Academy for
Health Innovation
Uganda

WE BUILD FOR THE FUTURE

INFECTIOUS
DISEASES
INSTITUTE

FOR GOD AND MY COUNTRY
MINISTRY OF HEALTH

ANNUAL REPORT
2021/22

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Message from Board Co-Chair

The Academy's board remains firm in its commitment to provide governance and leadership to focus on priorities around collaborations for health with all stakeholders. Over the past year, not only have the Academy's projects continued to thrive, but also continued to support the Ministry of Health while learning and sharing lessons that will be useful in future responses to health emergencies.

I have been a witness to the changes in the health sector that have been escalated by COVID-19. With the pandemic came lessons that needed to be understood. This year's Health Innovation Conference provided a great platform where the Academy, Infectious Diseases Institute at large, and the young innovators and their mentors convened to discuss the way forward for the health sector in the country.

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However, we recognize that our work is far from over. The Academy will continue to push the boundaries of what is possible in healthcare and explore new ways to enhance the health and well-being of our communities. We will continue to prioritize the needs of our stakeholders, innovate and adapt to meet emerging challenges, and collaborate with our partners to achieve our shared goals.

We all have the task to ensure that the coming year is a remarkable one in making certain that everyone is aware of the health issues and the urgency in collaboration to make sustainable healthcare accessible to all. I hope that you will find this progress report both insightful and entertaining.

Prof. Elly Katabira

Prof. Elly Katabira

Message from the Director

It gives me great pleasure to present to you our annual report for 2021–2022. This past year, there was a continued need for our unit's expertise in the COVID-19 response, a special achievement was transporting over 700 COVID samples to Adjumani laboratory in West Nile using medical drones. This supplements the regular deliveries of ART by medical drone to PLHIV in Kalangala which commenced in September 2021.

As per our mandate as a health innovations hub, we held our annual Health Innovations Conference under the theme Collaborating to Transform: Lessons from the Pandemic. We were so grateful to have the event officially opened by Hon. Dr. Monica Musenero, Minister of Science, Technology, and Innovation. The conference provided a great platform for many young innovators, health workers, and entrepreneurs to share their ideas and visions.

As per our mandate as a health innovations hub, our 2021 health innovations conference Collaborating to Transform: Lessons learned from the Pandemic.

We are currently halfway through our second strategic plan, which recognizes the Academy's Innovate, Advance, and Scale strategies and will guide us through to 2026. We are really excited about some of our new projects coming on board, such as the African Hub for Artificial Intelligence in Sexual, Reproductive, and Maternal Health which we will be hosting at the Academy, as well as completing our first mobile phone app for the Clinton Health Access Initiative to support health care workers in managing advanced HIV infection. We are also excited to roll out our ARTAccessTM application countrywide to support pharmacy refills of antiretrovirals supported by PEPFAR and to prepare Call for Life to be used in other African countries through the African CDC Prove project.

I appreciate the dedication and hard work of The Academy personnel, that has worked tirelessly to ensure projects that have been presented in this report continue to operate. Our Academy Advisory board and our National Drones steering committees have provided fantastic support and we are grateful for their guidance. We would not be here without our "parents"; the Infectious Diseases Institute and Makerere University, without whom we would not be able to complete our work. We look forward to working with you all in 2023 and beyond.

I would also like to thank the Ministry of Health for providing us platforms to positively contribute to the lives of Ugandans.

Rosalind Parkes Ratanshi

Rosalind Parkes Ratanshi

About **the Academy**

The Academy for Health Innovation Uganda is a unit under the Infectious Diseases Institute (IDI), founded with the aim of innovating to impact the lives of people living with HIV/AIDS. It was established after a memorandum of understanding was signed between the Uganda Ministry of Health, Janssen, the pharmaceutical companies of Johnson & Johnson and IDI, and the Johnson & Johnson Corporate Citizenship Trust.

The Academy is the first flagship implementation of Connect for LifeTM –a collaborative program aiming to empower health workers and academics and impact the lives of patients with HIV/AIDS and TB. Over the past 5 years, the Academy has broadened its response to enhance technological advancements in the response to improving maternal and child health, HIV and TB care, Ebola, and more recently the COVID-19 pandemic. The Academy has now fully established itself as a credible hub for innovations, with a high potential for taking its services and products to scale. Evidently, the diversity of professional backgrounds among the staff members provides an Academy-wide skillset to successfully reach this scale. Based on established partnerships and activities, the Academy is increasingly recognized as an innovative partner, both nationally and internationally. Our ability to collaborate, mobilize, and mentor stakeholders is visible across all projects, from the health innovations conference to CFL. With the already gathered wealth of experience in the challenging context of the Ugandan health sector and innovation market, The Academy has positioned itself as a reliable partner to innovate, advance, and scale, while maximizing impact and validating proof of concepts. To achieve our full potential, we work differently to foster creativity, grow by failure, and sustain ourselves by being at the frontline of innovation.

Our strategic focus;

We accelerate the process from research to impactful implementation of innovative health solutions through partnerships.

Our organisational pillars include;

Innovate, validate, and accelerate impact in the health sector.

Advance partners via services, capacity building, and leadership.

Scale projects and partnerships to ensure suitability.

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The Third **Annual Health Innovation Conference**

The Health Innovations Conference (HIC), is an international networking platform that brings together innovators in health, students, medical workers, government institutions, and organizations (local & international) with a similar cause; to drive innovations that lead to improved access to better health care. It was born out of a need to create collaborations and partnerships around technological innovations in health. It is hosted by The Academy for Health Innovation, at the Infectious Diseases Institute (IDI) in Makerere University.

In its third year, HIC 2021 brought together Innovators, policymakers, Funding agencies, and implementing partners to discuss the critical lessons from the pandemic and importantly, the role of leveraging technology in addressing the challenges, with the overall objective of building resilient healthcare systems

The two-day virtual conference, under the theme **_Collaborating to Transform: Lessons Learned from the Pandemic_**, was officially opened by Hon Dr. Monica Musenero, Minister of Science, Technology, and Innovation. Following the theme, the Honorable Minister encouraged all the innovators not to work in silos but rather collaborate and share ideas, "We need to realise the value of collaboration towards development in all sectors, including health. This will create progress and positive change for the general population as well as the quality of life."

The virtual event featured seasoned, resourceful, as well as young, and vibrant players in the innovation landscape who substantiated the minister's message through lively presentations and discussions. The presenters and participants were from as far as Denmark, Kenya, the USA, South Africa, and Tanzania. International and local organizations like the World Bank, United Nations Community Development Fund (UNCDF) Digital, NITA-U, World

Health Organization (WHO), KTA Advocates, The Medical Concierge Group (TMCG), NFT Consult, and CENIT/GIZ-EAC, shared incredible ideas on emerging issues in this health innovation space.

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Projects and Key Achievements

INNOVATE: RESEARCH AND DEVELOPMENT

INNOVATE: RESEARCH AND DEVELOPMENT

The Innovate pillar focuses on the development of new and emerging technologies, or the adaptation and upgrading of existing innovations to meet the needs of the Ugandan health sector. It also supports the evaluation of new technologies and tools in the Ugandan context.

This year under review, the team made advances in data science projects. The COAST project is using data generated from an interactive voice response tool used for follow-up with HIV clients to create a prediction tool for the need to test for COVID-19 among these patients. In addition, a chatbot is being developed to allow the public access to information on COVID-19.

We continued to evaluate technologies throughout the year, including medical drones and Interactive Voice Response (IVR) for various use cases. The Academy was able to showcase its work at various conferences and publish the outcomes of the research (appendix 1). We believe that by continuing to generate evidence-based innovation, we will be providing options for the Ministry of Health and other sector actors; and consequently contributing more impactful products.

MEDICAL DRONES – BREAKING GEOGRAPHICAL BARRIERS TO ACCESS TO HEALTH CARE IN REMOTE UGANDA

The West Nile Project; reducing transit time of laboratory samples from suspect to laboratory

Background

The Academy, with funding and technical assistance from the United Nations Capital Development Fund (UNCDF), is implementing a collaborative project; to pilot the use of medical drone technology in the West Nile districts of Moyo and Adjumani. This project supports surveillance mechanisms, early reporting of any outbreak indicators within the systems, and rapid response to COVID-19 and other health threats or outbreaks.

With the COVID-19 pandemic sweeping across the globe over the last two years, Uganda has been no exception.

In the West Nile region, several geographical barriers, like difficult terrain and long distances, make access to different health facilities and services very difficult.

COVID-19 posed a serious challenge in the West Nile region. Laboratory samples could not be easily transported; therefore, treatment could not be initiated in time. Therefore, there was an urgent need to reduce the testing, and turnaround time in order to contain this .pandemic.

Achievements

- The project was launched in November 2021 drawing different stakeholders both locally and nationally. This interest provided an environment that allowed for this project to be approved and implemented with the support of the districts and healthcare workers.

- Three (3) flight routes; Adjumani – Pachara, Adjumani – Arra, and Adjumani – Moyo were successfully assessed and mapped for drone flight.

- The drone validation study was carried out, in which 36 pairs of samples were delivered by drone and road Findings showed that samples carried by drones had a higher positivity rate compared to those carried by road, likely due to the shorter transit time.

- Delivery of 675 biological samples (674 Covid-19 & 1 serum) by drone from the hub in Moyo Hospital to the COVID-19 testing lab in Adjumani Hospital.

- Carried out 16 successful direct sample delivery flights between Moyo Hospital and Adjumani Covid-19 lab covering a distance of 528km. This accounts for 37.08% of the total distance for all the drone flights conducted in West Nile in the reporting period, (1424km).

The Kalangala project; Reaching remote communities with ART using drones

Background

This is a collaborative program, to pilot the use of medical drones to deliver lifesaving HIV medications to people living in the Kalangala District; more quickly, safely, and efficiently, than is currently possible. Regularly scheduled flights carrying antiretroviral therapies (ARTs) for the treatment of HIV continued over the year under review.

Kalangala District remains a hot spot for new cases of HIV, and worse still, access to treatment remains a challenge for many. The island's geography makes the delivery of health care difficult, as travel is possible only by boat and is inefficient, unreliable, and potentially dangerous for the healthcare workers who journey around it to provide care.

The medical drones have the potential to overcome these challenges by serving ART drugs to approximately 1,000 people living with HIV/AIDS in Bufumira sub-county.

The medical drones program has been implemented in collaboration with the Kalangala District Local Government, the Ministry of Health of Uganda, Makerere University, Johnson & Johnson, The Ugandan Academy for Health Innovation and Impact, Uganda Flying Labs, Yamasec, Werobotics, and John Hopkins University.

A delivery observer picking up drugs from the medical drones

Project Achievements

In its third year of implementation, the drone flights became more regular and steady as the team worked through the challenges of deploying this technology in the remote areas of Kalangala. The Academy team received training on drone flights with the long-term view of being able to fully fly and maintain drones to support last-mile supply challenges. The achievements include;

- Fully autonomous drug deliveries by drone were carried out to 6 landing sites in Buwuunge, Nabbumba, Kaazi, Nakawa, Kusu, and Kitobo.

- Nine remote delivery observers were trained to receive the drone at landing sites.

- Trained IDI pilots received certification forms from UKCAA and are now qualified to fly drones independently.

- Drone flight services extended to include STI sample delivery.

- Drones Abstract presentation at the IAS conference in Montreal, Canada by Dr. RosalindParkes-Ratanshi. https://programme.aids2022.org/Abstract/Abstract/?abstractid=7621

- The drone project was widely covered in media over the year. To interact with these articles kindly follow the links provided

Reuters: https://www.reuters.com/world/africa/uganda-tests-drones-speed-up-delivery-hiv-medicine-2021-12-16/#:~:text=KALANGALA%2C%20Uganda%2C%20Dec%2016%20(,system%2C%20which%20faces%20chronic%20shortages.
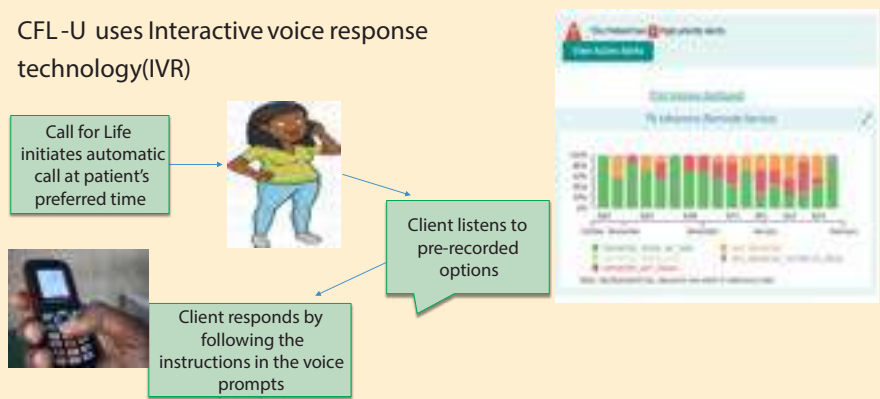
Devex: https://devex.shorthandstories.com/the-sky-s-the-limit—drones-delivering-hiv-supplies-in-remote-uganda/index.html

THE CALL FOR LIFE PROJECTS – SUPPORTING REMOTE ACCESS TO PATIENTS, HEATH CARE WORKERS, AND RESEARCH PARTICIPANTS.

The Academy continues to conduct research to validate the use of CFL in different contexts. Call for Life™ software is a computer software that delivers automated messages, for adherence reminders, health tips, training HCW, and survey questions using interactive voice response (IVR) for patients. The service allows patients to report symptoms in real-time to their care providers.

Call for Life Technology

CFL-U uses Interactive voice response technology(IVR)

Call for Life initiates automatic call at patient's preferred time

Client listens to pre-recorded options

Client responds by following the instructions in the voice prompts

Call for Life Youth study; comes to an end with indications of potential for high impact!

Background

Call for Life Youth is a series of studies under the Academy Scholar Program run by Dr. Agnes N. Bwanika. It consists of a mixed methods study. The first study was qualitative to assess barriers, enablers of adherence, and acceptability of mHealth among youths receiving care at Kiryandongo Hospital.

The second study is a randomised control trial of Youth living with HIV/AIDS (YLWH) initiating anti-retroviral therapy (ART) to determine the effect of the Call for Life-Uganda (CFLU) mHealth tool on ART adherence.

We congratulate our scholar on the successful completion of data collection for this research project and the publication of the outcomes.

Project Achievements

- Overall, across the study sights, there was evidence of progressive viral load suppression for participants who used the Call For Life youth package compared to those in the standard of care.

- Qualitative manuscript published in a Social Sciences & Humanities Open Journal.

  https://www.sciencedirect.com/science/article/pii/S2590291122000651

Challenges

- Phone ownership is still low.

- Charging phones is a challenge due to the lack of electricity in most homesteads.

With these findings, sensitization of communities on the importance of phone ownership may be crucial.

Call for Life TB: concluded and indicated high retention of subjects.

Background

The Call for Life TB (CFL-TB) study was an open-label randomized controlled trial to determine the impact of Call for Life™ Uganda (CFLU), on TB treatment success in a cohort of patients with drug-sensitive TB receiving care at three tuberculosis clinics in, Uganda.

In this trial, patients were randomized (1:1 ratio) to either the standard of care (SOC) arm or intervention arm (adherence and appointment reminders, and health tips delivered using IVR to patient mobile phones). At the end of treatment, we compared treatment success and retention in care in patients who received the call for life intervention versus those who did not receive the intervention.

Research progress

- Completed study follow-up at **94.5 %** retention by the close of the year.

- Completed the closeout monitoring visit at all study sites with the research office.

- Conducting data analysis for the qualitative and Quantitative data.

Call for Life- Sexually Transmitted Infections increases partner notification treatment and testing.

Background

When someone is diagnosed with a sexually transmitted infection, it is important for their partner to receive treatment. In Uganda, low rates (25% to 34%) of partner attendance among those with sexually transmitted STIs have been observed. Support for those with HIV who use counseling (assisted partner notification, or APN) to tell their partner has been successful. Others have suggested that mobile phone technology can support APNs. This is attractive given the high levels of access to mobile phones in SSA.

The Academy for Health Innovations has adapted Call for Life to be used for APN in STIs. The service allows patients to report symptoms in real-time to their care providers. This study will determine the effect of technology-supported partner notification and treatment initiation using Call for LifeTM technology among persons diagnosed with an STI or HIV at community pharmacies in Uganda.

Research progress

Completed participant enrolments with 50 (100%) participants on the intervention arm (CFL Assisted Partner Notification). Of the 50 participants in CFL arm

- **27** (54%) participants notified their partners.

- **22** (81.4%) of the **27** participants' partners received testing and treatment for the STI condition.

Pfizer Syphilis - Assisted Partner Notification

Background

In Uganda, national health surveys show that 1.8% of adults aged 15–49 years have syphilis, and in 1% of couples, both partners are infected. Antenatal clinic (ANC) estimates are higher at 2.1–3.0%, and neonatal mortality stands at 2.5%. With a total fertility rate of 5.4 children per woman, syphilis is an important driver of adverse maternal-fetal outcomes.

Newer syphilis point-of-care tests (POCT) and combined HIV-syphilis tests are helping to increase syphilis testing in pregnancy across the region. Unless infected male partners of pregnant mothers are treated, there is a chance of re-infection. Despite initiatives to increase notification of male partners of pregnant women in Uganda, partner treatment rates remain low (around 17%). Causes of low notification include lack of knowledge, fear of partner violence, and lack of designated services for men at antenatal clinics.

With support and funding from Pfizer, the academy implemented a project that used a combination of mHealth tools to support, remind, and follow up on pregnant women to notify their partners. The sites for this objective included Kampala City Council Authority clinics in Kisenyi, Kawaala, and Kiswa health centers.

Project achievements

22,650 pregnant mothers at Kawaala, Kisenyi, and Kiswa Health Centers were sensitized about syphilis.

- **9,561** Pregnant women attending ANC received Syphilis testing at Kisenyi, Kawaala, and Kiswa HC

- **386** Pregnant women initiated treatment following a positive syphilis test at the 3 sites

- Assisted partner notification (APN) counseling for syphilis-positive women -**318** women counseled

- Ethical approvals for research utilising data on this project have been acquired and the study will commence in the next year.

Call For Life Outbreaks

Background

Call for Life COVID was deployed during the COVID-19 pandemic for surveillance and mental health support. To determine the experience of users, a qualitative research project on the experience of CFL was implemented across three sites in Uganda: Kalangala, West Nile, and Kampala.

The key findings in the data so far include;

- Constant communication with medical personnel even when in quarantine

- Eliminating the need to constantly move to health facilities

- Brings services closer to people.

Less contact with people so less spread.

A participant remarked about CFL:

"It brings the health resources closer to the patient."

"Even when I am quarantined at home, I can still seek medical attention by calling the phone numbers provided. This applies especially when one is indeed ill and needs a quick response. Because of its computerized nature, the system can help tell who is truly ill and who isn't"

Participant views on how the call for life can improve health-seeking behaviors:

- Reminding patients about their appointments and time to swallow medicine.

- Reducing waiting time at health facilities and many don't need to go to the health facility

- Promoting confidentiality as people are reached on their personal phones

- Reducing transport costs as there is a reduced need to go to the facility for review.

How the CFL tool can be effective in implementing vaccination exercises

- Giving cost-free health tips

- Giving professional advice to patients on vaccine side effects,

- Reminding patients on the next vaccine jab date

- Easy following up of vaccinated individuals

Call for life Nutrition; an IVR based survey tool to collect information on Nutrition amongst PLHIV during COVID-19 pandemic.

Background

HIV/AIDS affects 1 in 7 households and is an independent risk factor for food insecurity in Uganda. A study conducted by IDI during the first lockdown suggested increasing food insecurity in people living with HIV (PLHIV) because of COVID-19 disruptions to livelihoods and food systems. This is concerning because food-insecure HIV patients are less likely to adhere to antiretroviral therapy (ART) because of side effects; thereby increasing the risk of poor treatment outcomes, developing resistance to ART, and mother-to-child and/or sexual transmission of HIV ART.

The CFL was successfully modified to deliver a 10-minute audio quantitative data survey tool to assess household food security and adherence to ART among PLHIV in rural and urban settings in the context of the COVID-19 pandemic in Uganda using the CFL tool.

COAST

Background

The COVID-19 pandemic presented a number of healthcare challenges. Reduced mobility and the inaccessibility of expensive reagents and equipment meant that suspects and contacts could not be quickly screened and tested. The health system was also overwhelmed by a large number of potential patients. Many susceptible people were not screened and couldn't be tested. It became critical to provide healthcare workers with decision-support tools for COVID-19 screening.

People living with HIV often have non-specific symptoms that can mimic COVID-19. We have been following up with PLHIV using an interactive voice response tool (Call for Life) through which PLHIV can report symptoms. This has supported PLHIV throughout the COVID-19 pandemic. We are developing a DSS system to aid healthcare workers in determining with precision which people living with HIV need to have a COVID-19 test.

To date, a prototype that mimics AI importance has been developed that demonstrates that AI and ML screening tools can be used to aid health workers' precision in determining who should go for a COVID-19 test. The poster was presented at the COCIS open day

For more information, visit the Website -

http://coastug.org/

ADVANCE

Through this pillar, we advance services to our clients; these services typically include, research, capacity building through technical support and mentorship, and information technology development services. Over the year, we are proud to have provided services to a wide range of clients including IDRC, the Clinton Foundation, and Johnson and Johnson.

The Hub for Artificial Intelligence in Maternal, Sexual, and Reproductive Health in Sub-Saharan Africa

Background

The Hub for Artificial Intelligence in Maternal, Sexual, and Reproductive Health in Sub-Saharan Africa (HASH) is a project funded by the International Development Research Centre (IDRC) and the Swedish International Development Cooperation Agency (SIDA) as part of the Artificial Intelligence for Development in Africa Program (AI4D Africa). It is being implemented through a multi-disciplinary consortium comprised of: the Academy for Health Innovation Uganda (at the Infectious Diseases Institute), Sunbird AI, and the Makerere University AI lab.

HASH is establishing a network of Pan-African Anglophone and Francophone researchers, organizations, innovators, and other stakeholders, working to enhance the use of AI and data technologies for MSRH, with a focus on ethical AI development. In addition, the hub will support up to eight innovators to research and validate their ideas in the key thematic areas of maternal health, sexually transmitted infections (STIs), adolescent sexual reproductive health, and HIV.

The Consortium is comprised of a very dynamic team of three partners that has varied experience in innovative research, project planning, and implementation. The Academy team at the Infectious Diseases Institute is leading the project planning, research, communication, and implementation activities, supported by the consortium PIs in Sunbird AI and Makerere AI Lab. Sunbird AI and Makerere AI Lab will provide overall expert guidance in areas pertaining to data science and AI methods and applications.

- The exciting new Hub for Artificial Intelligence in Maternal, Sexual, and Reproductive Health (HASH) was launched in November 2021. HASH will establish a network of pan-African researchers, organizations, innovators, and other stakeholders, who will work together to research and validate the use of AI and data technologies to address key challenges in maternal, sexual, and reproductive health (MSRH) in Sub-Saharan Africa. Grounded in the ethical

application of AI interventions, the HASH Project will also provide technical and methodological assistance to members within the network.

- Conducted online survey as a form of baseline consultation with stakeholders around the African continent in February 2022. The survey investigated the opportunities, risks, and limitations of AI in MSRH, with the aim to align the hub with these, and hence increase impact. The survey received 107 responses from 25 countries. (the poster is available on the hash website https://hash.theacademy.co.ug/)

- Launched Request for Applications (RFA) on 22nd June 2022. This RFA targeted Artificial Intelligence solutions to challenges in Maternal, Sexual, and Reproductive Health in Sub-Saharan Africa, with available funding of up to $40,000, for 8 successful applicants. The successful applicants will receive funding, capacity building, mentorship, and other kinds of support to enable their research and develop their ideas. Readers can follow the outcomes of this RFA and the successful applicants by subscribing to receive updates through the HASH website; **https:// hash.theacademy.co.ug/**

The Advanced HIV Disease Toolkit: bridging gaps to access of HIV/AIDS management using a mobile application

The main objective of the project is to offer an open-source mobile Advanced HIV Disease (AHD) toolkit that will provide versatile support to frontline health care workers (HCWs) in low- and middle-income countries. The Clinton Health Access Initiative (CHAI), with support from Unitaid and other partners, developed the Global Advanced HIV Disease Toolkit (GAHDT) as a web-based digital repository for the WHO (World Health Organization) standardized package of AHD management. The GAHDT required internet connectivity for healthcare workers to access its resources, which is a limitation in low- and middle-income countries (LMICs). Therefore, the AHD mobile application has been developed with offline functionality to provide full-time access to the HCWs at the frontline. The AHD toolkit provides insight into the key facts, policies, and guidelines for managing advanced HIV disease. This project was supported by the Clinton Health Access Initiative.

The production version of the Android AHD Toolkit has been rolled out, and it can now be accessed by the public using this link. The project has also registered other significant achievements, including the following:

1. The team conducted a needs assessment survey that provided insight into the critical features of the AHD application.

2. A successful inception meeting was held and it enabled all the key stakeholders to agree on the application features and functionalities.

3. The Android and Apple versions of the AHD application were piloted amongst 20 users who suggested useful modifications that have been incorporated into the production version.

4. Submission of a white paper that highlighted the procedure undertaken to develop the AHD mobile application and the lessons learned from the process.

Inception Meeting for key stakeholders

WISECAP

Background

This study is an exploratory evaluation of patient medication adherence using AARDEX™ Medical Event Monitoring System for a drug-resistant TB regimen containing bedaquiline in Uganda. It is funded by Johnson and Johnson. We hope to bring evidence of a noveau monitoring system to aid adherence to chronic medication, like in TB patients.

• 84% of participants have been enrolled so far

Mobile Interactive Training Initiative for Health Care Workers; Quick and easy training for several community extension workers on key principles of infection prevention.

MITIC

Background

The project adapted the Interactive Voice Response tool to provide a structured mobile-based training approach that planned to rapidly provide 10,000 participating community health workers with training content about community COVID-19 prevention, surveillance, linkage to care, and management. Using the adapted IVR platform, we provided remote training, information updates, and access to infectious diseases specialists for COVID-19 consultation to community health workers using mobile phones. The IVR training platform does not necessarily require a smartphone and can therefore be accessed using any type of phone.

Project Achievements

The call flow, consisting of 4 modules to be delivered over 4 weeks through 2 phone calls per week, was developed and approved by the training department. This call flow has been primarily voiced in English. The development of the training platform was completed and is now available. This means that we are now capable of training CHEWs on key aspects of managing COVID-19. This platform can be adapted for the basic training of thousands in various contexts.

3

SCALE

The scale projects take our well-researched products to scale through collaborations and implementation projects. The overall aim of having a well-diversified project portfolio that supports innovation and impact in the health sector. In the year under review, we continued to carry out impact activities on both the COVID-19 pandemic and chronic illness.

Program for Accelerated control of TB; sustained follow-up of TB patients enhanced.

Background

Call for Life TB PACT is a web-based platform that uses interactive voice response (IVR), to deliver adherence reminders and health tips to patients receiving tuberculosis treatment in the Karamoja region. The service also provides clinic appointment reminders and allows patients to report symptoms in real-time to their healthcare providers. Call for Life TB PACT has been operating in the region since September 2020 as part of the bigger Program for Accelerated Control of TB in Karamoja (PACT-Karamoja), a program that aims to increase TB case detection and treatment success rates through health system strengthening in all districts of the North Eastern sub-region of Uganda.

CFL TB has been supporting patients in five facilities, and so far, over 400 patients have been supported using the CFL system.

Project achievements

- Call for Life TB PACT has been used to follow up with over 800 patients since the inception of the project.

- Of these patients who were followed up, over 90% have successfully cured/completed their treatment, and over 1000 patients have had health personnel attend to symptoms and concerns.

- Call for Life Digital Application has motivated TB Patients in the Karamoja sub-region to take medicine regularly.

- The CFL TB PACT success story was published in Global Accelerator to End TB Newsletter, May 18, 2021. Link: Global Accelerator to End TB Newsletter, May 18, 2021 (wix.com)

Local Service Delivery for HIV/AIDS

Background

This 5-year project is designed to implement HIV/TB interventions through Private Not-For-Profit (PNFP) entities currently supported by USAID-RHITES in the five sub-regions of East Central, Eastern, Acholi, Lango, and Southwestern Uganda.

The Academy's role entails the capacity building of regional staff and 30 targeted PNFP facilities/sites in the utilization of Call for Life HIV and TB for automated treatment support. This should lead to a massive scale of the tool, achieving high retention to care for thousands on the platform.

Project achievements

- 30 health facilities were visited and sensitized in Western, Northern, and Eastern Uganda. During the training, an average of 7-10 health workers were introduced to mobile health and call for life specifically through PowerPoints and practical demonstrations of the HIV and TB tools displaying how the calls would work and how alerts are generated.

- A total of 63 health workers were trained on the tool and 30 YAPS were sensitized on Call for Life.

- List of the health facilities include

Bwindi Community Hospital	Bushenyi Medical Health Centre III	Dr. Ambrosoli Agago Hospital
Kisiizi NGO Hospital	Kabwohe Clinical Research Centre	PAG Mission Hospital
St. Karolii Lwanga Nyakibale Hospital	TASO Mbarara Clinic	TASO Gulu
St. Francisca Rushooka Health Centre II	Ibanda Hospital	Lacor Hospital
Kihefo Clinic	Rushere Community Hospital	TASO Jinja
Rugarama Hospital	Ruharo Mission Hospital	Family Hope Medical Centre
Ishaka Adventist Hospital	Aber Hospital	

CALL FOR LIFE HBC: Strengthening services and linkages for Community Health Extension Workers (CHEW) for COVID-19 case management using Call For Life and the home-based care app

Background

The overwhelming numbers of patients during the COVID-19 pandemic meant that many of them could not be managed in hospitals. Even the professional medical workforce could no longer be available for all newly diagnosed cases. The Home Based Care (HBC) model was adopted in Uganda for mild and moderate cases; CHEW was then tasked with supporting surveillance, case management, and referral at the community level.

In this project, we supported the MoH's HBC model: we integrated the IVR C4L technology (conducting surveillance of COVID-19 symptoms) with the HBC app (for daily records management/reporting and for follow-up of HBC cases;

This meant that follow-up of cases could be conducted daily, and remotely, which is safer and less demanding for the CHEWs. In addition, the work done in the community could now be visible at the local and national levels. We set out to

- To train 1000 HCW on the CFL-COVID-HBC technology in 3 districts with large urban settlements (Kampala, Mbale, and Arua)

Table showing coverage of training of CHEW coordinators trained in the HBC, HBC app, and CFL

SN	Division / District	Achieved No.
1	Kawempe	22
2	Nakawa	24
3	Central	14
4	Arua district	25
5	Arua city	49
6	Mbale district	70
7.	Mbale city	8

Table showing CHEW trained at different centres.

	District / Division	Target	Achieved	%
1	Kawempe	70	47	67
2	Rubaga	70	64	91
3	Makindye	70	34	48.5
4	Central	70	54	77
5	Nakawa	70	53	75.7
6	Arua city	170	91	54
7	Arua district	170	39	23
8	Mbale city	170	29	17
9	Mbale district	170	118	69

CALL FOR LIFE COVID; sustained surveillance and psychosocial support through the COVID-19 pandemic.

Background

Call for Life COVID is a web-based platform that uses an interactive voice response solution that has been authorized by the government for surveillance during the COVID-19 epidemic. It has been used as a screening tool and a remote symptom-reporting service for high-risk travelers and contacts of COVID-19 patients undergoing quarantine since April 2020 (Call for Life COVID-Quarantine). It has also been used as a screening tool for psychosocial challenges in patients discharged from COVID treatment units since August 2020 (Call for Life COVID-Case Management). To date, over 4000 suspects/patients have received over 40,000 calls.

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Project achievements

- Call for Life COVID surveillance has been used for the follow-up of 1290 high-risk travelers and contacts of COVID-19 patients in 19 districts. These include Kanungu, Mbarara, Jinja, Kiryandongo, Nebbi, Kalangala, Kagadi, Yumbe, Adjumani, Kyankwanzi, Arua, Zombo, Maracha, Obongi, Koboko, Terego, Pakwach, Madi-Okollo and Amuru.

- Call for Life COVID case management has been used for post-discharge follow-up of 3450 patients from 18 COVID units nationwide. These units include; Namboole NTIF, Mulago National Referral Hospital, Masaka Regional Referral Hospital, Mbarara Regional Referral Hospital, Kabale Regional Referral Hospital, Mubende Regional Referral Hospital, Hoima Regional Referral Hospital, Fort Portal Regional Referral Hospital, Entebbe Grade B Hospital, Mbale Regional Referral Hospital, Moroto Regional Referral Hospital, China Uganda Friendship Hospital- Naguru, Medipal, Mengo Hospital, Norvik Hospital, TMR Hospital, and Case Hospital.

- Of these patients followed up over 1500 have been referred to Strong Minds Uganda for psychosocial support.

- The team has received the go-ahead from the community health department at the Ministry of Health to operationalize these tools for follow-up of patients undergoing Home Based Care.

- We have been able to successfully sustain these activities through the waves of COVID-19.

Capacity Building

Ph.D. scholars, short courses, and opportunities

The staff participated in collective training in the Fundamentals of Global Health Research course at the University of Washington to increase capacity in health research. A total of 15 people got certificates of completion.

During this year, our scholar, Agnes Naggirinya Bwanika, completed data collection and courses. We wish her well as she completes the writing process.

Clara Wekesa has completed her thesis write-up and published three papers. She is now in line to make a presentation and will be continuing with her research.

Richard Muhindo successfully defended his Ph.D. and will be graduating in 2023. Congratulations to him.

We are proud of our staff who have continued to pursue their career development. We were joined by Dr. Elizabeth Oseku and Annet Nanungi after they completed master's degrees in health promotion and computer science, respectively. Others continue to run their courses; Eva Nakibuuka: Masters in Public Health, Joyce Kayaga: Masters in Business Administration, Immaculate Namutebi: Masters in Business Administration, and Patrick Sessazi: Masters in Public Health.

Appendix / Publications

1. Bwanika Naggirinya Agnes, Waiswa Peter, Meya David, Parkes-Ratanshi Rosalind, Rujumba Joseph. Factors influencing ART adherence and the potential for mhealth use among youth in rural Uganda. **Social Sciences and Humanities Open journal. Accepted** 22nd June 2022.

2. Mulungu, K., Katumba, P., Ratanshi, R.P. et al. Intrapreneurship and technological innovation in optimizing qualitative research as evidenced at Infectious Diseases Institute, Uganda. **J Innov Entrep** 10, 47 (2021). https://doi.org/10.1186/s13731-021-00188-y

3. Muhindo R, Mujugira A, Castelnuovo B, Sewankambo NK, Parkes-Ratanshi R, Tumwesigye NM, Nakku-Joloba E, Kiguli J. "I felt very small and embarrassed by the health care provider when I requested to be tested for syphilis": barriers and facilitators of regular syphilis and HIV testing among female sex workers in Uganda. **BMC Public Health**. 2021 Nov 2;21(1):1982. doi: 10.1186/s12889-021-12095-8. PMID: 34727898; PMCID: PMC8564957.

4. Twimukye A, Bwanika Naggirinya A, Parkes-Ratanshi R, et al. Acceptability of a Mobile Phone Support Tool (Call for Life Uganda) for Promoting Adherence to Antiretroviral Therapy Among Young Adults in a Randomized Controlled Trial: Exploratory Qualitative Study. **JMIR Mhealth Uhealth**. 2021

5. Ainembabazi, P., Castelnuovo, B., Okoboi, S. et al. A situation analysis of competences of research ethics committee members regarding review of research protocols with complex and emerging study designs in Uganda. **BMC Med Ethics 22**, 132 (2021). https://doi.org/10.1186/s12910-021-00692-6

6. Mirembe D, Mackline H….Parkes-Ratanshi R. Impact of a mobile phone-based interactive voice response software on tuberculosis treatment outcomes in Uganda (CFL-TB): a protocol for a randomized controlled trial. Trials 22(1) DOI: 10.1186/s13063-021-05352-z. Published 13th June 2021

7. Richard Muhindo, Andrew Mujugira, Barbara Castelnuovo, Nelson K. Sewankambo, Rosalind Parkes-Ratanshi, Juliet Kiguli, Nazarius Mbona Tumwesigye and Edith Nakku-Joloba. Text message reminders and peer education increase HIV and Syphilis testing among female sex workers: a pilot quasi experimental study in Uganda. **BMC Health Science Research**. Accepted 7th May 2021

8. CP Namisi, J Munene, RK Wanyenze, A Katahoire, R Parkes-Ratanshi et al. Stigma Mastery in People living with HIV: Gender Similarities and Theory. **Journal of Public Health**. March 2021

9. Mirembe, D, Bwanika A,... Parkes-Ratanshi. High acceptability of a patient-support interactive voice response software and improved quality of life in HIV-positive patients with higher-level usage in Uganda: a randomised trial February 2021, DOI: 10.2196/preprints.22229. **JIMR mHealth and uHealth**

10. F Mubiru, B Castelnuovo, S. Reynolds, RM Parkes-Ratanshi. Comparison of different cardiovascular risk tools used in HIV patient cohorts in sub-Saharan Africa; do we need to include laboratory tests? January 2021. **PLoS ONE**

11. E Mabonga, YC Manabe, A Elbireer....RM Parkes-Ratanshi. Prevalence and predictors of asymptomatic Chlamydia t**rachomatis and Neisseria gonorrhoeae in a Ugandan population most at risk of HIV transmission. February 2021** International Journal of STD & AIDS

12. C Wekesa, GD Kirk, J Aizire, EM Benson, Alex Karabarinde, R Parkes-Ratanshi, P Ocama. Prevalence and factors associated with liver fibrosis among adult HIV-infected patients attending urban and rural care clinics Uganda. **Journal of Infectious Diseases**. January 2021

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