



Inspiring Future Scientists **INSPIRING FUTURE SCIENTISTS**



On Friday 22 July 2016, staff from the MRC/UVRI Uganda Research Unit on AIDS participated in the Uganda Virus Research Institute (UVRI) Open Day that was held at the UVRI Entebbe -based Campus, which is also home to the MRC Uganda Unit head offices. More than twenty schools participated in the Open Day, organized under the theme, "*Science, the Future and Me*", bringing together more than 1,000 upper -primary pupils from schools in Wakiso and Kampala districts.

Unit staff displayed some of the exciting work that is conducted at our leading on-campus laboratories in a manner that was accessible to young people, alongside scientists from other UVRI - campus -based research institutions and select partner healthcare providers.

Speaking at the event, Prof. Pontiano Kaleebu, the Unit Director and also acting Director UVRI commended the Uganda Government and the development partners for supporting the work undertaken at the UVRI Campus.

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Pamela N. Wairagala
Communications & Public
Engagement Officer

Dear Reader,

Welcome to this edition of the Heartbeat.

In July, scientists from the Unit joined colleagues at the Entebbe -based UVRI campus to showcase their work at the 2016 UVRI Open Day. The event, the first of its kind to target Primary school children brought together more than 1000 pupils from schools in Kampala and Wakiso districts and aimed at among others giving the pupils hands -on exposure to some of the concepts covered as part of their classroom work. We believe that the event inspired some of the pupils to start thinking about the possibility of exploring a science career, especially after interacting with practicing scientists at the Open Day. In our cover story , we bring you highlights from the Open Day. Also, don't miss the feedback from some of the pupils that attended and what they thought about the event.

As part of its training and capacity building programme, the Unit together with her on -campus partners run an intensive internship programme under which an average of 75 University students are attached to the different UVRI based institutions for periods ranging from three to six months every year. As part of their assessment, interns are invited to prepare and present a project that they would like to undertake, based on the experience acquired during their internship at the campus. Presentations are made at the Annual Internship competitions held at the campus under the adjudication of Senior staff. At this year's Awards, interns attached to various MRC/UVRI departments shone, taking home all the top four prizes. We caught up with some of these upcoming scientists who shared their experiences and future plans.

For this quarter's feature, we had a one on one chat with the Unit head of the Bio -repository section who told us about the section's history, growth and future plans. Don't miss reading about this very important component of the Unit's work that is home to a wide range samples from work undertaken since the Unit's inception in 1989.

As always, we do appreciate and look forward to your feedback. We also welcome you to share with us your work by sharing an article or photo.

Happy reading and God bless you.

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Director's Notes



Prof. Pontiano Kaleebu
Director MRC/UVRI

Welcome to this edition of the MRC/UVRI Newsletter.

On 22nd July, 2016 the Unit joined other on-campus partners to participate in the UVRI 2016 Open Day, which was organized under the theme, *"Science, the Future and Me"*. I take this opportunity to thank all staff that participated and showcased some of our work. The feedback that we have received from the different stakeholders is that the Open day was very successful and insightful for both the pupils and their teachers. The Unit will continue to participate in similar activities in future and I encourage staff to take up the opportunity whenever it is availed.

Following an extremely busy first quarter, the Unit quinquennial report (QQR) covering the period 2012 -2016 was submitted at the end of last month. I would like to thank everyone who participated in the report writing process and ensured that the report was submitted on time. The submitted report will undergo a series of reviews, the first of which has been completed and our team will respond to the comments from the reviewers. Still as part of the planning process for the next funding cycle, a subcommittee from Head Office will visit the Unit in September and meet with various staff. This is a very important process for the Unit and I call upon all staff involved to prepare adequately for it.

As part of the on-going transition from programmatic to thematic based research, I am glad to inform you that a suitable candidate was identified to head the new Non-Communicable Diseases theme. Unfortunately, the position of Chief Operations Officer (COO), is yet to be filled and will be re-advertised.

The Unit received MRC funding of about £2million for Rift valley fever vaccine research and USAID funding to IAVI was also secured to run for 5years. Despite the new funding, it is important to note that the BREXIT process which might take two years, coupled with the depreciation of the pound sterling will impact on MRC/UVRI programme activities, most of which are funded by MRC UK.

After 26 years, Prof. Anatoli Kamali retired from the Unit at the end of May 2016. Prof. Kamali, who at the time of his retirement was the Head of the HIV epidemiology and prevention programme and Unit Deputy Director, greatly contributed to the Unit's growth and expansion, especially at the Masaka and Mengo field stations. He mentored many young scientists, created invaluable partnerships and greatly contributed to the Unit's profile as an internationally recognized center of excellence on HIV infections and related diseases. We are grateful for his contribution towards attaining the MRC/UVRI mission and vision.

On a similar note, Dr. Edward Katongole Mbidde, former Director UVRI, our host institution, retired at the end of May 2016. Dr. Mbidde has been very instrumental in promoting the collaboration between the Unit and the Government of Uganda through the UVRI and his guidance is greatly appreciated. We wish both, Prof. Kamali and Dr. Mbidde success in their future endeavors.

I would like to take this opportunity to welcome staff that have joined the Unit during the course of the last quarter and also thank those that have worked with the Unit and have moved on during the same period. I wish them the best in their careers.

UVRI Open Day 2016

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Pupils get a feel of how the human heart functions the Uganda Heart Institute booth at the Open Day

“The UVRI campus is home to very sophisticated labs, which have enabled us to conduct ground breaking research, that has contributed to informing policy formulation and implementation, not only in Uganda, but the region and internationally. Most of this would not be possible without the support of the government, through the Ministry of Health and our development partners. I however call upon the Government to increase the funding allocated to this work.”

The Open day provided an opportunity for the young people interested in science, to learn about research, interact with practicing scientists and researchers as well as to explore the possibility of a science - research career. The Open day was also meant to give the children a hand -on opportunity to explore science outside their classrooms.

The previous open days organized by UVRI in 2009 and 2013 targeted University, tertiary institutions and secondary schools.

Dr. Jacinto Amandua, the Commissioner Clinical

Services at the Ministry of Health, who represented the Minister of Health, Dr. Jane Ruth Aceng commended UVRI and her partners for partnering with the government to promote government policy.

“By interesting primary school pupils in science at an early stage, the UVRI galvanizes the government policy of prioritizing science subjects in primary, secondary univer-

sity and tertiary institutions”. He pledged government support to promote the work done at the UVRI campus.



Vote of thanks from the pupil representatives

The event also comprised of motivational speeches from renowned educationist, Mr. Fagil Mandy and Dr. Jane Kayondo Kengeya, Uganda’s first female doctor to study epidemiology and also Uganda’s first female doctor to study aviation medicine.



I want to be a Scientist

I was so happy when I learnt that I was one of the pupils to attend the open day at the Uganda Virus Research Institute. When we reached the venue there were many other schools.

They took us around different tents, where they explained to us different things; HIV, Plague, Bilhazia, blood cells, microscopes, and immunisable disease.

They told us that HIV has been there for a long time, it began in animals. It is transmitted through un-protected sex, using contaminated sharp instruments. Children can get it from their mothers during birth or breast feeding. HIV has no cure.

Mwebe Jeremiah Favour
P4 East- Entebbe Junior

I want to be a scientist, a doctor who works in the laboratory so that I can find the cure for HIV. In conclusion, the open day was fun and we learnt so many things. I want to thank the people who organised the open day and also my school for taking me.



Pupils who correctly responded to questions and their teachers were recognized and rewarded by the UVRI -IAVI HIV Vaccine programme.



Buayi Richard
Teacher - Nakasero primary school

The Open Day has eased our work because pupils have seen what we teach them practically.



Naima
Teacher—Kampala Junior Academy.

I like the theme ‘science the future and me’ because it is about health and as an adage goes a healthy body is a healthy mind. I have learnt preventive measures for diseases.



Marvin James Edyomu—P.6
Lohana Academy

The event is important because it encourages pupils to become scientists in the future and may even been able to find cure for some diseases that have killed a lot of people.



Arinda Petrina— P.7
Kampala Junior Academy

The event teaches us science, how to avoid and prevent diseases. We get a chance to interact with other schools .



Amita Kisakye—P.6
Lohana Academy

The event is very educative and innovates young scientists.

MRC/UVRI Clinical Diagnostics Laboratory Services



Part of the Lab team at the MRC/UVRI Entebbe campus. **Inset;** The new Laboratory buildings that house the CDLS

Following a rigorous process, the Clinical Diagnostics Laboratory Services at the MRC/UVRI Uganda Research Unit on AIDS was accredited with ISO 15189:2012 certification. Laboratory Accreditation provides both national and international formal recognition to competent laboratories, thus providing a bench mark for excellent performance. ISO 15189 :2012 is an important element in establishing and maintaining confidence as well as top notch quality in our laboratory diagnostic testing services.

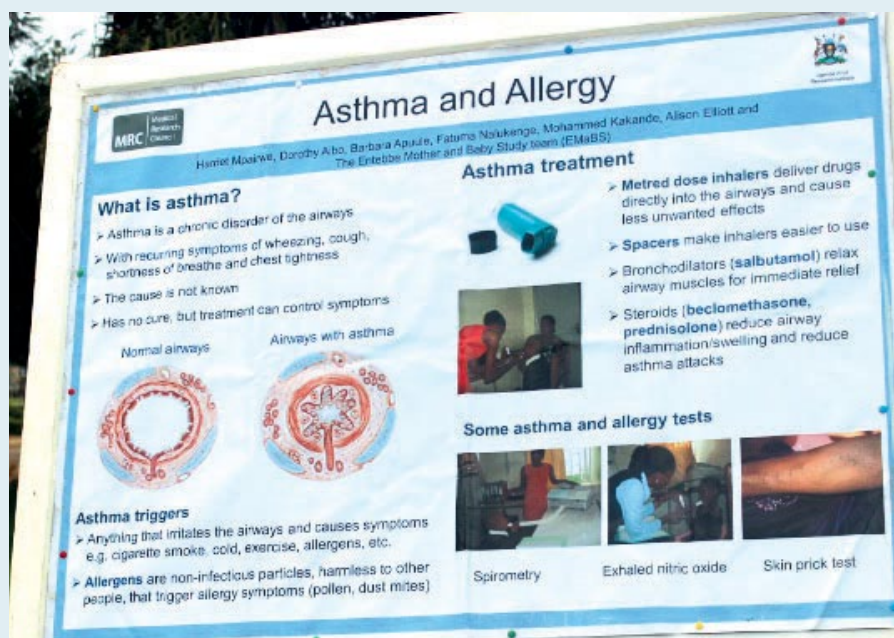
Our initial objective as CDLS becoming ISO 15189 :2012 accredited was to set the quality height high to surpass the existing GCLP compliance to all our testing facility operations.

Accreditation process involved rigorous assessments of CDLS processes by KENAS (accreditation body) to ensure that our la-

boratory fulfills and conforms to the quality management system requirements (standard practices)

This accreditation comes with additional benefits which include engaging highly competent and skilled staff who are empowered to be part of the research solutions. This impacts on the organization's performance and also promotes sustained continual improvement on our processes, subsequently resulting in delivery of improved the quality of research work as an institution. To maintain this recognition as a center of excellence, CDLS laboratories will be re-evaluated periodically by the accreditation body to ensure their continued compliance with requirements, and to check that their standard of operation is being maintained.

Unit commemorates World Asthma Day



3rd May was World Asthma Day and the Unit commemorated it at an event held at Grade A Hospital gardens. The event which comprised of information sharing sessions on causes, presentation and management of asthma was attended by parents and teachers whose children are participating in the Study on Asthma and parasitic infections among children (SONA) that is being conducted by the Unit.

The study being conducted in the areas of Entebbe and Wakiso seeks to among others investigate the increased prevalence of asthma in urban areas compared with rural areas. The study is also investigating whether or not there is a correlation between Asthma and worms as preliminary work shows that children with hookworm infestation are less likely to have Asthma compared to those without.

Speaking at the event, Dr. Harriet Mpairwe, the SONA Principle Investigator noted that despite the increase in the number of asthma cases, especially in the urban areas, the cause is still unknown. The two -year SONA study is being conducted among children aged five to seventeen years with funding from the Wellcome Trust and is expected to close in 2017.

HIV Vaccine trials promising



HIV Vaccine Awareness Day (HVAD) is observed annually on May 18th and provides an opportunity to recognize and thank the many volunteers, community members, health professionals, and scientists who are working together to find a safe and effective preventive HIV vaccine. It is also a day to educate communities across the nation about the importance of preventive HIV vaccine research.

The MRC/UVRI Uganda Research Unit on AIDS in collaboration with the International AIDS Vaccine Initiative (IAVI) and Makerere University Walter Reed Project observed the day at a community event on 19th May, 2016 in Nateete, a Kampala suburb.

Dr. Monica Kuteesa, a senior scientist at the MRC/UVRI commended the different categories of people involved in the search for a safe and effective preventive HIV vaccine. She informed participants who included community members, study participants, local leaders and the media that there was hope that an HIV vaccine would be found, though it is still not possible to put timelines to it". The design of RV144 vaccine in the Thai trial that induced modest protection in

a trial in Thailand has been improved and is being tested in trials in South Africa and Thailand. One of the products has also been tested in Uganda and the results show that the vaccine induced the desired antibodies", Dr. Kuteesa noted.

An on-going HIV vaccine trial at the UVRI in collaboration with IAVI, Entebbe and Makerere University Walter Reed project, is testing 3 experimental vaccine candidates in a Phase 1/2a trial. The trial sponsored by Janssen, a pharmaceutical company of Johnson and Johnson, is testing so far one of the most immunogenic vaccines, the Ad26 Mosaic vaccine, given in combination with MVA mosaic vaccine and another vaccine gp 140 clade C. The trial is a multi-site study being conducted in Uganda, USA, Rwanda, South Africa and Thailand among healthy HIV negative volunteers.

At UVRI-IAVI, screening started on the 13th July 2015 and enrolled 45 participants while at the Makerere University Walter Reed Project site (MUWRP), screening started on 10th August 2015 and 26 participants were enrolled. Enrolment is completed at both sites and participants are being followed up.

MRC family bids farewell to Prof. Anatoli Kamali



Top left: London- Prof. Anatoli Kamali, former Head of HIV Epidemiology and Prevention programme and Deputy Unit Director receives a letter of appreciation from Dr Declan Mulkeen, Director Research Programmes at MRC Head Office who represented the MRC Chief Executive, Sir John Savill.

Right; Masaka and Below- Mengo



A randomised Controlled evaluation of an intervention package to improve health services for chronic diseases in Uganda

Principle Investigator: Dr. Paula Munderi

Study Coordinator: Dr. David Katende

The aim of this study is to demonstrate that a set of health system interventions piloted in the East African Chronic Disease Research Programme (EACDRP) are feasible, effective and cost effective in improving the existing quality of health services for chronic diseases (CDs).

The overall project is a collaboration between MRC/UVRI, the Mwanza Intervention Trials Unit in Tanzania, the London School of Hygiene and Tropical Medicine and the Ministries of Health of Uganda and Tanzania.

In phase I of the project: a baseline survey of policy and practices on the care of CDs, a population survey to document the burden of selected CDs and chronic HIV infection, and a health facility survey to assess capacity of primary care services to manage chronic conditions were completed and supplemented by social sciences and health economics studies. In consultation with national Ministry of Health partners, findings from phase I were used to design a health system intervention package that includes: improvement of screening, treatment, monitoring, record keeping and referral of patients with treatable CDs at participating health centres; in-service training and supervision of frontline health workers; provision of simple treatment algorithms, reporting tools, essential medicines and diagnostic equipment to the health units; and introduction and support of information and screening for CDs into routine health facility based community outreaches.

This randomised impact evaluation follows step wise implementation of the intervention package. Health facilities that received the interventions for at least nine months (intervention facilities) will be compared with those that have not yet received the interventions (control facilities).

In Uganda, about 40 health facilities in Wakiso and Mpigi districts have been selected to participate in the study and the evaluation will consist of 6 component cross sectional studies: **Study 1:** Performance of health facilities; **Study 2:** Quality of case management; **Study 3:** Population based survey; **Study 4:** Cost effectiveness evaluation; **Study 5:** Qualitative study on adverse effects of interventions on other Health services; **Study 6:** Community perceptions on chronic CDs and attitudes to health seeking behaviours

Coordinated at the HIV Care Programme (HCP) clinic in Entebbe, the impact evaluation field activities kicked off in July 2016 and the study is anticipated to end in December 2016.

Complex Model Calibration

PI: Richard White (LSHTM)
Project Leader: Rebecca Nsubuga
Funder: MRC (UK) Research Grant,

Aim: Develop and evaluate methods to calibrate and analyse complex individual-based stochastic models, and apply them to explore the impact of HAART on HIV/AIDS in Uganda.

Objectives: 1) Develop novel methods for Bayesian Emulation of stochastic models. 2) Do a comparative analysis of accuracy and efficiency of existing methods for the calibration and analysis of individual-based stochastic models. 3) Develop a novel hybrid model calibration strategy combining the strengths of two existing methods. 4) Apply developed methods to predict the impact of HAART on HIV/AIDS in Uganda.

Achievements:

- Re-designed the Mukwano model (developed under the initial modelling grant)
 - Developed methods for Bayesian emulation of the Mukwano model.
 - Held three group meetings; one in Uganda and two in London.
 - One paper published: Andrianakis I *et al* published in Plos Computational Biology, 2015 (objective 1).
 - Four manuscripts submitted; History matching of complex stochastic computer models (Andrianakis et al, responded to final minor review comments, JRSS (C)); Objective 2; History matching of a high dimensional individual based HIV transmission model (Andrianakis, et al, submitted to Annals of Statistics); Objective 3; Universal test, treat, and keep (McCreesh et al, submitted to Plos Medicine); Objective 4; Improving ART programme retention and viral suppression (McCreesh et al, submitted to AIDS); Objective 4.

Results from the public health objective have been disseminated at the monthly MRC/UVRI –UVRI joint seminar series and also to the Uganda Ministry of Health (MoH), to whom a policy brief has also been submitted.

Future plans

Following the successful completion of this project, we plan to write more modelling grants and build more capacity at the MRC/UVRI.

A multi country Prospective Clinical safety study of subjects exposed to the candidate Ebola Vaccines Ad 26.Zebov and/ or MVA-BN Fil

Principal Investigator: Prof. Pontiano Kaleebu

Co- Principal Investigator: Dr. Zacchaeus Anywaine

This is a descriptive study to document the long-term safety profile of Ad26.ZEBOV and MVA-BN-Filo vaccines and to address gaps in the currently available data for the risks of the two vaccines.

The purpose of this study is to;

- Collect SAE information from subjects exposed to Ad26.ZEBOV and/or MVABN-Filo in a Phase 1, 2, or 3 clinical studies, for a total of 60 months after prime vaccination (including the duration in the subject's original study).
- Collect pregnancy outcomes (including spontaneous/elective abortion, intrauterine death/stillbirth, and information on delivery) and SAE information during pregnancy from female subjects who became pregnant with estimated conception within 28 days after vaccination with MVA -BN-Filo or within 3 months after vaccination with Ad26.ZEBOV in a Phase 1, 2 or 3 clinical studies.
- Collect SAE information for up to 60 months after birth from children born to female subjects who became pregnant with estimated conception within 28 days after vaccination with MVA -BN-Filo or within 3 months after vaccination with Ad26.ZEBOV in a Phase 1, 2 or 3 clinical studies.

The study will enroll subjects who participated in the Phase 1, 2 or 3 clinical studies with Ad26.ZEBOV and/or MVA -BN-Filo vaccines and who received at least one dose of study vaccine. Up to approximately 5,500 participants will take part in this worldwide long-term safety follow-up study and will be followed for about 5 years (60 months). The MRC/UVRI Uganda research Unit on AIDS (Masaka site) from which there is currently ongoing recruitment (phase 2) and follow up (phase 1 and 2) will enroll approximately 300 participants.

Identifying approaches to improving HIV treatment outcomes among older Ugandans; leaving no one behind

Principal Investigator: Prof. Janet Seeley

Co-investigator: Dr. Joseph Mugisha

This study will be conducted within the General Population Cohort (GPC) in Kyamulibwa, Kalungu district in Uganda.

The main purpose of this early phase study is to contribute evidence to address the gap in knowledge on older persons' barriers to ART access and adherence in sub-Saharan Africa (SSA), and will revise and strengthen theory on the role that social support and community play in ART access and adherence. We will develop an effective intervention to address older Ugandans' ART access and adherence and their feelings of stigma and social isolation. This is in preparation for the main study which will then measure the impact of the intervention.

We shall use qualitative methods of data collection including Key Informants Interviews (KII) and in-depth Interviews (IDI) to collect data from selected study participants. For older adults a random sample of 60 older persons will be selected from the existing lists within the GPC survey and the WOPS Survey. The IDI participants will be divided evenly among three strata (aiming for half men and half women in each stratum): (1) those that are known to be living with HIV and on ART for at least 6 months, (2) those known to be living with HIV who are not currently on ART, and (3) those whose HIV and ART status is unknown. For key stakeholders in the community and health system, we shall use purposive sampling to select up to 15 key informants (half from the health system and half from the community).

After completing the study, one or more meetings will be held with older people and other stakeholders in the study area to share the findings and gather their feedback. Feedback meetings will also be held with the Ministry of Gender, Labour and Social Development and Ministry of Health. A protocol will be prepared for the follow on RCT.

HIV Pre-exposure prophylaxis priming of immune effectors PREPPIE"

Investigators

Dr. Pietro Pala (Principal Investigator - Senior Immunologist, Basic Science Programme)

Dr. Yunia Mayanja (Co-investigator. Clinical Director, GHWP)

Dr. Robert Newton (Co-investigator, HIV Prevention Studies Programme)

Prof. Pontiano Kaleebu (Co-investigator. Head of Basic Science Programme)

Prof. Janet Seeley (Co-investigator. Head of Social Sciences Programme)

Prof. Jonathan Levin (Co-investigator. University of the Witwatersrand, South Africa)

The main purpose of this study is to demonstrate induction of HIV -1 specific immune responses under PrEP cover in HIV -1 exposed individuals that remain uninfected. The study will be conducted among 220 participants at risk of HIV infection who attend the Good Health for Women Project (GHWP) at the MRC/UVRI Mengo field station.

Participants will take oral Truvada PrEP daily for 1 year then prophylaxis will be stopped and immunologic and virologic monitoring will continue for a further 6 months. Their immune responses to HIV will be evaluated by IFN- ELISPOT assays. Adherence will be evaluated by plasma sampling, diary cards, pill counts and in depth interviews.

Regulatory approvals have been obtained and enrolment is expected to start in the 4th quarter of 2016.

Site Initiation Visits; are they necessary?

Site initiation visits are a regulatory requirement to check for team and facility readiness to execute a given protocol. MRC/UVRI's Clinical Research Coordinator, Ms. Berna Naiga Kalanzi gave us some insight into SIVs and why they matter.

What is a site initiation visit and why is it important?

A site initiation visit (SIV) is a monitoring visit to check for team and facility readiness to execute a given protocol. It is conducted at the beginning of a study and prepares the study team for implementing the work at hand. The SIV helps to bridge gaps between what is in the protocol and what is actually on the ground at the site. For example are staff adequately trained? Are the available facilities adequate? Is there adequate space for clinical work, labs etc. and do they have enough supplies of whatever is stated in the protocol?

What happens during the SIV?

The PI takes the team through the protocol and what it entails, objectives of the study, design, study population, inclusion and exclusion criteria, randomisation and how blinding will be maintained where applicable, schedule of study procedures and clinic flow, etc. As part of the SIV, other sections or departments for example labs, statistics etc. that are participating in a particular study also make presentations, detailing what their input will be. For example details such as

when and how data will be collected, CRF completion, data entry, how to minimise errors during data capture, query resolution procedures, etc; The laboratory section may take the team through sample collection procedures, labelling, chain of custody, transportation to the laboratories and turn round times for results, etc. The internal monitor will review the informed consent process, this may be in form of training, ensuring that all the required SOPs as per the protocol procedures are in place and there is evidence of the team's training on these SOPs, review Investigator Site file (ISF), safety reporting procedures where applicable, regulatory requirements, ensure clinical and laboratory procedures are mastered, ensure that all supplies and required equipment are in place and the team is ready to start the study.

Owing to the nature of work involved, the SIV should ideally take between 3 -5 days, though sometimes it's conducted in just one day.

Whose responsibility is it to ensure that a SIV is conducted?

The Clinical Research Coordinator (CRC)



HSS Site Initiation visit: A Study Nurse on the Health Services Evaluation Study (HSS) conducts a Haemocue practicum, a method of determining blood sugar levels that will be used during the study. Looking on are the part of the HSS study team.

usually notifies the Principal Investigator (PI) of the need for a site initiation visit. The PI then takes on the responsibility of organizing the SIV. Collaboration between the PI and the CRC is important.

Who attends the initiation visit and why?

Each protocol provides guidance on the team that will be part of the study. These may include but not be limited to clinical teams, field and public engagement teams, statisticians, pharmacy, lab personnel, drivers, office attendants etc. It's important that everyone that will be involved in a study in anyway attends the site initiation visit.

What documents does the monitor review during the initiation visit?

If the monitor is external (from outside the organisation) they are required to review much more documents compared to an in-

ternal monitor (working within the clinical research coordinating office) who will have reviewed some documents prior to submission. The internal monitor reviews the investigator site file which contains essential documents that entail how the study will be performed. Some of the documents include the protocols, approvals, requisitions and contacts. Standard operating procedures are also reviewed to ensure that the team has undergone standard operating procedures' training. All documents should be signed and up to date.

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Site initiation Visits (SIV)

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When are the monitor's findings communicated to the study team and does this in anyway impact on when a study eventually starts?

Immediately after the visit, a debrief about the findings and action areas is given. This is followed with a detailed report, which the PI ought to receive in two weeks from the date of the SIV. A SIV report is one of the documents required in the site investigation file.

If the monitor is convinced of the site and team's readiness to start, the study can commence.

What challenges are encountered during site initiation visits?

Some studies are planned without putting into consideration the necessity of a site initiation visit and sometimes even the PIs are hesitant to have the site visits and consider them a waste of time, especially when the study design is not a clinical trial. Mobilising the teams is difficult because often, the members who need to be part of the SIV are at the same time required to work on other studies. Considering that a SIV can run for 3-5 days, this is such a big challenge and often results in inadequate evaluation as more often than not, the SIV is scheduled for less time. Inadequate man power especially in the clinical research coordination office is also another challenge.

The MRC/UVRI Biorepository

The MRC biorepository mostly known as "*freezer archive*" is a storage facility for samples processed in the laboratories for future use. The repository started with one -80°C freezer and one -20°C freezer housed in the UVRI building in 1989 and has evolved to support bio specimen storage and management of the Unit's vast sample collections. **Ms. Sureyah Nassimbwa**, the Biorepository Section Head based at the Entebbe Unit tells us about the facility.



Ms. Sureyah Nassimbwa-
Biorepository Section Head

Tell us about the MCR/UVRI biorepository

The main biorepository is located in Entebbe and is composed of 3 freezer rooms, with the Mengo and Masaka field stations also having their own freezer rooms. The Unit has about 90 freezers for long term storage across the 3 sites, while the fourth station, Kyamulibwa has facilities for temporary storage. The Unit also has two big Labs 80k Cryo tanks each with a capacity of holding 80,000 aliquots for cryopreservation at extremely cold temperatures of up to -190°C for long term storage.

The main biorepository in Entebbe has 4 staff who support collection, storage and distribution of samples across all the Unit

sites and other collaborating research laboratories both locally and internationally.

What kind of samples do you keep and how are they preserved?

We store various types of biological samples from human blood and body fluids i.e. Urine, whole blood, Serum, PBMCs, Plasma, Remnant cells, Buffy coats, DNA and RNA extracts Cerebral spinal fluids (CSF), Saliva, Dry blood spots and Cultures/Microorganisms.

Depending on each study's requirement for sample storage, some samples are stored at fridge temperature of $+4^{\circ}\text{C}$ - 8°C , -20°C , -40°C , -80°C , liquid nitrogen - 196°C and room temperature 25°C .

For how long are these samples kept?

The biorepository has got samples as old as 20yrs and these have got rich phylogenetic datasets available with the statistics section.

However, some are temporarily stored awaiting distribution to the laboratory for planned assays and/or shipments to col-



Entebbe; -80°C and -40°C freezers in which samples are stored in the New freezer room



Sample storage in a liquid Nitrogen plant

laborating research laboratories either locally or internationally.

How are the samples transported?

Samples collected from the field and study clinics by study nurses are labelled and packed in sample boxes. Their corresponding lab request forms and chain of custody are also attached. Samples are transported under the protocol defined temperature conditions e.g. on iced water, cool box with ice packs or at normal room temperature

to the laboratory for processing and most times storage thereafter.

We emphasize maintenance of a cold chain. Samples already processed from other labs and field stations are normally kept frozen. These are transported on either Dry ice or in liquid nitrogen dry shippers so as to maintain the storage temperatures say -80 degrees at which they were being stored. This helps maintain stability and integrity until they are received in the main biorepository in Entebbe. Samples in dry ice and Liquid nitrogen shippers are transported on open field vehicles.

We conduct quite a number of international shipments and send samples by certified international couriers. We send these samples on dry ice or in Liquid nitrogen dry shippers. For example, we routinely ship Strategic Timing of AntiRetroviral Treatment (START) Trial samples to Advanced biomedical labs in the USA; International Part-



Repository staff entering samples using barcode reader in freezer works

Lastly, we are now registered members with ISBER (International Society for biological and Environmental repositories) a global organisation that fosters biorepository activities in bio banking and bio preservation as a research discipline.

nership for Microbicides (IPM) study samples to BARC and Parexel in South Africa.

What achievements has the MRC/UVRI biorepository department realized so far?

The Biorepository has definitely grown in size and capacity over the years and also the way we operate has advanced with time.

First, we have moved from management of sample storage data in access and excel database to Freezer Works software. This software was adopted in 2013 and implemented in all MRC/UVRI sites to manage sample storage and barcode label printing.

Secondly, the Unit Biorepository was selected as the Central Biorepository hub for storage and management of sample collection from 10 African countries for the H3A diabetes study. The Unit is one of the participating sites and we as the biorepository have an extra role for this multi -centre study.

What challenges do you face?

As a Unit, we collect a lot of samples but utilize very few. Studies usually store more samples for future work but never get to utilize them. We need to collect relevant information about these studies so that in collaboration with the PIs, we can advise future collaborators on exclusion and inclusion criteria and types or forms of samples to be stored for effective and efficient use of samples .

As a sample storage section, we are at the "end of the sample chain". Many studies do not involve us at the start of the studies to plan well for sample storage, temperature requirements and space allocation. We need to be involved at the start of the studies to guide in storage requirements, sample handling and transportation requirements.

The other challenge is harmonisation; different laboratory sections have got some differences in terminologies used to capture data

for patient on lab request forms; this is the same data that we capture in the freezer works software. This has created so many terminologies which actually refer to the same thing within the system. This poses further challenges when it comes to sample retrievals. An example is the Lab tracking num-

es for repositories as governed by the International Society for Biological and Environmental Repositories (ISBER). This will help us streamline the biorepository activities to international standards.

We hope to design new strategies on how



we can attract scientists to design research projects tailored to make use of the available samples in the archive with their associated phylogenetic data rather than having new study participants in each new research study cohort.

ber which is referred to as a lab number or lab ID or sample ID.

We also have samples collected in the 90's that are not yet in the system. Clearing this backlog has been slowed by the fact that these samples do not have barcode labels with sufficient identifying details, so entering information manually is challenging, especially considering that the current staff were not involved in those studies.

What strategies do you have to overcome the challenges above and what are your future plans?

We are currently implementing best practic-

We want to maximize the value of our biorepository by making stored samples available to researchers through a searchable online platform for easy location. This will also enrich our profile among key stakeholders including ISBER, biomedical researchers, funding bodies, governments, and private industry.

For harmonisation, we need to write a guiding policy on sample repository to guide all new studies on common terminology to use in the system.

MRC/UVRI Interns shine at UVRI Undergraduate Research Internship Competitions



Interns attached to different MRC/UVRI Programmes and sections took the top three positions at the Annual internship competitions held on 5th August, 2016. As part of its capacity building programme, the Entebbe based Uganda Virus Research Institute (UVRI) together with her partner institutions including Medical Research Council/ Uganda Virus Research Institute (MRC/UVRI), Rakai Health Services Programme (RHSP), Centers for Diseases Control (CDC) and the International AIDS Vaccine Initiative - Africa programme (IAVI) provide among others an intensive internship programme that attracts students from various Universities in the country. This year, 64 under -graduate students participated in the programme which commenced with an induction process in June 2016. As part of their internship placement, interns are invited to prepare and present a project of their interest before a panel of judges that comprises of senior staff from the respective institutions at the UVRI, at the annual internship competitions. The competitions are attended by interns and staff.

At the 2016 competitions, Richard Ssaka, Ssejoba Marvin Martin, Nalufunjo Felista and Wanda Harriet all attached to MRC/UVRI programmes emerged the best four. Each of the winners received a cash prize and a certificate of recognition of their performance

What the winners say



Ssaka Richard kisakye

Course: Bachelor of science specialising in biochemistry and zoology

Makerere University (2nd Year)

Topic: *Prevention of HIV infection through CCR5 gene editing using adeno associated virus vector.*

// It was exciting, little did I expect it but after going through a lot of preparation at the end of the day I felt it was worth it. If I get a sponsor I can continue with the topic as a project.



Ssejoba Marvin Martin

Course: Bachelor of biochemistry and chemistry

Makerere University (2nd Year)

Topic: *Evaluating the potential role of galectin 3 in the development of a sensitive, rapid and cost effective test for tuberculosis.*

// I felt normal to some extent and relived after a great deal of work. I love research and I would love to do research on endemic diseases in Uganda and Africa.



Nalufunjo felista

Course: Bachelor of science technology in biology

Kyambogo University (2nd Year)

Topic: *Improvement on the quality and quantity of isolated peripheral blood mononuclear cells using pluribead cell separation technology.*

// It was so awesome, a very good experience, I couldn't believe it. I want to become a researcher, come back and work with the MRC/UVRI in the Co- infections Study Program (CISP).



Wanda Harriet Yvonne

Course: Bachelor of science in biomedical sciences.

Makerere University (Completed)

Topic: *Barriers in uptake and effective use of clinical guidelines within health facilities in Uganda.*

// I am very happy to be among the winners, I felt like am almost reaching my dream. I want to upgrade my education. Pursue a Master's degree in microbiology and immunology.

Drivers' Training



Mr. Godfrey Kaweesa– Mengo



Richard Mutebi– Masaka

MRC/UVRI drivers and other staff who by the nature of their work drive Unit vehicles underwent refresher training in defensive and qualitative driving. The training was held in Entebbe on the 23rd and 24th July 2016 and brought together 30 participants. The trainers, Michael Stephens, Head of Security, Security and resilience at the MRC Head office and Richard Mansfield a senior driver and trainer, who has also served as a driver to the Queen of England, commended the Unit for having some of the best trained drivers in the country.

As part of the training, participants were subjected to both theoretical and practical tests and Godfrey Kaweesa, attached to the Mengo field station and Richard from the Masaka field station emerged the best performers. All participants received a certificate of recognition as competent drivers, while the top two each received a Nakumatt shopping voucher in recognition of their outstanding performance.

Fire and Safety training



Entebbe; Unit staff attend a Fire and Safety training that was conducted at the UVRI campus .

The MRC Sponsorship Opportunity 2016

In response to a call for applications for the 2016 MRC/UVRI Scholarships 21 applications were received from staff. Following evaluation, 10 applicants were successfully selected and awarded one year tuition. The successful applicants can apply for more funds if needed after the one year.

The successful applicants were; Justin Okello, Richard Muhumuza, Robinah Nakiganda Milly Namutebi, Faith Wamalugu, Florence Amuge, Namara Benigna, Annet Babirye, Joyce Nabunnya and Rose Nabwato.

PhD sponsorship for Dr Anne Wajja

Dr Wajja was awarded partial funding for her one year PhD at the University of Amsterdam. This will be effective 1st August 2016.

EDCTP Calls

There are new EDCTP calls open and other planned calls available on the EDCTP website; <http://www.edctp.org/> These calls are aimed at providing funding opportunities to researchers and key members of clinical trial teams.

MRC/DFID African Research Leader scheme 2016/17

The UK Medical Research Council and the UK Department for International Development announce a further call for proposals for the prestigious African Research Leader awards.

This MRC/ DFID jointly funded scheme aims to strengthen research leadership across sub-Saharan Africa (SSA) by attracting and retaining exceptionally talented individuals who will lead high quality programmes of research on key global health issues pertinent to SSA. **Closing date: 14 Sep 2016**

Good Clinical Practice (GCP) Training

GCP training will be conducted for MRC/UVRI staff who have not received the same in the past two years. The schedule for training is as follows;

Station	Dates	Location
Mengo	12 th -15 th September 2016	Hotel Triangle– Kampala
Masaka	26-29 th September, 2016	Hotel Brovad– Masaka
Kyamulibwa	To be confirmed	
Entebbe	To be confirmed	

UAP Medical Insurance; Additions to service provider list

FACILITY	LOCATION	CONTACT
PAN DENTAL	KAMPALA	0312251525
OWEN MEDICAL CENTRE	SOROTI	0454461129/0782469952
VICTORIA UNIVERSITY HEALTH CENTRE	KAMPALA	0417727100/0414727101
MASAKA REGIONAL REFERRAL HOSPITAL	MASAKA	0414660943
ST. ANTHONY HOSPITAL	TORORO	0782607317/0753607317
YOTKOM MEDICAL CENTRE	KITGUM	0782844233/0759873882

Kindly note that Mt. Elgon Hospital in Mbale and UAP are currently conducting a reconciliation that dates back to 2014 and this has led to a temporary shutdown in access to this facility by all UAP clients. Members can however access the facility on reimbursement or visit other providers in the area and these are;

- Mbale Regional Hospital (Masaba wing)
- Marie Stopes Uganda
- International Medical Center

Staff weddings



Ms. Cissy Lillian Nalubega (MRC/UVRI – Masaka) exchanged marriage vows with her fiancé Emma Kato. The wedding took place on 30th July 2016 at Kitovu Cathedral and reception at Maria Flo Hotel in Masaka.



Mr. Justin Okello, Data Programmer (MRC/UVRI–Entebbe) wedded his fiancée Dorothy Nabacwa on 6th Aug. 2016 at the Entebbe Pentecostal Church (EPC). They hosts their guests to a wedding reception at Entebbe Presbyterian Church ground in Katabi– Entebbe.



ARRIVALS

The following staff joined the unit in the last quarter;

NAME	TITLE	STATION
Ritah Namugunya	Field Worker	Kampala/Mengo
Francis kasekende	Pharmacist	Masaka
Stephen Musemeza	Quality Assurance	Entebbe
Jacent Nassuna	Lab Technician	Entebbe
Gerald Muhumuza	H&S Security Assistant	Entebbe
Lawrence Lubyayi	Statistician	Entebbe
Vicent Ddamba	Driver	Masaka
Onesmus Komacooko	Statistician	Entebbe
Charles D. Kiiza	Field Station Administrator	Kyamulibwa
Resty Lubwama	Counsellor	Kampala/Mengo
Rebecca Nakato	Data Manager	Kampala/Mengo
Sandra Lunkuse	Lab Technician	Entebbe
Irene Nambuya	Lab Technician	Entebbe
Marjorie Nakibuule	Lab Technician	Entebbe
Nelson Kasule	Guard	Entebbe
Yasin Akim	Guard	Entebbe



DEPARTURES

The following staff left the unit in the last quarter;

Prof. Anatoli Kamali	Head of HIV Epidemiology and Prevention Programme and Deputy Director
Geraldine Agiraembabazi	Senior Data Manager
Lawrence Muhangi	Statistician
Paul Mayanja	Administrative Assistant
Sophie Nalutaaya	Community Liaison Officer
Ronald Galiwango	Data Manager
Connie Kabacunguzi	Accountant
Mark Atuhamiize	Accounts Officer
Brian Magambo	Senior Laboratory Technician
Simon Mukasa	Laboratory Technician
Angella Kyomuhendo	Guest House Attendant
Ronald Mubiito	Driver
Laban Wasswa	Senior Data Manager

Entebbe

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+256 (0) 752 731733

Kampala

Plot No. 616 Musajja Alumbwa Road
Mengo Kisenyi Kampala
Tel: 0414 269715/ 0414 272953

Masaka

Plot 2 5 Ntiko Hill Road Masaka
Tel: 04814 21211

Kyamulibwa

Gomba Road Kyamulibwa Town Council
Next to the Sub County Offices
Kalungu District
Tel: 0392 720042

Email: mrc@mrcuganda.org
Website: www.mrcuganda.org



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HEARTBEAT