



Lessons Learned from the Catalyzing COVID-19 Action Project: Monitoring and Evaluation of COVID-19 Screening, Testing, and Treatment

The Catalyzing COVID-19 Action Project (CCA)

In 2021, the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) was awarded the Catalyzing COVID-19 Action (CCA) project, an initiative funded by FIND and UNITAID. The goal of CCA project is to accelerate end-to-end access to novel solutions in the COVID-19 pandemic response by adapting testing, isolation, care, and treatment approaches to meet the needs of three countries – Cameroon, Kenya, and Zimbabwe. The CCA project aims to propel innovation and access to these tailored solutions through five work areas: evidence generation, catalytic implementation, advocacy, demand generation, and transition to national programs for sustainable impact.



Figure 1: CCA Project Work Areas

Through catalytic implementation, the CCA project aimed to increase access and use of screening, testing, and treatment for COVID-19. This was accomplished through decentralizing and integrating these services into existing entry points, such as the HIV, TB, and MNCH clinics in CCA-supported sites, as well as generating robust data to monitor these services for decision-making and mid-course correction.

At the beginning of the CCA project in 2021, however, all three countries where CCA was to be implemented were at the beginning stages of developing national systems and tools for tracking COVID-19. There was very little global guidance on how to monitor COVID-19 at health facilities. As a result, as demonstrated in Figure 2, the team created an original indicator framework with custom indicators that monitored patient outcomes across the COVID-19 continuum of care.

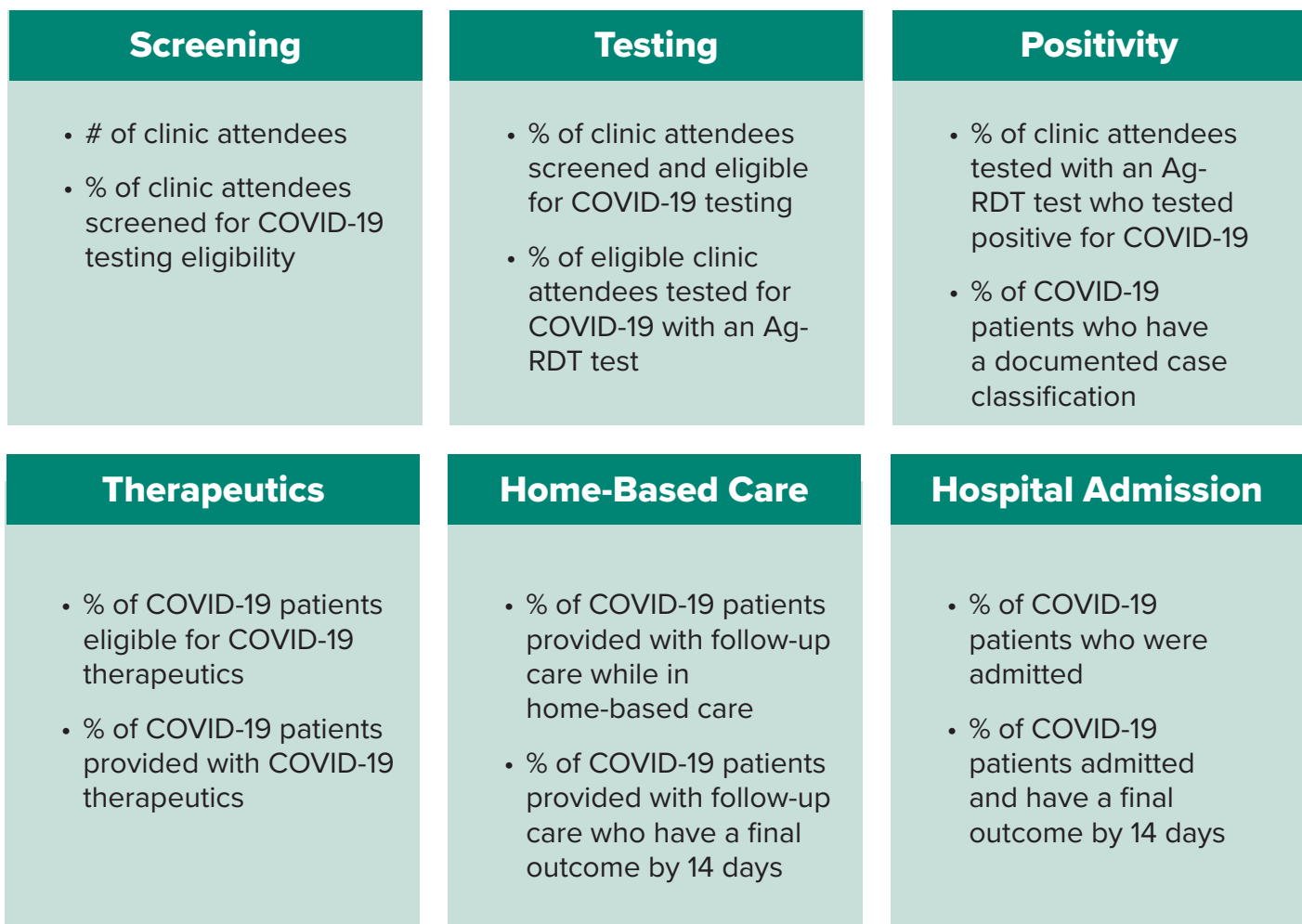


Figure 2: CCA Indicator Framework

The indicators reflect the patient flow that was put into place through integrated screening, testing, and treatment for COVID-19 at CCA-supported sites. Patients were disaggregated by sex, age, service delivery point, HIV-TB-pregnancy status, vaccination status, and severity of disease. This disaggregation allowed the project team to view data at more granular levels in order to make increasingly targeted program decisions.

One of the CCA goals was to generate evidence on these catalytic implementation approaches. As a result, the CCA team developed the monitoring and evaluation (M&E) framework to monitor these indicators at the patient level rather than at the aggregate level. De-identified patient-level data would allow for tracking individual patients across the cascade of services to their outcome. In both Kenya and Cameroon, these indicators were tracked at CCA-supported sites at the patient-level, while in Zimbabwe they were tracked at the aggregate level.

Approaches to Collecting and Managing Data for COVID-19

Due to the urgent response that COVID-19 demanded; data were rapidly needed to make decisions about program implementation. Thus, the team had to quickly implement data collection tools and systems that would ensure immediate buy-in from CCA-supported sites and the Ministry of Health (MOH). This required utilizing and adapting existing tools that were already in development or use at the country level. Each CCA-supported country program implemented a different approach aligned to national M&E priorities for the pandemic, as demonstrated in Figure 3.

Cameroon patient-level paper form	Kenya point-of-care electronic medical record (EMR)	Zimbabwe aggregate data extraction
<ul style="list-style-type: none"> • Health care workers entered patient-level data onto a carbonated paper form • EGPAF staff collected forms and entered into CCA DHIS2 platform 	<ul style="list-style-type: none"> • COVID-19 module added to existing EMR • Health care workers entered patient-level data directly into EMR at point of care 	<ul style="list-style-type: none"> • EGPAF staff extracted aggregate data from existing registers • EGPAF staff entered data into CCA DHIS2 platform

Figure 3: Data Collection and Management Approaches in CCA Country Programs

In Cameroon, prior to the CCA project, the Ministry of Health (MOH) developed a paper-based form to collect data on COVID-19 testing, care and treatment at site level. This form was adapted by the CCA team to include additional data points needed by the CCA project and was made into a carbon form so that EGPAF and the MOH could each have identical, de-identified copies with the same information. The CCA team organized working sessions with the coordination unit at the MOH in charge of Public Health Emergency Response, to review and endorse the tools used by the CCA project. The data were captured by healthcare staff onto the form at the point of care, the de-identified copies were collected by EGPAF staff, and the data were entered into multiple DHIS2 modules developed specifically for the project. DHIS2 is a free, open-source software platform for the collection, analysis and dissemination of data. EGPAF uses this platform widely in our programs, including CCA.

The CCA Kenya team decided to leverage the existing Kenya electronic medical record (EMR) system that was used primarily to monitor HIV services at the site level. The team engaged with county leadership and other stakeholders (Centers for Disease Control and Prevention, Palladium, and other implementing partners in the county) to advocate for using the Kenya EMR for COVID-19 services. Once the COVID-19 module was developed, laboratory staff, nurses, and community health volunteers used tablets to enter the data at the point of care.

Rather than collecting patient-level data, the CCA Zimbabwe team collected aggregate data from existing MOH registers and tools. Prior to CCA project implementation, the CCA team conducted an assessment of MOH tools used at the site level for COVID-19 reporting. Relevant data were then extracted on a weekly basis and entered by the CCA team into multiple DHIS2 modules developed for the CCA project.

Capacity Building, M&E Support and Data Quality Assurance

The M&E systems and tools that the CCA adapted and/or developed were new, and it was necessary to conduct continuous training, mentorship, and coaching for frontline health care workers who would be interacting with these systems on a routine basis. An M&E curriculum was included as part of the initial training to sites on integrated COVID-19 screening, testing, and treatment prior to the CCA project roll-out. In January - March 2022, during initial project roll-out, the teams trained 858 individuals (450 in Cameroon, 300 in Kenya and 108 in Zimbabwe) on the M&E tools used by the project. After these initial trainings, the teams conducted continuous coaching and mentoring on indicator definitions, how to complete the new tools, and data quality issues. From January 2022 - June 2023, 1,186 supportive supervision visits (412 Cameroon, 509 Kenya, 265 Zimbabwe) were conducted across the three projects. As a result, the completion of

tools improved and there were fewer data quality errors. In regards to data quality assurance, all teams conducted ongoing data validation exercises and data quality checks. Data quality assurance exercises revealed issues such as a lack of standard definitions for certain indicators, null values, double counting, issues with correct documentation at the site level and changing national guidelines for COVID treatment. Teams followed up with sites directly with supportive supervision to mitigate these issues on a continuous basis. In addition, the Cameroon team conducted data quality audits to verify concordance between the primary sources and the data entered into DHIS2.

Data Dissemination and Use

Once data were entered into the Kenya EMR (Kenya) or into DHIS2 (Cameroon, Zimbabwe), they were displayed onto a variety of dashboards and reports developed for the project. A global dashboard combined and displayed the data from the three country programs (Figure 4), and project dashboards developed by each country team displayed country-specific data.

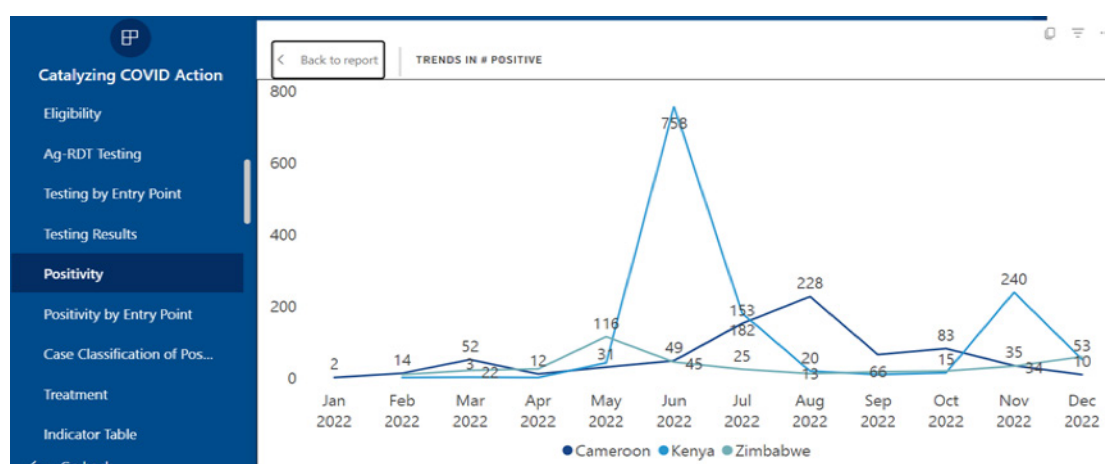


Figure 4: Global CCA Dashboard

The project data were disseminated to site-level staff and used during site-level data reviews for quality improvement purposes. In Cameroon, the data were reviewed by regional MOH staff to ensure continual buy-in and highlight successful approaches. In Kenya, the dashboards were available to county officials who could use the data to inform their own decision making regarding COVID-19. Finally, at the global level the teams reviewed data at bi-weekly M&E meetings, as well as at weekly project management meetings, allowing for near real-time data use.

Successes and Challenges

CCA piloted an innovative, unique M&E system where little guidance, frameworks, or tools existed to monitor COVID-19 at the site level. Given the urgency of the pandemic and the project's limited timeframe, the M&E system was implemented in just three months. A critical component of success was to allow each team to collect data in line with their country context and national system while establishing a global set of indicators across the three projects. This was in part accomplished by leveraging our existing experience on the ground to quickly create buy-in and roll out tools. Where possible, CCA developed digital data collection tools by utilizing our in-house expertise in digital development for quicker generation of data. The COVID-19 module within the Kenya EMR is a particular success of the project, as that module allowed for automatic data generation. Finally, from the beginning, the project's staff was committed to using data for program improvement, reviewing data on a near real-time basis and rapidly implementing course corrections as needed. Site supervision visits also emphasized data use to increase quality improvement and ownership of outcomes.

The M&E component of the project, however, was not without challenges. COVID-19 is a novel disease and national guidance, especially on care and treatment, was in flux throughout the

project period. Home isolation guidelines were changing as the pandemic progressed, and new therapeutics were introduced. Country regulatory approval of therapeutics delayed monitoring the impact of COVID-19 treatment. Within nine months of project initiation, some of the care and treatment indicators were updated in order to align with national guidance. This required subsequent updating of the tools and management systems for the CCA data, as well as on-site training, which was time and resource intensive.

The CCA project in Cameroon and Kenya both tracked at the patient level, though each country used very different approaches. In Cameroon, patients were tracked using a paper form. In Kenya, the EMR was adapted with a COVID-19 module. Registering all patients screened for COVID-19 testing was resource intensive. In fact, in Kenya, community health volunteers were given transport reimbursements by the project to conduct daily screening and registering of patients to reduce the workload on existing health care workers. In addition to other service delivery-related factors, the burden of screening and registering at the patient level could have contributed to a lower screening rate in Cameroon and Kenya vs. in Zimbabwe, where screening was registered at the aggregate level.

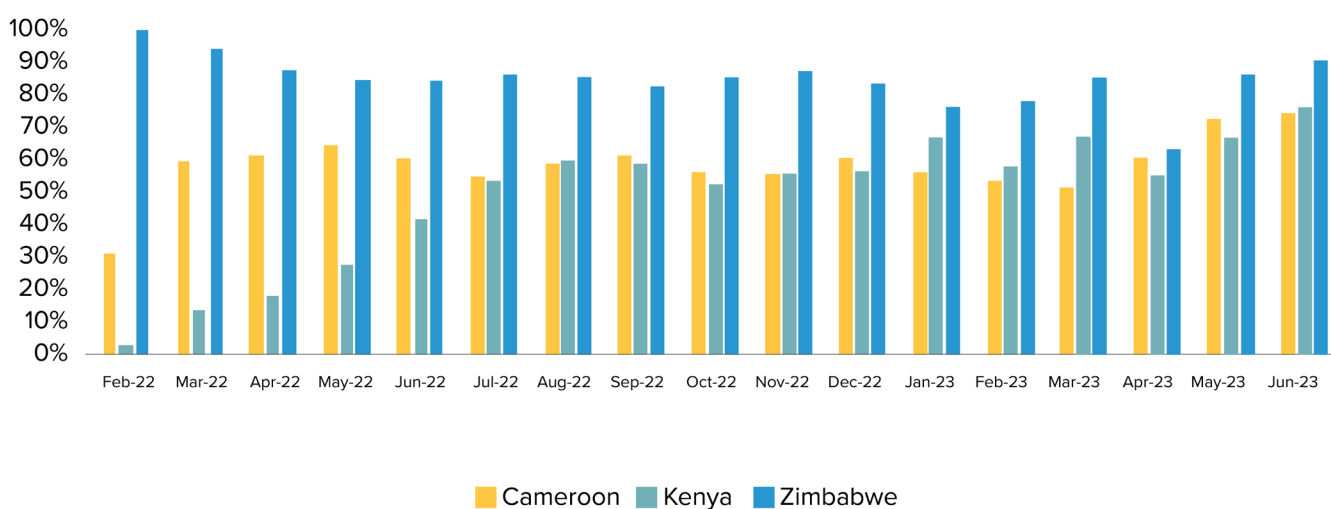


Figure 5: Trends in % of Patients Screened February 2022 - June 2023

Regarding timeliness of data, data capture through an EMR proved to be an optimal approach, as those data were entered directly by health care staff at the point of care. In contrast, the Cameroon CCA team collected the paper patient forms from sites and later entered these data into DHIS2. This created a large time lag between data collection at the site and actual entry by the project staff, as demonstrated in figure 6. Additional data entry staff were hired later in the project to address this challenge.

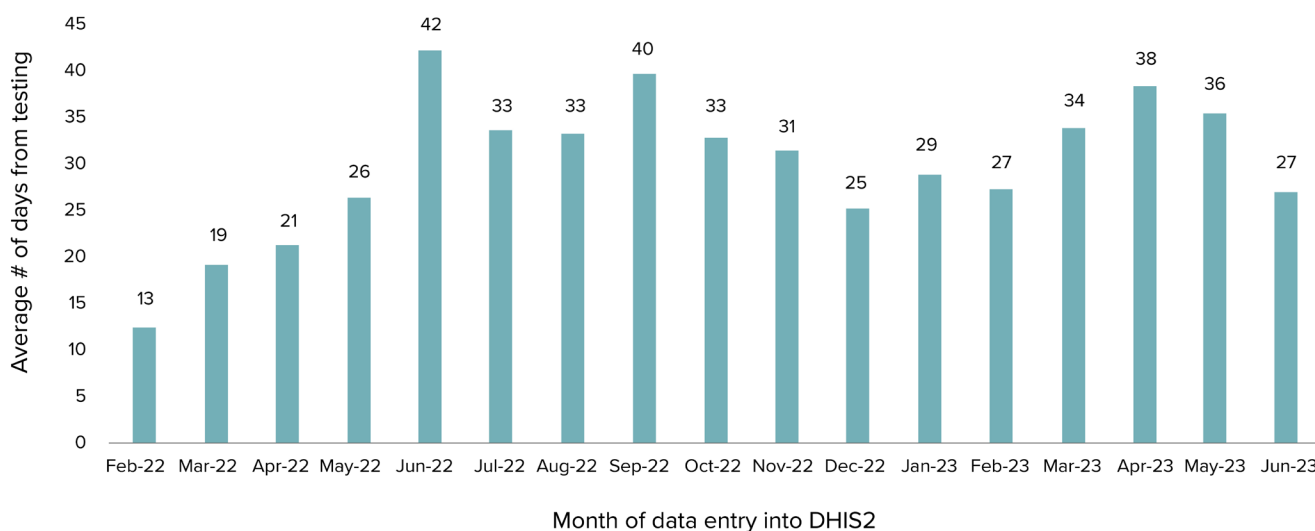


Figure 6: Trends in Average Days Between Testing a Patient and Data Entry into DHIS2 in Cameroon

Lessons Learned for M&E of Future Pandemics

Adaptation and flexibility are critical in an emergency health situation.. When CCA began, there were no overarching M&E frameworks to refer to for COVID-19 indicators at the site level. Unlike other established diseases, the knowledge base around COVID-19 was very limited. Therefore, we had to develop systems without a complete understanding of what may work on the ground. As the pandemic progressed, the project and subsequent M&E system had to adapt to the changing policy and epidemiological context. This meant that the CCA team had to constantly iterate in order to meet the changing landscape.

Another lesson is that it is important to utilize and adapt to the M&E systems that are already in place for rapid roll out and buy-in. In the case of CCA, the project leveraged the Kenya EMR to facilitate data collection through a COVID-19 module. This was not without challenges, but the digital infrastructure was already in place and health care sites were familiar enough with the EMR that the project could build upon what already existed. In the case of Cameroon and Zimbabwe, there was no existing infrastructure and therefore, the project had to adapt paper forms or registers that were already available at the site level. Even though this resulted in delays for project staff in using data for decision making, it was the best solution given the urgency of rolling out the tools.

Finally, during a pandemic, timely generation and use of data are critical. An emergency health situation can change drastically on a daily and weekly basis. Accurate data should be quickly available to the key stakeholders and users responsible for pandemic response. Ultimately, we found that the Kenya point-of-care EMR was the optimal system for generating data that could respond quickly enough to the rapidly changing pandemic context. This is because the data were available to the project team and site level staff in near real time upon entry into the system.

To prepare for future pandemics, it will be critical to work with stakeholders to build digital health systems, including point of care EMRs that can efficiently collect and present data for rapid decision making. This includes building human capacity to develop and maintain these systems.

The CCA project holds many lessons for M&E during health emergencies. The project was able to build a resilient and adaptive M&E system while also contributing to the evidence on COVID-19 services. To prepare for future pandemics, EGPAF will continue to strengthen digital health systems and capacity in the countries that we support and apply the lessons learned during CCA both internally and externally.

This project is made possible thanks to Unitaids' funding and support. Unitaids accelerates access to innovation so that critical health products can reach the people who most need them.