Intra-Action Review of Ethiopian's Response to the COVID-19 Pandemic, July 2022

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Abstract

The COVID-19 pandemic has had an unprecedented impact on health, society, and the economy globally and in Ethiopia. The World Health Organization (WHO) recommended the use of intra-action reviews (IARs) to identify best practices, gaps, and lessons learned to make real-time improvements to the COVID-19 response. The International Health Regulations (2005) has recommended that countries share COVID-19 best practices and lessons learned with peer countries through IARs. Using WHO established methodology, we conducted the IAR of Ethiopian's COVID-19 response from Hamle, 2021 to Hamle 2022. The review covered 11 thematic areas(pillars): (1)country-level coordination, planning and monitoring; (2) Regional coordination and risk communication and community engagement; (3) Vulnerable population, (4) Epi-surveillance, (5) laboratory, (6) Point of entry, (7) Case management and HBIC, (8) IPC, (9) MHPSS, (10) Admin section, (11) Digitalization. We held six focus group discussions with a variety of stakeholders from a range of government departments and non-governmental organizations. We used the results of the focus group discussions and other key findings from the IAR to formulate recommendations. The IAR identified key areas for improvement at national and subnational levels across all 11 pillars. Priority recommendations included improving multispectral coordination and monitoring of COVID-19 response plan indicators; strengthening implementation of public health response measures, including case detection, isolation, infection prevention and control, contact tracing; and improving data collection, analysis, and reporting to inform public health risk assessment and response. The IAR is a useful tool for reviewing progress and identifying areas to improve the COVID-19 response in real time and provides a means to share information on areas of need with COVID-19 response partners and contributes to International Health Regulations (2005) core capacity development.

Keywords: COVID-19, Intra-action review, Response, Ethiopia

Introduction

Outbreak of the novel coronavirus initially called as "2019 novel coronavirus" or "2019-nCoV" by the World Health Organization (WHO), is also known as "Wuhan coronavirus" or "Wuhan pneumonia", as it started in the Wuhan city of China in early December of 2019. This new coronavirus-associated acute respiratory deadly disease is now officially named as Corona Virus Disease-19 (COVID-19) by the WHO(1). The coronavirus pandemic has ravaged the world, and its impact has permeated virtually all

facets of society(2). From its emergence until 19 July 2022 more than 561 million cases of COVID-19 and over 6.3 million deaths were re-ported globally (3).

Ethiopia reported its first detected cases on March 13, 2020. As of June 26, 2022, a total of 487,430 confirmed COVID-19 cases and 7,530 deaths were recorded in the country with a case fatality rate of 1.50% (4).

The International Health Regulations (2005) Monitoring and Evaluation Framework (IHR MEF) (5)consists of 4 components: (1) the Joint External Evaluation (JEE) tool (6) a voluntary assessment conducted jointly by country experts and the external evaluation team to examine public health core capacities to implement the International Health Regulations (2005) (IHR (2005))(3); (2) the State Party Annual Reporting (7) a country's self-assessment of its IHR (2005) core capacities; (3) an interactive simulation exercise that tests the ability of an organization or other entity to respond to a simulated emergency or crisis situation; and (4) the after-action review, an in-depth qualitative review of responses to any major public health event. Of these 4 components, only the after-action review can assess a country's functional IHR (2005) core capacities following a real public health emergency. The Intra-action review aims to identify best practices and lessons learned from a public health response in order to take corrective actions with in the real events and emergencies.

In response to this need, WHO released guidance for conducting an intra-action review (IAR) specific to COVID-19.[17] The COVID-19 IAR is a process conducted in, and led by, a country to identify areas within the public health response that require remediation or strengthening to improve the ongoing COVID-19 response (8). In contrast to an after-action review, which is generally conducted after an event or emergency is over, an IAR is conducted during a protracted emergency to enable course correction and improvement of the response in real time.

In July, 2021, Ethiopia conducted IAR. This article aims to share Ethiopian' experience in conducting the IAR and provide an overview of key findings.

Methods

The IAR orientation was given on March 5/2022. IAR tool customization conducted from March 12 to 14/2022. Stakeholder meeting and Briefing for facilitators was held on April 08/2022 May 15/2022 respectively. Then finally implementation of IAR conducted from June 29, 2022 to July 1 2022 to review the Covid-19 response.

To conduct the IAR, the nPHEOC established a team from the EPHI and the MOH. The team established the objectives, scope, and methodology of the IAR; identified relevant stakeholders to be involved; and engaged lead facilitators, report writers, and note takers. The PHEOC also organized an IAR orientation for key stakeholders and a facilitators' training.

The nPHEOC held in person meeting for 3 days IAR focus group discussion from June 29, 2022-July 1, 2022 with a session on each of the 11 pillars. The note takers presented review results, then facilitated a discussion using selected trigger questions to elicit participants' input on the strengths and gaps of Ethiopian's COVID-19 response, contributing factors, and recommendations. About 455 priority trigger questions were selected from the WHO database for all pillars. WHO notetaking templates were used to document best practices, challenges, their impacts, and enabling and limiting factors. The rapporteur presented discussion results in a plenary session. The results of the qualitative focus group discussion were then summarized and analyzed based on best practices and gaps in the 11 pillars to formulate recommendations.

Results

Of 60 multispectral stakeholders invited, 49 participated in the IAR (81.6 % participation rate). Stakeholders included representatives from the *WHO,* MOH, Point of Entry, *Pathfinder, Saint Paul Hospital Millennium Medical College (SPHMMC),* Johns Hopkins Center for Communication Programs *(JHU-CCP),* Global Health Supply Chain Program-Procurement and Supply Management *(GHSCPSM),* Koninklijke Nederlandse Chemische Vereniging *(KNCV),* John Snow, Inc. (*JSI),* International Organization for Migration *(IOM),* Dubai Health Authority *(DHA),* Johns Hopkins Program for International Education in Gynecology and Obstetrics (*Jhpiego and UNICEF.* Participants also included technical representatives from professional associations (Like Ethiopian Psychiatric associations).

The IAR covered 11 COVID-19 public health response pillars and identified strengths and best practices, as well as challenges and gaps in Ethiopian's COVID-19 response. The IAR indicated that learnings from previous outbreaks in Ethiopia, including avian influenza A (H5N1), Middle East respiratory syndrome (MERS), and 2009 pandemic influenza A (H1N1), have strengthened Ethiopian's systems for detecting and responding to outbreaks and epidemic-prone diseases. Existing disease surveillance and response systems, programs, and protocols were adapted or repurposed for COVID-19.

Key strengths identified in the IAR included the early declaration of COVID-19 as a national emergency, which enabled access to emergency funding; formation of national and subnational COVID-19 task forces; development of a COVID-19 response plan involving multiple sectors and development of COVID-19 guidelines and a case reporting system; and activation of referral hospitals and a laboratory network for COVID-19. The IAR identified key challenges related to multispectral coordination, limited essential medical supplies, limited capacity for contact tracing, multiple data reporting systems at national and subnational levels, suboptimal implementation and enforcement of public health measures, and a need to strengthen community engagement.

The key strengths, challenges, and recommendations from the IAR for each of the 11 pillars are described and summarized in the Supplemental Tables

Pillar 1: Country-level coordination, planning and monitoring

Ethiopia began preparedness activities well before WHO declared COVID-19 a public health emergency of international concern on January 30, 2020(9). Activities conducted included a self-assessment of pandemic capacity using the WHO readiness checklist (10). Enhanced influenza-like illness surveillance through its Early Warning Alert and Response System, and strengthened surveillance of influenza-like illnesses and severe acute respiratory infections.

Following the initial detection and early increase of COVID-19 cases in Ethiopia, enabled access to emergency funding for the COVID-19 response and mobilization of resources for health and non-health sectors, including the military, multidisciplinary experts (eg, epidemiologists, clinician specialists, risk communication experts, virologists, and other required experts in pandemic response), and professional associations, which joined forces to combat COVID-19.

There was political commitment, active engagement by all relevant government sectors and religious institutions, dedication and commitment of law enforcement bodies were some of the best practices under this pillar. New directives were issued, Accredited training manuals were prepared for all covid-19 pillars and also Strong monitoring system was in place.

Delayed incentive payment to responders, Overlapping of some activities like digitilization and data management are some of the challenges.

IAR recommendations for this pillar included aligning data management and digitalization activities, integration of COVID-19 response into routine activities are some of the recommendation.

Pillar 2: Regional support and Risk communication and Community engagement

To manage the COVID-19 infodemic, Ethiopia established a dedicated COVID-19 hotline that provides COVID-19 information 24 hours a day/7 days a week, which can be accessed by the community. Analysis of hotline data and infodemic monitoring has proven valuable for formulating risk communication messages.

Community engagement to address vaccine hesitancy (co-design with religious council), integrating RCCE in the PHEM comprehensive training manual in the humanitarian setting (IDP) to respond other emergencies, established system of Communication messages and digitalizing electronic trainings (HEW's Mobile based community response) were some of the best practices.

Shortage of professional mix experts (graphic designer, psychosocial expert etc.), RCCE experts, weak enforcement of COVID-19 directives and weak regular analysis of social listening & feedback were some of the challenges. The IAR recommended regular tracking and analysis of social feedback, inclusivness of communication message for -disability group, vulnerable and strengthen media engagement.

Pillar 3: Surveillance

Presence of strong early warning system at national level, focused suspected case, identification, detection and contact tracing, integrated working environment with different team/section, continues capacity development for surveillance work force and evidence generation and data triangulation (routine HMIS proxy disease analysis with COVID-19 performance were some of the best practices/strength.

Some of the challenges under this pillar were suboptimal suspected cases identification, detection, contact tracing and also inconsistency in electronic data capturing, compilation, analysis, and communication at regional and sub-regional levels. The IAR recommended addressing DHS/HMIS COVID-19 indicator capturing tool/Tally sheet, abstract registration and capacity building on data management (GIS, DHS2....) to regional surveillance experts

Pillar 4: Laboratory

National medical and testing laboratories accreditation system, functional National Influenza and Arbovirus Laboratory, deployment of national specimen referral linkage, repurpose of PCR machines for SARS-CoV-2 detection, motivating and supporting private, animal health, biotechnology and agriculture laboratories to engage in the laboratory pandemic response and increase testing capacity and international sample referral linkage by WHO, CDC and EPHI were some of the best practices/strength.

Reference and advanced diagnostic laboratories are condensed at capital city of the country and regional states main cities. Lack of relief supplies and consumables

Capacity of the laboratory workforce in whole genome sequencing, metagenomics and bioinformatics, national Data integrations and standardization of reporting , limited Operational research and short shelf life span of kits were some challenges. The IAR recommended strengthen National Laboratory Network, harmonization of national laboratory data reporting, increase utilization of Ag-RDT across the country and self-testing as means of diagnosis has to be given emphasis.

Pillar 5: Point of entry

Presence and maintaining of strong COVID-19 screening system, initiation of Ag-RDT services at point of entries and integration of other health services into Covid-19 screening for Returnees

Some of the challenges were non uniform Travelers Data Report, demolished COVID 19 screening and Travelers' Data Health management site at BIA, Poor adherence to COVID 19 directives/Protocol by Airlines, frequent screening work interruption and stopping at some point of entries (Bobua, Kakuta, Almahele, MIA, Dima Lugdi,Maokom). Recommendations for improving the response provided were establishing and reorganizing of demolished screening counter and Travelers online Data management system and insure its sustainable functionality at BIA. Adherence to COVID 19 Directives/Protocol by Airlines need to be improved.

Pillar 6: Case management and HBIC

Strengthening and expansion of makeshift facilities as isolation and treatment centers in the capital and the regions, integration of COVID-19 service delivery with essential health services, Home based isolation and care service delivery for non-severe COVID-19 patients, establishment of national and subnational clinical advisory team, health professional COVID-19 capacity building (Comprehensive case management and critical care, HBIC and quality improvement), standardization and updating of guidance and protocols for COVID-19 response, establishment prehospital emergency call and dispatch centers , private facility engagement, establishment of oxygen safety stock, oxygen plant and central line system, establishment Coupling(Twining) of primary health care units with treatment centers (in Addis Ababa) were some the best practices identified.

Some the challenges identified were inadequate Cascading of integration at facility level, insufficient Cascading of integration of HBIC with primary health care unit, burnout of health care professionals, unavailability of essential documents and delayed and Sub-optimal follow-up of patients in HBIC. The IAR recommended community based COVID-19 response integration with health extension program (HEP), support and monitor facilities to effectively implement integration of services in line with national guidance and managing burnouts.

Pillar 7: Infection Prevention and Control

High engagement of partners to support the IPC-WaSH activities, the development of more than 30 SOPs /interim guides, introduction of performance monitoring dashboard (IPC scorecard) Afro WHO dashboard), installation of hand washing facility at entrance an organization, provision of technical support for any workplace (government, business area, mega industries, industry park, hot spot area, high risk population center, (prisons, geriatrics centers, military camps, police camps, daycare, IDPs, …) and safe school reopening were some of the best practices.

Poor health care facility infrastructure to implement IPC practice, absence of well-designed emergency case management center, poor risk perception at HCF and community level, presence of high mass gathering during and weak law enforcement on directive 803/2013,882/2014

The IAR, therefore, recommended improving compliance with infection prevention and control at all health facilities, not only COVID-19 referral hospitals, and ensuring an adequate supply of personal protective equipment

Pillar 8: Mental Health and psycho-social support

Deployment of multi-sectoral MHPSS focal person at all regional level, partner and stake–holder(community, private partners, NGOs) mapping and engagement, public awareness creation measures were taken using different media outlets including free counseling hotline were some of the strengths identified.

The existing mental health service was severely compromise as Yeka Kotebe Hospital , one of the largest psychiatry treatment centers was frozen and changed its role as a Covid-19 treatment center, the way admitted patients evacuated was inhuman and their care taking professionals were negatively affected in the process. Absence of organized Work performance assessment tool for HCW were some of the challenges.

The Eka Kotebe General Hospital need to show its formal psychiatric service fully

Insuring sustainable availability of essential medications relevant to mental health. Appropriate acknowledgement for stakeholders which is based on systematic assessment and fair and equitable incentives for HCW recommended by the IAR.

Pillar 9: Operations and Logistics

Global Fund huge procurement of various types' covid-19 and non-covid19 general medical equipment's for 1380 HFs (380HL & 1000 HCs) is exemplary best practice that turn the existing challenges into opportunity or legacy for the bigger health system strengthening. Timely transportation and delivery of Covid 19 vaccine & dry supplies for the 3rd vaccination Campaign (8days for 940 Woreda). Provision of covid19 vaccine along with other routine vaccine Campaign and allocation of adequate trained manpower at national and regional EOC for all section also other best practices.

Weak national supply chain management quality data recording, monitoring & reporting system

Despite the tremendous efforts, still access to quality lifesaving Covid 19 treatment, medical oxygen and related medical devises is unmet, expiry of diagnostics, reagents and vaccine e.g. Pfizer vaccine, bulk procurement and distribution without considering distributions and storage capacity at all levels of the health system, security issue hinder delivery of covid-19 essential medicines, vaccines, equipment and consumables were some of the challenges under this pillar. The IAR recommended revitalizing periodic coordination platforms (TWG meetings) for coordination and collaboration at all level, preparing standard specification, procurement requirements (for medical oxygen equipment), strengthen the quality control and quality assurance for medical oxygen and oxygen devices (develop standards and checklists, training, inspection and QC testing).

Pillar 10: Digitalization

Digital QR Certification, eMessaging, Data Capturing at Port of Entry (Traveller Detailed Information). eReception and Dispatch, Commodity Management (ELMIS), Aggregate Data Report, Machine Integration were some of the best practices.

Challenge identified for this pillar were as follows infrastructure, trained staff turnover, untimely reports or backlog, security issue and commitment and ownership.

The IAR recommended QR certificate issuance expansion, clearing backlog data, ownership and accountability of tools and better mechanism to minimize forgery

Pillar 11: Vulnerable Population

Development of standardized guideline for humanitarian crisis response, development of comprehensive training manual for humanitarian setting, utilization of variety of strategies to deliver essential health services for IDP's (deployment of health professionals, temporary camps, mobile HNT, nearby HF) and response integration with concurrent emergencies were some of the strengths for the pillar.

Instability & insecurity, inadequate coverage of Covid-19 testing among vulnerability groups, inadequate COVID-19 vaccination coverage among vulnerable population and inadequate allocated funds for IDP were some of the challenges. Recommendations forwarded from the pillar were inclusive service for (Prison, disability others vulnerable groups not included in the service) and mobilizing additional resource or aligning with other budgeted activities.

Discussion

Lessons learned from previous emerging disease threats, including avian influenza A (H5N1), 2009 pandemic influenza A (H1N1), and MERS, have helped strengthen Ethiopian's capacity to respond to public health events. According to the latest WHO data published in 2020 Influenza and Pneumonia Deaths in Ethiopia reached 59,931 or 10.63% of total deaths(11). The country also took a whole-of-society approach to pandemic contingency planning and exercises. Furthermore, the lessons learned and systems established from past events directly informed Ethiopian's COVID-19 response.

IAR demonstrated the complexity of responding to COVID-19 and highlighted the challenges faced with its diverse settings and populations, and their varying capacities. WHO strongly urges all countries to conduct IARs(12). We achieved the IAR objectives to identify best practices, gaps, and challenges and to formulate recommendations to improve the multisector COVID-19 response, through interactive sharing and systematic reviews. Our experience is that the IAR served as an effective tool to facilitate multisector stakeholder collaboration to systematically review the dynamics of the COVID-19 response and engaged stakeholders to better understand the COVID-19 response and constraints. A key feature of the IAR was that it was country led. Key stakeholders from across the government took ownership of the entire process—providing leadership throughout preparation for and implementation of the IAR—and committed to implementing the IAR recommendations.

The IAR revealed a need for improvements in all 11 pillars to advance the COVID-19 response in Ethiopia, across all levels. Using a disaster framework to establish collaboration among different sectors to manage the pandemic enabled the sharing of resources for surge capacity and access to emergency funding and was in line with guidance from the United Nations Office for Disaster Risk Reduction, Sendai Framework for Disaster Risk Reduction 2015-2030(13)which categorizes epidemics and pandemics as biological hazards. In addition, the use of multisector engagement and a whole-of-society approach for a pandemic response aligned with WHO's 2017 pandemic influenza risk management guidance(14). Other countries also have used a multisector approach to manage pandemics; for example, Thailand's COVID-19 response is guided by an integrated plan for multilateral cooperation for COVID-19 safety and mitigation(15).

The intra-action review, urge countries to focus the review on crucial, immediately implementable activities and to expand the review questions to include workforce and operational resiliency considerations(16). Availability of sample management SOPs and trained laboratory staff at all levels (national and sub-national) with well-structured modules and professional experts in line with IAR conducted in South Sudan(17). Public–private partnerships have improved access to essential supplies during the pandemic which is similar findings with review conducted in Indonesia(18).

The IAR has contributed to improving the COVID-19 response in Ethiopia, triggering systematic response covering strategic response pillars and embracing multiple sectors for a whole-of-society approach to pandemic response. Since the implementation of IAR recommendations from August 2020 to May 2021, some improvements have been observed, for example, the COVID-19 response plan has been updated

Conclusion

The IAR helped the government of Ethiopia to identify best practices, gaps, and contributing factors, as well as to formulate recommendations to improve the ongoing COVID-19 response. The IAR can be tailored to a country's context at national or subnational level. The IAR results are useful for reviewing the COVID-19 operational response plan. It is useful as input for WHO IHR (2005) Monitoring and Evaluation Framework(10) components and State Party Annual Reporting(7) to monitor a country's core capacities to implement IHR (2005)(3) and review the national plan of health security for long-term public health preparedness.

Acknowledgments

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