THRiVE Pump-priming Award: a Stepping Stone

Noah Kiwanuka, Makerere University College of Health Sciences, School of Public Health

In September 2011, I received a THRiVE pump-priming award of £10,007.89 to conduct a study entitled “Assessing the suitability of fishing communities around Lake Victoria, Uganda, as a potential HIV-1 vaccine efficacy trial population – a preparatory study.”

The funds were used to establish a cross-sectional study in 8 fishing communities (2 landing sites and 6 islands) in Wakiso and Mukono districts to determine the HIV-1 prevalence and volunteers’ willingness to participate in future HIV vaccine efficacy trials (WTP). Out of the targeted study population of 2,200 adults aged 18-49 years, 91.4% interviewed of which 50% were females, median age (IQR) was 29 (24-35) years, 82% had stayed in the communities for at least a year: 47.7% working in fishing/fishing-related activities, and 32.4% had attained post primary education. The overall HIV prevalence was 26.7% while WTP was 89%. Among the small proportion that expressed lack of WTP, the major concerns were vaccine side effects (42%) and the fear that study vaccine may cause HIV/AIDS (26.3%).

Out of this work we were able to get 3 abstracts accepted as posters in the September 2012 AIDS Vaccine Conference in Boston, USA, and a manuscript published in the Journal of IAS. Following the realisation that HIV incidence data were needed for proper assessment of suitability of fishing communities for future HIV vaccine efficacy studies, I wrote a follow up proposal to conduct an incidence follow up visit which was funded by CAPTN with logistical in-kind support from IAVI through the UVRI-IAVI HIV Vaccine Program. I also wrote an NIH R01 grant application which did not get funded. The follow up study yielded data on HIV incidence and associated risk factors in fishing communities - an HIV of 3.4/100 pyo was found. Two manuscripts were published out of the follow up incidence visit data and...
**Director’s Word**

**Dear Reader,**

Recently, I was reminded of John Shepherd-Baron who discovered the automated teller machine (ATM) which has become a necessity in our lives. He was motivated by necessity and seized the opportunity. One day when he went to draw some money he arrived just after the bank had closed for the weekend. As many people would have done he pleaded with the bank manager though unsuccessfully. This stimulated John Shepherd to think deeply: How could he have the freedom to access his bank account at any time and from anywhere when he needed cash? After years of work, perseverance and innovations the ATM came into existence. In a very recent development, this September, Eli Lilly and Boehringer Ingelheim released the results of a study into Jardiance, an SGLT–inhibitor which showed a 14% lower risk of type 2 diabetics dying from cardiovascular-related events, the main cause of death in these patients. These and numerous other examples in science should serve to inspire African scientists to tackle life’s challenges with determination and resilience. We need local champions to find appropriate solutions.

THRiVE has touched and inspired the lives of many young brilliant minds and is positioned to continue doing so for decades to come. These junior and mid-level researchers need to be mentored in order to become outstanding research leaders with international status and continue doing so for decades to come. These and numerous other examples in science should serve to inspire African scientists to tackle life’s challenges with determination and resilience. We need local champions to find appropriate solutions.

THRiVE has greatly intensified my capacity to competently and meritoriously accomplish the goals of the Office. I am currently the Grants, Partnerships and Projects Manager in the Director General’s Office, at the International Centre of Insect Physiology and Ecology’s (icipe) with a portfolio of over 85 on-going research projects, and an annual budget close to US$ 35 million, providing “cradle-to-grave management” of the Centre’s research grants, requires a significant amount of proficiency.

My academic training as a project development specialist (with a BSc. in Agronomy and an MSc. in Soil Science both from Egerton University, Kenya) provides me with a good set of skills to oversee the icipe Grants Management Office.

**THRiVE Pump-priming Award:**

A third one is under review (see info below).

**Abstracts**


**Papers**


Why is implementation science needed?
The gap between research and practice in many areas of health care and public health is large. For example, there are effective interventions to prevent, diagnose and treat HIV, but large numbers of men and women do not receive them. A key reason for this evidence-practice gap is that traditional approaches to implementation make little attempt to identify or address factors critical for successful implementation of a new evidence-based intervention. There is either no explicit implementation strategy or the strategy is based on a best guess rather than on a systematic assessment of crucial barriers and enablers. A new approach is needed to close the evidence-practice gap and thereby achieve the triple aim of improved health, improved patient experience, and reduced health care costs.

What are the key elements of implementation science?
Although it is a relatively new field, implementation science offers a systematic and comprehensive approach to improving health care practice. In contrast to many quality improvement initiatives or operations research, it explicitly focuses on mechanisms of change in order to understand and improve the process of implementation. An implementation science approach encompasses the following steps: 1) Identifying the behavioral and environmental factors contributing to the evidence-practice gap; 2) Identifying key determinants of the behavioral and environmental factors using a theoretical framework; 3) Designing an implementation strategy that targets the key determinants (using the chosen theory or framework); and 4) Evaluating whether implementation improves and why or why not. Implementation science also emphasizes engagement of communities when prioritizing which evidence-practice gaps to address and throughout the process of developing and evaluating an implementation strategy to close the gaps.

What are the barriers to developing implementation science capacity in sub-Saharan Africa?
First, there is a disconnect between academic researchers and policymakers. Researchers are often not directly involved in the health policy making process, and do not consistently address aspects of interest to policymakers, including costs, who will benefit, and what will happen if the intervention is not implemented. Second, there is disconnect between health scientists and scientists in other disciplines such as social science, economics, management science and engineering which are critical to understanding barriers and developing targeted implementation strategies. Last, the absence of dedicated programs to build capacity in implementation science contributes to the lack of awareness about a systematic approach to closing the evidence to practice gap.

How can the gaps in implementation science capacity be addressed?
Research institutes and universities need to acknowledge the pivotal role that implementation science can play in realizing health benefits. Research leaders need to move out of their silos and proactively create links with policy makers. There is also an urgent need to build bridges between health scientists and scientists in other disciplines. A multidisciplinary, team science approach will enable researchers to identify implementation strategies that are most likely to succeed in a given context, and to adapt these strategies during scale-up.

LMIC institutions and researchers also need to develop strong collaborations with their communities. This will enable them to have shared health priorities and develop programs that address the concerns of and are acceptable to the target communities. Community engagement is critical to ease the process of dissemination and adoption of key research findings.

LMIC institutions can take advantage of large training programs such as the Medical Education Partnership Initiative (MEPI) to provide implementation science training to interested scientists and build multidisciplinary research teams. LMIC institutions should also take advantage of capacity building grants for resource limited settings by the National Institutes of Health (NIH), the US Presidents Emergency Plan for AIDS Relief and others to facilitate training and establish Implementation science research teams. For example, Ugandan researchers should embrace available opportunities such as recent NIH Fogarty International Center-funded training programs, including Implementation Science Capacity at Makerere University to Strengthen the Response to the HIV/AIDS Epidemic in Uganda and the Pulmonary Complications of AIDS Research Training (PART) Program.
Impact of Grant Management Training within THRiVE Institutions

Upon my return to icipe, I immediately embarked on developing the Centre’s Grants Management Policy, which was adopted by the Centre in November 2012, following its approval by the Management.

As a follow-up to the 2010 course, in December 2012, I attended the Research Administration and Management Training at Makerere University College of Health Sciences, Kampala, Uganda. I have since benefited from many training opportunities organised by THRiVE, including the latest one held in June 2015 on SMART Finance and Grants Training.

I believe that, as a result, the efficiency and effectiveness of operations of the icipe Grants and Projects office, from management of proposal pipeline in collaboration with icipe scientists, grant negotiation, award, compliance monitoring, administration and closeout, has benefited in an exceptional manner. Currently, icipe is a direct grantee of the Wellcome Trust, and the United States National Institutes of Health (NIH). The administration of these projects has benefited from the training that I have received through THRiVE. We have also streamlined the reporting of finance and project management, which has in turn influenced the administration of other projects, particularly multi-institutional ones such as the multi-centre CERNVec project (Community of Excellence for Research in Neglected Vector Borne Zoonotic Diseases, funded by CNHR), among many others.

The THRiVE courses have been a huge and unique learning experience for me in my work on research support and management, in maintaining print and electronic project information and ensuring compliance with donor funding and partner research requirements. Further, in 2011, icipe adopted Results Based Management (RBM) as its planning and reporting tool. The RBM, a performance management system that provides a clearer framework for setting priorities and allocating resources, and in turn establishes a system to assess results, helps the Centre and its donors to better understand, plan and report the impact of its work. My extensive projects and programming experience, has made it easier for me in the operationalization and monitoring of the icipe’s RBM. In collaboration with the team of scientists implementing the various scientific research programmes and icipe management, I am tasked with compiling and reporting progress and impact to icipe’s donors based on the RBM. The insights gained from THRiVE supported trainings have enabled me implement smoothly the Centre’s integrative research structure, as well as guide and focus icipe’s agricultural research for development and its associated impact pathways.

I would like to acknowledge the significant role played by my supervisors – former Director General (DG) Prof. Christian Borgemeister now a Director at Centre for Development Research (ZEF), University of Bonn and current DG Dr Segenet Kelemu – who have both enthusiastically supported and approved my participation in the various learning and training opportunities that have been offered by and through THRiVE. Additionally, the THRiVE focal persons at icipe, Dr Daniel Masiga and Prof. Baldwyn Torto have gone out of their way and facilitated my presence in the THRiVE events including the Consortium’s Annual General Meetings. As a result, I have established solid networks with my grants, projects and finance counterparts in the respective THRiVE institutions. The extraordinary impact of the THRiVE Training and backing from my supervisors and the focal persons has enabled me become part of a professional forum for health research administrators in Africa for discussions, trainings, analysis, and benchmarking best practices as well as providing support to solutions to global health research and development challenges. The avenues provided, have been key platforms, that have enable me to share experiences and accumulate knowledge in dealing with any challenges that inevitably occur in the course of undertaking various tasks. These forums are viable initiatives that have played a noteworthy role in my research administration and management thus fostering a sustainable grants and projects research environment in icipe.
We are extremely pleased that two of the Cambridge-linked THRiVE PhD fellows have successfully defended their theses. One more fellow is waiting for a viva date and we look forward to the others submitting soon. It has been great to host these fellows in Cambridge over the past five years, and to see the collaborations with their Cambridge mentors bear fruits. For example, there have been two more joint publications between Cambridge mentors and THRiVE fellows this past quarter.

Another such fruitful collaboration has been forged between our last THRiVE fellow, post-doctoral researcher, Dr Roman Ntale, from the University of Rwanda and his Cambridge mentors, Dr Jane Greatorex (Public Health England & Lucy Cavendish College in Cambridge) and Dr Simon Frost (School of Veterinary Medicine). Roman spent three months in Cambridge and his project has successfully resulted in an ongoing research relationship with his Cambridge mentors. On concluding the fellowship visit, Roman explained that “This is of particular importance, since I hoped this fellowship would provide me with an opportunity to network and collaborate with experienced researchers, to strengthen my research capacity”.

Dr Greatorex will be visiting Roman in Rwanda in December 2015, to work with him and to meet researchers within his local team and Department. Roman and Dr Greatorex intend to use the opportunity to prepare joint proposals to obtain funding for collaborative research and equipment for use in Rwanda. The proposals would focus on extending the HIV sequencing techniques and analyses that were developed during Roman’s fellowship, for wider diagnostic use in Rwanda and elsewhere.

THRiVE-Cambridge’ Activities Continue to Snowball...

The Cambridge laboratory to generate two things from blood samples drawn from HIV positive patients in Rwanda. Firstly drug resistance reports for clinical use and secondly epidemiological data for determining transmission of the virus. We hope now to collaborate on taking this technology to Rwanda and under) will be holding its second annual University-wide, Cambridge-Africa Day on 23rd October 2015. The day-long event will bring together African and Cambridge researchers from across disciplines to celebrate the wide range of on-going, mutually-beneficial research collaborations between Cambridge and Africa. Many thanks to Dr Daniel Masiga from icipe who will be travelling from Kenya to deliver a presentation about THRiVE, its role at icipe, and the links between icipe and Cambridge. We are also delighted to have been recently informed that THRiVE Director, Professor Nelson Sewankambo, will be able to attend the Day, ensuring that THRiVE will be very well represented at the event.

It is also worth reminding the THRiVE family that THRiVE-Cambridge helped to establish the Wellcome Trust-Cambridge Centre for Global Health Research WT-CCGHR (of which Prof Sewankambo is a co-applicant), and continues to support the development of key research themes in this Centre - all of which align with the proposed THRiVE II thematic areas. In September 2015, under the Maternal, Neonatal and Reproductive Health theme, Cambridge hosted a visit by five senior researchers and clinicians associated with Mulago Hospital and Makerere University. The visitors took part in clinical visits and shadowing, as well as high-level, strategic meetings to shape the development of the research and clinical partnership in maternal and reproductive health, between Cambridge and Mulago. We look
forward to having and reporting on more fruitful collaborations in the future.

Last, but not the least, we have exciting news regarding renewed funding from the ALBORADA Trust. The Trust has recently confirmed enhanced and long-term funding of £4 million to the Cambridge-Africa Programme over 10 years (2016-26), to support collaborations between Cambridge and African researchers (see press release at www.cam.ac.uk/news/cambridge-engagement-with-africa-will-expand-following-major-gift!). THRiVE benefited from the initial award of $1 million by the ALBORADA Trust (2012-15), as some THRiVE fellows and institutions were recipients of seed grants. The renewed level of funding and 10 year commitment by the ALBORADA Trust is testament to the success of the joint research projects and confidence in the sustainability of Cambridge’s ongoing partnerships with African researchers. THRiVE has been a major contributor to this achievement, and we should all be proud of ourselves!

Now in its fifth year, the East African DTM&H continues to attract doctors from around the World to study tropical medicine at KCMC and Makerere University. This year’s course has 72 participants from 14 countries including Australia, Austria, Botswana, Canada, Finland, Germany, Kenya, Malawi, New Zealand, Switzerland, Tanzania, Uganda, UK and the USA.

Applicants are chosen for their academic ability, commitment to working in Africa and potential to develop a career in clinical research. The diploma is awarded by LSHTM with 24 scholarships worth £7000 available for graduates of African medical schools.

One example is Jean-Luc Nkurikiyimfura who completed the DTM&H in 2011. As a result of the course he decided to change direction after MMed and was appointed consultant to the HIV service in Kigali University Teaching Hospital. Jean-Luc joined Majdi Osman (EA-DMH, 2012) and a group of researchers from Harvard University on a project to investigate the factors leading to adolescent HIV treatment failure. Their work was presented at international conferences and they recently set up y-bank: a charity to fund life skills training for Rwandan adolescents with HIV. Jean-Luc is now working with the International Federation of the Red Cross in Bangui, managing the Global Fund’s contribution to HIV care in war-torn Central African Republic.
One of the most popular weeks of the DTM&H is the rural health placement. Here the class divides into seven groups and travels to various sites across northern Tanzania to investigate barriers in access to healthcare. Each group gives a presentation to the class and produces a 2000-word report which counts towards the final DTM&H mark. One such group was hosted by Dr. Rob Peck (London DTM&H, 2007) at Bugando Hospital in Mwanza. Here students learned the basics of diagnostic ultrasonography and studied its impact on clinical management when used as a routine point of care test.

Students have just completed the first half of the course. Morale is high and, having seen the difficulty managing patients with severe anaemia, on the last day in Moshi, 19 students decided to donate blood to the Regional Blood Bank!
Networking to Strengthening Research Support Centers in Academic Institutions in Sub-Saharan Africa

By Achilles Katamba, MakCHS

In an effort to strengthen Research Support Centers (RSC) in Academic Institutions in Wellcome Trust Funded Consortia; South Africa Consortium for Research Excellence (Malawi, Zambia and Zimbabwe) and Training Health Researchers into Vocational Excellence (Rwanda and Uganda); and Netherlands Government funded Africa Research Initiative and Support – Network consortium (Malawi, Rwanda, Uganda and Zimbabwe), a 3-days joint RSC strategic planning workshop was held at City Lodge Hotel in Johannesburg OR Tambo Airport, South Africa, from 24 – 26 August 2015. Members of the University of Botswana also attended the meeting. The aim of the meeting was to share experience and understanding of RSC models and develop a generic RSC strategic plan to guide harmonization of institutional strategic plans and shape the future for RSC in Sub-Saharan Africa (SSA).

The workshop involved both plenary and small group sessions and covered: context analysis (political & legal, technological, socio-cultural, stakeholders, risk assessment); Strength, Weaknesses, opportunities and Threat (SWOT) analysis; Role and Strategic Thrusts; RSC objectives, strategic services activities (pre- and post award); Capacity building needs; and Business Continuity/Sustainability Plans. The meeting ended on a very pleasant note with participants remarking that it provided guidance and direction and among all it created a platform for subsequent networking beyond RSC.

As a result of networking at the workshop, a faculty from the department of Public Health University of Zambia invited a faculty from Makerere University College of Health Sciences (MakCHS) to put together a joint application to respond to a call titled “Eastern and Southern Africa Higher Education Centers of Excellence”. Although we were not successful in collaborating and putting together the joint application due to the short timeline, the idea itself demonstrates the opportunities for South-to South collaboration created by consortia funded by developed country institutions.

THRiVE in the World of Epidemiology

By Gerald Obai

THRiVE continues to spread its wings and share its fruits across the globe. The 8th Training Programmes in Epidemiology and Public Health Interventions Network (TEPHINET) Global Scientific Conference held in Mexico City from 7 -11 September 2015 at the Fiesta American “Reforma” Hotel provided the platform. Mexico City, the capital of modern Mexico and the proud seat of an ancient civilization, was the perfect choice for the year’s conference whose theme was The Role of Technologies in Public Health.

The conference included scientific sessions and workshops. The workshop on “Approaching Publication”, on the first day was one I simply could not miss. It provided a lot of useful tips on publication; ranging from choosing a journal, through manuscript writing, submission, up to responding to reviewers’ comments. At the conference, I made an oral presentation on retention of HIV infected women and their HIV exposed infants in HIV care geared towards elimination of mother-to-child transmission of HIV (eMTCT) in northern Uganda. This was a THRiVE supported project.

An HIV free generation remains a distinct possibility and the dream of everybody concerned with the fight against HIV/AIDS. To achieve this, mother-to child transmission of HIV has to be eliminated. It is therefore important that all HIV infected mothers and their HIV exposed infants who are enrolled in eMTCT programmes
THRiVE in the World of Epidemiology

are retained in care until the baby’s final HIV status is determined at 18 months of age. Keeping the mother-baby pair in care allows for proper care to reduce the chances of maternal HIV transmission during the breastfeeding period. The conference was therefore a wonderful opportunity not only to share with the world our contribution towards global elimination of paediatric HIV infections, but also to learn from other professionals in the field of epidemiology; their experiences, knowledge, and approach towards public health interventions.

The over 500 participants from over 42 different countries were also treated to some wonderful cultural and social activities. We had the opportunity to enjoy an evening of cultural exchange; wearing costumes, and dancing to traditional music during the international music night. This came after an equally fun-filled Mexican cultural night and tour around the city.

My attendance of the conference was made possible by Makerere University School of Public Health and TEPHINET who provided all the necessary support and funding for the trip.

Africa’s Next Generation of Researchers

By Florida Muro, KCMUCo

During the Eastern Africa Research and Innovation Management Association (EARIMA) conference in Kampala, I was able to work with a great team primarily to talk about Building the Next Generation of Researchers. The sessions covered University perspective, Research institute perspective, Masters training and PhD training perspective and in addition, the importance of mentorship.

My inspiration for research comes from the opportunity I received way back when I was a medical student (KCMUCo) and currently as a PhD fellow, which has made me confident enough to share in my abilities as a THRiVE PhD fellow.

I am extremely thankful to Prof Allison Elliott for inviting me to contribute to such an important session and also to participate in this successful meeting and workshop. The trip was funded by MUII in the spirit of the on-going collaboration between MUII and THRiVE. This has given me an additional facet to my research management and innovative skills through sharing and a more hands-on learning experience.

Importantly, there was a great emphasis that we should focus on helping aspiring young scientists – students at the undergraduate and master’s level – who are considering a career in research, giving them hands-on experience in research. There has to be that willingness to help early career researchers, and transfer that passion for researching, innovating, writing and sharing.

Awards for translational research initiatives should be key, as they do make a difference and contribute to ‘capacity building’ not only at individual level but also for institutions. This ensures that local researchers can take a leading role conducting meticulous research.

I personally do believe that, without the THRiVE grant and the support I have received from my institution, I would never have been able to achieve this level of experience.
this early in my career and for that I am so happy and grateful.

The importance of Sub-Saharan Africa universities research uptake management was high-lightened. Institutions within the African region should build a research culture and work with other stakeholders to make research evidence accessible. Universities should work together, particularly with their governments, to address and develop creative funding models that generally promote post-graduate training and research. In addition, our institutions need a well-organized mentoring programme to enhance research and innovation capabilities.

Indeed there was so much more to be learnt in this conference for both professional development and capacity building, including research findings uptake in policy formulation and building effective collaborations and networks for the next generation of researchers, policy makers and stakeholders.

Personally, the session on research fundings, grant writing and management excited me the most as I continue to develop as an independent researcher. The experience gained during this conference was a pivotal point of interest in my research career as I look forward to a successful completion of my PhD fellowship and possible postdoc grant application in the near future.

I was privileged to be a beneficiary of funding to study a graduate certificate in Research Administration at the University of Central Florida (UCF), Orlando, USA, thanks to the Belgian Technical Cooperation and THRiVE. I enrolled and started classes in June 2014, in what is one of the leading institutions in the field of research administration in the USA.

One of my motivations to enrol was my personal experience in the field and the knowledge that research management capacities in the public sector needed to be developed in Rwanda. As a fairly new research administrator at the University of Rwanda, College of Medicine and Health Sciences (UR-CMHS), I quickly learnt that formal training would be very important in giving me a foundational understanding of the field of research management. This also emanated from an understanding, coming from interactions with development partners and research collaborators, that research management is a key profession that determines the success of research institutions including universities.

At UCF, I went through courses such as Leadership and Organizational Models in Research Administration that imparted in me an understanding of the thinking behind appropriate organizational models for research institutions vis a vis their mission and type.

Financial Management in Research Administration and Audits in Research Administration were two very intense courses that took us through the US Federal rules and procedures for compliance as specific to the research type, as well as how to prepare ones projects and institution for federal compliant audits – a key part of my work.

UCF employs a very interactive style of online teaching that made the learning experience rich and quite relevant. Required participation in
The Graduate Certificate Course in Research Administration at UCF: My Experience

Online discussion-boards gave me an opportunity to interact with international students and to be able to get a sense of professional challenges my colleagues were facing. This sharing provided important networking and a sense of camaraderie, which is very useful when facing career challenges.

I wish to express that UCF imparted important knowledge that is helping me respond to some major challenges at our research institution such as a lack of dedicated department to tackle research management, a lack of ‘purpose-designed’ financial systems for research management and low knowledge sharing among researchers.

From my UCF experience, I got the theoretical grounding to start working on initiatives that can improve the research environment. A case in point is a new research seminar series we call the Knowledge Exchange Forum (KEF) that seeks to create a safe and interactive platform for research faculty to share their ideas with colleagues, students and outside collaborators.

In conclusion, this program was more engaging than I had anticipated in light of my full-time job as a research administrator and other responsibilities. My advice to anyone who would take this course is to cut back a few responsibilities in order to dedicate good time to tackle the course work and for maximum benefit from the experience.

KCMC/KMUCO Conducts Workshop for Supervision

KCMC/KMUCO hosted a supervision workshop with the aim of going through the entire process of supervising undergraduates, PhDs and Postdocs on their career of research with the supervisors/mentors and highlighted the roles and responsibilities of supervisors and students to enhance good research environment at KCMCO.

The workshop attracted participants from the Muhimbili University, University of Dar es Salaam, and Sokoine University, KCMC Hospital and KCMUCO supervisors and mentors.

The two-week workshop was intensive with lots of learning from each other. We invited external facilitators from Muhimbili University (Prof. Kazaura) and The Centre for Education Development in Health, Arusha (Dr. Masatu) with vast experience of serving as external examiners in several universities in Tanzania. Both facilitators have many years of experience in the field of research, epidemiology and statistics. Supervisors/Mentors who attended the workshop would recommend it to colleagues.

A big number of the supervisors/mentors said they wish the workshop was conducted outside KCMC/KMUCO. This is because they felt most of them are committed with other duties at the clinics and teaching, studying at KCMC/KCMUCO they wouldn’t fully concentrate, without being called at their departments for other duties.

All supervisors should attend this workshop as capacity building and create a common approach in student supervision to improve college supervision standards.

It was a successful workshop with enthusiastic, motivated supervisors/mentors who will encourage and supervise their students to be lead scientists.

The support from Welcome Trust and Secretariat to organize such a wonderful and fruitful workshop is very much appreciated.
PATHWAY TO THRiVE-SPONSORED PHD AT MAKERERE UNIVERSITY: MY EXPERIENCE OF THE JOURNEY AND THE PUBLIC DEFENCE

By Amos Deogratius Mwaka, THRiVE PhD Fellow

My motivation for a PhD was mainly the challenges faced during clinical care for cancer patients at the Uganda Cancer Institute (UCI). Most of the patients were diagnosed with advanced stage cancers, were too poor to afford investigations and medicines for cancer (chemotherapy) and would hardly keep treatment schedules and follow up appointments. I would work till late in the day and perpetually picked my little daughter in primary two from school beyond 6.30 PM (18:30 hours), often when she would be with only a handful of other children; almost all of them looking very frustrated and feeling deserted. I would apologize to her and promise to do better. Occasionally, I picked her at 3.00 PM, go with her to my work place and continue seeing patients, especially children with Burkitt’s lymphoma (BL) who needed urgent intrathecal chemotherapy to save them from devastating central nervous system involvement with the cancer. I would sometimes show her the children with swollen faces – suffering from BL, telling her how important it is to help these children. She would show lots of sympathy for the children and request me to work harder and stop the cancer from “catching” the children. “Why does this very bad illness that pushes out the eyes of children not catch big people but children?” she would occasionally ask. The turning point came when my clinical efforts in the UCI were rated “way below expectations and needed reconsiderations”. At that point, I immediately resigned my clinical work at the UCI so as to concentrate on my teaching roles at Makerere University, my primary employer and also ensure that my daughter reached home early.

Increasing community awareness about cancers and encouraging prompt help-seeking and early diagnoses was clearly the important thing to do, rather than wait for cancer patients at the UCI and receive them at advanced stages when not much can be done. I figured out that data was limited to inform appropriate evidence-based policies in this direction. My next step was to generate these data. I started to seek funding opportunities to pursue a PhD to start a career as an independent researcher and contribute to the body of knowledge on cancer especially regarding awareness of risk factors, symptoms and prevention. When I saw the THRiVE PhD grant adverts, I immediately told myself this is a must get. I immediately consulted Professor Henry Wabinga and then with Assoc. Prof Elizeus Rutebemberwa of School of Public Health. It took us several meetings to agree on a suitable topic and refine the questions. I had to review literature for extended periods of time and go back to convince my supervisors before they could allow me to start to draft the proposal. When the research questions and objectives were refined, the next hurdle was the stiff stipends for the grant. I identified and contacted Prof Martin Roland at University of Cambridge as a potential mentor and he readily accepted. Martin strongly advised me that there were no short cuts but work hard in order to make a convincing application in line with the intentions of the funding agent – an application that resonates with the intellect and emotional feelings of the reviewers; that which makes the reviewers say, “yes” this is the deal! My hard work and support from supervisors and mentors ultimately handed us victory after the two-phase selection process.

In January 2011, I developed my PhD concept and obtained provisional admissions and then eventually after one year developed the full proposal and was offered full admissions to Makerere University. My next step was to convince my family especially the primary 3 daughter that in 2013 she would have to join a boarding school because I would have to travel and wouldn’t be able to drop and pick her from school every day. The PhD grant was quite adequate to cater for all my family and academic requirements both in Uganda and the UK. The funds were made immediately available for my academic activities. My first journey to University of Cambridge was in the winter of 2013. I deliberately travelled in winter because there would be less social and public events to divert my attention from academic work. My second visit was in April 2014 when the weather was less restrictive. I needed to enjoy the social events including punting. By the time I returned from Cambridge in August 2014, my thesis was almost completed and I had 3 published papers in peer reviewed journals and three submitted manuscripts. My supervisors in Makerere University and mentors in University of Cambridge were very helpful in building me up. They taught me lots of transferable skills, including scientific writing which has continued to propel me. My published papers have attracted lots of email consultations from around the world and calls for collaborations.

On the 4th of September 2015, in the company of more than 100 people; arguably the highest number in recent times, I enjoyed 36 minutes of presentation of my PhD work and 1 hour 46 minutes of academic exchange with the opponent. By the time of the defence, I had published five papers from my work and had one manuscript under peer review. I am thrilled that my findings are published, being highly cited. I am preparing to develop policy briefs to engage policymakers and inform policies to promote cancer awareness of risk factors and symptoms, promote cancer symptoms recognition and help-seeking and thus early detection of cancers when treatment can still improve survival. I am also seeking for funding to start a post-doc in order to extend further the field of cancer awareness and early detection in Uganda, and determine methods that can lead to cancer down-staging and increased survival.

Amos defending his PhD thesis recently
The Passing of a Promise: A Tribute to Dr. Harr Freeya Njai

By Emilio Ovuga, Gulu University

Just over a year ago, one of the first round recipients of the THRiVE pump priming grants passed away in Senegal. Dr. Harr Freeya Njai passed away in October 2014 after a short illness depriving Africa of a young and hardworking virologist with the potential of becoming a world class researcher.

In 2011, Dr. Njai and colleagues at the Mwanza Intervention Trials Unit (MITU) at the National Institute for Medical Research (NIMR) in Mwanza and the Kilimanjaro Christian Medical College in Moshi received a pump priming grant to implement a project titled “Setting up a Cost-Effective Human Immunodeficiency Virus (HIV) Viral Load Assay: A quality Control Measure to Complement the new HIV Sequencing Facility in NIMR, Mwanza”. By the time of her passing, they had successfully completed the project and were in the process of writing manuscripts for publication in peer reviewed journals.

Between Jan 2010 – April 2011 Dr Njai was the Study Coordinator/ Virologist with the London School of Hygiene and Tropical Medicine (LSHTM) based at MITU. Prior to that, she was employed as a Virologist with the MRC/UgVRI Uganda Research Unit on AIDS from January 2007 to December 2009. She rejoined MRC Unit, The Gambia in October 2011 as the Virologist to the PROLIFICA (Prevention of Liver Fibrosis in Africa) project. A few months before she passed away, Dr. Njai had moved to The Gambia Country Coordinating Mechanism (CCM) office of The Global Fund to Fight AIDS, Tuberculosis and Malaria as executive secretary.

Dr. Njai studied Biochemistry at the University of Southampton between 1994 and 1997. In 1999 she obtained a scholarship from Vlaamse Interuniversitaire Raad (VLIR) to pursue a 2-year Masters in Molecular Biology at the Vrije Universiteit Brussels (VUB), and graduated in 2001. She then pursued a PhD in Biological Sciences at VUB and The Institute of Tropical Medicine (ITM), Antwerp, Belgium (2001-2005) funded by Ackerman & Van Haaren and ITM. Her thesis was titled: ‘The biological importance of Human Immunodeficiency Virus Type 1 (HIV-1) Circulating Recombinant Form CRF02_AG’.

While working at NIMR Mwanza, Dr. Njai was very supportive of her junior colleagues in doing their work and encouraging them to develop their careers. She was a good example of the THRiVE spirit of building the capacity of African researchers. The THRiVE family must therefore honour her effort by ensuring that young Africans with the potential to develop into world class researchers are supported to achieve their dreams.

The Role and Challenges of Multitasking In Institutional Research Capacity Building

For relatively young institutions with serious workforce shortages in all disciplines and specialties, multitasking cannot successfully support teaching, management and administration; community service and effective research. Multitasking will ultimately impact negatively on both its few senior and experienced staff as well as upcoming young investigators.

The results of this are usually suboptimal outcomes that may lead to discouragement and burnout. At Gulu University, although multitasking has to some extent helped to promote institutional growth and development, there have been serious challenges associated with it. Graduate students have shown exceedingly slow progress in their research study program implementation. Lack of skills in grants management has meant that senior researchers take charge of research management and administration, assure compliance with donor terms and conditions, and ensure the successful implementation of research programs. Lack of skills in monitoring and evaluation and learning has resulted not only in delayed reporting but also the incomplete documentation of project successes, failures, challenges and achievements. Under the circumstances, senior researchers have had to put up with the challenges of multitasking and attend to all aspects of project administration and management including mentorship, supervision, monitoring, finance management, auditing and reporting.

Since no one individual can be an expert in all fields, multitasking, despite its values, tends to impact negatively on efficiency and success. Multitasking is an essential skill in institutional growth and development. However this skill requires capacity building and task shifting to ease pressure on senior researchers in any institutions to maximize institutional research implementation.
Learning is a Continuous Process, Thanks to THRiVE

By Pamela Atim, Gulu University

THRiVE gives upcoming researchers opportunities to acquire new knowledge and skills in research. But more importantly, THRiVE gives the opportunity for beneficiaries to share experiences with seasoned researchers through various platforms such as conferences, trainings and site visits. I am one of the beneficiaries of THRiVE MSc scholarship. I completed my master’s training in public health at Makerere University in 2014. During the training I acquired competencies in research, communication skills, grants writing, presentations, and liaison. I was able to conduct four research projects in the two years, and to successfully apply for, and win a grant, and conduct a project.

Furthermore, I had the opportunity to attend and even present in many conferences both nationally and internationally. One of the conferences I attended and enjoyed most was one organized by Makerere University College of Health Sciences in September 2014 in which I presented a paper on nodding syndrome and was awarded a price for best oral presentation in that track. When my name was read, I was overjoyed and I remember saying, “Thank you God”, because I had never expected that achievement. My achievements so far have thus given me a lot of hope and courage that I cannot only be a good researcher but also a good communicator and public speaker. This put me on the lookout for opportunities to share my research findings.

Again, I have been privileged to participate in this year’s annual scientific conference organized by Makerere University College of Health Science in collaboration with other partners. This time the conference took place at Speke Resort Munyonyo from 23rd to 25th September 2015. The theme of the conference was, “360 approaches to Epidemics”. I had the chance to make two poster presentations, one on use of community volunteers to increase ANC attendance and health facility deliveries; and the other, on health screening practices among secondary school students in Lira. Since it was my first time to present a poster, I had almost declined to present. Never the less when I displayed my posters, they attracted many people and I had the opportunity to explain what my research team had done. I came to appreciate that learning is a continuous process and we should take every opportunity that comes in our way as an opportunity to learn from.

I encourage fellow researchers to disseminate your research work so that people out there learn from what you are doing. I sincerely thank THRiVE for the financial support which has made me realize my dream of becoming a public health specialist that I am today.

UVRI Core Laboratory Developing Subtype – Specific PCR Genotyping Assays for the Detection of Low-Level HIV-1 drug Resistance Mutations

By R. Naluwuge, E. Ssebaggala G. Sanyu and J.K. Kayondo,

The THRiVE co-funded UVRI Core laboratory has a pivotal role in the study of emerging HIV-1 drug resistance at the Uganda Virus Research Institute (UVRI). The Institute is host to the national reference laboratory for HIV-1 drug resistance and as such studies on HIV drug resistance (HIVDR) profiles from both before treatment and acquisitions during course of treatment comprise key performance research deliverables. Uganda has been providing AIDS treatment or antiretroviral therapy (ART) since 2004 and due to the rapid HIV-1 mutation rates some degree of HIVDR is expected to have emerged. Moreover, the intervention is characterised by use of just a few mainstay drugs (nevirapine, tenofovir, lamivudine, efavirenz, and Zidovudine among others) due to resource constraints, so there is a need to maximize the long-term effectiveness of these regimens to ensure sustainability of the ART programs. Drug resistance, a mechanism where amino acid changes or substitutions (mutations) emerge at key drug target sites in the viral backbone to counteract potency of specific drugs, compromises the efficacy of ART and compromises the sustainability of the ART programs. Drug resistance, a mechanism where amino acid changes or substitutions (mutations) emerge at key drug target sites in the viral backbone to counteract potency of specific drugs, compromises the efficacy of ART and compromises the sustainability of the ART programs.

Mutations related to drug resistance are detected conventionally through bulk sequencing of viral RNA which is unsuitable to detect presence of species variants at frequencies lower than 20% of the circulating virus, yet minor variants (at <20%) possibly are of clinical significance during
subsequent development of drug resistance and their detection is crucial in the identification of potential cases of early virological failure that may lead to decrease in efficacy of initial therapy.

Identifying these minority variants at levels below detection limits of bulk sequencing requires new diagnostic methods. It is therefore important to develop sensitive techniques to detect minority mutant species in drug-naïve patients and before onset of treatment. There is a need to explore the prevalence of certain mutations that are present as members of minority species in both drug-naïve and treatment-experienced patients.

Different sets of PCR primers and probes have been designed against potential circulating viral genomes in Uganda using available software and online tools. The assay strategy combines two reactions; a discriminatory mutation specific reaction and a non-discriminating total copy reaction amplifying from both wild-type and mutant genomes. The assay is adaptable to a Real-time PCR platform.

Regular PCR amplifications (real time PCRs yet to be embarked on) for both total copy and mutation specific primers are being optimized against previously stored amplified fragments from HIV-DR mutation genotyped specimens, and confirmed on freshly extracted HIV-1 genomic RNA where still available. Briefly, RNA is extracted from samples by commercial kits following manufacturer’s protocol, and is then heat denatured in a machine to lose its original coiled shape and straighten up. DNA (the more stable nucleic acid form) that is complementary to this RNA strand is then artificially synthesized in a machine from a prepared reaction (see photo below) before further product amplification by the polymerase chain reaction (PCR).

Two rounds of PCR are required for the diagnostic common and mutation specific reactions after which the resultant products are sized by gel electrophoresis (see photo below).

The assay is fully optimized against the K103N mutation, which features an Asparagine from Lysine change at amino acid position 103 in the reverse transcriptase (RT) region of the pol gene, whereas optimization for the remaining study mutations, e.g. M184V, Y181C, G190A and adoption to the Real time PCR platform is still on-going.

The assays when fully developed appear capable to detect low-frequency drug resistance and perhaps even provide a way for routine resistance genotyping.
Did you know? IT Survival Tips

By Muyomba Dickson THRiVE IT Officer

In this series, I would like to share with you some basic tips that can keep you going with your computer either while on your workstation or when you are on the move.

Did you know that letting your laptop battery drop below 20 percent reduces the battery life. Always charge your battery when it’s at 20 percent to maintain battery life.

Did you know you can recover your unsaved MS document? Documents can disappear from the screen before you click the ‘Save’ button as a result of ‘sudden’ computer shutdown, system crash or closed an unsaved document. Microsoft Office 2010 allows you recover document drafts in seconds and restore your work. Open a new MS word document go to file à info à manage version click the dropdown and select Recover Unsaved documents.

Did you know you can reduce your battery life immediately by activating battery saver mode? This will not increase the amount of power left but reduce on amount of power used giving you more minutes to complete that urgent task.

Did you know you can reduce the risk of data loss? To most of us backing up data is not a new concept however, the challenge has been to adapt to the practice. There are several ways of having your data backed up and one of which is using the free cloud computing technologies available for your storage/backup services (Dropbox, Google drive) The beauty with using this method is that there is no risk of losing your backup and you can access your documents from anywhere as long as you have an internet connection. There are desktop applications designed to automatically synchronize your local documents to your cloud account.

Trying out these tips will save you from a few troubles when working with your computer.

The East African Diploma in Tropical Medicine & Hygiene (DTM&H) course

The fifth East African Diploma in Tropical Medicine & Hygiene (DTM&H) course started at KCMC on 24th August. This year we have 72 students from 14 countries, including 11 from Tanzania, 4 each from Uganda and Botswana, 12 from Australia, 29 from the UK, 3 from the USA, 2 each from Kenya and New Zealand, and one each from Austria, Canada, Finland, Germany and Malawi. The students, who are all medical doctors, have spent 6 weeks in Tanzania, including one week on a rural placement away from Moshi, and will be spending 6 weeks in Uganda, starting on 12th October after a one week break, again with one week attached to a rural health project. This year, as usual, the course was heavily over-subscribed, so make sure you book early if you are thinking of taking the course in 2016!

Details of the East African DTM&H and how to apply for 2016 can be found at: http://www.lshtm.ac.uk/study/cpd/eadtmh.html