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SCIENCE SAYANSI

Telling the African science story

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Charity puts a smile on faces of children with cleft lip and palate

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The Media for Environment, Science, Health and Agriculture (MESHA) was founded in November 2005 in Nairobi, Kenya and is an organisation that provides support to science journalists covering health, development, technology, agriculture and the environment. It does so by offering training workshops, consultancies and encouraging networking through meetings and conferences among journalists, scientists and other stakeholders in Kenya.

The association emphasises on rural journalism and communication.

The idea for the formation of this association sprang up from the fact that there were many organisations and communicators in the fields of agriculture, environment, health and development. However, few organisations in the region bring journalists covering these issues together, for better reporting in the media.

MESHA believes that in a democratic society where science must be answerable to the public, there is need to find new and innovative ways of effective mass communication about the benefits of science, and other areas of concern to the general public.

MESHA aims to ensure continuity, sustainability and consistent coverage of science and development issues as they arise.

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Cover photo:

The photo depicts Dr Amanda Malungo (2nd right), who is a beneficiary of a scholarship by the Smile Train as he performs a cleft surgery at the Gertrude's Children's Hospital in Nairobi, Kenya.

Photo Credit | Smile Train

Great progress in HIV, AIDS prevention and treatment

While HIV/AIDs continue to be a public health issue, strides have been made to not only curb infection but also in the treatment of a disease that has plagued the globe since the 1980s.

The combined efforts of different organisations both international and local as seen increased commitment to reduce the impact on individuals, families, communities and government.

According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), about 37.7 milion people worldwide were living with HIV in 2020, with new infections at 1.5 million. Deaths from AIDS-related illness in 2020 stood at 680,000 people.

The good news is that by the end of 2020, according to the AIDS agency, 27.5 million people were accessing antiretroviral therapy, an increase from 7.8 million in 2010. At the same time, 73 percent of people with HIV were accessing treatment.

All these were possible with increased efforts to make testing, treatment and counselling available. In Kenya, for example, tools such as self-testing kits and partner Notification Services, through which sexual partners of individuals who have tested positive for HIV are contacted and encouraged to go for testing, have proved vital in encouraging people to know their status.

Across the world, there have been trials for HIV prevention and treatment including vaccines. With over more than 10 years of scientific research, there have been improved vaccine candidates against HIV, many of which are in different phases of clinical trials.

Some have been promising including the Reversing the Epidemic in Africa with Choices in HIV prevention study, which showed a positive review of the daily antiretroviral (ARV) pill or an ARV vaginal ring in participants (aged 16-25) enrolled in the study. Others such as the Imbokodo study conducted in Southern Africa was not successful as the results of the phase 2b of the trial showed the candidate does not provide sufficient protection against HIV.

Even so, there has been other challenges, with the most recent the COVID-19 pandemic, which disrupted HIV testing in many countries, resulting in drop in diagnoses and referrals, according to UNAIDS. Worse, people with HIV also faced more severe outcomes and higher comorbidities as a result of the coronavirus disease.

This means that even though we are making the right progress, there are still gaps to fill and issues to address. Among them is stigma, which is still rife in the community as well as neglect of key populations including LGBTQ and sex workers. To ensure the numbers reduce, there is need for treatment to be available at an affordable cost.

Vaginal ring to boost war against HIV, unplanned pregnancies

By Aggrey Omboki
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A contraceptive vaginal ring that can also stop HIV transmission is likely to play a significant role in stopping the spread of HIV, research shows.

This exciting new finding is one of the highlights of the recently held International AIDS Society (IAS) 2021 conference.

IAS is a global association composed of professionals engaged in HIV healthcare and related sectors in more than 170 countries. As at June 2020, its membership was at 11,600.

Among IAS members are clinicians, researchers, people living with HIV, service providers and policymakers. It aims to reduce the global impact of HIV-AIDS through collective advocacy.

The conference has previously been held as a physical meeting but was restricted to a virtual session this year due to health concerns on the ongoing COVID-19 pandemic.

Pre-exposure prophylaxis (PrEP) is currently offered as an oral or pill-based HIV prevention method to sexually active HIV-negative individuals who are at a significant risk of acquiring HIV.

Estimates by PrEP Watch show that between 110,000 and 112,000 Kenyans are using PrEP.

PrEP use has however been associated with declining condom use and the risk of increased incidences of sexually transmitted infections (STIs).

Researchers have attributed the increase to the tendency by users to participate in unprotected or condom-less sex.

Photo Credit | Aghan Daniel

Prof Kenneth Ngure heads the Department of Public Health at Jomo Kenyatta University of Agriculture and Technology.

However, according to Prof Kenneth Ngure who heads the Department of Public Health at Jomo Kenyatta University of Agriculture and Technology, the increase in STIs had also been noted before PrEP was provided to the participants.

"There has also been an increase in STI testing among PrEP users. Therefore, the current increase cannot only be attributed to PrEP use. This increased testing was not happening before and hence this reported increase in STIs needs to be evaluated more carefully," said Prof Ngure.

The scientist was speaking at a Media for Environment, Science, Health and Agriculture (MESHA) cafe on the IAS highlights held in Nairobi on August 27, 2021.

Prof Ngure also presented findings from the REACH study, which showed that the adherence to oral PrEP and the vaginal ring was higher than expected among African adolescent girls and young women. He added that at least one in three women that took part in that study had an STI at enrollment.

Research conducted on dapivirine, which is inserted into the vagina, has shown that it is safe and effective at preventing HIV acquisition.

Researchers have now combined the two drugs in an effort to resolve the twin challenges of increased incidence of unplanned pregnancies and STIs posed by the promotion of PrEP use. According to Prof Ngure, the results of Phase 1 trial showed the three-month ring was a safe method to prevent HIV transmission in women.

"The phase 1 safety study involved the participants using three different Dapivirine rings, which were 25mg for a month, 100mg for three months and 200 mg for three months," said Prof Ngure.

He said the experimental combination of the HIV prevention drug and a contraceptive within a three-month vaginal ring shows promise in preventing HIV transmission and unplanned pregnancy.

"The vaginal ring remains in the vagina after insertion and slowly releases the drug slowly into the region for one to three months, depending on the type and dosage. Most partners who used it reported not feeling it in the vagina after insertion," said the scientist.

"Another phase 1 study of the 90-day DPV/LNG vaginal ring found that the ring was well tolerated and delivered high levels of tenofovir, which prevents HIV spread, and levonogetsrel, the pregnancy prevention drug," added Prof Ngure.

He said women should not remove the ring due to activities like washing as it "results in immediate reduction of the drug and corresponding effectiveness in the vaginal region".

The academic and researcher said the improved technology had the potential to play a major role in HIV prevention.

"When you have a drug that has HIV prevention and contraception capacity, then you'll be addressing the two issues of avoiding unplanned pregnancy and acquisition of HIV infection. We think it has the potential to significantly reduce both cases if properly used," he said.

To reduce stigma and encourage increased uptake of PrEP and the vaginal rings, scientists at IAS 2021 urged healthcare policymakers and service providers to simplify the way clients access them.

"Next generation PrEP products should be long-acting, discreet, affordable, safe and delivered within a client-friendly environment. This will encourage more people to use them and reduce the stigma associated with their use," he said.

Mrs Beatrice Nyagol, a researcher, holds a vaginal ring, during a past Science Cafe. Below, a vaginal ring. Scientists are considering using this to prevent both HIV infection and pregnancy.

Current procedures for accessing PrEP include long waiting times at facilities, as well as seeing multiple people, including the counsellors and medics, which increases the risks of stigma for clients.

Prof Ngure echoed the IAS presenters, saying there is a need to ensure the PrEP manufacture and distribution process is tailored to meet the needs of users, including the reduction of stigma at the point of collection.

Hope as sexual HIV transmission from virally suppressed partners drops

By John Riaga | oukoriaga@gmail.com
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Photo Credit I NCAA Twiter

Dr Ruth Masha, CEO, National AIDS Control Council.

For several nights, 41-year-old Sarai Wairimu, a sex worker, was not able to attend to her clients despite her negotiation efforts. Her clients would walk out of the room immediately they saw the wounds on her body.

"The moment I took off my clothes and my client saw my wounds-filled body, the sexual interest would disappear immediately," Wairimu says.

She says most of her clients would even offer to still pay, but spend the night in a separate room. She therefore devised an alternative in a bid to retain her clients and continue earning a living.

"I resorted to bringing them to my house where I had to remove the light bulb so that they do not see my ugly skin. We used the light from the TV screen," she says.

What Wairimu did not know was that she had contracted HIV, as she would later find out. In denial, she went on with her sex work even as the virus took a toll on her body, with her immune system unable to cope. She developed wounds all over her body.

When she could not hide it anymore, she visited a facility in Jomvu area Jomvu area in Mombasa County and was immediately put on medication.

Most HIV scientists and healthcare workers agree that people living with HIV, who persistently take their medication, achieve and maintain viral suppression.

This follows a HIV prevention access campaign known as Undetectable = Untransmittable (U=U).

The U=U campaign was conducted among thousands of serodiscordant couples where there was no single case of sexual HIV transmission from a virally suppressed partner.

The U=U campaign was conducted between 2007 and 2016 among thousands of sero-discordant couples (HPTN 052, PARTNER, PARTNER2, and Opposites Attract) where there was no single case of sexual HIV transmission from a virally suppressed partner.

For Wairimu, who persistently continued with her medication, in less than a year, her viral load (VL) was suppressed to undetectable levels. She soon resumed her sex work knowing well that with a suppressed VL, her clients, some of whom insisted on unprotected sex, would still be safe.

"I always use protection whenever I can, but there are those stubborn clients who insist on unprotected

sex or in rare cases, a condom may burst. Either way, I know I cannot infect my negative clients," she says.

According to Dr Catherine Ngugi, who heads the National AIDS and STIs Control Programme (NASCOP), when a person living with HIV constantly takes their medication, the virus suppresses.

At this state, such a person cannot sexually transmit the virus.

"Almost 90-92 percent of our transmissions in the country are sexual. Meaning that for a client who is HIV positive and they are not virus suppressed but are sexually compass then they can transmit the virus to their partners. Therefore, it is important for them to be virally suppressed," said Dr Ngugi.

Health experts say U=U strategy works if people who have HIV are early diagnosed, put on treatment and they adhere to the treatment, then they are not able to transmit HIV to their partners through sex.

"This U=U campaign provides another momentum for us to ensure that ending AIDS at a public health rate becomes a reality to this country," said Dr Ruth Masha, CEO, National AIDS Control Council (NACC) during the launch of U=U campaign on September 14, 2021 in Nairobi.

Dr Masha described the U=U campaign as a message of hope to any person living with HIV who can now know that they can adhere to the treatment and extend the benefit to the entire public.

"When you are taking treatment whereas there is no cure you know that you are healthy because you have undetectable virus and the fact that you can live normally gives you that mental health perspective," she said.

Dr Catherine Ngugi, head, National AIDS and STIs Control Programme

She said U=U resonates with the four main objectives of the Kenya AIDS Strategic Framework, which targets to reduce new HIV infections by 75 percent. It also targets to reduce AIDS-related mortality by 25 percent as well as reduce HIV-related stigma and discrimination by 50 percent while at the same time increase domestic financing of the HIV response to 50 percent.

"U=U is clearly outlined within the Kenya AIDS Strategic framework, where we shall ensure that we reach universal access to treatment and universal viral load suppression for all the people living with HIV within our programmes," said Dr Masha.

The launch of U=U in Kenya is part of progress scientists have made in HIV treatment this year. Although it is launched in Nairobi, there are plans to roll it out in other counties as well.

British HIV Association (BHIVA), the International AIDS Society (IAS), United Nations Programme on HIV/AIDS (UNAIDS) and the Centre for Disease Control and Prevention (CDC) are some of the leading HIV scientists and healthcare workers who agree with the U=U statement.

Health experts say U=U strategy works if people who have HIV are early diagnosed, put on treatment and they adhere to the treatment, then they are not able to transmit HIV to their partners through sex.

More clients embrace HIV self-test kits

Photo Credit | WHO

A HIV self-testing kit. Statistics show an increase in the use of this kit in Kenya.

By Asha Bekidusa | abekidusa@gmail.com

The number of clients who have used HIV self-test kits has increased in the past one year.

According to Dr Jonah Onentiah, the HTS programme manager at the National AIDS and STIs Control Programme (NASCOP), 283,660 clients used the kits in 2020 compared to 163,231 in 2019 and 20,934 in 2018.

Speaking during a science café organised by the Media for Environment, Science, Health and Agriculture (MESHA), Dr Onentiah said most of the clients may have received the kits from public facilities or bought them at pharmacies.

It was also reported that more men aged 25 years and above (37,304) used the self-test kits between January and July this year compared to women at 36,046.

For clients aged 15 to 24 years more females (17,550) used the kits than the males at 14,434.

With the HIV-self testing kit, a person collects his or her own sample – oral fluid or blood – performs a HIV test and interprets the result. A screening test does not give a definitive HIV-positive diagnosis. All reactive (positive) self-test results need to be confirmed by a trained health provider using the national testing algorithm.

Dr Onentiah said as at September 2021, there are four nationally approved HIV self-testing kits, including Ora Quick, INSTI, Sure Check and Atomo.
Some kits are available in vending machines in Nairobi and neighbouring areas.

"As of now, we have two vending machines and one of them is supposed to be rotating from one place to another; for example, from Farmers Choice to Carrefour and to Kenyatta University," he said.

Speaking in the same event, Peter Mogere, a primary healthcare advocate and HIV prevention enthusiast, said strategic and efficient approaches are needed to expand HTS and increase coverage among high-risk populations who may not otherwise test.

Mogere added that public response lags behind public demand and there is a need to catch up.

It was also reported that more men aged 25 years and above (37,304) used the self-test kits between January and July this year compared to women at 36,046

Understanding COVID-19 variants and their names

By Aggrey Omboki | omboki2725@gmail.com

Photo Credit I Viola Kosome

Mr Francis Angira of the Kenya Medical Research Institute (KEMRI).

Does the news about the various COVID-19 variants sometimes put you in a spin? Labels like alpha, delta and their derivatives are commonly used to tell the story of the variants.

These labels and names can be confusing to audiences.

Since its late 2019 emergence in Wuhan, China, COVID-19 has so far killed 4.5 million people out of a reported 219 million cases worldwide.

The viral disease attacks the body's respiratory system. Cases of severe viral infection can kill if not diagnosed and treated in time.

Since it was first identified, COVID-19 has rapidly evolved from the initial alpha to the current delta variant that is driving the latest waves of infection around the globe.

The World Health Organisation (WHO) has been monitoring the evolution of SARS-CoV-2 since January 2020.

Through the WHO Virus Evolution Working Group (VEWG), the UN health body monitors changes to SARS-CoV-2 to detect potential variants of concern (VOC) and variants of interest (VOI) that pose an increased risk to global public health.

A variant of concern is a strain that has been linked to widespread transmission of COVID-19. Examples include the delta variant that is behind around 90 percent of new cases in Kenya, according to Ministry of Health estimates.

In order to understand the variant labels, the Media for Environment, Science Health and Agriculture (MESHA) hosted an in-depth presentation by Mr Francis Angira of the Kenya Medical Research Institute (KEMRI).

Angira, who is a research officer and epidemiologist at the KEMRI Centre for Global Health Research, says the term variant is derived from the verb 'vary', which means 'to change'.

"When the virus varies, the changes make them different from the original strains," he said.

Speaking at the 35th MESHA science cafe held on August 10, 2021, Mr Angira said the virus variants or mutations were a natural occurrence.

"All viruses evolve over time. Most changes have little to no impact on the virus properties," says the scientist.

According to him, some changes in COVID-19's viral structure are significant and worth the attention of the scientific community and healthcare systems.

The significant changes are noted and made public after the scientists have assigned them names.

"Most changes to the virus are insignificant. However, if significant changes are identified, variants are given scientific names and the public is informed," he told Sayansi.

He said the changes in the COVID-19 virus had impacted on the planet's capacity to deal with the healthcare challenge it had initially posed.

"However, some changes to SARS-CoV-2 lead to variants of the virus that may affect ability of the virus to spread or transmissibility, disease severity, efficacy of vaccines, medicines or diagnostic tools," says the researcher.

Mr Angira also pointed out that the naming or nomenclature systems for the viral variants were "directed at scientists".

"To assist with public discussions of variants, the WHO VEWG and additional scientists established easy-to-pronounce and non-stigmatising labels for SARS-CoV-2 variants," he said.

Angira identified GISAID, NEXTstrain and Pango as the naming systems that scientists currently use to identify and label COVID-19 variants.

"GISAID, NEXTstrain and Pango are established systems that name and track virus variants of concern and variants of interest. These systems are designed to give scientists a common language in which they can discuss and investigate the evolution of SARS-CoV-2," said the researcher.

Mr Angira told participants that the naming system is based on the Greek alphabet, which is why scientists use labels like alpha, delta and gamma.

"The complex and different SARS-CoV-2 variant naming systems have created confusion among the public. Alternative SARS-CoV-2 variant names have been used that include country names," he said.

The researcher said the use of country names to identify variants had opened a new avenue for stigmatising the countries and communities where the variants were first reported.

"A case in point was former US President Donald Trump's reference to COVID-19 as 'the Chinese virus' which can stigmatise people from that region," he said.

For this reason, Angira said the WHO had established a new naming system that focuses on the variant and not its site of discovery.

"Hence, a new WHO system assigns SARS-CoV-2 variant names that are easy to pronounce and minimise negative effects on countries and their citizens. WHO recommends labels using letters of the Greek alphabet, like Alpha, Beta and Gamma," he said.

"The variant named B.1.351, is its 351st descendant," he explained.

He added that new lineages are named when the existing ones become too lengthy.

"If these names become too long, a new lineage begins under a different letter of the alphabet. For example, the variant that was first identified in Brazil is called P.1," he said.

Credit I File Photo

Scientists established easy-to-pronounce and non-stigmatising labels for variants

"Once all 24 letters have been assigned, other lists of names will be considered," he added.

Using the current variants in circulation, he gave an example of how SARS-CoV-2 variants are labelled.

"The SARS-CoV-2 variants that first circulated were denoted as lineages 'A' or 'B'. As they evolved, their descendants were marked by a series of numbers. For example, B.1 includes the outbreak in Europe in early 2020," said Mr Angira.

He explained that the UK variant was named according to the order of identification.

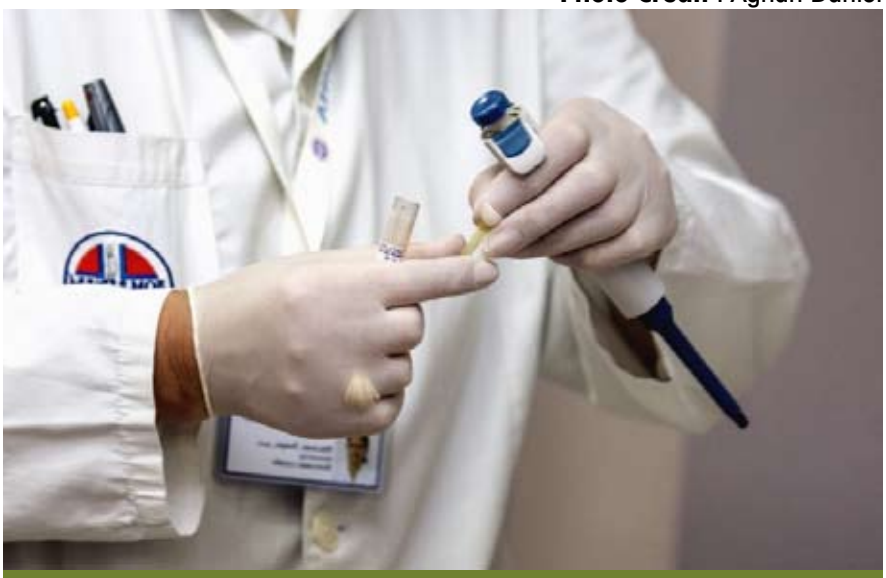
Mr Angira called on Kenyans to maintain the WHO-recommended preventive measures, including wearing face masks, practising proper cough hygiene, frequent hand-washing and keeping social distance of at least 1.5 metres.

He also urged Kenyans to embrace vaccination and protect themselves against severe disease and death from infection.

"We must maintain the preventive protocols as the best safeguard against COVID-19 infection. Please get vaccinated so as to be protected from severe disease and death in case of infection," the scientist said.

COVID-19 variants and misinformation that fuels their spread

Photo Credit I Aghan Daniel



A doctor prepares a sample for testing for COVID-19. Rise in cases of the Delta variant have increased the need to test and vaccinate against the virus.

By Tebby Otieno | tebbyotieno62@gmail.com

Fred Omondi admits he ignored the scientific realities about COVID-19. Not even the daily updates by the Ministry of Health on the number of cases and deaths could convince him to follow the guidelines laid down by health experts.

Fifteen months of ignorance ended when he suddenly started feeling some discomfort in his body. That day, he remembers having a running nose, irritating cough, fever, body pains and a sore throat. The virus he had spent months denying had finally caught up with him.

"I was confirmed positive and advised to isolate myself. I was also advised on the medication to take to suppress the condition I was in," Omondi narrates.

The father of two says he isolated himself under home-based care. Luckily for him, none of his family members got infected.

"I used my medication for a week and started feeling better, although my body was still weak. The fever and the sweating stopped. In the middle of it all, I lost my sense of taste," explains the 31-year-old.

Agan's job, installing pay TV in people's homes, requires him to travel a lot. But his disregard of the safety measures is how the virus got him.

"In my job, I interact with different people. Like the day I believe I contracted the virus, I was in a vehicle with my client from Nairobi but I didn't wear a mask. I started to feel weak after I got home," he says.

Just like that, he became a statistic. Now he is a changed man and has embraced the COVID-19 gospel fully. He does not take chances with his safety anymore, and is now an ambassador, preaching to family and friends on the dangers of the virus.

"I am taking precaution. I wear a mask all the time and walk with a sanitiser. Every time I reach where there is handwashing point, I must wash my hands. I know many people who have been vaccinated, I am also planning to go for the jab," he says.

Omondi's ignorance and attitude is what existed in most rural villages in Kenya, where people believed that coronavirus was only a Nairobi city problem.

However, things are changing quite remarkably, especially after the Delta variant swept across villages, leading to a spate of deaths.

"The Delta variant is largely responsible for the brutal COVID-19 wave that affected western Kenya. We have, as a result of this, seen many people believe that COVID-19 exists, because someone now knows someone who got infected and perhaps died as a result of COVID-19," says Francis Angira, a researcher from the Kenya Medical Research Institute (KEMRI).

Even though not all Kenyans are aware of the kind of variants experienced in different waves, the fear of getting infected has made many now follow the safety rules.

"We of course still see carelessness in observing the laid down COVID-19 protocols, especially in the public transport sector," Angira warns.

He confirms that three COVID-19 variants have been discovered in Kenya since the first case was reported in March 2020.

"The three are the Alpha (UK) variant, the South African variant (Beta) and the Indian (Delta) variant," says the epidemiologist.

A search through the GISAID website reveals Kenya has been reporting the Delta variant over the past four weeks.

Photo Credit | WHO Kenya/ Twitter

A medic vaccinates a patient. Vaccination has been shown to prevent severe disease and deaths from COVID-19.

GISAID is a site that offers rapid and open access to epidemic and pandemic virus information.

"GISAID data also shows that since people have been uploading the data, a total of 559 Alpha, 190 Beta, 480 Delta, 0 Gamma (Brazil), and 0 Lambda (Peruvian) cases have been reported in Kenya," Angira says.
As the virus spreads, so does misinformation.

"We are seeing people feel like with or without the vaccine, one of the emerging variants will catch up with them, while others feel that a yet to be identified variant will emerge and render the vaccines useless. This has instilled fear among people," Angira says.

In the last days of July and beginning of August, misinformation about alleged "planned" variants went viral through WhatsApp groups.

Through Open Source Intelligence (OSINT) and fact checking tools, this writer got a message shared by Twitter user @Hannes582 on July 26, 2021.

The message had 35 retweets. Botometer, a Twitter fact checking tool, rates @Hannes582 at 4.6/5, an indication that the account is a bot. A Twitter bot account is automated and controlled by a software solely to tweet and retweet content for specific goals on a large scale.

The other misinformation that has also recently gone viral was shared on Facebook by an insurance company, asking people to "get covered against the adverse side effects of the COVID-19 Vaccine."

On August 11, 2021, the Ministry of Health termed advertisement of such services misleading and unethical.

The ministry is currently carrying out COVID-19 vaccinations across the country. To ensure that as many Kenyans as possible get the jab, the country has also begun community vaccination in churches and market centres.

The ministry reported that delivery of the Johnson and Johnson vaccine doses has marked another milestone in the war against the pandemic. It is the third vaccine Kenya has deployed. The other two are Oxford/Astrazeneca and Moderna vaccines.

According to the ministry's daily updates, as of September 30, 2021, a total of 3,761,876 vaccines had been administered across the country. Of these, first doses were 2,856,972 while second doses were 904,904.

The ministry reported that delivery of the Johnson and Johnson vaccine doses has marked another milestone in the war against the pandemic. It is the third vaccine Kenya has deployed. The other two are Oxford/Astrazeneca and Moderna vaccines.

You should eat more millet to prevent diabetes, study shows

Photo Credit | AFSTA

A seed technician at work in a millet farm. The cereal has been linked to reduced risk of Type 2 diabetes.

By Aggrey Omboki | omboki2725@gmail.com

A new study has shown that eating millet can reduce the risk of developing type 2 diabetes.

According to Lishe Living nutrition expert Job Omondi, diabetes type 2 occurs as "a result of our bodies not being able to take in glucose as they should".

"The condition occurs due to the reduced function or numbers of a hormone called insulin, whose main function is to help the body make good use of available or circulating glucose," says Omondi.

Lishe Living provides guidance to people living with nutrition-related diseases. As a nutrition hub, Lishe provides much needed diet education to patients.

"Lishe works to eliminate guesswork in the administration of nutrition therapy in Kenya. We offer evidence-based individualised therapy for weight management and over 54 nutrition-related diseases. We currently work with several hospitals in Nairobi and are looking forward to collaborating with other partners countrywide," he said.

Previously, type 2 diabetes was known as adult-onset diabetes, but now it has been observed that both type 1 and type 2 diabetes can begin during childhood and adulthood.

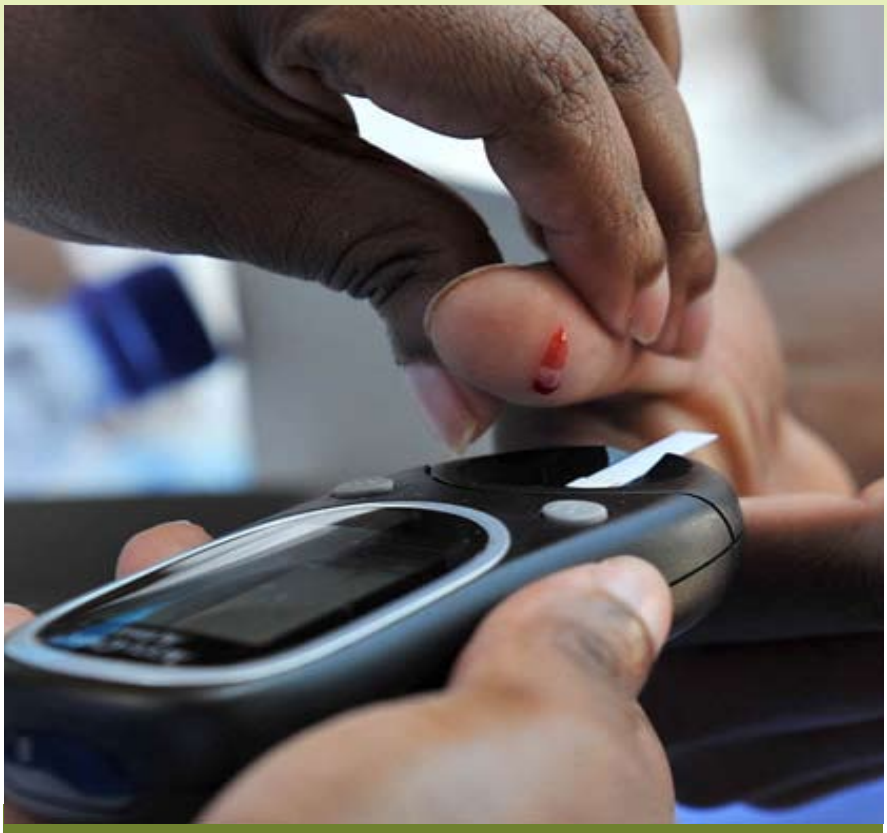
Kenya's diabetes prevalence is currently 3.3 percent, but is predicted to rise to 4.5 percent in the next four years, according to the World Health Organisation data released in April 2021.

Common type 2 symptoms include frequent urination, increased thirst, always feeling hungry, slow healing of cuts and wounds, dark patches on skin, blurry vision, itchiness, yeast infections, numbness, pain or tingling in hands and feet.

Type 2 diabetes has no cure. Eating healthy, losing weight and regular exercise can help manage the condition. If diet and exercise alone cannot regulate blood sugar, the doctor will prescribe diabetes drugs and insulin therapy.

The study entitled A Systematic Review and Meta Analysis of The Potential of Millets for Managing and Reducing the Risk of Developing Diabetes Mellitus was done by Dr Seetha Anitha, Dr Joanna Kane-Potaka, Ms Rosemary Botha and colleagues.

Photo Credit I GCIS



A doctor tests the blood sugar level of a patient with diabetes.

Millet, which is common in Africa, also helps diabetics manage blood glucose levels. This is because it has a lower glycaemic index, meaning that it releases lower amounts of glucose into the blood at a steady and slower rate.

According to Omondi, the glycaemic index is a scale that ranks carbohydrate-rich foods or drinks by how much they raise blood sugar levels after being eaten or drank.

"Foods with a high glycaemic index (GI) increase blood sugar faster and higher than foods with a low GI. This is vital for diabetes management since having consistently high blood sugar lowers a patient's chances of developing complications and eventually succumbing to the disease," he told Sayansi.

Before publishing their findings in the Frontiers in Nutrition journal on July 28, 2021, scientists sifted through 65 reports for the meta analysis.

The analysis involved nearly 1,000 participants from 11 countries. It is the largest and most comprehensive study so far done on the efficacy of millet.

"Millets are grown on every inhabited continent, yet they remain a forgotten food. With studies like this showing that millets outperform white rice and wheat, we hope this will change," said study co-author Ms Botha.

Results show that diabetics who used millet daily experienced a drop of 12-15 percent in blood glucose levels. This was at fasting and post-meal levels, respectively.

Blood glucose levels also reduced from diabetic to previous pre-diabetic levels. On average, blood glucose levels dropped by 17 percent for pre-diabetic individuals, and were lowered to normal.

Omondi says foods produce a high or low glycaemic response based on carbohydrate type and not just content.

"It is not just a matter of high or low the carbohydrate content is. The type of food plays a greater role than the amount in determining the glycaemic response. Two people can have the same amount of carbohydrates, but from different foods. Depending on the quality of carbohydrates, one would have a higher glycaemic response than the other," he says.

He adds that many Kenyans erroneously choose foods with a high glycaemic index.

"Whether diabetic or not, the main error people make is the choice of refined carbohydrates. These are low quality, stripped of fiber, nutrients and bran, and are mostly of a high GI. They include cakes, juices, chips or French fries, artificial beverages and sodas," he says.

Such choices, he says, can be dangerous to our health.

"These carbohydrates lead to a sharp spike in our blood sugars and an equally sharp drop, leading to feelings of lethargy and exhaustion just a few hours after feeling extra energetic and ready to take over the world. The highs and lows affect the functionality of insulin and can lead to the development of insulin resistance and type 2 diabetes," says Omondi.

He advises Kenyans to eat foods with a low glycaemic index so as to enjoy a healthier diet.

"People should go for high quality carbohydrates in their whole and natural forms such as fruits, whole grains, vegetables and legumes that are rich in fibre, bran, antioxidants and many other nutrients that lead to a stable blood sugar supply to the body for a longer period, stable insulin levels and many other health benefits," he adds.

Western Kenya residents pin hopes on malaria vaccine success

Photo Credit | US Army/Flicker

A doctor jabs a baby with the malaria vaccine in a past Malaria Day event in Kisumu county, Kenya.

By Tebby Otieno | tebbyotieno62@gmail.com

Risper Angoma was born, raised and got married in Budalangi, western part of Kenya. The 43-year-old has lived in this region known for floods for over four decades.

She says the swamps and forests in the area are breeding sites for mosquitoes, which increase during rainy seasons.

It is planting season, and while farmers are taking advantage of the rainfall to plant crops, they are putting their healths at risk. Angoma, who cultivates rice, says the swampy farm attracts mosquitoes, and going to the farm early in the morning exposes her to higher chances of contracting malaria.

"I do get malaria. Recently, one of my children who had come home for short holidays also got it," Angoma says.

The government of Kenya and other non-governmental organisations in the area have been distributing mosquito nets to residents to sleep under at night to keep mosquitoes from biting them.

"If I go to the hospital and the doctors find out that I am suffering from malaria, they give me some tablets. After I swallow it, I am cured," Angoma says.

The mother of five says even her children have had malaria several times. The burden of getting the tablet is heavier because, at times, government facilities in the area get stockouts. Then patients are referred to private facilities where a dose goes at Ksh 100 ($1.)

"From my home to the public facility is not very far. But if I feel weak or the condition of my baby, who I am taking to the facility, is deteriorating, I use a motorbike and pay Ksh 30 one way," she says.

The situation is the same for Patrick Ojanji, 49, a resident. When he was a fisherman, he was hit hard with malaria that put him down for several days.

He had to stop fishing for a while, but since he had no other source of income, he had to go back to fishing. He says spending more time within the lake exposed him more to mosquitoes.

"Two children below five years in my family were recently hit with malaria and were taken to the hospital. This year alone, one has had malaria thrice and the other twice. Two months ago, I also tested positive for malaria," Ojanji says.

He is worried the malaria tablet they have been taking might not be 100% curative hence why they keep testing positive for the killer disease. He is aware scientists are working on a vaccine.

"If this malaria vaccine is going to be effective, it is going to help me and my people here in Budalangi from sicknesses and reduce the cost of living because we are spending a lot of money on malaria treatment," Ojanji says.

Scientists have been carrying out a pilot programme on malaria vaccines. The trial was designed to evaluate vaccine efficacy, safety and ability to induce protection during 32-54 months following vaccination in a sample size of 15,459 children in 11 sites in 7 African countries with different malaria transmission intensities.

Photo Credit | DFID/Flicker

A baby sits under a mosquito net. Such nets have been useful in keeping mosquitoes from biting residents in the region.

"In the phase three trial, we went back to people who participated and we gave them the drug. We did assure them that when the vaccine becomes available, it is going to be affordable," explained Simon Kariuki, Senior Principal Research Scientist, KEMRI/Centre for Global Health Research, Kisumu, Kenya.

In 2019, the malaria vaccine was introduced at sub-county levels in Kenya, with some areas receiving the vaccine and others acting as comparators. Kariuki said the vaccine had a high impact especially in areas of moderate to high malaria transmission such as Western Kenya.

"Results from the phase three trial in children between five and 17 months who received four doses of vaccine, showed 39 percent reduction in clinical malaria, 29 percent reduction in severe malaria, 62 percent reduction severe malaria anaemia and 29 percent reduction in blood transfusions," added Kariuki.

The malaria vaccine now awaits World Health Organisation (WHO) to evaluate its safety and impact. WHO's recommendations is expected at the end of this year or early 2022 when there will be an overview of the trial.

Kariuki says the vaccine, however, will most likely not be recommended to everybody in the country. It will be for children in the endemic area such as Western Kenya and at the Coast.

"All children within these areas will have access to this vaccine since it will be given by the ministry of health through immunisation programme, regardless of whether you participated in the pilot or not," he said.

Currently, expectant women are given antimalarial drugs after the first three months, says Kariuki. The drug has been shown to prevent malaria and negative effects on both mother and the unborn child.

Kariuki was speaking during Science Journalism Forum 2021 on August 2, where he assured participants that the population level in the pilot is large enough to have a higher impact.

Results from a trial in children showed 62 percent reduction in severe malaria anaemia and 29 percent reduction in blood transfusions

Infertility: Avoid blame game and see the doctor, couples urged

By Carol Otieno Miyawa I lolwecarol@gmail.com

Elizabeth Akinyi, 52, a business woman in Migori town, near the Kenya-Tanzania border, narrates how painful it was for her to be called barren. She was forced to go back to her parents' home after her two marriages ended because of her inability to have children.

"I was first married at the age of 15 years and after 10 years I was not able to have a child. Life became so unbearable and my husband became very hostile," narrated Akinyi.

She confirms that they did not seek any medical attention but instead took traditional herbs given to her by her mother-in-law. Akinyi says the herbs never worked.

She says the pressure from her husband's parents pushed him to marry another woman and she ended up being treated as an outcast.

Akinyi got married again, this time for seven years, but still could not get a child. She shows scars on her body, revealing the brutality she went through in the hands of her ex-husbands for not being able to give birth.

To her amazement, all her ex-husbands have not been able to get children in their new marriages, something that raises eyebrows since she was deemed to be the problem.

According to Fertility Point Kenya, the current fertility rate for the country in 2021 is 3.363 births per woman, a 1.55 percent decline from 2020, which stood at 3.416 births per woman. The Kenya Demographic and Health Survey places Migori's fertility rate at 5.3.

Infertility in men is commonly caused by problems in the ejection, low levels, abnormal shape and motility of semen in men. In women, major causes include abnormalities of the ovaries, uterus and the fallopian tubes.

Peter Odoyo from Nyatike Sub-County recalls how his parents always put pressure on him to get another wife with whom he could sire children, lest he dies without a child to inherit the little wealth he has amassed.

He recounts visiting health facility which confirmed his wife had infertility issues. Odoyo says he had accepted his wife as she were, but his parents could not stomach it.

"I was forced by my parents to marry another woman who had a child just to keep up with my peers who already had children. My new wife is now expecting but I regret sending my first wife away." said Odoyo.

In most African communities, it is believed that when a family fails to get children, it's the woman who has a problem and not the men. This mentality has destroyed many marriages that could be saved if the partners seek medical help.

Joash Otieno from Kakrao Ward in Migori County confirms he was a victim of infertility for the past seven years. He says through advice from friends, family and even encouragement from his wife, they were able to seek medical attention and now they have two children.

"My wife received a lot of humiliation from my parents for not giving them grandchildren after seven years of marriage. The frustrations pushed her to seek medication and the tests proved she was okay. She advised me to do the same, after which I was put under medication. Today I am a proud father of twins." says Otieno with a big smile.

Dr Ann Makokha, a reproductive health doctor in Migori town, says infertility can occur to both men and women. She advises both partners in marriages to seek medical assistance if they are unable to have children.

The doctor says most people portray infertility as a lineage disease or some kind of witchcraft.

"After numerous failed attempts, married couples become very anxious about getting children such that the anxiety itself makes it even harder for them conceive", says Dr Makokha.

Dr Alex Muga, a Migori based Gynecologist, concurs. Having advised various couples on infertility, he clarifies that both of them should undergo medical checkups when the problem arises. Muga says at times women are the ones blamed and yet in most cases men are the one affected with infertility.

"The issue of infertility is not something that should be left in the hands of women. Instead of blaming women, men should take their wives to medical clinics to find out where the problem lies," he insists.

He further advises men to be upfront in seeking medical advice on infertility problems because most of the cases are curable.

Cancer-causing mercury, a health hazard to gold miners

By Manuel Odeny | manuelodeny@gmail.com

Photo Credit | Manuel Odeny

A container of mercury and a blob remaining in a basin after gold is extracted at Osiri-Matanda mines in Migori county

The silver-metallic syrupy liquid swirls ominously on a half-a-litre plastic water bottle top as it is poured deftly at Mikeyi gold mines in Migori.

Once it settles, it is transferred into a smaller glass bottle and locked tight.

"That costs Sh1,000 (USD10) to Sh2,000 (USD20) depending on who is buying and is a chemical we use to extract gold. It is effective and can be re-used several times," says John 'Mbalo' Ochola, a miner in Mikeyi.

About 250mm of mercury, about the small packet of milk Kenyans buy from shops, can extract half a kilo of gold, which makes the liquid currently illegal in Kenya to be highly sought after by gold miners in the country.

The fluctuation of mercury prices, which are dictated by black market mechanism, is a major determinant of gold prices, in addition to world market in a sector that employs over 250,000 in Kenya according to estimates.

"Mercury is a controlled chemical in Kenya, we mostly buy it in Migori and Kisumu towns and move it from mine to mine as artisanal miners buy it in small quantities. Big time players smuggle it from Tanzania," Ocholla says.

Mercury control faces challenges of inadequate personnel, lack of information on actual quantities and sources of mercury, as well as low levels of awareness on mercury use among artisanal miners.

A kilogramme of mercury fetches between Sh20,000 (USD 200) and Sh25,000 (USD 250), with the price sometimes tripling during high demand and scarcity.

Ochola is among artisanal miners who have contributed in the spread of mercury in the environment, despite it being a controlled substance, which cannot be sold over the counter.

According to the Global Mercury Assessment 2013 report, artisanal and small-scale gold mining are the largest source of mercury emissions at 37 per cent followed closely by coal combustion at 24 per cent.

Kenya signed the Minamata Convention on Mercury on October 10, 2013, joining the global efforts to prevent mercury pollution. This followed a 2000 treaty ratification of Basel Convention on the Tran-boundary Movement of Hazardous Waste and their Disposal.

The law bans new mercury mines, phases out existing ones, phases out and down mercury use in a number of products and processes, and controls measures on emissions to air and releases to land and water.

"Above all it puts into regulation artisanal and small-scale gold mining, which Kenya is still trying to rein in," says David Maganya, Director iHope Foundation, which works on the gold sector against mercury.

Photo Credit | Global Environment Facility

A group of women in Mali scan their trays for gold. Mercury is used in gold mining.

Maganya says in mining, men always dig up the ore and do other more physically demanding jobs, which leaves the part of use of mercury in the last stage to women and children, exposing them more to the risk.

"Once the last gold amalgam with impurities is gotten, it is mixed with mercury in a cloth and squeezed even using the mouth and later burnt to get the final purity, which releases it to the air and body," he explains.

According to the World Health Organisation (WHO), mercury is toxic to the central and peripheral nervous systems.

Mercury is corrosive and "the inhalation of mercury vapour can produce harmful effects on the nervous, digestive and immune systems, lungs and kidneys, and may be fatal," WHO says in a statement on its website.

Miners have often complained of tremors, insomnia, memory loss, neuromuscular effects, headaches and cognitive and motor dysfunction over continuous use.

"Mercury use in artisanal and small-scale gold mining is particularly hazardous, and health effects on vulnerable populations are significant," WHO says, calling for alternative means of extraction.

Mercury Trade and Supply in ASGM Hotspots: Kenya Country Situation Report by Centre for Environment Justice and Development (CEJAD), which covered mines in West Kenya counties, says, "most women of childbearing age sampled had high mercury levels in their blood and some of them had started experiencing symptoms such as shaking of the hands."

It showed that over 50 percent of sampled women of childbearing age showed higher levels of mercury in their blood.

Maganya says mercury has the ability to pass through the placenta and the blood–brain barrier, thus exposure of women of childbearing age to pass the risk to unborn babies.

"Mercury can affect others who drink or even eat fish and crops from affected water as once mercury is released to the environment it takes hundreds of years to turn into sediment and is hard to break down," he says.

A research published in the Journal of Geochemical Exploration in 2014 by a group of local and international scientists, dubbed 'Concentration levels of potentially harmful elements from gold mining in Lake Victoria region, Kenya: environmental and health implications', concluded that the level found in samples of soil and water was higher than those recommended by WHO and United Nations Food and Agriculture Organisation (FAO).

"We conclude that gold mining and other human activities in the Migori gold belt have led to the release of toxic levels of cadmium, lead and mercury, which may lead to serious environmental health consequences in humans," the report states.

Another equally damming report, 'Impact of gold mining on the environment and human health: a case study in the Migori gold belt, Kenya' paints a grimmer picture.

Jason Ogola, a scientist with South African Venda University for Science and Technology, led other colleagues to collect 50 soil and water samples from 11 mine sites in the belt. At each site, two to three samples weighing two to three kilos were sampled.

Researchers later collected samples from a mining tilling centre from Nairobi's Industrial Area and compared to Migori's two largest sites at Macalder and Mikeyi, both in Nyatike Sub-county and found them to be 14,472 percent and 2,426 percent more, respectively, which is a mind boggling figure for a rural centre.

A miner during peak season, when there is drought, will use 150 to 200kg of mercury per month for extraction. Out of this, about 40 percent is lost during panning and 60 percent during heating to the environment.

Newborn Units save babies' lives in Kenya

By Phillip Kahindi | info@meshascience.org

Photo Credit | Phillip Kahindi

Losing a child is painful, but losing two in a row is an unbearable nightmare. Yet, this is what happened to Patricia Kioko, soon after she got married in 2009.

"I fell pregnant soon after because I was desperate for a child," says Kioko.

All went well until she was five months pregnant. By this time, her blood pressure had shot up to dangerous levels and she miscarried.

In 2010, she got pregnant again but due to her poor choice of facilities for antenatal clinics because she was teaching and living in a remote village, her blood pressure remained unchecked. She had a troubled pregnancy until the ninth month, just when she was about to deliver and she checked herself at Kitui Level IV Hospital. This time it was a still birth.

"I still remember her lovely hair," Kioko says of her daughter. With the loss, the primary school deputy head teacher sank into depression.

"I nearly lost my head. I so badly wanted a child but here I was, all my efforts going down the drain," she recalls.

The following year, she got pregnant again and this time round, she was hawk eyed for the tell-tale bad signs. She started her clinics early and at six months, she noticed her blood pressure revolting again.

"I did not want to take chances. I opted to undergo a caesarean section and have the baby saved," she says.

Medical staff attend to a baby inside a unit for newborns in Eastern Kenya's Kitui County. Latest figures from the county, indicate there were 608 newborn deaths in 2020.

This operation was done at Kitui Level IV and luckily for Kioko, a fully-fledged New Born Unit (NBU) had been established to nurse premature babies.

The baby girl, weighing barely a kilo went to the nursery while the mother was admitted for a month. Within this period, Kioko would be afforded time to breastfeed her child until she weighed 1.8kg. The decision turned out to be her biggest breakthrough.

"She is now a big healthy girl in Grade Three," says Kioko with a smile.

Kalekye Mwangangi from Mathima village in Kitui South also credits the life of her now nine-year-old son to the NBU, where he was cared for after being born prematurely at seven months.

When she was pregnant with her second child, she noticed she was bleeding.

"I alerted my husband who immediately organized for my transport to a private clinic in Mutomo town. The bleeding continued but hours later the child came out, I thought he was dead," Mwangagi recalls.

Weighing slightly above one kilogramme, and struggling to breath, an ambulance was immediately summoned to transfer both mother and child where the child was immediately placed in the NBU for proper care.

Started in April 2010, the NBU currently has capacity to accommodate 30 babies, a big relief from the past where premature babies and those born with health difficulties used to be referred to Machakos County, about 100km away. Two more New Born Units have been established, one at Ikutha and another at Tseikuru Level IV hospitals.

Photo Credit | Phillip Kahindi

Christine Mawia Sammy, a nurse checks on a baby at a New Born Unit at a referral hospital in Eastern Kenya.

Helena Kavindu, 26, is a first time mother who recently started her antenatal clinics at Tseikuru Sub-county Hospital. From what she has heard from other expectant mothers, she thinks the facility, now equipped with a NBU is in a good position to handle any complications.

"We are being sensitised on the child facility at the hospital. We know it is good in taking care of premature babies or those born with complications. This is much relief because in the past it would mean travelling all the way to Mwingi town or crossing over to Meru County to look for specialists," Kavindu says.

Christine Mawia Sammy, a pediatrician nurse and the county newborn and child health coordinator in charge of the NBU at the county referral Hospital, says when blood pressure of an expectant mother is not properly checked and controlled- a condition medically known as preeclampsia- miscarriages and still birth are bound to happen.

This contributes to perinatal and neonatal deaths, which the nurse, together with a dedicated team of other medics in the country are currently struggling to bring down.

According to the latest figures from the county department of health, there were 608 new born deaths across the county in 2020, amounting to 50 deaths per month. In 2021, from January to July, the county has recorded 302 new born deaths which Sammy says is a significant drop. Some of the latest deaths are attributed to the COVID-19 pandemic where expectant mothers have chosen to deliver at home for fear of contracting the disease in hospitals.

"These numbers are still high and need to be brought down further," says the nurse.

Fired up by her passion to save lives of children, Sammy has also initiated 'neonatal resuscitation skills training programme,' in which she is equipping health workers across the county, especially those in rural areas with skills and knowledge on how to save the lives of new born babies.

The programme, Emergency Triage Assessment and Treatment plus Admission Care of the Critically ill Child and New born (ETAT plus), is a cocktail of practical ways in which a baby born with asphyxia (difficulty in breathing) is hurriedly aided to breathe.

According to the World Health Organisation (WHO) birth asphyxia accounts for about 25 percent of the neonatal deaths worldwide.

In the programme, the medics are trained on key intervention measures in resuscitating babies within the first few minutes after birth. These include among others, clearing airways, clinical chest compressions and use of bag valve mask (BVM) to initiate breathing.

"An asphyxiated baby has about four minutes to get proper medical intervention otherwise it will die or the brain cells get damaged, resulting into mental disability such as cerebral palsy or autism," explains the nurse.

As the course director, Sammy has been conducting neonatal resuscitation drills with nurses, clinical officers and doctors spread across the county. The drills are key in equipping the medical personnel with skills on how to use critical equipment such as BVMs and penguin suckers among others.

Out of the 287 public health facilities in the county, she says their target is to have five facilities in every sub-county with trained health personnel.

"We need to have trained healthcare workers with skills and knowledge on what to do, how to do it and with what equipment to save lives of children," she says.

For this goal to be achieved, she says the training cuts across both those in public and private as well as faith-based institutions. Some of these are Nzatani, Nzeluni, Zombe, Mbitini and Kisasi health centres which receive a high volume of expectant mothers in a month.

The skills proved lifesaving three months ago when a baby girl was born at Zombe health centre with breathing difficulties. A team at the facility that had undergone the training were quick to resuscitate and restore her breathing before referring her to the NBUs at Kitui referral hospital, a journey of three hours which she managed without hiccups. After four days at the NBU, the baby was discharged in good health.

"I am thankful to the health workers who saved my baby. We need more new born units especially in rural areas where some mothers even deliver at home," said Eunice Kamene, the infant's mother.

Jacobas Kimuli, a clinical officer based at Nzeluni Health Centre says the resuscitation training programme is crucial as it gives the medics the much needed lifesaving skills.

"Having the right tools at your disposal is quite different from having the right knowledge on how to properly use them. I would say lack of skills in proper use of some of the equipment is what was lacking in most of us, but I can tell you we are now confident to face any emergencies," he says.

Sammy calls on mothers to give birth in hospitals to reduce incidences of neonatal mortality. While the NBUs are fully run by the county government, the training costs eat into her pockets and time as she is forced to write proposals to several organisations seeking funding. Luckily for her, a number of the organisations she approaches have come through to support her work.

"We need to have trained healthcare workers with skills and knowledge on what to do, how to do it and with what equipment to save lives of children," she says.

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Photo Credit |Tebby Otieno

Ms Lucy Nyokabi, a nursing officer vaccinates a young child.

How COVID-19 restrictions affected basic immunisation

By Tebby Otieno | tebbyotieno62@gmail.com

Rachael Nyambura gave birth to her third born child just weeks before the first case of COVID-19 was reported in Kenya. She had to do everything within her power to make sure her baby remains safe. Having had other children get immunizations, she knew this baby was not exceptional.

However, COVID-19 measures announced by Ministry of Health to help minimize spread of the virus made it difficult for her to keep up with the immunizations as scheduled.

"I remember when my baby was six months old, she was underweight and I was advised to give her proteins," said Nyambura, adding that had she not gone to the hospital, she would not have known this and taken necessary measures.

Despite having given birth at a public health facility, the 37-year-old Nairobi resident decided to take her child for immunization at a private dispensary in her neighbourhood. She had feared either her baby or herself would contract the virus.

"Bringing my children for vaccinations help me monitor their growing graphs because when I come to the clinic I e virus. am given encouragement about the baby's weight," she said.

I met Nyambura and other caregivers who had brought their children for basic immunization at a private health facility. Some of them admitted to have missed one or more visits as indicated in their children's cards.

"We have experienced a drop in number of mothers bringing their children for immunization especially on measles," said Lucy Nyokabi, Nursing officer at Kivuli Dispensary.

She said most parents ignore importance of the booster measles vaccination given to children at 18 months. The situation was even worsened with the pandemic. Nyokabi says there is need to create more awareness because people lack information and the importance of the vaccine.

"Measles vaccine is to protect against the infection so sometimes people tend to ignore it. Mothers don't feel it is so important to children but for sure, measles is an infection that is deadly like any other disease," she said.

There are several vaccinations a child receives at different ages after birth. Nyokabi says the basic purpose is trying to protect a child from getting the severe forms of deadly diseases such as measles, TB, pneumonia and all forms of diseases which are very deadly.

"From birth to two weeks, we have BCG and polio vaccines. They receive the first doses at six weeks, second doses at ten weeks, and third doses at 14 weeks," Nyokabi said, "Then at nine months they have the measles-rubella first dose, and the booster of shot at 18 months."
BCG is Bacillus Calmette–Guérin, a vaccine against tuberculosis.

Health experts say fear of accessing health facilities due to the pandemic and that most parents had given more attention to COVID-19 patients to have affected child immunization uptake in Kenya.

Photo Credit | MoH /Twiter

A child receives the measles jab during the launch of the National Measles Rubella vaccination campaign.

Jack Ndegwa, head of health system and policy at Kenya AIDS NGOs Consortium (KANCO) told Science magazine the challenges were not lack of vaccines but rather, parents did not take their children for immunization. "The caregivers decided not to leave

homes especially those who have young children and use public service vehicles. So the stay-at-home orders were misconstrued by some caregivers," Ndegwa said.

Ndegwa says it is important for parents and guardians to understand the importance of completing the immunization schedule because it has value to a child's health.

"Where immunization coverage goes down, then herd immunity also goes down; so in case of an outbreak like measles, a majority of these children are going to be affected," Ndegwa warned.

He challenges Members of the County Assemblies and religious leaders to consider being immunization champions. He says this will encourage people that health facilities are safe even with the COVID-19 pandemic. KANCO conducted defaulter tracing in 17 counties where parents and guardians were not taking their children for all immunizations. During the period, community health volunteers visited health facilities to get these contacts, traced them in their homes and helped them take their children for the vaccines.

A report, KANCO released in March this year following the defaulter tracing, showed that 5,680 more children in Nairobi received basic immunizations, an indication that there are more defaulters in the country.

In 2016, Kenya rolled out a massive nationwide Measles Rubella, nine days' campaign which targeted about 20 million children between nine months and 14 years.

According to World Health Organization, "coverage of measles is also not up to optimum" and that 1.5 million children below one year were not effectively reached with measles vaccine between 2013 and 2018.

Booster of Measles Rubella, given to children at 18 months as second dose, was introduced after WHO advised that it ensures adequate protection. According to the health agency, only 85 percent of children vaccinated against Measles, develop immunity from the first dose.

In June this year, Kenya rolled out another Measles Rubella campaign that targeted almost 3.9 million children aged nine months to five years in 22 counties.

WHO and UNICEF in July this year, released a report that indicated how COVID-19 affected childhood vaccinations. According to the report,17 million children of 23 million children who missed out on basic vaccines through routine immunization services in 2019 did not receive a single vaccine during the year.

Partner Notification Services vital in HIV Control

By Joyce Chimbi I j.chimbi@gmail.com

In 2019, Seraphine Okoth received a phone call from a stranger that would change her life as she knew it. The caller introduced himself as a HIV testing services provider based in Siaya town, Siaya County.

"I have lived in Nyalenda, Kisumu County all my life and I just assumed it was a typical case of a wrong number. But the caller called me by my first name and politely asked for 10 minutes of my time," she recounts.

Disinterested but not wanting to be rude, Okoth was taken through a conversation on HIV testing and awareness by one Collins Odhiambo, a community based HIV awareness provider linked to the Siaya County Referral Hospital.

"I had only tested for HIV once back in 2015 while in my second year of University. Since then, I had gone through two serious relationships and later, a few brief relationships here and there but I never really thought of myself as being at risk of getting HIV," Okoth explains.

The HIV testing services provider seemed to actively encourage her to get a HIV test. A few days later, Odhiambo called Okoth for a second time and another friendly conversation on testing.

"At this point, I could not get his words out of my head and I shared this strange story with my cousin who works at Makongeni Health Facility in Homa Bay County. After a brief silence and without further explanation, my cousin told me to urgently visit a Voluntary Counselling and Testing (VCT) centre," she says.

"My friends always said that when you keep going to the VCT, you will find what you are looking for. This situation terrified me and I also did not want people to see me going to a VCT," she narrates.

Stranded and unable to shake off the need to know her HIV status, Okoth searched online and located several pharmacies that sell HIV self-test kits as per Odhiambo's advice.

In line with the Ministry of Health (MoH) HIV testing guidelines, the sexual partners are anonymously contacted and encouraged to take a HIV test without being told one of their sexual partners is positive.

That evening, in the privacy of her house, Okoth tested herself and the results were positive. In shock, she called Odhiambo, who encouraged her to go to a VCT for a confirmatory test. Again, the results turned positive for a second and third time.

What Okoth did not understand at the time is that she was targeted for HIV testing through the Assisted Partner Notification Service (aPS), a voluntary World Health Organization-backed strategy to reach out to sexual partners of people diagnosed with HIV.

"Kenya is one of the four countries in Africa where HIV is a serious health concern and an inability to reach people with a high risk exposure to HIV, means we cannot contain the HIV pandemic," says Odhiambo.

"The notification for sexual partners of persons who have tested positive for HIV is done by interviewing the person who has tested positive to provide names and contacts of their sexual partners," he expounds.

In line with the Ministry of Health (MoH) HIV testing guidelines, the sexual partners are anonymously contacted and encouraged to take a HIV test without being told one of their sexual partners is positive.

Importantly, aPS is not only key to stopping HIV transmission through sexual contact but is critical towards reducing mother to child transmission of HIV. Odhiambo says a mother may be HIV negative at the time of delivering a baby but could later be exposed to HIV.

"Within the breastfeeding period of about two years, many things can go wrong. A breastfeeding mother can get infected with HIV and transfer this risk to the breastfeeding child," he cautions. This, his says, could reverse strides Kenya has made in the prevention of mother to child transmission among children, zero to 14 years. Government statistics show the number of children living with HIV fell from 180,000 in 2010 to 111,500 in 2020.

As confirmed by Odhiambo, Adelaine Anyango, a Community Health Extension Officer linked to the Jaramogi Oginga Odinga teaching and referral hospital in Kisumu County says that VCT community outreach events or

testing through the VCT outpatient department can reach more people with HIV testing "however, they reveal fewer HIV positives."

She says that it is usually the people with the lowest HIV risk exposure that volunteer to get tested and they, therefore, test HIV negative, further stating that those with a high risk exposure are hence not effectively reached.

"With partner notification, you are targeting a very specific group. You can test 300 people through the VCT outreach or VCT outpatient department and get five or less positives," she says. "Fifty people can get tested through the aPS approach and at least 10 of them will have a HIV positive result because you targeting people who have had contact with a HIV positive individual," Anyango emphasizes.

Against this backdrop, in May 2018, aPS was scaled up by MoH in 31 health facilities in two of the four counties with a HIV prevalence of more than 10 percent: Kisumu with a HIV prevalence of 17.5 percent and Homa Bay County at 26 percent as per the National AIDS and STIs Control Programme (NASCOP) statistics.

The NASCOP report says that in the 31 facilities, newly diagnosed females aged 15 years and older were offered the partner notification services. Between May 2018 and Mid-September 2019, a total of 29,249 females were tested for HIV with 1,120 of them testing positive.

Of all the 1,120, 80 percent accepted the partner notification service. This group reported an average of 1.7 male partners each or 1,497 male partners in total within this cohort of 899 females. The men were traced and 68 percent of them were tested for HIV. Nineteen percent, testing positive. Still, aPS is not without challenges.

Anyango says it is time consuming and requires creativity to handle diverse people. It also need resources for transport and communication because sexual partners can be in two different villages or in Okoth's case, across two counties.

Photo Credit | Joyce Chimbi

Partner Notification can help prevent mother to child transmission of HIV during the breastfeeding period.

"Despite these challenges, aPS coupled with HIV self-testing are twin strategies that are proving effective for the hard to reach group who do not want any contact with a health facility unless they have to. This is a concern as there are as many as 400,000 people who are unaware of their HIV positive status," Odhiambo explains.

With self and social stigma keeping people from the VCT, HIV testing channels have now expanded to include self-testing kits, first officially launched in 2017. A partnership between the MoH and the private sector through the Be Self-Sure campaign to encourage HIV testing, enabled people access these kits through public and private health facilities and, selected pharmacies at about Ksh500 to Ksh800.

The number of people testing for HIV using a self-test kit has been on a steady raise based on data collected in public facilities. In 2018, a total of 20,934 clients recorded in public facilities self-tested, as per NASCOP statistics.

The number rose to 163,231 in 2019 and to 283,660 in 2020. From January through July 2021, 105,064 clients were recorded as having self-tested across public facilities.

"The numbers are encouraging. Self-testing is a critical approach to link people to either HIV prevention services including the pre-exposure prophylaxis or care and treatment through antiretroviral therapy," Odhiambo explains.

"Putting people on treatment upon receiving a positive HIV diagnosis is effective in improving survival among people living with HIV and this also helps in reducing their chances of infecting others," he concludes.

Photo Credit | Smile Train

Dr Amanda Malungo (2nd right), a beneficiary of a scholarship by Smile Train performs a cleft surgery at the Gertrude's Children's Hospital in Nairobi.

Charity puts a smile on faces of children with cleft lip and palate

By Joyce Chimbi I j.chimbi@gmail.com

Despite cleft lip and cleft palate being the most common birth defects in Kenya, occurring once in every 500 births, it remains the most underreported.

Smile Train, the world's largest cleft charity, estimates that at least 30,000 children in Kenya are born with a cleft palate, which is a gap in the roof of the mouth, and a cleft lip, a tear or gap in the upper lip.

The severity of this condition varies from case to case, with some being very severe, manifesting with large gaps on both lips, gum and the defect can stretch to include the nose.

Despite significantly altering a child's physical appearance, in some cases, the condition can further affect a baby's ability to breastfeed and their speech.

A majority of children born with the condition, particularly those from poor and vulnerable backgrounds, are ushered into a life of social stigma and rejection, as their families are unable to afford the corrective surgery needed.

Against this backdrop and in a bid to bridge the gap between affordable corrective surgery and those who need it, Smile Train continues to amplify its investment in education and training of more and more cleft and reconstructive surgeons.

"In a bid to strengthen the surgical systems in sub-Saharan Africa, Smile Train has amplified its partnership with the College of Surgeons of East, Central and Southern Africa (COSECSA) to invest in the education and training of 112 additional cleft and reconstructive surgeons," reads a statement released by the charity on September 7, 2021.

Despite the cleft lip and cleft palate condition being treatable, and more so for children under the age of two years, there are many barriers to care and treatment for resource-strapped countries such as Kenya, highlighting the need for more reconstructive surgeons.

Health experts advise that a cleft lip be corrected at three months and a cleft palate at 12 months of birth. But this is not always possible as there are many barriers.

These barriers include lack of access to surgical expertise, lack of finances needed to set up a fully-fledged specialised unit across the country and a low awareness of where to seek help in society.

Prof Godfrey Muguti, President of COSECSA, has lauded the partnership, as it will significantly empower surgeons in the region.

"The burden of surgical care is astronomical and out of reach for many, and families gamble with fundraisers to the tune of millions to receive better care in developed nations. Through the investment in the knowledge exchange in our MoU with Smile Train, we aim to build confidence in Africa's surgeons, find local solutions to local challenges and administer quality, more affordable care in the local community," said Prof Muguti.

Esther Njoroge-Muriithi, Senior Vice President for Global Medical Programmes at Smile Train, says the cleft charity-led training innovation for cleft surgeons started more than a decade ago "when we first released our ground-breaking Cleft Surgery DVD, which has since evolved into an award-winning Virtual Surgery Simulator. We also distribute the highest-fidelity cleft simulation devices in the world through our division Simulare."

Equally important, the charity provides scholarship opportunities to train more reconstructive surgery specialists to match the growing demand for corrective surgeries to treat cleft lip and cleft palate.

"We support more than 1,100 partners with a range of education and training opportunities throughout the year. We are truly transforming the landscape of cleft treatment around the world, and in doing so transforming surgical systems," she adds.

Photo Credit | Smile Train

In the operating room: Cleft lip and cleft palate are common birth defects in Kenya, occurring once in every 500 births.

Smile Train states that the partnership with COSECSA will provide "12 surgeons with a full scholarship to a three-year long Plastic Surgery Fellowship, with four positions specifically reserved for female surgeons."

Additionally, the partnership will support "10 scholars to engage in an eight-month Post Fellowship Cleft Surgery Certification program. Further, over a five-year period, Smile Train will support 60 scholars to attend country-level Train the Trainer Surgery workshops with another 30 scholars participating in a fully funded Surgical Exchange program."

This is a much needed partnership, with an increased need for qualified surgeons in resource-limited settings where the cleft lip and cleft palate are more likely to occur. The World Health Organisation (WHO) says one in every 700 babies are born with the condition in low- and middle-income countries.

Smile Train has active cleft care programmes in 40 countries across Africa, 245 partners and 255 partner hospitals across the continent.

Currently, the charity works with 22 level 5 or county hospitals across the country to improve their capacities to provide the much needed surgeries.

At the core of Smile Train's model is local capacity building for the cleft ecosystem professionals, including surgeons, anesthetists, nurses, nutritionists, midwives, speech therapists and orthodontists.

Through strategic partnerships at the local and international level, Smile Train dedicates itself towards quality healthcare capacity building and advocacy to increase access to safer surgeries in low- and middle-income countries.

Citizen science can help local researchers realise their goals

Photo Credit I Aghan Daniel

A scientist at work: Increased role of scientists in government affairs may be seen as influencing policies to the benefit of their own interests.

By Jonai Wabwire | wabwirejonai05@gmail.com

Luckily, after one month of training, the group was tasked to produce about 900,000 masks. They were also provided with sewing machines, a workshop and materials to be used.

Citizen science is the generation of new information and knowledge from the participation of nonscientists in traditional scientific activities. In its best case, it is a collaborative endeavour with benefits for the participants, university-based scientists and society as a whole.

The production of scientific knowledge through citizens' self-motivated activities and personal time dates back centuries, and many of our greatest scientific achievements arose under a citizen science model. Unfortunately, this scientific model has not picked in most Kenyan universities where most novel ideas are idling on library shelves.

Prof Candie Wilderman of Johns Hopkins University in America has developed models in citizen science ranging from consulting or contractual, in which communities ask experts for help with a specific question (science for the people), to contributory, in which the public is involved in data collection and analyses under studies run by experts, to collaborative, in which the public is involved in or leads all aspects of research from problem definition to data interpretation.

To simplify the concept, Dr James Ogalo posits that citizen science situates itself at the level where citizens exert higher control and ownership in scientific research processes, up to and including independence from established experts.

This model has been given other names in academia, including co-created science, community science, civic science, collegial science, community-based participatory research, street science, community-centred science, traditional ecological knowledge, social justice, scientific literacy, and humanistic science education.

Rise of Community Citizen Science

The seminal discoveries in 18th century biology were essentially self-financed activities, and many of these researchers lacked credentials in the object of their study.

Gregor Mendel conducted his genetics experiments with financing from his abbey. His research ended when he was promoted to Abbot,

after which he no longer had sufficient personal time to conduct his studies.

Alfred Russel Wallace, who jointly published the theory of evolution by natural selection with Charles Darwin, self-financed his work in the Amazon and Asia by selling animal specimens and, later, by selling his popular travel book, The Malay Archipelago.

The current US academic-governmental scientific system largely originated after World War II (WWII), with vast increases in government research spending originally related to the war effort, and continued to be fuelled by the Cold War.

The modern peer-review method dates to this time as well. Prior to WWII, manuscripts were reviewed by journal editors or informally by the author's own request to professional colleagues.

Scientific truth was seen as adjudicated by the community's reading of the article and by replication of findings by other researchers, rather than by the assessment of two to five anonymous reviewers, as is the protocol today in the academy.

World War II also saw the birth of "big science" involving large-scale institutions and collaborations, which reinforced the trend toward formal science.

The growth of science advisory committees and the increasing role of scientists in government affairs post-WWII led to public concern over the perception of a scientific "elite" influencing policies in secret to the benefit of their own interests.

These fears were articulated by US President Dwight Eisenhower in his farewell address in 1961 as follows: "In this revolution, research has become central, it also becomes more formalised, complex, and costly."

Photo Credit I Aghan Daniel

A scientist displays a sample. Science plays a unique and essential role in many kinds of decision making.

Eisenhower's concerns about public policy becoming captive of a scientific-technological elite persist, and these concerns contribute to the modern citizen science movement. Rather than see these concerns as de facto antiscience, scientists in Kenyan universities and other research institutions may instead view them as a call to renewal and reaffirmation of the fundamental values of questioning and antiauthoritarianism intrinsic to science.

The scientific method, which at its root insists that there can be no arguments from authority and no evidence that is not open to public examination, may be radically at odds with the social institutions of the humans who employ it.

Peer review, federal funding for research, or any other societal institution may be perpetually susceptible to public scrutiny.

With the rise of citizen science, we hope that scientific debate can now motivate, as in Darwin's day, an educated and observant public to help renew the scientific enterprise for the production of greater knowledge for both current generation and posterity.

Motivations for the Rise of Community Citizen Science

Science plays a unique and essential role in many kinds of decision making. Mature democracies such as United States reaches decisions on social norms and policies through a representative democratic process,

Photo Credit I Aghan Daniel

Seed selection: In practice, researchers embrace uncertainty and the trial-and-error nature of experimentations.

and scientific understanding provides the evidence and theory-based frameworks to guide their implementation. Science, however, is not a perfect guide for decision making.

Prof Daniel Sarewitz said, "Science is sufficiently rich, diverse, and balkanised to provide comfort and support for a range of subjective, political positions on complex issues such as climate change, nuclear waste disposal, acid rain, or endangered species. The problem is not one of good science versus bad, or "sound" science versus "junk" science. The problem is that nature can be viewed through many analytical lenses, and the resulting perspectives do not add up to a single, uniform image, but a spectrum that can illuminate a range of subjective positions."

In light of the Sarewitz's assertions, policymakers can draw from science to find support for various positions as both a testament to the richness and inclusive nature of science and a cause for challenges to its credibility in decision making. The issue lies in the scientific uncertainty that accompanies scientific evidence.

Researchers accept or even embrace uncertainty and the trial-and-error nature of experimentation. For those less familiar with the scientific process, the publication of conflicting scientific findings may create an impression that science is not inherently better or worse than other, including subjective, decision inputs.

Furthermore, when scientific uncertainty is actively exploited to seed doubt or confusion, as in the cases of tobacco harms or asbestos exposure, public trust in science as a valid process for solving problems is compromised.

The negative ramifications of these issues may be compounded by a growing public perception that scientific experts have failed to solve many societal problems. When it is community citizen scientists, and not local experts, who act to demonstrate against unsafe drinking water in any Kenyan town, or identify the environmental impacts of an oil spill in some slums, faith in scientific experts starts to erode.

Another issue affecting scientific credibility is the use of science within policy debates. Controversy surrounding a myriad of issues, such as air quality, nuclear storage, biodiversity, healthcare, and biotechnology, may arise from economic concerns, ideology, ethics, equity, and local and regional politics.

At the same time, the policy debates over these issues often draw from the language of science. Complex technical arguments can overshadow or even prevent discussion of stakeholders' values or preferences, which may well be at odds with each other.

In such cases, science can become a target of criticism from all sides of an issue. At worst, the underlying issues are never resolved, and successful democratic actions are stymied. When this happens, scientific institutions engaged in the technical debates can unwittingly reinforce a system that separates the public from science, and citizens from decision making processes, with negative ramifications for democracy as a whole.

From the volunteer perspective, then, community citizen science may provide the means of allowing citizens to add their own perspectives to scientific and policy conversations, fill perceived credibility gaps in scientific expertise, and change the language and direction of policy debates to include a greater range of considerations.

Recent technological advances have lowered the barrier to entry for individuals to find and engage in citizen science. New tools for data collection and other infrastructure are now inexpensive and available for broad use.

Photo Credit I MESHA

Prof Walter Jaoko, Director, KAVI-Institute of Clinical Research at the University of Nairobi.

Fast tracking uptake of COVID-19 vaccines critical to controlling the pandemic, advise experts

By Joyce Chimbi I j.chimbi@gmail.com

Health experts are adamant that it is not until the targeted number of the population has been vaccinated will the world begin to see light at the end of a dark tunnel as the COVID-19 pandemic rages on.

Now more than ever, Prof Walter Jaoko, Director, KAVI-Institute of Clinical Research at the University of Nairobi, says it is urgent that myths and misconceptions that have shrouded the uptake of the vaccine are dispelled.

"COVID-19 vaccines are safe as has been proven through trials. Widespread trials with more than 70,000 people between two vaccines, Pfizer and Moderna for instance, showed that they are safe and effective," says Prof Jaoko.

On concerns that the vaccines were made too quickly, he says this is far from the truth as the systems and scientific infrastructure used to develop the vaccines have been in existence for many year

On concerns that the vaccines were made too quickly, he says this is far from the truth. COVID-19 vaccines were developed using experience gained from two similar viruses namely SARSCOV which caused a disease outbreak in 2012 and MERSCoV responsible for Middle East Corona virus outbreak in 2012. The use of this knowledge meant that scientists were not starting from scratch but were rather using systems and scientific infrastructure previously used.

"No shortcuts were taken when developing the vaccines. Career scientists, doctors and a separate committee reviewed the safety and effectiveness from each manufacturer," he adds.
Rosemary Mburu, executive director at WACI Health, says addressing such challenges that stand between the population and the vaccine has never been more urgent.

She says the immediate goal of the global COVID-19 vaccination strategy is "to minimise deaths, severe disease and overall disease burden, curtail the health system impact, to fully resume socio-economic activity, and reduce the risk of new variants."

To do so, Dr. Onyango Ndonga, of Kenya Medical Practitioners and Doctors Union stresses that COVID-19 vaccination target must be achieved sooner rather than later.

The World Health Organisation (WHO) targets to vaccinate 40 percent of the population of all countries by the end of 2021 and 70 percent by mid-2022.

As of October 10, 2021, Dr Onyango says, an estimated 3.9 percent of Kenyans were fully vaccinated and this falls short of the 10 million target by December 2021.

Dr Onyango cautions that communities remain at risk of being even more severely impacted by the pandemic if the vaccination target is not met.

He speaks of the amplified health, economic and social inequalities as a consequence of COVID-19 pandemic and increased social isolation contributing to contagious negative emotions. Dr Onyango further warns of sustained negative impacts of the pandemic unless the protective shield provided by the vaccine is fully utilised. Mburu reiterates that meeting the vaccination targets calls for fidelity to the principles that guide its implementation. They include equity, whereby all individuals, populations and countries should have equitable vaccine access without incurring financial hardship.

Rosemary Mburu, executive director at WACI Health

She says the vaccines used should also meet international standards through WHO authorisation.

"We also have the principle of integration whereby vaccines should be deployed with tests, treatments, public health and social measures. And inclusivity, meaning that the vaccination must include marginalised, vulnerable, displaced and imprisoned populations," Mburu says.

Referring to the principles, Prof Jaoko affirms that fears of the vaccines are unfounded. For instance, he says it is not possible to contract COVID-19 from the vaccines because none of the vaccines currently in use are made from live viruses, a technology that is used in developing vaccines for some infectious diseases.

"The Pfizer and Moderna vaccines use a messenger RNA gene and not the actual COVID-19 virus, to trigger a person's immune system to make protective antibodies against COVID-19," he says.

Importantly, he adds, COVID-19 vaccines do not change or interact with a person's DNA in any way. On concerns that the vaccines cause infertility, Prof. Jaoko says such fears are unfounded as COVID-19 vaccines are not likely to "present a risk if you are trying to become pregnant now or in the future." Mburu says to fully vaccinate 70 percent of the global population requires at least 11 billion doses of COVID-19 vaccines.

"By end of September 2021, almost 6.3 billion doses had already been administered worldwide and contracts were in place for most of the remaining 4.7 billion doses," she says.

"With global production at nearly 1.5 billion doses per month, from a supply perspective, there will be sufficient doses to achieve the global vaccination targets if there is equitable distribution."

Digital system a game changer in HIV patients management amid COVID-19

By Joyce Chimbi I j.chimbi@gmail.com

With the growth in numbers of patients in HIV care and treatment came the need for the Ministry of Health, through National AIDS and STI Control Programme (NASCOP), to make critical changes in the care and management of HIV patients.

Maintaining a paper-based system where a patient's critical details are kept became increasingly difficult as many fell under the radar due to lack of effective patient follow-up.

The shift from the manual record keeping to an electronic system was touted as a game changer. Used in real time, hospital staff caring for and treating HIV patients could, with the click of a mouse, scan through a patient's records and effectively identify those at risk of treatment failure.

As the pandemic continues to unfold and more and more people develop a fear of visiting health facilities due to COVID-19, an Electronic Management Record (EMR) has never been more critical.

"There are many factors that are considered while administering and monitoring antiretroviral therapy (ART). Electronic medical records, in this case through the EMR, significantly helps improve the quality of care. In less than five minutes, a health provider can scan through a HIV patient's record to determine a drug adherence trend spanning over 10 years," says Gideon Libulele, a Senior Technical Officer in HIV Care and Treatment in Nyanza region.

As the pandemic continues to unfold and more and more people develop a fear of visiting health facilities due to COVID-19 among many other challenges that now impede the free flow and access to much needed health services, an Electronic Management Record (EMR) has never been more critical.

The EMR stores critical data such as a patient's weight, viral load, CD4 count and whether the patient is receiving targeted HIV intervention such as the Prevention of Mother to Child Transmission (PMTCT) for HIV positive pregnant women or Directly Witnessed Ingestion of Therapy (DWIT), especially among paediatrics with a high viral load.

Further, the EMR system enables a group of HIV experts to remotely consult over a difficult case such as patients on ART who are nonetheless failing on treatment for reasons that their primary health provider is an unable to explain.

"When you open the system's dashboard, it will provide you with about 16 icons. One of the icons is on patient registration where a newly diagnosed HIV positive client is entered into the system. We have an icon labelled 'clinician' who are at the frontline of treating HIV patients and they can quickly scan and identify how well a patient is responding to treatment," says Elisha Odoyo, a clinical officer at Homa Bay County Teaching and Referral Hospital.

There is also an icon marked 'KP' or key population such as female sex workers who remain at a greater risk of contracting COVID-19 due to social interactions despite the pandemic.

"There are three factors that we look at; one is patients lost to follow up. These are patients who have gone longer than 30 days without visiting a clinic, and two weeks later, we categorise them as treatment defaulters. We also have missed opportunities. People who tested HIV positive but were never enrolled into HIV care and treatment," says Anastasia Wamaitha, a HIV community health extension worker linked to Nakuru Level 5 Hospital.

Kenya and the world have missed an ambitious treatment target to help end AIDS by 2020 through the 90-90-90 initiative, which aimed at ensuring that 90 percent of all people living with HIV knew their status, 90 percent of all people diagnosed received sustained ART and 90 percent of all people on ART achieved viral suppression.

"The target is now 95-95-95 and EMR is a very important component. If you have a records management system whereby just one client has an entire file, do we have the human resource to go through all these files, routinely, looking for problems? No. With EMR, it is like a spreadsheet that gives you all the data from when the patient was enrolled into care to date, at a glance," Wamaitha says.

She says that 95-95-95 and eventually 100-100-100 cannot be reached if existing health infrastructure cannot trace people who are HIV positive and not in care, cannot trace people who have interrupted treatment or cannot in seconds detect a patient who is failing on treatment.

"It is a supreme record keeping system. The system quickly and instantly feeds you information. As a health provider, you pick the information given by the system and determine how to handle a HIV client on a case by case basis," Wamaitha says.

"Take, for instance, a patient whose viral load is moving towards the danger zone of over 1,000 copies, which means the patient's amount of HIV in the blood is increasing, the health provider will see that in the system and quickly contact the HIV client for a conversation."

From the conversation, the health provider will find out whether a HIV client is taking their medication as prescribed or there is disease progression requiring a patient to be moved to a more effective treatment regimen.

Odoyo says that MoH, with support from local and international ART partners, has rolled out various HIV interventions as HIV care and treatment is not a one-size-fits-all scenario.

Take, for instance, the PMTCT programme where at least 100 women would be lost to care every year at Homa Bay County Referral Hospital, the mothers were traced and attached to mentor mothers as an intervention designed for them. Since then, the PMTCT programme has a retention rate of 97 percent.

Photo Credit | Joyce Chimbi

Elisha Odoyo emphasizes the benefits of digital records system in the care and treatment of HIV patients.

"Many County and sub-county hospitals deal with thousands of patients. A major referral hospital might be having at least 5,000 HIV patients depending on the HIV prevalence in that county. It is very time consuming to use manual records to manage all of them, bearing in mind that each patient has so many factors that we look at," Wamaitha explains.

Odoyo concurs, saying Homa Bay County Referral Hospital has a total of 7,000 patients comfortably managed through the EMR system. He says health providers have more time to interact with patients and probe for any problems that could affect drug adherence because they no longer undertake the painstaking and time consuming manual record keeping.

"Throughout the pandemic, we are relying heavily on electronic records to call our patients and maintain the usual routine but in a social distance manner. Some patients were not able to travel to their primary facilities because of lockdown, we can check the system and identify them quickly and contact them. Before, you would have to go through hundreds of manual records," Wamaitha says.

Keziah Muthoni, a HIV clinical officer in Thika, says that through EMR, a HIV consultant in Nairobi can access details of a difficult HIV case in a remote village anywhere and make recommendations on the best cause of action.

"This way, we now have quick decision making, especially among patients that need to move from say first line regimen to second line to prevent progression to stage 3 or 4 of HIV infection. During this pandemic, we are very keen on our patients because it is a stressful period and this could impact negatively on their adherence to medication," she says.

"With EMR, you can see everything pertaining to that patient, including trends in their CD4 count and viral load and identify those, especially now during COVID-19, who might require special consideration. It is indeed a transformational approach to managing patients and it works," adds Muthoni.

There are no major challenges because the system is as simple as using a computer. Nonetheless, the system's primary challenge, especially in far-flung areas, is that it requires electricity and internet connectivity at all times. Still, there are EMR systems that can operate through the use of internet bundles.

Overall, community and facility-based healthcare providers such as Wamaitha confirm that an EMR system is indeed a game changing innovation in the management of HIV patients.

Increased uptake of self-testing reduces the burden of HIV epidemic

By Joyce Chimbi | j.chimbi@gmail.com
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Photo Credit | George Juma

Community health workers Josephine Nyagucha Sagini and Lydia Moraa Machuki demonstrate how the self test kit works.

The number of people using HIV self-test kits in Kenya increased from 163,231 in 2019 to 283,660 last year.

According to statistics from the Ministry of Health, the rise in the uptake of self-testing is attributed to the high reliability of the kits in diagnosing HIV.

In 2018, only 20,934 clients used the kits that have been approved by the World Health Organisation (WHO).

Studies have shown that the -HIV self-test kits have a high sensitivity level of up to 99.6 percent and detect HIV antibodies more than 99.9 percent of the time.

As of July 2021, 105,064 clients this year were recorded as having self-tested across public facilities.

"With government statistics showing that as many as 400,000 people are unknowingly living with HIV, there is an urgent need for innovative approaches to ensure 100 percent of people living with HIV are aware of their status and immediately linked to care and treatment," says HIV expert Jeffrey Opondo, a technical advisor in HIV testing, prevention, treatment and care in community health services in South Nyanza region and its environs.

Opondo says towards this objective, HIV self-testing is a crucial and central pillar of reaching the hard to reach populations and in ensuring that by linking people to either HIV prevention or HIV care and treatment, the cycle of HIV transmission will be effectively disrupted.

As of September 2021, there were four nationally approved HIV self-testing kits, including OraQuick, INSTI and SURE Check, and Atome, all of them quality assured products approved and endorsed by WHO.

As such, OraQuick was at the centre of a study conducted in Bomachoge Chache Sub-county, Kisii County, by Living Goods, an NGO whose operations are centred on building strong community health systems, in partnership with the Ministry of Health.

Through a community-based study called Closed Loop HIV testing, Living Goods and the Ministry of Health sought to assess how a technology-assisted protocol for the distribution of HIV rapid test kits, OraQuick, can be used to increase HIV self-testing, referral and follow-up.

"It was called closed loop because the idea is to complete a circle. People get tested, they are then referred to a health facility for HIV prevention or HIV confirmation, care and treatment, as well as follow-up," says Wilfred Mose, the Community Health Services, Bomachoge Chache Sub-county focal person.

The study engaged six community health units in the sub-county. As per Living Goods, the study evaluated "household attitudes, perception of the quality of community health services, health seeking practices associated with the use of public health facilities and referral, attitudes and knowledge about HIV and HIV testing, and knowledge and awareness of HIV self-test kits."

The study, conducted over a period of 12 months – August 2018 to July 2019 – adapted the Living Goods' Smart Health App to carry out household assessments, diagnosis and to track referrals made to the nearest health facility for HIV diagnosis confirmation as well as treatment.

"During the six months when the pilot study was done, we gave out 1,311 HIV self-test kits and out of the entire tests we did, we detected 16 reactive persons," says Mose.

According to the community focal person, more women tested for HIV using the self-test kits during the study compared to men because women were mostly found at home unlike men. The study recommended that men should be targeted with the kits at their places of work.

Mose says the Closed Loop innovation enabled digital linkages between community health services and health facilities facilitating efficient and effective management of patients at the community level.

The study spoke to a growing body of research showing that when supported by simple-to-use digital Apps, HIV self-testing at the community level has been found to be feasible, implementable, acceptable and preferable.

In all, a total of 68 community-based health workers (CHWs) also known as community health volunteers from the six community units were involved.
Each CHWs served a population of around 100 households, providing this study with a total household population of approximately 6,800. In the end, more than 90 percent of the respondents tested for HIV.

Mose affirms that the study successfully used CHWs as proxies to assess the acceptability of the self-test HIV kits and found out that this was a success.

A self test device: The checks allow individuals to confidently screen themselves in their privacy.

"I visited households within my area with the self-test kits. In every household, I would first engage the occupants on general health issues before introducing the HIV self-test kits, which was a new thing to them," says Josephine Nyagucha Sagini, one of the CHWs involved in the pilot study.

She started off with counselling before conducting the test, which was voluntary, using a guideline from the Ministry of Health.

"Before using the kit, check the manufacture and expiry dates. For any client who has just eaten or drunk anything, you have to wait for 15 minutes before you take the sample from their mouth, while for those who have just brushed their teeth you have to wait 30 minutes. After taking the sample and conducting the test, you wait for 20 minutes before reading the result," she explains.

Clients had the choice of reading their own results or could be assisted by the CHWs. Anyone who tested positive was referred to a nearby health facility for a confirmatory test.

"The results of this study aligns very well with emerging data on HIV testing. There are more people aware of HIV self-kits, more people keen on self-testing as it is convenient and provides for much needed privacy," Opondo affirms.

Importantly, Opondo says this kind of community-based door-to-door facilitation of HIV self-testing services increases use of the self-testing approach, and has been shown to reach more first-time testers and hard-to-reach populations at a higher risk of acquiring HIV.

*Gitonga Kimathi knows all too well the importance of the self-test kits especially based on the all too common patterns of sexual behaviour. Gitonga says he struggles to stay in monogamous relationships despite having a long term partner for the last eight years.

"People still see HIV as something that happens to other people and we are carried away by personal biases of how a HIV positive person should look like," says the Nairobi-based educationist.

"Sexual interactions are highly spontaneous especially in any fast moving city or town. We are highly connected by social media and sexual interactions tend to progress very quickly. You cannot always intercept the virus by going to a VCT but a self-test kit is very much a convenient advantage," he expounds.

Gitonga recounts an incident where he run into a long lost girlfriend three years ago and were excited to rekindle their relationship. Two months earlier, "my cousin had gifted me with two self-testing kits as a joke."

It was not a laughing matter when Gitonga and his long lost girlfriend used the kits to test for HIV.

"The results were surprising. She was HIV positive and I was HIV negative. Since that day, I carry a HIV self-kit in my car and even though I insist on a condom for new partners, we must get tested for HIV," he says.

Gitonga says that if he had to rely on a VCT visit, it would be very difficult to get tested as often as he does.

In general, a HIV self-testing cost about Ksh500 (USD 5) with some variations in prices. Opondo says that with a population of 400,000 people unknowingly living with HIV, the stakes are high and there is a need to aggressively promote the testing approach for its demonstrated capacity to break the cycle of HIV transmission.

"People who know their status and are put on care and treatment are helping break the cycle of transmission. People who test and are found to be HIV negative are linked to HIV prevention services include the pre-exposure prophylaxis, are encouraged to use condoms and other safe sex practices," Opondo says in conclusion.

People still see HIV as something that happens to other people and we are carried away by personal biases of how a HIV positive person should look like.

From dumpsite to nature park: Changing faces of gateway to Mombasa

By Ruth Keah I rkeahkadide@gmail.com

Kibarani is the gateway to Kenya's oldest city, Mombasa. For five decades, it had been an ugly site characterised by a sprawling dumpsite beside the Indian Ocean with some informal settlements.

The foul smell from the dumpsite is what welcomed visitors to the coastal city, making it a far cry from the tourist destination that it was.

The informal settlement also put the security of visitors at stake, and Mombasa was fast losing its appeal as a tourist city.

However, the choking stench, acrid smoke and scavengers by the causeway are no more.

Kibarani dumpsite is now a beautiful park, and where there used to be a heap of garbage now stand green casuarina and leafy palm trees dotted with attractive animal sculptures.

And for three years now, visitors no longer rush through Kibarani with their noses covered while clutching onto their belongings for fear of being mugged. Instead, they linger on much longer, savouring the beautiful scenery as flags of various countries and counties fly defiantly atop masts to welcome them to Mombasa.

Locals too now have a place to while away their weekends, counting their losses and gains of the week while strategizing for tougher week ahead as they enjoy the cool breeze from the Indian Ocean. For others, it is an opportunity for a family getaway at no cost at all.

Photo Credit | Ruth Keah

An old photo of Kibarani Dumpsite which choked under filth and stench.

Nicodemus Mutinda travels all the way from Jomvu with his family almost every weekend.

He says before, he used to visit Mama Ngina Waterfront, which is a bit too far compared to Kibarani.
"Kibarani has really changed. Now people from Jomvu and Changamwe find it easy to visit this place, which is much nearer than Mama Ngina Waterfront," he says.

A part from the place being transformed into a park, it also serves as meeting ground for residents of Mombasa and its outskirts who go for relief food from Mombasa Cement every day.

Godfrey Nyongesa Nato, the Mombasa County Environment executive, says the park has brought a lot of relief to the residents, especially from Jomvu and Changamwe.

"With COVID-19, we closed some parks like Mama Ngina. So, Kibarani was a relief for Mombasa residents who wanted a place to relax," he says.

Nato says going forward, Mombasa County intends to transform more dumpsites into something useful. He says they are now planning to transform the VOK dumpsite in Nyali Constituency.

Photo Credit | Ruth Keah

Kibarani dumpsite is now a beautiful park, and where there used to be a heap of garbage now stand green casuarina and leafy palm trees dotted with attractive animal sculptures

"The only challenge is that some people have come out to claim ownership of the land. Transforming it will give the youth space for recreational activities such as playing football," he says.

He says they faced a lot of challenges when transforming Kibarani dumpsite, which was relocated to Mwakirunge. He says it was difficult to relocate the residents who had title deeds for the land.

However, it became easier after the National Land Commission revoked the title deeds.

Also, the county government did not have enough money to rehabilitate the place. So, they involved stakeholders and Mombasa Cement strongly supported the initiative.

To Ilhan Abbas, the county Environment chief officer, educating people to stop dumping waste at Kibarani was the most difficult task.

Abbas says they have formed youth groups to collect waste, which county trucks then transport to Mwakirunge dumpsite.

One such group is Getta Self Help Group in Likoni Constituency. Group Chairman Ramadhan Salim says they collect waste from residential areas and take them to designated points where the county trucks pick them.

Other than the youth groups, there are more than 40 private firms that collect garbage from residential areas at a fee of Sh20 (USD 0.05) per household.

"We have opened transfer stations from where the trucks collect the garbage," says Abbas.

Abbas says most of the dumpsites in Mombasa County are illegal, and her department is now transforming them, one at a time.

She says they start by planting trees then transform the sites into parks; for example, the Mombasa Railway Roundabout which has now been transformed into a park as well.

Abbas says the county government has also ventured into planting mangrove trees as a way of mitigating climate change. So far, she says, they have planted over 100,000 mangrove trees.

Now, even as residents celebrate the changing faces of Mombasa dumpsites, the youth collecting the waste from residential areas and those working at Mwakirunge dumpsite have only one request to the county government; that they are provided with protective gear.

"We lack gloves which will protect us against sharp objects like glasses and needles. Also, sometimes the trucks are not enough, causing a delay in picking up the waste from the collecting centres," says Salim.

Involving women in affordable, clean energy initiatives paying off

By Manuel Odeny | manuelodeny@gmail.com

Millicent Odira, 45, deftly adds water to the mixture of sand and fire-proof cement to make mortar as the final binding to an improved jiko.

The resident of Opapo village in Migori County uses the mortar as glue to bind a baked clay mold into a tin shape to make a jiko, which joins others in a warehouse.

"I started making energy saving stoves and jikos for individuals and institutions after I was trained by several organisations, which made me quit selling clothes in 2018," Odira says.

She says her clients realised they could save up to 60 per cent on costs using improved jikos as they burn with less wood, conserve heat and are smokeless.

"Institutions such as hotels and schools realised they could save more and they bought more jikos, rocket stoves, incinerators and boilers. This then became a full-time job," Odira says.

She says she can make an upward of Sh100,000 (USD 1,000) per month, especially when she targets institutions. Besides the income, she helps reverse afforestation through her work.

Odira is among women who are the key focal point for the world to attain the sustainable development goal of ensuring affordable and clean energy for all by 2030.

In Rongo town, members of Ratat CBO have been making briquettes from waste sugarcane peelings and sawdust since 2010.

Caroline Akinyi, a member of the group, says they came together after prices of charcoal shot up and they could not afford it anymore. A 90kg sack of charcoal increased to at least Sh2,000 (USD 20).

"It was cheaper to make briquettes because of available raw materials and they cost half the price. The only challenge is getting the binder – a starch – which we source from Nakuru," says Akinyi.

She adds that they have scaled up to include hotels and institutions as part of their market.

Sharon Atieno, a gender advocacy officer at Practical Action, says women are the key to unlocking the goal as they stand to benefit the most from affordable, reliable, sustainable and modern energy for all.

Atieno says Odira is among 400 women entrepreneurs under the Women In Energy Enterprises in Kenya project by Practical Action, who sell solar products, briquettes and improved cook stones in seven counties.

"In Kenya, like most of the world, the advance in energy sector has been slow because men dominate it. We need to empower women economically to be users and distributors of clean energy," Atieno says.

She says women still face challenges of lack of skills, access to market and capital in the venture and are the biggest victims of lack of access to energy as they waste more time and money looking for wood, which increases poverty and inequality.

"We move in to bridge these gaps through training, offering markets and capital. We are set to revolutionise the energy sector," Atieno says.

According to the World Health Organisation (WHO), over four million people – mainly women and children – die every year as a result of indoor air pollution from inefficient and poor fuel use, as it increases the risk of stroke, pneumonia, lung disease, cancer, asthma and other diseases.

Sustainable Energy for All, an initiative started by the United Nations, in its report on Jun 22, 2021, says because energy policies are often gender-blind and women tend to be under represented in the energy sector at all levels, these dreams of equity will not be achieved in 2030.

Already Kenya has in place an energy gender policy that seeks to bridge the gap of energy supply chain because "participation of women, youth and marginalised groups in extraction, transmission and distribution has been inadequate," Joseph K Njoroge, the Principal Secretary, Ministry of Energy, said in the report.

He said the policy will rectify gender inequalities in the energy sector by addressing the questions of access, participation and benefits.

Be on the lookout for new tomato virus, scientists warn

By Njeri Murigi | n.milliam@yahoo.com

Photo Credit I AFSTA

Tomato farmers in Africa have been urged to be on the lookout for the new tomato fruit virus that has been causing havoc in most of the tomato-growing countries.

Known as Tomato Brown Rugose Fruit Virus (ToBRFV), it is a newly identified virus affecting tomato, pepper, and possibly their relatives.

Speaking during this year's African Seed Trade Association (AFSTA) Congress, Dr Isaac Macharia the General Manager, Phytosanitary Services at the Kenya Plant Health Inspectorate Service (KEPHIS), said countries in Africa are encouraged to report occurrence of the disease to ensure other countries prepare.

ToBRFV first appeared in Israel in 2014. Since then, it has been reported in China, Italy, Netherlands, Spain, Greece, Germany, France, Jordan, Turkey, Mexico, Belgium, and the United Kingdom. In Africa, there have been reports of the virus in Egypt.

"This rapid spread demonstrates that ToBRFV has become a worldwide threat to tomato production. The continent needs to prepare for the negative impact of the disease in tomato production," he said.

ToBRFV belongs to the same group as Tobacco Mosaic Virus (TMV) and Tomato Mosaic Virus(ToMV). However, tomato plants tolerant to these two viruses are not tolerant to ToBRFV. Currently, no commercial tomato varieties are tolerant to ToBRFV. Peppers with tolerance to TMV and pepper mild mottle virus (PMMoV) have shown some tolerance.

Dr Isaac Macharia, the General Manager, Phytosanitary Services at the Kenya Plant Health Inspectorate Service has warned that no commercial tomato varieties are tolerant to Tomato Brown Rugose Fruit Virus.

"There is a need to ensure we prevent the introduction of this virus in most of our countries. We can achieve that if we embrace pre-shipment testing of all imported tomato, capsicum, eggplant seeds irrespective of the origin using an appropriate method such as real-time Polymerase Chain Reaction," he said.

He added, "We also need to sensitize importers of tomato/capsicum seed and commercial growers to ensure early reporting incases of any detections."

Other measures that can help prevent introduction of this virus into other Africa countries are: development of contingency plans to prevent spread in case of introduction, enhancement of collaborative sharing of information on pest reports/status within different countries, sourcing of seeds from countries where the virus does not occur, and adoption of phytosanitary measures such as decontamination of soil from previous crops, trellising ropes, greenhouse structures to minimize any risks

Breeders also need to work towards the development of varieties with durable resistance genes since phylogenetic analysis shows the genomic sequence of ToBRFV differs from either ToMV or TMV.ToBRFV breaks long-lasting resistance genes (Tm-1, Tm-2/ Tm-22) hence no tomato is resistant, but some infected varieties remain asymptomatic.

Photo Credit I Aghan Daniel

Caring for the tomato: Experts say a new virus is more severe on young tomato plants and can result in 30-70 per cent yield loss

"There is also need to invest in laboratory diagnosis for diseases including tomato diseases. This will help countries carry out continuous tests for a proportion of seed and seedlings for ToBRFV," he added.

Dr Macharia says ToBRFV is stable and infectious. It is spread mechanically through people and equipment touching infected plants and transferring it to a healthy plant. Contaminated seeds have also been identified as a pathway. Bumble bees used as pollinators are also reported to transmit the virus as well. However, the good thing is there are no reports of plant-to-plant transmission by aphids, leafhoppers, or whiteflies.

"Its high stability allows it to stay infectious in infected debris, in the soil, or on contaminated surfaces for long periods. Because of this, farmers are urged to continue practicing good plant hygiene," he said.

Since Kenya imports most tomato, capsicum, and eggplant seeds from different countries including those where ToBFRV has been reported, Macharia says it is now mandatory for all imported tomato seeds to be tested using real-time PCR. So far about 192 imported seeds lots have been tested since February 2021 and no positive samples have been registered so far.

A field survey was also done in 2019 and 256 leaf samples were analyzed (245 tomatoes, 10 capsicums, 1 black nightshade) and all samples tested negative. Despite the negative results, emergency measure on ToBRFV was issued to all-out trading partners and import conditions for tomato and capsicum were amended to include pre-shipment testing and testing upon importation.

"We will continue to conduct continuous surveillance to ensure this virus doesn't get to our country. We are also going to develop contingency plans to prevent spread in case of introduction," reveals Macharia.

ToBRFV has a wide range of symptoms

Symptoms of the ToBRFV on tomato fruit include: chlorotic (yellow) spotting and marbling of fruit that can appear to be similar to infection with PepMV, young fruits may be deformed and have uneven ripening, dark coloration spots may be observed on green fruits, and brown wrinkled patches are rarely observed. The number of fruits per branch may be reduced.

For leaves chlorosis, mosaic pattern (chlorotic/pale patches), and mottling are often observed on younger leaves in the head and side shoots, younger leaves may also be crumpled, puckered, or deformed, narrowing of leaves (needle-like symptoms) is occasionally observed on tomato, and blistering of the leaf surface is observed. Leaves may also wilt, followed by yellowing and death of complete plants.

Photo Credit I AFSTA

AFSTA Congress: Seed people have been warned about an impending attack on tomato by a lethal virus.

"This virus is more severe on young tomato plants and can result in 30-70 per cent yield loss. Plants infected early are usually stunted with poorly formed fruit. Plants infected later may not express fruit symptoms until the fruit turns red. The unique thing about this virus is it doesn't infect the embryo of seed but instead contaminates the seed coat," he added.

Plant variety protection benefits farmers, breeders in Kenya

By Jacinta Mwangi | jessmwangi95@gmail.com

Photo Credit I Aghan Daniel

The floriculture industry in Kenya has grown rapidly over the recent years owing to the implementation the Plant Variety Protection (PVP), which provides patent-like rights to plant breeders, developers and owners of plant varieties.

PVP provides patent-like rights to plant breeders, developers and owners of plant varieties.

While making a presentation at an international seed meeting last week, Simon Maina, Head, Seed Certification and Plant Variety Protection Department at the Kenya Plant Health Inspectorate Service (KEPHIS), said in 2020 alone, Kenya produced 142,478 metric tonnes of fresh flowers valued at a staggering USD 1.1 billion. This, he noted, was a great improvement from the USD 861.6 million from 2018.

He was speaking at the 21st Annual African Seed Trade Association (AFSTA) congress held in a Mombasa hotel. The event brought together 150 seed experts from all over the world.

He added that currently, the industry employs over 500,000 people and impacts the lives of other two million people indirectly, a fete he attributed to the implementation of the PVP.

Kenya is a member of the International Union for the Protection of New Varieties of Plants under the 1991 Convention and grants "plant breeder's right" (PBR) for all plant genera and species. PBR is a form of intellectual property right granted to the breeder of a new plant variety. Legislation for PVP is found in Kenya's Seeds and Plant Varieties Act, 2012 and implementing regulations.

PVP is being largely embraced locally and internationally. A total of 1826 applications for PVP have been received as of March 2021. Seventy-one percent of these were foreign while 21 percent were local. Out of the local applicants, 77 percent were from public institutions while 23 percent were from private institutions.

Experts say besides the impact PVP has had on floriculture in Kenya, it has had a significant impact on the increase of crop varieties due to the enhanced variety description and protection of plant species. All these efforts have facilitated accelerated access to superior varieties.

Simon Maina, Kenya Plant Health Inspectorate Service

PVP has led to the increase of production through the breeding of better yielding and drought-tolerant varieties that are able to adapt to harsh climatic conditions. It has also led to the development of disease-tolerant varieties. The development and release of maize lethal necrosis-tolerant varieties have therefore significantly improved yields.

Countries in East, Central and Southern Africa like South Africa, Kenya, Tanzania, Zambia, Zimbabwe are some of the top exporters of seed. All these are countries with functional PVP systems.

The implementation of PVP in Kenya has facilitated an increase in breeding activities. It has also led to the commercialization of seed resulting in growth in the seed sector and enhanced farmer access to superior crop varieties.