities have access to safe and adequate water supply.

With regards to water quality monitoring, although gaps in conducting such assessments on a regular and timely manner exist, a water quality monitoring survey from 2017 (Central Statistical Agency of Ethiopia, 2017) revealed poor water quality with only 14% of samples tested being free of *E. coli*. With regards to access to water, 49.4% and 36.6% of the population get water from high risk and very high-risk water sources, respectively. Another study done in 2019 by the MOH and WHO (unpublished) with 900 water points in cholera affected areas showed 50% of the samples had *E. coli* present. The same study also assessed household level

[13] Assessment of Selected Investment sites in Ethiopia, 2019

water storages and found that 52% of households had below standard level of Free Residual Chlorine (<0.2 mg/l).

Given the still remaining extensive gap in WASH as briefly described above, significant number of stakeholders engaged in emergency and development work in Ethiopia have been taking part in efforts to narrow this gap. There are several major WASH development projects underway (ONE-WASH, Co-WASH, United Nations Children's Fund-UNICEF, Woreda Transformation Program), which together target more than 400 woredas across Ethiopia with a projected budget approaching one billion dollars for the next 5 years. The One-WASH project for instance (Project Report, phase 2, 2018) has identified the list of necessary investments in order to reach 80% of water supply coverage for each of the region. The total amount of budget required is 2 billion $US of which the World Bank is supporting 300 million $US (December 2020) for 34 woredas prone to drought and affected by climate change. In line with this, the WASH sector has established a list of priority woredas for WASH interventions. By crosschecking this WASH priority list with the cholera hotspot classification it is notable that 64 out of the 104 cholera hotspots are part of the WASH priorities while the 40 remaining hotspot woredas were not considered in the WASH prioritization. Table 4 presents the main WASH related projects and the targeted number of woredas. The number of woredas which are targeted by the projects and have also been identified as cholera hotspots is also given.

Table 5: Major WASH projects and the number of cholera hotspot woredas targeted by the projects

Project name	Districts targeted	Others targets	Common Districts	Remarks
One WASH National Project – Consolidated WASH Account	310	58 small and 8 medium towns	25	350 m US$ for 5 years 2020-2024
CO-WASH (Finland cooperation)	76		8	Fourth phase 2020 – 2023
UNICEF	96	Menstrual Health and Hygiene in schools	13	New phase will start in 2020

Woreda Transformation / Seqota Declaration (pilot phase)	211	1052 HC targeted	3 among 10 pilots	6 years 2020-2026, 600 m
Humanitarian actors under the WASH cluster	451		76	Emergency (IDP) and development
OCHA chronic food insecure zones and woredas	96		16	Guidance transition emergency development

The presences of WASH projects in most of the hotspot woredas has paramount advantages for the control and elimination of cholera in these settings. Therefore, the WASH activities under this cholera elimination plan should be implemented harmoniously with these projects in order to reach the intended goal.

2.1.6 Community Engagement

The Public Health Emergency Management system is equipped to classify risk level for emergencies for risk communication and community engagement. Cholera has become endemic in many parts of the country especially due to poor basic sanitation, high rates of open defecation, and lack of public awareness. This indicates the magnitude of what must be done to achieve the goal of eliminating cholera from hotspots by 2028.

Evidences indicate that most of the cholera affected woredas in the past have had regular re-occurring outbreaks due to factors such as practice of open defecation (32% households have no toilet facility); drinking untreated water (7% of households have appropriate water treatment); poor household and environmental sanitation; close contact with a case; unhygienic latrine and not practicing hand washing (low soap and water coverage at 28% in urban households and 7% in rural households) have been identified as possible risk factors[14]. These factors coupled with complex social and anthropological norms, poor hygiene behaviours and practices by the population has complicated cholera prevention and response in the past. Efforts to address these risk factors require understanding the cultural, social, and political context and

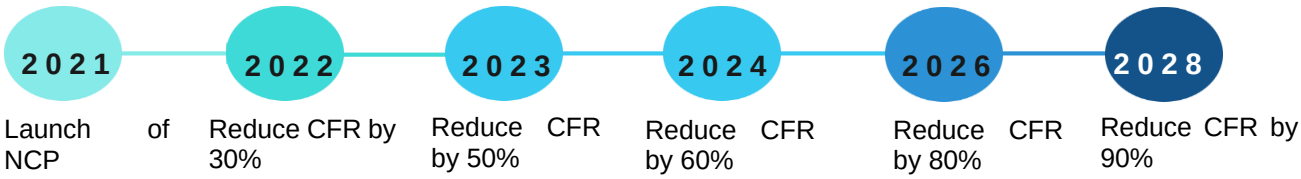
[14] Central Statistical Agency (CSA) [Ethiopia] and ICF. 2016. *Ethiopia Demographic and Health Survey 2016*. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF

intensive risk communication and engagement of the community for effective, at scale, and sustainable control and elimination of the epidemic.

Among others, communities need to be empowered with knowledge and skills and encouraged to take appropriate actions for themselves to help prevent the regular outbreaks of cholera in their communities. This also entails the need to improve the overall risk perception and hygiene practices of communities living in hotspot areas through long term communication activities for sustained behavioural and social change using a mix of community based participatory methods. This is because social and cultural influences particularly amongst individuals with low levels of education and access to resources are strong challenges, poor coordination among sectors and geographical factors like absence of road and landscape posing a barrier to social and behaviour change. Moreover, there will be a need to change long-held beliefs on illnesses, such as diarrhoea, which are perceived as common events that one must simply endure rather than being seen as a potential danger. The presence of the community-level health structures such as Health Extension Workers and Health Development Army present the opportunity to cascade the elimination plan. Community engagement will also target key figures within communities such as elders and religious leaders who hold an immense influence over the behaviour of communities.

3 National Cholera Elimination Plan Targets

Through the implementation of the strategy, Ethiopia aims to achieve reduction of mortality from cholera in hotspot areas by 2028.



4 Implementation Plans

As described in the previous sections, the multi-sectorial interventions will be implemented across the six pillars which each pillar having its own target and strategic objectives.

Leadership and Coordination

Multi-sectorial initiatives without the support of leadership from the uppermost levels of government are often met with challenges in achieving their targets. Similarly, as the elimination of cholera in Ethiopia is an initiative that transcends the health sector, it needs high level leadership to influence and mobilize other levels of governance. Subsequently, the implementation of this cholera elimination plan will be led by the National Health Security Council (NHSC) which is intended to be chaired by the Deputy Prime Minister at the national level, while similar structures will be cascaded to regional levels. While the establishment of the NHSC is under negotiation, the coordination of the implementation of the cholera elimination plan will be under the Disaster Risk Management (DRM) Council. To ensure that the DRM Council is structured in a way it can oversee the implementation of the plan EPHI and MOH will work closely with relevant government and non-government counterparts. The NHSC/DRMC will follow sectorial plan performance and evaluate the progress periodically.

This multi-sectorial coordinating body (DRM council and later the NHSC) will meet on a bi-annual basis to review progress made, identify bottle necks, and provide direction on way forward. It will also ensure the integration of the elimination plan into relevant sectorial plans as well as its alignment with existing plans such as the NAPHS, One-WASH plan, etc.

The members of this council will be sectorial ministries as shown in the Coordination organogram below. Agencies, authorities, and commissions under relevant ministries may also be invited to attend the biannual meetings as found necessary. The council also oversees the performance of the National Cholera Elimination Taskforce.

The technical coordination of cholera preparedness and response activities will be led by the National Cholera Elimination Task Force (NCE-TF). The members of this taskforce will be drawn from relevant agencies, authorities, and commissions of different line ministries as well as partners and donors. This taskforce will meet every month and will be responsible to follow the progress of the implementation of the NCP according to the monitoring framework. The accountability of NCE-TF will be to the NHSC/Disaster Risk Management Council. The MOH

(Ethiopian Public Health Institute) and MoWIE will be co-chairs of the taskforce. Some of the key roles of this platform will be to:

- Develop annual multi-sectorial operational plan
- Conduct resource mapping and develop resource mobilization strategies
- Conduct sectorial plan alignment and ensure inclusion of cholera elimination plan under the member sectors plan
- Regularly update hotspot areas and prioritize interventions
- Provide technical support and advocacy for regional structures
- Develop sectorial and national periodic progress reports and provide technical leadership on areas demanding improvement
- Coordinate with regional structures to review progress and provide support for regions demanding support
- Work and coordinate with UN agencies and partners for technical and resource collaboration
- Conduct periodic visit to regional structures and hotspot areas to monitor progress
- Coordinate the development of guidelines and tools for national cholera elimination
- Develop monitoring and evaluation framework for nation cholera elimination plan
- Periodically review performance through review meetings and surveillance data and other modalities guided by M&E framework

Members of this taskforce will be drawn from both governmental and non-governmental bodies, as shown below.

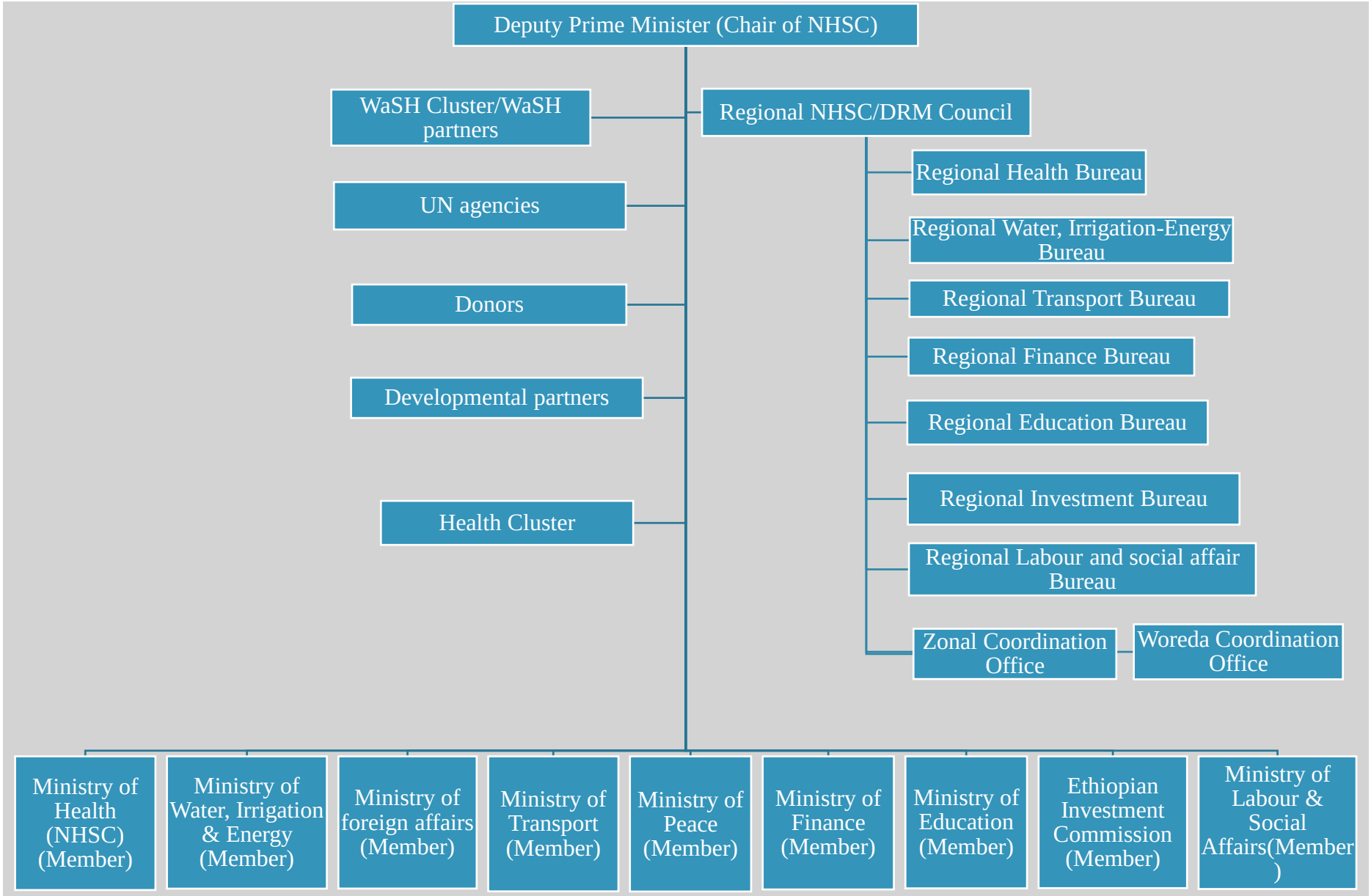
Government

- Deputy Prime Minister Office
- Ministry of Health
- EPHI
- EPSA
- FDA
- Ministry of Water and Irrigation

Partners

- WHO
- UNICEF
- Save the Children
- IRC
- Health Cluster
- WASH Cluster

- Ministry of Foreign Affairs
- Ministry of Transport
- ARRA
- Ministry of Labor and Social Affairs
- Ministry of Peace
- National Disaster and Risk Management Agency
- Ethiopian Investment Commission
- Ethiopian Employees Confederation
- Ministry of Education
- Ministry of Science and Higher Education
- Ministry of Finance
- Planning commission
- and others as necessary


Deputy Prime Minister (Chair of NHSC)
WaSH Cluster/WaSH partners
UN agencies
Donors
Developmental partners
Health Cluster
Regional NHSC/DRM Council
Regional Health Bureau
Regional Water, Irrigation-Energy Bureau
Regional Transport Bureau
Regional Finance Bureau
Regional Education Bureau
Regional Investment Bureau
Regional Labour and social affair Bureau
Zonal Coordination Office
Woreda Coordination Office
Ministry of Health (NHSC) (Member)
Ministry of Water, Irrigation & Energy (Member)
Ministry of foreign affairs (Member)
Ministry of Transport (Member)
Ministry of Peace (Member)
Ministry of Finance (Member)
Ministry of Education (Member)
Ethiopian Investment Commission (Member)
Ministry of Labour & Social Affairs(Member)

4.1.1 Target and Strategic Objectives

Table 6: Target and Strategic Objectives of leadership and coordination.

Target: To have an effective leadership and coordination for cholera elimination under the Deputy Prime Minister	
Strategic Objective 1	Ensure strong political commitment, effective inter-ministerial and inter-agency coordination and multi-sectorial engagement of all partners.
Strategic Objective 2	Develop and implement a leadership and coordination implementation plan/strategy.
Strategic Objective 3	Ensure systematic coordination for all cholera control activities.
Strategic Objective 4	Identification and mobilization of partners to advocate for cholera elimination

4.1.2 Key Activities

The main activities to be carried out under this pillar include:

- Adapt the DRM Council to undertake the coordination of the implementation of the plan in the interim of National Health Security Council (NHSC) establishment
- Establishment of the NHSC
- Incorporate cholera elimination coordination under the roles and responsibilities of the NHSC and establish similar coordination platform at sub-national level
- Organize and conduct periodic meetings across all coordination platforms as per the endorsed TORs.
- Based on the identified hotspot areas, conduct system level multi-sectorial capacity assessment including coordination and human resource development.
- Advocate for political commitment at subnational level.
- Integration and alignment of the elimination plan to related strategies and plans across sectors.
- Assign focal persons to be responsible for coordination of cholera elimination activities at all levels.
- Design or develop sector-based operational plans

- Strengthen cross-border coordination as well as inter-regional communication within Ethiopia.
- Provide direction on the general framework of cholera elimination plan from national to woreda level.
- Monitor progress and resource utilization according to the annual implementation plan.
- Establish/strengthen a multi-sectorial mechanism for information sharing.
- Conduct resource and stakeholders mapping.
- Develop resource mobilization strategy to fund the elimination plan.
- Strengthen the development and humanitarian nexus.

Surveillance

Surveillance for cholera in the context of elimination will be completed through the existing disease surveillance system extending from the federal to the woreda level. However, extensive work will be done to strengthen this system such that current challenges such as delays in reporting immediately reportable diseases and under reporting of cholera cases through the routine surveillance system are improved. One way to resolve these issues is through the digitalisation of the surveillance system. Subsequently, as per the national strategic shift to the electronic reporting platform District Health Information Software 2 (DHIS 2), the daily and weekly indicator-based surveillance will also be shifting to this system. This process has already begun with some woredas currently using this platform for their daily and weekly reports. Furthermore, integrating other data collection systems and data types (meteorological, WASH and environmental) to the DHIS 2 system is expected to create an interoperable system which can also be used in disease forecasting and prediction. Similarly, organized laboratory information management and timely communication is critical. Although laboratory result is expected to be immediately communicated to the health facility which sent the sample, there are major gaps in this regard. Therefore, there is the need to integrate DHSI2 to existing laboratory information management systems for immediate report communication, timely updating, and subsequent implementation of interventions accordingly. A promising start in this regard has been the integration of DHIS-2 with LIS in Addis Ababa for the tracking and reporting laboratory sample and result data for COVID-19.

Cholera surveillance and early warning system can further be advanced by using cholera dashboards for closer monitoring and outbreak prediction models. All partners engaged in

cholera related tasks and projects need to be integrated and coordinated to achieve end goal which is to create healthy and productive population.

Cholera Surveillance in Humanitarian/Disaster setting

Movement or displacement of populations due to natural and man-made emergencies could potentially cause significant health risks among affected population groups. Overcrowding due to the movement of mass populations and resettlement in temporary locations, economic and environmental degradation and poverty, Inadequacy of safe water, poor sanitation and waste management are the main factors that heightened the health risks in humanitarian settings.

In disaster settings, the routine surveillance system normally in place may not function, may be severely compromised or disrupted, or may not provide data quickly enough for timely decisions. Experience from many emergency situations has shown that certain diseases must be considered priorities specially Cholera, in this case work to establish surveillance system by availing case definition, RDT, sample collection kits, training to assigned health workers along with other intervention.

The source of the information would be assigned health care worker, volunteers and partners and the involvement of the community in surveillance is crucial to detect and control cholera in disaster setting. Alerts should be reported with the quickest channel possible, including phone calls and short message service (SMS), and motorcycle ride.

Laboratory method

Bacteriological confirmation is compulsory on the first few suspected cases in order to: Confirm cholera, identify the strain, and assess antibiotic sensitivity. Confirmation of 5 to 10 stool or vomit samples is sufficient per outbreak/woreda for culture/ PCR confirmation by regional and national reference laboratory. Rapid Diagnostic Tests (RDTs) for the detection of V. cholerae O1 and/or O139, the causative agents of cholera, have been marketed as an alternative to culture or PCR for the confirmation of clinically suspected cholera cases in situations where access to appropriate laboratory services is not readily available. Any positive RDT(s) result must be confirmed by culture or PCR as soon as possible before declaring a cholera outbreak.

- Consider adding an objective on the availability of cholera testing supplies and reagents through the Ethiopian Medical Supply Management System

Objective 3: Ensure the availability of cholera supplies in collaboration with EPSA, UNICIF in cholera hotspot woredas and outbreak affected areas.

Activities

- By using surveillance data conduct cholera supplies demand estimation and made the request to EPSA (detail information can be found on PHEM supply chain management system)
- EPSA used the request from EPHI to process procurement for emergency commodities and distribute
- Ensure budget for procurement and distribution of supplies
- Avail laboratory supplies such as RDT, reagents, sample collection and transportation kits and culture media
- Avail CTC kits to outbreak affected areas and regions

Role of RRT

The roles and responsibilities of RRT members

- **Team Leader**

    - Reports back to relevant national authorities (at EOC or equivalent)
    - Ensures a coordinated response among team members
    - Collects information from all team members daily re: data, activities, challenges…
    - Can play dual roles if RRT is small (e.g. can fill the epidemiologist role on the team)

- Epidemiologist/ Surveillance Officer
    - Distribute case definition for health facilities and CTC
    - Responsible for surveillance and epidemiological investigation (analysis by person, place and time).
    - Identify risk factors of the outbreak and guide the intervention
    - Updates and shares surveillance data with the team and with coordination units at local, sub-national and national levels.
    - Actively seeks information on other cases and ensures contact monitoring.
    - Identifies potential modes of exposure to community transmission.
    - Develops strategies to determine the etiology of the disease.
    - Sets-up mechanisms to stop the exposure.
    - Provides case definitions to health workers.

- Takes patient history in order to identify other cases.
- Supervises data management.
- Facilitate/Conduct active cases search and contact tracing activities
- Ensure the use of and adherence to a standardized line list (e.g., sex, age, date of symptom onset, etc.) per national guidance
- Provide Screening questionnaires and/or case reporting formats, Line list of cholera cases in all CTCs and ORP
- Provide outbreak situation daily update for coordination meeting / decision makers
- Prepare outbreak response report
- Prepare early warning/alert and outbreak situation letter for health facilities and adjacent woredas
- Conduct on job training and mentoring on identified weak areas
- Orient the regional teams on different response document (AWD response guidelines, surveillance tools, linelist format etc.) for standardization of their daily surveillance activities

- Clinicians
  - Follow the national guideline for treating case: Plan A, B, C
  - Ensure optimized care for all patients, especially the seriously ill
  - Ensure healthcare facilities have the resources, staff, and processes to effectively manage and treat cholera patients
  - Train HCWs on appropriate triaging for case management and treatment
  - Ensure adequate patient/staff ratio
  - Properly take history of patients
  - Follow infection prevention protocol in CTC
  - Supervise CTC case management, and ensure the implementation of proper hygiene, Isolation and sanitation
  - Follow the implementation of the use of personal hygiene by staffs (use of separate toilet, gloves, boots and hand washing)
- WASH experts,

- Work with regional health bureaus to assess the availability of water treatment, detergents, chemicals, disinfectant, PPE in affected areas
- Strengthen the construction and utilization of latrine at household, institutions, public gatherings and CTC centers
- Improve the solid and liquid waste management of the affected areas
- Improve the hand washing practice of the affected areas through installing hand washing facilities in collaboration with other partners
- Strengthen/technical guidance on disinfection of patients environments at household level
- Support in treating water source including holy water sites
- Train community workers HEW/HAD/WDA/ on hygiene, sanitation, water treatment and chlorine solution preparation
- Identifying availability of WASH response materials supplies
- Work to improve institutional WASH in outbreak affected areas

- Risk communication and Community engagement experts,
  - Undertakes rapid assessments to understand the perceptions, knowledge, believes, practices in communities and at health care centers in affected areas.
  - Identify the socio-cultural and organizational factors that can affect/stimulate the adoption of control measures.
  - Supports media and public communication and engagement.
  - Ensures the availability of communication materials and tools; identifies the appropriate language and format at all levels.
  - Makes recommendations to set-up an appropriate communication strategy.
  - Develops mobilization strategies that support the adoption of IPC measures.
  - Introduces the team and explains the objectives of the visit.
- laboratory personals and
  - Provides technical advice to set-up an operational system to ensure the safe and appropriate collection, package and transportation of blood samples from affected areas to the reference laboratory.

- Ensures specimen referral system and procedures are in place and shared with all national and subnational levels.
- Sets-up systems to maintain an efficient collaboration between epidemiologists, health care centers and laboratories.
- Responsible for laboratory protocols and IPC standards implementation and adherence, including quality control.
- When necessary, responsible for blood specimen safe triple packaging, and transport to the designated laboratory.
- Ensures all laboratory personnel are trained on safe triple packaging, and IPC procedures in handling blood specimens.

Logistician

- Responsible for the transport of teams, materials and specimens.
- Ensures the availability and maintenance of essential material, such as medicines, vaccines and Personal Protective Equipment to be used during the investigation or the response.
- Maps out locations of equipment and supplies for the response with capacities for storage, warehousing including maintaining inventory.
- Identifies suppliers of standard essential items locally and internationally.
- Provides logistical support for transportation of samples to laboratories.
- Sets-up communication equipment.
- Coordinates the security of the team.
- Ensure that administrative processes are respected during field operations and ensures financial management

Suggest integrating a chart showing how the reporting and response flow is organized (ideally including Community-based surveillance
The following chart show how community surveillance report and feedback flow

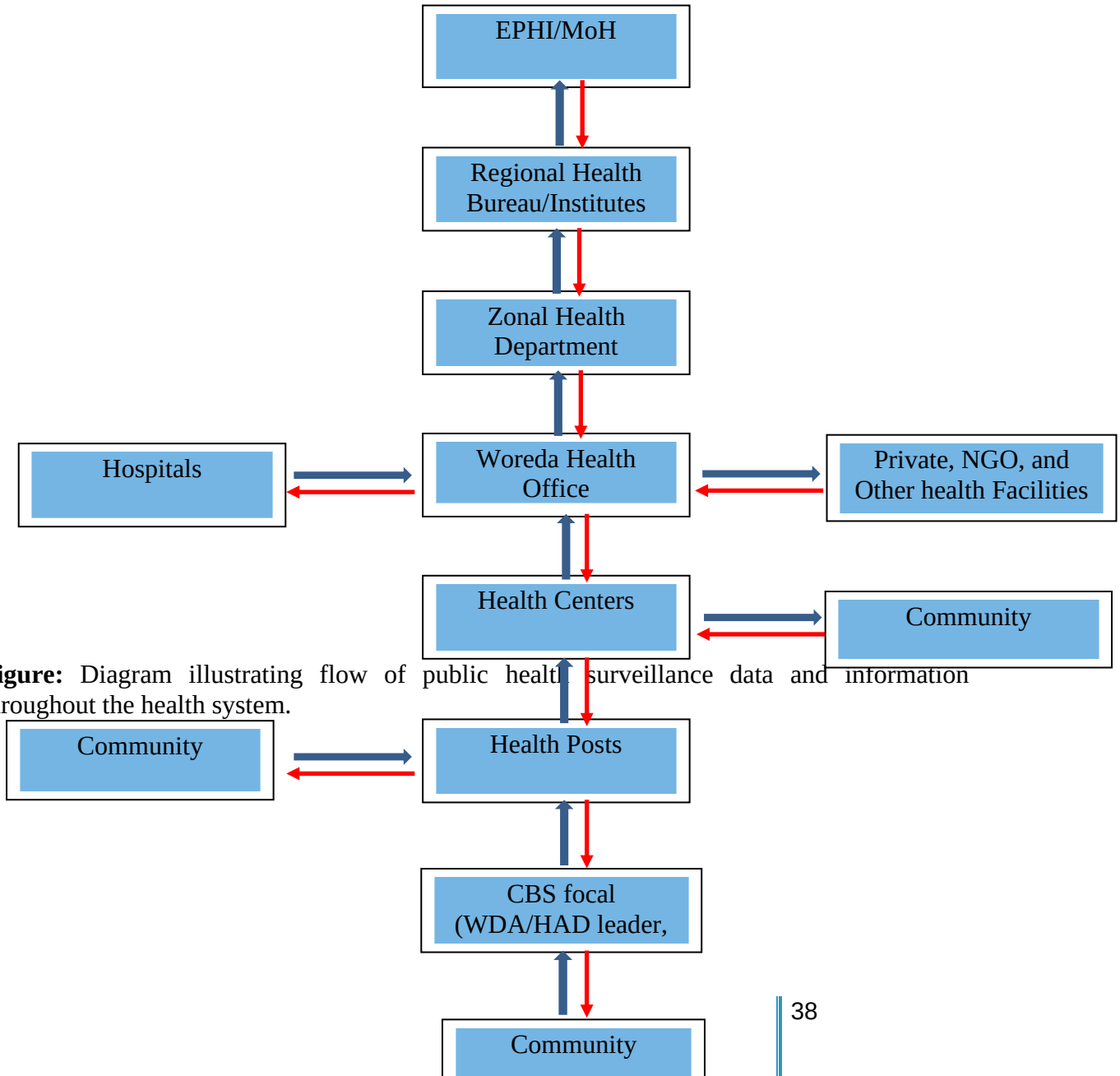


Figure: Diagram illustrating flow of public health surveillance data and information throughout the health system.

4.1.3 Targets and Strategic Objectives

Table 7: Target and Strategic Objectives of surveillance and laboratory capacity.

Target: To improve surveillance and laboratory capacity at all levels for early detection and confirmation of cases by 2028.	
Strategic Objective 1	To enhance surveillance system for early detection, confirmation, reporting, and timely response to cholera outbreaks and monitoring the impact of the cholera control program.
Strategic Objective 2	To enhance laboratory capacity for confirmation of cholera cases (laboratory culture capacity and rapid diagnostic tests) and assessment of antibiotic susceptibility of the bacteria and tracking strains.

4.1.4 Key Activities

Laboratory capacity and Laboratory Based Surveillance

- Strengthen and/or establish the national, regional and sub-regional laboratory capacity
- Capacitate zonal, teaching and referral hospitals/sentinel site laboratories
- Ensure provision of RDT kits in all hotspot woredas at all time as essential kit
- Ensure provision of logistics and supplies for all designated laboratories
- Develop and disseminate clinical laboratory guidelines, Standard Operating Procedures (SOP) for the collection, transportation and storage of laboratory specimen.
- Train and capacitate laboratory technicians
- Establish environmental laboratory surveillance
- Procure 15 vehicles in the country to improve cholera surveillance
- Establish and strengthen stool cultures and antibiotic susceptibility testing capacities
- Enrol central reference laboratory in quality assurance program for stool cultures or Polymerase Chain Reaction (PCR).
- Provide on job training
- Strengthen courier systems and networks for sample referral and supply chain management

Rapid Response Team

Rapid Response Team (RRT) is a team comprised of

- Epidemiologist,
- clinicians/WASH experts,
- Risk communication and Community engagement experts,
- laboratory personals and
- logistician

the structure of RRT ranges from central PHEM to woreda level with objectives of providing training for health workers on cholera surveillance, detect cholera cases early, conduct rapid assessment of possible cholera outbreak, confirm exitance of cholera outbreak, cholera outbreak investigation, asses cholera outbreak impact on health, asses local response capacity and immediate needs and present result of investigation for higher officials

Early warning and alerting

- Revise/identify hotspot woredas on a yearly basis
- Strengthen and establish Rapid Response Teams (RRTs) at all levels
- Strengthening timely rumour notification and registration at all levels
- Provide capacity building training
- Collect and integrate different data sources (climate, nutrition, WaSH, events, environmental and public health surveillance data) and use the data to develop cholera disease occurrence prediction model

Indicator based surveillance

- Insure the timeliness and completeness of the surveillance system
- Equip health facilities with modern, electronic tools for reporting and sustaining mechanism for transmission of data.
- Provide training to strengthen data recording, documentation, reporting, analyses, and interpretation and dissemination system.
- Enhance production of bulletin and feedback at each level.
- Training of frontline health workers on PHEM, Community Based Surveillance (CBS) and community engagement
- Strengthen cross-border collaboration and build a strong sub-regional early warning and alerting strategy.
- Review cholera case definition
- Conduct regular mentoring and support supervision of surveillance systems

Community based surveillance

- Establish and strengthen community surveillance through Health Development Armies, Women Development Groups, and other community actors
- Strengthen integration of cluster networks, feedback and supportive supervision
- Strengthen active case searching, contact tracing, follow-up and household disinfection activity

Case Management and Infection Prevention and Control

To effectively manage cholera cases and improve Infection Prevention and Control (IPC) measures requires a robust preparedness plan to capacitate the healthcare system to be able manage cholera cases, establish clear and functional referral pathways, implement effective IPC measures to mitigate the spread of the disease in the healthcare settings and the community, including safe and dignified burial strategies will effectively reduce morbidity and mortality in the identified hotspot areas. This can be done through building capacity of health workers including ancillary staff (cleaners, guards) on infection prevention and control measures, provision of guidelines, SOPs, job aides, adequate waste disposal, disinfection of treatment centres, and availing of adequate commodities and Personal Protective Equipment (PPEs). In addition to this, conducting trainings on cholera treatment and other comorbidities like severe acute malnutrition will also help improve disease outcome.

Prepositioning of medicine and medical supplies for patient diagnostics and treatment (lab reagents, rapid tests, culture media for confirmatory test, medications), mapping of health facilities or sites that can be used as cholera treatment facilities and those that regularly receive suspected cholera patients, establish adapted infection control procedures and hygienic WASH conditions (isolation room, etc.) as well as the setting up of temporary cholera treatment sites around hotspots. This treatment structures will take cognizance of the present realities of COVID-19 in its set up including patient distancing and bed capacity per treatment facility.

4.1.5 Target and Strategic Objectives

Table 8: Target and Strategic Objectives of case management.

Target: To reduce the overall mortality resulting from cholera by 90%by 2028 and ensure that there is no local transmission reported at the in the 118 hotspot districts.	
Strategic Objective 1	Increasing the accessibility of early treatment to all categories of people by strategically setting up CTU based on the peculiarities of the communities

Strategic Objective 2	Strengthen health care systems by ensuring availability of adequate resources and effective referral pathways
Strategic Objective 3	Strengthen capacity for cholera case management to reduce CFR to zero by 2028 by ensuring adequate Infection, Prevention and Control in treatment centers to prevent cross-contamination and local transmission

4.1.6 Key Activities

- Mapping of the hotspot and the special population in the different woredas
- Identify and map health facilities that can be used as cholera treatment facilities and those that regularly receive suspected cholera patients
- Setting up a network of treatment facilities; There are three levels of care, each designed to treat patients with acute watery diarrhoea and dehydration: (i) community level Oral Rehydration Points (ORPs), (ii) standard oral and intravenous rehydration at Cholera Treatment Units (CTUs), (iii) oral and intravenous rehydration, treatment of complications and co-morbidities at Cholera Treatment Centers (CTCs)
- Ensure adequate access and availability of safe water and sanitation services in all health care facilities, including CTUs/CTCs, in areas all hotspot areas
- Ensure CTCs function according to all IPC measures in the context of COVID-19
- Ensure the availability of ambulances for referral purposes and transporting patients to the health facilities in the hotspots
- Strengthen communication and transport systems for staff working at CTCs/CTUs as well as supervisors
- Build capacity among health workers on the appropriate procedures for management, infection control, and referral pathways for cholera
- Build capacity of CTC/CTU health workers, including support staff, on infection prevention and control of cholera and other diarrheal diseases including effective waste disposal and disinfections
- Build capacity of community health workers on preparation and giving of ORS and other infusions
- Maintain adequate cholera treatment stocks at the various levels where there are hotspots
- Ensure availability of adequate PPE materials
- Ensure availability of disinfectants & sanitation materials

- Review, update and disseminate national cholera outbreak guidelines and including these concepts in curriculum of health training institutions
- Establish and maintain roster of health workers, including support staff, in case management of cholera
- Develop and regularly update deployment plan of health workers and support staff in the event of cholera outbreaks
- Conduct regular refresher trainings for health workers, including support staff, in the roster
- Establish, train and operationalize Rapid Response Teams in all hotspot areas
- Ensure availability of well-equipped gender sensitive CTCs/CTUs and prefabricated Cholera Treatment Units (CTUs) for hotspots to improve access and provide quality patient care
- Maintain adequate medical stocks at Federal/Regional/Zonal/District hotspot sites.

Use of Oral Cholera Vaccine (OCV)

The administration of OCV will be conducted in cholera hot spot woredas (preventive) and during cholera outbreaks (reactive). The vaccines will always be used in conjunction with other cholera prevention and control strategies. Furthermore, efforts will be made to ensure vaccination does not disrupt the provision of other high-priority cholera interventions such as case management and WASH interventions.

Eligible population for OCV application are all people above 1 years which make up 98% of the total population in targeted woredas. According to WHO OCV position paper 2017, special population group including pregnant women, lactating mothers and HIV infected persons should be included in OCV campaign[15]. Subsequently, the preventive OCV vaccination campaign will target 98% of the population of all 118 cholera hotspot woredas (Table 5). The preventive campaign will take place in the first five years of the elimination plan and a phased approach will be taken where a cohort woredas will be vaccinated every year. The OCV campaigns will supplement the longer term interventions such as enhancing surveillance and improving WASH. Annex: List of woredas planned for OCV for the first year implementation 2020

[15] WHO, Summary of the WHO Position Paper on Cholera vaccines: WHO position paper – August 2017

Table 9. OCV target population and vaccine needs for 2021 - 2028

	Implementation Year					
	2021	**2022**	**2023**	**2024**	**2025**	**TOTAL**
Target Population	3,031,267	2,998,115	3,001,158	2,972,525	3,488,851	15,491,916
OCV Doses Required	6,062,534	5,996,231	6,002,317	5,945,050	6,977,702	30,983,834

The OCV vaccination strategy will employ fixed and temporary vaccination sites to maximize high coverage to the targeted populations and geographic areas. The campaign will be established within both permanent and temporary sites, as is most appropriate in each context, utilizing locations including health facilities, existing outreach sites, schools, churches, and mosques. Mobile posts will also be established to support vaccination of hard-to-reach areas, mobile populations, temporary settlements, and areas with low coverage.

Individuals receiving vaccination will be provided two doses of OCV to maximize immunity within targeted woredas, with the second dose administered at a minimum of two weeks after the initial OCV campaign. Adequate community mobilization and community awareness creation will be undertaken prior to and during the vaccination campaigns to promote participation and engagement. The OCV vaccination campaign will take place for minimum of five days. Adequately trained coordinators and supervisors from appropriate government and partner agencies will be deployed to ensure that adequate coordination, supervision, technical support, and monitoring occurs at each stage of the OCV vaccination campaign. Additionally, readiness levels will be monitored at the National, Regional, and Woreda levels, as well as within individual vaccination posts, to support a robust, effective vaccination campaign.

In consideration of COVID-19 related concerns, the delivery of these campaigns will adhere to physical distancing recommendation and health workers and campaign coordinators will be provided with PPEs. Where possible, there will also be temperature screening to identify any symptomatic COVID-19 suspected cases for the prevention of any potential transmission on campaign sites. Any suspected case will be linked with COVID-19 RRT for testing and related activities. Given the ease with which the OCV can be administrated as an oral vaccine and Ethiopia's experience with conducting mass vaccination at the time of COVID-19, the risks

posed by conducting OCV vaccination campaigns are expected to be minimised. Ethiopia conducted successful measles vaccination campaign in July 2020 reaching nearly 15 million children in 2-3 weeks in the middle of COVID-19 outbreak applying precautions to prevent transmission. Experiences from this campaign will also be applied for OCV campaigns.

Application of OCV doses for cholera outbreak response will be through submission of request to International Coordination Group (ICG). Based on ICG approved doses of OCV, the campaign will be implemented in outbreak affected woredas in conjunction with other cholera elimination interventions such as case management, WASH, risk communication and community engagement, and surveillance.

4.1.7 Target and Strategic Objectives

Table 10: Target and Strategic Objectives of oral cholera vaccination campaign.

Target: Oral cholera vaccination campaigns (2 doses within at least two weeks and no more than 6 months) with a coverage of more than 90% in hotspots and in outbreak situations conducted.	
Strategic Objective 1	To implement reactive large-scale mass vaccination campaigns with OCV, with coverage of more than 90% for maximum impact.
Strategic Objective 2	To implement large scale preventive use of OCV in cholera hotspot woredas achieved with coverage of more than 90% for maximum impact
Strategic Objective 3	To establish contingency agreements with governments, agencies and suppliers to ensure efficient planning and coordination for effective supply management, including rapid procurement, importation, warehousing and prompt distribution of equipment.

4.1.8 Key Activities

- Delivery of OCV into the country
- Conduct detailed micro-plan for targeted woredas
- Distribution of OCV and other supplies from Ethiopian Pharmaceutical Supply Agency (EPSA) to woreda and health facilities
- Allocation/distribution of funds for operational cost
- Standardise OCV training materials, technical guidelines and tools, and post-campaign coverage assessment tools
- Conduct pre-campaign assessment on Cold Chain Equipment and capacity

- Conduct training for supervisors and vaccinators
- Integrate intensive social mobilization activities into any OCV campaign
- Integrate risk communication and community education activities as well as WASH activities to OCV campaigns
- Conduct OCV campaign (two rounds of campaigns with 2-weeks interval)
- Report on AEFI (adverse effect following immunization)
- Monitoring/ post campaign assessment

Water, Sanitation, and Hygiene (WASH)

Combinations of short-, medium- and long-term WASH actions must allow to progressively reduce the impact of cholera across the country. In line with this, the national Cholera plan is focused on the following activities: WASH during OCV campaigns, WASH emergency preparedness and response plan (EPRP), WASH in affected communities, WASH in specific strategic sites, WASH in healthcare facilities and schools, and development of appropriate Water Quality Monitoring. Overall, the NCP aims to increase access to WASH services and utilization of safe water and improved sanitation facilities. It prioritizes WASH intervention in woredas based on the hotspot classification criteria for cholera.

4.1.9 Target and Strategic Objectives

Table 11: Target and Strategic Objectives of WASH.

Target: Improve access to basic water supply, sanitation and hygiene at all levels of high risk kebeles within cholera hotspot woredas to eliminate cholera in hotspots by increasing basic water supply from 65% to 90% and improved sanitation and hygiene coverage from 6%[16] to 80% by 2028.	
Strategic Objective 1	To strengthen emergency WASH preparedness and response in cholera outbreak and in the implementation of OCV campaigns
Strategic Objective 2	To improve access to sustainable adequate and safe water supply and sanitation services in communities and institutions in most affected kebeles of cholera hotspot woredas.

[16] Ethiopian Demographic Health Survey (EDHS), 2016

Strategic Objective 3	To increase the availability and utilization of sanitation facilities and adequate and safe water supply in specific settings such as religious sites, investment corridors, bus stations and market places

4.1.10 Key activities

WASH During Cholera Outbreak Preparedness and Response

- Establishment of WASH response team
- Development of EPRP for WASH during natural and human made disasters such as flooding, drought, and conflict.
- Distribution of WASH kits during reactive OCV campaigns
- Strengthen hygiene education and community awareness along with OCV campaigns
- Ensure the availability of WASH facilities in CTU and CTCs
- Ensure basic hygiene, sanitation and isolation procedures at all times in health facilities where patients with cholera are being treated.
- Promotion of hygiene among staff, patients and caretakers in CTC setting
- Capacitate personnel who work on CTC establishment, IPC focal persons, and cleaners and sprayers.
- Provision of supplies, tools, equipment for cholera outbreak response
- Distribution of water treatment chemicals, disinfectants, water tanker, and other WASH NFIs in cholera affected areas.

WASH at hotspot areas and specific setting

- Conduct a rapid assessment to determine water and sanitation coverage and hygiene practice uptake at high-risk kebeles of hotspot woredas
- Provision of safe and adequate water supply in all settings (community, healthcare facilities including CTC, schools, public gathering: -bus station, Market, religious places, etc., investment corridors and IDPs) of hotspot woredas
- Construction and maintenance of sanitation facilities in all settings of cholera hotspot areas (community, healthcare facilities including CTC, schools, public gathering: Bus station, Market, religious places, etc. investment corridors and IDPs)
- Rehabilitation and regular inspection of sewerage line and promote the installation of septic tanks in urban setting of hotspot areas
- Promote establishment of wastewater treatment facilities on selected city and towns of hotspot areas

- Promote sanitation facilities like compost latrine, biogas latrine, etc.
- Regular inspection of public establishments (food and drinking establishments) to improve their hygiene and sanitation conditions
- Develop and implement climate resilient water and sanitation safety plan and ensure its implementation in hotspot woredas
- Installation of waste disposal systems for health facilities
- Conduct water quality monitoring
- Strengthen household water treatment and safe storage
- Hygiene promotion at community, institution, public gathering (bus station, religious places, market places, IDPs sites) of hotspot areas
- Implement social marketing studies to develop household water treatment products
- Provision of WASH services at Investment corridors

Community Engagement

The risk communication and community engagement strategy focus on understanding the context of cholera transmission in hotspot areas, and on designing and implementing appropriate interpersonal, social and behavioural change communication to support prevention and control at the household and community levels by integrating with COVID-19 pandemic preparedness and response activity and aligning with national COVID-19 protocols. Some of the key areas covered through this pillar are:

- Conducting regular Knowledge Attitude and Practice (KAP) surveys and, where possible, anthropological studies to gather information on behavioural drivers of the epidemic;
- Development of evidence-informed strategies, messaging and interventions, strengthening the use of traditional media, and exploring the potential of New media as a channel for dissemination of cholera prevention and control messages to specific at-risk groups;
- Harmonization of Behaviour Change Communication for cholera prevention and control, including contextualized hygiene promotion in integration of COVID-19 preparedness and response activities;
- Engagement of public and private sectors in the production and dissemination of multimedia behaviour change communication (hygiene promotion) messages in integration of COVID-19 preparedness and response activities;

- Recognizing that behaviour change takes time, development of long-term sustained community engagement and hygiene promotion activities beyond outbreak periods in integration of COVID-19 preparedness and response activities;
- Mobilization and engagement of various stakeholders, including community, cultural and religious leaders, teachers, market vendors, and others, in cholera prevention and response in integration of COVID-19 preparedness and response activities

4.1.11 Target and Strategic Objectives

Table 12: Target and Strategic Objectives of WASH for hotspot woredas.

Target: Improve safe hygiene and sanitation practices by in high-risk kebeles of hot-spot woredas to 90% by 2028	
Strategic Objective 1	Mainstream community engagement into all pillars to assure sustainability of interventions for the elimination of cholera
Strategic Objective 2	Increase the risk communication activities in mass gathering areas, (including seasonal workers, refugees, IDP, prison, special groups) for prevention of cholera case reporting by integrating COVID-19 pandemic preparedness and response activities
Strategic Objective 3	Increase community engagement and participation of communities for early diarrheal disease detection, notification, and cooperation during OCV campaigns by integrating COVID-19 pandemic preparedness and response activities

4.1.12 Key activities

- High level advocacy with policy makers, law enforcers, Members of House of Representative, parliamentarians, highest level religious structures, private sectors, media editors, Regional Commissioners and District level team
- Conduct assessment to identify behavioural and socio-cultural risk factors for Cholera
- Develop evidence based comprehensive Social Behaviour Chance Communication (SBCC) strategy for cholera prevention and control
- Production and dissemination of context specific messages through multi-media channels (print, radio, TV) and mobile-audio visual vans
- Capacity strengthening and development of job aids for community mobilizers, volunteers, HEWs, and other frontline workers

- Conduct social mobilization and Interpersonal Communication (House to house sensitization and community dialogue) in hotspot areas and reaching community groups who are at risk including food and drink vendors
- Engage with community key influencers including religious leaders, community and clan leaders to ensure mobilization of communities
- Train key mobilizers including; Women Development Army, Health Extension Workers, faith-based organizations, community-based organizations, youth groups on interpersonal communication by considering the way forward of national prevention COVID-19 pandemic preparedness and response
- Implement hygiene promotion interventions in schools, orientation of teachers, School WASH clubs as champions and school committees

5 Monitoring and Evaluation

Baseline assessments across all intervention pillars will be conducted in the first year of implementation to determine baselines for key indicators and to inform any necessary revisions required on the plan. Below are the annual targets from 2021 to 2028 for key indicators across the main objectives of the roadmap.

Table 13: monitoring and evaluation across all pillars, 2021-2028.

Objectives of the roadmap	Output Indicator	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Early detection and response to contain outbreaks	Severity of outbreaks as measured by CFR	CFR=1.8 %	CFR= 1.2 %	CFR= 0.9%	CFR= 0.7%	CFR= 0.5%	CFR= 0.4%	CFR= 0 %	CFR= 0 %	CFR= 0%
Prevention of disease occurrence by targeting Multi-sectorial interventions in cholera hotspots	Proportion of hotspots woredas which did not report any cholera cases (excluding imported cases) for the last 3 consecutive years	0%	30 %	50%	60%	80%	90%	100%	100%	100%
An effective mechanism of coordination	Number of functional multi-sectorial coordination platforms for	0	131	131	131	131	131	131	131	131

Objectives of the roadmap	Output Indicator	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
for technical support, resource mobilisation and partnership locally and internationally	cholera elimination at the federal and regional and woreda level									
Reducing Cholera outbreak AR	Reduction of morbidity due to Cholera out breaks	AR= 89.6 per 100,000	60 per 100,000	45 per 100,000	35 per 100,000	20 per 100,000	10 per 100,000	0 per 100,000	0 per 100,000	0 per 100,000

Indicators by Pillar

Table 14: Indicator pillar target of leadership and coordination.

Leadership and Coordination	
Indicators	Targets
Number of monthly and quarterly coordination meetings conducted	For NHSC 2 meetings per year For NCE-TF 12 meetings per year
Number of aligned sectorial plans	With 10 NCE-TF Member sectors
Number of standing committees of parliament oriented on the plan	10 standing committees of parliament
Number of coordination platforms placed at all levels at federal, regional and all hotspot woredas	131
Number of operational plans prepared	15 (from each member sectors)
Proportion of hotspot woredas where capacity assessments have taken place	In all identified 118 hot spot woredas
Number of supportive supervisions conducted by regions	4 times per year
Number of resource mobilisation strategies developed	one
Number of cholera elimination focal persons at national and regional level	1 for national and 12 for regional
Number of countries which participated in cross-border coordination platforms	6 neighbouring countries
Number of annual review meetings	8

Table 15: Surveillance pillars indicator targets

Surveillance	
Indicators	Targets
Proportion of woredas with changed risk level	100%
Proportion of woredas where the prioritization by kebele is done	100%
Proportion of regions, zones, woredas and health facilities with functional RRT	100%
Proportion of rumors notified within 30 minutes of detection to each reporting level	95%

Surveillance	
Proportion of trained PHEM officers and health facility PHEM focal persons	100%
Proportion of regions, zones, woredas and health facilities which integrate different data sources (meteorological, environmental, climate sensitive sentinel site data)	100%
Number of Cholera outbreak prediction model developed	1
Number of woredas, zones and regions utilizing the forecasting model	118
Proportion of forecasted outbreaks averted/prevented	100%
Number of Computer with internet modem	250
Number of printer and copy machine	118
Proportion of regions, zones, woredas and health facilities achieving the WHO minimum requirement on completeness and timeliness of surveillance reports	100%
Proportion of health facilities in priority woredas utilizing electronic reporting	100%
Proportion of woreda PHEM officers trained on data recording, documentation, reporting, analyses, interpretation and dissemination system	100%
Proportion of regions producing bulletin and feedback	100%
Proportion of woredas with PHEM officers who have competed frontline FETP courses	100%
Proportion of woredas with trained HEW/HDA/WDGs/Community actors on community-based surveillance	100%
Proportion of communicated cross-border early warning and alerts	100%
Number of regional quarterly surveillance meetings	4/year
Number of meetings held to revise cholera guideline	2
Proportion of rumors reported by the CBS actors/community	95%
Proportion of health facilities in priority woredas that have posted cholera case definition in OPDs	100%

Surveillance	
Proportion of health facilities in priority woredas that have access to updated cholera guideline, cholera case/rumor/suspect reporting formats/system	100%
Proportion of cases detected by active case searching	50%
Proportion of contacts traced and registered under follow-up	100%
Number of newly established environmental laboratories	12
Proportion of regional and zonal laboratories and general, teaching, and referral hospital laboratories capable of doing culture, PCR and antimicrobial sensitivity test	100%
Proportion of hotspot woredas with RDT kits for estimated number of cases with in a year	100%
Proportion of designated laboratories with logistics and supplies for estimated number of cases within a year	100%
Proportion of culture testing laboratory enrolled in quality assurance program	100%
proportion of sample referrals completed on time	100%
Proportion of health facilities found in priority woredas with sample transportation media sufficient for the estimated number of cases for a year	100%
Proportion of laboratories with laboratory SOPs	100%
Proportion of laboratories with case based formats sufficient for estimated number of cases in a year	100%
Proportion of laboratory facilities with trained laboratory professionals	100%
Number of vehicles purchased and dispatched to regions	70
Proportion of laboratories with a refrigerator	100%

Table 16: Case management and IPC pillar indicator targets.

Case Management and IPC	
Indicators	Targets
Proportion of cholera outbreak management guideline distribution per HF in 2021/2022	100%
Availability of documented cholera case management team roasters as per the standard team composition	118
Proportion of deployed staff as requested for surge capacity during outbreak	100%
Proportion of health facilities including woreda have trained staff on infection prevention and control of cholera	100%
Proportion of health extension workers trained on ORS	100%
Proportion of CTCs established at outbreak affected woreda	100%
Proportion of ORPs established at outbreak affected kebele	100%
Proportion of CTCs with full availability WASH facilities	100%
Proportion of CTCs/CTUs supervised during active outbreak	100%
Proportion of sites in hotspot areas which have cholera treatment stock	100%
Proportion of Federal/Regional/Zonal/District have IPC materials in their stocks	100%

Table 17: Oral cholera vaccine pillar indicator targets

Oral Cholera Vaccine (OCV)	
Indicators	Target for first year
Number of OCV doses delivered to country	6,062,534 doses
Proportion of hot spot woredas covered by preventive OCV campaign with two rounds	32%
Proportion of people covered with OCV in targeted hot spot woredas that conducted OCV campaigns in the first round	98%

Oral Cholera Vaccine (OCV)	
Proportion of people covered with OCV in targeted hot spot woredas that conducted OCV campaigns in the second round	95%
Number/percent of targeted hot spot woredas developed detailed micro plan to implement preventive OCV campaign	38 (100%)
Number of sensitization meeting/ training conducted for OCV campaign per woreda	2
Number (percentage) of woredas with social mobilization and communication fund transferred and available	38 (100%)
Percent of families that received message on OCV before OCV campaign	>95%
Number of hot spot woredas affected by Cholera outbreak after OCV campaign conducted	0
OCV wastage rate	5%
Number immunization (AEFI) assessment conducted during the campaign and post campaign in each round.	2
Number of days interval between first and second round of OCV campaigns	14 days (minimum day)
Proportion of woredas targeted hot spot conducted pre-campaign assessment on Cold Chain Equipment and capacity for OCV campaign	100%

WASH	
Indicators	**Targets**
Number of WASH kits distributed to hotspot woredas during OCV campaigns	472 (Four WaSH Kits per woreda)
Percentage of population reached through hygiene and sanitation promotion campaign during OCV	100% of OCV beneficiaries
Proportion of targeted Household for water treatment chemicals distributed in all hotspot woredas	100%
Number of EPRP prepared at each level.	One contingency plan at each level (National to woreda level)
Percentage of population using an improved water source with a total collection time of 30 minutes or less for a round-trip including queuing	90%
Percentage of population with basic hand washing facilities at least near to toilet and at home	80%
Percentage of population with access to improved latrines	80%
Percentage of hospitals, health centres and health post with an adequate water supply	90% in hotspot woredas
Percentage of hospitals, health centres and health post with an improved latrines and hand washing.	90% in hotspot woredas
Percentage of religious sites, investment corridors, bus station and market places with at least one public stand and one functional VIP Latrine with hand washing	90% of the sites in hotspot woredas
Number of persons trained on hygiene and sanitation promotion, water quality monitoring, water schemes operation and maintenance	2360 (twenty experts per hotspot woreda)
Percentage of schools in hotspot woredas with an adequate water supply	100%
Percentage of school in hotspot woredas with an improved latrines and hand washing.	100%

Proportion of water sources for which water quality analyses is conducted	30%
Number of hotspot woredas with portable water quality test kit	118
Number of water quality complaints appropriately responded to	100%
Number of food and drinking establishments improved with regular inspection.	100% (41,600)
Number of prepared Implementation manual/SOP for WASH NCP	1
Number of hotspot woredas open defecation free/ODF/	95%

****** (critical times for hand washing; the good practices for water handling and storage; and the good food hygiene practices)

Table 18: WASH pillar indicator targets.

Table 19: Indicator pillar target for risk communication and community engagement.

Risk Communication and Community Engagement	
Indicators	Targets
Number of rapid behavioural and socio-cultural risk factor assessments conducted	one annually (5 in total)
Number of SBCC strategies developed for Cholera prevention and control	6 (in all pillars)
Number of Communication materials produced, distributed	40,000,000 (118 woredas are targeted)
Number of community members, influential persons, leaders and health staffs who have received orientation	6000
Improved practices (behaviour) of safe water utilizations among hotspot woreda	90%
Number of communities/woredas with zero open defecation practice	118
Proportion of assessed community members who correctly identify community case definition of cholera	100%
Proportion of house hold that participate in community programmes to prevent cholera	100%
Proportion of households who can mention at least two cholera preventive measures (hand hygiene with soap or drink treated water or cook food or use latrine or clean up safely or OCV)	100%
Proportion of individuals who claim to wash their hands with soap at critical times	100%
Percent of households with visible hand washing stations	100%
Percent of households who can identify cholera illness	100%

6 Implementation Timeline and Budget Summary

Table 20: Implementation time line and budget summery pillar indicator targets.

Pillar	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total Cost (USD)
Leadership and Coordination	577,500	385,000	385,000	288,750	288,750	231500	231500	231500	**2,621,500**
Surveillance	2,379,509	1,586,340	1,586,340	1,189,755	1,189,755	962,105	953,864	953,864	10,801,530
Case Management	67,476,769	12,881,418	12,305,027	11,728,636	11,440,441	11,152,245	11,152,245	11,152,245	149,289,026
OCV	3,031,267	2,998,115	3,001,158	2,972,525	3,488,851	0	0	0	15,491,916
WASH	48,453,729	62,974,750	47,609,776	22,138,241	22,126,526	18,626,526	506,526	258,590	222,694,664
RCCE	493,000	475,600	471,000	466,000	468,000	460,000	456,100	439,700	3,269,400
Grand Total	122,411,774	81,301,223	65,358,301	38,783,907	39,002,323	30,972,376	13,300,235	13,035,899	404,168,036

7 Annexes

Annex A. OCV Plan of Action

S.no	Key activity	Expected result	Performance indicator	Estimated Target population Time table '21	'22	'23	'24	'25	Estimated budget	Responsible body
1	Conduct micro planning (estimate vaccines needed and logistics involved, human resources)	Population at risk, quantity of vaccines and resources needed identified	# of population at risk							MOH
2	Conduct Social mobilization, Advocacy on cholera vaccine for the community and decision makers	Decision makers support on vaccination campaign along the promotion of hygiene behavior and improved sanitation	Knowledge Attitude and Practices on OCV; # of campaign sessions and advocacy meetings							MOH

3.	Conduct training for vaccinators and supervisors on Policy and Guidelines on OCV	Policy and guidelines on OCV implemented	# of vaccinators and supervisors trained Evidence of improved skills							MOH
4.	Conduct OCV mass vaccination campaign	95% or above of the targeted population vaccinated Sustained reduction in overall cholera incidence and elimination of outbreaks in pre-designated hotspots	% vaccinated							MOH
5	Conduct supportive supervisio	To ensure quality campaign	# of supportive supervisio							MOH

	n and monitoring	supervision and monitoring visits	n and monitoring conducted							
6.	Review campaign	Reviewing the campaign to get lesson for the next campaign	# of review workshop conducted							MOH
7.	Conduct evaluation of effectiveness vaccine	To generate the effectiveness of OCV	% of cholera vaccines effectiveness							MOH

Annex H: Five-year OCV targeted areas, Ethiopia

Region	Number of Woreda	Sum of pop_2019	97% target	OCV need (two dose)	OCV targeted year based on Incidence
Somali	2	127780.1	123946.7	247893.3	2022
	1	70332	68222.04	136444.1	2023
	29	2075598	2013330	4026659	2021
Addis Ababa	4	1479680	1435289	2870579	2022
	5	1920832	1863207	3726415	2023
	1	285555.9	276989.2	553978.4	2024
Oromia	3	166734.2	161732.1	323464.3	2021
	7	819,671.1	701895	1403790	2022
	2	216324.1	209834.4	419668.8	2023
	7	1352673	1312093	2624187	2024

Region	Number of Woreda	Sum of pop_2019	97% target	OCV need (two dose)	OCV targeted year based on Incidence
	6	1133529	1099523	2199045	2025
Tigray	1	292887.4	284100.8	568201.5	2021
	3	454435.7	440802.6	881605.3	2022
	3	512948.3	497559.9	995119.8	2023
	5	620845.7	602220.3	1204441	2024
	5	875901.7	849624.6	1699249	2025
Harari	1	23194.83	22498.98	44997.96	2022
	1	46780.8	45377.38	90754.75	2024
Amhara	3	440510	362507.4	725014.9	2022
	2	166769	161765.9	323531.9	2022
	3	373541	362334.8	724669.5	2023
	4	758603	735844.9	1471690	2024
	4	504869	489722.9	979445.9	2025
SNNP	10	651503	631957.9	1263916	2025
SNNP	1	115378	111916.7	223833.3	2022
Afar Region	3	216079.2	209596.9	419193.7	2021
Sidama	1	208224	201977.3	403954.6	2022
Gambela	1	27395	26573.15	53146.3	2022
Total	118	15938575	15302444	30604889	

Table 21. OCV targeted woredas for 2021

Region	Zone	Woreda	target population	OCV need single dose
Afar	zone 2	Assaita	56,226.07	56,226.07
Afar	zone 3	Dubti	77,786.39	77,786.39
Afar	zone 4	amibara	75,584.41	75,584.41
Amhara	bahirdar	bahirdar town	314,593.31	314,593.31
Amhara	west gondar	mirab armacho	47,914.12	47,914.12

Region	Zone	Woreda	target population	OCV need single dose
Oromia	Bale	goro bale	112,641.97	112,641.97
Oromia	borena	moyale	36,850.93	36,850.93
Oromia	east hararge	aweday town	12,239.25	12,239.25
Somali	dawa	hudet	59,580.84	59,580.84
Somali	dawa	moyale (somali)	245,561.32	245,561.32
Somali	Dollo	danot	17,715.70	17,715.70
Somali	Dollo	lehel-yucub	25,905.60	25,905.60
Somali	Dollo	warder	25,441.00	25,441.00
Somali	Erer	Fik	77,403.09	77,403.09
Somali	fafan	Babile	105,833.17	105,833.17
Somali	fafan	gursum	38,194.04	38,194.04
Somali	fafan	jigjiga city	100,612.96	100,612.96
Somali	fafan	jigjiga woreda	100,612.96	100,612.96
Somali	fafan	kabribayah	126,840.43	126,840.43
Somali	fafan	wachale	30,075.82	30,075.82
Somali	jarar	Birqod	38,756.84	8,756.84
Somali	jarar	Daror	42,019.43	42,019.43
Somali	jarar	degahabur city	41,089.20	41,089.20
Somali	jarar	degehabur woreda	28,078.59	28,078.59
Somali	jarar	degehamedo	80,223.85	80,223.85
Somali	jarar	Gashamo	105,700.90	105,700.90
Somali	jarar	gunagado	154,025.33	154,025.33
Somali	korahay	debeweyin	75,886.01	75,886.01
Somali	korahay	el-ogaden	19,220.15	19,220.15
Somali	korahay	kebridehar city	40,040.31	40,040.31
Somali	korahay	kebridehar woreda	76,518.08	76,518.08
Somali	korahay	Shaygosh	46,366.34	46,366.34
Somali	nogob	Garbo	62,541.72	62,541.72
Somali	shebele	Danan	17,517.16	17,517.16
Somali	shebele	gode city	58,696.39	58,696.39

Region	Zone	Woreda	target population	OCV need single dose
Somali	shebele	Kelafo	105,817.30	105,817.30
Somali	Sitti	erer (somali)	67,055.13	67,055.13
Tigray	mekele zone	Mekele	284,100.76	284,100.76
Total			**3031266.857**	**3031266.857**

Annex B: Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis of current coordination and leadership mechanism in public health emergency management

Strengths	Existing Gaps
• Task forces and Technical Working Groups (TWGs) targeting waterborne diseases and relevant for the elimination of cholera exist at sectorial offices at national, regional and zonal level (including; One-WASH TWG, Health Extension Program TWG, Child Health/Child survival TWG, Extended Program on Immunization TWG . . .) • National and sub-national coordination of partners through cluster system (Health Cluster, WASH Cluster) • A multi-hazard and multi sectorial coordination platform under the National Disaster Risk Management Commission (NDRMC) exists from national to district level • Ensuring clean water coverage, enhancing hygiene and sanitation and access to primary health services are outlined as key priority of the Government under the Growth and Transformation Plan (GTP)	• Poor coordination among the sectorial platform to oversee intervention targeting on food and waterborne disease such as cholera • Low coordination among the health, water and infrastructure development sectors • Disconnect between humanitarian partners and developmental agencies/partners with each working in siloes (added by Rahel) • Below optimal inter-sectorial coordination and collaboration, including poor plan and resource alignment • The level of attention towards food and waterborne disease does not match the level of burden (morbidity and mortality) • Leadership and coordination platforms for waterborne disease such as cholera

• Eight of the 16 services package of the Ethiopian Health Extension Program are directed towards hygiene and sanitation and IEC • Specialized government agencies, such as center for Public Health Emergency Management (PHEM), Ethiopian Pharmaceutical and Supply Agency (EPSA), and Ethiopian Food and Drug Administration (at sub-national level Food, Food, Medicine and Health Care Administration and Control) exist at national, regional, and in some cases woreda level.	are usually activated only during emergencies • Weak leadership and coordination for urban HEP • Inconsistency in the structure and functionality of coordination platforms at regional, zonal and woreda level • Low health coverage at hard to reach area
Opportunities	**Likely Threats**
• Cholera elimination becoming a global agenda • Hygiene and sanitation and clean water provision being a priority under SDGs • Having Global Task Force for Cholera Control (GTFCC) • Existing Health, Nutrition, and WASH cluster coordination and task forces • Established Public Health Emergency Operations Centers (PHEOC) at national and sub national levels	• Unpredictable security status which may affect leadership and coordination • Competing priorities of government at all level (specially at top leadership)

Annex C: SWOT analysis

Strength	Existing Gaps
• Availability of PHEM system from national to community level • Availability of strategies and guidelines, road map, health facility networks • Identification of hotspot area for cholera • Presence of developed guidelines, SOPs and reporting formats which are provided at all levels • Presence of monitoring and evaluation mechanisms • Presence of initiatives on establishing Task Forces and Technical Working Groups and trained RRTs in all regions • Presence of rumor registration and verification mechanism.	• Lack of timely detection, communication, notification and response of events. • Timeliness and completeness of surveillance report and data quality/validity. • Poor documentation system • Missing of the real case due to case definition • Lack of coordination (school health and multispectral) • Limited stockpiling of emergency drugs and medical supplies for priority diseases • Donor dependency • Gap in system establishment / operation • Weak coordination • Absences of legal framework for surveillance from national to Region levels
Opportunities	**Likely Threats**
• Presence of partner and donor support • Presence of community level structure like Health Development Army (HAD) • Integration of laboratory and surveillance teams • Availability of new initiatives (HDA, One-Health approach) • Development of new strategy/initiative as Cholera elimination in 2028 • Government commitment • Presence of FETP training program	• High attrition rate of staff and lack of staff retention mechanism • Lack of reagents and other logistics and supply for case detection and response • Inaccessibility of some areas • Shortage of OCV • Lack of commitment at all levels as needed • Conflicts, draught, flooding and displacements • Weak joint planning with stakeholders • Low coverage of WASH system.

Annex D: List of available laboratories with capacity to do cholera culture and antimicrobial sensitivity test, July 2020

S.n	Laboratory Nmae	Region	Town/City
1	EPHI	Addis Abab	Addis Ababa
2	Addis Ababa regional Lab	Addis Abab	Addis Ababa
3	Amhara regional lab	Amhara	Bahir dar
4	SNNPR regional lab	SNNPR	Hawasa
5	Tigray regional lab	Tigray	Mekelle
6	Oromia regional lab	Oromia	Adama
7	Hareri regional lab	Harer	Harer
8	Benishangul gumuz regional lab	Benshangul Gumuz	Assosa
9	Dessie sub regional lab	Amhara	Dessie

Annex E: Risks and Mitigations (Surveillance)

RISK 1: LACK OF ADEQUATE FINANCING

Resource mobilization activities will be implemented in the first quarter of the 7-year plan. However, there stands a risk of failing to raise enough funds to implement the Multispectral plan. The realization of this risk will lead to a poorly implemented cholera control plan with other sectors having less funds or nothing at all to execute their activities.

Mitigation Activities

Each sector will cost their activities within the GTFCC framework specifically indicating what is needed to implement their activities. These costing will be emphasized in the resource mobilization meeting/s and the risks of raising less funds will be shown.

RISK 2: INSUFFICIENT QUANTITIES OF OCV VACCINES

As countries jump on board to kick out cholera by 2030, the GTFCC highlights the need for an estimated 44 million, 59 million and 76 million doses of OCV for 2018, 2019 and 2020 respectively. However, the production capacity for OCV was only at 25 million doses in 2017. As Ethiopia plans to introduce OCV as a preventive and reactive measure as opposed to a mitigation measure, the required number of OCV doses will increase. With the global picture, the country may not receive the desired number of OCV doses and thus fail to reach their intended target.

Mitigation activities

The OCV team will work closely with the GTFCC and partners like GAVI to plan for the number of vaccines required in a specific period. Based on this partnership, vaccine requests and distribution strategies will be developed to ensure 100% vaccine coverage.

RISK 3: CROSS BORDER CHOLERA TRANSMISSION

Ethiopia is surrounded by several countries some of which regularly experience cholera outbreaks. This may pose a threat for imported cholera outbreaks in Ethiopia.

Mitigation activities

Strengthened collaboration with border security, communities and government structures like health facilities. Quarterly trainings will be held for cross border staff and regular OCV vaccination will be given to populations around borders that pose a threat

Annex G: Implementation Plan of time line (Case Management)