Volume 1, Nov. 2020

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COVID-19 in Uganda Is the Science Working?

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As of August 2020, Uganda is one of the top 10 countries that have successfully suppressed the COVID-19 pandemic. We were granted the WTTC Travel Safe Stamp and African Tourism Board Safer seal, proof that our safety measures are not only effective, but world-class.

TOP 10 COUNTRIES SUPPRESSING COVID-19

1. TAIWAN 2. THAILAND 3. LAOS 4. CAMBODIA 9. NEW ZEALAND 5. VIETNAM

6. CHINA 7. MYANMAR 8. MALAYSIA **10, UGANDA**



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We cannot Afford to Lag Behind in Science and Technology

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CORONAVIRUS (COVID-19)

HOW DOES COVID-19 SPREAD?



If an infected person sneezes or coughs and their droplets come into contact with you

WHAT ARE THE SIGNS AND SYMPTOMS OF COVID-19?



HOW CAN YOU PREVENT YOURSELF FROM GETTING COVID-19?







Wear a face mask while in public places

Keep a distance of at **Regularly wash** least two (2) metres your hands with ng water and soap

For more information, call the Ministry of Health toll free line on: 919, 0800-100-066, 0800-203-033 and 0800-303-033 or send a free SMS to Ureport on 8500 or WhatsApp on 0770-818-139





Editor in Chief

Dr. Charles Wendo presidemagazine@preside.go.ug Dear Countrymen and women,

Thave the honour to welcome you to the first issue of this quarterly PRESIDE magazine. It is a publication whose **L** pages we have pervaded with exciting views and other educative materials on the theme that was appropriately chosen given the current pandemic of COVID-19, but also cognizant of the International Science Day approaching on 10th November 2020, that will also be celebrated here in Uganda and you cannot wait to learn more about it.

I know you are anxious to learn about the theme for this issue; interestingly, it is COVID-19 in Uganda. Is science working? You should explore this in our exciting articles well thought out by our own experts.

We bring you Dr. Monica Musenero Masanza, the senior presidential advisor on epidemics (SPADE), who answers some of your questions every Saturday in The Saturday Vision. In this issue, however, you have the chance to learn more about her works, including her vision for science in Uganda.

The magazine has also been mellifluously packaged to bring you an extensive coverage of how Uganda successfully ran the COVID-19 race, subsequently getting recognized by Lancet among the best performing countries in the COVID-19 fight.

Lastly, body immunity being crucial in resisting COVID-19, we bring you exciting and exhaustive information on how to boost your immunity through nutrition, but also where to go in case you would like to do a COVID-19 test in Uganda. You can only miss this if you must.

Would you like to know more about PRESIDE? Read more and watch out for more releases moving forward.

I remain your editor in chief.





If you touch a surface that is contaminated with Coronavirus and then you touch your eyes, nose and/or mouth



Difficulty in breathing



Other flu-like symptoms such as a running nose, sneezing and body weakness



Cover your nose and mouth when sneezing and coughing with a tissue



Avoid contact with anyone with flu-like symptoms



oid touching your eyes nose, and mouth with unwashed hands.







We cannot Afford to Lag Behind in Science and Technology Again

The major factor for the evolution of our species, homo sapien, as the most dominant creatures on earth is that we developed the capacity to tame nature. This meant that finally, we were able to free ourselves from the oppression of man by nature in the form of floods, drought, diseases, landslides, famine etc. Man's uniqueness lies in his ability to establish dominion over nature through conscious actions.

There are three special features which enabled us to have meaningful impact on the environment. These include: possession of a large brain, a hand that could hold and shape tools and bipedalism or walking on two legs, which fact freed man's head to think better and his eyes to see far. On account of these, man was able to think of solutions to the problems he faced and to make tools that could assist him to satisfy his needs.

With these unique capabilities, man was able to invent fire, agriculture, iron tools etc. Each of these inventions significantly improved man's quality of life and also enabled us to live longer.

While other parts of the world continued to subdue nature to serve their interests, the Africans remained stagnant at the initial inventions of early man. We missed out on the first industrial revolution which ushered the change from a reliance on muscle power to machine power. We were again spectators in the second industrial revolution, which was the invention of electricity. We also missed out on the third industrial revolution which involved automation of machines. Our failure to participate in these three industrial revolutions was a big disadvantage on our part. It meant that we remained backward in terms of science and technology.

Therefore, we cannot afford to lag behind in science

and technology again. We must cure the original sin of backwardness which contributed to our being dominated by other superior races and ravaged by nature.

I am glad to note the great scientific awakening in Uganda in the various fields. This is a significant achievement because we are beginning to see our scientists emerge with locally developed solutions to the challenges we face.

This is the path that we must take and the NRM Government will continue to support our scientists to further research and product development. As the human race enters the 4th Industrial Revolution of Artificial revolution, let us not again make the terrible mistake of remaining mere spectators like our ancestors.

Winseren

Yoweri Kaguta Museveni President of the Republic of Uganda



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COVID-19: Is the Science Working?

Dr. Monica Musenero Masanza Senior Presidential Advisor Epidemics & Chair, PRESIDE

Figure 3 ongoing battle with COVID-19, has put an unusual limelight on her hitherto hidden scientists. Science and scientists have been repeatedly referred to by His Excellency the President during his national addresses. The Minister of Health has often appeared with scientists besides her while updating the public about COVID-19. Scientists themselves have been quoted or appeared in various media guiding the public about various issues related to the pandemic. In addition, during this period, His Excellency has repeatedly appealed for improvement of emoluments to scientists at the various levels of service.

Scientists have been both praised and castigated by the public for what has been perceived to go well or not so well respectively.

The fact is that the COVID-19 pandemic exposed to the wider policy maker fraternity as well as the public, the secret behind Uganda's successful track record against dangerous epidemics. While previously they worked behind the scenes, the magnitude of the COVID-19 pandemic required the whole of society including deployment of the back-end workforce – the scientists. Actually there are many more scientists working in the background in laboratories and the treatment centers than have been seen.

The word science (from the Latin word *scientia*) literally means "knowledge" or to know. It is the systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about physical life. Therefore a scientist is an individual well versed with at least one branch of science.

Uganda's COVID-19 response has been anchored in Science where all key decisions have been made through critical scientific analyses by experts in multiple areas. Various aspects of science have been applied to the designing of field interventions (Epidemiology), diagnosis (Laboratory science), case management (infection control and clinical management), testing new drugs (clinical trials), risk communication, and research to develop new diagnostics, treatments, vaccines, and tools that reduce infection such as hand sanitizers and many more. In my view, this is the first time there has been such a direct engagement of a wide mix of national scientists in an ongoing public health emergency. Whereas participation and advice have been received from international agencies, by and large the COVID-19 response has been led by Ugandan scientists.

Given that the country has been grappling with COVID-19 since March 2020, the question to ask ourselves is – "Is the science working?" Or in other words, "has the version of science implemented by Uganda been effective this far? How can we tell? How are we adjusting as new scientific evidence emerges? In this article, I will try to explain what type of science has been applied, how and when. I will then attempt to show evidence of whether it is working or not.

Over the past two decades Uganda has trained both locally and in foreign institutions and this has built a considerable human resource pool covering a wide range of scientific expertise. Ugandan scientists have participated in many research projects both here and internationally. Uganda is also well known for her highly proficient epidemic response workforce which has prominently supported international epidemic response efforts whenever called upon. However, until this COVID-19 pandemic, many of these experts, especially those embedded in academic institutions had not been called upon to actively participate in the previous national epidemic control efforts.

Why Science and Scientists?

As COVID-19 spread from China and threatened to reach every country in the world, it became apparent that each country would have to strongly rely on her indigenous scientific human capital to control the disease. Unlike the other recent severe but geographically restricted epidemics such as the Ebola in West Africa and DRC, where international agencies such as the World Health Organization would globally source experts to support affected countries, for COVID-19 each and every country would need their experts.

Secondly, being a new disease, there were no ready to use standard guidelines. Hence, the country needed local experts to read and interpret the large volume of primary research publications coming out daily and translate into response actions in real time. Moreover, it was imperative for each country to contribute to the body of knowledge to support the global response.

Lastly, given the wide scope of actions required to effectively respond to a pandemic of COVID-19 magnitude, it was prudent to recruit scientists to support the strategic and policy making levels, so the technical staff within the Ministry of Health response can focus on technical and field execution. The scientists were deployed at multiple levels of the response as described below:

Strategic Level – Presidential, Prime Minister and Minister's Advisory Scientific Team

The national response is coordinated by His Excellency, the President of Uganda, who chairs the National COVID-19 Task Force with overall responsibility for the broad policy decision making. The agreed policies are presented to Cabinet for debate and if passed, are adopted for implementation. The multi-sectoral operational coordination is done at Prime-ministers level. The president appointed a Senior Presidential Advisor on Epidemics (SPADE) who permanently works with him in collaboration with a team of experts to provide scientific advice to that level of decision making. The SPADE also supports Prime Ministerial level and other sectors in their decision making in the context of COVID -19.

At sector level, the Minister of Health appointed the Scientific Advisory Committee, consisting of a team of experts drawn from various institutions, chaired by Professor Misaki Wayengera, from Makerere University, to advise into the multiple aspects of the technical response. They undertake extensive synthesis of all information emerging from ongoing research globally and thus ensuring that each and every intervention is backed by scientific credibility to the best of available knowledge. Responsibilities have included, recommending diagnostic tests, strategies for field containment, treatment protocols, as well as analyze potential impacts of specific actions on the disease trajectory in the country. The team is also responsible for supporting the Ministry of Health in the generation of the wide array of the now famous Standard Operating Procedures (SOPS) to ensure the public is safe.

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Operational Level - The Incident Command System at Ministry of Health

At operational level, the Incident Command System (a section set up in the Ministry of Health with nationwide reach) has multiple pillars which deliver the service (See figure 1). Each of these pillars has a team of experts specializing in that field to support in the design of the methods used as well in interpreting the results and outcomes in the field. The pillars include Surveillance, Laboratory, Case management, Infection Prevention and Control, Social Mobilization and Community Engagement, Logistics, Security and Finance.

It is worth noting that despite the considerable amount of time and effort required, this array of scientists is mostly composed of volunteers without demanding pay. They frequently hold meetings to streamline the response.



Figure 1: Pandemic Incident Management System

What are the results now?

Whereas it is too early to give a final verdict, current evidence shows that Uganda's approach to the pandemic is yielding results. Apart from the evidence from trends shown, there has been international recognition of Uganda's efforts in response to COVID-19 (See Figure 2).

The Lancet COVID-19 Commission on the occasion of the 75th session of the UN General Assembly, ranked Uganda's response among the top 10 countries globally and the best in the African region. This is an achievement despite the multiple challenges the country has to overcome.

Country	New cases per million per day (August)*	New deaths per million per day (August)*	Tests per case (August)*	ERR
Taiwan, Province of China	0-0	0.0	438-0	0.6
Thailand	0-0	0-0	442-8	1.0
Lao People's Democratic Republic	0-0	0-0	-	-
Cambodia	0.1	0-0		0-3
Viet Nam	0-1	0-0	-	0-8
China	0-1	0-0		1.0
Myanmar	0-3	0-0	937-9	0-8
Malaysia	0-4	0-0	742-2	1.0
New Zealand	1.2	0-0	3368-9	1.1
Uganda	1.2	0-0	157-2	1.5
Togo	1.8	0-0	44-8	1.1

Figure 2: Uganda Ranked Among the Top 10 Countries Globally by the Lancet Commission Uganda's approach delayed as well as slowed the spread of the virus through to the population especially at a time when the country had limited capacity to protect health care workers, diagnose and treat it's citizens.

Probably one of the most significant outcomes of this approach, with significant long-term impact has been the awakening of the scientific community which had largely laid dormant in academic and research institutions to focus on solving national problems.

In March 2020 we woefully watched the virus approach amidst lack of basic tools to protect the public and health care workers.

Diagnostic tools, personal protective equipment, sanitizers, medicines, and many more were in short supply globally and yet national capacity to produce was almost at zero. With the engagement of some scientists, the country was able to quickly turn around some of these issues. With the urging of the President and support from scientists, multiple local manufacturers repurposed or set up new production lines to produce essential pandemic response tools. Research laboratories started producing their own sanitizers many of which have been commercialized and for the first time the country has been able to export some of these products such as PPE and sanitizers internationally. This is pro-activeness by scientists, even without external funding in unprecedented and if well nurtured is likely to turn Uganda into a hub of locally produced scientific products.

Significantly, the launch of a Presidential Scientific Initiative (PRESIDE) partnering with other stakeholders, provides a platform to fast-track mobilization of scientists to plunge into local research and development of epidemic response tools is poised to change the country from a consumer to a contributor of solutions.

What did not work so well/needs improvement

To present an all-glossy picture would be ingenious. Whereas scientifically guided recommendations have been continuously made, the actual adoption has greatly varied. Low levels of adoption of scientific tools have heavily weakened the envisioned impact and in some cases resulted into opposite outcomes. An example is the adoption of the face coverings (masks) as a tool to control spread of the virus. Whereas in principal the mask is a powerful public tool with potential to cut the rate of infection by up to 80%, the actual impact is quite low due to weak adoption. This gap can be partly blamed on the ageold weakness of communication between scientists and society. To improve science for and with society, this gap must be bridged.

The other challenge results from the need to balance the hierarchy of the population's felt needs versus the benefits of science which may take time to become visible. For example, while scientifically lockdowns work to interrupt COVID-19 transmission, the crippling effect on people's ability to make a living. This has rendered some of the scientifically sound Standard Operating Procedures (SOP's) ineffective in actually slowing transmission. Similarly, the social, cultural and political drive in society must be fully considered for the science to work. To be more effective, the science must expand to include experts in the social and political domains. A gap in communication between scientists and sections of policy makers, especially parliament and local governments has also been observed.

For the science to work there must be timeliness in implementation of interventions. Frequently there have been significant time lags between the science recommendations and implementation resulting from tortious procedures in operationalization of policies, procurement or funding. Such time lag nullifies the envisioned benefits. For example, the delay in provision of face masks to the public greatly reduced the impact of the tool in slowing disease spread especially in Kampala.

Conclusions and Recommendations

From all evidence, it is quite obvious that Uganda's decision to adopt a scientific approach, coupled with strong political support to the COVID-19 pandemic response has borne results. The spread of the virus was not only slowed, giving time for the country to prepare. The engagement of scientists has bolstered national confidence to not only fight this pandemic but potentially altered the positioning

of the country in the region as a hub for scientific expertise and products. We have also identified areas that require strengthening including communication and engagement with society throughout the scientific cycle so that both scientists and the public can benefit more.

As COVID-19 continues to affect global public health and economies, it is only prudent that Uganda moves to further consolidate her winning

scientific approach with strong political and financial support, since COVID-19 is going to be a significant consideration in all sector planning and operations in the country at least through the first half of 2021. More emphasis should be put on engagement and communication between scientists and the rest of society, making products of science more visible and incorporating more social, political and economic scientists to strengthen the linkage with society.



KIPROTIC

Combatting COVID-19: Uganda's Race against the Clock

Vinand M Nantulya, MD, PhD, FRCPath Vice Chair-PRESIDE / Senior Presidential Advisor, Vaccines and Therapeutics

Then the COVID-19 outbreak began to emerge as a global crisis, countries around the world were forced to react and prepare for a potential outbreak within their borders. For many, closing their borders was an immediate solution, but for Uganda, it was a measure to buy time for a scientifically sound public health approach composed of multisector strategies.

Uganda has successfully employed various approaches to respond to epidemics time and again. Uganda is a landlocked country that shares borders with Kenya to the East, South Sudan to the North, Democratic Republic of Congo to the West and Rwanda and Tanzania to the South. These colonial borders are extremely porous, with similar ethnic communities and families living on either side of the artificial border lines. Moreover, Uganda depends on long-distance cargo trucks to ferry, by road, imports and exports via the Mombasa Port in Kenya.

The country is also bound by international law to allow cargo trucks delivering imports into, and exports from, the countries further in the interior, especially South Sudan, Rwanda and Eastern regions of the

Democratic Republic of Congo via the Mombasa Port in Kenya. Hence a useful discussion on

LOCKDOWN & 30th March CURFEW First COVID-19

Death

5000 COVID-19 Cases

health outcomes needs to take into consideration the situation in the neighboring countries.



Figure 1: COVID-19 Timelines in Uganda (Adopted from Ministry of Health)

Drawing on experience gained from combating HIV/AIDS, Ebola, Marburg and many more epidemics, Uganda acted quickly in its battle against COVID-19. The response was guided by science and it was chronological and in phases for example;

Phase 1: Before entry of the virus in the country

Three days prior to the detection of the first case, the country had to imposed a 21-day lockdown for specific sectors. Public transport was suspended, schools and higher institutions of learning were closed, social and religious congregations were suspended, non-food stores were closed, bars, nightclubs and restaurants also closed, and a curfew imposed to ensure compliance to the prevention guidelines. The airport and border crossings were also closed. Individuals entering the country were subjected to mandatory quarantine for 14 days and screened twice for COVID-19 and discharged only on negative test results. Contacts of those found positive were followed up.

In addition to this detailed response, regular press briefs that shared updates on the crisis as well as best practices were implemented. These information sessions, led by the President, presented a unified voice with guidelines given to the public on actions to be followed for self- protection.

Phase 2: Imported cases and limited

At this stage, the country closing of borders with an aim of avoiding the importation, so those who were out of the country were blocked, so few came back. In land boarders like Malaba, Elegu and others were also closed on the same fact.

Phase3 : Community transmission

Along the battle of COVID-19, the country made tangible progress for five months with the curve flattened and preparations made like preparing treatment centre like Namboole, equipping regional and national referral hospitals, risk communication intensified, training of health workers, production of facemasks, production of sanitizers and other efforts, the country began to strategically open up sectors to ensure continuity of business and services.

As planned and after achieving the intended preparations but also after prediction of the economic disruptions due to the lockdown measures, the country towards the end of July 2020 started partial lifting of lockdown on public transport systems and other business activities as expected this ushered in the third phase (community transmission) which

progressed to phase 4 in some parts of the country. However, with enhanced community education, use of masks, social distancing measures this helped the country to cautiously begin to experiment into other steps including and this set in the response strategies from focus on prevention to mitigation like no more quarantine, no mandatory isolation leaving hospital beds for the critically ill cases which helped the country to have low deaths and manageable numbers, partial opening of schools, churches, mosques in a bid to co-exist with the virus to avoid catastrophic effects.

In the context of general elections, through the applied science there has been design of scientific elections, though there has been evidence of violations there is general cautiousness and awareness in the populations.

The current control goal in the response is to maintain the number of cases below the bed capacity in each level of care (general, high dependance and intensive care units) such that the system is not overwhelmed. To optimize the limited resources such as high dependence and intensive care beds and diagnostic facilities the country set up an exemplary referral system that extends services to even those in remote settings.

In addition, the second goal is early identification, referral and treatment of those at and with risk of severe disease. The country also gives free services to her population including diagnostic, referral, care and treatment.

Phase 4: Uncontrolled transmission

The country through the leadership of H.E the president of republic of Uganda has ensured that the curve is flattened and the health system doesn't get overwhelmed. Recently the country was ranked as the best performing country in Africa and 10th worldwide in the fight against the pandemic. Great applause to Ugandans who believed in the scientific response to COVID-19.

Phase 5: Recovery

The country has made progress in this particular phase where by a total of 7,887 (62%) cases have recovered from the disease and efforts are still underway in this phase. All this is guided by science.

Health Outcomes

The results of the first 5 months of implementation of the response are summarized in Figure 1. The figure shows that the curve for cumulative number of cases for Uganda had remained relatively flat and with low numbers compared to the neighboring countries.

2.6 Comparative analysis of progression of COVID-19 pandemic in Eastern Africa



Lessons for other Low-Income **Countries**

The Uganda experience offers important lessons for other low-income countries. The first lesson is to focus on a public health approach to prevent transmission of the infection through early diagnosis, committed tracing of contacts of infected cases, isolation of infected individuals, and early clinical management of those infected. Every effort needs to be made to keep the number of cases low to avoid the health system being overwhelmed by a huge number of cases. To prepare for the community phase of transmission, strategy and guidelines should be in place for self-isolation and care in their homes for patients who are asymptomatic or with minor symptoms, and to reserve for quarantine in designated health facilities only the patients with severe disease and those with co-morbidities.

The second lesson concerns attention to the community factor. Effective communication and engagement of the community is crucial and it needs to be maintained through a community engagement strategy. This is vital if the public is to remain committed to observing the simple prevention guidelines in the face of hard economic circumstances brought about by the lockdown and attendant misconceptions that may arise about the pandemic. Here a clear voice of the country's highest authority is essential for engaging all stakeholders to reinforce the key messages.

The third lesson is the need to pay attention to cross-border transmission. The issue of cross-border cargo truck drivers as a high-risk group drew the country's attention to the danger of cross-border transmission. As the screening of truck drivers intensified, large numbers turned out to test positive and the numbers dramatically continued to rise.

Figure 5: COVID-19 pandemic analysis acrossborder: East Africa

(Adopted from Ministry of Health)

For instance, 373 (48%) of the 774 positive cases diagnosed in the first 3 months of the response were truck drivers, mostly from neighboring countries. Given the frequency of epidemic threats in the region, it's urgent that a framework on Regional cooperation dealing with cross-border transmission is institutionalized.

The fourth is to beware of the negative influence of politics. Uganda's general elections are scheduled for January 2021. The experience from the campaigns during the various party primaries with candidates mobilizing their supporters exposed the difficulty in enforcing standard operating procedures (SOPs) including social distancing, wearing of face masks, and washing of hands under political rally conditions.

The effect of political activities shows on the Ugandan trend of cases starting September/October 2020 as it also exposes the higher risk group, encourages mixing of people from different parts of the country. This is undermining the gains made in the early phase of the response. It is highly desirable, therefore, that policy makers like ministers, MPs, RDCs, LCV Chairmen and other Local Council leaders observe and promote compliance with the COVID-19 guidelines and standard operating procedures issued by the Ministry of Health, at all times as they go about their campaigns.

The fifth lesson is there is need to customize various guidelines per groups/categories of people which could regulate cultural activities including circumcision, marriage functions.

Acknowledgement

The author acknowledges Prof. Francis Omaswa, Abel Wilson Walekhwa and Gloria Nantulya for valuable comments on the manuscript.

Safely Operating Schools amidst COVID-19

Eric Mwima is a research associate and Management Specialist, Dr. Twa-Twa M. Jeremiah is a consultant and former member of parliament.

The eruption of corona virus affected almost every sector of society, including education institutions which were closed and opened recently, but for only candidates and finalists. Running a school in these times is certainly difficult and schools, writes Eric Mwima and Dr. Jeremiah Twa-Twa, must strictly follow established preventive procedures to keep the learners safe.

The corona virus forced most countries in the world to close places of congestion and congregation, including schools. In Uganda, the education sector is the biggest with over 15 million learners and the biggest employer.

The closure of schools did not only limit overcrowding and other risky situations, but also enabled the government to understand the problem and develop appropriate response strategies.

This resulted in minimal spread of the virus among school going children (6-17 years) and the youth (18-30 years).



Photo credit: UNICEF/UNI330896/ Frank Dejongh

The closure, although not a permanent decision, has greatly affected all stakeholders; the learners have lost time, school owners have lost income, teachers have lost income and suppliers have lost business.

This loss of income has certainly had a ripple effect on other sectors of the economy, necessitating, that schools be opened and run as safely as possible.

However, the necessity to open schools has pushed people into asking whether it is a wise move to open up schools, and whether it is safe for the children.

These and many others are all critical questions worth answering. Firstly, all epidemics end with time. The precaution is to ensure that we do not end with a very high cost in terms of life. That is why blocking entry, protecting the vulnerable and controlling the spread in the communities are critical. Furthermore, we cannot close schools and the country forever, because epidemics have a cycle they follow.

The people and the economy need to survive and children need to learn and progress. However, given the fact that schools in Uganda have large student populations and lack basic infrastructure, phased opening was the best way forward.

How do we avoid the worst scenarios observed in other countries where schools have opened and closed because of increase in cases in schools? This is only possible if the stakeholders; the students, teachers, administrators, parents, government, local authorities, and communities play their roles well in the control of the spread of the disease to and from school. These are summarized in the what-to-do and what-not-to-do in schools.

The school administration needs to assess the level of risk in their school environment by identifying the potential risk places, activities and vulnerable members.

After identifying the risks, administrators should know what measures need to be put in place to address the identified risks. Teachers need to support the administration in enforcing the standard operating procedures (SOPs).

Similarly, students need to ensure personal safety by properly and consistently using face masks, keep physical distances, and ensure personal hygiene by consistently washing hands using water and soap.

It is not wise for schools to allow students to use and keep alcohol-based sanitizers to avoid the risk of misuse and abuse. The habit of exchanging personal effects should be discouraged.

Therefore, parents should ensure that their children have enough personal safety requirements. Schools

need to ensure that the students' diet is balanced, no outsiders mix with the students unless they are isolated for the mandatory number of days and school visits discouraged.

In addition, schools should create electronic platforms for communication with the outside environments, set up routine surveillance and reporting mechanisms, place check points at the entry points, and have isolation facilities for suspected cases.

Having a well-equipped first aid facility, and trained psycho-socio support people to respond to psychological challenges that may erupt in the school at any moment, are the other must-have measures.

In educational institutions, day schooling is a risky factor; it promotes transmission of the virus among children from homes to school and vice versa; and transmission on the way as they move from home to school and vice versa in public transport systems.

Crowding is another risk factor in big schools where social distancing, monitoring and enforcement of hand washing and respiratory hygiene are difficult.

Performing medical procedures like tracheal intubation during anesthesia and sputum induction, increases chances of transmitting the virus by inhalation to medical students.

All these are avoidable if the following what-to-do and what-to-avoid strategy is followed.



What To Do

Wash your hands frequently with soap and clean water or sanitizer.

Hand hygiene is the most effective way of preventing and stopping the transmission of the Corona virus.

Observe respiratory and personal hygiene

Cover your mouth and nose with a handkerchief when coughing and sneezing. All students, staff and visitors should wear face masks when in the school environment unless medically exempted. Masks are meant to protect other people. Wear a clean cloth mask when in public and when sick with flu like symptoms like fever, cough, sneezing unless medically exempted.

Wear a face mask when caring for a sick person with flu-like signs and symptoms like fever, cough and sneezing. Wash and iron your reusable masks or handkerchiefs daily. In the school situation, masks can be provided by parents or school management. Observe physical/social distancing in educational institutions while remaining socially engaged.

Social distancing means keeping a safe space between yourself and other people. The recommended space is at least two (2) meters or two arm's length away from other people outside home. Social distancing means no handshaking and no hugging. Instead, encourage use of other forms of greeting like waving and verbal greetings. Limit visitors and activities involving external groups in schools to avoid overcrowding. Put social distancing markings on the floor or walls of buildings to guide the social distancing process.

Clean and disinfect frequently touched surfaces and objects with soap and clean water; and/or apply recommended disinfectants and decontaminants of floors, surfaces and objects that are frequently touched.

Stay home when not feeling well with flu-like symptoms. Seek medical care and do not selfmedicate. Eat well and exercise to boost your body immunity.

What to Avoid

Avoid touching your eyes, nose and mouth with unclean hands. Avoid hand shaking and hugging. Avoid close contact (less than 2 meters) with people who are visibly sick with flu-like signs and symptoms like fever, cough, sneeze.

Avoid spitting in public. It is in line with this requirement that all stakeholders in the education sector, particularly school management, teachers and learners, have to understand, interpret and correctly apply SOPs.

There is need for training of education stakeholders to build their capacity to understand, interpret and apply the measures appropriately.

It is from this point that school managers and teachers will play a pivotal role in understanding and enforcing SOPs in all educational institutions.

Photo by: Xinhua

Uganda has potential to develop COVID-19 Vaccine

Under Dr. Balinda's Wings Uganda's COVID-19 ray of hope Flashes

OVID-19 took the world, Uganda inclusive, by storm to proportions never experienced before, leaving families, communities and global economies ripped apart, and the global health sector deeply strained. Although its fury has calmed down, the ashes of its destruction are there for all to see, and the danger of another same storm or worse, loudly looms around until a vaccine is discovered. However, in an interview with Dr. Sheila Balinda, a PhD holder in molecular virology, focusing on the study of viruses, a glimmer of hope flashes through.

Who is Dr. Sheila Balinda?

I am a Ugandan "Woman in Science" with extensive experience in researching on the diversity of viruses and how this influences disease progression. This certainly provides useful information in the development of vaccines, drugs and diagnostic tests.

Several scientists have made research on viruses, what makes you unique about the same subject area?

My career has been unique. I have for over 10 years studied both animal and human viruses, especially foot and mouth disease virus (FMDV), and the Human Immunodeficiency Virus (HIV-1).

This has, subsequently, resulted in over 20 papers published in reputable scientific journals. In 2011, I graduated at Makerere University with a PhD in molecular virology, focusing on viruses . My work characterized the Foot and Mouth disease (FMD) virus serotypes prevalent in East Africa. I can Dr. Sheila N. Balinda

authoritatively say my research findings can be useful in future development of diagnostic tests.

3

Apart from the FMD virus research, have you undertaken or done studies on other viruses?

Studying the FMD virus was actually a gateway to studying HIV-1 at the Joint Clinical Research Centre (JCRC), where I was the project manager for two HIV-1 drug resistance studies involving adults and children.

Later, I was involved in vaccine research at the Uganda Virus Research Institute (UVRI), specifically, at the British Medical Research Council/London School of Hygiene & Tropical Medicine (The Unit). Our work at the Medical Resource Centre (MRC) identified new and cost-effective ways of testing the effectiveness of antiretroviral treatment and the development of HIV drug resistance in Africa.

What experience do you have in vaccine research and development projects?

In 2015, I joined "The Unit" after a very competitive postdoctoral award by the International AIDS Vaccine Initiative (IAVI) in their Vaccine, Immunology, Science and Technology for Africa (VISTA) programme.

Working with colleagues and in collaboration with scientists from Emory University, USA, and Imperial College London, we constituted a local team of molecular virologists to identify and characterize HIV-1 transmitted founder viruses in Uganda for future vaccine development.

In 2019, I was awarded a SANTHE (Sub-Saharan African Network For TB/HIV Research Excellence) path to independence fellowship to further advance this HIV-1 vaccine work.

In light of your impressively weighty experience in virus research, would you say Uganda is capacitated enough to develop a vaccine for COVID-19 and other such diseases?

It is my affirmation that Uganda has the potential to develop a COVID-19 vaccine. First of all, there are limitless global opportunities available to do it. Similarly, we have, as a country, built our virus research and vaccine development capacity for over 20 years now. For example in the late 1990s, Ugandan scientists, led by the late Prof. Roy Mugerwa, pioneered the first HIV-1 vaccine trial in Africa codenamed "ALVAC".

Prof. Pontiano Kaleebu, the current UVRI director, and Prof. Peter Mugyenyi, the former JCRC director, were part of this team. It is my argument that these two medical brains have mentored and equipped young clinicians, virologists and immunologists, to take on the task of vaccine development in Uganda. Additionally, Uganda, due to these efforts, is part of global scientific research collaboration networks through which we have acquired equipment and training for personnel. With all this virus research and vaccine development capacity cited, Uganda has not developed any virus in the past, why?

Despite over 30 years of research, our understanding of, for example, how the HIV-1 replicates, manipulates and survives the immune responses of the host is incomplete. This is a global challenge. It is not restricted to Uganda alone.

Generally, funding has been the biggest challenge in advancing science in Africa. Governments have relied on donor funding whose priorities may not necessarily be those of Africa or Uganda specifically. This has been the biggest setback for African scientists.

That inadequate funding is the obstacle to vaccine development in Africa, does that, therefore, mean no research and vaccine development is being undertaken by Ugandan scientists in response to COVID-19?

We have not sat back on our laurels; actually a lot is going on. I am leading the team that is working on the "novel adenovector COVID-19 vaccine". The intended vaccine will be developed from our local adenoviruses (flu-like viruses) that we shall obtain from Ugandan chimpanzee droppings.

Into these adenoviruses, we shall insert the most immunogenic portion of the SARS-CoV-2, the virus that causes COVID-19. The goal is to develop a harmless 'hybrid' virus that is capable of causing immunity to COVID-19, when administered to a human being.

Our team is multidisciplinary and comprises senior and young African scientists, including women, to provide for knowledge and skills transfer through mentorship and capacity building.

It is our hope that our integrated teams from UVRI, Makerere University, Ministry of Science, Technology and Innovation (MoSTI) and Uganda Wildlife Authority, will form a robust foundation to combat future epidemics or similar problems. For purposes of saving costs, resources, and urgent need to respond to a subsisting problem, most donor and government-funded projects have time lines, has this COVID-19 vaccine research and development project got a time line or it is an open research adventure?

Development of new medical technologies, for example, drugs, devices or vaccines is justifiably a huge investment of time, effort and finances. In the past, it took up to 20 years for some medicines to reach the market. However, with new technology and focused investment, this time has been abbreviated to few years. These are the fruits of the Coalition for Epidemic Preparedness Innovations (CEPI) that saw the Ebola vaccines rapidly developed into the market within record time.

In this specific quest for a Ugandan COVID-19 vaccine, we have planned for 18 months for the first stage of developing the novel vector (backbone) and viral insert followed by trials in animals. Our team will then pass-on this technology to the veterinarians at College of Veterinary Medicine, Animal Resources and Bio-security (COVAB) to carry out further tests in animal models before approval for human use.

Any last message to Ugandans about science and products development?

As a molecular virologist based at the UVRI, I am excited that the government has prioritized this

investment in the health and ultimately wealth of its people. It is worth appreciating because quite often, African scientists are faced with challenges of accessing a critical mass of highly skilled teams and a critical density of equipment and funding, commonly funded by the development partners. Therefore, this funding commitment from our government is a "God send" to the Ugandan scientific community. We have embraced it and are striving to give the Ugandan taxpayers the results they are anxiously waiting for.

How about to the women outside there who may want to be like you and reach the highest rung in the sciences, especially in the medical field?

It is my invitation to the women and the African girl child to have self-belief. With self-belief, it is possible for the African woman to grow a flowery career in STEM (science, technology and mathematics) and succeed highly as a woman in science. Although such possibilities manifest, African women in this space are quite few perhaps due to historical and social injustices occasioned by patriarchy. It is, therefore, my appeal to the government to continue investing in the Ugandan girl child and women in the area of STEM.



EpiTent - The Tent That Breathes

By Prof. William Bazeyo RAN Chief of Party/Lab Director

Difficult human conditions throughout human history have necessarily driven innovation and research as a solution to the problems. Innovations such as the discovery or development of the bulb or a plane, would not have been possible if had it not been the urgent need for light or to travel longer distances.

In the same sense, the global emergency brought about by the Coronavirus (COVID-19) and stretched to the limit the response capacity of various countries, has brought about the EpiTent.

Globally and specifically in Africa, cases are rising by the day and now, there is an inevitable need for a large number of hospital beds to accommodate those who are severely ill. Yet, Africa suffers from immense infrastructure gaps and is already overburdened with many prevalent acute and chronic disease conditions that need to be addressed – the current health systems are at the limit.

The sudden upsurge in cases justifies the need for alternative means to cope with the need for hospitalization. Makerere University School of Public Health, through the Resilient Africa Network (RAN), has developed the EpiTent – a re-imagined tent for emergency service delivery designed for hot humid climates.

It has two versions: 1) an ordinary version (known as the Low-End Version) that provides space for a typical hospital ward, and 2) an optimally accessorized version (known as the Portable Hospital or the High-End Version).

These structures are made from cheap material that is locally available and can be produced by both highend manufacturers and low-end artisans.

The Problem

COVID-19 which originated from Wuhan, China, has spread to more than 180 countries worldwide with all the 54 countries in Africa

reporting cases (WHO 2020, Africa CDC, 2020).

To-date, the cumulative number of confirmed cases are over 49,175, 499 with 1,241,912 reported deaths globally (JHU live updates, November 6, 2020).

As of November, 4, 2020, Uganda had cumulative confirmed cases of 13,568 and 117 deaths as reported by the Ministry of Health.

The increasing number of confirmed COVID-19 cases has posed a great challenge to the health systems of all affected countries, including high income countries.

With the increasing cases in African countries, there is need to quickly up the health system in response to this pandemic, especially increasing the bed capacity.

Because of the current requirements for infection prevention as outlined

by WHO, the standard unit for providing care to COVID-19 patients requires some essentials, such as 1) an arrival/triage area; 2) an isolation ward for confirmed cases; 3) a treatment ward for confirmed cases, including an intensive care unit for advanced cases; 4) a PPE dressing area; 5) A PPE removal and sanitization area; and 6) staff room/information management office.

However, majority of the countries affected by the Coronavirus pandemic have other major health system constraints and are unlikely to afford rapid





construction of permanent hospitals (with the 6 requirements above) for response to this pandemic.

In addition, where the epidemic is widespread;





for example, Italy, Spain,

USA and other European

countries, establishment of

Arrican countries, it has been reported that patients seeking care for other health conditions have abandoned existing health facilities for fear of being contracting the COVID-19.

This has posed an immense risk to the health systems across nations. Due to such constraints and learning from similar epidemics like Ebola, most treatment and isolation units depend on temporary structures that are rapidly deployable – the tent is the hall-mark of such structures.

The Proposed Solution

The EpiTent is a portable habitation solution for humanitarian emergencies. It is Humane Emergency Use Canopies and Accessories.

The EpiTent is the result of a call for proposals to improve the lives of caregivers during the West African Ebola outbreak of 2014. One major setback to current tents in use in Africa today is the heat.

EpiTent solves this problem by passively lowering

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the temperature by over ten degrees Celsius more than any other product on the market today.

Apart from cutting humidity down by over ninety-five greatly percent, contributing temperature to reduction by over ninety-five percent, the tent's general allows design people inside greater interaction with the external environment, while keeping out negative aspects like bad weather

and airborne pests such as mosquitoes.

The design was tested and was found to protect the healthcare workers and patients from contamination and transmission of diseases while in admission. It is accessorized to allow for hospital use; thus, no need to procure accessories like drip stands and worktops. For easy rapid deployment and set up, the tent measures 6X12 meters and we are looking at enlarging the design to accommodate more patients.

Epi-Tent accessories like hooks, bed side tables, provisions for drip stands and curtain railings substantially reduce the need to put other fixtures needed for a hospital ward, reducing cost of set up. The tent has two square plates welded onto the tent frame system on either end to which speakers, and security cameras can be affixed for monitoring purposes.

The tent also has a disinfector mounting point used for placement of the hand-disinfection bottles. Many of the places targeted for use of these tents do not have electricity.

However, in the event that electricity is available, provisions have been made for entry, distribution



and use of electricity in the tents.

The provisions include distribution panel conduits and trunking system, lighting conduits and PVC wiring, a socket system, bulb mountings and various other accessories to support lighting.

Also, the tent is amenable for other uses within the hospital. It can be an outpatient department, an office as well as use in logistics management.

Although the Epi-Tent is a temporary structure, it can be durable if

properly maintained. For example, similar tents were deployed in Adjumani in 2017, one of the hottest environments in Uganda, and they are still intact and being used to provide care. Even those deployed in Sierra Leone are still intact as well.

The materials used on the tent can last up to 10 years. Steel is resilient and tarpaulin requires regular cleaning with soap and water..

Our tents, which are currently in use in more than 5 regional hospitals in Uganda, including Adjumani, Mbarara, Masaka, Gulu, Bombo Military hospitals, among others, can be disassembled, packed and transported to other places.

RAN, working in partnership with Luwero Industries Limited, a company under Uganda People's Defence Forces National Enterprise Corporation (NEC), embarked on massive production of these nextgeneration tents, to respond to this pandemic.

The Science of the Face Mask

Dr. Serukka David

ike a blunt object swang or thrown in darkness, COVID-19 caught us unaware, hitting us so hard. However, with the benefit of science and expert advice, the face mask, writes Dr. Serukka David, a senior research associate with the Presidential Scientific Initiative on Epidermics (PRESIDE), is one such reliable tool against the virus if properly and consistently worn.

How does COVID-19 spread?

When an infected person breathes, talks, coughs, or sings, they generate large wet droplets containing the virus that causes COVID-19. If you are within 6 feet (2 meters) of someone infected, the droplets can land on your eyes, nose or mouth, and infect you, too.

And, if you are physically closer to someone infected, you can breathe in some of the droplets



Wearing a mask properly also protects you, because it prevents COVID-19 virus-carrying droplets from reaching your nose and mouth. It also prevents you from frequently touching your nose and mouth. This greatly reduces the virus that can enter your body to cause disease.

Wearing a mask limits the transmission of droplets containing virus particles. It also reduces the number of droplets passing through the mask of someone nearby.



carrying the virus and get infected.

Therefore, the main objective of wearing a mask is to cover your nose and mouth to prevent droplets from spreading from us to other people and vice versa.

How do masks help stop the spread of the virus?

The main objective of wearing a mask is to prevent the spread of the virus. If you have infected yourself and wear a mask, the mask largely blocks those droplets from coming in contact with other people when you breathe, talk, or cough. Not wearing a mask increases the chances of spreading the virus to others.

What is the proper use of a face mask?



Is there any scientific proof that masks prevent COVID-19 infection?

Yes, according to one of the studies by the World Health Organization, face masks reduced the chances of infection by more than 80 percent.

Another study showed that even a crude cloth covering that is less than 100 percent protective against the virus could significantly reduce the number of infections, and ultimately, the number of deaths.

properly, we can stop many virus transmission chains. It is also reported that if proper mask-wearing reaches 80% in the community, COVID-19 would be greatly reduced and eventually die out.

It is also reported that individuals who consistently wear their mask reduce their chance of getting the severe disease (variolation effect – resulting in passive immunity)

If everyone wears their face mask consistently and

What are the best types of masks for my family?

The most effective tested mask documented is the unvented N95 respirator used by many frontline health workers who work in highly contaminated areas. But you do not need to wear the N95 to get protection.

If you and your family wear cloth masks, choose varieties with several fabric layers. Masks should properly fit to the face (cover the nose, mouth, and wrap around the chin), so as no gap is left for the

> It is not just having a mask that matters, but properly and consistent use of it is what protects you.

virus to escape.

Masks with a moldable piece across the nose bridge will help shape the mask to the face for a closer fit; they may also help keep your glasses from fogging up. There should be adequate opening for the nose and mouth to allow for breathing and talking.

The bottom line is that any mask that covers the nose and mouth properly will be of benefit.

Avoid frequently removing or adjusting your mask below the nose or mouth as you talk. The more you use the mask, the more

Are there any types of masks I should avoid?

Hold your mask up to the light: If it appears to be a see-through, do not use it. Such masks are probably not going to block as many particles as more opaque masks or those with more layers.

Masks with an exhalation valve, similar to those used

What can we do to maximize the effectiveness of masks?

Always clean your hands, either with soap and water or an alcohol-based sanitizer, before touching your mask, and try not to touch the outer part of it. Remove it with clean hands by the earloop so that you are not touching the outside, which could be contaminated.

MINISTRY OF HEALTH

SOCIAL DISTANCING



Maintain a distance of at least 4 meters between you and the person next to you

STAY HOME STAY SAFE **#Tonsemberera #KeepADistance #STAYSAFEUG**



in construction work, are not a good option either. This includes N95 respirators with exhalation valves. They completely defeat the purpose of a mask. They allow breath and infected droplets to be exhaled without any filtration.

If you are using disposable surgical earloop masks, throw them away at the end of the day or if they become wet. Cloth masks should be washed frequently, and always use fresh clean masks whenever possible.

How can you prevent **COVID-19?**



www.health.go.ug www.covid19.gou.go.ug

MinofHealthUG f minofhealthUG

Does Uganda's health system have the capacity to treat **COVID-19** Patients?

By Brenda Nakazibwe

When at its commencement the COVID-19 caused many deaths the world over, a rather opaque state of gloom and uncertainty engulfed the entire world.

Pessimists were even quick to alarmingly argue that considering the cumulative mass deaths in countries such as the USA with robust health systems, medical expertise and high income levels, low-income countries such as Uganda would not have the capacity to handle cases.

As fate would have it, the numbers of the novel coronavirus disease cases have continued to slowly increased since Uganda confirmed her first case on March 21,2020.

In the case of Uganda, which is not unique for most African countries, different people have presented differently with the disease.

Some remain asymptomatic (no symptoms), others get mild and moderate disease, while some people progress to severe disease. Most of those who end in the last stage of disease die if not managed fast and properly.

The general public should take it as a matter of importance to ensure that anyone with COVID-19 signs and symptoms is tested to ascertain his/her status.

Where one is found negative, the person should continue observing standard operating procedures (SOPs) such as properly wearing the mask by covering the nose and the mouth, handwashing with soap and clean water and physical distancing. And, if one is found positive, the person should immediately

seek medical care.

Advisedly, people with pre-existing conditions such as diabetes and heart disease should urgently test to know their status upon noticing COVID-19 signs and symptoms, because they are also at a high risk of progressing faster to severe disease.

In the face of the pandemic, the Ministry of Health, together with support from her partners, has not relented, but put up a spirited fight in the response. It is due to this response that the country has registered a significant number of recoveries from the pandemic.

Of the 13,351 total confirmed cases as at 3/11/2020, Uganda has registered only 117 confirmed deaths and 7,981 recoveries. Most of these cases have been managed at public facilities and a few private hospitals that were given the mandate to offer COVID-19 treatment to the different categories of patients presenting with the disease.

What must an ideal COVID-19 Treatment Centre have?

- It must provide isolation services and bed capacity which is away from the regular patients.
- It must have oxygen capacity. ٠
- A high dependency unit (HDU) with patient monitors.
- Intensive care facility.
- The facility should have laboratory testing services.
- X-ray to test the patients and monitor organ functioning and blood.

Category of COVID-19 disease severity and where it is handled

A. Asymptomatic and Mild Cases

Non-Traditional Isolation Facilities

- i. Achwa Power Hydro Dam in Pader District
- ii. Namboole National Stadium

B. Moderate and Severe Cases

i) All Regional Referral Hospitals;

- a. Arua
- b. Fortportal
- c. Gulu
- Mbarara d.
- e. Masaka
- Mbale f.
- Kabale g.
- Jinja h.
- Hoima i.
- Soroti
- Moroto k.
- l. Mubende
- m. Lira

ii) Prison - Hospitals

- a. Masaka
- b. Jinja
- c. Fortportal
- d. Gulu
- e. Moroto

iii) Other Hospitals

a. Adjumani General Hospital

For General Information Contact:

Health Promotion Advisor Tel.: +256 414 335505 Cell: +256 772 507906 Email: sensasib@who.int Mwebembezi Edmond

Public Information Officer Tel.: +256 414 335569 Cell: +256 786 497073 Email: mwebembezie@who.int

Please note that you are not charged any money when calling a toll-free number. So, contact the Ministry of Health any time you need the services.

C. Severe Cases

- i. Mulago National Referral
- ii. Naguru General Hospital
- iii. Entebbe Grade B Hospital

D. Private Hospitals

- a. Victoria Medical Hospital (UMC)
- b. Medipal International Hospital

Note: Accreditation for these two hospitals is still underway.

As the number of coronavirus patients in the country surges, the Ministry of Health is assessing the capacity of private hospitals to admit and treat infected persons in order to relieve public hospitals.

Currently, most private health facilities mainly focus on case identification and referral of cases to the designated public hospitals.

E. Asymptomatic Cases

According to the Ministry of Health guidelines, individuals who test positive for COVID, but are not experiencing any symptoms or only mildly sick, should be managed at home. For more information on home- based care, follow this link; https://kso.page.link/wps

> Please contact the Ministry of Health on a toll-free number: 0800100066 or 0800203033

A balanced diet means more life against COVID-19

Fighting COVID-19 is as simple as eating and behaving simply Fighting COVID-19 is about dieting and behaving simply Eat a balanced diet and behave simply to fight COVID-19

By Brenda Ayugi Ojara

The author is a Public Health Specialist with a background of Nutrition and Dietetics. She is a member of the Nutrition Society of Uganda.

Eating a balanced diet although widely and medically recommended, and is such a simple task considering that it mainly involves eating simple and affordable foods, most people have not taken this recommendation serious. However, the onset of COVID-19 has inevitably brought a new wave of dieting consciousness and subsequently demand, especially among people with chronic conditions, which if strictly followed, writes Brenda Ayugi Ojara, buttresses one's immunity against the virus.

It has been said that we are what we eat every day. This is true and important when it comes to our health and the way our bodies fight diseases.

Whereas most people eat food at regular intervals, they seldom pay attention to the basic concept of a balanced diet taught to us in primary schools.

Eating a balanced diet should not be as hard as writing on flowing water; it is as simple as eating the right amount of the right type of food as required by the body at a particular time. This, therefore, means that the amounts of every nutrient in our bodies keep increasing or decreasing, depending on the kind of work one does, food eaten, body's health condition, age and sex.

Dieting, therefore, is not just a matter of eating, but what and how much one eats matters most, especially in terms of quality and quantity, if one is to be healthy and ably fight diseases in the body.

As a rule, we must first provide energy, which is the first need of the body; second, we must provide the body building and repair foods; and third, we must provide the body protecting foods, which help the body to fight infections, in their right amounts and time.

To be healthy, one's diet should be 60% carbohydrates, for immediate energy; 25% fats, for stored emergency energy; and 15% proteins, for body building and repair. We need water all the time, as much as one can drink. Sipping small amounts at a time is very beneficial.



The body also needs vitamins for protection against infections, and minerals to strengthen the bones and muscles.

It has been found that people with a weak immunity are most at risk and get serious illnesses when infected with the corona virus. This, therefore, cements the emphasis on balanced dieting, in addition to consistent wearing of masks and avoidance of big groups, as an immediate and cheaper way of building a strong immunity.

It is affordable because unlike other countries, Uganda has all the foods we need to attain a balanced diet, irrespective of where one lives. In some parts of the country, some foods attract no cost.

Considering that people with chronic diseases and conditions are more vulnerable to COVID-19, the following diet guarantees a strong immunity against the virus:

- Daily consumption of various types of coloured vegetables; buga, nakati, gobe, spinach, dodo, avocado.
- Eat various fruits especially those high in vitamin C; guavas, oranges, lemon, pawpaw,
- Drink at least two litres of water daily. Put water in a bottle and sip throughout the day.
- Ensure food eaten is mainly from plants: whole grains; beans, peas, millet, sorghum.



- When eating meat, it is better to eat white meat; fish, chicken, rabbit.
- Reduce the amount of salt you consume.
- Reduce amount of alcohol taken.
- Reduce consumption of deep fried foods; chips, crisps, samosas, cassava chips.
- Reduce intake of foods made of overly refined carbohydtrates; cakes, biscuits, pies, chapatis, mandazis.
- Avoid carbonated and sweetened drinks; sodas, sweetened juices.
- Avoid processed meats; bacon, sausages, ham frankfurters.
- Avoid tobacco in all its forms; cigarettes, shisha, chewed tobacco.

Additionally, one should;

- Sit under the sun in the morning and evening to get Vitamin D.
- Carry out physical activity; any form of exercise, house chores, fast walking, jogging, at least 30 minutes daily.
- Avoid situations that stress you such as thinking about problems of life, instead have hope and enjoy every day as it comes.
- Remember to follow all the health care advice given to you and take medication in time.
- Do not miss your appointment with the health care worker.
- Trust God for your health and well-being.

Technology ministry and PRESIDE partner to support COVID-19 Research and Innovation

By Dr. Maxwell Otim Onapa and Ms. Diana Katiti

A combination of science, technology and innovation being the power that propels world economies and developments today, Uganda has in the same breath embraced science, technology and innovation (STI) as the cornerstone for its economic growth and development.

Over the years, His Excellency Yoweri Kaguta Museveni, the President of Uganda, has supported scientists and innovators through different initiatives, including giving direct support to individual scientists and institutions, underscoring the fact that the science, technology and innovation ecosystem in Uganda enjoys support at the highest level.

This support notwithstanding, various STI initiatives remained for many years scattered in different institutions. This, therefore, necessitated improving and streamline the coordination of all these scattered initiatives and government funding.

Equally, considering the need to explicitly prioritize issues relating to STI as key drivers of economic development, the President in June 2016 directed the creation of the Ministry of Science, Technology & Innovation (MoSTI).

The ministry's mandate is to provide overall policy guidance and coordination for scientific research, development and the whole national innovation system in Uganda.

In pursuance of the above mandate, the ministry

through its Directorate of Science, Research and Innovation (DSRI), among others, coordinates the implementation of all research, development and innovation, and provides leadership in developing and implementing guidelines for the management of research and innovation funds, policies, plans and programs for research promotion and development.

For example, upon the onset of the COVID-19 Pandemic, DSRI explored how research and innovation could contribute to addressing the Pandemic. Accordingly, the directorate in April 2020 convened a virtual meeting of national experts from various institutions, agencies and universities, to define the role of science, research and innovation in addressing COVID-19.

It was a fruitful meeting considering the several thematic research and innovation areas the experts identified. Basing on the identified areas, the ministry and the Presidential Scientific Initiative on Epidemics (PRESIDE), a think tank created by the President and chaired by Dr. Monica Musenero, the senior presidential advisor on epidemics, have remarkably synergized by working together to support research and innovations aimed at COVID-19 therapeutics, vaccines and diagnostics thematic area.

It is hoped and intended that this synergy creates a platform to be used to unlock the potential of Uganda's research and innovation fraternity to contribute, not only to the development of STI, but also to the transformation of the country as whole.

To facilitate this partnership, MoSTI, represented by permanent secretary David O. O. Obong, and PRESIDE, represented by Dr Musenero, recently signed a memorandum of understanding.



Following this partnership, MoSTI and PRESIDE have made tremendous strides in facilitating scientists' efforts towards coming up with solutions to the coivd-19 pandemic.

Among other things, MoSTI is facilitating the procurement of the research and innovation equipment. In this regard, MoSTI in the financial year 2019/2020 finalized in record time procurement of the first batch of equipment notwithstanding the



Dr. Elioda Tumwesigye (left) commissioning equipment at the National Chemotherapeutic Research Institute on 6th October 2020.

David O. O. Obong (left), Dr. Maxwell Otim Onapa (middle) the MoSTI director science, research and innovation and Dr. Monica Musenero (right) at the signing of the MoU.

fact that the procurement funds were released two weeks to the close of the financial year. The first batch of procurement equipment was sourced both locally and internationally.

We are happy to report that the locally procured equipment that commissioned by technology minister Dr. Elioda Tumwesigye and Dr. Monica Musenero Masanza, is now ready for use.

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Under international procurement, the ministry has procured a DNA synthesizer expected to be delivered in November. A DNA synthesizer is a versatile platform that can synthesize DNA oligonucleotides (primers). This will improve our diagnostic capabilities in the country and results turnaround time.



MoSTI and PRESIDE have now embarked procurement of the second batch of equipment. We are happy that the process is nearing conclusion and the equipment will be ordered soon.

Besides providing research and innovation equipment, MoSTI and PRESIDE are also supporting scientists with the requisite funds for operations; for example, a total of 23 projects are set to receive the operations funds.

Also, the ministry in collaboration with PRESIDE has so far scrutinized and approved 14 projects that have already received operations funds for research activities.

The MoSTI and PRESIDE synergy not only aims at providing world class biomedical research equipment and an excellent platform that will enhance the contribution of Uganda's research fraternity to the COVID-19 fight, but also contributing to the body of knowledge in the biomedical field.

The DNA Oligonucleotide

Synthesizera

This platform will also be leveraged to respond to any future infectious disease epidemic or public health challenge, and will certainly enhance Uganda's selfsufficiency in the area of diagnostics.

Additionally, it is our belief that this combined effort shall deliver a transformative approach to mobilizing the research and innovation fraternity and resources in Uganda.

Lastly, this platform, it can be argued, will form a nucleus around which other future similar efforts shall coalesce for the benefit of the nation.

What do COVID-19 Statistics mean?

By Abel Wilson Walekhwa Research Associate - PRESIDE

a) Current number of Cases and WHO earlier predictions.

Cases refers to the people who have been tested and confirmed to be having Corona virus disease (COVID-19). The testing is done from accredited laboratories in the country. Cumulative cases refer to the total number of sick people since the disease was detected in Uganda in March 2020. As of October 31st 2020, Uganda had a total number of 12,743 cases and of these 7,887 have recovered from the disease and been discharged to their communities.

According to the prediction after modelling by World Health Organization (WHO) in March 2020, Uganda was supposed to have 18,878 confirmed cases by April 25th 2020 if no interventions were made. However, six months later we have not reached that level, credit goes to the Ugandans who took the presidential directives and Ministry of Health guidelines seriously.

The months of August through September 2020 saw an increase in the number of cases. This partly could be attributed to the fact that there was relaxation of the lock down measures across the country which



culminated into unrestricted travel, congestions, engagement into cultural and political activities leaving many people exposed hence increasing the number of cases in the country.

There is an observed decreasing trend in the number of reported cases for the month of October 2020. However, the public should not think that the disease is under control but this could be due to the changes in policy where by few categories of people (frontline health workers, contacts of the cases, alerts, surveillance samples) are able to access free testing services leaving the majority of the population having to access the tests at a minimum cost of UGX 185,000/=.

This makes us detect fewer cases than the situation than the reality on the ground because fewer people are being tested and this calls for encouraging the general public to do the tests even when they do not see signs and symptoms of COVID-19. Remember about 83% of the corona virus patients in Africa are asymptomatic (do not show signs and symptoms).



Ask Doctor PRESIDE! Basic information for COVID-19 patients undergoing homebased isolation and care

b) Corona virus disease deaths, recoveries and cases.



c) Local transmission across the country

2.5 Map showing districts with local transmission (n=11,355)



The map above shows that Kampala has the highest number of cases partly because of the populations and congested streets but also people have relaxed in observing the SOPs. Also Elgon region with districts like Mbale, Sironko, Bulambuli, Bududa, Manafwa and neighbouring districts show a hike in the numbers and this

The graph above illustrates that Uganda has continued to maintain a flat curve with few cases as compared to other African countries but notably shows that due to free and timely health care services in the country like ambulance, treatment. Majority of the people have recovered and therefore this calls for continued efforts in observing Standard Operating the Procedures (SOPs).

could be attributed to cultural activities (circumcision) that are currently ongoing.

Lastly, the Karamoja region is also highly hit and this could be attributed to the prison break out incidence that happened in Moroto which made many inmates mix with community members who could transmit the infection. Therefore, all districts should be alert and ensure active surveillance through their local council leaders, village health teams and health assistants who are based in the communities to report all the suspected person(s) to the district or National taskforce.

Question: What is Home Based Isolation?

Answer: This is when a patient confirmed to have COVID-19 is mandated to restrict activities and movements outside their home unless when seeking medical care and should not also use public transport like taxis, buses and boda-boda (motorcycle) rides.

Question: What is Home Based Care?

Answer: This is when a COVID-19 patient is provided the required care directly in the home by a care giver (family member or friend or community member) while cooperating with the advice and support from the trained health workers and strictly following the home based isolation standards and other COVID-19 prevention & control measures.

Question: Why Home Based Isolation and Care?

Answer: The Ministry of Health has advised that some categories of COVID-19 patients for example, asymptomatic patients, those with mild disease or those who are not at risk of developing severe disease can undergo home-based isolation and care so as not to overwhelm the health.

Question: What is the importance of home-based isolation and care standards/ guidance?

Answer: To prevent the spread of the virus to others (family members, friends, and the wider community) including the vulnerable individuals who might be in the home. The vulnerable include the elderly (above 60 years) or people with impaired immunity due to other illnesses like diabetes, HIV/AIDS, cancer, and other chronic illnesses (like high blood pressure, chronic kidney disease, and chronic lung diseases).

Question: Who is eligible for Home-Based Care?

Answer: This will be determined by a designated Health Care Worker (HCW) or a Health Assistant after the assessment but two categories are eligible;

- I. Newly confirmed or Suspect COVID-19 case with mild or no symptoms.
- II. Any patient discharged from treatment center for home care.

Question: What are the necessary adjustments to make the home suitable for home-based isolation and care?

Answer: These include;

- i. Preparing a separate room for isolation with adequate ventilation.
- ii. Availability of source of clean water for hand washing.
- iii. Availability of soap or other hand-hygiene products.
- iv. Availability of a designated adult caregiver who can regularly monitor the patient.
- v. If possible, presence of a separate toilet/pit latrine.
- vi. If possible, presence of immediate access to a functioning telephone for communication.
- vii. A guaranteed source of food.
- viii. The patient should be readily accepted at home by the family.
- ix. A health facility within reach of the home.
- x. Availability of community resource persons (VHT) linked to the home of the patient.
- xi. Reliable transport to rush to Health Facility.

Question: What are the responsibilities of a patient under Home Based Isolation and Care?

Answer: A patient must;

- i. Stay in a separate room and limit movements in the shared areas like bathrooms, toilet, kitchen etc.
- ii. Always practice infection prevention and control while at home.
- iii. Accept to be monitored by the health care workers for at least 14 consecutive days from the date test was done while in isolation.
- iv. Agree to admission in case of symptoms worsening that warrants hospital admission.
- v. Stay confined at home until fit for discharge or de-isolation according to the guidelines
- vi. Only be visited by the care giver until is discharged or de-isolated.
- vii. Always wear the recommended mask while in the shared places in the home.

Question: What about isolation Follow-up?

Answer: During the time you are undergoing home isolation, you will be provided with a daily monitoring tool where you or your care giver will write down any symptom that you may develop. You will also be expected to choose a convenient time during the day when you will be contacted by our system and respond to an automated call prompting you about any symptoms. This system will also be available for you to activate in case of a new or worsening symptom.

If the call system is not activated for you, then you will have to use the USSD platform by dialing *260# daily at a selected convenient time during the day to report on your condition.

Question: How can a patient prevent or cope up with the psycho-social challenges during home isolation?

Answer: A patients should;

- i. Stay connected with family and friends and maintain their social networks via e-mail, social media, video conference, telephone, etc.
- ii. During times of stress, pay attention to own needs and feelings.
- iii. Engage in healthy activities that the patient enjoys and finds relaxing.
- iv. Exercise regularly in ways that suit age and situation.

- v. Keep regular sleep routines, eat healthy food and keep well hydrated.
- vi. Keep things in perspective. It may not be possible to be provided with everything one wants.

Question: What are the responsibilities of the caregiver?

Answer: The caregiver should be only one person (if possible) who is in good health. He/She should take good care of themselves and ensure that they are always protected. The caregiver should monitor the patient's wellbeing and monitor development of new or worsening symptoms like fever, cough, runny nose or flue like illness, sore throat, shortness of breath, headache and general weakness.

The caregiver should also look out for and report key danger signs like: Rapid and Difficulty in breathing with or without abnormal chest movements, Difficulty swallowing, Fatigue, Abnormal behavior, Seizures or convulsions and Inability to drink or eat.

If a caregiver, observes that symptoms are worsening - they should immediately contact the health care worker or Village Health Team (VHT) or Ministry of Health on a toll-free number: 0800100066 or 0800203033.

Question: When is a patient discharged or de-isolated?

Answer: You will be discharged from home-based isolation in accordance with a criterion determined by a healthcare worker. For more information follow the link: *www.health.go.ug.*



Here are some of the COVID-19 sample collection and testing centers you could reach out to or simply call and get your sample collected from wherever you may be!!

Well, it is important for you and your loved ones to know your "COVID-19 STATUS" if you have symptoms such as fever, cough, shortness of breath or difficulty breathing, chills, muscle pain, headache, new loss of taste or smell, congestion or runny nose, sore throat, nausea or vomiting & Diarrhea.

www.nfid.org/coronaviruses

SN	Sample Collection & Testing centers	Contacts
1	Lancet Laboratories	0414341621
2	MBN Laboratory	0700533954
3	Medipal Hospital-Kololo	0417799900
4	Naguru Referral Hospital	0414 289740
5	MicroHeam Lab Test & Fly	0200902074
6	Mutukula Point of Entry Laboratory	
SN	Testing (only) centers	Contacts
1	Uganda Virus Research Institute (UVRI)	0414320385
2	Joint Clinical Research Centre (JCRC)	0417723000
3	Central Public Health Lab (CPHL)	0800221100
4	Makerere University CHS Lab	0755891834
5	MildMay Uganda	0758947645
6	Infectious Diseases Institute (IDI)	031-2211422
7	Uganda Cancer Institute	0414549410
8	Adjuman Mobile laboratory	
9	Tororo Mobile Laboratory	

SN	Sample Collection (only) centers	Contacts
1	Makerere University Hosp	041542922
2	Nakasero Hospital	0312531400
3	Entebbe Hospital	0417712260
4	Case Hospital	0312250700
5	Platinum Hospital	0392176915
6	Masaka Hospital	0481 420018
7	Mengo Hospital	0414-270223
8	Mbarara Hospital	0485420394
9	Mbale Hospital	0454433193
10	Gulu Hospital	0783727041
11	Tororo Hospital	+2564544515
12	Lira Hospital	0473 420139
13	Mulago Hospital	0417712260
14	Nsambya Hospital	0414267012
15	Kibuli Hospital	0414 236476
16	Rubaga Hospital	0414270204
17	Ruby Medical Centre	0800 388111
18	International Hospital (IHK)	0312200400
19	Kampala Hospital	031 2563400
20	City Medical Centre	0200906345
21	Frontline Medicare	0393242247
22	Kiswa Health Centre IV	04143448585
23	Kisenyi Health Centre IV	0786224319
24	Kawaala Health Centre IV	
25	Kasangati Health Centre IV	
26	Kira Health Centre IV	0414696923
27	Kitebi Health Centre IV	041 4581294
28	All hubs in various districts	

Volume 1, Nov. 2020 39 Please do not go to the **testing (only) centers** for your sample to be collected but rather go to any of the above sample collection sites.

Your sample will be collected, packaged and safely transported to any of the **COVID-19 testing centers/laboratories** for analysis.

The testing cost ranges from UGX 185,000-450,000/= depending on your choice of center. Some categories of people can access free testing services

You will get your results from your sample collection center within 24-48hrs. Always remember to ask for certified test results.

Who will pay for the COVID-19 testing services?

- 1. Individuals seeking to know their COVID-19 status voluntarily
- 2. People seeking COVID-19 certificates for international travel
- 3. Organizations (both Government and Private) that wish to test their staff for purpose of prevention
- 4. Truck drivers at the different points of entry
- 5. Ugandans and visitors from abroad without negative COVID-19 certificates

Who will get free (Government paid) COVID-19 testing services?

- 1. Patients who report for treatment at a public health facility with COVID-19 symptoms
- 2. Contacts of people who have tested positive
- 3. Community surveys to establish the extent of spread of the virus
- 4. Surveillance samples
- 5. Frontline Health workers

In-case you have symptoms or your results turn out positive, seek medical advice on home isolation and call Ministry of Health helpline on 0800-100-066 or 0800-990-000.

Home isolation guidelines include;

Who needs to isolate?

1. People who have COVID-19

2. People who have mild symptoms of COVID-19.

3. People who have no symptoms (are asymptomatic) but have tested positive for infection with the virus

Steps to take:

- 1. Stay at home for at least 10-14 days except to get medical care
- 2. Monitor your symptoms. If you have an emergency warning sign (including trouble breathing), seek medical care immediately
- 3. Stay in a separate room from other household members, if possible
- 4. Use a separate bathroom, if possible
- 5. Avoid contact with other members of the household and pets
- 6. Don't share personal household items, like cups, towels, and utensils
- 7. Wear a mask when around other people.
- 8. Eat a nutritious/healthy diet including fruits and vegetables

For now, remember to properly wear your mask covering nose and mouth when in public, maintain physical distance and regularly wash your hands with soap and clean water or sanitize with an alcoholbased hand sanitizer. Stay Safe!!!

Together, let's kick the deadly 'MONSTER' out of Uganda!!

"FOR GOD AND MY COUNTRY"

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