

# Health research in Africa: past, present and future

Dr Pontiano Kaleebu discusses the journey of Uganda Virus Research Institute

The Uganda Virus Research Institute (UVRI) was established 83 years ago. It has played a unique role in addressing the health needs of Uganda and beyond. It has been at the fore of addressing the potential health security risks due to viral diseases and which constitute a possible threat to achieving the SDGs. The mission of UVRI is to conduct scientific investigations on viral and other diseases to contribute to knowledge, policy, and practice, and engage in capacity development for improved public health. UVRI also plays a critical role in emergency preparedness and response, and facilitates the building of enabling partnerships and technical medical research networks.

The contribution of UVRI to the body of scientific knowledge since its establishment in 1936 has been significant. It was first set up in Entebbe as a Yellow Fever laboratory in a joint venture between Uganda Government and the International Health Division of the Rockefeller Foundation. The Rockefeller Foundation had interest in addressing the local as well as the global need to describe the transmission cycles of the Yellow Fever virus. Over 124 strains and 20 new virus species were isolated and named, including Chikungunya virus, O'nyong-nyong virus, West Nile virus, Bunyamwera virus, Zika virus, Bwamba fever virus and Semliki Forest virus, among others. UVRI has field station sites located in the Zika forest in Uganda used for virus and mosquito research.

In the 1950s, the Yellow Fever Laboratory became the East African Virus Research Institute and in the same year was designated as a Regional Reference Centre for Arboviruses and Research for the World Health Organization (WHO). The Imperial Cancer Research Fund collaborated with UVRI in 1962, to study Burkitt's lymphoma. In 1969, WHO established a programme to study Polio and other viruses including acute respiratory diseases and other enteroviruses. The collapse of the original East African Community in 1977 paved the way to rename the Institute as UVRI. Political and social upheavals of the 1970s and the early 1980s in Uganda inflicted damage to UVRI.

With the establishment of the Uganda AIDS Control Programme in the mid-1980s UVRI became a national HIV reference laboratory. Partnerships such as the Rakai Research Programme, MRC-UK/UVRI AIDS Research Programme, later USA/CDC, International AIDS Vaccine Initiative, were established. These partnerships and networks pursuing the control of the AIDS epidemic in the late 1980s catalysed rehabilitation at UVRI which resurrected the reputation of the institute. The contribution of

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UVRI to the knowledge of HIV disease and risk factors for HIV transmission has been tremendous. UVRI is the national reference laboratory for HIV diagnostics and is a WHO reference centre for many conditions. It has made significant contributions to vaccine work.

UVRI and its partners contribute to training in Uganda and globally. In 2018/2019 for example, UVRI trained 350 people by supporting courses in areas such as epidemiology & biostatistics, bio-medical procurement procedures, bioinformatics, basic programming skills, good clinical and laboratory practices, etc. In the same period UVRI has also contributed to training of over 100 undergraduate interns and post-graduate level students, and supported 24 MSc students and 27 PhDs scholars, as well as 15 post-doctoral fellows.

UVRI's functions are funded through Uganda Government tax revenue appropriations. This is complemented by research grants and fellowships, cooperative agreements and capacity building grants from a wide range of partners and funders. The Government of Uganda's funding contribution in 2018/19 financial year to UVRI operations taken together with its collaborating partners was about 6.4%.

UVRI's aim is to have at least 40% of core funded activities funded locally. Government funding is on a yearly basis, yet research needs long-term planning. It is also unpredictable and that makes planning difficult. Human resourcing in some specialised areas is limited. Legal status is another issue; UVRI is under the Uganda National Health Research Organisation but also reports directly to the Ministry of Health. It applies for competitive research grants but some funders cannot fund it without it being a legal entity.

Structures and processes for better and more stable career progression for staff as well as stronger resource mobilisation strategies are needed to build upon recent gains. Stronger partnerships and technical networks including with academia will be critical in building research capacity.