



balamu

NCD Research,
Education & Care



Annual
report
2021

Research Fellows &
PhD Students

Health system
strengthening

Community-based
approaches

Engaging
stakeholders

Health
Education

Community
Health
Workers

Disease
prevention

NCD
Research

“being
healthy”

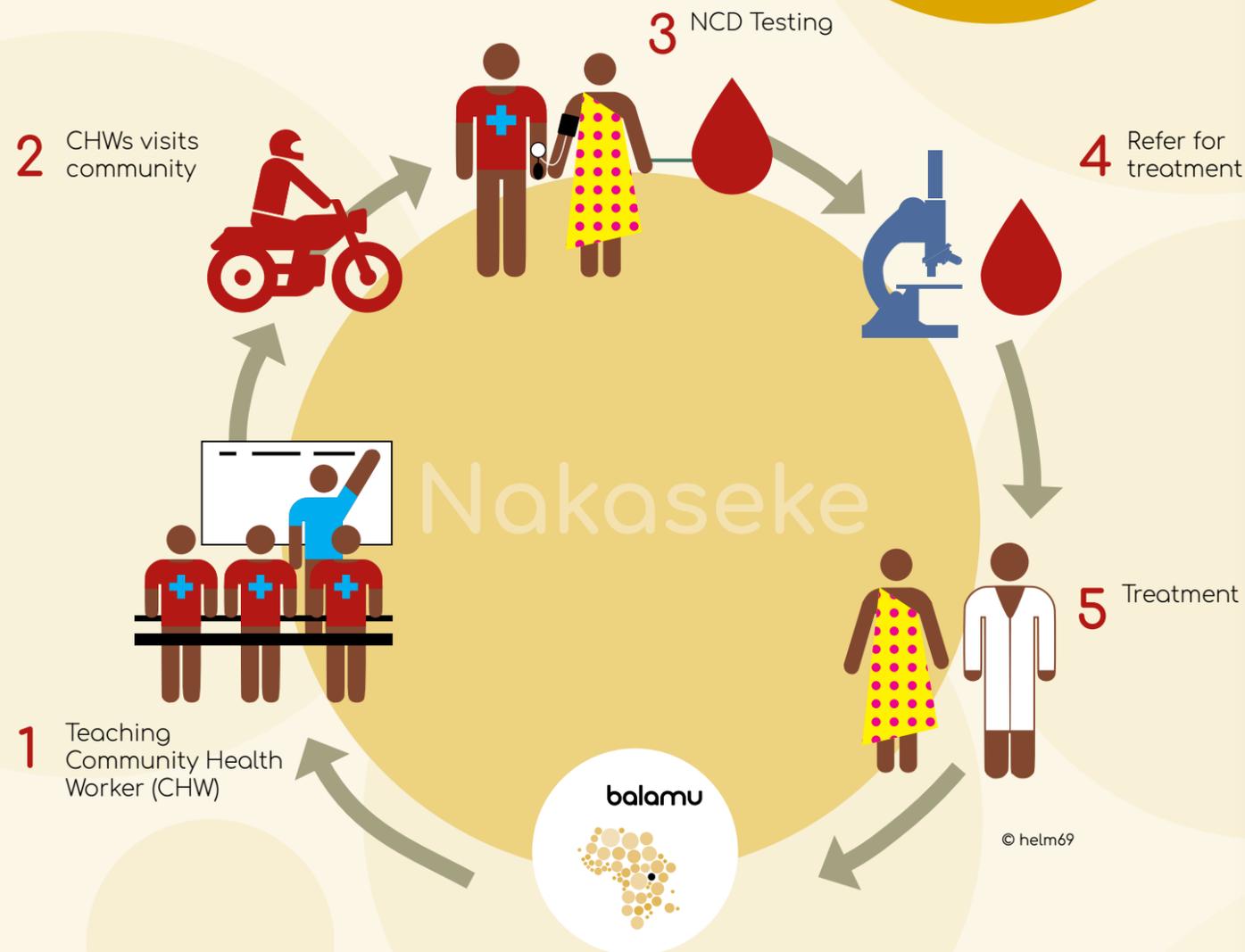
Trust & Long-
term relation-
ships

International
Cooperation

Annual
report
2021

2020 – 2023

Balamu means
“being healthy” in
the local Ugandan
language.



Message from the Balamu Team

It gives us immense pleasure to share the progress during our first year of this three-year funding period and our fourth year of operations since we received a grant from your foundation. Especially in times of Covid-19, non-communicable diseases remain a major cause of morbidity and mortality, which mostly affects low-income countries such as Uganda. Patients with chronic diseases are more at risk of a severe Covid-19 infection and the access to standard care decreases. Therefore, we are very grateful for the support we have received.

This year's report summarizes the achievements of the ACCESS Uganda partnership with colleagues from Charité – Universitätsmedizin Berlin, Yale University, Johns Hopkins University, University of Miami and Makerere University.

We thank the Else Kröner-Fresenius-Stiftung for supporting this vision and contributing to our research, education and clinical care projects that aim at achieving effective management and control of non-communicable diseases in Nakaseke, rural Uganda.

Happy reading!

The Balamu Team

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Executive Summary

The Balamu center for NCD research, education and care was established in 2020 to build upon the successes of the initial 3-year project, the Else Kröner-Fresenius-Stiftung center of excellence for patient centered care. We aim to use the same opportunity to consolidate, expand and improve care for patients with non-communicable diseases in Nakaseke district of rural Uganda.

The major achievements in the past year have been NCD clinic attendance of almost **4,000 visits** by over **1,000 patients** which were seen by well-qualified and experienced clinicians. In addition, we developed two research study protocols. The Makerere University School of Biomedical sciences – Research and Ethics Committee (SBS-REC) and the Uganda National Council of Science and technology (UNCST) approved the first protocol. We are currently implementing this study.

We have also developed a tool to assess the knowledge, attitude and practices of nurse tutors at ACCESS school of nursing towards NCD management and control. We will utilize this assessment to inform the development of the nurses NCD curriculum.

To develop our research infrastructure, we have embarked on developing an electronic medical records (EMR) system that the clinic team will use to capture clinical care data. Furthermore, we will also adapt this system for use by the community health workers (CHWs).

As a way of expanding our networks, we have held various stakeholder engagements with officials from the Ministry of Health, the local government of Nakaseke district and the district health office. In addition, we have also established a community advisory board (CAB) that provides guidance and insights for the community aspects of the project. To improve on our visibility, we developed a project website. Moreover, we successfully published three peer-reviewed articles and are in the preparation and review phase for three additional scientific publications. We presented our project findings and activities at national and international conferences while acquiring additional funding for complementary activities.

Objectives

The Balamu project aims at establishing a center of excellence for NCD research, education and care. We thereby follow three main objectives:

1.
Improve and expand NCD care in a rural district of Uganda

Since inception, all our activities have rotated around these three main objectives.

2.
Strengthen NCD training in rural Uganda

3.
Develop infrastructure and sustainability.



The Balamu team in Nakaseke (from left to right)
Front row: Juliet Nandawula, Jana Reichardt, Richard Munana, Rebecca Ingenhoff, James Ssewanyana, Estherloy Katali
Back row: Hillary Mutabazi, Frederic Broesecke, Robert Kalyesubula, Isaac Sekitoleko, Ivan Weswa

Improving and expanding NCD care in Nakaseke district of Uganda



Patients receiving blood pressure measurements in Nakaseke hospital NCD clinic



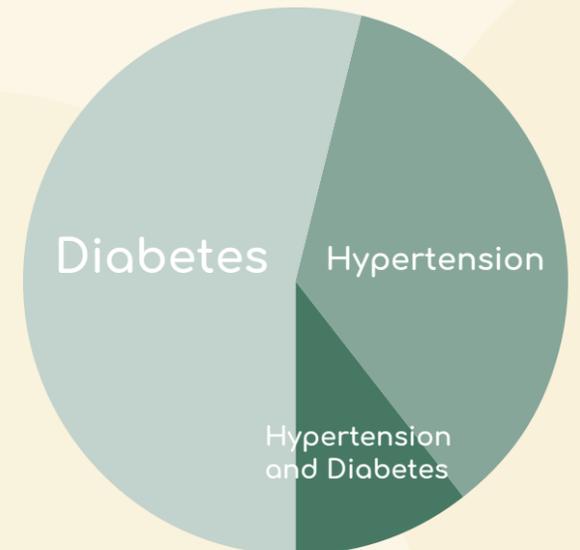
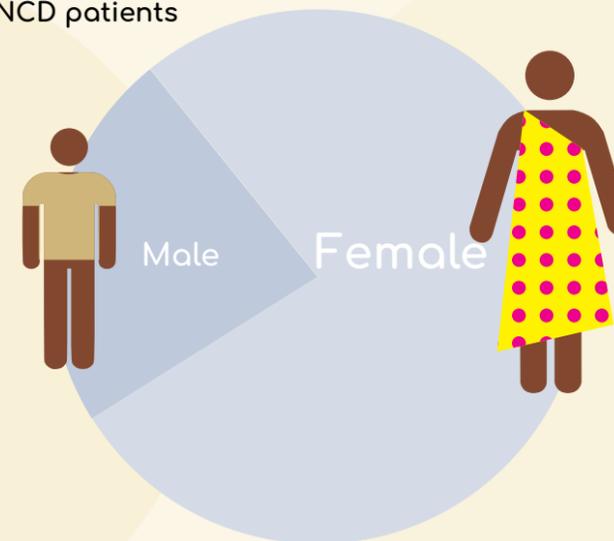
A patient being attended to at Semuto Health Center IV

Clinical strand

Our three NCD clinics, Nakaseke Hospital NCD Clinic, Life Care Clinic and Semuto NCD clinic are all operating on a regular weekly basis. During the pandemic, we adjusted protocols and standard operating procedures to ensure that NCD patients can continue to receive care at our clinics.

1,318

NCD patients



3,954

patient consultations

Patient characteristics:

A total of 1,318 NCD patients have been attended to by the project's qualified and experienced Medical and Clinical Officers. Of these patients, 77 % were female, 68 % were diagnosed diabetes, 45 % were diagnosed with hypertension, while 13 % suffered from both, hypertension and diabetes.

Patient visits:

A total of 3,954 patient consultations have been registered at the three NCD clinics. These include new patient visits, return or scheduled visits and emergencies. During these visits, patients are seen by the clinicians who take their vital signs and medical history, perform laboratory and radiological tests, make diagnoses, prescribe and dispense medication. In addition, patients receive health education and counseling on diet, physical activity, alcohol and drug use cessation as well as medication adherence.

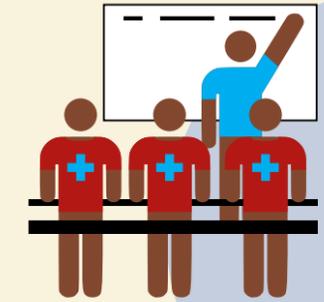
Research strand



The Balamu team during data collection in Nakaseke

Protocol 1:

Titled 'Task shifting blood pressure and blood sugar measurement by community health workers for early detection and treatment of hypertension and diabetes in Uganda', a mixed methods (qualitative and quantitative) study.



25
CHWs



Dr. Richard Munana training the CHWs before embarking on data collection



A focus group discussion with patients

For this study, we train 25 CHWs and recruit 20 who will screen 3500 community participants for NCDs. This protocol received ethical approvals from both the SBS-REC, an affiliate of Makerere University and the UNCST. The study is currently being implemented. The initial, exploration phase of its implementation involved the use of qualitative research data collection methods to gather information and opinions on the use of CHWs to screen for diabetes and hypertension.

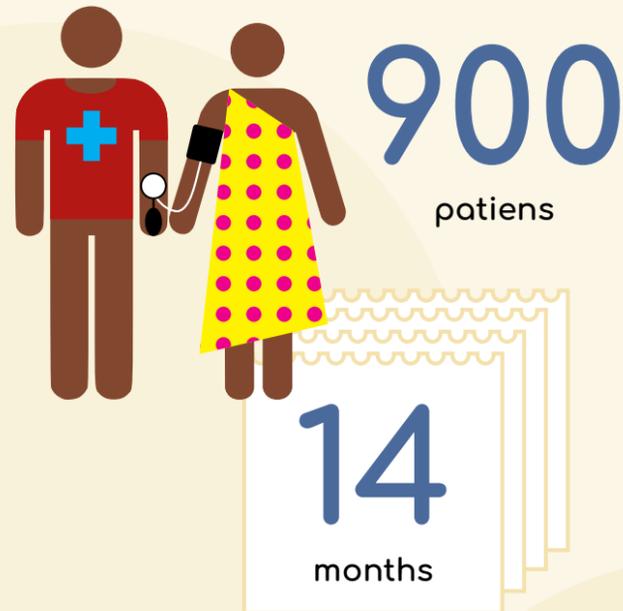
The methods used included in-depth interviews with CHWs and key informants as well as focused group discussions with patients and community members.

Among those interviewed was Dr. Mutungi, the Ass.commissioner NCD and Dr. George Upentho, the commissioner Community Health, both at the Ministry of Health, Nakaseke district health officer and village health team head, CHWs, Nakaseke Hospital and ACCESS staff on the NCD project.

Recently, our CHWs were trained and commenced the data collection in the community. Initially, the ACCESS staff closely monitors all activities. The beginning of this study occurred at the exact time when our Charité team was finally able to travel to Uganda. This personal meeting nourished relationships between all team members while creating a better mutual understanding.

Protocol 2:

Titled, 'Effectiveness of a community health worker intervention for hypertension control in Uganda, a stepped wedge, cluster randomized control trial'.



Health education of patients

CaCx study

In this study we aim to recruit about 900 participants with hypertension and follow them up for about 14 months with the intervention under study. This protocol is currently under ethical review by the SBS-REC, awaiting approval. Furthermore, we are in the process of publishing this protocol in a peer-reviewed scientific journal.

The plan to expand NCD screening to include cervical cancer has not been implemented yet. However, the community assessment and obtainment of local experts' opinion has been completed. Currently, the study proposal to screen and test for Human Papilloma Virus is under development. We further received support of a medical student at Charité, Jana Kimmel, who will focus her doctoral dissertation on this topic.

We completed the development of two study protocols for a community health worker (CHW)-delivered NCD treatment system.



Dr. Robert Kalyesubula with the qualitative research team from Makerere University and the project staff during a site supervision visit

Strengthening NCD Training



Nursing curriculum

We are in the middle of the formative phase – Phase I, and have developed a data collection tool (questionnaire) to assess medical nursing instructors' knowledge, attitude and practice (KAP) towards management and control of non-communicable diseases. This assessment will be used to inform the development of the NCD curriculum for the nursing school.

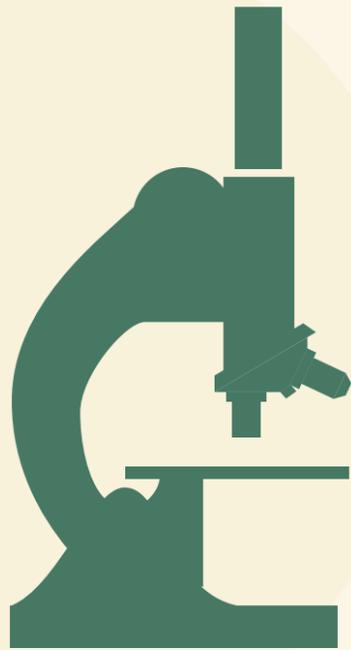
Nursing scholarships

Following the surge in Covid-19 cases, a number of measures were put to place to stop the spread of the virus. Among these was closure of all learning institutions and this made it impossible to award the nursing school scholarships. However, these will be awarded once the schools re-open.

Global Health Exchange

Due to Covid-19 restrictions and ongoing travel limitations, we had to put our global health exchange between Charité, Yale and ACCESS Uganda on hold for the past summer. Meanwhile, we started the interview process for candidates who will spend up to four weeks in Nakaseke, Uganda in summer 2022. We will continue to screen candidates that may undertake a rotation at Yale, ACCESS or Charité Berlin as part of their medical studies. In addition, we are working with colleagues from Yale University to evaluate possible digital learning methods if travel restrictions remain present.

Research Fellows



Dr. Richard Munana
MPH Candidate

Richard is a full time research fellow based at ACCESS Uganda and mentored by experts from Uganda, USA and Germany. He has played a key role in providing care to patients at the NCD clinics and in the development and implementation of study protocols.

Currently, his research focuses on 'Assessing patient characteristics and the diagnostic performance of Saliva Urea Nitrogen strips in Chronic Kidney Disease (CKD) diagnosis when combined with a CKD Case Finding Questionnaire and Machine Learning among patients with Diabetes and Hypertension in Nakaseke District, Uganda



Rebecca Ingenhoff
Cand. rer. medic.

Rebecca acts as the full-time project coordinator for Balamu at Charité. In 2021, she decided to pursue a doctoral degree in medical sciences at Charité. Rebecca is especially interested in global health education.

Rebecca's dissertation is encompassed by publications focusing on global health education in nephrology and the role of community health workers in the prevention and management of non-communicable diseases such as kidney disease. Prof. Felix Knauf supervises her dissertation.



Isaac Ssekitoleko
PhD Candidate

Isaac is a part-time fellow at ACCESS and has supported the design of research studies, including a stepped wedge, cluster randomized control trial. Within this same period, he has received tremendous support from both of local and international Principal Investigators as well the partners. This fellowship has given him the opportunity to enhance his knowledge and skills in various research areas.

Some of the activities in which he has participated include: research design, database development for a cross-sectional study, protocol writing, and statistical analysis. He looks forward to learning a lot more as a research fellow.



Jana Kimmel
Cand. med.

is in her last year of medical school and a doctoral candidate at Charité. She supports the sub-project focusing on cervical cancer screening. Jana is eager to work in gynecology.

For her doctoral thesis, she accompanies the implementation of the cervical screening program, focusing on the acceptance and obstacles of the screened women. Dr. Andreas Kaufmann who leads the sub-project for cervical cancer screening supervises her dissertation.



Julia Goal
Medical Research Assignment

Julia recently joined the Balamu team due to her interest in global health. As part of her third year medical school assignment, Julia will conduct primary and secondary research focusing on the assessment of barriers towards NCD medication availability and accessibility in rural Uganda.

In early 2022, she will spend time at ACCESS Uganda to conduct qualitative research with project members. She aims to provide new insights into how barriers to the access to health services can be reduced.

Developing research capacity, infrastructure and networks



Dr. Robert Kalyesubula and Dr. Gerald Mutungi addressing patients at Nakaseke hospital during his site visit



The ACCESS team presenting the Balamu project progress to Dr. Mutungi

Electronic Medical Record (EMR)

We managed to install and configure a local area network to act as a backbone for the EMR system. This was done at ACCESS Uganda where the system and its databases are hosted. We also acquired a dedicated link/connection, through which the other two sites (Semuto HC IV and Nakaseke hospital) shall have access to the system. The system was designed using the open-source platform called OpenMRS and is installed on a server that runs CENTOS 7 (command line interface). It is designed in modules according to the patient flow and the program reporting needs. It was tested at ACCESS Life Care Center. The project team completed a training to familiarize clinic staff with the system operations.

Community Advisory Board (CAB)

A CAB was established to ensure support and integration of the local community leaders and members. It comprises of the Nakaseke district Deputy Chief Administrative Officer, Nakaseke Hospital Medical Superintendent and Administrator, Nakaseke Town Council Mayor, two village health team members, community religious leader, and ACCESS district and community engagement director. Members pursue the target of advising the project team on the community research activities that are feasible, culturally sensitive and acceptable in the community. The board meets quarterly, and has so far met twice.

Stakeholder engagements at the national level

We had two consultative meetings with the Ministry of Health's EMR department to support NCD EMR system development. We also hosted Dr. Gerald Mutungi, the Ass. Commissioner, Non-Communicable diseases at the Ministry of Health at ACCESS. Dr. Mutungi visited the Life Care Clinic and Nakaseke NCD clinics. The purpose of the visit was to strengthen institutional collaboration between ACCESS and the Ministry of Health. Moreover, it ensured the alignment of our project activities with the national NCD strategic plan. Two district engagements have also been done to sensitize the district health leadership about the research project activities.

Scientific publications

We published three scientific papers in peer-reviewed journals. Currently two papers are under peer-review in the second phase in leading scientific journals. One of them is first-authored by former EKFS scholar Dr. Alex Kayongo. In addition, we aim to publish our randomized control trial protocol in *Trials*.

Published:

- 1) R. Ingenhoff, D. Ganten und F. Knauf (2021). **Nephrology and Global Health?** An interim report on the development of patient care in rural Uganda. *Journal. Nieren- und Hochdruckkrankheiten* 5., pp.194-199. [doi:10.5414/NHX02177](https://doi.org/10.5414/NHX02177).
In this piece we discuss the progress of our project and the importance of considering nephrology as a sub-specialty in global health.
- 2) Batte et al. (2021) **Acceptability of patient-centered hypertension education** delivered by community health workers among people living with HIV/AIDS in rural Uganda. *BMC Public Health* 21, 1343. [doi:10.1186/s12889-021-11411](https://doi.org/10.1186/s12889-021-11411).
As the awareness of the complications and management of hypertension among PLWHA in Uganda remains low, the authors investigate the acceptability of implementing hypertension specific health education by community health workers among PLWHA in rural Uganda.
- 3) Ingenhoff, R. et al. (2021) **Global Health Education in Nephrology: The Time has Come.** *JASN*. [doi:10.1681/ASN.2021060731](https://doi.org/10.1681/ASN.2021060731)

In this commentary, we call for bilateral, mutually beneficial global health education programs in nephrology between high-income and low-middle-income countries.

Under Review:

- 1) Siddharthan, T. et al. The Rural Uganda Non-Communicable Disease (RUNCD) Study: Prevalence and Risk Factors of Self-Reported NCDs. *BMC Public Health* (under review, minor edits).
We anticipate to publish our findings on disease prevalence and risk factors from our self-reported research during our first funding round (2016-2019) soon.
- 2) Kayongo, A. et al. Sputum microbiome of HIV-associated COPD in a rural cohort of Ugandan patients. *CHEST* (under review, minor edits).
In this piece, the authors explore the association between sputum microbiome and chronic obstructive pulmonary disease among PLWH in rural Uganda.

Submitted:

Ingenhoff, R., Nandawula, J. et al. Effectiveness of a Community Health Worker Delivered Care Intervention for Hypertension Control in Uganda: a Stepped Wedge, Cluster Randomized Control Trial. *Trials* (submitted).

We aim to publish the study protocol designed for our cluster-randomized trial.

Dissemination of our findings

Event participation

12th German Congress of Nephrology

Prof. Felix Knauf presented the projects' progress at the 12th German Congress of Nephrology on 4th October 2020 in Berlin. While discussing the inter-relationships between global health and nephrology, he introduced the Balamu project to congress attendees. Felix Knauf outlined our previous activities, scientific findings as well as the intention of building a long-term patient cohort in rural Uganda. As a result he was contacted by an editor of the journal *Nieren- und Hochdruckkrankheiten* (eng: *Kidney Diseases and Hypertension*) to submit a review. The journal published the article in May 2021.

World Health Summit Regional Meeting

The World Health Summit is one of the largest global health conferences. This year, Makerere University in Kampala, Uganda hosted the regional meeting, providing us the opportunity to organize a session. Our workshop "Rural Health Centers of Excellence" explored new ideas and models contributing to universal health coverage in rural areas, especially in low- and middle-income settings. We put a focus on establishing rural health centers of excellence through cooperation between community-based organizations and universities. A diverse panel of speakers from government, science, the private sector and community health participated in our event. We distributed the **recording** through the networks.

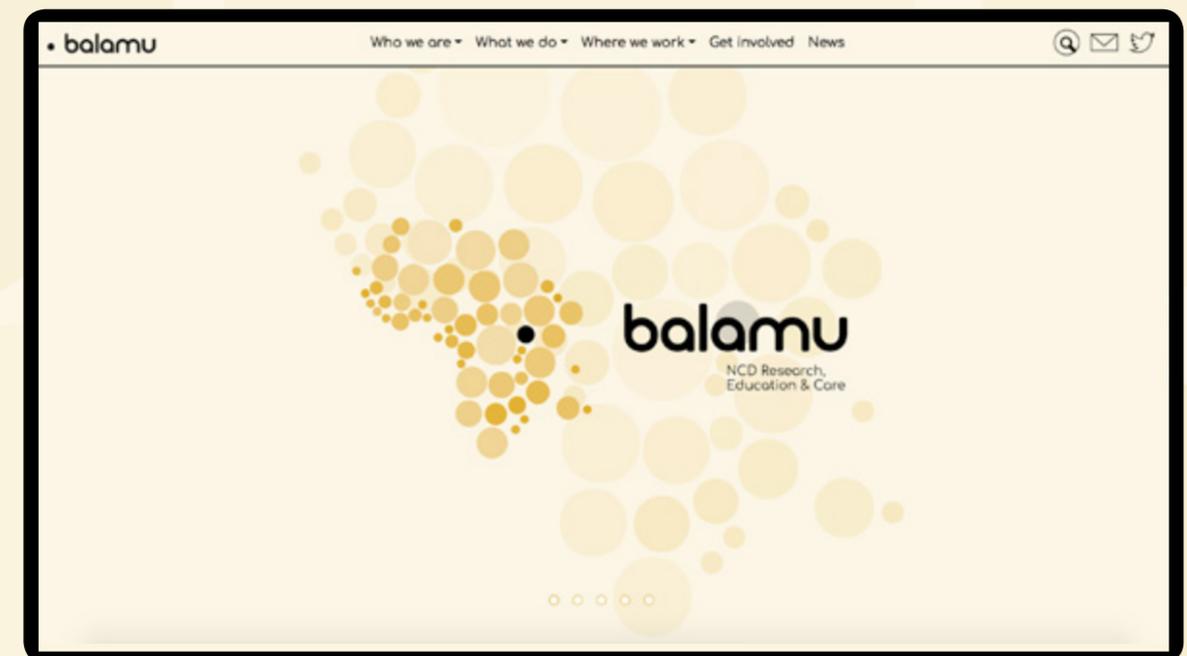
African-German Scientific Exchange in the Field of Public Health

We submitted a poster for the first (March 2021) and the second round (July 2021) of the African-German Scientific Exchange in the Field of Public Health. The Fundo Nacional de Investigaçã (FNI) of the Republic of Mozambique in close collaboration with the German Research Foundation (DFG) of the Federal Republic of Germany, and the National Science and Technology Council (NSTC) of the Republic of Zambia organize this event. It aims to identify joint research interests in the area of public health and connect with new collaboration partners.



Corporate design, website, twitter

We created a corporate design, usable in both print and digital to strengthen the visibility of our project. In April 2021, we officially launched our **new website**. Next to a general overview it presents our areas of priority, the team members and continuous updates on our clinical and research work. We keep visitors up-to-date through bi-monthly postings via our news channel. In addition, we started an active twitter account **@Balamu_NCD** where we reached over 1.500 impressions.





Generate outside funding sources

2020

We were awarded a two-year joint Grant in collaboration with **Heidelberg Institute for Global Health** located at the University of Heidelberg and the **mTOMADY gGmbH**.

The **German Alliance for Global Health Research (GLOHRA)** funds this cross-sectional project entitled IMPEDE CVD through the **German Ministry of Education and Research (BMBF)**.

The project will focus on combining expertise to tackle the growing burden of non-communicable diseases by integrating innovative mHealth technologies in a rural Ugandan setting. It runs from 1 May 2021 – 30 April 2023.

2021

The team received a six-month grant for the preparatory Phase of African-German Research Networks for Health Innovations in Sub-Saharan Africa. For the “GRIP-NCDs” project, experts from renowned institutions in Germany, Nigeria, South Africa, Mozambique and Uganda are joining forces to elucidate the interaction of infectious diseases (IDs) and non-communicable diseases (NCDs).

This project will focus on implementation science to enhance access to modern screening methods in Sub Saharan Africa. **The German Ministry of Education and Research (BMBF)** funds this project. The duration will be 1 October 2021 - 31 March 2022.

2021

In August, we submitted an application for a medication study in rural Uganda in collaboration with **Makerere University** and **ACCESS Uganda** for the funding line “Hospital partnerships - Academic”.

This grant is operated by the **German Corporation for International Cooperation GmbH (GIZ)**, funding is provided by the **Else Kröner-Fresenius-Stiftung** and **German Ministry for Development Cooperation (BMZ)**.

Our team



**Prof. Dr. med.
Felix Knauf**

is a Professor in Internal Medicine and Nephrology at Charité Berlin and Adjunct Assistant Professor of Medicine at Yale. He acts as the Principal Investigator of the Balamu project



**Dr. Robert
Kalyesubula**

is the Ugandan Principal Investigator of Balamu. He is a native of Nakaseke district, the president of ACCESS Uganda and the Chair of Physiology at Makerere University.



**Dr. Trishul
Siddharthan**

is an Assistant Professor in the Division of Pulmonary and Critical Care at University of Miami. He has an extensive experience in NCD research in LMICs. He guides all research activities for Balamu.



**Rebecca
Ingenhoff**

is the Balamu Project Coordinator based at Charité Berlin. She leads the Balamu operations while pursuing her PhD.



**Juliet
Nandawula**

is the Site Project Manager at ACCESS Uganda. She coordinates all team and project components on the field site.



**James
SSewanyana**

is the co-founder and deputy executive Director of ACCESS Uganda. James serves as the primary clinician at Life Care Center.



**Dr. Richard
Munana**

is a Medical Officer and a postgraduate clinical fellow at Balamu where he plans and implements clinical and research interventions.



Ivan Weswa

is the Project Administrator. He is responsible for all administrative duties such as project planning, management, team coordination and partner communication.



Jana Reichardt

is a medical resident for Internal Medicine and Nephrology who manages the development of clinical research and project capacities.



**Dr. Andreas
Kaufmann**

is the Head of Research at the Department of Gynaecology at Charité Berlin. He manages a sub-project focusing on cervical cancer screening.



Hillary Mutabazi

is a Data Manager. He manages the implementation of the Electronic Medical Record (EMR) while supporting research data analysis.



Isaac Sekitoleko

is a PhD student at the London School of Hygiene and Tropical medicine who supports research design and data analysis as a Biostatistician.



Kyanzi Tadeo

is the driver of the program. He ensures that our staff is transported for outreach programs. He also supports transport for visiting scientists.



Jana Kimmel

is in her last year of medical school at Charité Berlin. She supports the sub-project focusing on cervical cancer screening.

Our Community Health Workers (CHWs)



Sharon Kamwaka



Ronald Kisekka



Fred Lutaaya



Vicent Mawanda



Kizito Mayombwe



Winnie Mazzi



Mable Najjemba



Kevin Namutebi



Christine Namyalo



Ruth Nankabirwa



Babirye Jane Nantongo



Aminah Nanyunja



Denis Oloka



Babirye Jane Nantongo



Isaac Ssemanda

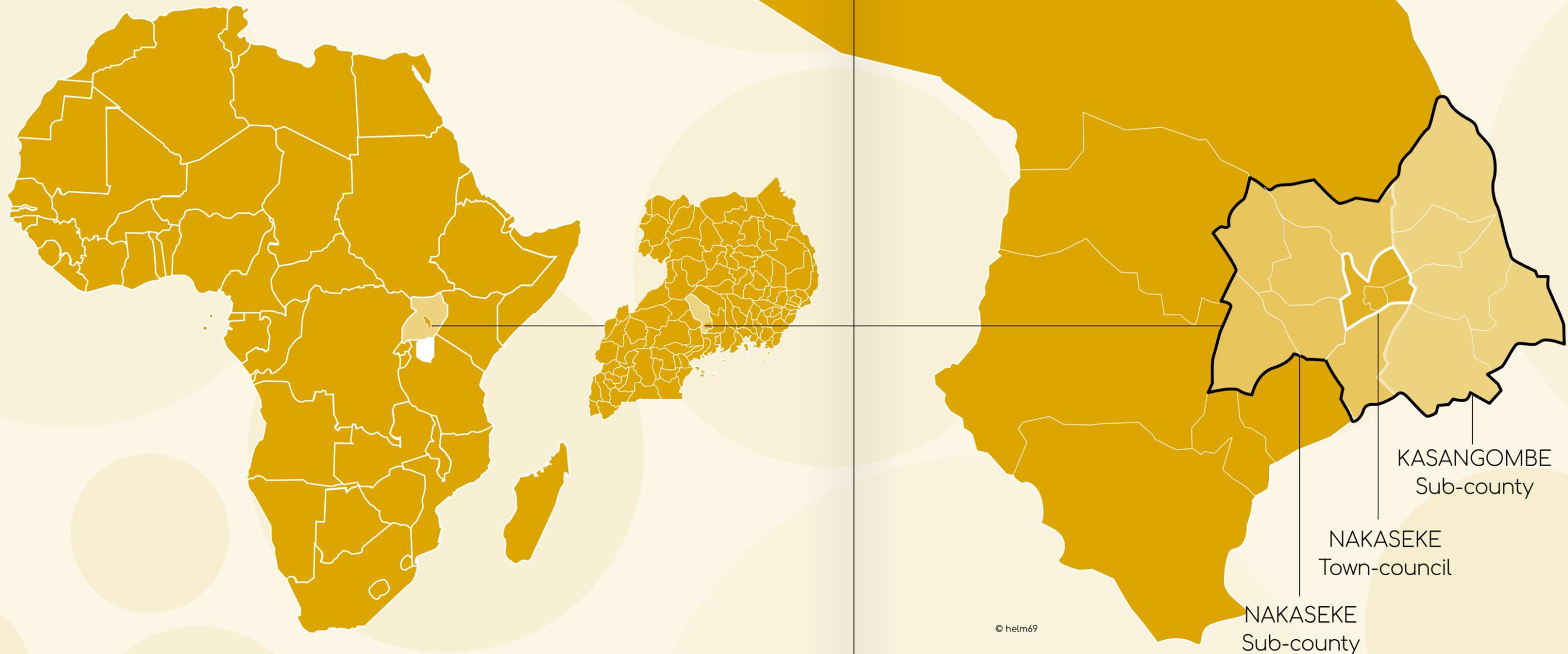


Moses Walakira



Jimmy Ssempijja

Where we work



Africa

Uganda

Nakaseke District



balamu

NCD Research,
Education & Care

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