

## Need to Establish Reference Laboratory for HIV/AIDS Research in Tanzania

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As a young man, amongst many in Tanzania, I lost my uncle in 1997 to the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS). At that point, I promised myself that I would train as a physician in order to fight against the AIDS. The year 2006 cemented further this resolution of mine, when my beloved neighbour died of HIV/AIDS followed by his wife and two children in a single year, providing a tragic vision of my neighbour's garden turning into a graveyard, seemingly overnight. As I was still mourning the loss of my neighbour and his family I was struck by a third loss which is indelible from my memory, my best friend, classmate and colleague died of HIV/AIDS in our final year of medical school. It was so painful because he never disclosed to me that he was HIV- infected as he was scared of the associated stigmatisation. This was the greatest tragedy of our college life and I found myself committing further and stronger to my dedication against HIV/AIDS.

As a practicing clinician at the Kilimanjaro Christian Medical Centre (KCMC) referral hospital in my home country, I learned more about the burden of the particular disease to the people of Tanzania. The HIV/AIDS pandemic continues to spread like an explosion in slow motion, with no storm, no crushing down of buildings, no conflagration, no dazzling and intense light you expect from a physical devastation of war or natural disaster, there is complete destruction of my society nonetheless. I have witnessed one silent death after another with no end in sight inside my clinic.

Following my ambition of working on HIV/AIDS I was awarded the Fogarty International sponsored Scholarship to do a 12 month-fellowship at Harvard School of Public Health (HSPH), under the Harvard Aids Initiative (HAI), so upon return to Tanzania to deliver the best services to the local patients in order to halt the HIV/AIDS epidemic.

I have been working in HIV field for the past four years, one year at HSPH at Prof Max Essex Laboratory in the department of immunology and infectious diseases where I studied the mechanism associated with development of anaemia and bone marrow suppression among people infected with HIV-1 C in Botswana. I also learned techniques for comparing pro-viral DNA and RNA which I employed during my study on Tanzanian hotel and bar workers cohorts, infected with different HIV-1 subtypes. Furthermore, I learned molecular techniques on nucleic acid

extraction from dried blood spots, nested polymerase chain reaction (PCR) and interpretation of drug-resistance mutations; this project, spanning 4 months was done at Botswana Harvard HIV Research Laboratory in Gaborone, during my Masters of Science in Immunology and Molecular Biology. Specifically, I was working on molecular characterization of HIV-1 subtypes and drug resistance mutations among HIV- infected children born to mothers on PMTCT in Northern Tanzania.

For the past three decades, undeniable progress has been accomplished toward HIV control and prevention. However, the recognised, continuous increase in resistance-strains continues to challenge the efficacy of the current available treatments.

The HIV- infection management is also complicated by the reduced adherence of patients to the pharmaceutical regime, as it is readily identifiable socially and thus stigmatising. One cannot ignore the significant financial burden of the antiretroviral therapy, despite the donor's substantial contributions so far.

The best solution to overcome all these hurdles would be to invent a cheap, potent and long lasting HIV-VACCINE. I feel strongly that only vaccination will help to combat the consequence of HIV/AIDS globally by 2020. Despite being seemingly over-ambitious such a deadline I truly believe it is possible, given the power of diversity, stemming from international collaborations, we can create a common ground for expertise and experience amalgamation. The world needs in management, control and eradication of human diseases, demand urgently a successful intervention. I am very convinced that in the area of HIV-1 diversity like Tanzania we can study different neutralizing antibodies and come out with potent novel vaccine for HIV. Through the existing and future collaborations between international organizations and Tanzania, I am looking forward to establish a state-of-the-art laboratory in Tanzania capable of linking bench-to-bedside research that will impact the health of all people. This laboratory will be a reference centre across eastern Africa specifically for HIV research and related viral infections; Chikungunya, Dengue among others in the region. I do feel and believe that networking and the quality of effort I invest will result in the advancement of health services and research not only in Tanzania but also all-over the world.