THRIVE
TRAINING HEALTH RESEARCHERS INTO VOCATIONAL EXCELLENCE IN EAST AFRICA
News
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Insights from the Research Management Training at the Uganda Virus Research Institute

By Nyanzi E, Naluwuge R, and Kayondo J – Uganda Virus Research Institute

The Uganda Virus Research Institute with support from the Training Health Researchers into Vocational Excellence (THRIVE-2) project conducted a 3-day training in Research Management from 16th -18th April, 2019 at the Uganda Virus Research Institute in Entebbe. The training targeted project officers, administrators, research managers, principal/ co-investigators working with projects at UVRI and partner institutions including THRIVE-2 Partners from Gulu University.

An advert for the course was run in February 2019. Thirty out of 60 applicants were selected to participate. Two of the 30 participants from Gulu University- a THRIVE-2 partner and 3 other participants from the CDC –Plague program laboratories in Arua. Facilitators came from UVRI Grants Office and Research Support Office and the MRC/ UVRI and LSHTM - Uganda Research Unit. The methods of instruction involved sharing practical experiences, presentations, group work, role play and drama involving acting out scenes. The training included all aspects of research and research management from the inception of the research idea, proposal writing, contract negotiation, dissemination and uptake; including monitoring and evaluation frameworks at proposal, implementation and project close-out. Communication, dissemination and uptake of research findings were interesting areas that came out during the training. Participants were required to package research findings into a message for the Hon. Minister of Health on result findings from

Mr Robert Kiduma from Gulu University-THRIVE-2 partner receiving his certificate after the Research Management Training April 2019 at UVRI.

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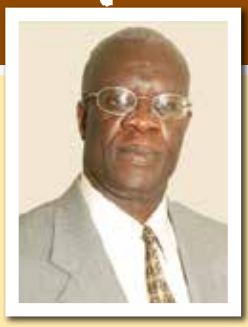
Editorial



Dear Reader,

"The delicate balance of mentoring someone is not creating them in your own image, but giving them the opportunity to create themselves." Steven Spielberg

The beginning of a mentoring opportunity may present at different times. For regular readers of THRiVE News it may come as no surprise that THRiVE will hold its annual general meeting, June 6th and 7th at Hotel Africana, in Kampala preceded by a scientific citizenship workshop. Many THRiVE alumni, policy makers, members of the public and the media will attend.

One question that stairs us all in the face is how to continually raise the bar to research excellence. For all THRiVE fellows it may be worthwhile to reflect on what unexpected events may have shaped their journeys to research excellence, so far. Surprises are often a prod to action. When one realises that the realities of the world don't match one's expectation it gnaws at you. Sometimes the status quo needs disruption so as to unlock one's full potential. THRiVE needs to maintain its status of a learning organization, fostering an atmosphere of continuous improvement and learning through relentless reflection, continuous improvement, adaptation and innovation.

In his book, The Fifth Discipline (1990), Senge referred to a learning organisation as "……. where people continually expand their capacity to create the results, they truly desire, where new and expansive patterns of thinking are nurtured, and where people are continually learning how to learn together."

In life errors occur but these should be turned into opportunities. How about using the Toyota approach of the five-why analysis to get to the root cause(s) of a problem. This requires detailed thinking and is also a matter of discipline, attitude and culture. Excellent mentorship contributes a lot to achieving success.

Insights from the Research Management Training

a study on HIV Drug resistance in infants in what was termed as a 'lift talk' (a three-minute talk).

The Training began with an on-site airing out of expectations from the training by participants. At the end of the training an evaluation was done. One participant said ''the training especially the Monitoring and Evaluation course units were interesting and practical. I call upon the organizers to bring another training in only M& E for us. Another participant said ''the research-related elements were on-spot with practical short examples for us adult learners''.

Another training for group two for the remaining participants is planned for the last week of June 2019.

We would like to acknowledge UVRI-THRIVE-2 for the financial support for this important training, the facilitators and coordinators of this training for the excellent preparation and effort put into this training to make it interesting and relevant.

A cross-section of participants during one of the sessions

Looking Forward at Cambridge-Africa

By Corinna Alberg, David Dunne

There have been lots of changes to the Cambridge-Africa team. Our long time Cambridge-Africa manager, Pauline Essah who was so instrumental in developing the programme, left at the end of 2018 and headed to the National Institute of Health Research (NIHR) where she is doing wonderful things in developing collaborations with African researchers and others working on global health research. She will be succeeded by Dr Amit Bhasin who will be joining us in May from the London School of Hygiene and Tropical Medicine, where he has been particularly working on malaria-related programmes for quite a number of years. The two other co-ordinators moved on recently and so it has been a busy time for the (temporarily) reduced team at Cambridge-Africa. We have been joined by Parinaz Hariri who has been co-ordinating the ALBORADA Fund – more about which, later. Dr Caroline Trotter has taken over the directorship of Cambridge-Africa on the retirement of Professor David Dunne, who set up the programme. We are very lucky that Professor David Dunne agreed to continue to be the PI for the THRiVE and MUII programmes and we are able to benefit from his wisdom and long experience of working in the field of global health. He will be coming to the THRiVE AGM this year and Caroline, David and myself look forward to spending time with the THRiVE community then.

Professor Simon Frost, Corinna Alberg and Dr Ireen Kiwelu visiting Ireen's Laboratory at KCMUCo

So back to the ALBORADA Fund. An increasing number of THRiVE post-doctoral fellows have been benefitting from awards from this fund. The purpose of the fund is to provide seed monies for collaborations between Cambridge and African researchers. The research can be in any field as long as it involves both Cambridge and African academics and is open to applications from post-doctoral researchers. This year, THRiVE fellows; Dr Eddie Wampande and Dr Angelina Kakooza, have received ALBORADA funding. In Eddie's case, this funding was to enable research with a new Cambridge collaborator separate from his THRiVE research and in Angelina's case it was to fund a new area of research related to her current THRiVE funding. Last year, Dr Joel Bargul received funding for a project in collaboration with his Cambridge mentor. So for those THRiVE fellows linked to Cambridge, keep this in mind when you are visiting Cambridge, as discussions you have with Cambridge academics could lead to awards from these funds (once you are a post-doctoral researcher, for those currently on PhD fellowships). This year Joel Bargul has been successful in being awarded further funding from the Global Challenges Research Fund (GCRF) with his Cambridge collaborator Professor Mark Carrington. This is exactly what the ALBORADA fund sets out to achieve in addition to funding exciting research – through providing seed money for research collaborations, it enables the researcher to then apply for larger research funds based on the initial ALBORADA funded research. The next ALBORADA call opens in May (by the time you are reading this). For more details on the scheme, keep an eye on the Cambridge-Africa website (www.cambridge-africa.cam.ac.uk) where the call will be advertised as well as other funding opportunities.

Looking Forward at Cambridge-Africa

May will also bring a number of visitors to Cambridge-Africa. Dr Ireen Kiwelu will be coming for her research visit. After the THRiVE AGM in Moshi, her mentor Professor Simon Frost and I enjoyed our visit to Ireen's laboratory at KCMUC. So we look forward to welcoming Ireen to Cambridge for her visit.

We will also be hosting Dr Jackson Orem, the Director of the Uganda Cancer Institute who will be spending the month of May in Cambridge and will be accompanied by a team from the Uganda Cancer Institute as we hope to look at ways collaborations can be fostered between Oncologists and Cancer researchers in Cambridge and Uganda.

A Summer's day in Cambridge - Joel Bargul and Corinna Alberg visiting Cambridge's Botanical Gardens.

Learning from a facilitator perspective

Julaina A. Obika

I was asked to make a twenty-minute presentation on 'citation and referencing'. I thought, "well, easy enough!" I was just about to hand in my PhD thesis for examination and so citation and referencing had become second nature to me. I started preparing my slides and then the questions started popping in my head. I had received a copy of the workshop program and had an idea of the category of participants. They were Masters and Ph.D. students, all at different stages of their graduate studies, and so I had to think about how to make my presentation meaningful for each participant, individually.

This was not my first experience as a facilitator but it was definitely one that I will always remember. From my perspective, I learned more from the experience and in the end became more of a participant than a facilitator.

The team of facilitators was, I imagine, hand-picked and selected from among the Gulu University faculty. My immediate impression was that this was very different from several other projects running at the University that I have participated in. Many of these projects spend a lot of funds to bring experts from elsewhere, including outside Africa, to facilitate these workshops. This is not a criticism on these projects because in fact, this is often how they are designed and must be implemented. However, THRiVE-2 has adopted a model of using 'local talent' and building capacity of facilitators at Gulu University.

The workshop brought together participants and facilitators from both the natural sciences and social sciences to have a conversation on *Scholarly writing*. It has often been the case, in my opinion, that the two traditions do not quite understand each other. A conversation about scholarly writing was one of those that shifted, ever so slightly, this opinion. At the workshop, we were all academics – facilitators and participants alike – who wanted to learn more about and improve our writing skills in order

Learning from a facilitator perspective

to get as much of our research published and known in the scientific community.

The conversations spun and were woven and interwoven by both the facilitators and participants on issues around scientific writing, publications and what editors and publishers look for, strategies for precision in getting an idea out, and the importance of 'thoughtfulness' as opposed to 'thoughtlessness' based on Hannah Arendt's *Eichmann in Jerusalem*. It was two days of listening to robust ideas and wanting more.

To the management and organisers of THRiVE-2 and the scholarly writing workshop, I say thank you for this opportunity given to me to see how much Gulu University has grown and how much capacity is being built through a bottom-up approach.

Julaina is an Anthropologist & Senior Lecturer, Institute of Peace and Strategic Studies, Gulu University

Programme Audits: An Opportunity to Learn and Improve Implementation

By Dickson Muyomba THRiVE Secretariat

THRiVE as a program has gone through a series of audits conducted by both international and local audit firms since its inception in order to verify compliance and validate performance. Through these audits, several issues ranging from policies, procedures, financial and IT management have been assessed for compliancy and appropriateness. Although audits come with lots of interruptions, THRiVE has always embraced them as a learning opportunity and a way of improving business processes. In this article, we would like to share lessons learned from these audits and how we have addressed areas of concern.

IT Management Audit Disaster Recovery/ Business Continuity plan

Given the increased dependency on Information Technology to run operations, business continuity planning covers the entire project aspects while disaster recovery focuses mainly on IT. All audits have focused on implementing a business continuity and disaster recovery plan that is project specific however, the same can be rolled out to the entire institution. The focus has been mainly on the Makerere University College of Health Sciences (MakCHS) financial management system (QuickBooks), data and information security and backup to an offsite station.

Implementing an offsite disaster recovery solution for an organisation may be costly in terms of setup or procuring it as a service. However, there are alternative options that one can explore. In our response to setting up a disaster recovery solution for critical systems (finance management system), the backup server was moved to the remote campus site (geographically separated) and installed within the institutional data centre (i.e. backup server not in the same location as the main server). A virtual server machine has been installed with the finance management system mirroring files from the main finance server. This allows for business continuity in case of breakdown of the main server.

This has been a relatively low-cost solution since it leverages on the existing institutional infrastructure taking advantage of the geographical separation.

Recommendations

As institutions have focussed on building and strengthening their ICT infrastructure, there is need to focus now on building institution- wide disaster recovery centres and draft policies and guidelines in that regard. This will reduce on data loss risk in the event of a disaster and improve on system availability.

Minimum Benchmarking Standards for Computer and information security

As a recommendation from the initial audit of the program, THRiVE needed to ensure that guidelines are in place to protect data on personal computers. Minimum benchmarking standards have been developed highlighting

Programme Audits: An Opportunity to Learn and Improve Implementation

best practices for computer use and data protection including backup procedures, password protection, drive encryption and physical security for mobile personal computers.

Asset Tracking

Most projects have a great contribution towards equipment (both ICT and laboratory) as a way of building a conducive research environment. Once acquired, the equipment needs to be tracked and maintained. The culture of maintaining an updated asset register has greatly improved at the MakCHS resulting from the audits. Each project is now required to submit an updated and verified asset register to the MakCHS stores office.

Password Policy and best practices

Under normal circumstances, organisations need to have a password policy set for users accessing organisational systems. The policy defines among other things, password age and complexity. Institutions/organisations need to educate and train users on best practices for password management, which include;

- Avoid common words and initials
- Avoid writing down passwords
- Avoid sharing passwords amongst employees

At the time of audit, the password expiry function was disabled on the finance server and this was flagged as a security risk. This was due to lack of proper sensitization of the finance officers who thought a change of password after a given period was too much for them to keep up with. As administrators, we have set the tone for establishing strong passwords through proper security awareness training for users to understand what constitutes a strong password, and also what password expiration policy has been implemented and why.

THRiVE has changed Research environment and culture

By David Mabey and Jim Todd, LSHTM

One of the successes of THRiVE has been to change the research environment in East Africa. Opportunities for PhD, post-doc and career development fellowships help researchers to develop their career and identify research questions. As THRiVE fellows move onwards, this creates new opportunities, and jobs for recent graduates. Building on the success of THRiVE interns, NIMR have a vibrant cohort of recent graduates who have formed a group called "Early Career Researchers" (ECR). They cover many disciplines from statistics to social sciences, from ethics to immunology. The early career researchers are getting field experience as research assistants, and looking for opportunities to further studies, mostly at Masters level.

Giving opportunities to early career researchers, helps change the research culture. Project leaders are now looking for talented young graduates to work on their studies. The graduates are introduced to world-class research, which has been funded by THRiVE. In return the project leaders look out for ways to help these graduates to project their skills into the wider research networks. The knowledge, skills and experience these graduates get from the experience will form the basis for their future success.

This short piece serves as an introduction to the efforts of two of these ECR to showcase their experiences and how they have managed to network with others. We hope this will allow Senior Researchers to support their efforts and to think of opportunities that might help them to achieve their research careers.

Charles Kakilla

Conference and travel award:

Conference: I attended the 7th East African Health and Scientific Conference, in Dar es Salaam, Tanzania. At the meeting I gave a talk on our ongoing study – Malaria vector species composition and entomological indices following several years of indoor residual spraying in regions bordering Lake Victoria, Tanzania.

THRiVE has changed Research environment and culture

Karen Nelwin Zablon

Travel award: I was awarded a sum of £1,207 by the Application of Novel Transgenic Technology and Inherited symbionts to Vector Control (ANTI-VeC) Network to attend the 2nd annual meeting taking place on the 20th-21st June 2019 at Imperial College, London United Kingdom. This activity is jointly coordinated by University of Glasgow, Medical Research Council (MRC UK), Center for Virus Research (CVR), Imperial College London, Global Challenge Research Fund (GCRF), bioscience for the future (BBSRC), and Science of the Environment.

World Malaria Day: I led a team of malaria group from Mwanza National Institute for Medical Research to participate in World Malaria Day on 25th April 2019. In Tanzania Malaria Day activities were conducted in the town of Lindi. We exhibited tools and equipment we use in trapping mosquitoes and some of the bioassays used in IRS, the entomological monitoring project we are part of in Mwanza. It was quite an interactive event and the local community was very excited about the research.

I am an early career 25-year-old researcher who holds a Bsc Honors in Biology from University of Dodoma, Tanzania. Currently I am working as a Research Scientist at the National Institute for Medical Research in Mwanza, Tanzania. My academic and research interest are in Malaria. Over the years I have been an active player in malaria research by presenting research outputs at international conferences.

This year (2019) I was fortunate enough to be 1 of the 16 participants undertaking a training workshop on Capacity Building in Malaria with a Focus on E- Learning. Participants attending the training workshop were from all over the globe; Africa, South America, Middle East, and South East Asia. The 5th Malaria Training Course was held in Tanzania, at Ifakara Health Institute Bagamoyo from the 25th of March to the 19th of April. The workshop was organized by the Swiss Tropical and Public Health Institute (Swiss TPH), Basel, Switzerland in collaboration with Ifakara Health Institute, Tanzania with support from the Swiss Agency for Development and Cooperation University Hospital of Vaud and Barcelona Institute for Global Health.

The objectives of the training workshop were to increase knowledge and expertise in malaria as a tool of developing self-competence and e-learning. By the end of the training workshop I had the capacity to; manage malaria issues more effectively and I can now develop material which will aid me in tackling malaria in Tanzania. It is through the teachings and engagement from both international and national experts from both affected and non-malaria affected countries that has made a huge impact in adding to my prior knowledge and enabling me to see things from a different perspective. During the training we covered a number of scientific issues ranging from; the use of genomic methods to developing new malaria diagnostics products, optimization of vaccines and understanding the interaction between pathogens and hosts, the use of statistical and mathematical modelling in analyzing data & predicting disease outcomes and the role of health economics in malaria elimination. Partaking in this course has enabled me build collaborative relations with fellow participants and strengthened academic collaborations between my institution and Swiss TPH and IHI for future projects.

Attending this malaria training workshop has given me an opportunity to further my studies, as I submitted a Masters in Epidemiology application to the Swiss TPH with anticipation to start my Masters classes by 2020. This has been a major highlight in my career as a young scientist. I encourage other colleagues to keep scouting for such great opportunities.

Scientists and Stories

By Peace Bagasha, THRiVE PhD Fellow

At the Annual Media Convention 2019 Prof. Emmanuel Danuabe while presenting his keynote address told a story of a Nigerian scientist who created a machine that chased away monkeys from the garden by mimicking the presence of the farmer. At that time monkeys were creating a lot of havoc in the community by eating farmers' crops, thus affecting the harvest. This therefore was a high impact innovation especially for his long suffering community. So, just like most exemplary scientists, he went ahead to publish these findings in a high impact journal and present them at international scientific conferences all over the world. Many years later the government bought machines from the developed world to help the community. These machines functioned similarly to his prototype which had never developed beyond the initial prototype.

Of course the scientist was bitter and his biggest complaint was that the government had not developed his prototype instead. He was asked: did you tell the government about your innovation? His reply was: " I was very busy in the lab developing it, I had no time to waste talking to government, they should come looking for me."

As I listened to this story, I reflected on my own approach to the media as a scientist. Recently in March 2019, as a member of the Uganda Kidney Foundation which is composed of representatives from all disciplines caring for kidney disease patients including nephrologists, nurses, physiotherapists, social workers and dieticians, we joined the world in celebrating the Annual World Kidney Day. We developed and carried out an extensive media and public awareness campaign. We targeted the members of parliament, as the key stakeholders, with a message to increase budgetary funding to allow for the setup of hemodialysis services at every regional referral hospital in Uganda. Currently, only two districts in the entire country offer these services, forcing patients and caregivers to incur huge transportation and accommodation costs to access care.

We held multiple television and radio presentations, met the parliamentary committee on health which reviews all health-related budgets and

Meeting the Speaker of Parliament Hon. Rebecca A. Kadaga b(Rt. 5th) and the Chair of the Health committee Hon. Michal Bukenya (3rd right)

finally the Speaker of Parliament who offered us the parliament conference room to host our scientific conference and bring the science closer to the law makers. The final result was the presentation, debate and passing of a motion on the floor of Parliament to increase budgetary funding to the Ministry of Health by UGX 7.6 Billion particularly to provide for sustainable kidney disease care.

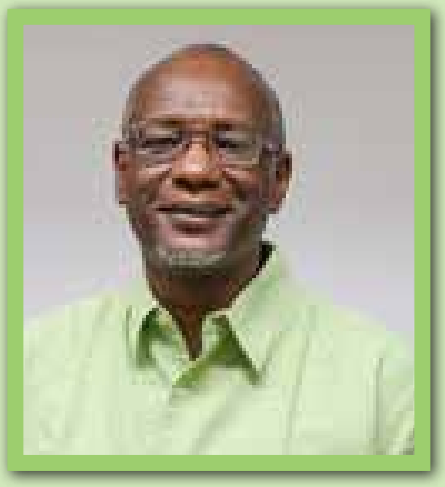
What caught my attention the most was the debate of the motion, which I was privileged to watch from the people's gallery. Each and every speaker during this debate supported the motion. Not only did they support the motion but also gave personal testimonies of very close friends and relatives, including a brother to one of them, who had suffered from kidney disease. This opened up the conversation amongst them allowing each to openly discuss the experiences and challenges faced by their respective patients and realize that there are many people suffering with kidney disease in Uganda.

But this is old news to us as scientists, we already know that 21% of Ugandans have abnormal kidney function, we know that at 23% prevalence of kidney disease in Sub- Saharan Africa is higher than the global prevalence of 16%, we know that 51% of patients with kidney disease with end stage disease we have evidence that life style diseases like hypertension and diabetes are on the rise not only in sub-Saharan Africa but in Uganda and are the leading causes of chronic kidney disease, we know that the number of poor persons increased from 6.6 million in 2012/13 to 10 million in 2016/17 and healthcare plays a significant role. To the policy makers who make the decisions this was news. Herein lies the problem, and it not only affects the Nigerian scientist but the Ugandan one as well.

The solution lies in the closing remarks by Prof. William Bazeyo, Deputy Vice Chancellor, Makerere University "… in all my years in research, I have learnt that you cannot be a successful scientist unless you have someone to put your work on paper for the non-scientific community." Therefore, to the scientific community my message from the annual scientific media 2019 is in the words of Prof. Dandaura: "If we do not tell our stories, others will hire us to tell their stories. Scientists and journalists must work together for Africa to develop."

Posing for a photo with Prof. Emmanual S. Dandaura Executive Director Institute of Strategic and Development Communication, Nasarawa State University Keffi Nigeria.

Prof. Baldwyn Torto awarded the 'Agropolis Louis Malassis International Prize'



Professor Torto; the proud award winner

Professor Baldwyn Torto, Principal Scientist and Head, Behavioural and Chemical Ecology (BCEU), at the International Centre of Insect Physiology and Ecology (icipe), Kenya, has been awarded the 2019 Agropolis Louis Malassis International Prize for Food and Agriculture, under the Outstanding Career in Agricultural Development category.

This highly prestigious Prize recognises exemplary achievements by scientists, while also inspiring young, promising researchers to work towards excellent science in the service to society. Specifically, the Career in Agricultural Development category is conferred to remarkable professionals in the field of agriculture and food research,

Prof. Baldwyn Torto awarded the 'Agropolis Louis Malassis International Prize'

innovation, capacity building, development or policy.

For Training Health Researchers into Vocational Excellence in East Africa (THRiVE), Dr. Torto has been and continues to be instrumental in the training of the next generation of African scientists as a member of the THRiVE-1 PhD and Postdoctoral Committee as well as THRiVE-2 faculty. THRiVE is proud to be associated with such a prominent scientist whose scientific achievements provide an inspiration to upcoming researchers.

The African Academy of Sciences Research Management Program in Africa (ReMPro Africa) Global Stakeholders Workshop

By Harriet Nambooze

The African Academy of Sciences (AAS) Research Management Program in Africa (ReMPro Africa) stakeholders workshop could not have come at a better time for me as an avid research administrator who is always on the lookout for salient innovations that can improve the efficiency and effectiveness of researchers in Africa. ReMPro aims to develop good practice standards to assist institutions to benchmark and improve institutional research systems as well as enabling funders to assess institutions they wish to support or strengthen. It comes in a setting where African institutions devoting very minimal resources and attention to research support systems and structures coupled with very limited training opportunities in the region specifically targeted to building the capacity of research administrators and managers to improve their skills. It is no wonder that various funding agencies have identified inadequate research management capacity as one of the stumbling blocks in maximizing the quality and output of research on the continent.

The goal of ReMPro as laid out by the Executive Director of AAS, Dr. Nelson Torto in his opening remarks during the workshop is to address systemic level challenges at African institutions in creating and sustaining enabling research environments for research to flourish. These remarks and other presentations from A. Neba (Deputy Director Programmmes, Science Support and Systems AAS), Tom Drake (DFID), Dr. I Bates, Liverpool School of Tropical Medicine (LSTM), Aaron Yarmoshuk (University of Toronto) and A. Mukhwana (Research Manager AAS) set the pace for the Global Stakeholders workshop held at the Crowne Hotel in Nairobi, Kenya. It was attended by over 30 representatives from funding agencies, research administrators and managers from universities, research institutes and non-governmental organizations from Africa and elsewhere to provide valuable input into the Good Research Management Practices (GRMP) that are being developed to improve research management in Africa.

The GRMP standard will be a mirror image of the Good Financial Grants Practices (GFGP) which was adopted in June 2018 as a standard for best practices in the management of donor funds. It is based on four strategic strands namely; embracing leadership, sustainable funding mechanisms, common standards/ best practice and supporting career development and training. The standards once complete will enable institutions put in place systems to ensure continuous development and improvement of their research management systems.

The development of the GRMP standard will entail 3 phases. The first phase involved carrying out a literature review

The African Academy of Sciences Research

Participants at the Global Stakeholders workshop for the development of the GMRP pose for a group photo

to set the foundation and also develop the initial draft skeleton of the proposed standard. The draft skeleton outline was then reviewed and discussed at this workshop for further development by a technical working group. Participants generally discussed and agreed on what should be included in the GRMP standard skeleton outline. The second phase will entail developing a draft self- assessment process for institutions to report against the standard and a draft process for on-site verification of self- assessments submission by external assessors. Phase 3 will involve piloting on-site verification of self-assessment submission by external assessors in selected institutions.

In attendance were research administrators and managers who are involved in research management on a day to day basis like me who helped bring into perspective the realities of research management in African institutions. We hope that our contributions will help ensure that the standard is tailored to what is feasible at our institutions but at the same time help uplift the standards of research management in Africa. Once finalized, we hope to participate in supporting our institutions to carry out the self-assessment as well as sensitize our constituencies about the standard a role we have already embarked on.

One of the salient issues of the standard is that it goes beyond the institutional support systems and infrastructure to cater for career pathways for especially research administrators and managers and also engagement with research users/consumers. Special thanks to the AAS for not leaving behind research management in the efforts geared to shifting the centre of African research to Africa. As Ms Allen Mukhwana indicated, the business of doing research is all-encompassing, and creating conducive environments in Africa is essential to maximize research output and impact.

Innovations for Public Engagement at icipe Enhance Public's Understanding of the Science of Mosquitoes and Malaria

By Jeremy Herren, icipe

The Malaria Exploration Course and the World Malaria day were two linked public engagement activities held at *icipe* in April 2019 and were both funded by a "Research Enrichment -Public Engagement" grant to Jeremy Herren from the Wellcome Trust. Both events would not have been possible without the support of *icipe* staff and students (over 30 participated).

Malaria Exploration Course: Between the 8th and 18th April 2019 the first Malaria Exploration Course (MEC) was held at *icipe* Thomas Odhiambo Campus in Mbita (*i*TOC), Kenya. A total of 26 pupils (with a 50/50 male to female split) from twelve schools in the rural regions surrounding the campus (Kirindo, Kisui, Nyawiya, Alero, Kamsama, Usare, Oseno, Kombe, Kitare, Obambo, Waondo and Genge) were invited to learn from and engage with *icipe* scientists and students. Pupils were given a fun and interactive introduction to malaria, which initially started with an overview of the parasite life cycles and transmission patterns. To better understand the capacity of transmission we developed games, where some students acted as mosquitoes transmitting parasites (glitter) from one human to another. Students then were able to see malaria parasites on preserved

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Innovations for Public Engagement at icipe Enhance Public's Understanding of the Science of Mosquitoes and Malaria

Malaria transmission games "malaball"

slides through microscopes with the help of trained technicians. One of the most important malaria research assets at Mbita-TOC is the mosquito insectaries. Students were given a demonstration of the rearing process by *icipe* insectary staff and each given some mosquito eggs to rear over the course. By the end, most students

particular, they investigated the effect of commercially available insect repellents on mosquito feeding behavior, which helped them understand the scientific process and how data can be analyzed to support hypotheses. We also encouraged students to think about 'big picture' issues surrounding malaria,

by forming teams to play a game that simulates malaria control at the level of local government. Towards the end of the course, pupils were allowed to develop their own 'science fair' style projects which they presentenced during the World Malaria Day commemorations at *icipe i*TOC on the 26th of April 2019.

World Malaria Day:

World Malaria Day (WMD) is commemorated globally on the 25th April every year to provide education and understanding of malaria as a global threat that is preventable and curable. The event held at *icipe* TOC this year was on the 26th of April and was attended by over 700 participants. To encourage the community to attend, a "mosquito walk" was carried out throughout the streets of Mbita town, near the *icipe*-TOC campus. The event was characterized by a diversity of stall-based presentations about research activities at *icipe.* This included research from Human

Designing an experiment to test insecticides

Pupils and community members participate in a Mosquito walk to mark the day

Health (mosquito trapping and repelling) as well as other themes; *icipe's* Tsetse control interventions were on display as was a stall dedicated to the 'push-pull' technology for pest control in plants (http://www.push-pull.net/).
There was a mosquito hunt challenge for the children and fun quizzes to encourage maximum participation and engagement by all ages. The students that had participated in the "Malaria Exploration Course" presented their projects to the public. Other projects were presented by students to their community as posters and 'show and tell' style demonstrations. These presentations from students helped to make *icipe's* mission and activities more relatable to the public. In attendance were officials from the Mbita sub-county Ministries of Health and Education who addressed the public and pledged to continue to work with *icipe* to improve the lives of community members.

Pupils that participated in the MEC staged a play on malaria

Group projects, building a Tsetse trap

Children taking a quiz

Managing serious mycoses: challenges in resource-limited countries

By Richard Kwizera,
THRIVE-2 PhD fellow - Makarere University College of Health Sciences

The first Annual Scientific Conference of Medical Mycology Society of Nigeria was held from 10-12th April 2019, at the Nigerian Institute of Medical Research (NIMR) Yaba, Lagos, Nigeria. I was supported by the Fungal Infection Trust (FIT) to participate in this meeting and give a talk about "fungal asthma in Africa". It was attended by participants from Nigeria, Uganda, Kenya, India, France, Cameroon, South Africa, Ghana, Sudan, United States of America and the United Kingdom. The meeting aimed to bring together a multi-disciplinary group of scientists to discuss the challenges in managing serious fungal infections in resource-limited countries and pave a way of overcoming them. The sub-themes included; diagnostics, candida infections, advanced

Richard Kwizera giving a talk on fungal asthma during the first annual scientific conference of medical mycology society of Nigeria.

HIV disease related mycoses, aspergillus pulmonary mycoses and other mycoses. The conference was opened by a stimulating keynote address from Prof. Arunaloke Chakrabarti, the President of the International Society for Human and Animal Mycology (ISHAM).

All the different speakers highlighted the major challenges in the management of invasive fungal infections in developing countries. They specifically pointed out challenges such as high disease burden, lack of diagnostics, limited awareness, low resource allocation, rare public health response, lack of a recognised international authority on public health mycology, lack of epidemiological data and antifungal drugs. Management of fungal infections is also still a challenge since clinicians do not know which patient to be treated due to lack of

Panel discussion on Aspergillus species-pulmonary mycoses during the first annual scientific conference of medical mycology society of Nigeria. (L-R; Dr. Gbaja Biamila, Dr. Obianuju Ozoh, Dr. Chinyere Nkiruka Asoegwu, Prof. Jean-Pierre Gangneux, Richard Kwizera and Prof. Ahmed Hassan Fahal).

Laboratory practical session during the WHO first international workshop on mycetoma at the Mycetoma research center, University of Khartoum, Sudan.

diagnosis and epidemiological data. Prophylaxis is not being used since they do not know the magnitude of the problem in the at-risk populations. Data are lacking on when to stop empiric antifungal therapy. In addition, antifungal drugs are not available in most developing countries. Besides, patients cannot afford the antifungal drugs. Therapeutic drug monitoring is not available in most centers. The role of radiology and histology in diagnosis of invasive fungal disease was also highlighted. There was also a poster session with promising abstracts presented. During the conference, a Pan African fungal working group was formed with support from ISHAM. I was chosen with Dr. Felix Bongomin (Gulu University) to represent Uganda on this committee. Similarly, in February 2019 with a scholarship from WHO, I was trained during the WHO first International workshop on mycetoma at the Mycetoma Research Center, University of Khartoum, Sudan. I then joined the WHO Global Mycetoma Working Group as the Ugandan representative. We hope that these groups will help to improve on the advocacy for fungal diseases in Africa and foster research and collaborations, while building research leaders in this field of mycology.

Participants attending the first annual scientific conference of medical mycology society of Nigeria.

SEXUAL AND REPRODUCTIVE HEALTH EDUCATION FOR ADOLESCENTS, BEYOND BIOLOGY SUBJECT, IN MBEYA-TANZANIA.

By Dr. Ruby Doryn Mcharo, THRiVE-2 PhD Fellow

THRiVE encourages its research fellows to undertake community and public engagement as a pathway in realizing further potential impact of their research relevant to the community. This particular community engagement brought together representatives of Higher Learning Institutions (HLIs) in Mbeya region-Tanzania and the Region's Medical Officer (RMO); and focused on Sexually Transmitted Infections (STIs) among young adults attending HLIs in Mbeya. Higher learning students are a migratory and mobile population probably at their peak years of sexual experimentation, and "*free*" of immediate parental supervision in trying to establish independence and identity. Research studies have shown increasing levels of sexual activity among students and a number of abstinence-focused interventions among younger students have not been very successful. Discussions during this interaction between the THRiVE-2 PhD Fellow and the Higher Learning Institutions community involved a number of issues being raised: (1) *Parents and adults of the previous generations need to talk with young people about STIs.* Delegates noted that the society of nowadays is silent on a number of sensitive issues and that is why there are challenges with STIs among young people. Young people are not well informed on the risks they may encounter and when already in trouble, do not know who to turn to; and end up discussing sensitive matters, such as sexuality and STIs, amongst themselves who are also uninformed. Is it that some words in the native language (*Swahili*) appear as taboo, provocative and inappropriate to use openly or to young people in addressing sexual matters? Members suggested that this research study assist to ascertain and probe around the reasons why young people find it difficult to open up to their parents/elders, and if possible, try to interview some parents as well to understand the issue further. The results would then allow the THRiVE researcher to suggest ways to address this challenge within the community in Mbeya. (2) *Teachers need to speak up and teach clearly about STI - it was emphasized that Biology as a taught subject is not sufficient to address Sexual and Reproductive Health (SRH) matters.* Members agreed that the SRH curriculum is important for adolescents in primary and secondary schools but the challenge is the inability of some of the teachers to deliver the message and topics clearly, similar to the challenge of the parents not being able to speak to their children about sexual matters. The RMO was urged to consider the possibility of having the SRH curriculum delivered within Mbeya schools to be led by the Mbeya region medical personnel and not merely

The Mbeya Regional Medical Officer giving a talk on STIs in Mbeya during the engagement session.

SEXUAL AND REPRODUCTIVE HEALTH EDUCATION FOR ADOLESCENTS

school Biology teachers. Alternatively, the Mbeya region medical personnel could pioneer a Training of Trainers (ToT) course for the Biology teachers tailored to SRH for young people. Members further requested the research results be shared among all participating HLIs and the RMO's office for a possible collaboration on a targeted intervention in the region, preferably of a private e-platform nature. Additionally, the THRiVE-2 Fellow and the RMO's office were to identify a way and financial support for the suggested ToT course to build Zonal capacity.

Invited representatives of the Higher Learning Institution community in Mbeya during the engagement session

A pilot study analysis of stored serum samples to estimate the prevalence and incidence of hepatitis B infection among HIV-positive individuals on long-term antiretroviral therapy

By Dr Mayanja Billy Nsubuga, Seeley J – Uganda Virus Research Institute

In September 2017, we received a THRiVE-2 Career Development Award to investigate the prevalence and incidence of hepatitis B (HBV) among people living with HIV (PLWH) who were on long-term antiretroviral therapy (ART); for 5 years and above. This topic interested us because PLWH who are co-infected with HBV have higher liver-related morbidity and mortality than those infected with either HIV or HBV alone. Some ART drugs like nevirapine can cause liver injury, yet in Uganda, nevirapine was the most commonly used drug in first line ART regimens since the introduction of ART in 2004. However, since 2013, a combination of efavirenz, tenofovir and lamivudine is the recommended first line ART regimen. PLWH including those co-infected with HBV should be treated with ART drugs that are potent against both viruses. In public HIV/ART care facilities in Uganda, HBV testing prior to ART initiation is not routinely done, and some HIV/HBV co-infected patients might have initiated ART regimens that are not potent against both viruses.

We conducted this pilot study analysis of stored serum samples to estimate the prevalence and incidence of HBV among PLWH on long term ART.

Between 2013 and 2014, we enrolled 1,095 PLWH into a cohort to study the complications of long-term ART (CoLTART) in Uganda: 666 participants from the former Development of Antiretroviral Therapy in Africa (DART) trial study, Entebbe site, Wakiso district and 429 participants from the General Population Cohort (GPC) study clinic, Kyamulibwa, Kalungu district. Previous HBV status data was available at DART trial enrolment (2003-2004) and the 2011 GPC survey round. At enrolment into CoLTART,

serum samples were stored for future hepatitis B serology.

We encountered some difficulties because for some participants, no serum samples were stored, while for others, the quantities were insufficient. Samples positive on both hepatitis B surface antigen (HBsAg) and core antibody (HBcAb) were tested for the IgM hepatitis B core antibody (IgM HBc Ab) to differentiate acute from chronic hepatitis B infection. Irregular stocks of laboratory reagents led to delays in the sample testing. We defined HBV cases as either HBsAg or HBcAb seropositivity. Prevalent HBV cases were all those infected prior to enrolment in CoLTART while incident cases were those previously known to be HBV-negative but tested positive at enrolment in CoLTART.

We found that at CoLTART enrolment, the overall prevalence was: HBsAg - 4.7%; (Entebbe-5.2%, Kyamulibwa-4.1%), HBcAb prevalence - 48.1%, significantly lower in rural Kyamulibwa than semi-urban Entebbe. The HBV incidence was 3.67 cases per 100 person years, and was significantly higher among individuals on non-tenofovir containing ART regimen (3.5 times higher) than those on tenofovir containing ART. Tenofovir containing ART regimens should be preferred in high HBV prevalence settings as they protect against new HBV infections.

The writer is a Senior Research Fellow Awardee –THRIVE-2 based at UVRI-MRC

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