



MRC/UVRI
Uganda Research Unit on AIDS

Celebrating 25 years of Research Excellence through Partnerships

(1989-2014)

MRC

MRC/UVRI Uganda
Research Unit on AIDS



UGANDA VIRUS RESEARCH INSTITUTE

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LIST OF ACRONYMS

AGVP	African Genome Variation project
AIDS	Acquired Immune Deficiency Syndrome
ALPHA	Analysing Longitudinal Population-based HIV/AIDS data on Africa
ARROW	Antiretroviral Research for Watoto (ARROW) Study
ART	Antiretroviral therapy
BCG	Bacillus Calmette–Guérin
CDC	Centers for Disease Control and Prevention
CDLS	Clinical Diagnostic Laboratory Services
CDs	Chronic Diseases
CME	Continuing Medical Education
CoLTART	Long Term Clinical Outcomes of ART in an African Cohort
CoSTOP	Co-trimoxazole prophylaxis Stopping
DART	Development of AntiRetroviral Therapy
DFID (UK)	Department for International Development
EDCTP	European Developing Countries Clinical Programme
EMaBS	Entebbe Mother and Baby Study
ESRC	The Economic and Social Research Council
EU	European Union
EV06	DNA-HIV-PT123 and AIDS VAX® B/E HIV-1 vaccine trial protocol
FAO	Food and Agriculture Organization
GCLP	Good Clinical Laboratory Practice
GCP	Good Clinical Practice
GLGC	Global lipids genetics consortium
GPC	General population cohort
GWAS	Genome Wide Association Studies
HAART	Highly Active Anti-Retroviral Therapy
HIV	Human Immunodeficiency Virus
HPV	Human Papiilloma Virus
IAVI	International AIDS Vaccine Initiative
IPM	International Partnership for Microbicides
LaVIISWA	Lake Victoria Island Intervention Study on Worms and Allergy related diseases
LSHTM	London School of Hygiene and Tropical Medicine
MDR-TB	Multi Drug Resistant Tuberculosis
MRC	Medical Research Council
MUII	Makerere University/UVRI Infection and Immunity Research Training Programme
NCDs	Non- Communicable Diseases
NHC	Natural History Cohort

NIAID	National Institute of Allergy and Infectious Diseases
NORA	The Nevirapine or Abacavir (NORA) substudy of DART
ODA	Overseas Development Administration
PCR	Polymerase Chain Reaction
RCC	Rural Clinical Cohort
SALIF	A Clinical Trial Comparing the Efficacy of Tenofovir Disoproxil Fumarate/Emtricitabine/Rilpivirine (TDF/FTC/RPV) Versus TDF/FTC/Efavirenz (TDF/FTC/EFV) in Patients With Undetectable Plasma HIV-1 RNA on Current First-line Treatment
START	Strategic Timing of Anti-Retroviral Treatment
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
TASO	The AIDS Support Organization
TB 036	Modified Vaccinia Ankara 85A TB vaccine trial protocol
TEG	Tropical Epidemiology Group
UCT	Universal Counseling and Testing
UNAIDS	United Nations Programme on HIV/AIDS
UNHRO	Uganda National Health Research Organization
UVRI	Uganda Virus Research Institute
VCT	Voluntary Counselling and Testing
ViiV	ViiV Healthcare pharmaceutical company
WHO	World Health Organization

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FOREWORD – UVRI DIRECTOR



**Dr. Edward Katongole
Mbidde**

Director

Uganda Virus Research Institute

Let me take this opportunity to congratulate the MRC/UVRI Uganda Research Unit on AIDS as you celebrate 25 years of HIV/AIDS research in Uganda. MRC's work is integral in fulfilling our vision to be a world class centre of excellence in health research and we are proud to have partnered and been part of the outstanding achievements resulting from your work.

The MRC/UVRI Uganda Research Unit on AIDS has been at the centre of a number of important multidisciplinary research that has resulted in better understanding of the disease from the earlier start of the epidemic in Uganda, risk factors for infection, improved management of HIV/AIDS and participated in a number of prevention studies and basic science research that has contributed to knowledge, policy, intervention and disease interaction studies among others.

I'm pleased to see that your plans to broaden into non-communicable diseases are successfully being implemented thus providing vital information that has been hitherto scanty.

I commend the Unit for the continued contributions towards human and infrastructure capacity development on the UVRI campus. Many of our staff have benefited from the training offered through

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the MRC for both short and long term courses. And this has immensely contributed to Health Systems Strengthening that is pivotal to successful delivery of health services.

Finally, on behalf of the millions of Ugandans, let me thank the UK Government for the continued support given to the Unit and it is my hope that this support will continue in the years to come. Likewise I would extend my appreciation to the Government of Uganda for providing the conducive environment that has prevailed over the years and pray that it is maintained for decades to come.

PREFACE BY DIRECTOR- MRC/UVRI



Professor Pontiano Kaleebu
MRC Uganda Unit Director

This year 2014, we celebrate 25 years of MRC/UVRI Uganda Research Unit on AIDS. Let me take this opportunity to congratulate and thank all the staff present and past, our partners and our funders over the years. Though the initial MOU establishing the MRC/UVRI was signed on 12th December 1988, the MRC research programme activities were initiated in 1989 in Kyamulibwa and the official launch was in October 1989.

It is for this reason that in 2014 we mark 25 years of our existence, under the theme “25 Years of Research Excellence through Partnerships”. The theme was selected to recognize the fact that the achieve-

ments and successes we have registered have only been possible through the various partnerships we have created over the 25 years, big and small; rural and urban; national, regional and international, Government and Non- Government and most important among others the communities and individual participants in our studies.

I would like here to give a brief summary of our journey and some of our achievements over the past 25 years.

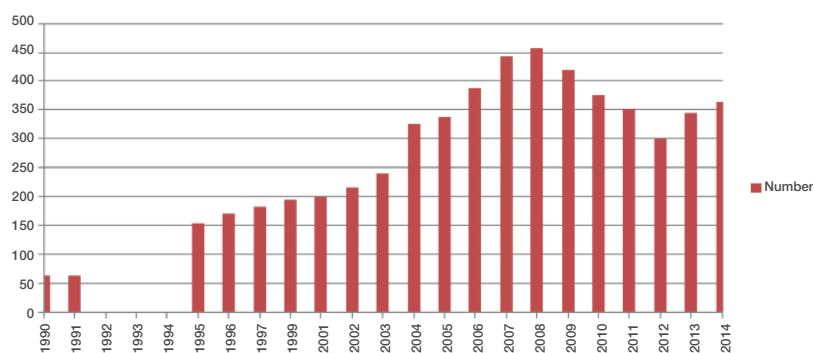
When the new NRM government which came to power in 1986 recognized the danger of the HIV epidemic they acted quickly to raise public awareness including an appeal for international support to combat the disease. This included the invitation of MRC (UK) by the Government through the Ministry of Health to support the AIDS Control and Prevention Programme with human and material resources. An MOU establishing the collaboration and creation of the MRC/ODA/UVRI Programme on AIDS was signed in October 1988. It was expected that the MRC team would be based at the Uganda Virus Research Institute, Entebbe and at a research

station in Kyamulibwa. In 1988, knowledge of the epidemiology of HIV-1 in Africa was largely based on studies of patients attending urban hospitals and of selected urban populations.

There was limited information on the extent of the epidemic among rural populations and no data on risk factors for transmission, incidence, progression of disease and associated mortality. Kyamulibwa was selected as the first rural study area. There was local support for this work, reasonable health facilities, within reasonable distance from Entebbe and accessible for a good part of the year.

Over the years the Programme grew bigger in terms of its research portfolio, funding and staff numbers. New research sites were later opened initially in Masaka, then Entebbe, Kampala and Jinja. In 2005 the Programme was upgraded to a Unit status to become one of the two MRC-UK Units in Africa, the other being the Gambia Unit. This was an important development, and an expression of the long term commitment from the MRC-UK and the UK Department for International Development (DFID).

MRC Staff Numbers - 1990 to-date



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The programme's mission is : i) to conduct research to improve the control of the HIV epidemic through prevention and care both in Uganda and elsewhere in Africa ii) to contribute to the translation of research findings into policy and practice both locally and internationally and iii) to support capacity building for research in Africa.

IMPORTANT RESEARCH FINDINGS

The research findings of the Unit working with various partners have contributed to the understanding and control of the HIV epidemic in Uganda and globally, and informed the future development of biomedical HIV interventions and health policy.

THE FIRST DECADE OF MRC/UVRI 1989-1999

The first ten years the MRC programme provided very important data on HIV prevalence and incidence including age-specific population attributable risks for HIV-1 infection. The role of sexual behaviour in the HIV-1 epidemic was confirmed. For example, a factor that was most strongly associated with increased risk of HIV infection was a greater number of lifetime sexual partners. In addition, early studies showed that young women were at a higher risk of infection. On the other hand, HIV infection among children aged 0-12 years was virtually exclusively the result of mother to child transmission. No infections were attributed

to parenteral exposure, non-sexual casual or house hold contact or insects. There was useful information generated on the biological and behavioural risk factors influencing transmission.

Studies showed that the proportion of deaths that would have been avoided in the absence of HIV were 44, 50, and 89% for adult men, adult women and adults aged between 25-34 years of both sexes. The work in the rural populations indicated the devastating effects of the epidemic on the families and the communities, where the support networks in communities were hard pressed due to the intensity of the infection.

In the mid-1990s, the MRC work showed for the first time in sub-Saharan Africa declining HIV prevalence especially in the young adults in the general populations and later provided the first data on the declining HIV incidence in some age groups. An indication that some control measures could lead to epidemic control. In 1990, a clinical cohort of HIV infected people; the Natural History Cohort (NHC) in the era before anti-retroviral treatment became available, was set up to investigate clinical manifestations and progression of the disease.

This cohort consisted of prevalent cases of HIV-1 infection identified as HIV positive in 1989 or 1990, HIV incident cases identified since 1990, and HIV negative controls. This cohort provided important information including the survival times of HIV infected individuals in

sub-Saharan Africa which, at that time, were not dissimilar to those described in the high income countries.

In the later 1990s, the Unit contributed significantly to our understanding of the molecular epidemiology of HIV-1, showing the prevalent HIV-1 subtypes circulating were A and D; it became clear that we needed to understand the relevance of these subtypes on disease progression, treatment and vaccine design. In late 1999, MRC participated in the first HIV vaccine trial in Africa. There was intense debate as to whether using a subtype B based vaccine in a region with diverse subtypes was ethical and scientifically justifiable.

At the same time, a cohort of HIV-1 infected adults was established in Entebbe (Entebbe Cohort) to undertake a randomized trial of a polyvalent pneumococcal vaccine. The cohort was to provide very useful information in the later years on the management of HIV and associated opportunistic infections in the pre-ART era.

THE SECOND DECADE OF MRC/UVRI (1999-2009)

Between 1999 and 2009, the Programme made other significant contributions. We continued to observe changes in reported sexual behaviour, especially among young people, who were adopting safer sex practices, but risky sexual behaviours increased in the middle-aged and older adults. While evidence for an association between HIV infection and presence of other

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sexually transmitted diseases (STD) was consistent in many studies and our modelling studies had also indicated that the control of HIV may benefit substantially from successful STD intervention programmes, this needed an intervention trial to prove the role of STD in HIV transmission. A land mark study whose results came out in early 2000 was the Masaka Intervention Trial. This was a community randomized trial which aimed to determine the effectiveness of a behavioral change intervention through Information, Education and Communication (IEC) alone or in combination with improved STD management on HIV transmission. Unfortunately, there was no difference between inter-

Data from this NHC contributed to the results of analyses on survival used by WHO and UNAIDS to inform global estimates and projections of HIV infections.

Results from a double blind randomized placebo controlled trial of the 23-valent pneumococcal vaccine in HIV-1 infected people in the Entebbe cohort showed no benefit in preventing pneumococcal disease in this population. Studies in this cohort also showed that Cotrimoxazole prophylaxis reduced HIV mortality by 23% and reduced rates of Malaria by 68%. The Entebbe cohort provided opportunities to confirm the existence of cross-clade cellular immune responses and, the

HIV progression, contrary to widely advocated hypothesis on the potential effects of helminth-induced T-helper (Th)2-induced immunological bias.

Anti-retroviral treatment (ART) was introduced to our patients in 2004 and we started studying HIV-1 infected patients on treatment and to design studies that could lead to simpler approaches to deliver ARTs and other associated factors such as resistance development. We also contributed towards social and behavioral studies in the ART era, including adherence studies and cost effective analysis of ART delivery strategies.

The DART and the Jinja studies looked at simple ways of the delivery of ARTs. DART showed that ART could be delivered safely using minimal laboratory monitoring and that structured treatment interruptions regimens were not appropriate. The Jinja trial showed that home based ART delivery using trained lay workers was effective. The ARROW trial completed in 2009 also revealed that similarly ART can be delivered to children with minimal laboratory monitoring.

The Unit gradually became a major source of data on ART drug resistance, including provision of data on HIV transmitted drug resistance, with low to moderate resistance, as defined by WHO, reported in different populations. Further capacity was built to study drug resistance, with the Basic Sciences laboratories becoming the national and regional HIV drug resistance reference laboratories. These activities have allowed us to make a contribution to



Unit field staff conduct a medical survey in Masaka

vention arms on the incidence of HIV.

The first data on survival time in rural African populations showing that survival with HIV in Africa was similar to that in industrialized countries before the use of ART was generated.

The median time from infection to AIDS was 9 years, although the median survival from AIDS to death was shorter, less than 5 months.

demonstration that cellular immune responses to the core parts of the virus correlated with slower disease progression information relevant for vaccine research. Other studies from this cohort and the NHC included the first reports to show differences in disease progression between HIV-1 subtypes A and D and host genetic studies and HIV disease. Research on co-infections showed no evidence that helminth infection was associated with faster

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understanding of the development of resistance among those infected with HIV subtypes A and D. We took part in other important studies including a study that showed systemic cryptococcal disease can be prevented reliably and cost-effectively through oral medication with fluconazole.

The Unit was part of the UK Microbicide Development Programme that conducted a number of microbicide trials including the large phase III trial of PRO2000 which, however it did not show benefit in prevention of HIV transmission. This decade also saw the initiation of long term collaboration with the International AIDS Vaccine Initiative (IAVI). This partnership has helped build our capacity to conduct HIV vaccine trials including the conduct of two phase I vaccine trials in Masaka, but also to prepare cohorts for phase III efficacy trials

The contribution of high risk populations, such as truck drivers, fishing communities and commercial sex workers to the epidemic was already recognized, especially along the trans-African highway. The programme contributed to studies in these populations including studies of sexual networks and behaviours.

In a study of providing poor commercial sex workers in the town of Lukaya with access to microcredit, we found no effect on the number of partners or condom use, implying that the links between financial dependence and sexual empowerment are complex.

THE FIRST HALF OF THE THIRD DECADE (2009-2014)

While our studies in the rural population continued to provide encouraging evidence that HIV incidence is in decline particularly from early 2000 onwards, a reversal was seen in some age groups. The epidemic is also shifting demographically to encompass married couples and older age groups. The infection rates in some high risk populations, such as those living in fishing communities around Lake Victoria and commercial sex workers had reached alarming proportions. However, with the introduction of ART, survival of HIV-1 positive persons had also improved dramatically, and HIV was becoming a chronic condition with both individual and societal consequences.

This reduced mortality in our cohorts, and resulted in a rising HIV prevalence and infected people survive longer. Our focus during this period therefore, needed to address this changing face of the epidemic, with an emphasis on HIV prevention research, especially in key populations and managing HIV as a chronic disease. Interestingly we showed that contrary to common belief and despite the fact that many people in high risk populations are highly mobile, they still had high retention rates and could be suitable for intervention studies

To understand the epidemic within the GPC, our interest was to investigate why, in spite of the work we had done over the years we still had new infections occurring in this population. Who are the main

sources of infection? This required a multi-disciplinary approach and involved identifying HIV transmission networks and linkages using molecular virology combined with epidemiology and social science. Similar approaches within the high risk groups have already shown transmission networks and linkages and, an observation that most of the transmissions occurring in the fishing communities come from individuals who have been infected for some time rather than incident cases. This supports the use of treatment as prevention since it shows that there are opportunities to identify potential source cases and enrol them into care.

We have initiated studies to investigate factors limiting access to HIV prevention interventions and to assess the feasibility of conducting HIV combination interventions in fishing communities in Uganda. These pilot studies will inform the design of effectiveness trials of combination prevention in key populations and hard-to-reach communities. In collaboration with the President's Emergency Plan for AIDS Relief (PEPFAR), we are providing treatment to all eligible HIV positive women attending a clinic in Kampala for treatment (comprising mainly women who engage in transactional sex or work in high risk environments such as bars); resources to extend this to the fishing communities have been disappointingly hard to find but we hope with the new guidelines prioritizing ART to key populations, this will be urgently addressed. In an effort to tackle the needs of the fishing communities we are working regionally with other partners and have initiated the Lake

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Freezers in one of the sample archives

Victoria Fishing Consortium, allowing a broader approach to intervention and health system research. Research in high risk populations has allowed us to make contributions in other areas such as sexually transmitted infections, where we reported *N. gonorrhoea* resistance to ciprofloxacin, host immunological factors associated with resistance to HIV infection in highly exposed seronegative individuals and rates of HIV-1 superinfection.

Studies of HIV across the life course are generating important data on the impact of HIV in older people, where we noted particular challenges among people over 50 years living with HIV, who face stigma, because the infection is seen as a young persons' disease. Children/young people living with HIV have other challenges such as adherence. Other areas of research include understanding the context of HIV in fishing communities and sex workers and the factors that facilitate high HIV infection rates in those communities. Our collaboration with IAVI continued and the HIV acute/early infection multicentre study (Protocol C) we were part of showed that HIV subtype D-infected participants progress nearly twice as fast

to AIDS compared to subtype A. This was also supported by the results from the MRC rural clinical cohort among incidence cases where we reported faster progression of those infected with subtype D compared to A.

We became part of the International Partnership on Microbicides (IPM) by participating in a microbicide phase III programme evaluating the safety and efficacy of Dapivirine (NNRTI) vaginal ring in preventing HIV-1 among sexually active HIV-negative women. We also successfully completed HIV vaccine phase I in Masaka using Ad35-GRIN and F4co adjuvanted with AS01B/AS01E.

We follow one of the longest treatment cohorts in Africa where many of our participants have been on ART for more than 10 years and initiated on different first line regimens. This provides an opportunity to describe the long term safety and toxicity of ART and factors associated with the development of drug resistance. In the RCC, the commonest predictors of virological failure in those on ART were age less than 30 years at ART initiation, alcohol consumption and

reported adherence. We have been part of a number of other multi-centre clinical studies. SPARTAC trial a large multicenter study, this work did not show strong evidence for the use of ART during primary infection for a few weeks as an intervention to delay disease progression. SALIF; a phase 3b trial which will give data on a novel fixed dose (TDF/3TC/ Rilpivirine) combination, which could provide a much needed alternative to non-nucleoside reverse transcriptase inhibitors (NNRTI) based first line regimen for Africa. Two other on-going studies are, START looking at whether early ART is superior to deferred ART in delaying the occurrence of a composite outcome consisting of AIDS, non-AIDS or death from any cause. Another is the COSTOP studies about to be unblinded that has been studying the safety of discontinuing Cotrimoxazole prophylaxis among HIV infected adults on ART in Uganda.

Another important development was the increased work on Non-Communicable Diseases. Our collaborative studies reported cardiometabolic risk factors in a rural Ugandan population; we conducted genetics research to understand the genetics associations with specific conditions such as diabetes, dyslipidaemia, hypertension and HIV/AIDS. New work on assessing the burden and spectrum of Type 2 Diabetes will soon start in Kampala. The new Kampala clinic facility will strengthen our capacity in this area. Improving health services for chronic diseases (CDs) in Africa is a health systems research project conducted in collaboration with others, where phase one was

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MRC staff on the HSS project set up a height board in the Diabetics clinic at Kitanda Health Center- Wakiso District

completed. In the general population in Mpigi and Wakiso districts, we found a high prevalence of hypertension ranging between 19% and 27% and the majority of people with these CDs (except diabetes) were not aware of their condition. The prevalence of factors known to be associated with cardiovascular disease and diabetes was also high. Phase two which involves interventions has been initiated. Our research into mental diseases expanded including studies of psychiatric complications associated with HIV/AIDS, with high rates of major depressive disorders.

To further our work in the area of helminth co-infections, we are conducting studies to look at the effect of schistosomiasis on HIV disease progression and on HIV-1 host immune responses. In addition, there are two on-going studies looking, for the first time, at the effect of helminths on vaccine responses in humans. One is looking at the effect on the safety and immunogenicity of DNA and gp120 AIDSVAX recombinant vaccine, and another on MVA85 TB vaccine among school children. The EMaBS randomized trial was completed during this period which showed that neither

albendazole nor praziquantel treatments affected infant response to BCG, tetanus, or measles immunisation. Another striking observation was that infants whose mothers received albendazole were significantly at higher risk of developing eczema. So probably, not all the effects of deworming in pregnancy are beneficial.

This resulted in the development of a new intervention, the Lake Victoria Island Intervention Study on Worms and Allergy-related diseases (LaVISA) which started during this period. This is a cluster-randomised trial of intensive versus standard intervention against helminth infection, undertaken in the island communities of Koome sub-county. The outcomes will be assessed in a survey in 2015-2016, with wheeze, atopy and eczema as key outcomes, alongside anaemia, growth, hepatosplenomegaly.

As summarized above, MRC/UVRI has made significant contributions to HIV research over the 25 years. The initial years were aimed at understanding the new epidemic in a rural African setting and later in other high risk groups. The later years allowed us to contribute knowledge

to newer interventions and disease interactions. Our comparative advantage has been the multidisciplinary approach to our research and the longitudinal data and specimens. We have also over the time broadened our activities to NCDs and other areas. This diversification can be seen in the figure below which shows the proportions of papers in different fields published in 2013. On page 72 we have listed some of our most cited publications over the 25 years and on page 77 papers published in the last one year from Nov 2013 to October 2014.

CAPACITY BUILDING

Over the 25 years of its existence, the Unit has developed physical infrastructure and human resources that have established it as an internationally recognised centre for research on HIV and other communicable diseases. Central to this has been the development of an experienced staff.

This has been achieved through training “on the job” provided by dedicated senior personnel, and by providing formal training opportunities and career-pathway training for both scientists and support staff, as well as opportunities for international exposure through attachments, courses and conferences. The outcome of this process is a highly productive research Unit, influencing local and international policy and scientific thinking. The Unit has also played an important role in the capacity building for UVRI that includes training of staff, creating an academic environment including opportunities for short and

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long courses, seminars, supervision of staff and provision of laboratory space among others.

We have supported and contributed to the infrastructure of UVRI such as contributing to the construction of a new clinic, training building, laboratories, road networks among others. Over the years we have created strong collaborations with various Universities including Makerere University. More recently the Makerere University UVRI (MUU) programme to which we are a part has strengthened further the link with UVRI and Makerere.

In the 25 years, we have supported 44 PhD students and 74 MSc students. Some of these have gone on to become leaders in their field within the Unit and at other places in Uganda and elsewhere.

We are very grateful to the MRC-UK that has invested in our infrastructure through Capital development funds and the training funds, without these resources we would not have made all these achievements.

UNIT'S CONTRIBUTION TO POLICY

Another Unit's mission is to ensure appropriate and timely utilisation of research findings, through informing and providing an evidence base for national and global policies and practice. The Unit interacts closely with the Ministry of Health of the Government of Uganda and the Uganda AIDS Commission and with international organizations to formulate research agenda that are urgently

needed to inform policy. Scientists of the Unit make contributions to policy consultations at the national, regional and international level such as World Health Organisation (WHO) and UNAIDS to facilitate the translation of research results into policy and practice in Uganda and elsewhere in sub-Saharan Africa. We are proud to say that our work ranging from epidemiology, social behavioural, clinical to basic research has made significant contribution to policy and practice as described in more details on page 59.

THE FUTURE

HIV will remain a health challenge for some years to come, this is our major strength and we will continue with cutting edge research, taking advantage of our multidisciplinary approach and the exceptional international collaborations. There will be a lot of research questions related to HIV as a chronic disease and the challenges of long term ART treatment. All three poverty-related diseases (HIV, tuberculosis and malaria) as well as the majority of the neglected tropical diseases, still lack an effective vaccine. We are in a strong position to contribute to vaccine development and trials by virtue of our excellent laboratory facilities, our collaborations and our work on other factors that may influence and impair the immune response to vaccines in tropical or resource-poor settings.

We have expanded the NCD research, especially as it relates to infectious diseases, and so far working in partnerships, we have been highly productive, this will be an area

of continued interest. We also have a small, but expanding, group of scientists addressing mental health, again often in the context of infectious exposures. New opportunities in genotyping and bioinformatics provide new avenues to understand the relationship between genetics and infections, NCDs and responses to vaccines. We need to build on this with additional capacity in NCD research, and further collaborations in this field.

Our presence at UVRI the lead institute in viral diseases including emerging and re-emerging infections puts us in good position to contribute in the area of emerging and re-emerging infections.

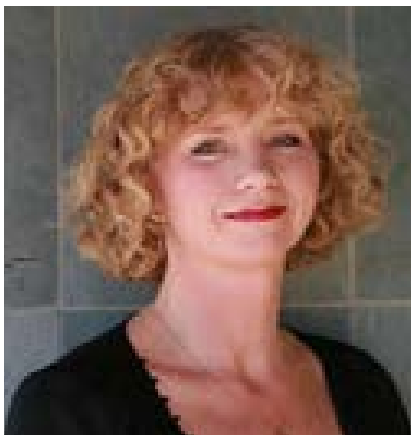
We have initiated health systems and implementation research, and have important regional collaborations in this field. We consider this as a key cross-cutting area in which to build capacity at the Unit as well. There are other areas the MRC may contribute including maternal and child health issues and neglected diseases among others.

In all areas, we will make it a priority to build more human capacity to have more senior researchers as future leaders. In order to remain competitive, we will continue to value and strengthen partnerships and collaborations including strengthening our links with UVRI and regional Universities.

This has been indeed 25 Years of Research Excellence through Partnerships!

This has been indeed 25 Years of Research Excellence through Partnerships

MESSAGE FROM THE BRITISH HIGH COMMISSIONER



Alison Blackburne
British High Commissioner to
Uganda

I would like to congratulate the MRC / UVRI Uganda Research Unit on AIDS on your 25th Anniversary. The partnership between the UK and Ugandan Governments goes back many years. When a request was made by the Government of Uganda and the UK Government, through the Medical Research Council (UK), to support the AIDS Control and Prevention Programme, the MRC's positive response was a reflection of the on-going relationship.

Over the last 25 years, the collaboration between UVRI and MRC has grown stronger, as an equal partnership. The work of the Unit has not just had a positive impact on the lives of people from all walks of life in Uganda, but also in the rest of the world. The collaboration has improved understanding of HIV / AIDS treatment, care and management, as well as contributing to the development of policy and practice, globally.

It is a true public good. The partnership has also resulted in capacity development in Uganda and the region in both infrastructure and in research skills. We commend your achievements.

Over the last 25 years, the collaboration between UVRI and MRC has grown stronger, as an equal partnership. The work of the Unit has not just had a positive impact on the lives of people from all walks of life in Uganda, but also in the rest of the world. The collaboration has improved understanding of HIV / AIDS treatment, care and management, as well as contributing to the development of policy and practice, globally.

As you celebrate your Silver Jubilee, I want to challenge you to expand your future focus into other areas of medical research to address the rising and evolving disease burden in Uganda and in the region. The UK Government is committed to encouraging and supporting research to improve human health and we look forward to more ground breaking and life transforming studies from the MRC / UVRI.

**Congratulations and
Happy anniversary.**

MESSAGE FROM THE PRIME MINISTER AND MINISTER OF HEALTH



Hon. Dr. Rukahana Rugunga
PRIME MINISTER/
MINISTER OF HEALTH
REPUBLIC OF UGANDA

On behalf of the Ministry of Health and on my own behalf, I congratulate MRC/UVRI Uganda Research Unit on AIDS upon making 25 years of medical research in Uganda.

I'm greatly honoured to witness the MRC/UVRI celebrating 25 years having been part of start of this very successful collaboration between the MRC-UK and the Ministry of Health through the Uganda Virus Research Institute. As the then Minister of Health in 1987, I had the privilege to visit Sir James Gowans, the head of the MRC at that time.

I discussed with him the scope for collaboration with Ugandan institutions in supporting the AIDS Control and Prevention Programme with human and material resources. These early discussions and the exchange visits by researchers from the UK that followed led to the establishment of this very important partnership.

We are glad that 25 years on, the support from the UK Government has continued and the research output has made tremendous contributions towards the understanding and the control of this epidemic. The capacity that has been built over the years is a clear indication of the commitment of the UK Government towards this partnership.

I'm happy to note that institutions like the MRC/UVRI Uganda Re-

The need to find a lasting solution to HIV/AIDS is still paramount and your research efforts to improve management of HIV/AIDS and better still to find a vaccine are commendable. We equally support your efforts to address other health challenges including research in non-Communicable diseases.

search Unit on AIDS have contributed to Uganda's international recognition and success story in regard to the fight against HIV/AIDS.

As you celebrate 25 years of improving human health through research, especially in regard to HIV/AIDS, there is need to brace yourselves for the years to come. The need to find a lasting solution to HIV/AIDS is still paramount and your research efforts to improve management of HIV/AIDS and better still to find a vaccine are commendable. We equally support your efforts to address other health challenges including research in non-Communicable diseases.

The Government highly commends your work and we pledge our continued support.

For God and my Country,

MESSAGE FROM MRC (UK) CHIEF EXECUTIVE



Sir John Savill
MRC Chief Executive

It is with great pleasure that I congratulate the MRC/UVRI Uganda Research Unit on AIDS on this auspicious occasion as you celebrate '25 years of Research Excellence through Partnerships'.

In 1989, the Uganda Government made a request to the UK government to contribute towards the understanding and control of the HIV epidemic in Uganda. In response, the UK government established the MRC/UVRI Uganda Research Unit on AIDS with headquarters in Entebbe, at the Uganda Virus Research Unit (UVRI). In 2005, the MRC program was upgraded to a research unit.

With continued support from the MRC (UK) and other funders, the Unit has over the past 25 years evolved into an internationally recognized centre of excellence for research on HIV infection and related diseases using a multi-disciplinary approach that has contributed to knowledge on the evolving epidemic, the evaluation of innovative health care op-

In 1989, the Uganda Government made a request to the UK government to contribute towards the understanding and control of the HIV epidemic in Uganda. In response, the UK government established the MRC/UVRI Uganda Research Unit on AIDS with headquarters in Entebbe, at the Uganda Virus Research Unit (UVRI).

tions, treatment, prevention and deeper understanding of the local virus strains, and host immune response including those related to disease interactions. The Unit's research output has made significant contributions to knowledge, health policy and practice in Africa and worldwide.

On behalf of MRC (UK) and on my own behalf, I heartily congratulate the Unit on these achievements and pledge our continued support to improve lives through research.

MESSAGE FROM THE –DIRECTOR GENERAL, UNHRO



Dr. Sam Okware
DIRECTOR GENERAL
UGANDA NATIONAL HEALTH
RESEARCH ORGANISATION
(UNHRO)

Congratulations on this landmark occasion when we celebrate 25 years of the MRC/UVRI collaboration. Equally we congratulate the MRC/UVRI Research Unit on AIDS on this anniversary.

The Uganda National Health Organisation Act 2011 mandates UNHRO to coordinate, align and harmonise health research in the country. Our goal is to create scientific knowledge for the application of evidence based health policies and interventions for the improvement of health care delivery. Collaboration and partnerships in all fields of health research is a vital pillar of our strategic plan. Such collaboration has built remarkable capacity at UVRI.

The MRC has been a critical partner for the last 25 years. I commend the MRC for contributing generously to support health research in Uganda. The support from MRC and other partners have transformed the institute. The HIV/AIDS Unit has expanded in terms of infrastructure, equipment and human resource capacity, thereby facilitating the implementation of ground breaking and life changing research.

I thank them for the commitment and the funding of the Institutes programs in health research. We are all proud that the UVRI/MRC collaboration spearheaded HIV/AIDS research at its most critical moments, which knowledge has supported the prevention and control of the disease. These research efforts have been responsive to community needs and

Over the years, MRC/UVRI has grown to become a centre of excellence for research in HIV infection and related diseases. This collaboration should continue to grow in the future so as to respond to current burden of disease and the rising epidemic of non-communicable diseases, new emerging infections and behavioural challenges associated with globalisation and climate change.

contributed significantly to health delivery and diseases control. In particular, HIV care and management in Uganda has been transformed as a result of the numerous research conducted at the Institute.

Over the years, MRC/UVRI has grown to become a centre of excellence for research in HIV infection and related diseases. This collaboration should continue to grow in the future so as to respond to current burden of disease and the rising epidemic of non-communicable diseases, new emerging infections and behavioural challenges associated with globalisation and climate change.

Congratulations upon “25 years of Research excellence through partnerships”.

Long Live the MRC/UVRI collaboration!

MRC/UVRI PROGRAMMES AND SECTIONS

01

HIV EPIDEMIOLOGY AND PREVENTION PROGRAMME



Dr. Anatoli Kamali
Head of Programme

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Dr. Anatoli Kamali is the Deputy Director of the MRC/UVRI Uganda Research Unit on AIDS, and Head of the HIV Epidemiology and Prevention Programme. He is an Honorary Senior Lecturer at the London School of Hygiene and Tropical Medicine (LSHTM). He qualified in Medicine and Surgery at Makerere University, MSc in Community Health at London School of Hygiene and Tropical Medicine, and PhD at City University, London.

Dr. Kamali has been involved in HIV/STI research since 1989, and has led several HIV intervention clinical trials. His main interest has been HIV epidemiology and evaluating HIV prevention strategies in Africa, and more recently HIV vaccine and vaginal microbicides. He is part of various international scientific collaborations with institutions in the UK, USA and Af-

rica; and has served on several scientific boards for international organizations and conferences including being a member of the Safety and Evaluation committee of the International Partnership for microbicides and is currently one of the chairs of the first HIV Research for Prevention conference due to take place in Cape Town in October 2014.

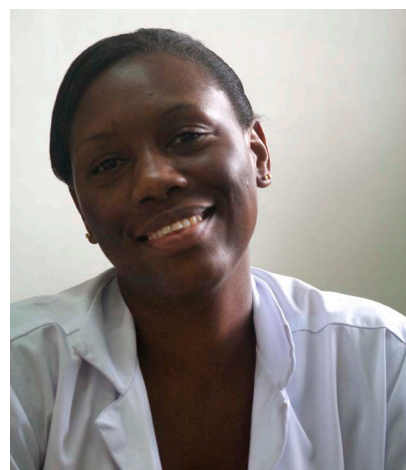


Dr. Rob Newton
Senior Clinical Epidemiologist
Rob.Newton@mrcuganda.org

Dr. Newton is a senior epidemiologist with the Epidemiology and Prevention Programme at MRC/UVRI and a Reader in Clinical Epidemiology at the University of York, UK. He is also a Senior Visiting Scientist at the World Health Organisation's International Agency for Research on Cancer. He qualified at the Royal Free Hospital School of Medicine in London

in 1991 and was subsequently awarded an MRC Research Training Fellowship to work at the Imperial Cancer Research Fund's Cancer Epidemiology Unit in Oxford (now Cancer Research UK Cancer Epidemiology Unit). In 2005, he moved to the University of York and in 2012 was seconded to work at MRC/UVRI.

He is interested in the role of infectious agents and immune suppression in the aetiology of cancer and has particular experience of the conduct of epidemiological research on non-communicable diseases in sub-Saharan Africa.



Dr. Yunia Mayanja
Project Leader
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Dr. Yunia Mayanja is a project leader, under the Epidemiology and Prevention program of the MRC/UVRI Uganda Research ↻

01 | HIV EPIDEMIOLOGY AND PREVENTION PROGRAMME

Yunia Mayanja
Project Leader
Yunia.Mayanja@mrcuganda.org

Unit on AIDS. She qualified with a degree in medicine and surgery, and has post graduate training in Public Health (MPH).

She has been involved in HIV/AIDS research for the last 7 years; previously having worked as a physician on a project to roll out antiretroviral treatment (ART) to rural health facilities in rural Uganda. For the last two and half years she has led a team of health workers at the Good Health for Women Project (GHWP) initially to study HIV/STI epidemiology and initiating prevention strategies among women involved in high risk sexual behaviour (female commercial sex workers) in Kampala, Uganda.

Her current scope of work involves a study to identify correlates of HIV-1 super-infection and multiple infections among HIV high risk women, and a study to assess if high risk women can be enrolled and retained in a simulated HIV vaccine trial. The latter study will help to prepare suitable populations for future HIV vaccine trials.



Dr. Gershim Asiki
Senior Scientist
Gershim.Asiki@mrcuganda.org

Dr. Gershim Asiki is a Senior Scientist and a Project Leader in the HIV Prevention and Epidemiology Research Programme.

He holds a Bachelor's degree in Medicine and Surgery (MBChB) from Makerere University and Master of Science in International Health jointly awarded by University College London (UCL), UK, Karolinska Institute, Sweden and Charite Medical school of Humboldt and Free Universities. He is currently a PhD candidate at Karolinska Institute, Sweden.

Dr. Asiki has been actively engaged in research since 2003, when as a medical officer in Nebbi district he coordinated a plague treatment trial in addition to his clinical and administrative duties in a rural missionary hospital. He has worked at the Infectious Diseases Institute- Kampala, on HIV care and research in Kampala city

clinics on a CDC funded project piloting an urban model of care in resource limited setting.

He joined the Medical Research Council in 2008 and has since coordinated epidemiological studies in fishing communities in preparation for future HIV efficacy trials, in addition to clinical trials on HIV/Schisoma mansoni co-infections and epidemiological studies in the general population cohort on HIV, Hepatitis B and C and non-communicable diseases.

HIV EPIDEMIOLOGY AND PREVENTION PROGRAMME BRIEF

Until 2012, these were two separate Programmes i.e. the Observational Studies and the HIV Prevention Programmes. However in order to optimally address the overarching research questions for the 2012-2017 quinquennium, the two programmes were merged, some of the work summarized below was performed under the two separate programmes.

Between 2005 and 2011, the Unit also had the Sexually Transmitted Diseases (STD) Programme where some of the activities under the current HIV Epidemiology and Prevention Programme were conducted. This STD programme was closed (see page 39)

01 | HIV EPIDEMIOLOGY AND PREVENTION PROGRAMME



Sensitisation of participants under the Vaginal microbicides.

The MRC/UVRI Uganda Unit was one of the first research organisations in Africa that initiated studies to investigate the determinants of HIV transmission and subsequent disease progression, at a time when very little was known about HIV/AIDS on the continent.

To achieve this, a rural general population cohort was established in 1988 in South West Uganda, present day Kalungu district, originally involving approximately 10,000 people living in 15 villages, and later expanded to about 20,000 people in 25 villages. The population has been followed through annual censuses, serological, and medical/behavioural surveys ever since.

The census data is supplemented by monthly village based birth and death registration. The findings from these surveys have provided important data on risk factors for HIV transmission, trends of HIV infection and details of time from

initial HIV infection to AIDS and death. In this rural population the median time from HIV sero conversion to AIDS is 9 years and median survival from AIDS to death (prior to ART) was less than 5 months. These data have provided major contributions to the formulation of health policy in Uganda and elsewhere, and have been used to inform UNAIDS Global reports.

Recently, we have extended our work to understand HIV epidemiology in high risk and more vulnerable populations, such as women in Kampala engaged in transactional sex and among fishing communities around Lake Victoria. Such high risk populations may help sustain the broader epidemic in Uganda.

We have established that the infection rates are up to five times higher in these high risk populations than the national average (7.3%), and encouragingly the

retention of these populations in our research studies is good (more than 80% over 24 months); which is contrary to the belief that such populations are very mobile and difficult to recruit and follow in longitudinal studies. These findings have provided ground for enhanced HIV prevention strategies. These cohorts have also provided a platform for novel research carried out by other programmes such as social and basic sciences.

Since 1994 the Unit has also aimed to evaluate suitable interventions to prevent HIV transmission and disease progression. The work, conducted in Masaka district and to some extent in Kampala has included assessing impact of treating sexually transmitted infections (STIs) and behavioural interventions on HIV and other STIs, a large scale vaginal microbicide phase III trial under the Microbicide Development Programme (a collaboration between African and UK research institutions), phase II safety microbicide trials and, a phase I HIV vaccine trial.

We are very grateful to International AIDS Vaccine Initiative (IAVI) which has supported scientific work (epidemiology and clinical) and infrastructure in preparation of HIV vaccine research since 2004. We also participated in a Wellcome Trust funded multi-centre study to evaluate the effect of therapeutic intervention at primary HIV infection.

01 | HIV EPIDEMIOLOGY AND PREVENTION PROGRAMME



Some of the staff at the Kampala- Mengo station

Non- Communicable Diseases (NCDs)

Non-communicable diseases (NCDs) are rapidly becoming leading causes of morbidity and death in low and middle-income countries, including those in sub-Saharan Africa. There is however very limited data on the burden of the problem, and how best to control it. We have therefore during the last three years initiated epidemiological research to establish the burden of, and risk factors for NCDs, to understand associations between communicable diseases and NCDs, and to characterise clinical course of NCDs in this context. Findings indicate that the burden of NCDs within the rural population is huge; for example the prevalence of high blood pressure is about 28% and the prevalence of cancer causing

Recently, we have extended our work to understand HIV epidemiology in high risk and more vulnerable populations, such as women in Kampala engaged in transactional sex and among fishing communities around Lake Victoria. Such high risk populations may help sustain the broader epidemic in Uganda.

infections, such as human papillomaviruses (the cause of cancer of the cervix - the most common cancer among women in Uganda) is exceptionally high. Plans to initiate intervention trials to mitigate the impact of these factors are underway and include a trial of the impact of a salt reduction on high blood pressure.

In collaboration with the university of Cambridge and Wellcome Trust Sanger Institute, we conducted genetics research to understand the genetics associations with specific conditions such as diabetes, dyslipidaemia, hypertension, HIV/AIDS, anaemia and possibly treatment failure. A total of 5000 samples have been genotyped and we have contributed genetics data to the Global lipids genetics consortium (GLGC) as well as the African Genome Variation project (AGVP). The GLGC aims to study the genetic determinants of the blood low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C) and triglycerides. While the AGVP aims to study genetic variation in Africa to inform large scale studies in African genomics.

01 | HIV EPIDEMIOLOGY AND PREVENTION PROGRAMME

The main sources of funding for the HIV Epidemiology and Prevention programme over the last 25 years have been MRC (UK), International AIDS Vaccine Initiative (IAVI), DfID (UK), and International Partnership for Microbicides (IPM), and the Wellcome Trust.

Major Research Themes in the current 5 year (2012-2017) Programme

1. Examining the molecular epidemiology of HIV in the general population, in order to understand what sources of infection are driving continuing transmission, in order to inform HIV prevention strategies in Uganda and elsewhere.
2. Investigating the feasibility of Universal Counselling and Testing (UCT) in the rural cohort and fishing communities.
3. Monitoring HIV trends in the post-ART era and provide information relevant to MoH planning.
4. Addressing research topics of common interest in the large population cohorts in different settings in Africa through a research network (the ALPHA Network), from which the findings can be more widely generalised.
5. Investigating HIV epidemiology in high risk women and in their partners, to inform preparation for HIV prevention efficacy trials.
6. Investigating the epidemiology of non-communicable diseases
7. Vaginal microbicides research: evaluation of third generation vaginal microbicides
8. HIV vaccines research: studies that have significance to HIV vaccine development and trial design and evaluating potential HIV vaccines in phase I/II clinical trials
9. Evaluation of innovative interventions that could improve the health of, and prevent prevalent co-morbidity among HIV-infected individuals
10. Implementation and evaluation of HIV interventions among high risk population cohorts
11. Investigating the impact of genetic factors on the risk and progression of communicable and non-communicable disease.



Some of the staff at the Masaka field station

Current and some past scientists

Anatoli Kamali, Daan Mulder, Robert Newton, Gershim Asiki, Sylvia Kusemerwa, Simon Wandiembe, Zacchaeus Anywaine, Yunia Mayanja, Sam Mbulaiiteye, June Busigye, Sam Biraro, Dermot Maher, John Kinsman, Jane F Kengeya-Kayondo, Jimmy Whitworth, Eugene Ruzagira, Judith Vandepitte, Justine Bukenya, Uli Wagner, V. Bassajja, Dilys Morgan, Heiner Grosskurth, Martin Okongo, Jackson Orem, Clara Wekesa, June Busingye, E K Kanyesigye, G Katongole,

Other Key contributors:

Dr Pat Fast, Dr Fran Priddy, Dr Matt Price, Prof Helen Weiss, Prof Richard Hayes, Dr Annalene Nel, Dr Basia Zaba, Dr Elizabeth Young, Dr Manj Sandhu, Prof David Laloo, Dr Alex Opio and Dr Joshua Musinguzi.

02

SOCIAL SCIENCE PROGRAMME



Prof. Janet Seeley
Head of Programme
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Prof. Janet Seeley is a social anthropologist by training and holds a PhD in the same subject from the University of Cambridge. She is a Professor of Anthropology and Health at the London School of Hygiene and Tropical Medicine (LSHTM). Before joining the London School of Hygiene and Tropical Medicine in April 2014, she was Professor of International Development at the University of East Anglia. She worked for the Department for International Development for 13 years, prior to moving to the University of East Anglia in 2000.

Professor Seeley was responsible for establishing Social Science research within the MRC/UVRI Unit in 1989-1993, a programme she returned to and has headed since 2008.

Her research interests are in the social aspects of health with her main focus in recent years being on HIV, particularly looking at

HIV across the life course and the impact of the epidemic on communities and people's lives and livelihoods. Her other research interests include: chronic poverty and social protection, internal migration, the application of livelihood and gender analysis to development.

She has served on many committees including being chairperson of the University of East Anglia International Development Research Ethics Committee, Editor of Journal of South Asia Development, Associate Editor of Journal of the Social Aspects of HIV and AIDS (SAHARA), Editorial board member of Open AIDS Journal. She is also a reviewer of many journals.



Dr. Rwamahe Rutakumwa
Post Doctoral Social Scientist
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Dr. Rwamahe Rutakumwa is a Post-Doctoral Social Scientist in the Social Science Research

Programme. He holds a baccalaureate in Social Sciences from Makerere University, as well as a MSc. and a Ph.D in Rural Sociology from the University of Alberta, Canada.

His research background is in the area of poverty and health, public policy in the developing world, and how structural forces at national and global levels interface to impact the incidence of and efforts to alleviate poverty. In the 11 years prior to joining the MRC/UVRI Uganda Research Unit on AIDS, Rwamahe was involved in multiple social science and health research projects and has authored/co-authored various publications.

Though his current research cuts across the three thematic areas of the Social Science research program, he is especially interested in structural drivers of HIV and other illnesses.



Dr. Godfrey Siu
Post Doctoral Social Scientist
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☉ Godfrey Siu

Post Doctoral Social Scientist
Godfrey.Siu@mrcuganda.org

Dr. Godfrey Siu is a Post-Doctoral Social Scientist at MRC/UVRI Uganda Research Unit on AIDS and Lecturer at the Child Health and Development Centre (CHDC), Makerere University College of Health Sciences.

He holds a PhD in Medical Sociology and Anthropology from University of Glasgow, a Masters of International Health (MIH) from University of Copenhagen, and a Bachelor of Adult and Community Education (First Class) from Makerere University.

His PhD explored the link between masculinity and men's uptake of HIV treatment in Uganda. Currently his broader research interests are concerned with the potential contribution that an explicit focus on masculinity can bring to men and their families, and on developing parenting interventions to prevent gender based violence.

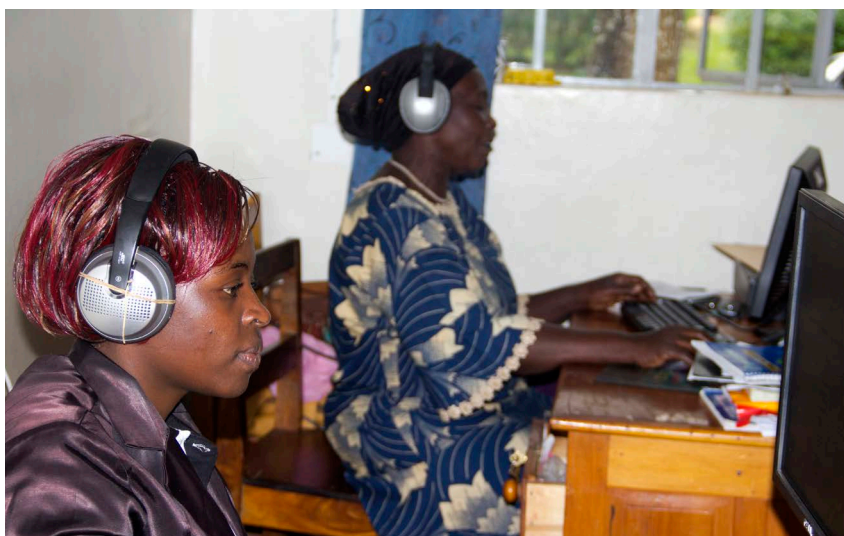
Before he joined MRC, Dr. Siu was involved in a range of research projects at CHDC, including a study on the experiences of living with antiretroviral therapy (ART), which resulted into a co-authored book manuscript titled 'Second Chances: Surviving HIV in Uganda.' He has published on masculinity and on young people with HIV.

SOCIAL SCIENCE PROGRAMME BRIEF

The Social Science Programme has been an equal disciplinary 'partner' with clinical and basic science in research from 1989, when the then Unit was first conceived. This is a unique feature of the Unit. We have a considerable advantage in a) the wealth of both qualitative and quantitative data spanning 25 years through which to explore evidence of, and responses to, the impact of the HIV epidemic, as well as the transition of HIV to being a chronic condition for many of those who are infected; b) having a body of work on the impact of the epidemic on different age groups, including those of 60 years of age and above, on

have worked with us for 25 years and are skilled data collectors and analysts.

In the early years of the Unit our research focused on the social and economic context of the epidemic and understanding the impact on individuals and their families. Work on possible transition networks and sexual behaviour led to innovative work in a trading centre on the main Kampala/Tanzania highway and in Masaka town which highlighted the sexual mixing that occurred and the risks that young migrants, in particular, were exposed to when they moved to urban settings.



Social Science Programme staff in Kyamulibwa transcribe data

which we can build; and c) being among the first researchers in Africa to study both the longitudinal impact of the epidemic and also to seek to understand the social aspects of treatment and prevention, beyond the narrow focus of individual sexual behaviour. A major strength of the Programme is the staff; some of the interviewers

With the introduction of anti-retroviral therapy in the early 2000s, research began to focus on the management of HIV as a chronic condition.

Recently, our work has begun to focus on key populations (fisherfolk and women and men at high risk of HIV infection in Kampala)

02 | SOCIAL SCIENCE PROGRAMME



Unit staff interact with members of a fishing community



Social Science Team - 2014

as well as the direct and indirect impact of HIV on older people and on children and adolescents, as well as continuing to develop research on the impact of the epidemic on people's lives. We work closely with other Programmes in all areas of our work.

We have actively trained local scientists at MA and PhD level and provided support to Makerere and other Universities where our staff have honorary appointments.

Collaborations and funding

All the above could not have been achieved without fruitful collaborations we have had with a number of institutions including London School of Hygiene and Tropical Medicine, University of East Anglia, Child Health and Development Centre, Makerere University, World Health Organisation and others.

From 1989 through to 2006 the primary source of funding for the Programme was from MRC core funding, although social science team members were involved in some externally funded projects (such as the microbicide trials). In recent years, about 50% of research has been funded by MRC core funding.

Other funders of social science research have included the ESRC, WHO/National Institutes of Ageing funding, DFID, Cordaid, UNAIDS, Viiv, and Swedish government funding (through FAO).

Major Research Themes in the current 5 year (2012-2017) Programme

1. HIV across the life course
2. HIV, relationships and vulnerable groups
3. Long-term social and economic impact of HIV

The objectives are to understand better:

- HIV in children and adolescents (Theme 1)
- The impact of HIV on older people (Theme 1)
- HIV among populations at high risk of infection (Theme 1 and 2)
- Demographic and social change in the context of the HIV epidemic (Theme 3) and:
- To strengthen research capacity

Current and some past scientists

Prof Janet Seeley, Dr Pierre Huygens, Dr Helen Pickering, Dr Robert Pool, Dr Jon Kinsman, Dr Brent Wolff, Dr. H. Muyinda, Dr Godfrey Siu and Dr Rwamahe Rutakumwa

Other key past contributors to Social Science Research:

Prof Daniel Wight, Dr Sarah Bernays, Ms Francien Scholten

03

HIV CARE RESEARCH PROGRAMME



Dr. Paula Munderi
Head of Programme
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Dr Paula Munderi is a Physician and has been Head of the HIV Care Research Program since 2005. She is a graduate of Makerere University Medical School and a Fellow of the Royal College of Physicians (UK).

Before joining the MRC Research Unit, Dr Munderi was a Medical Officer at WHO Headquarters in Geneva working with the technical teams responsible for Guidance on HIV Care and Access to HIV Medicines in resource limited settings. Prior to this she was Lecturer in the Faculty of Medicine, Makerere University.

At the MRC/UVRI Unit, Dr Munderi led 2 completed trials on the Antiretroviral treatment strategy in African adults and children and now leads 4 studies on the collective themes of comprehensive long-term treatment of HIV infection and service delivery in the

Ugandan health system. She serves on the Uganda Ministry of Health HIV Clinical Care Committee and is a member of the International AIDS Society Advisory Board for a Global Scientific Strategy towards a Cure for HIV.



Dr. Billy Mayanja
Senior Scientist/Project Leader
– CoLTART
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Dr. Mayanja Billy Nsubuga is an Epidemiologist who is a Senior Scientist and Project Leader of the Complications of Long-Term Antiretroviral Therapy (CoLTART) study. He is a graduate of Makerere University Medical School and University of London.

Dr. Mayanja previously worked as a Medical Officer in several public Hospitals in Uganda and Kenya. At the MRC/UVRI Unit, Dr. Mayanja has worked as a Research Medical Officer in the Natural History Cohort and as a Project Leader of the Rural Clinical Cohort. He also

worked on a study to evaluate the Syndromic Management of Sexually Transmitted Infections and led a Verbal Autopsy study to examine the proportion of HIV-attributable deaths after the introduction of Antiretroviral Therapy in rural southwest Uganda.



Prof. Eugene Kinyanda
Head of Mental Health Project
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Professor Eugene Kinyanda is a senior investigator scientist and head of the mental health project at the MRC/UVRI Uganda Research Unit on AIDS.

He completed his undergraduate studies in Human Medicine at Makerere University and undertook postgraduate training in psychiatry at the same University. He did his PhD at the Norwegian University of Science and Technology in the sub-speciality of suicidology. He holds an honorary

03 | HIV CARE PROGRAMME

Prof. Eugene Kinyanda
Head of Mental Health Project
 Eugene.Kinyanda@mrcuganda.org

☉ professor position at the LSHTM in the Faculty of Epidemiology and Population Health.

Eugene joined the MRC/UVRI initially as a research manager but later went on to start a mental health project at the Unit. Over the last six years he has undertaken research into the psychiatric and psychosocial complications of HIV/AIDS among adults through funding by DfID (as part of the EfA Consortium) and the European-Developing Countries Clinical Trials Programme (EDCTP; through a Senior EDCTP Fellowship).

He is currently undertaking a research project on children and adolescents living with HIV/AIDS through funding from an MRC/DFID African Leadership Award with the Global Centre for Mental Health at LSHTM.

His other research interests include studies into the psychiatric and psychosocial problems of HIV/AIDS orphans, war affected populations, the epidemiology of common mental disorders and studies into the meanings of suicide from an African perspective.

This body of work has led to more than 40 publications in peer reviewed journals.



Dr Sam Biraro
Project Leader
 samuel.biraro@mrcuganda.org

Dr. Sam Biraro is a clinical epidemiologist and project leader of the health systems and chronic diseases project. He graduated as a Medical Doctor (MChB) from Mbarara University in 1998 and attained graduate training in Public Health and Epidemiology from Loma Linda University (MPH 2003) and the London School of Hygiene and Tropical Medicine (PhD 2011). After working in rural Kisizi hospital in south western Uganda, he started a career in research. Over the last 10 years his work has covered clinical research including studies in cryptococcal infection, trials in the efficacy of artemisinin based combination treatment for malaria, characterisation of HIV clinical disease in children, as well as various studies in the epidemiology of HIV and HSV-2.

His broad interest is improvement of the wellbeing of people using 'public health' as a tool. Most recently his research interest is in the application of interventions at health system level to achieve better health for those being served.

HIV CARE PROGRAM BRIEF

The Care Programme was created in 2005 to merge into one programme all the activities aimed at improving the health of patients with HIV/AIDS. However even before the creation of the Care Programme the Unit had been involved in many care activities as described below.

The programme expanded into non-communicable diseases in 2011.

THE NATURAL HISTORY COHORT - NHC (1990-2003):

This clinical cohort was set up in 1990 in the subcounty of Kyamulibwa in the then rural Masaka District now Kalungu District. The cohort was unique since it recruited HIV infected individuals with known dates of seroconversion. As well as sero-incident cases, one third of HIV prevalent cases in 1990 and seronegative controls were enrolled.

This cohort showed that before antiretroviral therapy (ART) introduction, survival with HIV-1 infection in Africa was similar to that in industrialized countries before the use of ART, although at the time of death, African patients were severely immunosuppressed and most had AIDS. From this cohort we showed that those infected with HIV-1 subtype D progressed faster and had higher viral loads than those with subtype A.

03 | HIV CARE PROGRAMME



Unit staff with a study participant during a medical survey

In the earlier years we noted very low PMTCT uptake and we participated in a number of meetings to discuss how best to address the operational barriers to delivery of interventions. Though mortality in children <13 years decreased significantly over the years, there were still preventable deaths which required early HIV diagnosis and treatment.

RURAL CLINICAL COHORT - RCC (2004-2012):

When ARVs were introduced, the natural history cohort above became the Rural Clinical Cohort. We showed that ART introduction in 2004 did not increase risky behaviour among HIV-infected people, but it may impact risky behaviour among HIV-uninfected people. Pregnancy among ART naïve HIV-infected women was found to lead to a sustained drop in CD4 cell count, but among women on ART, pregnancy had no lasting effect on the immunological and virological ART outcomes. Among HIV infected individuals, ART reduced mortality and incidences of morbid events like septicaemia, diarrhoea, bacterial pneumonia and malaria, and the effect increased with duration on ART.

Using verbal autopsy, we found that the estimated HIV-attributable mortality fraction significantly decreased from 47.0% in the period before ART introduction to 25.8% in the ART period.

THE RURAL PAEDIATRIC COHORT (2002-2010):

This cohort was set up to systematically collect longitudinal clinical paediatric data since at that time there were very few prospective studies of HIV-1 infected and HIV exposed children in rural Africa. In the earlier years we noted very low PMTCT uptake and we participated in a number of meetings to discuss how best to address the operational barriers to delivery of interventions. Though mortality in children <13 years decreased significantly over the years, there were still preventable deaths which required early HIV diagnosis and treatment.

The cohort was however closed due to the reduced numbers of infected children.

THE ENTEBBE COHORT (1995 – 2009):

This open clinical observational cohort was used to document morbidity and mortality among HIV infected Ugandan adults, investigate interactions between

HIV and other infections and carry out studies on possible interventions to reduce progress to AIDS or death.

A pneumococcal vaccine trial in the Entebbe cohort showed that the 23-valent pneumococcal polysaccharide vaccine is ineffective in HIV infected Ugandans. Another study in this cohort demonstrated feasibility of Cotrimoxazole prophylaxis and showed that this simple intervention reduced mortality by 23% and reduced rates of Malaria by 68% in HIV positive Ugandan adults who were not yet on ART.

The DART trial which was completed in 2009 showed that routine 3 monthly laboratory monitoring tests namely CD4 counts and tests for ART related organ toxicities do not offer significant advantage in survival compared to clinically driven monitoring of patients on ART, ART can therefore be delivered safely and effectively even in environments with limited access to laboratory monitoring facilities.

03 | HIV CARE PROGRAMME



Some of the HCP Clinic staff- 2014

The NORA substudy of the DART trial showed that the genetically determined severe hypersensitivity reaction to the antiretroviral drug Abacavir is rare in Ugandan patients.

THE JINJA STUDY (2005-2009):

This was a cluster randomised trial in which the standard health facility based model of ART delivery was compared with home based ART care delivered by trained lay health workers under supervision. The home based care strategy with lay workers playing a significant role in drug delivery, patient support and monitoring is as effective as a clinic-based strategy in terms of preventing virologic failure, mortality and other adverse outcomes.

ARROW Trial:

ARROW Trial which was a randomised controlled clinical trial designed to assess two different management strategies for giv-

ing first line anti-HIV medicines to children was completed in 2009, the trial revealed just like DART in adults that ART can similarly be delivered to children with minimal laboratory monitoring.

A secondary randomization of the ARROW study also revealed that continuing co-trimoxazole prophylaxis for children on ART was beneficial in terms of reducing hospitalizations for both malaria and infections not related to malaria. Other care activities are described under the Epidemiology and Prevention Programme. The major funders for these activities over the years have been MRC, DFID, Wellcome Trust, NIH and EDCTP

MAJOR RESEARCH THEMES IN THE CURRENT 5 YEAR (2012-2017) PROGRAMME

The aims of the programme are to:

1. Understand better the long term clinical consequences of HIV infection among African patients (CoLTART)
2. Evaluate strategies for the management of HIV-infected patients: Under this are a number of externally funded projects including:
 - i. Safety of discontinuing Cotrimoxazole prophylaxis among HIV infected adults on ART in Uganda. A randomised controlled trial (COSTOP)
 - ii. Strategic Timing of Anti-retroviral Treatment (START)
 - iii. Psychiatric complication in HIV/AIDS
 - iv. Optimising Clinical Care, and Use of Laboratories for ART Roll-Out in Africa: the Lab-Lite Operational Research Project
 - v. Improving the health systems response to chronic diseases in Africa

Current and some past scientists

Dr. Paula Munderi, Dr. Billy Mayanja, Prof. Eugene Kinyanda, Dr. Sam Biraro, Dr. Ben Kakaire, Prof. Jimmy Whitworth, Dr. Neil French, Dr. Lieve Van der Paal, Dr. Dilys Morgan, Dr. Martin Okongo, Dr. Juliet Mpendo, Prof. Heiner Grosskurth, Dr. Christine Watera, Dr. George Miiro, Dr. E Lugada, Dr. Patricia Dr. Nahirya-Ntege, Dr. G. Kabuye, Dr. Eric Lugada, Dr. Patricia Nahirya-Ntege, Dr. Geoffrey Kabuye, Uli Wagner, Dr. Neil French, Dr. B. Amuron

Other key contributors

Prof Charles Gilks, Prof Jaffar Shabbar

04 | BASIC SCIENCES PROGRAMME



Professor Pontiano Kaleebu Head of Programme

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Prof. Pontiano Kaleebu is the Director of the MRC/UVRI Uganda Research Unit on AIDS and Deputy Director Uganda Virus Research Institute. He also heads the Basic Sciences Programme and is a founder of the UVRI-IAVI HIV Vaccine Program and its Director 2001-2010. He is Honorary Professor at the London School of Hygiene and Tropical Medicine and Makerere University, College of Health Sciences.

Prof. Kaleebu holds a medical degree from Makerere University, a Diploma in Immunology and a PhD from the University of London. He was admitted to the Fellowship of the Faculty of Medicine, Imperial College, London in 2011. He leads the EDCTP East African Networks of Excellence.

Prof. Kaleebu has served on many committees including the WHO HIV Vaccine Advisory Committee,

The Global HIV Vaccine Enterprise coordinating committee, The UN-AIDS Expert science panel, the AIDS Vaccine Advocacy Coalition Board, the NIAID HIV/AIDS Clinical trials strategic working group, CHAVI-Immune Discovery Scientific Advisory Board and was chair of the African AIDS Vaccine Programme (AAVP). He is Uganda's representative at the EDCTP General Assembly.

He chairs the National HIV drug resistance Working group. His main research interest includes HIV vaccine research especially understanding protective immune responses, HIV diversity and resistance to ARVs.



Dr. Pietro Pala Senior Immunologist

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Dr. Pietro Pala was born in Sardinia and qualified as an M.D. in 1980 at the Università degli Studi di Sassari. He then worked on the T-cell response to influenza virus

at the National Institute for Medical Research, London in the Askonas lab and continued his immunology research at the Ludwig Institute for Cancer Research, Epalinges, Switzerland describing specificity and competition among peptide epitopes recognized by class I restricted T cells.

He later worked in the vaccine industry in Rixensart, Belgium, and is a co-inventor of new adjuvant formulations that stimulate T cell responses. After ten years at Imperial College London studying the T cell response to respiratory syncytial virus and its connection with asthma and atopy, Dr. Pala joined the MRC/UVRI Uganda Research Unit on AIDS in 2007 and is now applying his tentative understanding of the workings of the immune system to HIV related questions: why is there no natural immune mediated clearance of HIV infections? Why don't some people become infected despite exposure to HIV?

Why do some people acquire superinfections while they have apparently strong immune responses to an initial HIV infection and what are the implications for the worldwide drive to develop a safe and effective vaccine against HIV?

How do previous or concurrent immune responses to other pathogens or parasites influence HIV acquisition and progression to AIDS?

04 | BASIC SCIENCES PROGRAMME



Dr. Jennifer Serwanga (PhD)
Cellular Immunologist
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Dr. Jennifer Serwanga is a cellular Immunologist in the area of HIV/AIDS. She received her PhD training at Murdoch University, Western Australia, after accomplishing a BVM degree at Makerere University, Kampala. She is a scientific leader in Immunology, Basic Science programme where she takes charge of a team that aims to improve understanding of correlates of protection in HIV-1 disease progression, resistance to infection and HIV-1 super infection that will inform relevant vaccine formulation. She is directly involved in the research activities undertaken by the team, in mentoring their career development, and in providing targeted training to support their undertaken research.

The involved research areas include: studies to evaluate alternative reagents for assessing clade A and D cellular responses; screening clade A and D infected populations for correlates of broadly neutralising antibodies; evaluating pre-ex-

isting immunity to Adenoviruses to provide information relevant for vaccine design; and defining T-Cell correlates of protection in HIV clade A and D populations.

Dr. Serwanga is involved in developing Immunology capacity in the country by supporting laboratory capacity building, training in the annual 'Immunology in the tropics' course and providing methodological support and training in flow cytometry and neutralisation assay procedures.

Over the years, she has taken lead in coordinating the Institutional effort to mitigate consequences associated with handling and working with potentially infectious hazardous chemical and biological agents. She currently serves on Ministry of Health advisory panels including the National Infection Control Committee and the National Committee for the Laboratory Containment of Polio



Fred Lyagoba
Senior Research Scientist
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Frederick Lyagoba obtained his Diploma in Science Technology (Biological Sciences) from (the then) Uganda Polytechnic, Kyambogo, in 1983.

He joined Uganda Virus Research Institute in 1984 and worked under General Virology department. His work involved attempted isolation of virus from human specimen before turning to HIV/AIDS studies. He was keen in the establishment of an HIV screening and isolation facility at UVRI.

He was seconded to the MRC in 1990 on its inception in Uganda; his work involved testing for HIV. Fred upgraded and obtained a post graduate Diploma in Infectious Diseases from London School of Hygiene and MSc. in Medical Microbiology from the University of London in 2001 and was mentored by Prof. JI Mullins at the University of Washington for a period of four years.

He returned to MRC/UVRI as a Senior Research Scientist and got actively involved in the establishment of a Molecular and Sequencing facility at the Unit.

He has co-authored and published more than 20 original articles and reviews on the topics of HIV and AIDS and has delivered at invited seminars and training presentations.

BASIC SCIENCES PROGRAMME BRIEF



Some of the Basic Sciences team - 2014

There are very few institutions in Africa outside of South Africa with fairly well-developed infrastructure and human capacity to conduct basic research, and we are proud to be one of these few. Over the years, MRC has invested in people and infrastructure to support research in virology and immunology and more recently bioinformatics.

We do not ship specimens to the North except in very exceptional circumstances. Taking advantage of the well characterized cohorts within the Unit, and other laboratory and statistical support, over the years we have contributed to the understanding and characterization of the epidemic.

We have provided information on HIV-1 subtype distribution, trends and diversity. We were the first to show that individuals infected with HIV-1 subtype D progressed faster to AIDS compared to those with subtype A, an observation later confirmed by others.

We further showed differences in co-receptor usage between HIV-1 subtypes A and D, with the probability of having X4 virus being higher in subtype D infections than A among those who have not progressed to AIDS. We have performed studies to contribute to understanding the role of HIV-1 diversity on vaccine development including studies of cross clade cellular immune responses.

Another area of interest has been studying individuals exposed to HIV but remain uninfected, including the CHAVI 002 NIH funded work on this topic; the interest is to determine whether they have HIV specific immune responses that could contribute to protection. We have shown that T cell immune response to the core part of the virus is associated with slow HIV disease progression. We have actively participated in HIV vaccine trials, and our laboratories performed the neutralization assays for the first HIV vaccine trial

in Africa in 1999 and the first paediatric vaccine trial in 2007. Our study populations have contributed to the isolation of broadly neutralizing monoclonal antibodies by IAVI consortium leading to new approaches to HIV vaccine discovery. We participated in another multicentre Wellcome Trust funded landmark study "Spartac" that looked at the benefit of 12 and 48 weeks treatment with ART in early infection on HIV disease progression, though there was a clinical benefit of early treatment, and better T cell immune responses the study did not support adopting this as policy.

Since the introduction of antiretroviral drugs, we have contributed to studying resistance to anti-ARV drugs and been designated as the National and regional reference laboratory for HIV drug resistance, with accreditation from WHO. We see no major differences in ART resistance development in subtypes A and D infected patients. We have reported low frequencies of ART resistant viruses in ART naïve populations though transmitted resistant viruses are seen in some individuals. Our immunology laboratories perform a wide range of assays including flow cytometry, luminex assays and HIV neutralization assays. While the MRC funded Basic Science activities are largely focused on HIV virology and immunology, there has been synergy and collaborations with the Co-infection Programme that has also built immunology capacity of other infections (see Co-Infection Studies Programme).

04 | BASIC SCIENCES PROGRAMME



Staff in the cloning Laboratory

We have actively trained local scientists at MSc and PhD level and provided support to Makerere University where there was limited expertise in some of these areas. Some of our staff have honorary appointments at Makerere and other Universities. The MRC Basic Sciences Programme has contributed majorly to the development of immunology and virology at the UVRI including providing training opportunities and mentorships.

All the above could not have been achieved without the fruitful collaborations we have had with a number of institutions over the years including Imperial College London, IAVI, Edinburgh University, Porton Down, Salisbury, UK, University College London, Duke University, University of Cape Town, The WHO HIV drug resistance Group, the National Institute of Virology Johannesburg, Vaccine and Gene Therapy Institute, Florida and Center Hospitalier, Universitaire Vandois, Laussane; CDC Atlanta, and Partners at

UVRI among others.

Major sources of funding for our basic research over the years has come from, MRC-UK, EU, Wellcome Trust, NIH and EDCTP

MAJOR RESEARCH THEMES IN THE CURRENT 5YEAR (2012-2017) PROGRAMME

1. Molecular virology studies to better understand the epidemic, and the development of resistance to HIV drugs.
2. Virological and host factors associated with HIV-1 super infection.

3. Potential protective immune responses against HIV through PrEP in highly exposed populations.
4. Understanding factors associated with the development of broadly neutralizing antibodies.
5. Impact of worm co-infections on HIV immune responses.
6. Immune responses to HIV vaccine candidates

Current and some past scientists

Prof Pontiano Kaleebu; Dr David Yirrell; Dr Nicaise Ndembi; Mr Fred Lyagoba; Dr Pietro Pala; Dr Jennifer Serwanga; Dr Alleluia Ruteemberwa; Dr Jackie Kyosimiire Lugemwa; Dr Chris Parry; Dr Anthony Kebba (RIP); Dr Deogratius Semwanga ; Dr Edward Wright; Dr Harr Njai, Dr Immaculate Nankya, Dr Bridget Nanteza

Other key past contributors to Basic Science Research over the years:

Prof Frances Gotch; Dr Jon Oram; Dr Jill Gilmour; Dr Robert Downing, Prof Andrew Leigh Brown, Prof Jim Mullins, Prof J Weber, Prof. Adrian Hill



Flow cytometry Laboratory

05

CO-INFECTION STUDIES PROGRAMME (CISP)



Professor Alison Elliott
Head of Programme
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Alison Elliott is a Professor of Tropical Medicine at the London School of Hygiene & Tropical Medicine, a Wellcome Trust Senior Fellow in Clinical Research and an honorary consultant in Tropical Medicine at the University College Hospital, London. She has worked full-time in Uganda since 1997. She holds an MA in Natural Sciences from the University of Cambridge, MBBS from the University of London and MD from the University of Cambridge, as well as a Diploma in Tropical Medicine and Hygiene, and she is a Fellow of the UK Royal College of Physicians. As well as the Co-infection Studies Programme, she leads the Wellcome Trust funded Makerere University- UVRI research training programme in Infection and Immunity. I

n 2013-14 she served on the interim Scientific Advisory Committee of the EDCTP, and the selection panel for GLOBVAC (the “program

for global helse - og vaksinasjonsforskning” of the Research Council of Norway). She currently serves on the Uganda Ministry of Health’s technical committee for Neglected Tropical Diseases.

Her interests focus on interactions between co-infections, and on the effects of helminth infection on immune responses to vaccines and on infectious and allergic disease incidence in children in Uganda; and on research capacity building in Africa



Dr. Steve Cose
Senior Immunologist
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Dr. Steve Cose holds a BSc (Hons), PhD from Monash University, Melbourne, Australia.

His current research goal is to apply his expertise in fundamental cellular immunology to the investigation of tuberculosis in Uganda, a setting in which this disease is still highly endemic. In his previous posts, he undertook research into lymphocyte migration and trafficking, studies

which were performed in mice and gave him key skills in isolating lymphocytes from tissues, multi parameter flow cytometry and immunofluorescence techniques.

He joined the MRC/UVRI research Unit on AIDS in 2009 and his focus has since changed to human Immunology. He is a named co-investigator and project lead on an MRC funded project to look at whether a latent TB infection in mothers affects their infant’s response to BCG.

He is also undertaking other projects like the non-specific effects of BCG in infants and a post-mortem study being piloted at Mulago Hospital collaboration with the Pathology Department to look at the immune response to TB in the tissues, the site at where the infection is.



Dr. Harriet Mpairwe
Clinician and Epidemiologist
Harriet.Mpairwe@mrcuganda.org

Harriet is a clinician and epidemiologist whose main research interest is investigating the causes of the increasing prevalence of asthma ➔

05 | CO-INFECTION STUDIES PROGRAMME (CISP)

Dr. Harriet Mpairwe
Clinician and Epidemiologist
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and other chronic inflammatory diseases in developing countries. She obtained her Master's degree (Epidemiology) and PhD training from the London School of Hygiene and Tropical Medicine.

She joined the MRC Unit in 2003 to work with the Entebbe Mother and Baby Study (EMaBS). She took an active role in aspects of EMaBS investigating the relationship between worm infections and allergic conditions, and has published in this area. She is currently a Wellcome Trust fellow investigating the risk factors associated with asthma among children in Uganda, with emphasis on chronic immune-modulating infections such as worms and malaria. With colleagues within the Co-infections Studies Programme, she is interested in the possible therapeutic role of worms in the management of asthma and other chronic inflammatory diseases.



Dr Margaret Nampijja
Project Leader
maggie.nampijja@gmail.com

Dr. Margaret Nampijja joined the MRC Unit as a medical officer, spearheading the child growth and development aspect of the Entebbe Mother and Baby Study.

She then undertook a master's degree and later a PhD in Developmental Psychology at Lancaster University UK, emerging as one of the few scientists in the country with expertise in this field. Margaret was project leader of the LaVISA trial, coordinating activities of the project before she obtained a post-doc fellowship to further her research career in child development.

Broadly, her research focuses on the impact of health and social exposures on cognitive competencies of children, and how these can be improved. She has examined neurocognitive effects of maternal and childhood worm infections and other illnesses, and the role of the home environment.

She has compared cognitive processes (executive functions) of Ugandan children with children from affluent settings. Margaret is currently examining cognitive effects of schistosomiasis and its treatment in children, and pathways that maybe underlying these effects.

Her work has been published in peer reviewed journals, and presented at local and international conferences.

CO-INFECTION STUDIES PROGRAMME (CISP) BRIEF

The Co-infection Studies Programme evolved at the MRC/UVRI Unit based upon a series of Wellcome Trust fellowship awards to Professor Elliott and, subsequently, to her students and project leaders (Michael Brown, Harriet Mpairwe, Patrice Mawa, Ismail Sebina, Juliet Ndibazza, Irene Biraro, Carolyn Tann and Sarah Prentice). The focus, at first, was on HIV and tuberculosis and an important study in the 1990s was a trial of prednisolone as adjunctive therapy in HIV-associated pleural tuberculosis.

The hope was that prednisolone would reduce the lymphocyte activation induced by tuberculosis and hence HIV replication and disease progression. Unfortunately, although prednisolone was associated with more rapid resolution of the effusions, it was also associated with an increased incidence of Kaposi's sarcoma. This resulted, therefore, in the recommendation that prednisolone should not be used for this indication, and should be used with caution in other HIV related conditions.

Tuberculosis treatment, although effective, still requires adherence to at least six months of treat-

05 | CO-INFECTION STUDIES PROGRAMME (CISP)



MRC staff dispensing drugs to an EMaBS Study participant

ment, and poor adherence is associated with the development of multi-drug resistance (MDR-TB). Pioneering studies on MDR-TB in Uganda were conducted in collaboration with colleagues at Mulago Hospital between 2001 and 2006.

However, experience in this field makes it clear that an effective vaccine against tuberculosis would be a much more powerful weapon than treatment against the tuberculosis epidemic. Bacille Calmette Guérin (BCG) remains the only licensed vaccine against tuberculosis, but its efficacy shows a gradient with latitude, so that it contributes 80% protection in temperate latitudes, but 0% protection against infectious, pulmonary tuberculosis in the tropics. Thus the CiSP has un-

dertaken a series of studies aimed at understanding the reasons for this observation. The first such study was the Entebbe Mother and Baby Study (EMaBS). This study addressed the Th1/Th2 hypothesis which proposed that worm infections bias the immune response to a T helper 2 profile (characterised by interleukin (IL)-4, 5 and 13 production, IgE and eosinophilia) and interfere with the cellular immune responses, characterised by interferon that are required for immunity to tuberculosis. The study was established as a randomised, double-blind, placebo-controlled trial of the effects of treating worm infections during pregnancy and during early childhood.

No effect of treating maternal worms on the infant response to BCG was observed in this study, although the filarial infection, *Mansonella perstans*, in the mother was associated with stronger regulatory responses to BCG antigens in the children at age one year. Two current studies are investigating the direct effects of worms on the response to immunisation (in the same individual) – one is investigating the effects of schistosomiasis in pre-school children on the response to measles booster immunisation, the other the effect of schistosomiasis in adolescents on the response to the investigation tuberculosis vaccine, MVA85A.

Despite the results of the EMaBS trial, there is no doubt that fetal exposure to certain maternal infections can sensitise or tolerise the infant to the same infection in later

life. Attention therefore turned to the possible effects of maternal mycobacterial infection or exposure on the infant response to BCG. Observational analyses from EMaBS, and a small pilot study funded by the European Union, supported the notion that this might be important, and the programme has this year embarked upon a new MRC-funded study of the effects of maternal latent infection with *Mycobacterium tuberculosis* on the infant response to BCG.

Observational results from EMaBS also support the hypothesis that BCG immunisation has important non-specific effects on the infant immune response. In EMaBS, BCG was provided through the National Medical Stores, and three different strains were used at different times. We found that these strains differed in the anti-mycobacterial responses they induced, and were also associated with differences in the infant response to subsequent tetanus immunisation.

The programme is now preparing for a new study designed to investigate immunological and epigenetic mechanisms by which BCG immunisation may alter the infant's innate immune system, which is responsible for directing the immune response to related and unrelated pathogens. Tuberculosis research in the programme has also been supported by the Kampala Tuberculosis Household Contact Study. Samples from this project have contributed to a number of studies, in particular re-addressing the possible role of

05 | CO-INFECTION STUDIES PROGRAMME (CISP)



(L) EMaBS Clinic reception at Entebbe Grade B Hospital and (R) a child participant in the EMaBS study with one of the staff

B cells in anti-tuberculosis immunity, and as biomarkers for the activity of latent infection.

The most striking, positive trial result from EMaBS was the unexpected observation that anthelmintic treatment during pregnancy resulted in increased rates eczema in infancy and early childhood. Helminths contain an array of allergen-like molecules which participate in the induction of IgE responses that mediate immunity against them, and so it is plausible that mechanisms evolved by worms to promote their own survival also protect against allergy-related disease.

Indeed, further observational analyses within EMaBS have shown that maternal hookworm infection modifies the association between classical risk factors (such as family history and atopic sensitisation) and childhood eczema – association with the classical risk factors being observed only in the absence of hookworm infection. Follow up of the EMaBS cohort is on-going to investigate whether these associations persist into later childhood, and influence risk of asthma. The allergy-related re-

sults from EMaBS resulted in the development of a major new intervention study, the Lake Victoria Island Intervention Study on Worms and Allergy-related diseases (LaVIISWA). This is a cluster-randomised trial of intensive versus standard intervention against helminth infection, undertaken in the island communities of Koome sub-county.

The outcomes will be assessed in a survey in 2015-2016, with wheeze, atopy and eczema as key outcomes, alongside anaemia, growth, hepatosplenomegaly and, if funding allows, cognitive function – allowing us to evaluate both the potential benefits, and potential risks, of systematically disrupting our age-old relationship with chronic immunomodulating infections.

MAJOR RESEARCH THEMES IN THE CURRENT 5 YEAR (2012-2017) PROGRAMME

- Helminths and allergy
- Infections and high blood pressure in childhood
- Infections and neurocognitive development

- Infections and cancer
- Helminths and susceptibility to poverty-related infectious diseases
- Schistosomiasis
- Tuberculosis
- Vaccines

Current and some past Scientists:

Dr. Irene Biraro, Dr. Stephen Cose, Dr. Swaib Lule, Dr. Harriet Mpairwe, Dr. Maggie Nampijja, Dr. Juliet Ndirizza, Dr. Barbara Nerima, Dr. Sarah Prentice, Dr. Cally Tann, Dr. Robert Tweyongyere, Dr. Anne Wajja, Dr. Michael Brown

Key collaborations:

Cambridge University, Department of Pathology, Centre Hospitalier Universitaire Vaudois, Danish Bilharzia Laboratory, Entebbe Hospitals, Leiden University Medical Centre, London School of Hygiene and Tropical Medicine, University of Lancaster, University of Oxford, University of Nottingham, Vector Control Programme, Ministry of Health, Uganda Virus Research Institute, Vaccine & Gene Therapy Institute of Florida, Wellcome Trust laboratories, Kilifi, Kenya, Wellcome Trust Sanger Institute.

06

SEXUALLY TRANSMITTED DISEASES
PROGRAMME (CLOSED)**Prof. Heiner Grosskurth**

This research programme (2006-2011) was headed by Prof Heiner Grosskurth and Dr. Judith Van de Pitte. It focused on STIs other than HIV infection, such as bacterial, protozoan and viral STI including human papilloma virus (HPV) infection that is associated with cervical cancer.

Under the Programme the Good Health for Women Project was set up, to document the prevalence of HIV and other STIs and their determinants evaluate the effectiveness of national guidelines on STI case management, monitor resistance patterns of *Neisseria gonorrhoea* and establish the feasibility of a microbicide trial in high risk populations among others.

The HPV research project described the spectrum of HPV genotypes associated with cervical cancer and with precancerous lesions, and generated information required to inform policy and practice for the introduction of a national wide cervical cancer screening programme. The HSV-2 project was looking at the preva-

**Dr. Judith Vandepitte**

lence and incidence of HSV-2 and their role in the spread of HSV-2.

Some of the results and successes from this programme are briefly described under the Epidemiology and Prevention Programme. These included the setting up of a high risk sex workers cohort in Kampala that has generated a lot of useful information on the HIV and other STDs. They showed evidence of a temporal relationship between *Mycoplasma genitalium* infection and HIV acquisition that suggests that *M genitalium* infection may be a co-factor in the acquisition of HIV infection. A high prevalence of ciprofloxacin-resistant gonorrhoea was reported

the Kampala-based FSW cohort among others.

The programme also investigated the effect of HSV-2 on population-level trends in HIV incidence in Uganda between 1990 and 2007 and the study did not find an effect of HSV-2 prevalence/incidence on trends in HIV incidence. The programme set up very successful collaborations with a number of institutions including Nsambya Hospital, the Ministry of health and Mwanza Intervention Trials Unit.

Major funders of the programme included EDCTP and MRC. This programme suffered from the reduced funding to STI research and STI programmes

Some past staff of the STD programme:

Dr Judith Vandepitte, Dr Justine Bukenya, Dr. Yunia Mayanja.

Other contributors:

Prof. Richard Haynes, Prof Helen Weiss, Dr. Deborah Watson-Jones, Dr. Saidi Kapiga



Staff at the GHWP teaches a client how to use a condom

07

CLINICAL DIAGNOSTIC LABORATORY
SERVICES (CDLS)
Peter Hughes - Head of Clinical Diagnostic Laboratories

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Peter started working life as a Junior Medical Laboratory Officer in the UK National Health Service, practicing a wide range of laboratory disciplines before specialising in infectious diseases.

From 1993 to 1995, he spent two years in Malawi as a volunteer, developing laboratory capacity and improving laboratory Quality Control within the country.

He joined MRC/UVRI in 1999 where he has overseen the clinical laboratories develop from a small 'clinic based' operation to a fully comprehensive laboratory service covering all disciplines of the diagnostic laboratory, with internationally recognised accreditation.


**Jackson Were
Head of Biochemistry section**

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Jackson Were is the Head of the Biochemistry section with over 10 years' experience in clinical biochemistry analysis. He has contributed significantly to the successful execution of a number of projects including; DART study in Africa, IAVI protocol B & C targeting the establishment of locally acceptable clinical reference ranges, the Diabetic study in Kyamulibwa and many others, through the establishment and sustainability of a quality testing system in the area of clinical biochemistry.

As a result, MRC/UVRI Clinical Laboratories have been used as a benchmark for new projects related to metabolism, metabolic disorders and Non communicable Diseases in general.

Jackson has an MBA, Bachelors in IT and B.Sc. Medical laboratory sciences. He is interested in Bio informatics, Biotechnology and how IT can be used to enhance laboratory services around the world. He believes in developing the people around him to allow for continuity.


Vudriko Baga Tobias - Head of serology laboratory section

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Tobias Vudriko started working with MRC/UVRI in February 1999 as medical Laboratory technologist. He pioneered the setup of serology and molecular biology sections of the CDLS department. He has BSc PH (IHSU), DMLT (MUK), DMA (CTC-UK), and is due to be awarded APGDCR-QA (JIL-India). His interest is to pursue higher medical and health research training through applied integration of genomics, molecular epidemiology and preventive medicine.

He is very optimistic that, the applied integration would significantly contribute to alleviating Global health problems and bridging the '10/90 gap'.

CLINICAL DIAGNOSTIC LABORATORY SERVICES (CDLS) BRIEF



CDLS laboratory staff- 2014

The MRC/UVRI Clinical laboratory is a key component of and supports all the research studies conducted by the Unit. The central laboratory in Entebbe and those in Kyamulibwa, Masaka and Kampala have tremendously expanded from small scale establishments using simple rapid methods to highly developed multidisciplinary laboratories capable of providing high quality and sophisticated diagnostics. In 2007, the laboratories moved into their own laboratory building which further improved the infrastructure and potential for continued improvement and expansion.

The laboratories are fitted with state of the art equipment which has promoted comprehensive provision of services for haematology, microbiology, serology, biochemistry and molecular diagnostics. A freezer archive section which has logged and data-based samples stored since the start of the unit has also been established.

The laboratory has built up considerable experience in Quality As-

urance (QA) procedures and employs a full time QA manager. The laboratory is regularly audited by external organisations such as PPD, CLS (South Africa) and the MRC Clinical Trial Unit. The laboratories in Entebbe and Masaka have gained accreditation under Good Laboratory Practice (Qualogy) and with sponsorship from EDCTP, are currently undergoing an audit process for ISO 15189 certification. This process is expected to be finalised by end of 2014.

All staff undergo GCLP training and are encouraged to take part in CME activities. Support is provided for short workshops and further education where appropriate, as well as continuous on-site training. The section supports staff capacity building and all have obtained BSc with some progressing to MSc awards. As far as possible an internal promotion system is in place to further encourage and retain staff who have excelled over the years.

The primary objectives of the section are;

1. To provide a high quality 'safety testing' and clinical diagnostic support services to the core MRC/UVRI clinical studies and trials, as well as other collaborative studies undertaken by the Unit.
2. Maintain a database of all specimens collected and stored at the facilities
3. To strengthen the Entebbe laboratories as the central reference point for MRC in Uganda



Staff in the CDLS Laboratory

07 | CLINICAL DIAGNOSTIC LABORATORY SERVICES (CDLS)

ACHIEVEMENTS OVER THE PAST 25 YEARS



Staff in the CDLS Laboratory

The section has grown over the last twenty five years and has the capacity to support large local studies. Samples are no longer shipped abroad as all required tests can be conducted locally. The established diagnostics cover a wide range of both manual and automated methods, including Real Time PCR diagnostics.

The laboratory has a long history of successfully working with Clinical Trials in the area of Microbicides and HIV vaccine.

Through its involvement in various studies, the section has contributed to policy formulation and enactment in the country. A case in point is the work done to identify high prevalence of ciprofloxacin-resistant gonorrhoea among high-risk females in Kampala, Uganda, which supported a

change in the national guidelines for treatment of gonorrhoea. The section has recently been identified as a central bio repository for sample storage and laboratory testing for a multi-African site study.

The multi-disciplinary nature of the Unit with very good cohorts and studies brings opportunities for research in bacteriology, parasitology among others and more interactions with molecular biologists and other specialities.

There are also new opportunities in genomics and bioinformatics with the collaborations we have initiated where the CDLS will be involved.

Collaborations

The CDLS has closely worked with the following partners; The Uganda Virus Research Institute (UVRI), International Aids Vaccine Initiative (IAVI) and Centre for Diseases Control (CDC)

Current and some past scientists

Peter Hughes, Vudriko Baga, Jackson Were, Amato Ojwiya, Michael Moore, Nassim Kyakuwa.



Staff in the CDLS Laboratory

08 | STATISTICS SECTION



Prof. Jonathan Levin
Head of Section

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Prof. Jonathan Levin is the Head of the Statistics Section of the Unit, a position he has held since January 2009, having worked in the Unit as a Senior Statistician since October 2006. Prior to moving to Uganda, Jonathan had worked as a Biostatistician with the South African Medical Research Council for 12 years. He is an Honorary Professor in the School of Public Health at the University of the Witwatersrand in South Africa. He has a B.Sc. from the University of the Witwatersrand, an MSc (Numerical Computation) from the University of Manchester, an MSc (Biometry) from the University of Reading and a PhD in Biometry from the University of Natal. His interests are in statistical aspects of Randomised Controlled Trials, including Cluster Randomised Trials, the analysis of clustered data and in teaching Biostatistics to Health Professionals. He is currently serving on two Data Safety and Monitoring Committees.

(1989-2014)



Dr. Jessica Nakiyingi-Miuro (PhD)
Senior Statistical
Epidemiologist

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Dr. Jessica Nakiyingi-Miuro is a Senior Statistical Epidemiologist at the Unit. She is the project leader and site coordinator for ALPHA Network studies; a network of 10 sites from 6 sub-Saharan countries. She is involved in in-house mentoring and training, and has been a Distance Learning Tutor in Statistics at London School of Hygiene and Tropical Medicine (LSHTM) since 2007.

She holds Bachelor of Statistics (hons) degree from Makerere University; a Graduate Diploma in Statistics, and MSc (Epidemiology and Population Health) from the Australian National University; and a PhD from the University of London.

Dr. Jessica joined the Unit in August 1991 as a Statistical Research Assistant, became a Statistician in May 1996, and was Head of the Statistics section from

April 1999 until September 2005. Her research interests are in areas of epidemiology (field, clinical, social, and statistical), public health, and statistical methodology. Recently, her research has concentrated on: HIV infection trends; adult and child mortality; adolescent health; and social impact of HIV i.e. education; fertility; and orphanhood.



Dr. Rebecca N. Nsubuga (PhD)
Statistician/ Modeller

Rebecca.Nsubuga@mrcuganda.org

Dr. Rebecca N. Nsubuga is a Senior Scientist (Statistician/Modeller); a position she has held since 2008. She is a project leader of the calibration and analysis of complex individual-based stochastic models project (PI: Richard G. White, LSHTM).

Before joining MRC/UVRI, Dr. Nsubuga worked as a lecturer at Makerere University, Department of Mathematics for 12 years. She currently holds a visiting

08 | STATISTICS SECTION

Dr. Rebecca N. Nsubuga
Statistician/ Modeller

Rebecca.Nsubuga@mrcuganda.org

☐ professorship position at Hasselt University, Belgium for the year 2014-2015.

Dr. Nsubuga holds a Bachelor of Science in Mathematics degree from Makerere University, a Master's degree in Biostatistics from Limburgs Universitair Centrum (now Hasselt University), Belgium and a PhD from The University of Edinburgh, Scotland.

Her field of research is modelling and analysis of infectious disease data. She is a member of the International Biometric Society and Uganda Mathematical Society. Since 2011 she has served on the Mengo Hospital Research Review Committee particularly for statistical related aspects.

**STATISTICS
SECTION BRIEF**

Since the establishment of the MRC/UVRI in 1989, statistics has made a major contribution to our activities. Starting as a small section employing a few staff, it developed into a large section managing a number of large studies and trials. In the early years, the section set up systems for collection, storage and analysis of data using MS-DOS data programming packages including Dbase III/IV and EPIINFO. When Windows operating system computers became accessible, the section was

*File Archives**The newly refurbished archives*

responsible for training of staff in the new computer programmes.

The section was also instrumental in evaluation of the HIV testing algorithms that have been used over time. The Section continues to provide statistical support to all projects in the Unit that involve quantitative data.

The support consists of providing input into study proposal / protocol development, database creation, data entry, data processing and data management in order to ensure that good quality data is provided for the projects, and data analysis and interpretation (including report writing and contributing to scientific publications) are promptly done. In addition, the section is involved in training and capacity building activities through running training courses, including a two week "Uganda Intensive Epidemiology and Statistics Course" and a two week "Uganda Advanced Statistical Methods in Epidemiology Course", both in collaboration with the London School of Hygiene and Tropical Medicine. The courses are attended by participants from sub-Sa-

haran Africa, especially from East Africa.

STATISTICS TRAINING

The Statistics Section receives support from the Tropical Epidemiology Group (TEG) of the LSHTM. The section also runs short Statistics courses for MRC Unit and UVRI staff on topics such as programming in R, and introduction to data analysis using Stata.

Data management within the unit:

Initially the Section carried out double data entry from paper questionnaires. Starting in 2009, we introduced direct electronic data capture using Ultra-Mobile Personal Computers (UMPCs) for a number of studies. Since 2001 the database management system Ms Access has been used for data entry and data management. While this has allowed us to create robust and high quality databases, MS ACCESS does not meet the ICH/GCP requirement for an electronic data trail. For the multi-centre DART trial which

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started in 2003, we used an SQL server database which could provide an audit trail and this became the first GCP compliant database in the section. Subsequently the section has been using databases designed by our collaborators for some of the multi-centre trials. We have now introduced “OpenClinica” a GCP compliant clinical trial database management system, which is locally managed. For the TB036 phase I TB vaccine trial and for the EV06 phase I HIV vaccine trial which is about to start, we are using this GCP compliant clinical trial database.

In addition to supporting the projects within the Unit, the Statistics section is involved in its own projects including:

The ALPHA network

The ALPHA network was formed in 2005 as a research collaboration on HIV epidemiology in sub-Saharan Africa. The network links several existing HIV cohort studies in sub-Saharan Africa. The network is funded by the Wellcome Trust, with the current grant running until 2015 and administered by the London School of Hygiene and Tropical Medicine (LSHTM). The ALPHA network aims to maximize the usefulness of data generated in community-based longitudinal HIV studies in sub-Saharan Africa, by linking several existing HIV cohort studies.

Complex Model Calibration

The proportion of HIV-infected people in sub-Saharan Africa



Some of the Statistics team- 2014

who are receiving HAART has increased markedly since 2005, and this proportion should continue to increase, especially considering that WHO raised its guidelines for the CD4 initiation threshold from 200 to 350 cells/mm³, and now to 500 cells/mm³.

It has been shown that HAART has reduced morbidity and mortality in those receiving treatment, but the impact on HIV prevalence and incidence is still uncertain. The impact on long-term HIV prevalence and incidence is a complex function of infectiousness of individuals on treatment, rates of treatment failure and sexual behaviour of those people on (and not on) treatment.

In this project, methods to calibrate and analyse complex individual-based stochastic models are being developed and applied to explore the impact of HAART on HIV/AIDS in sub-Saharan Africa, using data from the GPC and

other sources. The project aims to develop a hybrid model calibration strategy, utilising the strengths of two new techniques, namely Approximate Bayesian Computation (ABC) and Bayesian Emulation.

Current and past statisticians

Prof Jonathan Levin MSc, PhD; Dr Jessica Nakiyingi-Miiri; Dr Rebecca Nsubuga; Dr Sylvia Muyingo-Kiwuwa; Lawrence Muhangi ; Andrew Abaasa; Ivan Kasamba; Jim Todd; Dr Leigh Anne Shafer; Dr Lucy Carpenter; Dr Cedric Mahe; Prof Andrew Nunn; Dr Samuel Malamba; Dr Amanda Ross

Other contributors:

The TEG team led by Prof Helen Weiss, Prof Richard Hayes, Kathy Baisley, Dr Emily Webb; ALPHA Network led by Prof Basia Zaba, Dr Georges Reniers, Dr Emma Slaymaker, Milly Marston; and Complex model calibration team led by Dr Richard White.

09

OPERATIONS SECTION



Simon Belcher
Section Head

simon.belcher@mrcuganda.org

Simon Belcher is a member of the Chartered Accountants of England and Wales and a graduate of the City University London in Banking and International Finance.

He has extensive experience of working in Africa having worked twice for the MRC, firstly as Finance Manager in The Gambia Unit between 2000 and 2004 and now at the Uganda Unit as Operations Director since May 2011.

In between he worked at European and Developing Countries Clinical Trials Partnership (EDCTP), an EU funded initiative in The Hague as Director of Finance and Administration. EDCTP supports clinical research into the main poverty related disease in sub Saharan Africa and is a partnership between African and European Governments, NGO's and other international donor organisations.



Monica Badaru
Senior Accountant

Monica.Badaru@mrcuganda.org

Ms Monica Badaru is the Senior Accountant at Medical Research Council – Uganda Unit, with responsibility for accounts, procurement and grants sections.

Monica has over 10 years' experience as an accountant and has worked with MRC Uganda Unit for the last 3 years. Prior to joining MRC, she worked in various accounting roles in not-for-profit organisations involved health systems and also in the private sector.

Monica holds a Bachelors of Commerce degree from Makerere University, Accountancy certificate with ACCA and is finalising an MBA with Harriot-Watt University, University in Edinburgh.



Epaineto Musigire Kanya
Estates Manager

Epaineto.Kanya@mrcuganda.org

Mr. Epaineto Musigire Kanya is head of the engineering maintenance department, a position he has held since joining the MRC/UVRI in December 2002, where he has been involved in a number of infrastructure expansion and logistics systems improvement projects in support of the research activities of the unit. He manages the Unit's fleet.

He holds a BSc (Eng.), a post graduate Diploma in Computer Science and has attended a number of short management courses. He underwent 1-year maintenance training in Japan and is now completing an MBA at the University of Wales.

He previously worked with the Ministry of Works, the Uganda Red Cross Society among others and his areas of interest include continuous improvement practices, Project management and the study of Production costing systems



Edward Ssenyonjo
Head IT

edward.ssenyonjo@mrcuganda.org

Mr Edward Ssenyonjo is the Head of Information Technology at MRC/UVRI Uganda Research Unit on AIDS.

He has over 15 years' experience as an Information Technology Professional and has worked with MRC Uganda Unit for the last 12 years. He joined as a Systems administrator and went on to become the IT Section Head. Prior to joining MRC, he worked in the commercial sector with various Internet Services Providers.

He holds a Bachelors of Science Computer Science, Diploma in Computer Science, and Masters in Information Management and has several IT Certifications. He is Finalising an MBA with Cavendish University in Uganda.



Godfrey Kalungi
Human Resources Manager

Godfrey.Kalungi@mrcuganda.org

Mr Godfrey Kalungi is the Human Resources Manager, a position he has held since May 2013. He joined the organisation in February 2011 as Field Station Administrator for the Kyamulibwa station and has over 7 years' experience in Human resources management.

He holds a bachelor's degree in Social Sciences Majoring in Administration from Makerere University and MSc Human Resource management from Ndejje University and has recently embarked on CIPD Advanced diploma in Human Resource management.

He has been involved in reviewing organisational legal compliance, performance management, policies and procedures, staff wellbeing initiatives to ensure organisational ability to attract and retain best skill and talent for Research. He previously worked for Save the children USA and the International Rescue Committee.

OPERATIONS SECTION BRIEF

Over the years, the section has grown from a small administration and finance services section headed by a senior administrator supporting the operations at the different Unit stations to a large section currently headed by a Director of Operations. In the 25 years, this section has contributed to the growth of the Unit giving administrative, finance, procurement, human resource, IT and maintenance services. This support saw the growth of the Unit in terms of staffing to levels above 400 staff at some stage, expansion of offices and laboratories. Those who have worked for the organization for a number of years have witnessed the transformation including that from use of radio calls and fax machines to the introduction of the internet in 1996 and mobile phones the latter years making communication more efficient including to remote rural areas.

Some of the major infrastructure investments include the construction of the main offices in Entebbe; the Kyamulibwa offices, the main laboratories in Entebbe, the UVRI clinic (cofounded with IAVI), the Entebbe grade B (cofounded with IAVI), the Masaka offices, the Entebbe grade A clinics, Staff houses in Kyamulibwa and in Entebbe, IT infrastructure and a liquid Nitrogen plant. Other major investments have been the purchase of Kampala offices, the contribution to the UVRI training building (cofounded with Wellcome Trust) and the electrical upgrades.

09 | OPERATIONS SECTION



Some members of the administration team - 2014

In 2014 the Unit rolled out the new MS Dynamics, Microsoft reporting ERP, having upgraded its old accounting systems. The system will now be capable of being backed up through MRC in Harwell and will enable much improved financial reporting capacity and internal control compared to previous years.

There will also be a new Scientific Research Support Office, which will sit within the finance section and work closely with Researchers to help them with different aspects of their grants including support in developing a budget for grant application through to financial reporting. The Procurement section is based at the Entebbe office and is charged with obtaining the required Unit supplies. Since 2013 international procurement has been migrated onto the Research Councils UK ERP and is carried out by the Shared Service Centre SSC in Swindon via the Oracle platform.

Stores systems are also due to be overhauled through the introduction of MS dynamics with the likely introduction of bar coding and im-

provement to the stores controls and automated re ordering of fast moving items to avoid stock outs.

The IT section looks after the needs of approximately 300 users across the four field stations plus the Grade A clinic at Entebbe, and supports a wide range of software accessible over the Unit network from standard business applications, e mail and Microsoft Office suite to statistical and specialist application programmes designed for laboratory equipment. Portable internet access means that the Unit is now also considering how best to incorporate this technology into its IT systems whilst protecting the security of the Unit systems, new firewalls and servers have been acquired and put into use at all of the Stations and there has been an investment of over £250,000 from MRC Head office in upgrading the IT systems at the Unit since 2011.

The Unit has built a disaster recovery centre at the Entebbe site which backs up all of the main production data in real time and will also be utilised by the new bio-informatics centre. The Unit

now utilises fibre optic connections extensively, since the linking of the Continent via undersea cables to Europe and the Middle East, and no longer uses the former VSAT technology which was expensive and slow.

Entebbe, Kampala and Masaka Stations now have a fibre optic connection to the internet which provides average download speeds of up to 2mbps whilst the Kyamlibuwa Station connects to the internet through a Wimax and microwave link. The Unit is now looking at the adoption of IP telephone systems in an effort to reduce the monthly cost of telephone calls as well as using VOIP video conferencing more widely now that there is sufficient bandwidth to make it usable.

Through a £2.8mn grant from MRC the Entebbe site in conjunction with the Sanger Institute Cambridge is constructing a new bio informatics centre which will be located in the lower floor of the Training building. The bio informatics centre is an extremely ambitious project and will be the first of its type in East Africa and will aim to provide bio informatics processing capacity on a regional scale.

The estates section has been exceptionally busy over the last 3 years with several new buildings and many estates infrastructural upgrading works either completed or in the course of construction both at the Entebbe headquarters and the field stations.

09 | OPERATIONS SECTION



Part of the Unit's fleet at the Entebbe station workshop



The Unit recently acquired a 67 seater bus to further ease staff transport

Major new civil engineering projects have included: The acquisition and refurbishment of the Mengo Clinic in Kampala; The construction of a new training building at Entebbe in partnership with Wellcome Trust and UVRI; A new bio informatics centre at Entebbe working in conjunction with the Wellcome Trust Sanger Institute; The overhaul of the electrical systems and infrastructure at the Entebbe site including the construction of a new energy centre; New archive constructed at Entebbe; Major site renovations at the Masaka station; A new stores and archive at the Kyamulibuwa station; New Incinerator at Kyamulibuwa; Road construction at the UVRI

Part of MRC/UVRI's mission is to support capacity building for research in Africa both human capacity and infrastructure. The Unit has continued to support this both internally and externally.

Training activities range from short courses, attachments of various

with the majority coming from the MRC training budget. Other sources include external donors such as Wellcome Trust and through independent scholarship awards such as Commonwealth scholarships.

Some staffs are self-sponsored either wholly or partially. Most of our Msc students register for distance learning, the majority with the London School of Hygiene and Tropical Medicine (LSHTM). We have had a very successful PhD programme that has enabled

many of our staff to pursue further training. The Unit also provides internship opportunities for both local and international students.

Current and some past staff of the section:

Monica Badaru, Edward Senyonjo, Epaineto Kanya, Florence Amuge, Godfrey Kalungi, JB Kateregga, Sarah Kizito, Paul Kasozi Kazenga, Gordon Bell, Tony Lovell, Diana Mugamba, Peter Kiwanuka, Josephine Magoba, Kibuuka Bbosa, J Nansemere (RIP), Evah Ndwula, E Sekyondwa,



Nitrogen plant - Entebbe UVRI Campus

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COMMUNICATION AND ENGAGEMENT
SECTION

Pamela Nabukenya Wairagala
Communication and
Engagement Officer

Pamela.Wairagala@mrcuganda.org

Pamela joined the MRC/UVRI as Communications and Engagement Officer in 2014. She holds a BA in Social Sciences, Post Graduate Diploma in Project Planning and Management and is pursuing an MA in Journalism and Communication from Makerere University.

Her Communication and Public Relations career spans over 10 years, working with clients in the public, private and civil society sector where among others she served as Communication/PR consultant and Projects Manager among others. Before joining the Unit, she worked as a Project Manager with Fauna and Flora International, a world leader in innovative biodiversity conservation.

Her areas of interest include Development Communication and the strategic role of communication in Organizational Management.

Community development activities were introduced into the Unit in 1990, with the establishment of a counselling department to support the General Population Cohort. It was recognised that to support the participation of local people in the research effort required engaging with the local community, including the political leadership. All projects have since that time incorporated mobilisation activities and, when appropriate, provided counselling services and community development services.

Each research site has staff engaged in these activities. Community Advisory Boards (CAB) was also introduced especially where we conduct HIV prevention research. In the past the Director and other senior staff have taken a lead in disseminating information to stake holders and follow up to ensure some of the research findings are translated into policy and practice, this was not very effective.

Three years ago the Communications and Engagement section was created to bring together all the above community, mobilization and communication activities

All projects have since that time incorporated mobilisation activities and, when appropriate, provided counselling services and community development services. Each research site has staff engaged in these activities. Community Advisory Boards (CAB) was also introduced especially where we conduct HIV prevention research. In the past the Director and other senior staff have taken a lead in disseminating information to stake holders and follow up to ensure some of the research findings are translated into policy and practice, this was not very effective.

under one section. The aim is to support the research of the Unit, through the effective engagement with potential stakeholders at local, national and international levels using a range of different communication approaches. The section also coordinates the translation of research into policy and practice in Uganda and elsewhere in sub Saharan Africa.

The section has developed a communication strategy and works very closely with the MRC-UK Head of Corporate Communications.

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BIOINFORMATICS SECTION

In 2015 a new Bioinformatics section will be created to coordinate this expanding field. This has largely been possible as a result of funding from the MRC-UK to create an MRC/UVRI Medical Informatics Centre (MIC) and the collaboration with Sanger and Cambridge University in the UK, co applicants on this grant. With this funding staff are being hired including a bioinformatician and a systems manager.

The Unit is also actively engaged in training, currently one of our staff has started an MSc in Bioinformatics, but there are also a number of projects with bioinformatics components. This section will work closely with the wider UVRI departments who are also expanding in this field including the MUII programme. The MRC funding has provided



The new training building where some bioinformatics activities will be hosted.

software and hardware including up to 512 cores and up to 125 terabytes of analytical disk space (Exascaler Lustre), and 125 terabytes for NFS archiving (including local mirrored back-up), all connected to a fibre link capable of providing up to 10Gb/s download speeds provided through a strategic collaboration with the Research and Educational Net-

work for Uganda (RENU; <http://www.renu.ac.ug/>) as part of the EU-funded Africa Connect project (<http://www.africaconnect.eu/>), which is also supported by local governments.

A new fibre link between the UVRI campus and the new RENUet switching node using Google fibre link has been connected.

OTHER CORE ACTIVITIES

CAPACITY BUILDING

Our vision is Uganda, and Ugandan scientists, as equal partners in global health research, and contributing solutions to health problems of both local and international significance. In seeking to realise this vision we aim to sustain and further develop the capacity of the Unit as a world-class research organisation; to increase our contribution to the development of research capac-



Monthly Scientific Seminars are one of the knowledge and information sharing avenues at the Unit

09 | CAPACITY BUILDING

ity at UVRI and at other partner organisations; and to provide a world-class platform for research training for both Ugandan and international trainees.

Over the 25 years of its existence the Unit has developed physical infrastructure and human resources that have established it as an internationally recognised centre for research on HIV and other communicable diseases. Central to this has been the development of an experienced staff.

This has been achieved through training “on the job” provided by dedicated senior personnel, and by providing formal training opportunities and career-pathway training for both scientists and support staff, as well as opportunities for international exposure through attachments, courses and conferences. The outcome of this process is a highly productive research unit, influencing local and international policy and scientific thinking.

In 2003 MRC began providing funding of about 50,000 £ annually to send employees or direct collaborators to training courses, this same budget was used for the attendance at International conferences and for student research costs and has since been increased to the current £153,000 annually. Over the years other key sources of training funds have come from Wellcome Trust, EDCTP, Imperial College, EU, Rogers Fellowship and Commonwealth scholarships among



In-house training session in Kyamulibwa

others. We have also benefited enormously from the reduced tuition fees offered by the LSHTM. Many of our staff have also benefited from distance learning programmes and more recently the evening classes offered by local Universities.

The Unit’s training programme has provided continuing professional development for all staff cadres, through in house and external courses and workshops. The Unit, in collaboration with UVRI and Makerere University, seeks to provide a rich academic environment. In the 1990s the Unit contributed to the initiation and has continued to support the Joint UVRI monthly seminars and the Unit continues to encourage regular research-in-progress and Hot Topics seminars and journal clubs and collaborative workshops and symposia. It has provided short course training opportunities, accessible to both internal and external applicants: of note the

Uganda Intensive Course in Epidemiology and Statistics and Immunology in the Tropics, both of which have so-far run ten courses

The Unit has developed substantial infrastructure in terms of buildings, laboratories, equipment and sample archives, information technology and data management systems, at Entebbe, Kyamulibwa, Masaka and Kampala

The Unit has contributed significantly to capacity building for UVRI, its host institution. Some of these include support in early 1990s to renovate the UVRI virology and immunology laboratories including setting up a P3 laboratory for the Institute and more recently the core UVRI molecular biology laboratory. Others have been construction of a new clinic co-funded with IAVI. There has been support to human resources in key areas of administration, finance and grant management. Over the years, the UVRI Ethics Com-

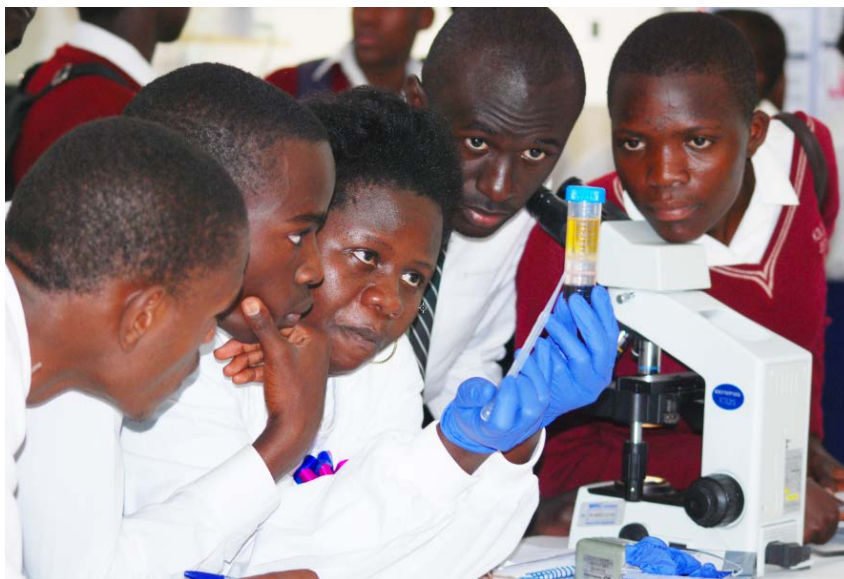
09 | CAPACITY BUILDING

The Unit, in collaboration with UVRI and Makerere University, seeks to provide a rich academic environment. In the 1990s the Unit contributed to the initiation and has continued to support the Joint UVRI monthly seminars and the Unit continues to encourage regular research-in-progress and Hot Topics seminars and journal clubs and collaborative workshops and symposia.

mittee has been strengthened. Together with the Institute, the Unit contributes to capacity building more widely within Uganda and the region. A Memorandum of Understanding exists between UVRI and Makerere University for research training.

The Wellcome Trust supports Makerere-UVRI research training programme in Infection and Immunity (MUII), of which the Unit is a partner, and in collaboration with UVRI and programme has also received support from two European Union consortia. A number of Unit staff hold honorary appointments at Makerere and other Universities. Over the years, the Unit has actively been involved in a number of capacity building regional networks.

As part of our engagement with the public, and as a contribution to informing young people about careers in science, the second Makerere University - UVRI Open Day for schools was held in July



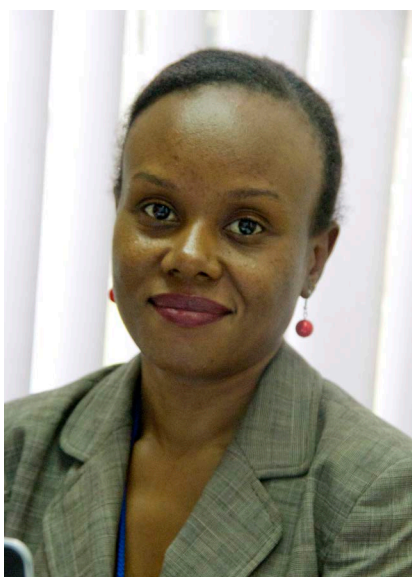
Future scientists - A scientist at the Unit shows samples to students during the 2013 Open day

2013. Once again this was a very successful event that was attended by the Minister of Health and attracted over 1500 students and 93 teachers from 31 schools. There was also a strong representation by the press, resulting in several articles and reports. The Unit continues to participate in UVRI's internship programme for undergraduates and new graduates, with 80 to 100 placements per year. We continued to support MSc, PhDs and Post docs (see table on page 56). The

training building construction continued funded by Wellcome Trust and MRC. We acquired and refurbished a new clinic in Kampala, Mengo.

MRC also initiated on the construction of Roads at the UVRI campus. We won a grant from the MRC-UK of 2.8 million £ to establish the MRC/UVRI Medical Informatics Center, this was in collaboration with the Cambridge/Sanger Institute, UK. Capacity building will remain an important mission of the Unit in the years to come.

CLINICAL STUDIES SUPPORT OFFICE



Dr. Penelope Miremba
Clinical Research Coordinator
Penelope.Miremba@mrcuganda.org

Dr. Miremba joined the MRC/UVRI in 2013 as Clinical Research Coordinator. She holds an MBChB (2006) and MSc Clinical Epidemiology and Biostatistics (2012, both from Makerere University.

Following her internship at Mulago National Referral Hospital, she did locum placement at Baylor College of medicine COE, before re-joining the National referral Hospital first in the Accidents and Emergency Unit, and later in the TB ward, where she participated in a large WHO funded trial 'Clinical trial on Early Initiation of HAART improves clinical outcomes of TB/HIV co-infected individuals'.

In order to better support the many clinical and laboratory studies in the unit that require GCP and GCLP, this support office was created to provide a central clinical studies management function. While some externally funded multi-Centre studies have mechanisms in place for trial management, trial coordination and trial monitoring; for MRC funded core work each programme or

In order to better support the many clinical and laboratory studies in the unit that require GCP and GCLP, this support office was created to provide a central clinical studies management function.

project previously supported their own studies. In order to maximize available resources, this office was created with an independent clinical research coordinator responsible for coordinating study approvals, compliance with GCP and GCLP as well as trial monitoring across the unit. For studies with sponsor funded external monitoring, the coordinator of these activities is made aware of these plans for documentation on behalf of the Unit.

SCIENTIFIC ADVISORY COMMITTEE (UNIT SAC)

The Unit has a Scientific Advisory Committee which meets annually. Their mandate is to advise the Unit Director and other senior scientific staff on the scientific direction and strategy to enable maintain scientific excellence. This committee has individuals with broad expertise including those with local knowledge of the environment.



A cross-section of staff and SAC members at the 2012 SAC meeting

The current membership includes the following:

1. Prof. Andrew McMichael (Chair) Oxford University, UK - Immunologist
2. Prof. Jonathan Weber Imperial College London, UK Clinical Trials - HIV care and treatment and virology
3. Dr Alex Opio Commissioner Ministry of Health, Uganda - Epidemiologist, policy link
4. Prof. Liam Smeeth LSHTM, UK - Clinical Epidemiologist with NCD experience
5. Prof. Richard Hayes LSHTM, UK - Epidemiologist/clinical trials
6. Prof. Judith Breuer, University College London, UK - Virologist non HIV
7. Prof. Jim Mullins, University of Washington Seattle, USA - Molecular virologist,
8. Prof. Kevin Marsh, Wellcome Trust Kilifi, Kenya - Clinical Epidemiologist
9. Prof. Edward Kirumira, Makerere University, Uganda - Social scientist
10. Prof. David Dunne Cambridge University, UK - Immunologist (Parasitology)
11. Prof. Fred Wabwire Makerere University, Uganda - Epidemiologist
12. Prof. Ian Hall University of Nottingham, UK - Genetics/Asthma

MRC/UVRI TRAINING BENEFICIARIES

The Unit has supported 37 PhD students (20 completed, 17 on-going) and over 74 MSc students. The PhDs have been in various areas including: Epidemiology, Immunology, Statistics and Virology with most of them being obtained from LSHTM, while most of the MSc have been attained in Epidemiology, Clinical Trials, Bio-medical Laboratory Technology and Business Administration.

CAPACITY BUILDING

Completed PhD

	Name	Discipline of the PhD	Institution	Funding	Year of award
1	Alleluiah Rutebem-berwa	HIV Immunology	Imperial College	Wellcome Trust, Imperial College and MRC	2002
2	Kebba Kenneth Anthony Kalanyi	Immunology	Imperial College, University of London	Wellcome Trust, Imperial College and MRC	2004
3	Immaculate Nankya	Molecular Virology	Case Western Reserve University(CWRU),Cleveland	Fogarty scholarship	2007
4	Robert Tweyongyere	Immunology	Makerere University	Danish Bilharziasis Laboratory-Center for Health Research and Development	2009
5	Jessica Nakiyingi-Miir	Epidemiology	LSHTM	MRC PhD Grant	2010
6	Rosalind Parkes Ratanishi	Topic:Morbidity, Mortality and a trial of Primary Prophylaxis of Invasive Cryptococcal Disease	University of Liverpool	MRC grant for CRYPTOPRO study through University of Liverpool	2010
7	Harriet Mpairwe	Epidemiology	LSHTM	Wellcome Trust	2011
8	Samuel Biraro	Epidemiology	LSHTM	MRC PhD Grant	2011
9	Jacqueline Kyosimire Lugemwa	Clinical Investigative Science-Immunology	Imperial College	EU & Imperial College	2011
10	Anatoli Kamali	Public Health	City University, London		2012
11	Margaret Nampijja	Developmental Psychology	Lancaster University	MRC PhD Grant	2012
12	Sylvia Kiwuwa Musingo	Statistics	University of Tampere-Finland	MRC PhD Grant	2012
13	Deogratius Ssemwanga	Molecular Biology	Makerere University	MRC	2013
14	Godfrey Siu Etyang	Medical Sociology	University of Glasgow	MRC PhD Grant	2013
15	Katie Wakeham	Oncology	University of York, UK	Wellcome Trust	2013
16	Agnes Ssali	International Development	University of East Anglia	MRC PhD Grant	2014
17	Joseph Okello Mugisha	Epidemiology	LSHTM	MRC PhD Grant	2014

CAPACITY BUILDING

Completed PhD (Continued)

	Name	Discipline of the PhD	Institution	Funding	Year of award
18	Benson Droti	Epidemiology	LSHTM	MRC PhD Grant	2014
19	Annetee Nakimuli	Immunogenetics	Makerere University	Wellcome Trust	2014
20	John Kitayimbwa	Mathematics	Makerere University	Wellcome Trust	2014

Some of the non MRC/UVRI-staff PhD students who have done fieldwork at the Unit

	Name	Topic	Institution	Year of award
1	Noah Jamie Robinson	The Association of HIV-1 and other sexually transmitted diseases and its relevance to intervention programmes in rural Uganda: A simulation modelling exercise	LSHTM	1994
2	Jacqueline D. Smith	Analysis of HIV-1 specific antibodies induced by Ugandan viruses or virus encoded peptides	The Open University and funded by the Medical Research Council AIDS Directed Programme	1997
3	Suleman Ali	Host Genetic Susceptibility to HIV in a Rural Ugandan Population	Jesus College	1997
4	Alun Williams	Old Age in Contemporary Buganda	University of Queensland, Brisbane	1999
5	Patricia Ann Ramaley	Host Genetics of HIV-1 Infection and disease progression in Uganda	Linacre College, University of Oxford	2000
6	Gareth John Jones	The role and function of Dendritic cells in HIV-1 infection with non-clade B isolates	Imperial College, University of London and funded by Wellcome Trust and NIH	2003
7	Catherine M. Montgomery	The Co-Production of Gender and Technology in HIV Prevention Research. A Case study of the Microbicides Development Programme	LSHTM, University of London	2010

CAPACITY BUILDING

On-going PhD Students

	Name	Discipline of the PhD	Institution	Funding	Expected year of completion/ Status
1	Agnes Kiragga	Applied Statistics	Makerere University	Wellcome Trust	2014
2	Andrew Ekii Obuku	Molecular Biology	Makerere University	EU	2014
3	Juliet Ndibazza	Malaria	Makerere University	Wellcome Trust	2014
4	Pamela Nasirumbi	Epidemiology	LSHTM	MRC	2014
5	Irene Andia Biraro	Infection and Immunity	Makerere University	Wellcome Trust	2015
6	Patrice Akusa Mawa	Immunology	LSHTM	Commonwealth Scholarship	2015
7	Ronnie Kasirye	Epidemiology	LSHTM	MRC	2015
8	Eugene Ruzagira	Epidemiology	LSHTM	MRC	2017
9	Gershim Asiki	Maternal and Child Health	Karolinska University	Karolinska/MRC	2016
10	Sarah Prentice	Clinical Medical Research	LSHTM	MRC Unit/LSHTM	2016
11	Kenneth Ekoru	Statistics	University of Cambridge	Islamic Bank	2016
12	Moses Egesa	Immunology	Makerere University	Wellcome Trust	2017
13	Simon Kimuda	Immunology	Makerere University	Wellcome Trust	2017
14	Nicholas Bbosa	Molecular Virology	Makerere University	MRC	2017
15	Cally Tann	Neonatology	LSHTM	Wellcome Trust	On-going student
16	Jovita Amurwon	Rural Development	Swedish University of Agricultural Sciences(SLU)	MRC/SLU	On-going student
17	Symon Wandiembe	Medical Statistics	LSHTM	MRC PhD Grant	Awaiting thesis defence

IMPACT OF THE MRC/UVRI COLLABORATION ON NATIONAL AND INTERNATIONAL POLICY AND PRACTICE

Dr. Anatoli Kamali



The Unit interacts closely with the Ministry of Health of the Government of Uganda and the Uganda AIDS Commission and with international organizations to formulate research agenda that are urgently needed to inform policy. Scientists of the Unit make contributions to policy consultations at the national, regional and international level such as World Health Organisation (WHO) and UNAIDS to facilitate the translation of research results into policy and practice in Uganda and elsewhere in sub-Saharan Africa.

For example, senior members of the Unit are on the various national committees: the Technical Working Group on HIV Drug Resistance Surveillance, National ART Clinical Care Committee, and Neglected Tropical Diseases Technical Committee. At regional and international level we have contributed to the African AIDS Vaccine Programme; on the WHO Technical Working Group on ART in Resource Limited Settings and on the UNAIDS science panel among others.

The Unit publishes widely and since its start in 1989 has generated over 600 publications in peer reviewed journals, and in many policy documents such UNAIDS and Ministry of Health reports. The Unit has made major contributions to both national and international conferences.

Important Unit research findings that have relevance to policy include:

HIV EPIDEMIOLOGY AND SOCIAL SCIENCE:

- The early epidemiological data from the General Population Cohort (GPC) provided data on risk factors and evidence that the HIV transmission in Uganda was mainly heterosexual which differed from transmission patterns in the North. This evidence enabled formulation of appropriate health education and prevention messages that have helped to control the epidemic. Since then we have shown other risk factors for HIV transmission including alcohol consumption and male circumcision. Some of these identified risk factors such as male circumcision informed design of HIV prevention trials.
- The annual serological surveys provided the first evidence that the HIV prevalence started declining from late 1980s to late 1990s among all adult males and females. These changes were largely due to changes in sexual behaviour (partner reduction and increase in sexual behaviour). These findings complemented the findings of the AIDS Control Programme showing decreased HIV prevalence among young women attending antenatal clinics in urban centres. These data provided the first signs that the

Part of the Unit's mission is to ensure appropriate and timely utilisation of research findings, through informing and providing an evidence base for national and global policies and practice.

It is important that there is minimum delay in translation of findings into policy to prevent new infections, initiate new treatments and avoid continued morbidity and mortality.

This section describes what channels, processes and interactions the Unit has used in providing the research findings to policy makers. We describe the important research findings that have relevance to policy, and assess how the different research findings from the last 25 years of research by the MRC/UVRI Unit have contributed to policy in Uganda and elsewhere.

epidemic could have peaked in the late 1980's. It also helped to consolidate the HIV prevention campaigns in Uganda but also in other countries within the region.

- Our most recent epidemiological work among key populations (fisherfolk and women engaged in high risk sexual behaviour) has informed the Ministry of Health that HIV infection rates in these groups are up to 5 times higher than in general population. Contrary to misconceptions that these key populations are difficult to recruit and follow up in research, we have shown that they can be retained and suitable for evaluating HIV prevention technologies.
- Though the greatest burden and impact of the HIV epidemic continues to be among young adults (almost half of all adult deaths in rural Uganda and approximately 80% among young adults) we have shown that there is a large number of older people affected. For example older people infected with HIV tend to die more quickly (within three years of infection) than the younger ones. The epidemic affects older people's socio-economic situation, their own sexuality and family relationships.
- The data on the impact of HIV on orphanhood enabled the Ministry of Health to communicate the scale of the problem to other partners and try and gain support and funding in the country for the problem of AIDS orphans.

HIV PREVENTION

- Our work demonstrated that HIV prevention strategies (health education, STI treatment, counselling and testing, and condom distribution and promotion) could be implemented in rural African populations, and especially in settings where discussion of sexual matters was a taboo early in the epidemic.
- A large STD/Behavioural intervention trial showed that there is limited impact of the two interventions to reduce HIV-1 incidence in rural Uganda, where secular changes were occurring. More effective STI and behavioural interventions were thus needed in mature epidemic settings.
- We have shown that the two main HIV subtypes in this region are subtype A and D, and subtype A is associated with less disease progression than subtype D. This work is very relevant to vaccine development for HIV prevention.

HIV/AIDS CARE AND TESTING

- Our clinical cohort of HIV positive individuals provided data on pre ART survival time among African infected adults which was about 8 years from time of infection and about ten months after development of AIDS (similar to length of time in rural Africa as in the North).
- Results from several clinical trials such as the DART trial, ARROW, the Cryptococcal prophylaxis trial using Fluconazole, and

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the Jinja ART trial have made key contributions to the formulation of health policy on HIV care in Africa.

- We contributed to the understanding and management of HIV co-morbidity with other infections such as with Malaria, tuberculosis and cryptococcal meningitis. For example, HIV infection significantly increases the risk of malaria parasitaemia and clinical malaria. This interaction is of great public health importance and informed the malaria control and clinical management.
- We have contributed to the Cotrimoxazole prophylaxis policy in HIV care by demonstrating that Cotrimoxazole can be introduced into routine HIV clinic activities and is associated with a reduction in overall mortality and malaria morbidity, even in an area with high bacterial resistance. These results reinforced the need for large-scale provi-

sion of cotrimoxazole prophylaxis for all HIV-positive patients in developing countries.

- Ciprofloxacin was until recently the first line treatment for gonorrhoea in Uganda. We have observed that there is high prevalence of ciprofloxacin-resistant gonorrhoea among high risk women in Kampala but highly susceptible to ceftriaxone. These data have led to changing the treatment guidelines in Uganda but also emphasizes the need for resistance surveillance programs in Uganda and elsewhere in Africa.
- We have contributed to the identification of Early warning indicators of HIV drug resistance, provided relevant information on the extent of HIV drug resistance in ART naïve populations, transmitted drug resistance in recently infected individuals and the prevalence of resistance at initiation of ART and at one year of treatment including predictors of ART resistance development. We see no major differences in ART development among subtypes A and D infected persons.
- We have been part of studies that have provided guidelines on the use of Dry Blood Spots (DBS) to evaluate HIV drug resistance
- We are part of the studies that have identified new HIV rapid testing algorithms, this work is about to be completed for presentation to the Ministry of Health

NCD

- Data on non-communicable diseases (NCDs) in developing countries is generally lacking and more so in rural populations. Our rural population-based epidemiological studies have started addressing this gap and the data so far has policy implications. For example, the prevalence of hypertension in this rural population is around 19% among those aged 13 years and above, and is similar in men and women. This prevalence is striking given the relatively young average age of this population (around 35 years) with no clear linear association with the prevalence of overweight/obesity, suggesting that other factors may be responsible.

- We have also found that there is general lack of awareness of NCDs and their associated risk factors in this population. The health systems are also not adequately equipped to deal to this high burden of NCDs. These findings indicate a need for health education to sensitise the population on NCDs as well as improvements in the health care system.

It is important to recognise that some of the Unit research areas such as in some Basic and Social Science research and early phase clinical trials may not have immediate contribution to new knowledge that has a direct policy impact. We also demonstrated through several other studies and clinical trials some proven HIV interventions in other settings may not be applicable in our own setting, and this greatly informs resource allocation within the health sector.

For example the Masaka STI/behavioural intervention showed that STI treatment may not have impact on HIV transmission in HIV generalised mature epidemic like Uganda.

GIVING WOMEN RESEARCHERS AN OPPORTUNITY TO GROW AND FLOURISH

Dr. Jane Kengeya-Kayondo



Dr. Jane Kengeya-Kayondo was the national counterpart to the MRC team leader during the first 10 years of the programme. She is currently the Special Advisor for Africa for the Wellcome Trust, a position she has held since August 2012.

Before joining the Trust she worked for many years at WHO/TDR in coordinator and leadership positions. She has published many scientific papers and led the production of several WHO publications. Her autobiography “The Hero Within” published in 2014 is highly sought after nationally and internationally.

I was the first Ugandan woman biomedical researcher at the MRC/UVRI Uganda Research Unit on AIDS, working as the National Counterpart to the team leader during the programme’s first 10 years. To start the programme, secure funding, recruit staff, initiate field studies and build links with

the Ministry of Health and other research groups was enough on our plate; worrying about gender balance was not on the list.

During those years, a few Ugandan female Social Scientists joined the programme as trainees under expatriate scientists. Because we did not have fellowships or a training budget to support them for Masters or PhD training, they quickly left. A female statistician was successful in getting herself a scholarship for a Master’s degree. When she returned, re-absorbing her into the programme became a heated gender debate behind closed doors. Dr. Jessica Nakiyingi Miiro has since become a pillar in the Unit’s Statistics section. The past fifteen years have seen a big improvement. Of the Unit’s 358 staff, 48 are scientific staff, with women amounting to 22. Moreover, of the 13 scientists with PhDs, eight are women.

Some questions however remain unanswered;

- Were these numbers arrived at through a strategic approach?
- Does the Unit consistently provide an environment where women scientists can flourish and grow in their research careers?
- Is the Unit doing all it can to attract, retain, support and grow women scientists?
- Does it matter whether the unit has more female scientists or not?

In the process of finding answers to my questions, I had a detailed discussion with the Unit’s Human Resources Manager, Mr. Godfrey Kalungi who had this to say, “I think it matters if we do not have more women scientists.

Government has put in place programmes to facilitate and encourage girls to join and remain in school and also finalise their studies, we should see the same increase at and after university level. Girls will also be encouraged to take up careers in the scientific field if they have examples of their own mothers and other females who have been successful in this area.”

He further noted that, “naturally men and women have unique attributes and these too are important; so having more women scientists helps to tap into some of their feminine attributes like being able to multitask, attention to detail and also their natural intelligence. There is a very important resource that will be left unutilised if women are not encouraged to join the scientific field’.

On the possibility of the Unit choosing a male over a female scientist with identical qualifications and accomplishments if both presented themselves for a job interview, Mr. Kalungi responded, “the job will be offered to the best performing candidate

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of the two, male or female will not be used to make the decision as this will be discrimination, which is not acceptable’.

Citing the number of women scientists at the Unit, Mr. Kalungi further added, “Having more women scientists clearly shows that it is all about intellectual ability and not cultural stereotypes that scientific fields are for men, which has been proved wrong.

However, it is known that the disparity between men and women in research and science stems from culture, the work environment and social norms rather than genetics. Furthermore, a large number of women dream of becoming scientists and researchers but few attain this dream. Being a woman researcher has been labeled as a hard life that involves missing parties, skipping family visits and losing sleep.

Add to this the challenges of conducting research once a woman has children; with all the child care

and housework that comes with it and the obstacles becomes insurmountable for many. In my experience; having raised four children, juggling a research career while raising children is not more difficult than doing so as a doctor, lawyer, nurse, airhostess or clerk.

Nevertheless, the HR Manager acknowledged the unique challenges faced by women in the workplace that may be obstacles to their career growth, and the role of the employers.

“As an organisation we should be able to support them to overcome these challenges, some of which become evident as they try to combine their motherly roles and career.”

From an HR perspective, he suggested some support that the Unit could provide including, among others, time flexibility arrangements especially for nursing mothers, breastfeeding

rooms, children’s play areas, day care facilities at work, accommodation at field station, possibilities for maids to travel with staff especially during in-country travel, medical insurance for both staff and dependants and encouraging women scientists to take leave for the work-life balance.

An anniversary like this one provides an opportunity for reflection, recognizing the value of women scientists and proposing ways of increasing women’s engagement in the Unit’s research activities.

The Unit should take a look at its recruitment policies; how can it attract more women scientists?

It should examine its publication policy; what is the publication productivity of women and how can it be improved?

The training policy; how does it attract, retain and support women?

The promotion policies; do they favour or disadvantage women scientists?

How can MRC women scientists be mentored and networked internally and externally?

My wish, hope and prayer is that just as the Programme provided me with an exceptional opportunity at an early age in my research career and helped me to go on and make a career in research with good job prospects, prestige, intellectual stimulation and a respectable income, it can do the same for more women.

Thank you MRC and Happy Anniversary.



British High Commissioner Edwards, Hon Gertrude Byekwaso Lubega (RIP), Joseph Ssonko (RIP)- landlord of the premises that were used as the first MRC office in Kyamulibwa and Mr. George Katongole who until his death in 2003 was Community engagement officer in Kyamulibwa with Dr. Kengeya

LOOKING BACK, THE ACHIEVEMENTS OF MRC/UVRI

Dr Jimmy Whitworth MD, FRCP, FMedSci, FFPH, DTM&H
MRC/UVRI Director (1996-2004)



I had the honour of being the team leader for the MRC Uganda AIDS Programme from 1996 to 2004. I took over from the inaugural team leader Daan Mulder who had laid the foundations of the programme. During my time we focused on consolidation of the strong central themes of the programme and also took opportunities for judicious expansion. This was the pre-ART era and a time of falling prevalence and incidence in Uganda.

This was well demonstrated by the longitudinal studies in Kyamulibwa, where the work of the General Population Cohort, led by Anatoli Kamali, provided the first and best information in Africa of the decline in the HIV epidemic, and the Natural History Cohort, led by Dilys Morgan, described the clinical course of the disease and exploded the myth of very rapid disease progression in Africa. These studies were high-

ly influential and shaped national and international policy for many years. We were able to improve the research facilities in Kyamulibwa over this period, moving out of a domestic house into purpose-built offices and to expand the clinic facilities substantially.

This was also a period when social science activities really flourished and developed through the work of Robert Pool, Herbert Muyinda and Helen Pickering. Much of this work occurred in Masaka district where we had established a large three armed intervention trial, firstly under the direction of Jane Kengeya-Kayondo and later Anatoli Kamali, which did not show any clear benefit from a comprehensive behavioural intervention, led by Ned Kanyesigye, nor from syndromic management of sexually transmitted diseases, led by Norah Nalweyiso.

In Entebbe we developed our basic science capabilities in virology and immunology through Pontiano Kaleebu. His work in those days focused on HIV subtypes and demonstrating transmission linkages through molecular techniques. We were able to refurbish the category 3 containment laboratory at UVRI and to develop further suites of labs. This enabled us to collaborate with teams from Imperial College and elsewhere.

We also developed collaborations with TASO in Entebbe, where we conducted a pneumococcal vaccine trial led by Neil French, and with CDC at UVRI where Christine Watera worked with Jono Mermin from CDC on the evaluation of cotrimoxazole prophylaxis for adults and children, demonstrating their great benefit for symptomatic HIV patients which helped to shape global policy and practice. Alison Elliott also arrived during this time and with funding from the Wellcome Trust was able to establish the Entebbe Mother and Baby cohort, to develop a partnership at Entebbe hospital and to build the 'Rabbit house' laboratory at UVRI.

During this time we benefitted greatly from the benign leadership of Sylvester Sempala and the tremendous help and support from key figures at the Ministry of health, including Florence Ebanyat, Sam Okware, Sam Zaramba and Francis Omaswa. None of this would have been possible without a strong administrative and operational team, and the partnership of Brian Richardson and Paul Kasozi-Kazenga who drove forward much of what we did.

These were great times, we achieved a lot through research which had great influence on national and global policy and practice. Everyone who was there at that time can justifiably feel proud of what we as a team achieved.

MRC/UVRI UGANDA UNIT'S CONTRIBUTIONS TO RESEARCH AND PUBLIC HEALTH OVER THE YEARS

Prof. Heiner Grosskurth (MRC/UVRI Director 2003-2010)



From 2003 to 2010, Heiner was the director of the MRC/UVRI Uganda Research Unit on AIDS, during which time he also led a number of epidemiological studies and HIV intervention trials. After returning to LSHTM in 2010, he has been based at the Mwanza Intervention Trials Unit (MITU) in Tanzania, working with Saidi Kapiga on a research collaboration between the National Institute of Medical Research (NIMR) of Tanzania and LSHTM.

He also serves on steering and advisory committees of research projects in East Africa. His own research interests are in HIV, STI and NCD epidemiology and the control of these health problems in Africa. At LSHTM he has been teaching on study modules related to primary health care in resource limited set-

tings, and to the epidemiology and control of STIs and HIV infection. He also contributes to the School's distance learning programme in epidemiology.

Congratulations to the MRC/UVRI Uganda Research Unit on having completed 25 years of highly productive work on HIV infection and other diseases.

My first impression of the Unit dates back to the year 1992 when early collaborative links were established between the Unit and the AMREF/LSHTM team in Tanzania where I was based at the time. My colleagues and I visited Entebbe and Kyamulibwa, and Daan Mulder the first Director and his team showed us a small but already impressive research setting. The Unit, then still an MRC programme, has come a long way since, developing an ever richer research portfolio over time. I felt privileged that I could contribute to this process for a number of years.

By the time I arrived in Entebbe in 2003, I was extremely fortunate to find a very successful and internationally recognised programme that had been created under the leadership of Jimmy Whitworth the second director. During the years that followed we saw the Unit growing from programme to full MRC Unit status; and thanks to the generosity of the MRC and other donors we

were able to greatly expand both the research agenda and the existing international links. This led to the participation of the Unit in several large multicentre studies and various large solely Uganda based research projects on HIV prevention, care, co-infections and other vaccine related research. The Unit expanded further to include work on mental diseases, the situation of the elderly, the health of fishing populations and on NCDs all of which present growing problems in Africa.

To facilitate these many activities, the Unit opened new research clinics in Entebbe, Masaka, Kyamulibwa, Jinja and Kampala. For me all this has been a greatly inspiring experience. After I left in 2010, I have been following new developments in the Unit with great interest, and I still enjoy my involvement in some collaborative projects conducted by the Unit and LSHTM.

Looking back over the last 25 years, one wonders of course what all this has meant to Uganda, to Africa and to international public health. In my view, the Unit can be proud of an extremely productive multi-disciplinary research output that has enriched the body of knowledge on HIV and related diseases right from the beginning in 1989, reaching from basic virology and immunology through to new prevention and clinical care strategies.

The Unit has been in a cordial working relationship with policy makers in Uganda and elsewhere, and this has helped to ensure that results substantially influenced health policy in Uganda and internationally. Issues related to vaccines and microbicides, ARV treatment, control of STIs, but also the many insights gained into the population dynamics of HIV infection and NCDs are good examples for this. The Unit is a valued member of several international research networks.

Importantly, it has been extremely effective in strengthening the capacity for medical research in Uganda, efforts that reach from the training of students and many young researchers to the development of mid-level and senior research leaders.

In collaboration with its mother institute the Uganda Virus Research Institute (UVRI), and with Makerere University, the Unit established a successful training scheme in immunology. It runs short courses on statistics, research methodology and good clinical and laboratory practice. Over time, countless individuals in East Africa have been benefiting from this programme. One should not forget that through its research, the Unit has made substantial contributions to the health care system of Uganda: health centres were refurbished in Masaka district and wards at the Regional Hospital in Entebbe, to mention a few examples.

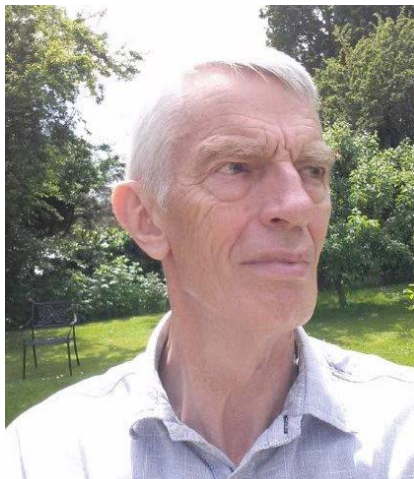
Last but not least, as so often in Africa, when research institutes spearhead new developments,

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thousands of patients have been given excellent health care, often with life-saving medicines.
Heiner Grosskurth

THE MRC PROGRAMME ON AIDS IN UGANDA: THE EARLY YEARS

Prof. Andrew Nunn- Senior Statistician/ Deputy Head of programme- (1989- 1995)

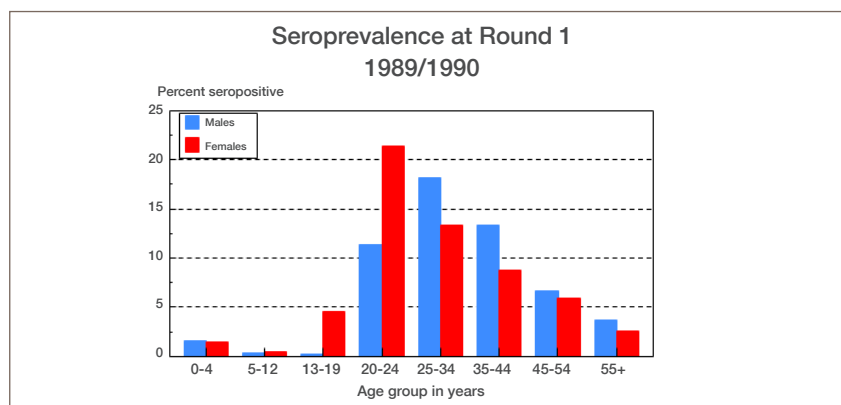


In 1989 he joined the MRC Programme on AIDS in Uganda as senior statistician and subsequently was deputy head of programme. On returning to the UK in 1995 he re-joined the HIV Clinical Trials Centre and in 1998 became part of the newly formed MRC Clinical Trials Unit where he led the division responsible for developing trials in neglected areas. More recently he has been developing a programme of trials in tuberculosis with the aim of further shortening treatment duration for drug sensitive disease and developing effective and shorter regimens for the treatment of MDR-TB.

Probably the most important finding during the early years of the programme was the high levels of attributable mortality observed when the two-year mortality data were analysed.

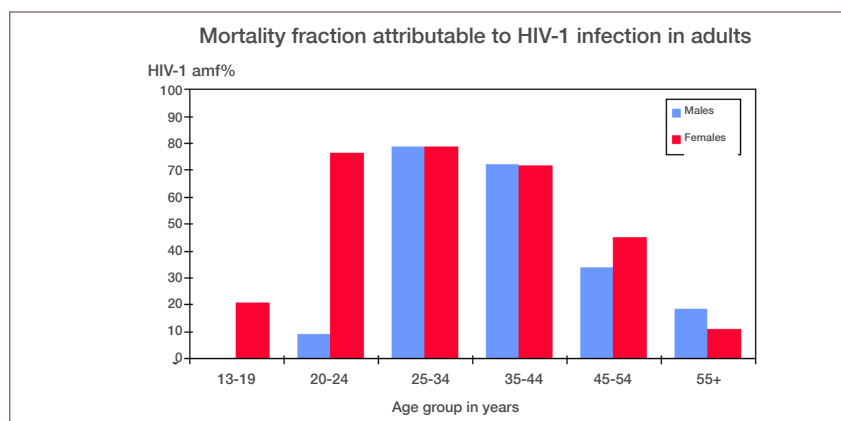
The objectives of the first phase of the programme were to determine for a rural area:

1. The age and sex specific prevalence of HIV-1 infection and HIV-1 associated disease
2. The age specific population attributable risks
3. The biological risk factors influencing heterosexual transmission of HIV-1
4. The behavioural risk factors which influence heterosexual transmission of HIV-1



The results from the first survey round provided clear evidence of the distribution of sero-prevalence rates by age and sex; [1] these were lowest in infants and children and among young adults the rates were considerable higher in females than in males, reflecting earlier sexual activity in young women. In older ages rates declined with decreasing age.

Being a Muslim was protective, the Muslims having significantly lower rates of infection (OR, 0.61; 95% CI 0.45, 0.83, $P < 0.001$) at the time it was uncertain as to whether this was due to circumcision. [1]



A study testing the hypothesis that poor women and rich men were most at risk of HIV-1 infection using different four indicators of wealth concluded that both male and female heads of the poorest households were most likely to be infected.[2] This finding was dismissed as being contrary to perceived wisdom when the results were presented at a meeting of clinicians in Kampala.

Probably the most important finding during the early years of the programme was the high levels of attributable mortality observed when the two-year mortality data were analysed.[3] Although the adult HIV-1 prevalence rate was only 8.2% half of all deaths and over 80% of those aged 13-44 were attributable to HIV-1 infection. In a leading article the importance of these results was highlighted the authors stating that they should 'squash a quaint and mischievous claim' referring to notorious Duesberg hypothesis that HIV did not cause AIDS. Although Duesberg's opinion lacked credibility, his views on HIV/AIDS are considered to have had a major influence on South African policy under Thabo Mbeki.

Seroprevalence rates (%) in 13-24 year olds

Year	Males	Females
1989/90	3.4	9.9
1990/91	3.6	8.2
1991/92	2.3	7.8
1992/93	1.6	8.1
1993/94	1.0	7.3
P for trend	< 0.001	= 0.08

The most encouraging results were those obtained after four years of follow-up during which time sero-prevalence rates in males aged 13-24 years decreased from 3.4% to 1.0% ($P < 0.001$ for trend); the corresponding decrease among females was from 9.9% to 7.8% ($P = 0.08$ for trend). This was the first report of a decline in HIV-1 prevalence among young adults in a general population in sub-Saharan Africa.[4]

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MEMORIES OF MY TIME IN UGANDA: 1996-1999

Dr Lucy M Carpenter



One research project I particularly appreciated working on during my three years at MRC was the Masaka Intervention Trial. This has been my only research experience in community randomised controlled trials and it was while working on this study that my wonderful friendship with Jane Keng-eya-Kayondo began.

What attracted me most to the idea of joining the MRC Programme on AIDS in 1996 was to broaden my epidemiological research experience.

Before then, almost all my research had been in cancer epidemiology in the UK and had latterly included an historic cohort study of cancer in 75,000 nuclear industry workers. When work on that study was completed, I was Lecturer in Statistical Epidemiology at the University of Oxford.

The idea of moving to Entebbe to do research on HIV was particularly attractive then, especially knowing that I would be able to return to Oxford later. On joining the MRC, I was fortunate to inherit from Andrew Nunn the management of the excellent team of 10 experienced

and dedicated staff in the Statistical Unit. One research project I particularly appreciated working on during my three years at MRC was the Masaka Intervention Trial. This has been my only research experience in community randomised controlled trials and it was while working on this study that my wonderful friendship with Jane Keng-eya-Kayondo began.

I was also blessed with the miracle of survival, following a shooting thanks to being rescued by Stella Wintore and, of course, Jimmy Whitworth and colleagues who organised excellent specialist treatment in Johannesburg.

It was only thanks to this rescue and care that I was able to return to my University post in Oxford in 1999 and resume my work in can-

cer research. I still think of Stella as my Ugandan “mother” and in the picture you will see me with my Ugandan “daughter”, Assumpta Maria, whose education I still continue to support. As well as occupational epidemiology, I have since collaborated with Rob Newton on research into infections and cancer and contributed to the creation of a new MSc in Global Health Science.

While now retired, I still share many memories of my time in Uganda at the home I share with David Kane who I am so happy to have met through the Kampala Amateur Dramatic Society.

In the Queen’s Birthday Honours in 2013 I was made a Member of the British Empire for services to Public Health in the UK and Abroad.

SOME OF THE MOST CITED PUBLICATIONS (1989-2014)

No	PUBLICATION	CITATIONS
1	Whitworth J, Morgan D, Quigley M, Smith A, Mayanja B, Eotu H, Omoding N, Okonko M, Malamba S & Ojwiya A. 2000. Effect of HIV-1 and increasing immunosuppression on malaria parasitaemia and clinical episodes in adults in rural Uganda: a cohort study. <i>The Lancet</i> , 356, 1051-1056.	386
2	Morgan D, Mahe C, Mayanja B, Okongo JM, Lubega R & Whitworth JA. 2002. HIV-1 infection in rural Africa: is there a difference in median time to AIDS and survival compared with that in industrialized countries? <i>AIDS</i> , 16, 597-603.	380
3	French N, Nakiyingi J, Carpenter L, Lugada E, Watera C, Moi K, Moore M, Antvelink D, Mulder D & Janoff E 2000. 23-valent pneumococcal polysaccharide vaccine in HIV-1-infected Ugandan adults: double-blind, randomised and placebo controlled trial. <i>The Lancet</i> , 355, 2106-2111.	371
4	Kamali A, Quigley M, Nakiyingi J, Kinsman J, Kengeya-Kayondo J, Gopal R, Ojwiya A, Hughes P, Carpenter L & Whitworth J. 2003. Syndromic management of sexually-transmitted infections and behaviour change interventions on transmission of HIV-1 in rural Uganda: a community randomised trial. <i>The Lancet</i> , 361, 645-652.	302
5	French N, Gray K, Watera C, Nakiyingi J, Lugada E, Moore M, Lalloo D, Whitworth JA & Gilks CF. 2002. Cryptococcal infection in a cohort of HIV-1-infected Ugandan adults. <i>AIDS</i> , 16, 1031-1038.	243
6	Carpenter LM, Kamali A, Ruberantwari A, Malamba SS, Whitworth JA. Rates of HIV-1 transmission within marriage in rural Uganda in relation to the HIV sero-status of the partners. <i>AIDS</i> . 1999; 13(9): 1083-9.	234
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9	French N, Nakiyingi J, Lugada E, Watera C, Whitworth JA & Gilks CF. 2001. Increasing rates of malarial fever with deteriorating immune status in HIV-1-infected Ugandan adults. <i>AIDS</i> , 15, 899-906.	207
10	McCormack S, Ramjee G, Kamali A, Rees H, Crook AM, Gafos M, Jentsch U, Pool R, Chisembele M, Kapiga S, Mutemwa R, Vallely A, Palanee T, Sookrajh Y, Lacey CJ, Darbyshire J, Grosskurth H, Profy A, Nunn A, Hayes R, Weber J. 2010. PRO2000 vaginal gel for prevention of HIV-1 infection (Microbicides Development Programme 301): a phase 3, randomised, double-blind, parallel-group trial. <i>The Lancet</i> , 376, 1329-1337	178

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12	A. Kamali, L. M. Carpenter, J. A. G. Whitworth, R. Pool, A. Ruberantwari and A. Ojwiya, Seven-Year Trends In Hiv-1 Infection Rates, And Changes In Sexual Behaviour, Among Adults In Rural Uganda, <i>AIDS</i> 14 (2000), no. 4, 427-434.	174
13	Mbulaiteye, SM, Mahe C, Whitworth JAG, Ruberantwari A, Nakyingi JS, Ojwiya A and Kamali A. Declining HIV-1 incidence and associated prevalence over 10 years in a rural population in south-west Uganda: a cohort study. <i>The Lancet</i> 360 (9326), 41-46	168
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16	Remme JH, Blas E, Chitsulo L, Desjeux PM, Engers HD, Kanyok TP, Kengeya Kayondo JF, Kioy DW, Kumaraswami V & Lazdins JK 2002. Strategic emphases for tropical diseases research: a TDR perspective. <i>Trends in Parasitology</i> , 18, 421-426 (2000)	154
17	Wolff B, Nyanzi B, Katongole G, Ssesanga D, Ruberantwari A, Whitworth J. Evaluation of a home-based voluntary counselling and testing intervention in rural Uganda. <i>Health Policy and Planning</i> . 2005; 20(2): 109-16	143
18	Seeley J, Kajura E, Bachengana C, Okongo M, Wagner U, Mulder D. The extended family and support for people with AIDS in a rural population in south west Uganda: A safety net with holes? <i>AIDS care</i> . 1993; 5(1): 117-22.	135
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21	Morgan D, Mahe C, Mayanja B, Whitworth JA, Kilmarx PH. Progression to symptomatic disease in people infected with HIV-1 in rural Uganda: prospective cohort studyCommentary: Virus, host, or environment? <i>Bmj</i> . 2002; 324(7331): 193-7.	131
22	Jaffar S, Amuron B, Foster S, Birungi J, Levin J, Namara G, Nabiryo C, Ndembi N, Kyomuhangi R, Opio A, Bunnell R, Tappero JW, Mermin J, Coutinho A & Grosskurth H. 2009. Rates of virological failure in patients treated in a home-based versus a facility-based HIV-care model in Jinja, Southeast Uganda: a cluster-randomised equivalence trial. <i>Lancet.</i> , 374, 2080-9. doi: 10.1016/S0140-6736(09)61674-3.	130
23	Boerma JT, Nunn AJ, Whitworth J. Mortality impact of the AIDS epidemic: evidence from community studies in less developed countries. <i>AIDS (London, England)</i> . 1997; 12: S3-14.	130

SOME OF THE MOST CITED PUBLICATIONS (1989-2014)

No	PUBLICATION	CITATIONS
24	Morgan D, Maude GH, Malamba SS, Okongo MJ, Wagner H-U, Mulder DW & Whitworth JA. 1997. HIV-1 disease progression and AIDS-defining disorders in rural Uganda. <i>The Lancet</i> , 350, 245-250.	129
25	Mulder D, Nunn A, Kamali A, Kengeya-Kayondo J. Decreasing HIV-1 seroprevalence in young adults in a rural Ugandan cohort. <i>BMJ</i> . 1995; 311(7009): 833-6.	127
26	Nunn AJ, Kengeya-Kayondo JF, Malamba SS, Seeley JA, Mulder DW. Risk factors for HIV-1 infection in adults in a rural Ugandan community: a population study. <i>Aids</i> . 1994; 8(1): 81-6.	125
27	Nunn AJ, Mulder DW, Kamali A, Ruberantwari A, Kengeya-Kayondo J-F, Whitworth J. Mortality associated with HIV-1 infection over five years in a rural Ugandan population: cohort study. <i>Bmj</i> . 1997; 315(7111): 767-71.	115
28	Amuron B, Namara G, Birungi J, Nabiryo C, Levin J, Grosskurth H, Coutinho A & Jaffar S. 2009. Mortality and loss-to-follow-up during the pre-treatment period in an antiretroviral therapy programme under normal health service conditions in Uganda. <i>BMC public health</i> , 9, 290.	114
29	Jaffar S, Grant AD, Whitworth J, Smith PG, Whittle H. The natural history of HIV-1 and HIV-2 infections in adults in Africa: a literature review. <i>Bulletin of the World Health Organization</i> . 2004; 82(6): 462-9.	114
30	Carpenter LM, Nakyingi JS, Ruberantwari A, Malamba SS, Kamali A, Whitworth JA. Estimates of the impact of HIV infection on fertility in a rural Ugandan population cohort. <i>Health Transition Review</i> . 1997:113-26.	112
31	Allison EH, & Seeley JA. (2004). HIV and AIDS among fisherfolk: a threat to 'responsible fisheries'?. <i>Fish and fisheries</i> , 5(3), 215-234.	112
32	Mbulaiteye S, Ruberantwari A, Nakyingi J, Carpenter L, Kamali A, Whitworth J. Alcohol and HIV: a study among sexually active adults in rural southwest Uganda. <i>International journal of epidemiology</i> . 2000;29(5):911-5.	111
33	Kengeya-Kayondo JF, Seeley JA, Kajura-Bajenja E, Kabunga E, Mubiru E, Sembajja F & Mulder DW. 1994. Recognition, treatment seeking behaviour and perception of cause of malaria among rural women in Uganda. <i>Acta Tropica</i> , 58, 267-273.	111
34	Kinsman J, Nakyingi J, Kamali A, Carpenter LM, Quigley M, Pool R, Whitworth JAG. Evaluation of a comprehensive school-based AIDS education programme in rural Masaka, Uganda. <i>Health Education Research</i> 2001; 16(1):85-100.	109
35	Kaleebu P, Ross A, Morgan D, Yirell D, Oram J, Rutebemberwa A, Lyagoba F, Hamilton L, Biryahwaho B & Whitworth J. 2001. Relationship between HIV-1 Env subtypes A and D and disease progression in a rural Ugandan cohort. <i>AIDS</i> , 15, 293-299.	106
36	Karita E, Price M, Hunter E, Chomba E, Allen S, Fei L, Kamali A, Sanders EJ, Anzala O & Katende M. 2007. Investigating the utility of the HIV-1 BED capture enzyme immunoassay using cross-sectional and longitudinal seroconverter specimens from Africa. <i>AIDS</i> , 21, 403-408.	106

37	Morgan D, Malamba SS, Maude GH, Okongo MJ, Wagner HU, Mulder DW & Whitworth JA. 1997. An HIV-1 natural history cohort and survival times in rural Uganda. <i>AIDS</i> 11(5): 633-40.	106
38	Muyinda, H., J. Seeley, H. Pickering and T. Barton. 1997. Social aspects of AIDS-related stigma in rural Uganda. <i>Health and Place</i> 3(3): 143-147.	104
39	Robinson NJ, Mulder DW, Auvert B, Hayes RJ. Proportion of HIV infections attributable to other sexually transmitted diseases in a rural Ugandan population: simulation model estimates. <i>International Journal of Epidemiology</i> . 1997; 26(1): 180-9.	101
40	Zaba B, Whitworth J, Marston M, Nakiyingi J, Ruberantwari A, Urassa M, Issingo R, Mwaluko G, Floyd S & Nyondo A. 2005. HIV and mortality of mothers and children: evidence from cohort studies in Uganda, Tanzania, and Malawi. <i>Epidemiology</i> , 16, 275-280.	101

MRC/UVRI Longest serving staff

No.	Name	Job Title	Year of Employment
1	Lucy Nakayiza	Field Worker (Interviewer)	1989
2	Catherine Nampewo	Data Management Assistant (Senior)	1989
3	Anatoli Kamali	Deputy Director	1989
4	Eunice Okwakol Asio	Administrative Assistant (Senior)	1989
5	Elizabeth Kabunga	Social Science Research Assistant	1989
6	Henry Kyambadde	Office Attendant	1989
7	Gerald Ssenyomo	Field Worker (Mapper)	1989
8	Sulainah Nakasaga	Study Clerk	1989
9	Joseph Kibuuka	Census Team Leader	1989
10	Rogers Kagombe Salamuka	Office Attendant	1990

MEMORIAM

Remembering Dr. Daan Mulder and Dr. Sylvester Sempala



Dr. Daan Mulder

Dr Daan Mulder, a physician from the Netherlands with research experience initially in tuberculosis and then in HIV/AIDS, was instrumental in developing the HIV/AIDS research proposal for funding by MRC and ODA.

In October 1987 he was invited to become the research programme director. In March 1988, a delegation led by Prof David Bradley and Prof Peter Smith (London School of Hygiene and Tropical Medicine), David James (MRC) and Dr Daan Mulder visited Uganda and had meetings with MoH officials, district health officers and national research committees. Daan Mulder presented the proposed research to the national HIV/AIDS research board

- an essential feature was the longitudinal follow-up of a defined rural population to study the incidence of, and risk factors for, HIV infection and the subsequent natural history of disease. At the time this was an innovative approach as research on HIV/AIDS in Africa until then had largely consisted of cross-sectional surveys of poorly-defined groups, mostly in urban areas and often in hospitals.

Dr Mulder was Director of the programme from 1989 to 1994, after which he returned to the London School of Hygiene and Tropical Medicine, before finally returning to his native country, The Netherlands. He passed away in October 1998, aged 49 years.



Dr. Sylvester Sempala
Director UVRI (1988-2002)

Dr Sylvester Sempala was the Director of the UVRI when the MRC/UVRI Programme was established in 1989. He was Ag director of the UVRI from 1984-1987 and full Director 1988-2002. His fore sightedness helped to shape the new collaboration.

He played a significant role in ensuring smooth partnership with the Uganda Government, creating a very close link with the UVRI while at the same time providing the new

programme semi-autonomy, setting the scene for other programmes that came afterwards.

He made significant contributions in creating partnerships with the local communities where MRC worked. He was the senior Ugandan Counterpart in this programme and he Dr Sempala retired in 2002 and sadly passed away in early 2005

PARTNERSHIPS, NETWORKS AND COLLABORATIONS

We have extensive research partnerships both locally and internationally. The Unit is well-integrated into the UVRI, an institute with a long history of research achievements, but the Unit maintains autonomy in formulating its research agenda and strategy, financial management and administration. At UVRI, there are other international partners with whom we have built fruitful collaborations e.g. IAVI, Centres for Disease Control and Prevention (CDC), and Rakai Health Sciences Programme (RHSP).

We have built strong partnerships with other research groups in Uganda such as: the Joint Clinical Research Centre [JCRC], Infectious Disease Institute [IDI], Makerere University and Nsambya Hospital.

We work with local communities and health facilities, and local AIDS support organisations including The AIDS Support Organization [TASO] and AIDS Information Centre [AIC].

We have a very close working relationship with the Ministry of Health (MOH) and also with district health services and major government hospitals where we work. Some senior staff of the Unit serve on advisory committees of the MOH. The Unit plays a key role in helping to shape national and global HIV



Dr Kaleebu (Centre), Uganda's representative at the EDCTP General Assembly signs on behalf of Uganda, May 2014. Others in picture are Dr Mark Palmer, Chair EDCTP General Assembly and Prof Charles Mgone, Executive Director, EDCTP

policy and practice through its excellent links with the MOH, the AIDS Control Programme, Uganda AIDS Commission, WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS) and more recently the Non-Communicable diseases Unit.

In the region we closely collaborate with a number of universities and research institutions.

Our senior staff participate in national and international research strategy and oversight, dissemination and implementation of research results (e.g. formulation of guide-

lines) through contributions to International advisory committees including those of WHO and UNAIDS other scientific and ethics review panels, international Trial Steering Committees, Data Safety Monitoring Boards, End Point Review Committees, and publication peer review panels.

Some partnerships, e.g. IAVI, have led to long term capacity building, Good Clinical Laboratory Practice (GCLP) accreditations of our laboratories and research activities that have been very beneficial in meeting our mission.

PARTNERSHIPS, NETWORKS AND COLLABORATIONS

SOME OF OUR PARTNERS AND PARTNERSHIPS OVER THE YEARS

AIDS Information Centre (AIC), Kampala, Uganda	RC Clinical Trials Unit London, UK
Alpha Network	MRC Social and Public Health Sciences Unit, Glasgow
Boston University, School of Public Health, USA	Muhimbili University of Health Sciences, Dar es Salaam, Tanzania
Butabika National Psychiatric Hospital, Uganda	Mulago Referral Hospital, Uganda.
CDC Uganda	Mwanza Intervention Trials Unit (MITU), Tanzania
Centre for HIV/AIDS Vaccine and Immunology (CHAVI)	Naguru Teenage Clinic, Uganda
Centre Hospitalier Universitaire (CHUV) Lausanne, Switzerland	National Cancer Institute (NCI), USA
Chelsea and Westminster Hospital, London, UK	National Institute of Communicable Diseases (NICD), Johannesburg, South Africa
Child Health and Development Centre, Makerere University	National Tuberculosis and Leprosy Programme, Uganda
Colorado State University, Colorado, USA	Norwegian University of Science and Technology
DART/ARROW Trials Collaboration	PharmaAccess Foundation, The Netherlands
Duke University, Durham, NC USA	Rakai Health Sciences, Uganda
East African Consortium for Clinical Research (EACCR)	San Raffaele Hospital Milan, Italy
Entebbe Hospital, Uganda	Sangath Centre, Goa, India.
Evidence for Action (EFA) Consortium	St Francis Hospital Nsambya, Uganda
Fondazione Centro San Raffaele del. Monte Tabor, Milan, Italy	TASO Entebbe, Uganda
Imperial Cancer Research Fund, UK	TASO Uganda
Imperial College (St Mary's Hospital and Chelsea and Westminster), UK	The Gambia MRC Unit
Infectious Disease Institute Kampala, Uganda	The IDEA Consortium
Institut National de la Santé et de la Recherche Médicale, Paris, France	Uganda Cancer Institute, Uganda
Institute Nazionale Tumori, Naples, Italy	Uganda Case Western Research University Collaboration, Uganda
Institute of Molecular Medicine, Oxford	UNAIDS, Geneva
Institute of Public Health, Makerere, Uganda	Université Pierre et Marie Curie, Paris, France
Institute of Structural Biology and Microbiology, Marseilles, France	University College, London, UK
Institute of Tropical Medicine, Antwerp, Belgium	University of Alabama, USA
Institute of Women's Health,	University of Bath, UK
Institute Pasteur, France	University of California, San Francisco, USA
International AIDS Vaccine Initiative, New York, USA	University of Cambridge, UK
International Association of Suicide Prevention (IASP), Oslo, Norway	University of Cape Town, South Africa
	University of Copenhagen, Denmark

PUBLISHED PAPERS IN THE LAST ONE YEAR PERIOD

1. Willer CJ, Schmidt EM, Sengupta S, Peloso GM, Gustafsson S, et al (G. Asiki, P. Kaleebu, R. N. Nsubuga, J. Seeley). **Discovery and refinement of loci associated with lipid levels.** *Nature Genetics* 2013; 45(11):1274-83.
2. Do R, Willer CJ, Schmidt EM, Sengupta S, Gao C, Peloso GM, et al. (G. Asiki, Kaleebu P, Seeley J, Nsubuga RN) **Common variants associated with plasma triglycerides and risk for coronary artery disease.** *Nature Genetics*. 2013; 45(11): 1345-52.
3. Lei Z, Maher D, Munyagwa M, Kasamba I, Levin J, Biraro S, and Grosskurth H. **Trends in child mortality: a prospective, population-based cohort study in a rural population in south-west Uganda.** *Paediatrics and International Child Health*. 2013; 33(1): 23-31.
4. McCreesh N, Tarsh MN, Seeley J, Katongole J, White RG. **Community understanding of respondent-driven sampling in a medical research setting in Uganda: importance for the use of RDS for public health research.** *International Journal of Social Research Methodology* 2013; 16(4): 269-284.
5. Nakimuli A, Elliott AM, Kaleebu P, Moffett A, Mirembe F. **Hypertension Persisting after Pre-Eclampsia: A Prospective Cohort Study at Mulago Hospital, Uganda.** *PLoS One*. 2013; 8(12):e85273.
6. **Malaria and some Polyomaviruses (SV40, BK, JC, and Merkel cell viruses) / IARC Working Group on the Evaluation of Carcinogenic Risks to Humans (2013: Lyon, France) (IARC monographs on the evaluation of carcinogenic risks to humans ; v. 104)**
7. Gitau Mburu MR, Skovdal M, Bitira D, Hodgson I, Mwai GW, Stegling C & Seeley J. **Resisting and challenging stigma in Uganda: the role of support groups of people living with HIV.** *Journal of the International AIDS Society*. 2013; 16(3Suppl 2).
8. Njai HF, Ewings FM, Lyimo E, Foulongne V, Ngerageza D, Mongi A, Ssemwanga D, Andreasen A, Nyombi B, Ao T, Michael D, Urassa M, Todd J, Zaba B, Changalucha J, Hayes R & Kapiga SH. **Deciphering the complex distribution of Human Immunodeficiency Virus Type 1 subtypes among different risk populations in northern Tanzania.** *PLoS One*. 2013; 8(12):e81848.
9. Martin F, Kiwanuka T, Kawuma R, Zalwango F, Seeley J. **Tasks and Strategies of Self-Management of Living with Antiretroviral Therapy in Uganda.** *AIDS Patient Care and STDs*. 2013; 27(12): 697-706.
10. Murphy GA, Asiki G, Ekoru K, Nsubuga RN, Nakiyingi-Miiró J, Young EH, Seeley J, Sandhu MS & Kamali A. **Sociodemographic distribution of non-communicable disease risk factors in rural Uganda: a cross-sectional study.** *International Journal of Epidemiology*. 2013; 42(6): 1740-53.
11. Negin J, Nyirenda M, Seeley J and Mutevedzi P. **Inequality in health status among older adults in Africa: the surprising impact of anti-retroviral treatment.”** *Journal of Cross Cultural Gerontology*. 2013; 28(4): 491-493.
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14. Akotia CS, Knizek BL, Kinyanda E, Hjelmeland H. **“I have sinned”: understanding the role of religion in the experiences of suicide attempters in Ghana.** *Mental Health, Religion & Culture*. 2014; 17(5): 437-448.
15. Kaleebu P, Njai HF, Wang L, Jones N, Ssewanyana I, Richardson P, Kintu K, Emel L, Musoke P, Fowler MG, Ou SS, Jackson JB, Guay L, Andrew P, Baglyos L & Cao H. **Immunogenicity of ALVAC-HIV vCP1521 in infants of HIV-1-infected women in Uganda (HPTN 027): the first pediatric HIV vaccine trial in Africa.** *Journal of Acquired Immune Deficiency Syndromes*. 2014; 65(3): 268-77
16. Bwakura-Dangarembizi M, Kendall L, Bakeera-Kitaka S, Nahirya-Ntege P, Keishanyu R, Nathoo K, Spyer MJ, Kekitiinwa A, Lutaa-kome J, Mhute T, Kasirye P, Munderi

- P, Musiime V, Gibb DM, Walker AS & Prendergast AJ. A Randomized Trial of Prolonged Co-trimoxazole in HIV-Infected Children in Africa. *New England Journal of Medicine*. 2014; 370: 41-53
16. Masiira B, Baisley K, Mayanja BN, Kazooba P, Maher D, Kaleebu P. Mortality and its predictors among antiretroviral therapy naïve HIV-infected individuals with CD4 cell count ≥ 350 cells/mm³ compared to the general population: data from a population-based prospective HIV cohort in Uganda. *Global Health Action*. 2014; 7:21843.
17. Sutherland KA, Mbisa JL, Cane PA, Pillay D, Parry CM. Contribution of Gag and protease to variation in susceptibility to protease inhibitors between different strains of subtype B Human Immunodeficiency Virus type 1. *Journal of General Virology*. 2014; 95(Pt 1):190-200.
18. Mugisha JO, Kuper H, Seeley J. Older People's Perception of Anemia in Rural Southwest Uganda. *Journal of Aging and Health*. 2014; 0898264313516165.
19. Prentice HA, Price MA, Porter TR, Cormier E, Mugavero MJ, Kamali A, Karita E, Lakhi S, Sanders EJ & Anzala O. Dynamics of viremia in primary HIV-1 infection in Africans: Insights from analyses of host and viral correlates. *Virology*. 2014; 449: 254-62.
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21. Amornkul PN, Karita E, Kamali A, Rida WN, Sanders EJ, Lakhi S, Price MA, Kilembe W, Cormier E, Anzala O, Latka MH, Bekker LG, Allen SA, Gilmour J & Fast PE. Disease progression by infecting HIV-1 subtype in a seroconverter cohort in sub-Saharan Africa. *AIDS*. 2013; 27(17):2775-86
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23. Participants in the Community Engagement and Consent Workshop, Kilifi, Kenya, March 2011. [J Seeley and S Nakibinge]. *Consent and community engagement in diverse research contexts: reviewing and developing research and practice. Journal of Empirical Research on Human Research Ethics*. 2013; 8(4): 1-18.
24. Mburu G, Oxenham D, Hodgson I, Nakiyemba A, Seeley J, Bermejo A. Community Systems Strengthening for HIV Care: Experiences From Uganda. *Journal of Social Work in End-of-life & Palliative Care*. 2013; 9(4): 343-68.
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26. Dillon DG, Gurdasani D, Riha J, Ekoru K, Asiki G, Mayanja BN, Levitt NS, Crowther NJ, Nyirenda M, Njelekela M, Ramaiya K, Nyan O, Adewole OO, Anastos K, Azzoni L, Boom WH, Compostella C, Dave JA, Dawood H, Erikstrup C, Fourie CM, Friis H, Kruger A, Idoko JA, Longenecker CT, Mboni S, Mukaya JE, Mutimura E, Ndhlovu CE, Praygod G, Pefura Yone EW, Pujades-Rodriguez M, Range N, Sani MU, Schutte AE, Sliwa K, Tien PC, Vorster EH, Walsh C, Zinyama R, Mashili F, Sobngwi E, Adebamowo C, Kamali A, Seeley J, Young EH, Smeeth L, Motala AA, Kaleebu P, Sandhu MS; African Partnership for Chronic Disease Research (APCDR). Association of HIV and ART with cardiometabolic traits in sub-Saharan Africa: a systematic review and meta-analysis. *International Journal of Epidemiology*. 2013; 42(6):1754-71.
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- Clinical Infectious Diseases*. 2014; 58, 1023-6.
30. Siu GE, Wight D, Seeley JA. Masculinity, social context and HIV testing: an ethnographic study of men in Busia district, rural eastern Uganda. *BMC Public Health*. 2014; 14(1): 33.
31. Prentice HA, Price MA, Porter TR, Cormier E, Mugavero MJ, Kamali A, Karita E, Lakhi S, Sanders EJ & Anzala O. Dynamics of viremia in primary HIV-1 infection in Africans: Insights from analyses of host and viral correlates. *Virology*. 2014; 449: 254-62.
32. Lloyd-Sherlock P, Ebrahim S, Grosskurth H. Is hypertension the new HIV epidemic? *International Journal of Epidemiology*. 2014; 1-3
33. Slone JS, Chunda-Liyoka C, Perez M, Mutalima N, Newton R, Chintu C, Kankasa C, Chipeta J, Heimbarger DC, Vermund SH & Friedman DL. Pediatric Malignancies, Treatment Outcomes and Abandonment of Pediatric Cancer Treatment in Zambia. *PLoS One*. 2014; 9(2): e89102.
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36. Chantler T, Cheah PY, Miiro G, Hantrakum V, Nanvubya A, Ayuo E, Ayuo E, Kivaya E, Kidola J, Kaleebu P, Parker M, Njuguna P, Ashley E, Guerin PJ & Lang T. International health research monitoring: exploring a scientific and a cooperative approach using participatory action research. *BMJ Open*. 2014; 4(2).
37. Lees S, Zalwango F, Andrew B, Vandepitte J, Seeley J, Hayes RJ, & Francis SC. Understanding motives for intravaginal practices amongst Tanzanian and Ugandan women at high risk of HIV infection: The embodiment of social and cultural norms and well-being. *Social Science & Medicine*. 2014; 102: 165-73.
38. Kirenga BJ, Levin J, Ayakaka I, Worodria W, Reilly N, Mumbowa F, Nabanjja H, Nyakoojo G, Fennelly K, Nakubluwa S, Joloba M, Okwera A, Eisenach KD, McNerney R, Elliott AM, Mugerwa R, Smith PG, Ellner JJ, Jones-Lopez EC. Treatment Outcomes of New Tuberculosis Patients Hospitalized in Kampala, Uganda: A Prospective Cohort Study. *PloS One*. 2014; 9(3): e90614.
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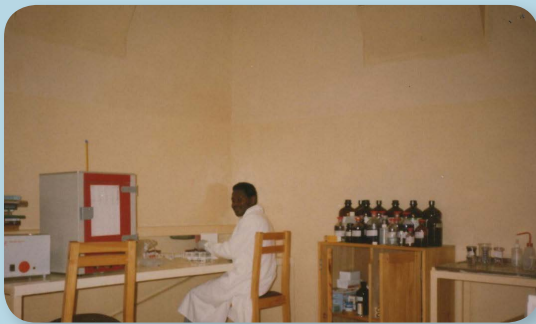
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THE UNIT'S HISTORY IN PICTURES

The first five years...



First lab in 1990



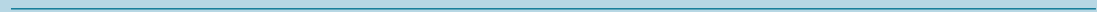
GPC survey office in 1990



Women's netball match the RC3 hosted as part of a sports day to raise awareness about HIV



RC3 chair and Janet Seeley presented the prizes



10



YEARS ANNIVERSARY





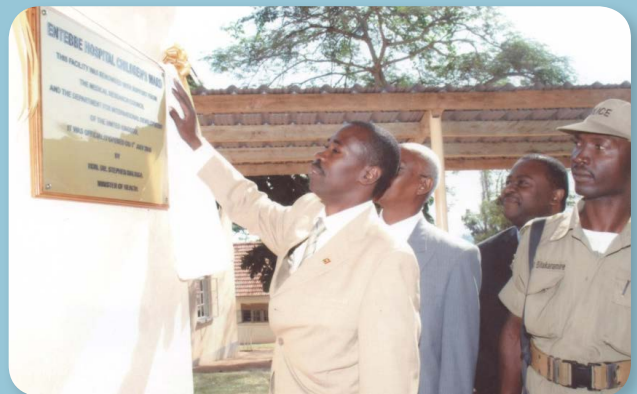


20 YEARS ANNIVERSARY





MRC/ UVRI Visitors and Events



Through the years...





Kyamulibwa field team – Bulwade, 2014



Some of the Science team - 2007



Some of the members of the Science team - 2014



A Science meeting in session - 2014



Transport section staff- 2014



Kyamulibwa team- 2014



Kyamulibwa staff- 2008

MRC/UVRI LABORATORIES



MRC/UVRI TRANSPORT & INFRASTRUCTURE



Entebbe grade B Hospital



Kampala Clinic- Mengo



Masaka Clinic



Power inverters in Masaka



Motorcycle parking area- Kyamulibwa



Staff Housing - Entebbe

MRC/UVRI TRANSPORT & INFRASTRUCTURE



Nitrogen plant- Entebbe UVRI Campus



Bukakata Health Centre III- construction was funded by MRC



Entebbe station - UVRI Campus



The Laboratory building- UVRI Campus



Rabbit House - UVRI Campus



Masaka Guest House

MRC/UVRI MISSION

- Conduct research to improve the control of HIV epidemic through prevention and Care both in Uganda and elsewhere in Africa
- Contribute to the translation of research findings into policy and practice both locally and internationally
- To support capacity building for research in Africa

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