

The rapid testing kits have been innovated at a time when the country is preparing for the next wave of the pandemic.

BY TONNY ABET

A team of scientists yesterday inked their names in history books as the first Ugandans to invent home-made Covid-19 rapid testing kits which will be used in schools and hard-to-reach parts of the country.

The development of a much cheaper and faster test kits that don't need a laboratory like the existing test kits is expected to lower the cost of Covid-19 tests and boost Uganda's fight against the pandemic. Covid-19 test costs about Shs200,000, which is expensive for many Ugandans.

The new innovation that will be sold at around Shs2,500 was developed by a team of scientists at Makerere University College of Health Sciences between February 2020 and February this year.

Dr Misaki Wayengera, the lead scientist behind the discovery, yesterday explained that the kit, like the rapid diagnostic one for malaria, detects whether someone has been exposed to the coronavirus. It gives results between three to five minutes, according to the developers.

Diagnosis is a key in the fight against the spread of the pandemic as it enables early detection of infections. The infected people are then isolated and treated before it's too late. Health minister Dr Ruth Jane Aceng yesterday unveiled the new home-grown test kits at Makerere University.

How the Covid test kit works

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To conduct the test for Covid-19 using the kit, a healthcare professional takes a blood sample, usually by a finger prick or by drawing blood from a vein in your arm.

The blood is then put on sample well (S well) on the test kit and a watery substance called detection buffer is applied on the adjacent well (D well) on the kit.

The kit is allowed to stand for three minutes for reactions to happen between

Scientists behind Uganda's first coronavirus test kits

blood and the special substances in-built in the kit before seeing a result which manifest as red lines on the kit.

In the user manual for the kit, the test contains a built-in control feature, the C line. The C line develops after adding blood. The kit also has M and G lines, which are used to interpret the results.

The test is negative if only the C line is present, the absence of any colour in both test lines (M and G) indicates that there is no coronavirus antibodies detected.

Positive result is if, in addition to the presence of the C line, the G or M line develops, or both G and M lines develop.

It is invalid when no C line develops, the assay is invalid regardless of any colour in the test lines as indicated below.

Repeat the assay with a new device.

Mr Wilbrod Owor, the executive director of Uganda Bankers Association, said: "We are happy to have invested to support testing. Therefore, the affordability of this intervention is much welcome to address cost issues that would otherwise have to be so high for an average Ugandan."

Dr Aceng said: "This rapid testing kits come at a point when we are preparing for the next wave of the pandemic."

tabet@ug.nationmedia.coms



Blood samples placed on home-made Covid-19 rapid testing kits at Makerere University yesterday. PHOTO/RACHEL MABALA

FACES BEHIND INNOVATION



Dr Misaki Wayengera

Dr Wayengera is the lead developer of the kits. He is a medical doctor with graduate

training in a diverse array of basic science fields such as immunology, vaccinology, clinical Microbiology and genetics.

He got a PhD on genetics of infectious agents (Pathogenomics) from University of Toronto, Canada and had been working on Ebola since it first broke out in Uganda in 2000.

His innovativeness and devoted work on Ebola saw him develop rapid test kits for the disease. Through this, Dr Wayengera won the World Health Organisation (WHO) high innovation challenge in Product Development Category that took place at the WHO Africa Regional Headquarters in Congo (Brazzaville) in 2019.

"I also hold expert skills-training in bioentrepreneurship and research and development. Over the past 10 years, I have served as in-charge of the Unit of Genetics and Genomics at the Mulago National Reference and Teaching Hospital Complex," he said. The expert is also a member of the African Society for Human Genetics (AfSHG) and ex-chair of the Education and Coordinated Working Group (ECTWG) of the Human Heredity and Health in Africa (H3Africa) Consortium.

Prof Moses Joloba

Prof Joloba, another member in the team of developers of the Covid-19 rapid test kit is the dean of school of Biomedical Sciences at



the university. Dr Joloba completed his Degree in Medicine and Surgery at Makerere University Medical

School in 1994. He did his Master of Science in Microbiology in 1996 and PhD in Molecular Microbiology in 2003 at Case Western Reserve University, Cleveland, United States of America. In 2001, he joined Makerere University College of Health Sciences as a faculty member, and in 2003 he established the Molecular Biology laboratory in the Department of Medical Microbiology.



Dr Bernard Bagaya

On validation of the kits, Dr Bagaya, another team member, was central. Dr Bagaya is a graduate of

Biomedical Laboratory Medicine (2003) and a MSc. Molecular Biology (2008) from Makerere University, and a PhD-Molecular Virology (2015) from Case Western Reserve University (CWRU).

He was awarded the 2013 Krampitz prize for his excellence in graduate student research. Now making great impact on Covid-19 research, Dr Bagaya career comprises extensive experience in infectious diseases research with particular emphasis in HIV/Aids and tuberculosis.

He led the validation of the test kits for Covid-19 by assessing the sensitivity and specificity of the tool on different blood samples.



Prof William Bazeyo

Prof Bazeyo, the former head of finance and administration of Makerere University, was

central in the development of the kit as a fund mobiliser. He received his first Degree in Medicine and Surgery from Makerere University and Masters of Medicine in Occupational Health from University of Singapore, Singapore. He has been teaching at the university for more than 20 years and has done research and published in several areas including healthcare financing, leadership and health.



Prof Vinand Nantulya

Prof Nantulya is commercialising the kits. He is a Ugandan physician, pathologist, medical

researcher, entrepreneur and academic administrator. He serves as the Chancellor of Busitema University and he is a proprietor of Astel Diagnostic Ltd, one of the few WHO certified manufacturers of testing kits in Africa. Prof Nantulya through his company, will be working with the researchers at Makerere University to commercialise the Covid test kits.

Bankers Association and French Embassy. Members of Uganda Bankers Association and the Deposit Protection Fund contributed Shs200 million to the project, and undisclosed funding to support the innovation was also got from French Embassy.

Commonwealth boss visits Uganda over women issues

BY OUR REPORTER

KAMPALA. The Minister of Gender, Labour and Social Development, Mr Frank Tumwebaze, yesterday met the Secretary General of the Commonwealth Secretariat, Ms Patricia Scotland, to discuss youth and women issues.

The meeting at the ministry headquarters focused more on the increasing cases of Gender-Based Violence (GBV), especially during the Covid-19 lockdown and the plight of youths who constitute the biggest percentage of Uganda's population.

Ms Scotland noted that GBV, specifically domestic violence, has an economic cost as it increases government expenditure, lowers productivity and causes other long-term effects on the

survivors. The meeting noted that healthcare providers in Uganda spend about Shs18.3b annually to deal with effects of gender-based violence while police spend Shs19.5b and local councils, Shs12.7b. This is besides the loss of productivity or other longer term impacts.

Ms Scotland implored Uganda to emulate the UK, which she said reduced the cost of dealing with domestic abuse by more than 10 per cent between 2004 and 2020.

She called for a stronger funding of the social development sector because the investments directly benefit women and girls and reduces the dependency syndrome.

Mr Tumwebaze promised to intensify efforts to ensure relevant authorities support victims of the GBV.

He noted that many victims don't get



Gender minister Frank Tumwebaze (left) interacts with the Secretary General of the Commonwealth Secretariat, Ms Patricia Scotland, in Kampala yesterday. PHOTO/COURTESY

justice because some duty bearers neglect such cases when they are brought to their attention.

He called for collaboration with the Commonwealth Secretariat in strengthening the tracking and management of such cases.

The meeting was also attended by the Minister of State for Youth and Children Affairs, Ms Florence Nakiwala Kiyingi, the ministry's Permanent Secretary, Mr Aggrey David Kibenge, and director for social protection, Mr James Ebitu.

The Scotland team is in Uganda with other delegates as part of the preparations for the Commonwealth Heads of Government Meeting (CHOGM), which will be held in Kigali, Rwanda from June 21 to 26.

editorial@ug.nationmedia.com