SUPPORTING RWANDA'S COVID-19 RESPONSE AND MITIGATING ITS IMPACT ON MATERNAL, NEWBORN, AND CHILD HEALTH AND MALARIA SERVICE DELIVERY

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BACKGROUND

Health systems, especially in low-resource settings, which already faced difficulty in providing quality health care to their populace, were not adequately prepared to handle a pandemic on the scale of COVID-19 (El Bcheraoui et al. 2020). In light of limited resources and inadequate numbers of health workers, countries in the East Africa region were forced to prioritize most of their efforts toward prevention and treatment of COVID-19 often at the expense of other services including routine reproductive, maternal, newborn, and child health (RMNCH) and malaria services (Masresha et al. 2020). Some of the disrupted services have included access to immunization, postabortion care, antenatal care (ANC) and postnatal care, supply of insecticide-treated bed nets, indoor residual spraying, and family planning, including limited access to contraception (Burt et al. 2021; Wanyana et al. 2021). Further, border closures disrupted the supply chain of pharmaceutical commodities across the globe and led to a shortage of essential RMNCH and malaria medicines and supplies (Reproductive Health Supplies Coalition 2021). Many low- and middle-income countries lack the capacity to manufacture their medicines, mainly rely on imported drugs, and have therefore been particularly hurt by disrupted drug supply chains (Uwizeyimana et al. 2021).

In addition to disrupted service delivery, myths and misinformation about COVID-19, and lack of transportation, have led to fewer people seeking care from health facilities, resulting in underutilization of essential health services (Murewanhema and Makurumidze 2020). A study evaluating the indirect effects of COVID-19 in Ethiopia found reduced utilization in ANC, family planning, health facility deliveries, and newborn immunization, and a reported increase in teenage pregnancies, childhood malnutrition, and neonatal deaths (Kassie, Wale, and Yumaw 2020; Osendarp et al. 2021).

Looking forward, it is important to learn lessons from previous epidemics and how they affected health systems, for example the case of Ebola Virus Disease (EVD) in West Africa where the epidemic led to more maternal and child deaths due to disrupted service delivery than those attributed to the virus itself. Although a lot is still unknown about COVID-19 and its potential effects, prediction models have theorized that it will greatly increase mortality among children, mothers, and newborns similar to or more than those seen during the EVD epidemics (Roberton et al. 2020).

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RWANDAN COVID-19 CONTEXT

Rwanda reported its first confirmed case of COVID-19 on March 14, 2020 and had registered about 100,000 positive cases with over 1,300 deaths as of December 1, 2021 (WHOa 2021). The number of cases of COVID-19 has been lower than first projected because of effective mitigating measures employed by the Rwandan Government, which has been a model in the region's fight against the pandemic. Despite having limited resources, the country's highly organized health system, rapid mass nationwide testing, effective contact tracing, surveillance, and high public institutional trust in medical authorities have led to a successful public health response (Cahan 2020). With one of the highest COVID-19 vaccination rates in Africa (Statista 2021), Rwanda is well on course to vaccinate much of its population, which will contribute significantly toward stopping the pandemic.

Despite the commendable job done by the government, health service delivery has been affected by the pandemic. Although health facilities remained open for both emergency and routine services throughout the duration of the first and subsequent nationwide lockdowns, up to 22.7% of patients still reported being unable to access emergency care and 16.8% reported being unable to attend regular clinical appointments due to a variety of reasons including fear of contracting the virus, lack of personal protective equipment (PPE), and lack of transport to health facilities (Nshimyiryo et al. 2021).

Rwanda is committed to limiting further spread of the pandemic and addressing barriers affecting delivery of essential RMNCH and malaria services. A range of for-profit and non-profit organizations, private sector and development partners, including the USAID Ingobyi Activity have worked hand-in-hand to ensure that the nation's routine health services and emergency response efforts are well coordinated and funded.

OVERVIEW OF USAID INGOBYI ACTIVITY'S COVID-19 EFFORTS

The Ingobyi Activity is a five-year cooperative agreement led by IntraHealth International to improve the quality of RMNCH and malaria services in a sustainable manner. The Activity builds upon the tremendous gains Rwanda has made in the health sector as well as previous USAID investments in the sector.

Ingobyi has redirected systems and procedures previously used to prevent EVD outbreaks and strengthen infection prevention and control (IPC), including a national call center, isolation units, risk communication, and training for health workers on surveillance, screening, and case management toward the national COVID-19 response. Ingobyi is working in partnership with the Ministry of Health (MOH) and the Rwanda Biomedical Centre (RBC) to build the capacity of health workers to manage COVID-19 cases, strengthen contact tracing, and procure supplies and medical equipment for 11 hospitals, including for isolation and treatment centers, among other measures.

INTERVENTIONS

ON-SITE TRAINING OF HEALTH WORKERS ON COVID-19 MANAGEMENT

Ingobyi Activity conducts targeted trainings of hospital staff in all supported districts to increase their competencies and skills on how to effectively manage COVID-19 cases in their health facilities. Trained health workers include doctors, nurses, hospital administrators, and paramedics, who mainly comprise members of the hospital rapid response teams. A team of eight critical care specialists hired by Ingobyi conduct the five-day case management trainings, which include three days of theory followed by two days of practical sessions and simulations. Some of the topics covered include identifying clinical signs of COVID-19 infection in patients; proper use of PPE; correct evaluation of patients; setting up and conducting virtual visits and providing care within the limitations of facilities; oxygen therapy and therapeutics for patients with active COVID-19 infection; performing advanced airway management techniques, including bag and mask ventilation, endotracheal intubation; use of medications in intubated patients, and identifying complications in intubated patients.

Ingobyi provides health facilities with training materials and learning aids, which can be accessed by staff who did not attend trainings and serve as reference texts to improve case management knowledge and skills. To enhance skills and reinforce knowledge from trainings, trained providers are paired with highly experienced clinical mentors to provide further guidance to

improve their confidence and readiness to respond to COVID-19 emergencies.

RISK COMMUNICATION AND COMMUNITY ENGAGEMENT

Risk communication is essential in influencing people's behaviors and willingness to adopt and follow preventive measures like wearing face masks and social distancing, which have proven to be effective in curtailing the spread of COVID-19 (WHOb 2019). Ingobyi Activity integrated COVID-19 messages into existing messages to promote uptake of RMNCH and malaria services, and uses radio platforms such as Urunana serial dramas, Umuhoza magazine, and radio sketches to disseminate the integrated messages through two radio stations with the highest coverage in the country (Radio Rwanda and Radio 10) and eight community radio stations, which broadcast these shows on a weekly basis. Messages focus on risky behaviors that increase transmission of the virus, managing rumors and addressing misinformation, using preventive measures (regular use of face masks, handwashing with water and soap, social distancing), encouraging vaccine uptake, post-vaccination behavior, and appropriate behavior during home-based care. Since March 2020, a cumulative 2,000 people provided feedback on messages through community radio stations, SMS, and social media platforms, including Facebook and YouTube. Ingobyi developed, printed, and distributed over 7,500 health communication materials, such as posters, flipcharts, and brochures on COVID-19 that are used at facility and community levels to create awareness of preventive measures and to promote vaccination.

SCREENING OF NON-COMMUNICABLE DISEASES

Underlying chronic non-communicable diseases (NCDs) are predisposing factors to severe illness and death from COVID-19 (Pan et al. 2021). To support the government's effort to vaccinate high-risk populations, especially those living with NCDs, Ingobyi Activity supports screening for high blood pressure, diabetes, chronic kidney disease, breast cancer and cervical cancer, in collaboration with health facility staff in supported districts. The goal of the screenings is to identify people with NCDs, refer them for care at their nearest health facilities, and link them with national vaccination services.

Prior to NCD screening, Ingobyi conducted a one-day orientation workshop to improve the capacity of health workers at 25 supported district hospitals to accurately screen for NCDs and link positive individuals to the COVID-19 vaccination program. Three staff (one doctor and two nurses) from each hospital were trained by Ingobyi specialists on NCD identification and referral procedures. These trained staff acted as mentors who carried out peer-to-peer training of staff at their facilities and equipped them with skills to carry out screening. Through this cascade training model, 514 additional hospital staff can now effectively screen for NCDs. With direct support from Ingobyi, 363,248 individuals were screened for NCDs.

Data on NCD positive cases are entered into an NCD tracker that is linked with the national DHIS2-based COVID-19 vaccination monitoring platform (COVAX). The MOH and RBC send SMS alerts to these individuals to encourage and invite them for vaccination at the nearest vaccination centers.

SUPPORT TO THE COVID-19 NATIONAL TASKFORCE TO ENHANCE PREPAREDNESS

Ingobyi Activity has worked with the MOH, RBC, and the national COVID-19 taskforce to increase the nation's surveillance capacity and preparedness for current and future COVID-19 outbreaks. Ingobyi seconded staff to the RBC to support contact tracing, which involved following up assigned cases for 14 days, providing them with psychosocial support in terms of counseling patients while in self-isolation, reporting to rapid response teams any contacts that developed symptoms as well as those who were not reachable, producing daily data reports for entry in the COVID-19 health management information system (HMIS), and orienting new team members on contact tracing methodology.

Ingobyi also upgraded the national DHIS2-based COVAX registry to allow generation of client codes or bar codes, entry of vaccination data including client information, sending of SMS texts for appointments or reminders, and generation of vaccination certificates and aggregate reports. The system is fully operational and has greatly aided coordination and tracking of COVID-19 data nationwide.

During nationwide COVID-19 mass vaccination exercises, Ingobyi supported MOH/RBC by providing vaccination advisors to help with joint planning, coordination, and supervision of the national task force in charge of vaccination activities. In addition, Ingobyi facilitates mass vaccination drives by providing data entry clerks, transportation of vaccines to different vaccination sites, and other related logistics for health workers. Ingobyi continues to provide supportive supervision to the 26 supported hospitals during vaccination exercises to ensure smooth planning, coordination, storage, and administration of COVID-19 vaccines.

PROCUREMENT OF SUPPLIES AND EQUIPMENT

Through continuous routine clinical mentorship and supportive supervision in supported health facilities, Ingobyi Activity discovered that many facilities lacked equipment to provide basic care to COVID-19 patients. To solve this, Ingobyi has procured various medical equipment and supplies needed for case management. Some of the supplies were donated directly to the MOH/RBC to support management of cases at national treatment centers while others were distributed to Ingobyi-supported hospitals based on the size and the number of COVID-19 cases in their catchment areas. Ingobyi also provides frontline health workers in supported health facilities with PPE, including gloves, face masks, liquid soap, disposable towels, boots, and hand sanitizers to protect both providers and patients from further infections.

RENOVATION AND EQUIPPING OF ISOLATION UNITS

Ingobyi Activity renovated eight COVID-19 isolation facilities and equipped them with the needed items to support management of critically ill patients. Five of these units had been renovated to serve as EVD isolation centers but were repurposed to handle critically ill COVID-19 patients. A further three have been revamped to increase COVID-19 emergency preparedness. These isolation units are fully functional at Nyanza, Nyamata, Byumba, Ruhengeri, Murunda, Rwamagana, Kibungo, and Nyagatare hospitals. Ingobyi has trained staff working in these units to properly use and maintain the equipment.

PROVISION OF HANDWASHING STATIONS

COVID-19 has brought into sharp focus the importance of proper handwashing to reduce the risk of transmission of not only COVID-19 but other contagious illnesses as well (Gammon and Hunt 2020). Ingobyi Activity presented the need for constructing handwashing stations in all supported hospitals to potential partners as well facility and district leadership. Ingobyi's partner, World Vision, funded the construction of the handwashing stations at entry points of all district hospitals, going beyond Ingobyi-supported districts.

However, more stations were needed at several points within the facility to encourage patients and health care providers to practice proper hand hygiene. Ingobyi discussed this with hospitals and agreed to a cost-sharing plan to set up additional handwashing stations at various points in the hospitals, including near entrances and at maternity, neonatology, and operating rooms.

SUPPORT TO THE NATIONAL TOLL-FREE COVID-19 CALL CENTER

During the EVD epidemic in DR Congo, Ingobyi supported the MOH/RBC to set up a national call center with a toll-free hotline to allow the public to readily obtain information on EVD. With the coming of COVID-19, Ingobyi repurposed the call center to serve as an emergency hotline for COVID-19 information. Three permanent Ingobyi staff help RBC to run the call center and respond to any COVID-19-related emergencies. The call center allows for two-way interactive communication with community members where people can send messages, ask questions, or report any suspected cases. The call center staff respond to alerts, conduct counseling, and refer callers to other prevention and care services as needed. Since the outbreak of COVID-19, the number of calls increased from an average of 6,000 calls per week (during the EVD outbreak) to a peak of 84,000 per week during the first nationwide lockdown. The call messages ranged from signs and symptoms to treatment options and myths about the disease.

RESULTS

INCREASED PROVIDER CASE MANAGEMENT CAPACITY

To enhance capacity to handle COVID-19, Ingobyi Activity has trained 280 health providers on case management and care in 26 hospitals (at least 10 providers per hospital) including nurses, midwives, anesthetists, general practitioners, and specialist doctors working in different departments. These providers have been attached to clinical mentors to reinforce their skills. When validated to have acquired the required skills from training and mentorship, they further provide training to staff in health facilities within their districts.

ENHANCING FACILITY PREPAREDNESS TO MANAGE COVID-19

Ingobyi Activity stepped in and procured various equipment needed by health facilities including 100 digital blood pressure machines, 30 suction machines, 150 ambu bags (50 neonatal size, 50 pediatric size, and 50 adult size, all with required accessories), 30 multi-parameter patient monitors, 40 ICU beds, 30 oxygen cylinders, 30 flow meters, 50 oxygen concentrators, 50 laryngoscopes, and 45 infusion pumps. This will go a long way in helping facilities manage patients without constantly referring them to tertiary hospitals.

FACILITATING VACCINATION OF AT-RISK INDIVIDUALS

NCD screening reached 363,248 people by the end of October 2021, of which 33,872 (9.3%) were diagnosed with an NCD. Hypertension was the most common NCD, accounting for almost 89% of all cases. The remaining 11% of cases included diabetes, chronic kidney disease, breast cancer, and cervical cancer. All cases were referred to nearby facilities for care and clients entered into the vaccine registry. All NCD cases linked to the vaccination program received vaccinations.

ENHANCED NATIONAL SURVEILLANCE AND PREPAREDNESS

Vaccination advisors from Ingobyi Activity are still supporting mass vaccination drives, which have run smoothly to date. The data entry, revamped online vaccination registry and NCD tracker and facilitation provided by Ingobyi during vaccinations have supported the government's efforts to vaccinate its populace. With 65.89 doses administered per 100 people by December 1, 2021, Rwanda had the sixth best vaccination rate in Africa, which is testament to great work done by the government and partners, including Ingobyi.

SUSTAINED SERVICE DELIVERY

Ingobyi Activity's efforts helped the government to mitigate potential disruptions in service delivery during the period of the pandemic, particularly when the country was in lockdown. A rapid analysis conducted by Ingobyi in 2020 revealed that overall service disruptions were minimal as shown in Figures 1 and 2 below.

Figure 1. Antenatal care standard visits during first COVID-19 lockdown

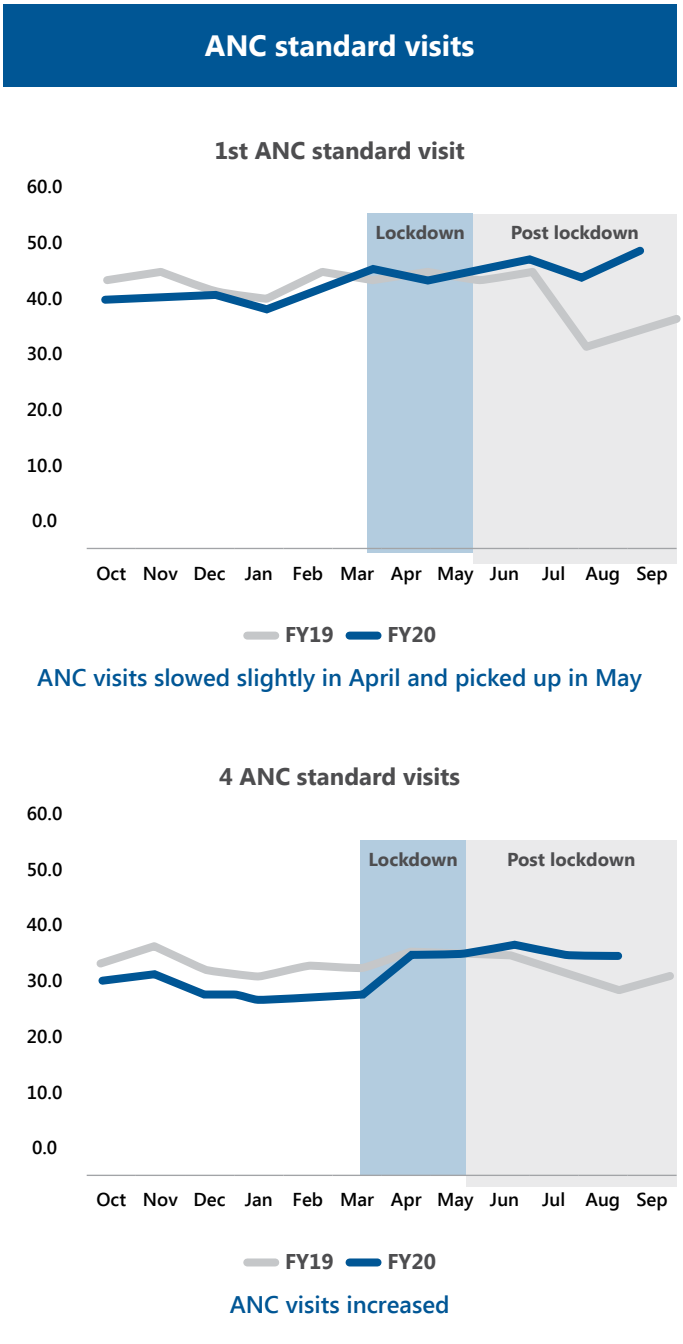
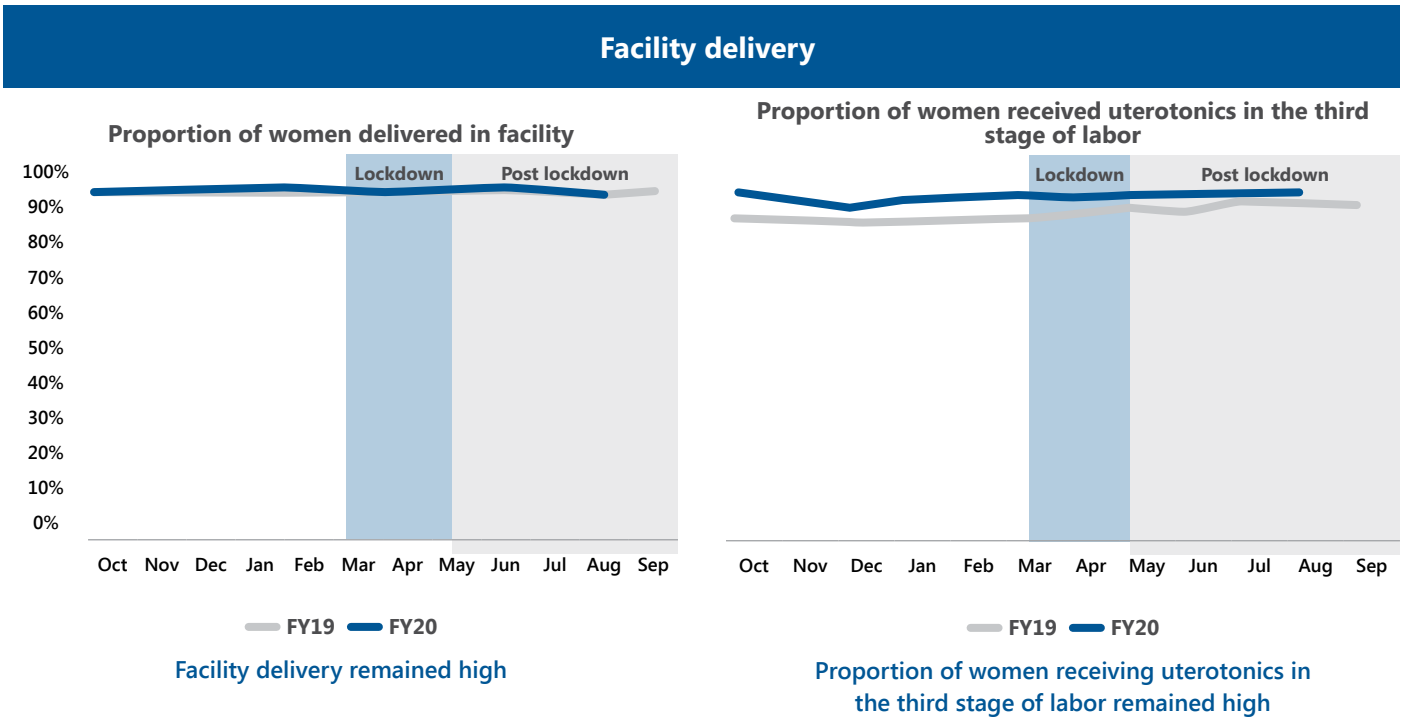


Figure 2. Facility delivery during the first COVID-19 lockdown



LESSONS LEARNED

- There is need to expand training to include other health providers beyond hospital rapid response teams. It is vital that all facility staff are well versed with different COVID-19 prevention and management protocols to curtail further spread.
- To build sustainable capacity to manage future emergencies and epidemics, hospitals need to appoint focal persons that can be trained, mentored, and provide cascade trainings to other staff instead of relying on trainers from implementing partners such as Ingobyi.

IMPLEMENTATION CHALLENGES

- Staff attrition is a major challenge. Some of the staff trained on COVID-19 case management have already been transferred to different hospitals leaving knowledge gaps. There is need for increased advocacy efforts with various stakeholders at district and national level to address knowledge gaps whenever transfers are made.
- Lack of enough skilled specialists in critical care to train and mentor health workers in the supported districts is another challenge. This necessitated Ingobyi Activity to hire critical care specialists to build facility provider capacity. These skilled specialists are few, yet have to train and mentor health workers from all supported district hospitals.
- Some hospitals lacked essential supplies and equipment ranging from PPE to critical care machines, which hampered the capacity of health staff to treat COVID-19 patients. Although Ingobyi provided some needed equipment and supplies, more advocacy is needed with high-level stakeholders like RBC and MOH to provide health workers with the required tools to deliver quality care to COVID-19 patients.
- Funding has been insufficient to support implementation of COVID-19 prevention protocols. This pandemic was not anticipated and thus was not included in regular funding plans, yet the mitigation response requires significant resources for PPE and other supplies, equipment for severe cases, and vaccines, risk communication, contact tracing, case management, and referral. The health system has had to cope with shifting priorities due to limited resources, some of which slowed down other services at the beginning of the pandemic.

CONCLUSIONS

The effects of the COVID-19 pandemic threaten to undo the gains in RMNCH outcomes in Rwanda and globally. In the fight against COVID-19, it is crucial to ensure that frontline health workers are equipped with the capacity to prevent and treat COVID-19 and are also facilitated to continue delivery of routine RMNCH and malaria services to avoid devastating indirect effects the pandemic can have on maternal, newborn, and child health. Moving forward, Ingobyi Activity will continue to support clinical mentorship in prevention and management of COVID-19 to increase the pool of health providers who are able to deliver quality services during the pandemic.

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