



**Health Data
Collaborative**



Data, decision making and innovations

to support continuity of essential RMNCAH services
during COVID-19: *Insights from Uganda*



Table of Contents

● Overview	3
● Action and adaptations in Uganda (March 2020-June 2022)	5
● Lessons learned	21
● Acknowledgements	23
● Annexes and Endnotes	24

Overview



The SARS-coV-2 pandemic (COVID-19) has created novel challenges and accelerated adaptations to support the continuity of essential health services in many countries. The Health Data Collaborative (HDC) with the World Health Organization (WHO) as its secretariat, the United Nations Children’s Fund (UNICEF), and the WHO COVID-19 working group situated within the WHO Data Hub & Spoke collaborated to document examples of how countries used data to ensure continued availability of essential health services during the early waves of the COVID-19 pandemic. This case study describes how data was used in Uganda during the time frame of March 2020 to June 2022 to guide decisions around maintaining access to essential health services, including reproductive, maternal, newborn, child, and adolescent health (RMNCAH) services.

Study methods included document review, and qualitative interviews conducted remotely using semi-structured interview questionnaires. Select peer-reviewed and gray literature were reviewed to document Uganda’s health system functionality

prior to COVID-19, impacts of COVID-19 on essential health services availability, and actions taken to prevent interruption of services. Grey literature documents drew from a range of sources, such as country reports, and summaries from WHO and UNICEF supported COVID-19 pulse surveys. Raw data sets were not sought. A total of seven key informant interviews were conducted with a total of ten key informants representing the Ministry of Health, United Nations agencies, and the private sector in Uganda. Qualitative analysis through content review of the interviews and literature was undertaken to identify salient themes. Themes and key lessons learned were developed in close consultation with these and other country stakeholders through a series of calls.

In March 2020, the COVID-19 was declared a global pandemic. Uganda's Ministry of Health (MOH), in collaboration with partners, adopted a dual mandate response to address the COVID-19 outbreak and support continuity of services to prevent excessive morbidity and mortality. The response depended on the use of data for decision making and establishment of clear coordination platforms. A Continuity of Essential Health Services (CEHS) coordination group (Pillar) within the expanded outbreak response structure in the MOH was created to minimize health service disruptions. The CEHS Pillar complemented structures to manage the coordination of essential health services, including technical working groups in the MOH, and enhanced coordination between district and national levels.

The CEHS Pillar adopted an approach of making the best use of available data to guide action to maintain essential health services. Regular review of available data streams, triangulation of formal and informal data sources, and identification of additional analyses needed to understand the evolving COVID-19 context triggered a range of follow up actions within the MOH and at the district level. Changes in supply and demand side issues impacting service use were monitored and new health needs related to COVID-19 infection or arising from public and social mitigation measures were also identified.

The COVID-19 pandemic triggered an urgent need for innovation in health data systems and service delivery strategies. The CEHS Pillar made incremental data improvements over the course of the pandemic and facilitated data collection and analysis activities. Tactics included deploying staff with technical skills to district health offices; triangulation of multiple information streams including social media and formal media monitoring; developing a prioritized set of health management information system (HMIS) indicators for regular monitoring; and tracking logistic management information system data. Service delivery innovations during the time frame of March 2020 to June 2022 included bringing services closer to the people through call centers, telemedicine, pharmacy-based mechanisms to deliver prescriptions to patients, enhanced collaboration between private and public health sectors, and integration of services at points of health system contact.

Uganda, like all countries, will continue to experience disease outbreaks and epidemics. The country's development of COVID-19 resurgence and transition plans presents an opportunity to embed lessons learned about the use of data to support continuity of essential health services during times of crisis.

Action and adaptations in Uganda

(March 2020-June 2022)

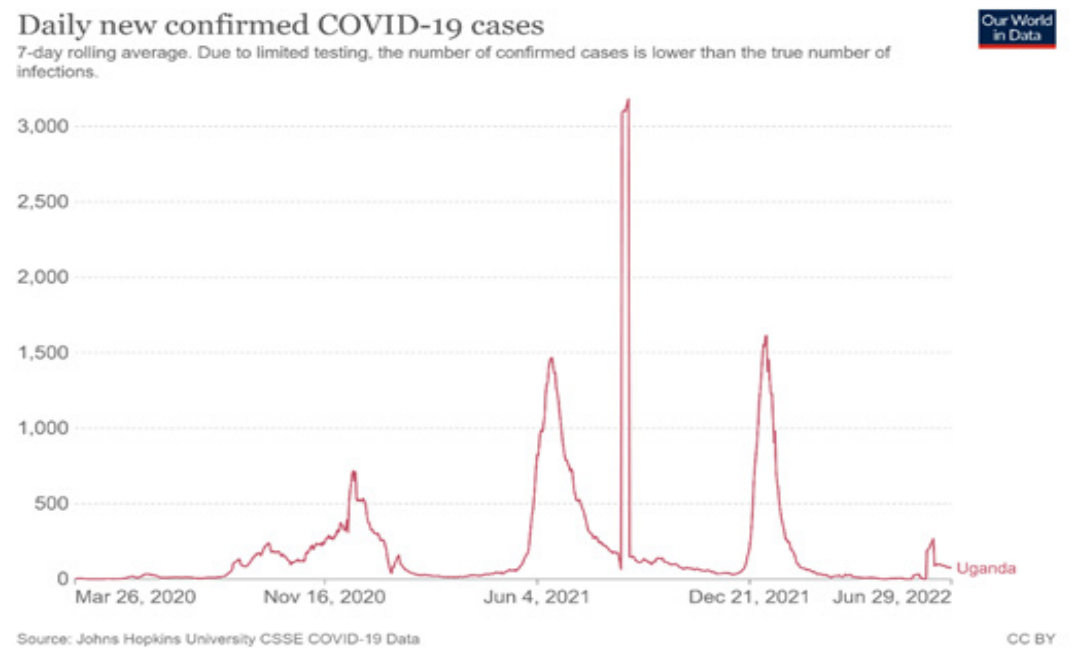
Crisis onset: a disease outbreak of novel scope and epidemiology

Prior to the onset of COVID-19 in 2020, the Government of Uganda and stakeholders collaborated under a health sector development plan to, “accelerate movement towards Universal Health Coverage with essential health and related services needed for promotion of a healthy and productive life.ⁱⁱ” Health services were delivered through a network of public and private providers, based on a decentralized model characterized by community outreach services delivered by village health teams and primary health care centers linked through a referral system to district, regional, and national hospitals. Overall progress in health service coverage and quality and progress towards national goals were tracked through the national HMIS managed by the MOH.

Uganda has a young population structure with 78% of the population under 30 years of ageⁱⁱⁱ and half of the population younger than 15 years of age. Core challenges prior to the onset of COVID-19 included rapid population growth,^{iv} a high infectious disease burden, and high levels of maternal and child mortality.^v Health promotion and disease prevention were estimated as essential inputs to address 75% of the disease burden in Uganda.^{vi} While improvements in national health indicators were observed in the two decades preceding the pandemic, sub-national disparities persisted.

Uganda experienced three waves of COVID-19 infections between March 2020 to June 2022. An isolated spike in daily confirmed cases was also reported in August 2021 (Figure 1). The pandemic posed new challenges to Uganda’s health system given its national level impact in comparison to previous outbreaks such as the Marburg (2017) and Ebola (2018-2020) outbreaks that were localized, causing subnational service disruptions.^{vii}

Figure 1: Epidemiological progression of COVID-19 in Uganda (Mar 2020- June 2022)



Establishment of national and subnational coordination for decision making and action

“And other diseases and other conditions were still driving mortality figures, so the issue was if we forget about the essential health services and focus on COVID-19, we’re going to miss the point.”

Development partner

The Government of Uganda, in collaboration with health sector stakeholders, built on its previous outbreak response experience and amplified structures and systems to address the COVID-19 pandemic and mitigate negative impacts on population health. A dual mandate response was adopted to address the COVID-19 outbreak and support continuity of services to prevent morbidity and mortality,^{viii} which depended on data for decision making and functioning coordination platforms.

A National COVID-19 Task Force, chaired by the Prime Minister, was established in March 2020.^{ix} Given the novel and widespread nature of the virus, the Task Force was larger than previous ones established to guide outbreak response measures. The initial coordination structure included an Incident Management Team (IMT), Support Team, and Response Pillar Teams. It became clear that the public health and social measures to address COVID-19 would impact every district in Uganda and that pre-existing response and preparedness plans, including the National Action Plan for Health Security (2019-2023)^x and Uganda’s One Health Strategic Plan (2018-2022),^{xi} needed revision.^{xii} Because of the complexity of mitigating COVID-19’s impact, including managing disruptions in health services across the country, the CEHS Pillar was created as one of eight Response Pillar Teams.

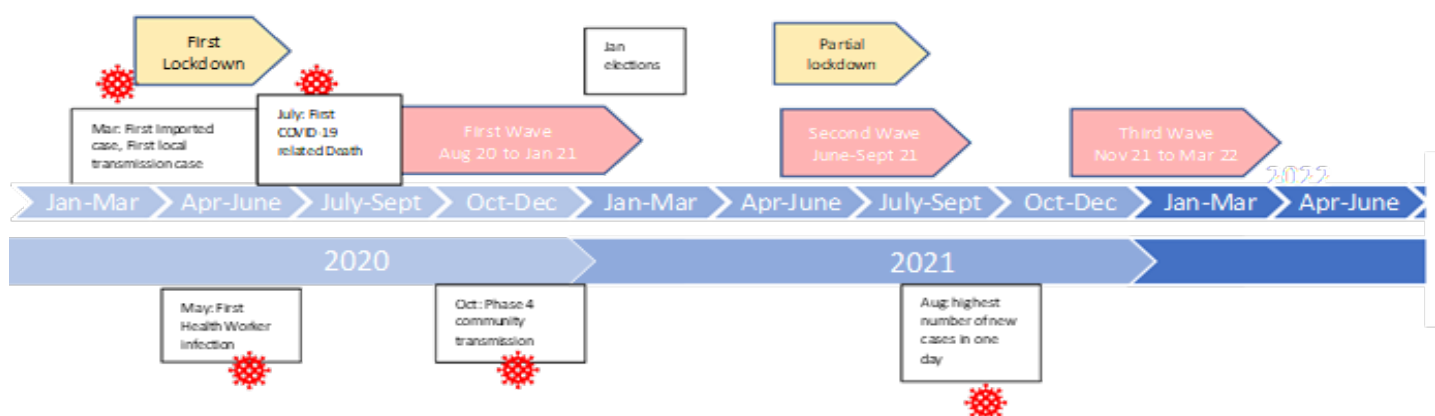
The CEHS committee prioritized select essential health services, including those related to RMNCAH. Data from the national and district HMIS on RMNCAH service delivery and utilization were presented to the Ministry of Health monthly. Within the Ministry of Health, several technical working groups were in existence before the pandemic, including ones for family planning, safe motherhood, and newborn and adolescent health. The pandemic response strengthened these technical working groups, and they were tasked with supporting the continuity of RMNCAH services during the pandemic.

The national CEHS Pillar was replicated at district level in line with Uganda's decentralized health system structure. Specific roles for District Health Offices and Village Health Teams were identified and developed over time in response plans^{xiii} and guidelines for the CEHS^{xiv}. At the district level, District Task Forces established CEHS Sub-Committees. District and national teams worked together to prioritize essential health services, to monitor service delivery and support redistribution of resources to address gaps in services as the pandemic and associated mitigation measures shifted over time (Figure 2).

A health worker is writing the details of a patient who entered the facility, Kikuube Health Centre IV, Kikuube District. @UNICEF/UNI366369/ Sibiloni



Figure 2: Milestones of COVID-19 in Uganda (Jan 2020- June 2022)



Prioritization of Essential Health Services

The CEHS Pillar played a critical role in convening programme managers and technical team leads within the MOH over a period of two weeks to prioritize a package of essential health services that they would ensure were not disrupted. The April 2020^{xv} CEHS guideline outlined:

- Governance and coordination mechanisms at national and subnational levels,
- Prioritized services and guidance for delivering those services in the context of COVID-19 according to a programme criticality matrix, which defined what actions should be undertaken at different levels of risk (e.g., numbers and trends in COVID19 infection at district level),
- Immediate actions to reorganize and maintain access to the prioritized services,
- Indicators capturing information on utilization of the prioritized essential health services and selected morbidity and mortality indicators for monitoring.

Uganda's selection of prioritized services was based on the minimum package in the Health Sector Development Plan and was broadly aligned with subsequent global^{xvi} and regional^{xvii} guidance. Because COVID-19 was a novel disease, its potential impact on health systems and service utilization was not immediately clear, which underscored the important role of the CEHS Pillar in monitoring services and regularly adapting guidance based on new data and information.

A monitoring framework was developed in June 2020 to support the CEHS Pillar to identify challenges and reprioritize resources to support continuous delivery of essential health services^{xviii}. Uganda prioritized 20 indicators including some cross-sectoral indicators related to gender-based violence that could be feasibly collected

through the HMIS system or other existing platforms and used at different levels. These data were compiled monthly and presented to the CEHS Pillar by the Department of Health Information with district level disaggregation.^{xix} Specific indicators for private health sector performance and for community-based health system performance were not included, which was highlighted as a gap during subsequent reviews of the monitoring framework.

The CEHS Pillar coordinated efforts to ensure the guidance, including all updates, for maintaining essential services and capacity to deliver these services was available at local levels. The release of the April 2020 CEHS guidance, the CEHS monitoring framework, and the revised August 2021 CEHS guidance were each followed by dissemination and cascade trainings where trainees from one training then trained another group of individuals. The guidance materials were consistent with the WHO operational guidance on CEHS (https://www.who.int/publications/i/item/WHO-2019-nCoV-essential_health_services-2020.2). Implementing partners were essential in the roll-out processes and in the provision of supportive supervision for decentralized implementation capacity. The national roll-out of the guidance document and associated tools experienced some challenges. By January 2022, for example, some districts had not yet received the August 2021 revised CEHS guidelines.^{xx}

Strengthening capacity to generate and use data for decision making across national and district levels

District and national level coordination mechanisms were established to monitor and adjust national recommendations to reflect the changing context. Data for the prioritized set of interventions, disaggregated by district, was complemented by other sources including district level activity reporting from the District Health Office (DHO) and partners. HMIS data, tabulated annually and displayed in league tables, served as a critical baseline to identify districts that had high and low service utilization prior to COVID-19.

Districts were invited to share their strategies to support essential health service delivery, trends in CEHS monitoring indicators, and to exchange lessons learned on best practices in managing service delivery. Districts with high and low service utilization were invited to present at each CEHS Pillar meeting. The interactive sessions used a systems approach to review trends across services including staffing and supplies, in contrast to a vertical programme review that would have examined utilization patterns of only one service at a time without considering how resources might be shifted to address dynamics in other services. The sharing of district level perspectives through remote meeting modalities provided a valuable mechanism to triangulate available information on how national recommendations were addressing district level needs.

The volume of data required to support the dual mandate response increased the burden on existing data systems. Government and partner staff were redeployed to COVID-19 District Task Force (DTF) teams, and Regional Support Teams (RSTs) were established to bolster district level data compilation, analysis, and use. The

interactions between these teams created an enabling environment for the use of data for decision making, as opposed to simply fulfilling reporting requirements.

Maximizing data and information sources for decision making

The CEHS Pillar adopted an approach of making the best use of available data and information and taking action to address data limitations and evolving information needs. HMIS data and community level information captured through social media were critical information sources at the beginning of the COVID-19 outbreak. The analytic approach was opportunistic, where all available reports were reviewed within the CEHS Pillar. There was no formal framework for triangulating qualitative and quantitative data, however the different sources of data and information drove discussions to generate an “as best as possible” understanding in the face of data shortfalls. These data sources were complemented by additional studies to further understand the impacts of the pandemic as it progressed (Box 1). Additional studies were triggered through the CEHS Pillar as well as by individual agencies within the CEHS Pillar. As mentioned previously, an added value of the CEHS Pillar was its system level perspective that involved looking across services and data sources to trigger needed follow up actions. For example:

- At the onset of COVID-19, the HMIS system had several strengths and weaknesses. Uganda’s HMIS system captured data from both public and private sector facilities and community levels. Data visualization tools including score cards, graphs, and maps to support decision making were introduced prior to COVID-19. Private sector data was collated in the HMIS system but was associated with the nearest public facility ID, which limited comparative analysis between public and private sector services. Updates to improve the DHIS2 system at the end of 2019 were still being rolled out in early 2020, resulting in some lags in data availability at the onset of the pandemic.
- **Routine data** sources across sectors, **including HMIS**, were negatively impacted by COVID-19 response measures such as the suspension of public transport and restrictions on the movement of private vehicles. The biggest impact was noted between March and July 2020. Health workers were restricted in their ability to deliver services, and Report Officers were unable to submit data to District Health Offices for submission into the HMIS system. Special permission from local authorities was required to move within the districts and towns at the onset of COVID-19, and Report Officers were not classified as essential staff. HMIS reporting rates increased over time but remained limited in terms of providing real-time insights into services due to the monthly reporting cycle.

Box 1: Sources of data and information

- Social media and media monitoring
- Alerts from surveillance data at health facility and community level
- 20 indicators from routine HMIS- Monitoring Framework for CEHS
- Port of entry movement data (land and air)
- Private sector service data
- Community health service data
- National Medical Stores and Logistic Management Information System supply data
- mTRAC^{xxi} data for disease notification
- Service analysis by Makerere University
- Deep dive service analysis at Kawempe Hospital
- Partner agency reporting on context and programming

- WHO realigned an existing partnership with the **Makerere University School of Public Health** to prioritize rapid **data collection and analysis** to understand the impact of the COVID-19 outbreak on service utilization. Data was presented on a biweekly basis to the CEHS Pillar to inform actions. In addition, the institution undertook a wide range of research including qualitative research supported by WHO on the impact of public health and social measures to address COVID-19.
- Informal information, anecdotal evidence and rumor tracking through **social media and the formal media** provided a critical complement to HMIS and survey data sources by flagging issues for further investigation. Reports from **District Health Offices, District COVID-19 Task Forces on CEHS and partner reporting** on contextual factors and activities at decentralized levels were also complementary information sources that highlighted trends and contributed insights into underlying issues around service disruptions and utilization patterns.

Use of data and information for continuity of essential health services

Regular review of data in the CEHS Pillar triggered a range of actions, including:

- Development of **additional guidance** to support essential health service delivery when health workers are ill,

- **Deployment of teams** to support District Health Offices identify solutions to service shortfalls in poor performing facilities or districts,
- Follow up with the **National Medical Stores** and partners to determine how stock outs of drugs and equipment for essential health services could be prevented through redistribution of supplies and other strategies;^{xxii}
- **Commissioning of additional studies** to understand the impact of COVID-19 on service utilization, and to address problems with completeness, quality, and timeliness of HMIS data.

An Action Tracker was introduced in December 2020 to support translation of decisions of the CEHS Pillar into practical action. The Action Tracker was an Excel file that included a description of activities, required actions, responsible focal points, timelines for completion, and status updates. Action urgency and status updates were color coded and were reviewed at each CEHS Pillar meeting. The system proved to be an effective way of monitoring collective progress.

Role of private sector engagement in COVID-19 response and continuity of essential health services

In Uganda, the private sector is actively engaged in the public health system. Private and public sector health service collaboration was recognized under a pre-existing national framework. The COVID-19 context created an opportunity and urgency to strengthen private and public sector health service collaboration at the level of service provision, division of labor, and integrated data systems.^{xxiii} This engagement contributed to additional data sources for CEHS Pillar management, improved collective analytic capacity, and expanded service capacity to absorb some of the burden from public sector services.

The Uganda Healthcare Federation (UHF)^{xxiv} supported engagement between the public and private health sectors to ensure that the private sector role was adequately articulated in the health system. The UHF facilitated communication among private sector actors to identify challenges and solutions for CEHS. The UHF structure allowed for anonymous input and feedback into the CEHS Pillar, which created space for exchange with candor. The preference of patients to access private sector health services for stigmatized medical issues, including COVID-19, was noted.

The UHF had assessed facility readiness for outbreaks with the Kampala Capital City Authority (KCCA) prior to the onset of COVID-19. Feedback from approximately one fifth of the 1,000 private facilities flagged that the private sector infrastructure was not prepared to isolate and separate cases of COVID-19 and that additional investments were needed.

The initial division of labor at the beginning of the pandemic between private and public sector facilities involved reliance on government services to address testing, contact tracing and medical management of cases of COVID-19 and reliance on the private sector to provide essential health services. The role of the private sector in health care delivery shifted after the onset of community transmission. Deaths from

COVID-19 were detected in August 2020 through private sector health services, which signaled the need to strengthen standard operating procedures (SOPs) and support the private sector with PPE to enable safe operations. Private health facilities were empowered to take samples, support home-based care, and eventually support in-facility care of COVID-19 patients.

The private sector expanded its capacity to address COVID-19 and support essential health service delivery through hiring additional health care workers and improving health worker conditions (e.g., transportation and accommodation). The private sector also responded to critical gaps in health promotion and education to support timely health seeking behaviors, for example by sourcing communication materials for drug shops as a first point of contact. At the same time, there was no specific indicator for monitoring private sector services.

The private sector also faced challenges in the consistent delivery of services. Solutions were found through collaboration with the MOH and other government offices, including facilitating access to supplies, supporting staff movement, and reducing the costs of utilities. The COVID-19 outbreak negatively impacted supply chains due to increased demand for services, difficulties in getting materials across borders, and the increased instability of the Ugandan currency. While the National Medical Stores delivered supplies to the last mile, small and medium-sized private sector facilities did not have the same capacity for transportation. The high cost of some supplies led to efforts for pooled purchase of supplies for a fixed price. Infection prevention and control measures required increased water and electricity. The private sector lobbied for a lower industrial rather than commercial rate for these utilities, which needed to continue running even if income was reduced from lower service utilization during periods of lockdown or movement restrictions. The UHF also supported securing health worker movement permits by transmitting number plates for the facility and priority workers to relevant authorities. Movement permits for the facility enabled transportation of cadres of staff who did not own a car. The MOH also helped the private sector facilities to secure movement permits.

The UHF support to the private and public sector collaboration resulted in several improvements in data and services. The private sector was more than just a recipient of directives. It was asked for input into how to make sure that supplies and services remained available, accessible, and delivered with quality to support essential health services. The private sector contributed to updated CEHS guidelines. Backend software solutions were developed to link private health facilities with the DHIS2 which reduced the cost of printing out registers, travel time to deliver data to the district, and clearly tagged the data with a private sector facility reporting codes to enable disaggregated service analysis. In addition, hundreds of private sector health facilities were given logins to the DHIS2 systems, which removed some barriers to data entry and reporting completeness and timeliness.

Identifying and mitigating impacts of COVID-19 on continuity of RMNCAH services
Based on review of available evidence, the CEHS Pillar noted four main pathways via which COVID-19 impacted RMNCAH services within the CEHS package:

- **Supply of services:** Including limited availability of staff, supplies and appropriate PPE required for safe operations.
- **Access to services:** Travel restrictions preventing patient movement to services, including anecdotal information of pregnant women being refused access to facilities for services including childbirth because they did not have a facemask.
- **Demand for services:** Including disrupted health seeking behaviours related to fears of infection if service was sought, the sense that mental health needs for women, children, and adolescents were not addressed adequately, and low partner involvement in supporting women during labor and delivery.^{xxv} Delays in health seeking at times resulted in more complicated service needs. For example, midwives reported that home deliveries could result in the need for emergency transport services in the event of complications.
- **New health needs related to COVID-19 infection and impacts related to public health and social measures:**
Including impacts in other sectors that would have a knock-on effect on health conditions, such as school closures undermining health promotion to teenagers contributing to the observed increase in teen pregnancies.^{xxvi} Interrupted family planning services during the first wave of COVID-19 preceded an increase in deliveries nine months later.

A range of actions triggered by regular review of the data and targeted at these four pathways were undertaken to mitigate challenges in the continuity of RMNCAH services within the CEHS package: ^{xxvii}

- **Supply of services:** Including service delivery adaptations, promoting safe workflow and optimizing workforce capacity through:
 - ✦ Introduction of IPC measures and PPE for health workers and patients,
 - ✦ Reducing congestion for services by changing frequency of antenatal care (ANC) services from selected days to service availability every day, reduced patient numbers for group ANC visits and the creation of special child clinics for maternal and child Health and HIV services,
 - ✦ Hiring additional service providers to reduce pressure on existing health workers;
 - ✦ Using facility data to reassign staff in the event of health facility closure or if there was insufficient staffing in a given facility due to staff being sick with COVID-19,
 - ✦ Reinforcing support for monitoring and procurement of RMNCAH commodities,
 - ✦ Giving women experiencing high risk pregnancies specific appointments for antenatal care reduced overcrowding and allowed facilities to maintain physical distancing practices as required by the COVID-19 guidelines and SoPs.^{xxix}

- **Access to services:** including bringing services closer to patients and patients closer to services through:
 - ✦ Transportation via car and motorcycle taxis (boda boda^{xxx}) for pregnant and postpartum mothers to receive antenatal and postnatal care, and for sick newborns and children to receive care at health facilities,
 - ✦ Engaging with local community leaders to arrange emergency transport services,
 - ✦ Improving referral systems via call centers and information sharing on ways to access transport and to identify higher level facilities able to take new patients,

Boda-boda rider Habib Aroma Kakamega, 32, carries an expectant mother Faisa Anguko to Midigo Health Centre IV in Yumbe district. @UNICEF/UNI358262/Emorut



- ✦ Kampala Capital City Authority establishing a hotline to facilitate transportation, provide guidance over the phone until transport arrived, support identification of bed vacancies, and inform receiving facilities of the conditions of arriving patients to improve their preparation,
- ✦ Integrating services at delivery points, for example integration of family planning into postpartum services and young child clinics,
- ✦ Introducing telemedicine options, which addressed movement restrictions, discomfort such as travelling to the health facility while pregnant, and reduced risks of exposure to COVID-19; ^{xxxi}
- ✦ Delivering community-based services with IPC and PPE in place, including

- ✦ Integrated Community Case Management (ICCM), antenatal care and postnatal care services for women living with HIV.
- **Demand for services**
 - ✦ Encouraging timely medical care-seeking behaviours through door-to-door and community outreach mechanisms,
 - ✦ Engaging mass media communication on continuity of services and service adaptations, including use of hotlines and SMS to keep clients updated on services and to disseminate guidelines.
- **New health needs related to COVID-19 infection and public health and social measures:**
 - ✦ Increases in domestic violence were noted during COVID-19 isolation and lockdown, leading to direct and indirect changes in RMNCAH needs and utilization patterns. “Children, girls, women, and people with disabilities were especially vulnerable necessitating NGOs and CSOs to work closely with the MoH to take [health] services to communities.” xxxii

Uganda’s CEHS guidance was updated in August 2021 to reflect greater understanding of the epidemiology of COVID-19 (e.g. transmission routes), its differential impact on people (e.g. those with co-morbidities), pre-existing vulnerabilities (e.g. differential access to services, early marriage and teen pregnancies), and operational experience from implementation of the April 2020 CEHS guidance. A programme criticality matrix based on the epidemiological profile of COVID-19 at district level was included in the April 2020 CEHS guidance outlining interventions to continue and others to discontinue based on specific disease parameters (e.g. no COVID-19 cases, one or more cases; imported or locally acquired (sporadic cases); clusters of cases in time, geographic location, or common exposure (clusters of cases)). The programme criticality matrix was no longer relevant once community transmission began occurring across all districts and was removed from the revision. A notable addition in the list of essential RMNCAH services was sexual reproductive health and rights as well as family planning in the August 2021 CEHS guidance that addressed evidence of an increase in domestic and sexual violence and concerns about an increase in adolescent pregnancy (Table 1).

Table 1: Comparison of Uganda's prioritized essential RMNCAH services in the context of COVID-19

April 2020	August 2021
<ul style="list-style-type: none"> ● Services for RMNCAH Health including: <ul style="list-style-type: none"> ✦ Care during pregnancy (ANC), ✦ Basic and Comprehensive Emergency Obstetric Care ✦ Newborn Care ✦ Postnatal care services. ✦ Immunization services. 	<ul style="list-style-type: none"> ● Services for RMNCAH including: <ul style="list-style-type: none"> ✦ Sexual Reproductive Health and Rights ✦ Family planning ✦ Care during pregnancy (ANC), ✦ Basic and Comprehensive Emergency Obstetric Care ✦ Newborn Care ✦ Postnatal care services. ✦ Immunization services, including COVID-19
● Management of childhood illnesses	● Management of childhood illnesses
● Adolescent Responsive/Friendly Services	● Adolescent Responsive/Friendly Services
● Prevention and management of Sexual and Gender Based Violence (SGBV)	● Prevention and management of Sexual and Gender Based Violence (SGBV)

Progress and results

National guidelines, tools and SOPs for CEHS in Uganda were updated, printed, and disseminated. Over the course of the first two years of the pandemic, monthly data on the prioritized 20 indicators were used to drive decision making by the CEHS Pillar, and engagement between the CEHS Pillar and the Incident Management Team steadily improved.

The indirect ^{xxxiii} impact of measures to prevent, mitigate and control COVID-19 on essential health services is difficult to assess. Multiple studies in Uganda have been conducted on service disruptions and restoration, but comparability is limited due to variations in study time periods, analytic methods, and data sources. There was no consolidated analysis of indirect impact on RMNCAH services during the time-period covered by this case study. It is clear however that delivery of essential health services was strained at times and that not all health sector targets were reached. The MOH and partners face the possibility of some reversals in health gains made prior to COVID-19 alongside increased needs because of COVID-19 itself and interruptions in basic services in health and in other sectors.

Factors that enabled the use of data and information for decision making in CEHS

- 1. Government leadership and positioning of CEHS at the same priority level as the COVID-19 response.** The establishment of the CEHS Pillar with high level engagement by the MOH contributed to “swift and coherent actions in response.”^{xxxiv} The CEHS Pillar’s system level (rather than vertical programme) view of the COVID19 impact enabled identification of opportunities for service optimization to sustain essential health services. The pillar structure also facilitated collaboration within the various health programs and across other pillars and sectors, which contributed to coordinated follow up despite the rapidly changing epidemiological context.
- 2. Collective investment in data and information for action and innovation.** Data on essential health services and COVID-19 was handled with openness and transparency, which encouraged contribution of data and information by stakeholders. The MOH Department of Health Information provided leadership in sharing data from the CEHS Monitoring Framework in the CEHS Pillar and other relevant pillars. Early engagement of the MOH with academia, private sector and implementing partners contributed to data exchange and triangulation. Implementation research and specific assessments, such as the service impact analysis by Makerere University’s School of Public Health, helped answer questions that existing data systems could not be used to answer and promoted action through dissemination meetings.
- 3. Bringing the data and expertise closer to the community through investments in data collection, processing and visualization, and capacity for use.** The CEHS Pillar’s intentional engagement between national and subnational structures for data sharing and use supported timely sharing of information and innovations across sectors and levels of the response, which contributed to “evidence-based policy guidance and program decisions at all levels.”^{xxxv} The information flow from district to national level followed by feedback from the national to district level supported decentralized decision making and delivery of technical assistance relevant to local needs. Digital platforms, where they were in place, supported regular data transfer. Data use was supported through rapid deployment of individuals to provide technical assistance to decentralized levels as well as continued development of data visualization tools.
- 4. Rapid and iterative development of policy, tools and guidelines to support essential services^{xxxvi} accompanied by rapid roll out and training contributed to prompt implementation and continuity of services.^{xxxvii}** The CEHS Pillar provided a critical coordination platform to identify policy, tool and guideline needs and to source technical expertise from the range of government, UN, NGO, private sector and academia actors within the CEHS Pillar. The development process contrasted with a more traditional approach of WHO’s synthesis of evidence and issuance of recommendations followed by adaptation at country level. Global and regional guidance was not in place f

or ensuring continuity of essential health services when Uganda developed its first set of CEHS guidelines. The CEHS Pillar reviewed and adapted these guidelines and tools over time to meet evolving needs and context specific issues as the outbreak progressed. These adapted guidelines were consistent with global and regional recommendations.

5. **The government’s ability to repurpose staff, supplies and resources, and the willingness of partners and donors to support the government.** Technical support was rapidly deployed to district level to increase capacity for data management and use at decentralized levels because of the complexity of the operating environment. Review of health service data facilitated movement of staff and supplies to prevent interruption of services.^{xxxviii} Workplans of individual agencies and partnerships were reviewed and repurposed to support CEHS. Donors also created processes and scope to realign resources to activities more relevant to the context of COVID-19.
6. **Leveraging previous experience and partnerships.** The CEHS Pillar was able to mobilize preexisting partnerships with academia and the private sector to source specialized technical expertise for data analysis and visualization. Several individuals involved in the pillar brought data savviness and experience from humanitarian and development contexts, which facilitated identification of solutions to immediate service delivery needs while simultaneously triggering action to address shortfalls in data systems. The CEHS Pillar was also able to leverage the country’s prior experience in preparing for and responding to disease outbreaks and epidemics. The shift to remote collaboration also underscored the importance of leveraging previous working relationships to facilitate consensus building and engagement.

Several challenges were encountered through the data journey in support of essential health service delivery including:

1. **Data collection.** Data for action is essential, and yet it was challenging to ensure that both data managers and primary service providers could perform their jobs given mobility restrictions. Data managers were not always able to get approval to travel to the facilities, which undermined data entry, reporting completeness and timeliness. There were gaps in the CEHS Monitoring Framework, which in its initial iteration did not include indicators for private sector and community level services. Members of the CEHS Pillar flagged that there was a need to “understand the continuity of Village Health Team services as well^{xi}” and that “there has been low utilization of community-level reported data to inform programming and evidence-based decision-making at all levels.^{xii} Additional human resources were also required to address the demands for increased frequency, processing, and transfer of data.
2. **Data disaggregation between public and private facilities.** It was challenging at the onset of COVID-19 to meaningfully disaggregate public and private sector services due to coding and database structure issues. The inability to distinguish between service providers complicated identification of where

shortfalls were experienced, and which solutions were relevant. Disaggregation issues were gradually addressed over time, with private sector data increasingly tagged with their own facility IDs.

- 3. Use and action.** These challenges related to the culture of data use, an issue that pre-dated the pandemic and persisted during the pandemic years, as well as limitations in implementation of data-driven actions. At the decentralized level, the emphasis was on reporting data upwards rather than using data at the local level to change practices.^{xiii} Inadequate skills and overall workload of individuals, and limited incentives for data use were identified as contributing factors. Data availability was not the only driver required for action. Other constraints in translating decisions into action were limitations in human, financial, and supply resources.
- 4. Information sharing and communication flows.** Country COVID-19 Intra-Action Reviews (IARs^{xliii}) were conducted in 2020 and 2021 to capture lessons learned to continually improve the response. Fragmented data collection was flagged as a challenge in the first IAR (Nov-Dec 2020). The lack of regular availability of data on selected indicators was noted to have a negative impact on planning. Nevertheless, the timely sharing of information and innovations among stakeholders suggested that communication channels were open to make best use of available information and data availability improved over time.

Lessons learned

Uganda, like all countries, will continue to experience disease outbreaks and epidemics. The development of COVID-19 resurgence plans and transition plans back to pre-pandemic operations present an opportunity to systematize lessons learned and address lingering challenges. A key question is how the MOH can incorporate the function of the CEHS Pillar into routine operations while retaining rapid response capacity, for example through integrating key functions into existing Technical Working Groups that coordinate service delivery while retaining mechanisms to reactivate the CEHS Pillar as needed during any future outbreak.

Service adaptations to mitigate interruptions in essential health services have contributed to a changed ecosystem of health care delivery and user expectations in terms of convenience resulting from adaptations that brought services closer to users. The enhanced integration of data systems (routine and surveillance) and services between the public and private health sector helped mitigate the impact of service disruptions and patient reluctance to seek out services because of stigma related to COVID-19 infection. Adaptations to the HMIS that allowed for disaggregation of public and private health sector data, and enhanced capacity for data generation and use resulting from peer-to-peer learning and exchange between districts improved understanding of service provision trends. Overall lessons learned from Uganda's COVID19 response strategy between March 2020 and June 2022 for maintaining essential health services include:

- 1. Maintain the capacity for dual mandate responses.** There is a need to monitor and support the functioning of the whole health system during crisis and non-crisis times. The direct impacts of an outbreak in terms of lives lost from infection and indirect health impacts because of interruptions in health services or increases in the costs of health services should be taken into consideration. Normally, outbreak response coordination structures are put into place and then transitioned back into routine structures as outbreaks resolve. There may be a benefit to maintaining the CEHS Pillar function and standing capacity for scaling up and scaling down actions to support essential health service delivery before, during and after outbreaks. Perhaps the Pillar could be maintained with less frequent meetings in interim periods before the onset of a new outbreak to support preparedness and resilience building efforts.
- 2. Make best use of available data and information to support decision-making and continue to make incremental data improvements over time.** Data and information for decision making were limited at the onset of COVID-19, and yet action needed to be taken. A pragmatic approach to make best use of data, including triangulation across formal and less formal data sources and analyses to answer emerging issues can be beneficial. Data on trends in service provision, complemented by information on supply and demand side factors driving these trends are essential for informing responses. The CEHS Pillar played an important role in identifying the critical questions to be answered to guide action and in accessing the resources to address these questions over time. Makerere University played a key role in conducting the rigorous research needed to complement available data sources.

“The private sector role and information management and epidemic is very important. So when the government is preparing readiness, it is vital that we think of this private [sector] sources of data and also not forget the informal sources or even patients are source of information.”
Key informant

- 3. Investments in data and analytic capacity in terms of skills, tools and systems remain a critical preparedness action alongside building the culture of data use.** Limitations in using data for decision making and action are not always related to limited data availability. There can be calls for additional data while available data and information may be underutilized. Investments in digital platforms for data management including decentralized capacity for using them and in expanding internet coverage can increase data access and use. Dedicated funding to support building greater data savviness and resilient information systems would be beneficial, as resources may not always be available for reprogramming at scale as they were during the COVID-19 pandemic. Development of data systems through an iterative process that place people at the center can support an agile public health emergencies response that is aligned with evolving local needs as a crisis progresses.
- 4. Continue to apply a systems level approach to ensuring continuity of essential health services during crises that engages the community level and works across sectors and stakeholders.** The community remains the first port of call for outbreak alerts and providing immediate response measures. Early engagement with community health workers and community leaders in the planning and delivery of health services during crises may improve community buy-in and acceptance of mitigation measures as well as improve safe health seeking behaviors.^{xliv}The system level view taken by the CEHS to bring together data on the changing operational context, service provision, and health service utilization patterns supported prompt action. A system level view across sectors can identify potential indirect threats to health, which can then be addressed. For example, school closures in Uganda during the first two years of the pandemic may have contributed to an increase in teenage pregnancies. In future crises that result in school closures, strategies could be put into place to reduce this risk.
- 5. Assess and adopt RMNCAH service adaptations that improve efficiency and equity in essential health service delivery.** The context of COVID-19 created space for innovations in data collection and in service delivery. Some of these innovations may be beneficial to maintain, in particular where service reach increased through the integration of services provided during service contacts, and expansion of remote ways of delivering health services (e.g. call centers, telemedicine, pharmacy delivery of prescriptions). Continuation of these innovations could help Uganda achieve sustainable increases in coverage of essential health services.

Acknowledgements

This case study was developed through collaboration between the Health Data Collaborative and UNICEF with technical collaboration of the WHO. The contents aim to support knowledge exchange and peer-to-peer learning on data use in the continuity of essential health services in the context of a disease epidemic or outbreak. The inputs and leadership of the members of Uganda's Ministry of Health CEHS Pillar, as well as country and regional level technical teams from the WHO and UNICEF were greatly appreciated. The contents are not intended to reflect the official positions of any of the agencies involved.

Country and regional levels (alphabetical order):

The CEHS Pillar members led by

Dr. Joseph Akuze (WHO)
Eman Abdelkreem Aly (WHO EMRO)
Dr Maureen Amutuhair (MOH)
Dr. Viorica Berdaga (UNICEF)
Dr. Bongomin Bodo (WHO)
Dr. Benson Droti (WHO AFRO Regional Advisor)
Dr. Bayo Segun Fantumbi (WHO)
Catherine Kabahuma (UNICEF)
Dr. Fred Kagwire (UNICEF)
Dr. Hilary Kipchumba Kipruto (WHO AFRO Regional Advisor)
Ms. Grace Ssali Kiwanuka (Uganda Health Federation)
Dr. Flavia Mpanga (UNICEF)
Ms. Maria Muniz (UNICEF Regional Advisor)
Dr. Chimwemwe Msuka (UNICEF)
Dr. Nasan Natseri (WHO Uganda)
Dr. Solome Akweny Okware (WHO)
Dr. Charles Olaro (MOH)
Mr. Ivan Onyuta (Uganda Health Federation)
Dr. Joe Collins Opio (UNICEF)
Allen Nabanoba Semambo (UNICEF)
Dr. Olive Sentumbwe-Mugisa (WHO)

Global level:

Craig Burgess (WHO/HDC)
Anh Hong Chu (WHO HQ)
Theresa Diaz (WHO HQ)
Diane Holland (UNICEF-lead writer)
Juls Hollidge (WHO HQ)
Jennifer Requejo (UNICEF HQ)
Mwenya Kasonde (WHO/HDC)
Alexandra Laheurte (WHO HQ)
Rifat Khondar Hossain (WHO HQ)

Annexes and Endnotes

Annex 1: Methods

Methods were reviewed and approved by an Interagency Working Group, chaired by WHO, with inputs from WHO, UNICEF, and the HDC secretariat. WHO and UNICEF regional focal points were consulted for feedback on methods and case study scope.

Questions of interest for the case study were:

1. How was data used to create innovative adaptations to ensure continued availability and use of essential health services (e.g. focus on antenatal care, delivery care and early newborn care, and IMCI)?
2. How did countries collect, analyze, and use data to inform new and/or adapted essential health service programming in these areas?
3. What were the investments and enablers that supported continued availability and use of these essential health services?
4. What were the obstacles and solutions to ensure continued availability and use of these essential health services?
5. What are the implications of these experiences in moving forward at country, regional and global levels (e.g. policy, programming, advocacy, research)?

Study methods included document review, remote qualitative interviews using semi-structured interview questionnaires, and regular communication with the CEHS Pillar Secretariat. This range of data sources addressed two challenges- first the limited availability of key informants who were still engaged in COVID-19 response and an outbreak of Ebola (beginning in September 2022), and second the methodological shortfalls in assessing the use of data for decision-making as opposed to data quality.^{xlv}

Documentation was sought to outline the pre-existing function of essential health services, impacts of COVID-19 on essential health services, actions taken to prevent interruption of services, and the impact of these actions on service availability, quality and use. Existing analyses and response reporting were reviewed to outline trends in service provision and service utilization. Analyses included routine health information systems, population surveys, health facility surveys, surveillance, other administrative data, and pulse surveys. Raw data sets were not sought.

Documentation in English addressing action to prepare for the COVID-19 outbreak (prior to March 2020) and respond to the COVID-19 outbreak (through June 2022) was retrieved through:

- ✦ Requests to HDC, UNICEF and WHO colleagues in the Interagency Working group, ii) requests to the WHO and UNICEF regional offices, iii) and requests to HDC, UNICEF and the WHO colleagues and Ministry of Health in Uganda
- ✦ Online searches of humanitarian response websites (e.g., ReliefWeb, Humanitarian Response), agency websites (global, regional, country), and PubMed.
- ✦ Coordination with existing knowledge management efforts such as the WHO Mitigation Project^{xlvi}.

Key informants were selected based on inputs from the WHO, UNICEF and HDC focal points, with further key informants identified with snowball sampling (chain-referral sampling) (Annex 2, 3 and 4). A total of 7 key information interviews were conducted with a total of 10 key informants representing MOH, UN, and private sector. Key informants were informed of the purpose of the study and the voluntary nature of their participation. Verbal consent was sought before semi-structured interviews were conducted. Key informants were selected based on constituency (government, UN, NGO, community, private sector, donors) and area of expertise (health data, health system strengthening, management, emergency response). Key informant interviews were recorded for the purpose of thematic analysis and transcribed using Teams or Zoom software to support thematic analysis. Key informants included persons representing UN agencies, and to a lesser degree Ministry of Health and private sector. Key informant insights were triangulated with document review, including minutes from the CEHS pillar. Clarifications and follow up questions took place over email or remote conversation, depending on the preference of the interviewee.

Qualitative analysis was undertaken of key informant interviews and synthesis of available documentation and literature solicited from partners involved in the case studies and online documentation search. The qualitative analysis involved a content review of the interviews to identify most salient themes. CEHS Secretariat feedback on themes and analysis was sought.

Annex 2: Key informant questionnaire



Key informant
questionnaire draft fo

Annex 3: Key informant brief



Key informant
interview brief docx 2

Annex 4: Endnotes

- i Ministry of Health, The Republic of Uganda (2020). Coronavirus Disease 2019 (COVID-19) Preparedness and Response Plan (March 2020-June 2021). https://covid19.gou.go.ug/uploads/document_repository/authors/ministry_of_health/document/COVID19_PreparednessResponse_Plan_Signed_Vers_July20201.pdf
- ii Ministry of Health, The Republic of Uganda (2015). Uganda Health Sector Development Plan 2015/16 to 2019/20. <https://www.health.go.ug/cause/health-sector-development-plan-2015-16-2019-20/>

- iii International Youth Foundation (2011). Navigating Challenges: Charting Hope. A Cross-Sector Situational Analysis on Youth in Uganda, Vol. 1: Main Report, Baltimore, MD, USA. https://www.youthpolicy.org/national/Uganda_2011_Youth_Mapping_Volume_1.pdf
- iv Uganda Bureau of Statistics (2016). National Population and Housing Census 2014—Main Report, Kampala, Uganda. https://ubos.org/wp-content/uploads/publications/03_20182014_National_Census_Main_Report.pdf
- v Makerere University and the Ministry of Health, Republic of Uganda. (2019). Countdown to 2023: Women’s, Children’s & Adolescent’s Health Fact Sheet. http://countdown2030.org/wp-content/uploads/2019/04/Fact-Sheet-Countdown_Online-Version.pdf
- vi Ministry of Health, Republic of Uganda (2020). Ministry of Health Strategic Plan 2020/21-2024/25. <https://www.health.go.ug/cause/ministry-of-health-strategic-plan-2020-21-2024-25/>
- vii Previous disease outbreaks in Uganda include Marburg virus (2017) and Ebola (2018-2020), in addition to outbreaks of cholera, measles, yellow fever, Rift Valley Fever, West Nile Fever and Crimean Congo hemorrhagic fever in 2020.
- viii Ministry of Health, The Republic of Uganda (2020). Coronavirus Disease 2019 (COVID-19) Preparedness and Response Plan (March 2020-June 2021). https://covid19.gou.go.ug/uploads/document_repository/authors/ministry_of_health/document/COVID19_PreparednessResponse_Plan_Signed_Vers_July20201.pdf
- ix Ministry of Health, Republic of Uganda (2022). COVID-19 Response Info Hub: COVID-19 Coordination Structure <https://covid19.gou.go.ug/coordination.html>
- x Ministry of Health, Republic of Uganda (2019). Media release: Government of Uganda Launches National Action Plan for Health. <https://www.health.go.ug/2019/12/02/government-of-uganda-launches-national-action-plan-for-health-security-2019-2023/>
- xi The Government of Uganda adopted a “One Health approach to addressing three priority public health threats: zoonotic diseases, AMR, and biosecurity” to address the “shifting dynamics of health threats due to population growth, economic development, climate change, and human migration and displacement.” Ministry of Health, Republic of Uganda (2018). Uganda Once Health Strategic Plan 2018-2022. <https://www.health.go.ug/cause/uganda-one-health-strategic-plan-2018-2022/>
- xii The response was initially outlined in the March 2020 MOH COVID-19 Preparedness and Response Plan Mar 2020- June 2021 https://covid19.gou.go.ug/uploads/document_repository/authors/ministry_of_health/document/COVID19_PreparednessResponse_Plan_Signed_Vers_July20201.pdf
- xiii Ministry of Health, The Republic of Uganda (2020). Coronavirus Disease 2019 (COVID-19) Preparedness and Response Plan (March 2020-June 2021). https://covid19.gou.go.ug/uploads/document_repository/authors/ministry_of_health/document/COVID19_PreparednessResponse_Plan_Signed_Vers_July20201.pdf
- xiv TORS for national and subnational Governance and Coordination Arrangements for Continuity of Essential Health Services in the context of COVID-19 in Uganda and District Task Force sub-committee on Continuity of Essential Health Services

in the context of COVID-19 were established in April 2020 and updated in August 2021.

- xv Ministry of Health, Republic of Uganda (2020). Guidance on Continuity of Essential Health Services during the COVID-19 outbreak.
- xvi WHO, Africa CDC, UNICEF, UNFPA, VSO (2020). Maintaining essential health services: operational guidance for the COVID-19 context: interim guidance, 1 June 2020
https://www.who.int/publications/i/item/WHO-2019-nCoV-essential_health_services-2020.2
- xvii WHO Regional Office for Africa. (2020). East and Southern Africa Region Joint Interim Guidance on Continuity of Essential Health and Nutrition Services during the COVID-19 Pandemic. <https://www.afro.who.int/sites/default/files/Covid-19/Technical%20documents/Joint%20Interim%20Guidance%20on%20Continuity%20of%20Essential%20Health%20and%20Nutrition%20Services%20during%20the%20COVID-19%20Pandemic.pdf>
- xviii The 20 indicators for monitoring performance of CEHS guideline implementation during COVID-19 response at all Health System Levels included:

1. Total number of outpatient attendances or primary care visits
2. Number of health workers infected by COVID-19, disaggregated by occupational group, including health or care workers in nursing homes and long-term care facilities
3. Number of pregnant women with at least one ANC visit
4. Number of facility births (disaggregated by self / assisted deliveries including caesarian section)
5. Number of perinatal and maternal deaths
6. Incidence of low birth weight (<2500 g) among newborns
7. Number of children younger than 1 year receiving their third dose of diphtheria-tetanus-pertussis (DPT3) or their first dose of measles vaccine
8. Number/proportion of HIV exposed infants (HEI) receiving ARVs at birth
9. Number/proportion of HIV positive pregnant & lactating women receiving ARVs for PMTCT
10. Number of children 0-59 months diagnosed with severe wasting and bilateral pitting oedema (SAM)
11. Number of children 0-59 months of age who received an age-appropriate dose of vitamin A in each semester
12. Percentage of confirmed malaria cases treated with artemisinin-based combination therapies

13. Percentage of adults living with HIV currently receiving antiretroviral therapy who are affected by treatment disruptions
14. Number of confirmed TB cases that completed their treatment (disaggregated by sex and age)
15. Number of cases of violence against women and girls (physical, sexual, other), by type of perpetrator, recorded at the health facility level (SGBV)
16. Number of term infants who were put to the breast within 1 hour after birth (Breastfeeding, early introduction)
17. Number of women and girls receiving (a) oral and (b) injectable contraceptives- (FP users)
18. Number HIV +ve women/mothers who receive a method of FP (FP users in high risk population)
19. Number of patients attending OPD with one underlying NCD condition (disaggregated by type e.g. hypertension, diabetes, Asthma/Chronic Obstructive Airway Diseases, obesity, CVDs, Cancer, Mental illness, etc.)
20. Essential medicines or supplies for which there is less than 2 months' inventory without confirmation of on-time replenishment or with or without confirmation of replenishment (Logistics/PSM)

- xix For example the MNCH Monthly Report April 2022 https://www.ugandamchn.org/sites/default/files/documents/april_2022_monthly_report_national.pdf
- xx CEHS Pillar Minutes 21 October 2021, 14 Jan 2022.
mTrac indicators include notifiable diseases, stock levels for eight tracer medicines, and maternal and neonatal deaths. This data is automatically integrated into DHIS2 for further analysis. <http://www.unicef.org/uganda/what-we-do/mtrac>
- xxi CEHS Pillar Minutes 4 Feb 2022: "Some Districts have reported delays in the supply of essential medicines especially in areas where the vaccination campaigns are ongoing. Members agreed that there is a need to have the Pharmacy department come update on the current situation and devise ways how to quickly have the materials delivered. Action 1: Dr. Olaro to reach out to the Incident Commander to have NMS present to IMT regarding the delayed delivery of essential medicines to Districts and also to reach contact DG regarding the same to have this presented during the strategic meeting."
- xxii Ministry of Health, Republic of Uganda (2020). Ministry of Health Strategic Plan 2020/21-2024/25.
<https://www.health.go.ug/cause/ministry-of-health-strategic-plan-2020-21-2024-25/>
Uganda Healthcare Federation <https://www.uhfug.com/>
- xxiii A case for Uganda Presented by Dr. Olive Sentumbwe Mugisa-Obstetrician/ Gynaecologist and Family Health and Population Advisor at WHO Country Office. Quality of care in safe motherhood in the context of COVID-19. Report of the 8th Annual National Healthcare Quality Improvement Conference.

24-26 November 2021.

- xxv Noted in the National Strategy to end Child marriage and Teenage Pregnancy 2022-2027.pdf (unicef.org) In 2020, there was marked increase in teenage pregnancy in 67 out of the 136 districts in the country teenPregnancy_FactSheet.indd (unfpa.org) The period between March and September 2020, when schools in Uganda were partly closed due to Covid-19 lockdown, registered a 366 per cent increase in pregnancies among girls aged 10-14 years (UNICEF, 2021). New pregnancy policy bears twin problems (independent.co.ug)
- xxvi WHO. 2021. Maintaining the provision and use of services for maternal, newborn, child and adolescent health and older people during the COVID-19 pandemic: lessons learned from 19 countries. <https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/covid-19/mitigation-project>
- xxvii Makumbi, Fredrick et al (2021). Access to Contraceptive Services Among Adolescents in Uganda During the COVID-19 Pandemic. Guttmacher Institute. <https://www.guttmacher.org/report/impact-covid-19-on-adolescent-srh-uganda>
- xxviii WHO Uganda (2020) Annual Report for WHO in Uganda. <https://www.afro.who.int/publications/2020-annual-report-who-uganda>
- xxix UNICEF (2020). Community referral system save lives during the COVID-19 pandemic lock down: Key highlights of SIDA support to West Nile through UNICEF. <https://www.unicef.org/uganda/stories/community-referral-system-save-lives-during-covid-19-pandemic-lock-down>
- xxx WHO Uganda (2020) Annual Report for WHO in Uganda. <https://www.afro.who.int/publications/2020-annual-report-who-uganda>
- xxxi WHO Uganda (2020) Annual Report for WHO in Uganda. <https://www.afro.who.int/publications/2020-annual-report-who-uganda>
- xxxii Burt JF, Ouma J, Lubyayi L, et al. Indirect effects of COVID-19 on maternal, neonatal, child, sexual and reproductive health services in Kampala, Uganda. *BMJ Global Health* 2021;6:e006102. doi:10.1136/bmjgh-2021-006102 <https://gh.bmj.com/content/bmjgh/6/8/e006102.full.pdf>
- xxxiii Uganda CEHS Pillar presentation Nov 2020
- xxxiv Uganda CEHS Pillar presentation Nov 2020
- xxxv Waiswa P, Wanduru P (2021). Rapid policy development for essential RMNCAH services in sub-Saharan Africa: what happened during the COVID-19 pandemic and what needs to happen going forward? *BMJ Global Health* 2021;6:e006938. doi:10.1136/bmjgh-2021-006938 <https://pubmed.ncbi.nlm.nih.gov/34526322/>
- xxxvi Uganda CEHS Pillar presentation Nov 2020
- xxxvii Uganda CEHS Pillar presentation Nov 2020
- xxxix UNICEF supported getting permission for partners to move to deliver services and repurposed Programme Cooperation Agreements.
- xl 14 Jan 2022 CEHS Pillar Minutes
- xli 4 Feb 2022 CEHS Pillar Minutes

- xlii Ministry of Health, Republic of Uganda (2020). Ministry of Health Strategic Plan 2020/21-2024/25. <https://www.health.go.ug/cause/ministry-of-health-strategic-plan-2020-21-2024-25/>
- xliii WHO (2020). Guidance on conducting a country COVID-19 Intra-action review (IAR). https://www.who.int/publications/i/item/WHO-2019-nCoV-Country_IAR-2020.1
- xliv WHO. 2021. Maintaining the provision and use of services for maternal, newborn, child and adolescent health and older people during the COVID-19 pandemic: lessons learned from 19 countries. <https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/covid-19/mitigation-project>
- xlv Nutley, T and M Lee. (2018). Working Paper: Conceptualizing and Measuring Data Use: A Review of Assessments and Tools. MEASURE Evaluation, Chapel Hill. https://publications.jsi.com/JSIInternet/Inc/Common/_download_publication.cfm?id=21724&lid=3#:~:text=Unlike%20data%20quality%2C%20there%20is%20no%20standard%20approach,guidance%20for%20the%20monitoring%20and%20measurement%20of%20data
- xlvi WHO. 2021. Maintaining the provision and use of services for maternal, newborn, child and adolescent health and older people during the COVID-19 pandemic: lessons learned from 19 countries. <https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/covid-19/mitigation-project>