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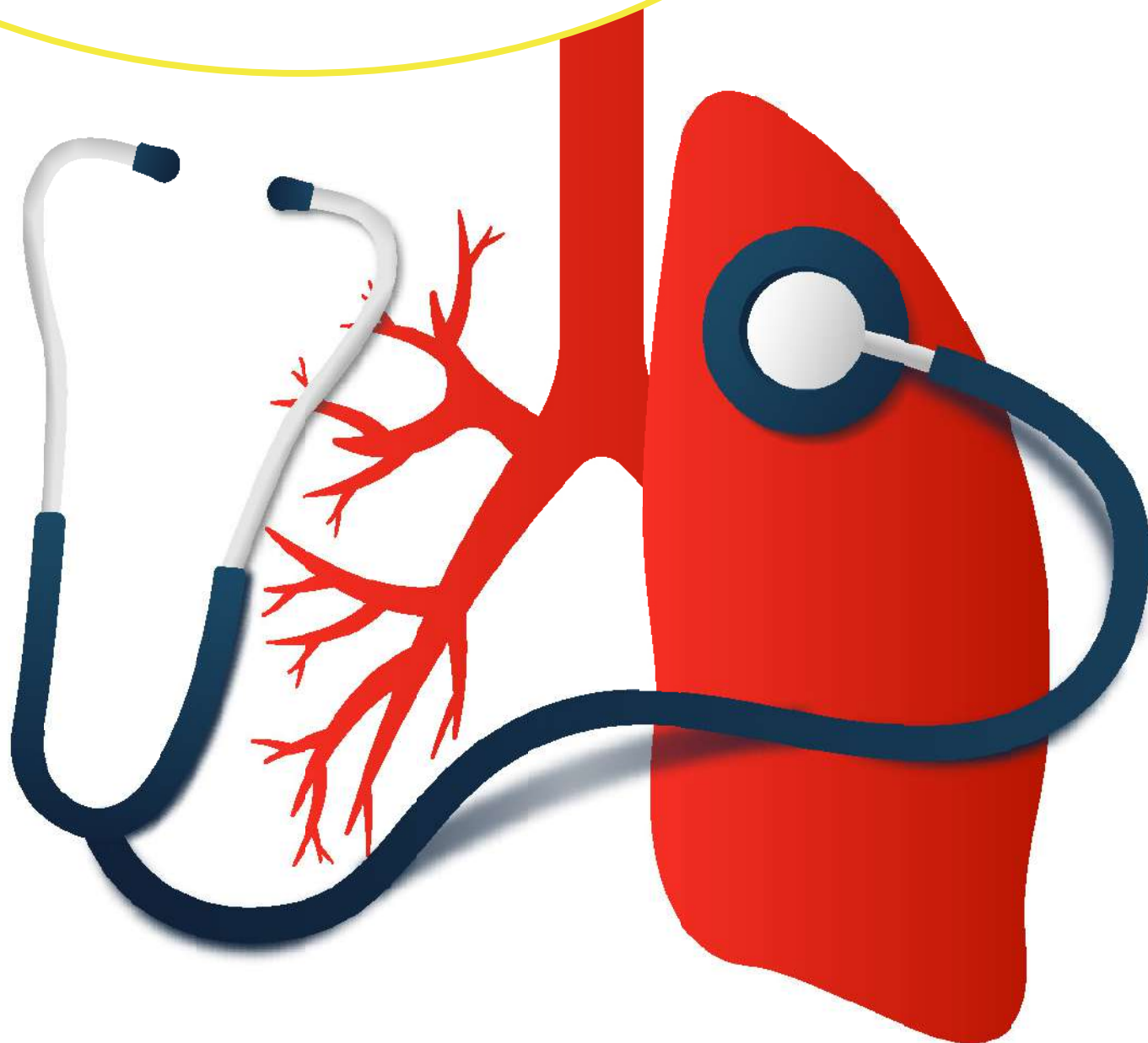
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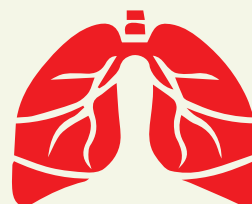
REPUBLIC OF KENYA

MINISTRY OF HEALTH



YES!

WE CAN



End TB in Kenya

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Word from...



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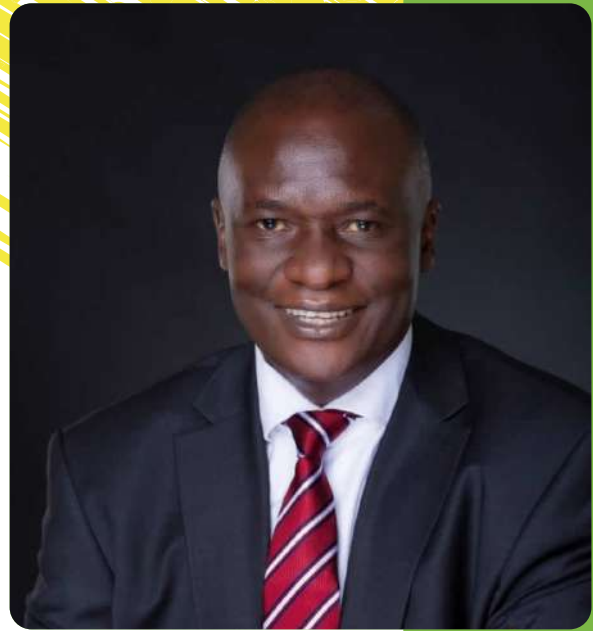
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The Fight Against TB in Kenya: A Call for Innovation



Tuberculosis (TB) is a major public health challenge and deadly disease that affects millions of people around the world including Kenya.

While there are effective treatments for TB, many people do not have access to them. This is attributable to a variety of factors, including poverty, lack of healthcare access, and related stigma.

In order to effectively combat TB in Kenya, we need to embrace innovation and explore new approaches to diagnosis, treatment, and prevention.

One area where innovation is needed is in the development of new diagnostic tools. Current TB tests can be time-consuming and expensive, making them inaccessible to many people. New, rapid and affordable diagnostic tests could help to identify and treat TB cases more quickly and effectively.

Another area where innovation is needed is in the development of new drugs and vaccines. Current TB treatments can be lengthy and have significant side effects, particularly among our drug resistant clients. New, more effective and less toxic drugs and vaccines could make it easier for

TB clients to complete their treatment and prevent the spread of TB.

We also need to develop innovative approaches to TB prevention. For example, we can use digital tools to educate people about TB prevention, symptoms, and treatment to track and monitor outbreaks. This can help healthcare workers identify and respond to TB cases in a timely manner.

It is important to recognize that TB is not just a medical problem. It is also a social problem. Many of the factors that contribute to the spread of TB, such as poverty and inadequate living conditions, are deeply rooted in our social and economic systems. To effectively combat TB, we must also explore innovative approaches to addressing these underlying social determinants of health.

For example, we can use social protection programs to help individuals and families who are living in poverty or at risk of poverty. Similarly, when it comes to prevention, we can use innovative approaches to housing and urban planning to help reduce overcrowding and improve ventilation.

Innovation in the fight against TB is not only necessary, but it is also possible. However, it will require a collaborative effort from all stakeholders, including national and county governments, healthcare providers, supporting partners, researchers, civil society and the private sector. This will require increased investment in research and development and willingness to take risks and experiment with new approaches.

The fight against TB in Kenya requires a multifaceted approach that leverages innovation and new technologies. From new diagnostic tools to digital tools, from new drugs and vaccines to social protection programs, there are many avenues for innovation in the fight against TB. We need to embrace innovation and work collaboratively to eliminate TB in Kenya.

Dr. Patrick Amoth, EBS
Director General for Health

Word from the Head of Division of National Tuberculosis Leprosy and Lung Disease Program



I am excited to take on the challenge of addressing one of the world's oldest and deadliest diseases: tuberculosis (TB). Despite being treatable and preventable, TB still has a devastating impact on Kenyans and people all over the world, especially those who are poor and have compromised immune systems.

According to estimates, there are over 133,000 new cases of TB each year in Kenya, and the illness is responsible for nearly 30,000 fatalities. In 2022, Kenya notified 90,841 TB cases and a total of 752 DRTB cases were notified. These figures are mind-boggling and call for enhanced interventions. The good news is that we have powerful tools to combat TB, in strategic areas such as early diagnosis, appropriate treatment, and preventative measures.

One of the biggest challenges we face in the fight against TB is stigma. Many people still view TB as a death sentence or a disease that only affects those who are sick or have compromised immune systems. Anyone can get TB. Stigma leads to people avoiding TB testing and treatment, which only exacerbates the spread of the disease. We need to sustain our end TB campaign strategies

in order to combat stigma and human rights related violations among our clients.

To ensure that patients receive high-quality care and that TB is treated with the respect it merits, we also need to collaborate with healthcare professionals in both public and private sector.

Limited resources for TB programming is another significant issue we deal with. With many donors concentrating on other illnesses like HIV and malaria, TB has long gone unfunded in global health funding. Due to limited resources, low- and middle-income nations like Kenya, find it difficult to give those who are afflicted with the disease the treatment and support they require.

I am committed to working with our partners and stakeholders to secure the funding necessary to tackle TB head-on. New TB diagnostics, medications and vaccines need significant investment in research and development, and we must make sure that everyone who requires them has access to and can afford these breakthroughs.

We must also aspire for a world free of tuberculosis as a threat to public health. This entails tackling the social-economic factors that contribute to the disease as well as TB treatment and prevention. In order to reduce poverty, increase access to healthcare and strengthen health systems, we must work harder.

Finally, TB is a complex and challenging disease that requires a multifaceted approach to address. I am committed to working with our partners and stakeholders like the WHO, Global Fund, USAID, CHAI, StopTB-Partnerships, Counties, the affected communities among others to tackle this disease head-on. Together, we can create a world where TB, leprosy and lung health are no longer threats to public health and all people have access to the care and support they need to live healthy and fulfilling lives.

A handwritten signature in black ink, appearing to be 'IK' with a stylized flourish.

Dr. Immaculate Kathure

Ag. Head, National TB Leprosy and Lung Disease Program



Kenya Joins Global Efforts to End Tuberculosis on World TB Day





Uniting for a TB-Free Future: Public and Stakeholders march together in Eldoret town, spreading awareness and solidarity on World TB Day.

Kenya joined the rest of the world in commemorating World Tuberculosis (TB) Day, which is held every year on March 24th to raise public awareness about the disease.

The event was marked at Huruma Grounds, Eldoret in Uasin Gishu County. It was presided over by the Prime Cabinet Secretary (CS) Musalia Mudavadi and Health CS Susan Wafula.

The global World TB Day theme for this year is “Yes! We can end TB,” which emphasizes the importance of collaboration in fighting the disease. Tuberculosis is still a significant public health problem globally, with nearly 1.5 million people dying each year from it, mainly in developing countries.

In his speech marking the occasion, the Prime CS noted that TB is a serious and potentially fatal infectious disease that affects many people worldwide, including Kenya.

“The COVID-19 pandemic has led to an increase in the number of undiagnosed and untreated TB cases, resulting in more deaths and community transmission,” he said. “However, TB is curable with timely diagnosis and treatment, which is often limited, leaving many without the care they need”.

In Kenya, around 133,000 people have developed TB, including 16,000 children, making it a significant burden on the health system and a barrier to economic development.

The CS Mudavadi also highlighted the progress made in reducing the TB disease burden in Kenya, achieved through robust multisectoral partnerships, increased domestic resource allocation, and the adoption of global WHO guidelines.

“The government has invested in critical components of TB care and management, such as expanding access to TB diagnostic services, introducing digital adherence technology, sustaining awareness campaigns, strengthening the public-private mix, and providing free diagnosis and treatment to all TB clients. The government has also established a robust national TB surveillance system, strengthened infection control measures in health facilities, and

provided social protection to drug-resistant TB patients” he added.

CS Wafula called for a multisectoral approach to end TB in Kenya. She cited the implementation of the In-Country Multi-Sectoral Accountability Framework for TB response, dubbed as TB-MAF, as evidence of the government’s commitment in line with the 2018 United Nations High-Level Meeting on TB. The framework brings all stakeholders together to come up with innovative strategies to meet the 2030 targets.

The CS also expressed her gratitude for the role played by community health workers, affected communities, civil society, and donors and pledges to continue strengthening collaboration with them. ●



From left, Dr. Andrew Mulwa-Ag, Director of Medical services Governor Jonathan Kimeli-Uasin Gishu County, Hon. Mule Stephen- MP Matungulu Constituency, Dr. Jacqueline Kisia, former head NTP, WHO Kenya country representative Dr Abdourahmane Diallo, Prime CS Musalia Mudavadi, Health CS Susan Wafula, former Public Health PS Dr. Josphine Mburu during the launch of Multisectoral and Workplace policy guidelines.





Dedicated Healthcare Professionals Overcome Challenges in Managing Tuberculosis

A closer look at the comprehensive care process at Jaramogi Odinga Teaching and Referral Hospital

By Mbetera Felix | NTLD-Kenya

Jaramogi Odinga Teaching and Referral Hospital is at the forefront of providing comprehensive care for tuberculosis (TB) clients in Western and Nyanza regions. The dedicated team of healthcare professionals at the facility goes above and beyond give TB clients the finest care and support possible as they work toward recovery.

Effie Awor Achieng, a Clinical Officer and the lead TB Clinician at the hospital, highlights the meticulous process of caring for TB clients. The journey begins with a thorough screening process conducted at various outpatient clinics. From triage to comprehensive care centre (CCC) to outpatient departments. Those exhibiting symptoms of presumptive TB are further investigated through x-rays, Gene-Xpert tests and urine lab examinations for individuals living with HIV.

She notes that once the diagnostic results confirm a positive TB status, the client is promptly contacted, and their contacts are recorded. The patient is then invited back to the facility for counseling and initiated on treatment.

"Anthropometric measurements are taken, and the client's medical history is assessed to determine if there are any underlying conditions. The clinician, after the assessment, initiates the treatment while emphasizing the importance of adherence and proper nutrition," she adds.

The TB treatment process takes time. The intensive phase lasts for two months. Clients are usually required



Effie Awor Achieng engaging a clinician at the TB clinic - Jaramogi Odinga Teaching and Referral Hospital, Kisumu County.

to visit the facility on a weekly basis during this period. The visits involve comprehensive assessments and provide opportunities for clients to voice their concerns, if any. After the consultations, clients are directed to the nurse, who dispenses the prescribed TB medications while offering counseling on effective adherence to medication. Social support services are also provided to address any challenges that might hinder treatment adherence.

Nutrition plays a crucial role in the care process. According to Effie, they conduct nutrition reviews and provide supplements, especially for clients with low body mass indexes (BMIs). For example, therapeutic feeds and fortified blended flour are utilized to ensure adequate nourishment for TB clients at the facility. They are then issued with Treatment Cards indicating the dates of the next clinical and nutritional reviews. This is crucial in facilitating continuous follow-up and monitoring of the client's progress.

When asked about the trainings received, Effie mentioned on-job training as the primary source of knowledge and experience. Although

there have been no specific training sessions on Paediatric TB Management, she notes, the healthcare professional at the facility possesses the necessary tools and guides for effective TB management.

Despite the dedicated efforts of the healthcare team, challenges do arise. Occasional stock-outs of lab reagents and Gene-Xpert cartridges sometimes leads to the use of alternative diagnostic methods such as smears when necessary. Some clients also decline treatment, particularly when facing conditions such as spine TB or TB of the bone that present different symptoms than pulmonary TB. Many people do not understand the varied manifestations of TB. Additionally, temporary stock-outs of medication and supplies present bottlenecks that require quick resolution to ensure uninterrupted care. Although the staffing level at the facility is satisfactory, Euphie adds that the need for an additional clinician to handle inpatient and outpatient demands is apparent to improve service delivery. She is full of praise though, to the County TB Coordinator, Timothy Malika for the continuous support in managing TB clients at the facility. ●

Addressing Tuberculosis Control among Children: Insights from the Kenya Pediatric Conference 2023

By Nkirote Wendy | NTLD-Kenya

The Kenya Pediatric Conference (KPA) convened from April 25th to April 28th, 2022, with the participation of healthcare professionals, researchers, and policymakers. The conference served as a platform for in-depth discussions on various aspects of pediatric healthcare, placing special emphasis on tuberculosis (TB) control among children. Under the theme “Climate Change and the Environment: Understanding the Impact on Pediatric Practice to Secure Our Children’s Future,” experts gathered to explore updates from the National TB Program (NTLD-P), assess the TB situation in Kenya, and strategize on TB preventive therapy, identifying missing TB cases, and introducing advanced diagnostic tools.

To kickstart the conference, representatives from the National TB Program (NTLD-P) provided an enlightening session on the progress made in combatting TB in Kenya. Wendy Nkirote, the PPM focal person at NTP, emphasized the significance of a comprehensive approach to prevent, diagnose, and treat TB in children.

Prominent experts at the conference, including Dr. Paul Musila, CEC Health Makueni county, shed light on the challenges faced in diagnosing and treating pediatric TB. They stressed the importance of heightened awareness, improved diagnostics, and increased access to quality care. By analyzing the existing landscape, the conference aimed to identify opportunities for strengthening TB control measures, with a specific focus on vulnerable children. Rhoda Pola from NTP discussed the paramount importance of preventing TB among children to protect their health and curb the spread of the disease. The session highlighted the roll-out of TB



From Left: Prof. Elizabeth Obimbo, Anne Munene-Amref, Wendy Nkirote-NTLD-P, Rhoda Pola-NTLD-P, John Mungai-Amref, Dr. Lorraine Mugambi-CHS, Dr Paul Musila-CEC Machakos County and Agatha Kihui during the conference

The conference served as a platform for in-depth discussions on various aspects of pediatric healthcare, placing special emphasis on tuberculosis (TB) control among children.

preventive therapy and emphasized effective delivery, monitoring, and adherence among children.

The conference also delved into strategies employed by organizations such as Amref and the Global Fund TB to identify missing TB cases. John Mungai from Amref shared insights on innovative approaches and community engagement, which have helped locate previously undetected cases, enabling timely intervention and treatment.

Furthermore, the conference introduced cutting-edge TB diagnostic tools that have revolutionized detection and monitoring, particularly in pediatric cases. Dr. Lorraine Mugambi-Nyaboga from CHS showcased innovative technologies such as Truenat, GeneXpert Ultra, artificial intelligence for X-ray analysis, and urine LAM (Lipoarabinomannan) testing. These tools have significantly enhanced the speed, accuracy, and accessibility of TB diagnosis,

empowering healthcare providers to intervene more effectively.

Amidst the discussions on TB control, the conference’s overarching theme, “Climate Change and the Environment: Understanding the Impact on Pediatric Practice to Secure Our Children’s Future,” underscored the interconnections between environmental factors, pediatric health, and disease control. Thought-provoking discussions explored how climate change influences the prevalence and spread of diseases like TB, highlighting the need for sustainable healthcare practices to safeguard children’s health.

The Kenya Pediatric Conference (KPA) served as a comprehensive platform to address TB control among children. It facilitated sessions focused on NTLD-P updates, the TB situation in Kenya, TB preventive therapy, strategies for identifying missing cases, and the introduction of advanced diagnostic tools. ●

A Beacon of Hope: The Triumph over Pain in Search of Answers

By John Gitau and Mbetera Felix | DNTLD-P

Deep within the heart of Homa Bay County, a tale of resilience and determination unfolds. Calvin Opiyo, a brave soul hailing from the vibrant town of Oyugis, possesses the spirit of a fierce warrior. Until recently, his life had been intertwined with Jaramogi Oginga Odinga Teaching and Referral Hospital, fondly known as “Russia” among locals, where he fought a battle against tuberculosis (TB). As we sit down together, he reflects on the events leading up to his TB diagnosis.

“I once led a perfectly ordinary life, working diligently at a Parcel delivery company in Kericho,” he begins, a hint of nostalgia in his voice. “But circumstances forced me to bid farewell to that life.”

Calvin laments the misfortunes that left him unemployed and bedridden for a gruelling eight months. He speaks of how TB had dramatically altered his existence, causing intermittent pain to course through his spine and legs.

“Those agonizing episodes drove me to seek treatment at Kericho District Hospital. An X-ray test was conducted, but to my dismay,” he stutters, “it yielded inconclusive results, providing no evidence of an underlying issue.”

Returning home with a heavy heart, he resorted to purchasing over-the-counter painkillers in an attempt to alleviate his suffering. The pain grew more intense, rendering even the simplest tasks burdensome. Calvin’s world narrowed to the confines of his bed, relying heavily on the assistance of his devoted wife and mother for basic needs.

His health continued to deteriorate, marked by occasional searing headaches. Seeking guidance, he revisited the same chemist where he had bought the painkillers, only to be advised to return to Kericho District



Calvin Opiyo, a resilient fighter: Inspiring strength and determination shine through as he shares his journey battling Spine TB during an insightful interview.

Hospital for further tests. Frustration consumed him, until his brother in Kisumu suggested he seek help at “Russia Hospital”.

At the hospital, his first tests echoed those from Kericho, offering no respite. However, a glimmer of hope appeared when the doctors requested an MRI test, which ultimately proved decisive.

Calvin recalls the immense relief he felt upon receiving his diagnosis, a renewed sense of hope enveloping him. With the unwavering support of his caring doctors, he embarked on the challenging journey of treatment, determined to regain his health.

“The treatment has transformed my well-being remarkably. I feel revitalized, and the excruciating pain in my spine has dissipated,” he exclaims, a wide grin spreading across his face.

It is evident that Calvin, like many others in Kenya, had been unaware of forms of TB beyond the pulmonary variant. He admits to his initial bewilderment upon learning the truth, yet he is grateful for the clarity it brought.

As he embraces his newfound vitality, Calvin acknowledges the tremendous impact the medication has had on his recovery. Grateful for the unwavering guidance of his doctors, he feels compelled to express his appreciation.

“When I started my journey, I weighed a mere 33.5 kilograms,” he reminisces. “But with steadfast adherence to the treatment...,” he pauses, allowing his doctor to interject with pride, “he now weighs 67 kilograms!”

With an unyielding determination, Calvin emphasizes that TB is indeed curable, and the financial burden of medication did not rest on his shoulders. He implores those diagnosed with TB to find solace in the knowledge that there is hope for a cure. He encourages them to seek medical attention, never losing sight of their journey to recovery. Calvin, now an ambassador for TB diagnosis and treatment, hopes to inspire his friend, who also battles the same condition, to embrace the path to healing.

“Timely diagnosis could have changed the game for me,” he says. ●

A Second Chance: Battling Tuberculosis with Digital Adherence Technology



Joseph, during the interview at Chandaria Medical Centre. He is a beneficiary of Digital Adherence Technology.

By John Gitau | DNTLD-P

Joseph, a 47-year-old patient, approaches the entrance of Chandaria Medical Centre with slow, seemingly sluggish strides. His hands are clasped behind his back, and he occasionally glances at fellow patients as he squeezes his way near the lobby area, yards away from the doctor's doorway. He peels off his white cap that has formed the ensemble for his Olympic-themed jacket. He gingerly slips his face mask, which dangles off his chin. There's an aura of exasperation. *Deja vu* even.

Joseph is a patient at the medical facility undertaking treatment for tuberculosis (TB). He acknowledges us in a low husky voice and pats his baggy corduroy pants seemingly looking for something in his pockets.

He eventually pulls out an old mobile device as the doctor gestures for him to enter the room. This is among a handful of routine visits he has had to make as he reconciles his thoughts with being re-diagnosed with TB back in January this year.

"I simply had a long day and figured it was exhaustion. I subsequently, however, began feeling unwell...I was sweating and coughing uncontrollably but didn't read too much into it..." he narrates as he cracks his knuckles gazing at the concrete pathway.

TB is an airborne bacterial infection that is spread when an infected person coughs, sneezes, or talks. The bacteria usually attack the lungs but can also attack other parts of the body, such as the brain, kidneys, and spine. It can be fatal if not treated on time.

The 2016 prevalence survey identified a prevalence of 426 per 100,000 adult population. The highest disease burden was reported among people aged 25–34 years, males and those who live in urban areas. Wendy Nkirete, Public Private Mix focal person at the National TB Program echoes that men are hardly compelled to seek medical care for ailments and will likely brush it off until the situation is dire.

Indeed, the wind doesn't break a tree that bends! In retrospect, Joseph's situation could have been salvaged sooner had he sought help in time. He rues his days binge-drinking with his buddies. As he contemplates his next chapter in life, he has become fully invested in his treatment. He admits that the tide has shifted in terms of medical care he received for the same in yester years.

"I take my five tablets and send the code! Can't afford to slip up!!!" he chuckles as he extends his hands to reveal text messages, but his phone battery is drained. "There are days I almost forget to take the pills, but my doctor gives me a call inquiring about the same. This program has saved my life!!"

The adoption of Digital Adherence Technology has eased the burden for patients and health workers as it has aided in monitoring and keeping track of patient uptake of drugs and reducing the incidence of defaulting on the same.

"Some of my peers thought that I had HIV and shunned me" he exclaims while nodding his head in disbelief.

Joseph narrates the stigma and decries the obliviousness associated with the signs and symptoms of TB infection and rallies for sensitization to quash the ignorance. His eyes expose a desperation for full cure but spares a thought for those yet to understand the severity of the disease and how crucial it is to get that head start. ●

Kenya's National TB Performance Review: Evaluating Progress and Identifying Gaps



A Triumph of Dedication: Homa Bay County representatives revel in their success as best performing county in TB Management.

It is only through partnerships and collaborations that we can effectively address the complex challenges of TB prevention, diagnosis, and treatment, and ultimately work towards eliminating this devastating disease.

By Mbetera Felix | DNTLD-P

Kenya's efforts in controlling tuberculosis (TB) have recently been reviewed in a formal National TB performance review meeting, held in collaboration with relevant stakeholders involved in TB efforts. The USAID HealthIT-supported review meeting had the objective of assessing the implementation and impact of TB prevention, care, and control measures, as well as evaluating the performance of strategies implemented to combat TB in the country.

The discussion assessed the strengths and gaps of the interventions that had been implemented. It also provided specific recommendations on the strategic orientations that need to be adopted and developed to overcome the gaps identified in the way that TB

prevention, care, and control are being implemented in the country.

The review provided an opportunity to advocate for TB prevention, care, and control among policy makers, strengthen the engagement of national health authorities and key stakeholders, and enhance the mobilization of resources from both domestic and international sources.

During the meeting, the Ministry of Health, through the Program, awarded the best performing Counties and Sub-counties in TB control and provision of quality of care. The best performing counties in TB control were Homa Bay County, Mandera County, and Nyamira County. The most improved counties were Machakos and Kilifi, and the

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CONT'D from Pg 15

most improved sub-counties were Taita Taveta and Merti. The award for the best sub-counties went to Merti, Suba, and Gem. The awards recognized the counties and sub-counties' efforts in controlling TB and providing quality care to patients.

The former acting head of the Program, Dr. Jacqueline Kisia, highlighted the importance of continued efforts and collaborations among all stakeholders to achieve a TB-free Kenya.

"Collaboration is absolutely critical in the fight against TB. TB knows no borders and no one organization or country can tackle it alone. It is only through partnerships and collaborations that we can effectively address the complex challenges of TB prevention, diagnosis, and treatment, and ultimately work towards eliminating this devastating disease," she said.

USAID HealthIT works collaboratively with the Ministry of Health - its directorates and divisions such as the National TB Program at both national and county levels to contribute to evidence-based decision-making by health stakeholders in Kenya. The collaboration is aimed at strengthening national information systems that support data capture, reporting, data analysis and data quality assurance efforts to facilitate decision-making. To sustain the use of these national information systems, the activity strengthens the human capacity in digital health systems. ●



Dr. Sam Muga-Deputy Chief of Party, CHS, awarding Merti, the best performing sub-county.



Dr. Jacqueline Kisia, former Ag. Heading NTP, awarding the 2nd best performing Sub-county - Suba



Mr. Raphael Pundo, Health IT, awarding the 3rd best County- Nyamira



Dr. Maurice Maina, USAID Kenya awarding Mandera County for being 2nd best performing county



Dr. Omesa Eunice, WHO Kenya making her remarks during the PRM meeting



Martin Githiomi, ICT specialist at NTP making a presentation during the awards.



Philip Muchiri, CHAI, awarding Siaya team for being the 3rd best Sub-county Gem.

17-Year-Old Student Beats Tuberculosis While Pursuing his Studies

By Dorcas Kurui | DNTLD-P

In a remarkable tale of perseverance and determination, a 17-year-old student at Loima Boys Secondary School in Turkana County has beaten tuberculosis (TB) while continuing his studies. Ian, (not his real name), shares his inspiring story of battling this deadly disease while pursuing his education.

Ian's ordeal began in February, during the first term when he started experiencing night sweats, a sore throat, acute body weakness, and rapid weight loss that persisted for several weeks. However, he did not immediately seek treatment, thinking that it was just a passing ailment.

Eventually, the symptoms became too much for him to handle, and he reported the case to his class teacher. The school administration sent him to the nearest hospital, where he was given medication despite the lack of a concrete diagnosis. Despite completing the dose, his symptoms deteriorated.

"I took all the medicine, and the symptoms did not go away. I felt the same way before I started taking the medicine," he says.

Ian's condition worsened until he was finally taken to Lorugum sub-county hospital. He produced sputum for the doctor to run some tests and was told that he would receive the results after two weeks. During this period, he survived with the help of his classmates, who provided support because he was too weak to continue his daily routine.

"I could not even lift a bucket of water because I was so weak," he narrates. "During this time, I used to wear a face mask."



Strength and Resilience: Ian, a high school Student at Loima High School, battles TB with courage and determination.

Two weeks later, the lab test results came in, and Ian was shocked to learn that he had tested positive for TB. He was taken back to the hospital, where he was given TB medication, which he would continue to take for six months. He is now on his third month of treatment and has seen significant improvements.

Ian has gained weight and can do his daily duties with minimum intervention from his roommates in school. He is grateful that he has not experienced any form of stigma from his classmates because the school administration decided to keep his condition under wraps to protect him

against stigmatization. The county team later mounted an outreach at the school where all students and staff members were screened.

"I am positive that I will fully recover from TB and continue my studies," he says. "I commend the Ministry of Health for making TB treatment free of charge. I was certain that my parents could not afford to pay for the hospital bills, and I could still be fighting for my life."

Ian also had a message for those who are afraid to get tested for TB. "TB is treatable. Do not allow yourself to go through the agony and pain of experiencing TB symptoms for a long time, yet you can stop it by getting tested and beginning your treatment," he says.

Ian's story is a testament to the power of resilience and determination in the face of adversity. Despite facing a life-threatening disease, he remained focused on his studies and determined to beat the odds. His experience should serve as an inspiration to all those who are struggling with illnesses or other challenges in their lives. ●

"I commend the Ministry of Health for making TB treatment free of charge. I was certain that my parents could not afford to pay for the hospital bills, and I could still be fighting for my life."

Melodies of Change: Kenya Music Festival Strikes a Chord in the Fight Against Tuberculosis

By Mbetera Felix - DNTLD-P

In a harmonious fusion of music and health advocacy, the National Tuberculosis (TB) Leprosy and Lung Disease Program in collaboration with Amref Health Africa has orchestrated a trailblazing campaign to raise awareness of TB during the 2023 revered Kenya Music Festival. This creative initiative aims to captivate the minds of young students across the nation and empower them to combat TB, a persistent public health challenge in Kenya.

With over 90,800 new TB cases reported in the past year, Kenya stands among the 30 countries heavily burdened by this disease. Particularly vulnerable populations, including children, individuals living with HIV and those enduring poverty.

To confront this pressing issue head-on, the National TB Program and Amref Health Africa have harmonized with the Kenya Music Festival, a grand gathering that showcases the musical talents of thousands of students from all corners of the country. Within this symphony of collaboration, a series of engaging activities will unfold, featuring melodic competitions and choral verses designed to raise awareness and foster TB prevention among these budding learners.

Recently, the Program rallied over 300 adjudicators in Nakuru County during their annual forum, enlightening them about the importance of TB awareness among young individuals, who often face a heightened risk of contracting the disease. Representatives from the TB Program and Amref passionately conveyed their message, sowing the seeds of knowledge among the adjudicators.

The campaign itself will crescendo with an array of activities, encompassing



Empowering Adjudicators: National TB Program and Amref Health Africa Inspire Change at Annual Adjudicator's Forum in Nakuru County.

TB-themed music contests, captivating performances, and enlightening educational sessions. Participants will be encouraged to compose and perform original choral verses and musical compositions expertly crafted. The harmonies will echo the chorus of TB prevention, diagnosis and treatment, with prestigious accolades bestowed upon the most innovative and impactful compositions.

Moreover, the campaign will resonate through interactive educational sessions, allowing festival-goers to discover the intricacies of TB prevention, diagnosis, and treatment.

The Kenya Music Festival harmoniously sets the stage for the National TB Program to cultivate the spirit of advocacy within young hearts, inspiring them to become fervent proponents of TB prevention and treatment, contributing to the creation of a TB-free Kenya.

The adjudicators have expressed deep appreciation for this innovative approach that seamlessly intertwines music and education, making

the awareness-raising experience enjoyable and enlightening.

This comprehensive awareness strategy underscores the unwavering commitment of the National TB Program and its partners to extend their campaign beyond the Kenya Music Festival. The Program is determined to reach out to young people and other vulnerable populations through a range of inventive approaches. Through collaborative efforts and active community involvement, the Program envisions achieving its bold ambition of eradicating TB by 2030.

In harmony, the National TB Program, Amref Health Africa, and the Kenya Music Festival compose a captivating symphony of hope, unveiling a promising new paradigm for TB awareness and prevention in Kenya. By striking a chord with the hearts and minds of young people through music and education, this campaign has the potential to inspire a new generation, heralding the rise of young End TB Champions. ●

A Mother's Determination: Overcoming Challenges to Treat her Son's Pulmonary Tuberculosis



Miraculous Recovery: A Joyful Mariam Baraka and Her Healthy Son, Mahir, Overcoming TB Together

By Mbetera Felix | DNTLD-P

Mariam Baraka's son Mahir was diagnosed with pulmonary tuberculosis (TB) by Clinical officer Pharnice at Miritini CDF. Mariam had been struggling with her son's health for a long time, going from hospital to hospital with no improvement in his condition. The doctors would diagnose him with pneumonia and treat him, but the treatment never worked. Mahir's weight reduced drastically, and his condition became dire. Mariam was shocked to find out that her one-year-old son had TB but was determined to support him through his treatment.

Mahir's treatment started, and his condition began to improve. Mariam made sure that he took his medication on time and even carried the medicine with her wherever she went. However, Mariam faced many challenges in getting food for her son as they lived in poor conditions. They relied on porridge flour from the health facility, which helped cater to Mahir's nutritional needs.

Before the diagnosis, Mahir's condition was so bad that he couldn't eat and would vomit when he did. His coughing was also painful, and Mariam and her family had to suckle him to give him the energy to go on. People

at home were giving up on them, and some even suggested that Mariam had sacrificed her child. Mariam even went to witch doctors for a solution, but their solutions never worked and sometimes made Mahir's condition worse.

Clinical officer Pharnice played a critical role in Mahir's diagnosis and treatment. Pharnice conducted a thorough history of any TB contact and discovered that Mahir had a history of TB contact. After physical examination and x-ray tests, Pharnice diagnosed Mahir with PTB and started him on non-TB treatment. Mahir started responding well to the treatment, and his cough stopped. He started feeding and walking without support, and he was also introduced to nutritional supplements. Mahir is still on anti-TB treatment, and he is now on the continuation phase.

Pharnice faced challenges when she informed Mariam that her child probably had TB. Mariam cried and denied that her child could have TB, saying that TB only affects older people who are HIV positive. Pharnice and her team counselled and tested Mariam for HIV, which turned out negative. They continued counselling and educating her on the mode of TB transmission, and she eventually accepted her son's

condition and embraced his treatment. However, when Mariam went back to the community, people would tell her that a child could not have TB unless he or she was bewitched. This created doubts, but Pharnice and her team never gave up. They continued counselling and reassuring Mariam that TB is treatable. After witnessing Mahir's progress, Mariam was convinced they were right and had what it takes to treat her son.

Pharnice's training on pediatric TB management in May 2022 helped in handling Mahir's situation and diagnosing other children with TB. Before the training, they had no child on anti-TB treatment, but after the training, they were able to diagnose and treat other children with TB.

Mariam's journey with Mahir's illness was one of resilience and determination. She faced many challenges but never gave up on her son. Pharnice and her team played a critical role in diagnosing and treating Mahir's TB, and their counselling and education helped Mariam accept her son's condition and embrace his treatment. Thanks to their efforts, Mahir's condition improved, and he is now on the road to recovery. ●

Status of National Tuberculosis Epidemic and Response

Quarter one 2023

Drug susceptible TB



25,667

Number of TB cases
Notified



86.2%

Treatment success
rate (All forms)



12.4%

Pediatric proportion



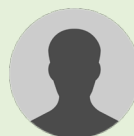
53.5%

Previously treated
(DSTB) with DST results



94.8%

Proportion of DSTB with
known HIV status



4.8%

Lost to Follow Up



95.2%

Proportions on ART

Drug resistant TB

MDR

23

PDR

0

RR

77

181

**Monoresistant
TB**

Pre XDR

**Grand
Total**

Leprosy

16

Number of Leprosy
Cases reported

TB Prevention Therapy

11,819

Children <5 initiated
on IPT (contacts
of bacteriologically
confirmed cases)



The Importance of Prompt and Accurate Diagnosis and Treatment



Navigating obstacles in rural healthcare: Johnson Kyalo, a resilient resident of Kilifi County, struggles with delayed identification and treatment, echoing the challenges faced by many Kenyans in rural areas

By DNTLD-P Team

Johnson Kyalo's battle with tuberculosis (TB) serves as a reminder of the value of early detection and appropriate care. This article illustrates the difficulties in getting healthcare in Kenya's rural communities, where cultural attitudes and lack of access to medical facilities sometimes cause delays in illness diagnosis and treatment.

Johnson Kyalo, a local of Kenya's Kilifi's Nganze Sub-County, had been experiencing sickness since January 2022.

He initially disregarded the signs in the hopes that they would be gone on their own. He lost his appetite. By February he was feeling weak as his illness worsened. He rested at home for a month, but when he started coughing and feeling sick, he went to a local clinic for check up.

Johnson's road to recovery, regrettably, was not without difficulties. He went to

various dispensaries, but his illness got worse due to wrong diagnosis. He was also sent to a traditional healer, who suggested smoke inhalation and cold water baths as part of his therapy. As a result, Johnson's health continued to deteriorate.

His brother, a clinician in Nganze subcounty fortunately convinced him to return to the hospital where an X-ray revealed he had TB. He was enrolled to treatment immediately.

Johnson's condition had gotten worse due to the delay in identification and treatment. The difficulties Johnson encountered are reminiscent of those faced by many Kenyans living in rural areas. There is limited access to healthcare facilities, and cultural norms frequently impede their recovery.

For instance, some clients turn to traditional healers for their medical needs. Sadly, these misconceptions delay diagnosis and treatment, making it more difficult for patients to recover. Healthcare professionals in rural areas

also encounter a number of difficulties. Some facilities lack the technology and medication required to treat TB and there is a paucity of educated medical staff. In order to reach healthcare facilities, people like Johnson must travel far, and even then, they might not get the care they need.

The government, through the Ministry of Health has taken action in response to the problems the healthcare industry is facing, particularly in rural areas. With partners' support, the National TB program has increased access to healthcare, particularly in rural areas.

The government has also unveiled a number of policies and initiatives targeted at bolstering the healthcare system and enhancing healthcare results. Health care workers have been capacity built and facilities provided with the tools they need to deliver high-quality treatment.

Additionally, the ministry is collaborating with communities to address cultural norms that might make it difficult to provide healthcare services.

Johnson Kyalo's narrative emphasizes the value of timely and correct diagnosis and treatment and the necessity of collaboration among stakeholders to increase access to healthcare. ●



The ministry is collaborating with communities to address cultural norms that might make it difficult to provide healthcare services.

Maganda Mother Grateful for Free TB Drugs as her 2-year-old Recovers



A Triumph of Resilience: Grace Waithera Kimani and Her Radiant Daughter, Embracing Life with Boundless Energy after Conquering TB

By Mbetera Felix | DNTLD-P

Grace Waithera Kimani is a 18-year-old housewife from Maganda. Her daughter, who is approaching her second birthday, was diagnosed with TB in July 2022 is now healthy and energetic. Kimani took her daughter to the Port Reitz Hospital after she developed mouth sores, which made it difficult for her to eat. After tests were conducted, her daughter was diagnosed with TB and she was put on treatment.

Kimani reveals that her daughter was not playing and would prefer to sleep most of the time. When she kept her daughter in one place, she could hardly move. However, after receiving treatment, she started to improve. Kimani says that her daughter is now

very okay, she can eat without any problem, and she is playful. She is now able to pull herself up with the support of household items and walks with the support of the same, something she couldn't do before her treatment.

During the interview, Kimani revealed that her father had also suffered from TB and through her daughter's diagnosis and treatment, she has learned that TB is curable. Kimani says that TB drugs are free, and her daughter took them as prescribed every day at 8 PM after eating. Her daughter did not experienced any side effects from the medication.

She revealed that when she first came to the hospital, her daughter's blood count was low, and she was requested to buy blood count-boosting

medicines, including fruits that would help boost the same. This was at the same facility where her daughter was diagnosed with TB. She did not pay for any TB drugs and she used to collect the packs for her daughter every time she needed them.

Kimani's daughter completed her treatment without any difficulties. She was advised by the doctors to ensure that she gives her daughter the prescribed medicine as directed and take her to the hospital when asked to. She followed this advice and her daughter recovered well.

She is grateful that her daughter has been received free TB drugs, which made it possible for her daughter to receive treatment without any financial strain. ●

Francis Karubiu Ngande: From TB Patient to Champion



Francis Karubiu Ngande: A Dedicated TB Champion Empowering Communities and Promoting Health in Bomu, Mombasa

to get tested. He talks to the client about TB just to build their hope and confidence.

The challenges of stigma and discrimination against TB patients still persist.

“A multidrug resistant (MDR) patient is supposed to wear a mask and before COVID-19 normalized mask-wearing, people who had MDR faced a lot of discrimination and stigma. This discouraged many patients who saw no need of keeping on taking their drugs,” he notes.

Francis loves what he does and it reminds him of a critical moment of his life when he needed a helping hand. Despite the challenges he faced, there is a spark of hope in his eyes. He has taken on the mantle of TB champion in his community. Now that he is in the position of extending an olive branch to other people, he feels so much enthused. He is determined to raise awareness about TB and fight for the rights of all TB patients. The determination that shines through his expressions reflects the courage and resilience that lies within every TB patient. ●

By Mbetera Felix | DNTLD-P

Francis Karubiu Ngande, a 47-year-old Kenyan, is a TB champion, working as a peer educator and a Community Health Volunteer (CHV) in Bomu, Mombasa. He serves clients at the grassroots by bringing them to health facilities for TB screening, following up on how they take their drugs, and emphasizing treatment adherence. For those found without TB, they are put on TB treatment. He is also involved in sensitizing the youth at the grassroots on TB and other issues such as drug abuse.

Francis was called to become a TB champion earlier in 2022 during the World TB Day. As a TB patient himself, he understands well the challenges faced by patients. He was subject to stigma from some health care workers,

the community and even family members. His voice slightly trembles with emotion as he narrates his story. His eyes filled with a mix of pain and determination. Probably a testament to the struggles he faced as a TB patient.

He emphasizes treatment adherence to avoid the scenario where normal TB transforms into drug-resistant TB. He wants to sensitize people in his community about TB and encourage those under TB treatment that being found with TB is not a death sentence.

Francis has been taken for trainings such as advocacy, TB community engagement and stigma reduction, among others. His typical working day involves looking for signs that a client may have TB and persuading them

He been taken for trainings such as advocacy, TB community engagement and stigma reduction, among others. His typical working day involves looking for signs that a client may have TB and persuading them to get tested.

Community Health Volunteer Making Significant Impact in Fight Against TB in Miritini

By Mbetera Felix | DNTLD-P

Bahati, a Community Health Volunteer (CHV) and TB champion, is making a significant impact in the fight against Tuberculosis (TB) in Miritini, Futa village. She mainly works with a doctor at the TB clinic in contact tracing to find individuals with TB symptoms. Once she identifies someone, she engages them in conversation to determine if they could be susceptible to TB. She collects sputum samples and takes them to the laboratory for testing, and if someone is found to be TB positive, they are put on medication immediately.

Bahati is careful to ensure that the entire household of the infected person is tested, and she uses carriers to take samples to the laboratory. She has found many cases in the Maganda area, where the prevalence of TB among adults and children is high. To combat this, Bahati has been conducting deep contact tracing and sensitizing more people, especially women and touts, to recognize TB symptoms and visit health facilities for screening and treatment.

Her community work has been successful because of the rapport she has built with the community. She has taken the time to create a friendship with them and scheduled regular community visits where they talk about children's nutrition, an important component of the TB program. The nutrition program is executed under the same tent where medical teams conduct TB screening, creating an integrated approach.

The community talks she engages with the locals serves as safe spaces that encourage dialogue about uncomfortable issues, such as TB status. Through the talk sessions, the community has created a support



Meet Bahati: A Dedicated TB Champion Tracing Hope and Saving Lives in Miritini, Futa Village.

group to provide moral support and identify difficult members who need referrals.

Bahati's success is also due to the use of people who have recovered from TB as champions and scouts. They refer TB cases to her, and sometimes she visits people in the community that they have identified with TB. Her work has shown that being found with TB is not a death sentence, and the community

is now able to talk openly about TB and report cases without fear of stigmatization. Her work as a CHV and TB champion has been commendable, and her efforts have led to increased case finding and successful treatment of TB in her community. ●

Fisherman's TB Recovery Story Inspires Others in Homa Bay County

By Dorcas Kurui | DNTLD-P

Wycliff Omondi, a 37-year-old fisherman from Homa Bay County, had his life turn upside down after he was diagnosed with tuberculosis (TB). Omondi had been a fisherman for six years until he started experiencing night sweats, a sore throat, and persistent coughing in January 2023. At first, he went to a

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pharmacy and was given a prescription for malaria, which did not work. After three weeks, he went to the hospital where his sputum was tested, and he was diagnosed with TB only two hours after the test.

Omondi wasn't surprised by the diagnosis given the symptoms he was experiencing and the turn his overall health was taking. He was positively aware that TB is treatable and anyone is susceptible to the disease. He knew that he had to adhere to the treatment plan provided by the doctor for him to recover.

He recalls being incredibly underweight and thinking he was dying because he had lost appetite. "I couldn't eat anything at all at that time because I had lost my appetite, and that worsened the state of my body." His neighbours began avoiding him, deeming him cursed, with some even claiming that he had HIV/AIDS. "It was emotionally painful. I was on the verge of death. I was certain I was going to die, and my neighbours thought so too. I only weighed 31 Kg, but now I weigh 50 Kg." He had less support, but he could always rely on his mother's entire support.

She would remind him to take his medication and his brothers would help fetch food since his mother was a little bit too old to fend for him. Omondi

is now continuing his treatment and is even considering going back to fishing once in a while as he continues to recover. He is determined to prove to those who stigmatized him that he is not dying and that he is just a regular guy who got sick with a treatable disease and would still live a normal life after treatment.

Omondi further brought his brother to the hospital to be screened as well, and he tested negative for the disease. He encouraged anyone with TB-like symptoms to go to the hospital and get tested before the situation worsens. "TB is treatable. Please do not ignore any symptoms you might have. Go and get tested early, and you will be treated," he said.

Despite the challenges he faced, Omondi was grateful for the support he received from his family and friends. He applauded the sponsors and other organizations for their continued collaboration in an effort to end TB in Kenya.

TB remains a major health challenge in Kenya. The majority of these cases are not diagnosed or treated, leading to high rates of TB-related morbidity and mortality. The Kenyan government through the Ministry of Health National TB Program, in partnership with various stakeholders, has been working to reduce TB prevalence and improve treatment outcomes. The government has also made TB treatment free of charge in all public health facilities to ensure that everyone, regardless of their economic status, can access treatment.

According to the World Health Organization (WHO), Kenya ranks among the 30 high TB-burden countries globally. The Kenyan government has been implementing various initiatives to reduce TB prevalence, including increasing the number of diagnostic and treatment centers and ensuring that healthcare workers are trained in TB diagnosis and treatment.

Despite these efforts, there is still a need for increased awareness about TB, including the importance of early diagnosis and treatment. There is also a need to address the stigma associated with TB, which often leads to patients being ostracized from their communities. ●

Contact Tracing Yielding results in Mombasa

By Godana Mamo – USAID TB ARC II

Mombasa County continues to implement contact tracing and investigation among patients with exposure to a confirmed bacteriological TB. Early this year, a very sick patient diagnosed with TB started treatment at Miritini CDF Dispensary. Through the support of community volunteer attached to the facility, all the four household contacts were screened, investigated and started on TB preventive therapy after screening negative.

Unfortunately, the patient passed away in August after two weeks of treatment. Four of his friends visited the facility and requested for TB test. The sputum results turned positive for all the contacts of the index case who passed away. The clinician started the patients on TB treatment and embarked on contact tracing for all the four patients. All the initial contacts brought by the patients screened negative for TB and initiated on TPT.

Despite adherence to treatment, one of the four patients had a month two-smear positive result after a sputum test. This triggered the clinician to review adherence and investigate the causes of failure to convert to negative. A community volunteer made a visit to one of the social places the patient frequented found him together with about 10 people. After a short interaction with the patient and the friends, the community volunteer advised all the contact to be tested for TB.

Five out of the 10 friends were found to have active TB and started on treatment. This explained the problem of persistent TB positive test during follow up due to possible re-infection from undiagnosed contacts. The experience from Miritini CDF dispensary underlines the importance of work place or social contacts in addition to household contacts. It's also a low lying fruit for active TB case finding. ●

Despite the challenges he faced, Omondi was grateful for the support he received from his family and friends. He applauded the sponsors and other organizations for their continued collaboration in an effort to end TB in Kenya.

Accelerating TB Control in the Counties through Collaborative Interventions: Busia County



Brian Wekesa a recovering TB patient packages tomatoes for a customer at Soko Posta market in Busia town where he is a groceries trader.

By Diana Munjuri CHS - USAID TB ARC II

When 27 year old Brian Wekesa, a groceries trader at Soko Posta market in Busia town closed his business and accompanied his elder brother who had been ailing with complains of a persistent cough, night sweats, loss of appetite and unintentional weight loss to the Busia County Referral Hospital, he did not expect to be requested to test for TB as well.

"After examination which included production of a sputum that was examined in the laboratory, it was confirmed he had TB. The health workers explained to me that since we had been staying together and TB is an

infectious disease that is spread when a person with active TB disease coughs, laughs, and or sings that I get tested. I obliged and the tests confirmed that I also had TB," Brian shares.

He continues, "When we were told we both have the disease, it really worried me. I thought we were going to die but the reassurance from the doctor that the disease is curable redeemed my lost hope."

Before being initiated on treatment, Brian and his brother were informed about the causes of the disease, how to not spread it to others and the importance of adhering to treatment to get cured.

"Immediately after the counselling, we were put on treatment and requested to come for clinical reviews as a well as drug refills as indicated in the patient card. This was last year December, 2022," Brian shares.

Brian was also requested to bring his wife and child whom they stay with for testing but none of them had active disease. They were put on TB preventive therapy to prevent them from developing active TB disease.

"Since we began treatment, we are all progressing on well. The symptoms my brother had are gone. Treatment is free of charge and we are truly thankful because were it not for the support gotten, we would have lost our lives as well as the burden of treatment costs would be too much on us," Brian says.

Brian and his household are among thousands of patients who access quality TB services as a result of the collaborative work between the Ministry of Health's National TB Program, all the 47 counties and its partners including Centre for Health Solutions – Kenya (CHS) through the United States Agency for International Development (USAID) supported Tuberculosis Accelerated Response and Care II (USAID TB ARC II) in TB control in Kenya, one of the high burden countries in the world.

According to Mary Asoyong, Busia County, TB, Leprosy and Lung Disease Coordinator, the county is one of the high burden counties in Kenya with a TB case notification rate of around 130/100000 population in 2022, arise from 90/100000 population in 2021.

"With the support from the National TB Program and USAID TB ARC II, we have accelerated TB active case finding across the facilities. We have been able to increase this over time. We feel there is more TB in Busia than what we are managing with 2016 TB prevalence survey that we were part of showing that we could be missing 40% of all cases," she explains.

Busia which is a boarder county with five of its seven sub counties being along the Kenya-Uganda wet and dry borders. The county gate way to east Africa serves a lot of TB vulnerable populations including the fisherfolk

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community, truck drivers, refugees, and slum dwellers

"We serve a big population including international population. We also have slums both in Busia and Malaba. The poverty levels are around 60% with malnutrition being one of our big challenges," Mary says.

The National TB Program and CHS - USAID TB ARC II have been supporting TB control intervention in the county. Support supervision for both the County, TB, Leprosy and Lung Disease Coordinator(CTLC) and Sub-County, TB, Leprosy and Lung Disease Coordinators (STLCs) has been provided as it has for the other counties in Kenya.

"This has been one of our biggest pillars in provision of services. We have been able to reach thousands of health workers during the support supervision visits where we have been able to mentor them on TB. We know the training in school on TB was not intense as well as we have new guidelines and treatment regimens. During the support supervision we have been able to mentor them on one on one, including mentorship on active case finding, tools, management of TB and many other factors relating to care and treatment," Mary says.

During the support supervision visit, the CTLC and the STLCs, are also able to engage health workers on matters quality of care improvement where they discuss with facility staff on how to consume their own data and utilise it to make decisions. Once mentored, the coordinator visits the facility the following month to draw solutions from the last visit based on data and improved service delivery.

With the county being very vast and with a catchment population of around one million as of 2022 estimates, the terrain in most part of the county is difficult. The county has facilities in its islands where access is a challenge with only one boat connecting the mainland and island. If one has to access the island facilities to provide mentorship and come back to the mainland the same day, they need to

have completed their work by noon otherwise they will miss the boat.

"We appreciate that the SCTLC serving there is supported with a monthly overnight per diem of Kshs. 8000 to support the Island facilities adequately. With that, he doesn't have to rush through the visit so as not to miss the boat," Mary says.

The County has 192 health facilities, 88 TB treatment sites and 35 diagnostics sites. The CTLC and the STLCs are supported with transport reimbursement to provide technical support in these sites with each visiting at least 12 facilities per month to provide technical assistance/mentorship.

The county is also provided with sampling networking support to scale up drug sensitive testing. With this support, they are able to network their samples to National TB Reference Lab and or Kisian for patients to access culture and drug sensitivity testing.

"We have been able to link samples of all bacteriologically TB confirmed cases by collecting culture and this has scaled up the number of DRTB cases we diagnose. In 2019 we had only 4 DRTB cases, increased to 13 in 2020, 14 in 2021, 15 in 2022 and in the January-March 2023 quarter we had six clients with four being first time TB clients," Mary says.

Through the National TB Program, CHS - USAID TB ARC II and other partners, a multi-disciplinary team from the county and the health workers managing DRTB patients are supported to conduct clinical review meeting for the patients on monthly bases to monitor their response to treatment and address any challenges arising.

The four geneXpert sites are supported with bundling on monthly basis as well as maintenance by a super user so that they are able to relay results on real time to clinicians for early treatment initiation and reduction in disease spread in the community.

"Previously before the support, we had a turnaround time of two weeks

but this has reduced to 24 hours. Now we are able to test, diagnose and initiate patients on treatment the same day. With this support, the results are shared out among the CTLC, STLCs, the testing laboratory, and the clinician hence there is networking to ensure the patient is initiated on treatment in time as well as managing them properly," Mary says.

Overall the quality of care for patients in the county has improved. There has been timely diagnosis based on these interventions and early diagnosis leading to improved TB outcomes.

"Our treatment success rate has improved from 80% in 2018 to 88% currently after the interventions. The death rate has decreased 12% in 2019 to 7% in 2021 and we are working to reducing it to less than 5% through various strategies including clinical reviews," Mary says.

Gertrude Mwanya, the SCTLC Matayos Sub County notes that the continuous support they continue to receive through various interventions including timely reimbursement has made their work easy, and smooth despite working in the periphery areas.

"We are utilising the support gotten to strengthen TB control. Personally, I am giving it my best and I am glad to share the sub county I support was ranked among the best improved sub counties in Kenya by the National TB Program performance review of 2022," Gertrude shares.

For sustainability they are engaging the county to support TB interventions.

"Aside from human resource, we have had no county government support on TB issues in the over ten years I have been in the program. After we began sharing TB reports with the leadership and updating them on the burden of TB and outcomes, we have gotten allocation for TB control by the county government within the current financial year allocation from the supplementary budget being one million. We are making some progress. We will continue to advocate for more resource allocation for TB control activities," Mary concludes. ●



Participants of the Kenya Diagnostic Network Assessment pose for a photo during the launch of the assessment on May 5, 2023 at the Movenpick Hotel, Nairobi.

Kenya Launches TB Diagnosis Network Assessment

By DNTLD-P Team

The National Tuberculosis (TB) Program has launched the TB Diagnosis Network Assessment (TB DNA), an important initiative in the fight against TB in the country. The launch was held on 5th May 2023 at the Movenpick Hotel in Nairobi County. The event was attended by various stakeholders in the health sector, including representatives from national and county government agencies, healthcare providers, and community organizations.

In her speech which was read by Dr. Joseph Lenai, Head, Directorate of Preventive and Promotive Health, Dr. Josephine Mburu, the former Principal Secretary, Ministry of Health – State Department for Public Health and Professional Standards, highlighted the importance of the TB DNA in Kenya's fight against TB. She noted that TB remains the leading cause of mortality globally, with approximately

10.6 million people developing TB in 2022, of which 1.2 million (11%) were children. She further noted that Kenya recorded 90,841 TB cases in 2022, and only 68% of the estimated 133,000 TB cases in 2022 were diagnosed and notified, highlighting the need for innovative and effective strategies to diagnose TB.

Dr. Mburu emphasized that the Ministry of Health remains committed to ending TB, as outlined in the National Strategic Plan, and supports the use of evidence-based and data-driven interventions to guide policy decisions and program implementation at the national and county levels. She also highlighted the importance of the TB

DNA in identifying the gaps in the TB diagnostic landscape, which hinder access to timely, quality-assured TB diagnosis for all patients engaging with the health system across all sectors.

The TB DNA launch has been supported by various partners, including the United States Agency for International Development (USAID). The support from these partners is invaluable in addressing the gaps in the TB control agenda for Kenya. The assessment will give recommendations and improve access to WHO-recommended rapid tools for diagnosing TB. The findings will further inform national policies, guide resource mobilization, and improve universal access to and availability of quality diagnostic tools across the country.

Dr. Mburu called upon all stakeholders to support this initiative and work together to end TB in Kenya. She emphasized that the success of the assessment will depend on the collective efforts of all stakeholders.

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The TB DNA launch is an important step towards improving TB diagnosis and treatment in Kenya. The initiative aims to identify gaps in the current system and develop evidence-based strategies for improvement.



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The Ministry of Health through the National TB Program commits to supporting the adoption of the recommendations from this exercise to improve programming and achieve the overall goal of ending TB in the country.

The TB DNA launch is an important step towards improving TB diagnosis and treatment in Kenya. The initiative aims to identify gaps in the current system and develop evidence-based strategies for improvement. The launch underscores the need for innovative and effective strategies to diagnose TB, and the commitment of the government and its partners to ending TB in the country. ●

SUCCESS STORIES: Treatment Interrupters

By Amref Health Africa in Kenya and KICOSHEP

*Treatment interruption among TB patients is one of the challenges that might impede the National TB Program and implementing partners not to end TB by 2035 as enshrined in the End TB strategy. Through the global Fund support, Amref Health Africa in Kenya in partnership with National TB Program and Sub recipients is implementing various community TB activities among them tracing TB patients who have interrupted treatment. The main objective of this activity is to reduce lost to follow up rate and achieve good treatment outcomes in quest to end TB. Since July 2021 to March 2023, a total of **4,546** TB patients who had interrupted treatment were traced out of whom **3,558** (78%) were found and returned back to continue with medication. One of the key reasons why other treatment interrupters were not found is that they had migrated to other places unknown to the CHVs and the locals.*

Below are stories developed by Amref and KICOSHEP (Sub Recipient) revealing some reasons leading to treatment interruptions among TB patients in Nairobi County.

All is well that ends well. A common saying that sometimes does not make sense. Sometimes all is well until TB shows up at your doorstep. There are times when we think that we are immune to certain things and we cannot imagine going through them. Nobody imagines himself or herself getting TB let alone having to go through treatment for six months. When it knocks on your door, you are never ready for the things it comes with- the stigma, the side effects of the drugs, and the loss.

Wanjala's case is one of those that proves TB stigma is one that needs to be dealt with. Before the test results came out positive for TB, Wanjala was living his best life, with a family he had hoped for, ever since he became a man, and with a job that ensured he could take care of his young family. Suddenly, he was coughing, drastically losing weight and sweating at night. He decided to pass by the hospital on his way to work and when the results came, he had TB and this was the beginning of his woes.

He decided to start medication and since he wanted to protect his family and his colleagues at work, he let them know what was going on. His disclosure saw him lose his job and that meant he could not take care of his family. As a man, whose identity comes from his ability to provide, Wanjala had a hard time coming to

terms with being unemployed. Things only got worse from there; he started having quarrels with his wife at home, and with each passing day, they only got worse. One day, he left the house in the morning knowing very well that he would not be coming back. He left everything including his medication and went to start life somewhere else.

Efforts to locate him proved futile for everyone. From his wife, to his family- no one knew where he was. After months of searching for him, the CHV decided to try his number one more time and luckily, it went through- he decided to come back and start treatment again after defaulting. To help him cope, he was put in a support group to help with psychosocial support. The support and the health education talks have seen him have a new lease of life.

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Improving Adherence to TB Treatment through Technology



Nicodemus Adera, the TB clinician at Chandaria Health Centre demonstrates to Monica Wanjiku and her daughter some of the writings on the digital adherence technology medication sleeves.

By Diana Munjuri CHS - USAID TB ARC II

Tuberculosis is the leading cause of single infectious agent deaths globally, with the WHO classifying Kenya among the high-burden countries. Recent estimates show that around 133,000 people have developed TB, among them 16,000 children. This is a huge burden on the health system, and a major barrier to economic development.

In 2022, the Ministry of Health's National TB Program reported 90,841 TB cases, compared to 77,854 cases notified in 2021. Despite the progress made in the fight against TB in Kenya, non-adherence to treatment has proven to be one of the factors derailing the progress. According to the Kenya National TB Program 2021 annual report, the country's treatment success rate stands at 77%, against a target of 80%. The death rate is still high at 13%, and lost to follow-up is at 5.4%.

Treatment adherence is a key factor for treatment success, and non-adherence is associated with adverse outcomes like high morbidity and mortality, the development of multi-drug-resistant TB (MDR TB), which is very expensive to treat, relapse, and transmission to contacts, among others, a derailing situation Nicodemus Adera, the TB clinician at Chandaria Health Centre, resonates with.

"For over 12 years I have served at this clinic, one of my biggest challenges has been patient treatment getting lost after follow up. Each time I initiated TB patients on treatment, some would stop midway, especially after the symptoms disappeared, which mostly happens between five days to two weeks after taking TB drugs," Nicodemus shares.

That was Nicodemus's agony until December 19, 2022, when the Ministry of Health's National TB Program, in collaboration with the Center for

Health Solutions - Kenya through its USAID and Stop TB Partnership Global-funded Introducing New Tools Project, rolled out the use of Digital Adherence Technology (DAT) in the facility.

"Before the rollout of the technology in the facility, we were taken through a three-day sensitization on how to implement DAT. This included criteria on client enrollment and utilization of the data for decision-making," Nicodemus says.

Once a patient is diagnosed with TB, they are counseled on the disease's causes, how to avoid spreading it to others, the length of treatment, and the need of adherence, among other things. They are then enrolled in DAT.

"The enrollment involves inputting their biodata into the adherence platform, which I have installed on my phone, and demonstrating to them how to pick the drugs from the

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Monica Wanjiku a TB patient daughter sends the code on the digital adherence technology medication sleeves after taking her TB drugs. JPG

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fixed-dose combination medication sleeve. The patient reports medication intake daily by sending a toll-free SMS message using a code found on the customized packaging," Nicodemus explains.

Any type of mobile phone can be utilized to submit the code to the adherence platform. It is only the health worker who requires a smartphone with bundles for the app to run, which is provided for by the project monthly at a rate of Kshs. 1000.

The application is easy to use, and the data is safe and secure. The data can be easily retrieved when needed for use in decision-making while adhering to the Data Protection Act.

"Unlike in the past, I can now communicate with my patients. I can keep track of their compliance. If a patient fails to send a code, the system sends me a notification listing the patient as a defaulter," Nicodemus

shares.

He adds, "At the click of a button, I am able to see patients pending lost to follow-up when they fail to take drugs on certain days, and I am able to take action early enough by inviting them to the facility to share the challenges they are experiencing and come up with a solution to the same, or even send the community health worker to check on them."

47-year-old Joseph Kamau, a resident of Dagoretti, is among the patients enrolled in the platform. Unlike his previous experience with TB treatment in 2010, which was marred by non-adherence due to forgetfulness to take drugs, he describes the application as his biggest treatment support system.

"In case I forget to take the medication and send the code, the application sends me a reminder. This is very helpful, as I sometimes forget I am sick since I am no longer experiencing any symptoms, which disappeared after five days of being in treatment," Joseph

shares.

52-year-old Monica Wanjiku, who was enrolled into the system using her daughter's phone as she doesn't have one, shares that her biggest worry when she was diagnosed with TB was when the health worker told her that if she failed to adhere to treatment, she would either die or spread it to her contacts. A story she relates with well as she had witnessed her neighbors succumb to the disease.

"The technology has made me and my entire household be in charge of our health. Apart from receiving reminder notifications to take the medication, the information on my treatment journey on the medication sleeves that my daughter and her children read and interpret for me has been very helpful. I feel empowered as a patient, and so does my household," Monica shares.

She adds, "The information has made me aware of my treatment duration, various phases in the treatment journey and what to expect in every phase, the importance of completing treatment, when to take the medicines, how to take the medicines, and how many tablets to take."

The technology is being piloted in Nairobi and Mombasa, which are among the high-burden TB counties in Kenya.

According to Elizabeth Mueni, the TB Coordinator for Nairobi County the technology is patient-centered as the health workers are able to monitor the patient's treatment and intervene early before they become lost to follow up.

"The application is both health worker and patient-friendly. The benefits we have noticed or observed are that; the patient is always in contact with the care worker, hence the quality of care is assured, unlike in the past when the patient would be given one-week or one-month drugs and only see the health worker when coming for a refill. With the technology, the health workers are in touch with the patient on a daily basis; hence, a mutual relationship or contact is made," Mueni notes.

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The information has made me aware of my treatment duration, various phases in the treatment journey and what to expect in every phase, the importance of completing treatment, when to take the medicines, how to take the medicines, and how many tablets to take.'

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Improving Adherence to TB Treatment through Technology

Mueni adds, "The technology is reducing the financial burden incurred by patients when on treatment as they do not have to make avoidable visits to the hospital to seek clarification since they have the information on the medication.

Dr Lorraine Mugambi-Nyaboga, USAID TB ARC II Chief of Party, describes the digital adherence technology as a game-changer, providing a patient-centered approach to TB care.

"With the technology, TB patients are being empowered to receive individualized care and support, hence the quality of care. The patients are able to choose the most suitable time to take their medication. This technology, in essence, places TB care and adherence in the hands of patients, hence breaking health care system-related and/or individual-social-economic or behavioral-related barriers to treatment adherence," Dr Lorraine says.

She adds that the technology adoption has been on an upward trajectory since its rollout in the two target counties in December 2022, which she credits to the collaborative effort and commitment of the staff at the Ministry of Health's National TB Program, the two counties, CHS and the health workers at the facility level.

"We have so far enrolled over 1,900 patients into the system in over 190 health facilities spread in the two target counties. We expect the number to keep on increasing as health care workers and patients embrace the technology due to its user-friendliness," Dr Lorraine shares.

She concludes by noting that the adoption of the technology is geared towards achieving the goal of eliminating TB by 2035, as it will help in improving the treatment success rate, reducing the lost-to-follow-up patients who are likely to become MDR TB patients or die, spreading the disease in the community, and reducing the catastrophic cost of treating DR TB.

DAT is one of the projects being implemented under the Introducing New Tools Project to strengthen TB care in the country. Other WHO-approved tools for TB screening, diagnosis, and prevention rolled out since June last year include;

- Treatment courses for TB preventative therapy: the 3RH regimen to benefit 13,000 persons
- Eight digital chest X-ray equipment kits with accompanying software for the computer-aided detection of TB
- Two interferon-gamma release assay (IGRA) machines to aid in the detection of TB infection
- 38 portable and battery-powered Truenat machines for molecular TB testing that can be easily used in hard-to-reach areas where reliable electricity supply is not reliable and,
- Connectivity solution for all TB diagnostic equipment known as TIBULIMS. ●

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SUCCESS STORIES: Treatment Interrupters



4,546

TB patients who had interrupted treatment were traced out of whom 3,558 (78%) were found and returned back to continue with medications since July 2021 to March 2023.

Nelly is a single parent working extra hard to be able to fend for her children. Jobs are hard to come by but she is doing the best she can. A visit with her youngest to the doctor reveal that her baby has TB. She is devastated and even more when the doctor recommends special diet for the baby because he is malnourished. TB medication is free but the diet recommended means she has to use extra money to buy food. She is already struggling with all that is already on her plate so she decides that the child will not be taking the medicines.

The CHV noticed that Nelly missed the next appointment and began searching for her to find out why. Nelly decides to narrate her ordeal to him and after a lengthy discussion; she agrees that the child be started on treatment again. The hospital provides supplements for the child and food for the family.

It is hard to imagine these are the challenges people go through considering we are in the 21st century. You would expect that people would be more aware of this disease because information is readily available, but something is still missing- there is a gap yet to be bridged. There is need for us to educate people that TB is curable, that it is not a death sentence. Our messaging needs to be intentional and deliberate so that people will understand. I hope that soon enough, people will not have to go through so much loss because of something curable. Life is already hard enough; TB should not be making it even worse. "TB ina tiba". Let us kick out TB in Kenya. ●

**Names have been changed to protect the identity of the patients.*



It is hard to imagine these are the challenges people go through considering we are in the 21st Century



Wycliffe Onyango - Radiographer, Madiany Sub County Hospital, Siaya prepares to take an X-ray of a fisherfolk member using the digital chest x-ray machine placed rolled out in the county by the Ministry of Health's N

Improving TB Case Finding through the Use of Computer Aided Diagnosis for TB Chest X-ray in Siaya County

By Diana Munjuri CHS - USAID TB ARC II

Siaya County located in the Nyanza region of Kenya is one of the high TB/HIV burden counties in Kenya. According to the County TB, Leprosy and Lung Disease Coordinator, Mary Wambura, the County TB notification rate is 310 per 100,000 population. Though the burden is high, a lot of progress has been made in the fight against the disease in the county.

The Ministry of Health's National TB Program in collaboration with the Siaya County government and implementing partners among them Centre for Health Solutions – Kenya (CHS) through the USAID supported Tuberculosis Accelerated Response and Care II (USAID TB ARC II) and

Introducing Tools Project (iNTP) have accelerated efforts to find the missing cases by rolling out a Computer Aided Diagnosis for TB Chest X-ray (CAD4TB CXR) at Madiany Sub County Hospital in the county.

"Previously before the rollout of the CAD4TB CXR, we used to mobilize for the national chest x-ray to come all the way from Nairobi. This was a costly affair and we could not achieve much because it would be for few days as well as we would have the screening happen very few times in a year," Mary shares.

In July 2022, a CAD4TB CXR machine was placed in the facility after an assessment which entailed the

capacity of the facility to accommodate the machine in a safe and spacious space while ensuring the safety of the patients and staff from the machine radiation rays. A trained radiographer and linkage assistant were also brought on board.

"We really deserved this machine. In a day we serve an average of 200-300 clients of which 10 are likely to be TB patients in a month against our target of six patients. Compared to last year, our TB diagnosis has increased by 50% meaning we were missing cases as a result of the absence of the machine," Dr Felix Oloo, Madiany sub county hospital Medical superintendent explains.

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Improving TB Case Finding through the Use of Computer-Aided Diagnosis for TB Chest X-ray in Siaya County

The catastrophic costs brought about by the referral of clients for X-rays services in the nearest facilities deterred many from seeking the service due to their low social economic status.

"We would suspect clients for TB and send them for x-ray but majority would not due to the costs that would be incurred to access the service. Some would opt for over-the-counter medicine which is cheaper at most Kshs.300 as opposed to incurring Kshs.1000 for transport and Kshs. 600 for the x-ray to be taken. These clients would later present in the facility after the disease has progressed often leading to death or life-threatening lung damage due to late diagnosis. This also meant there was a lot of transmission in the community," Danvas Nyakwira, Madiany sub county hospital, TB/HIV clinician shares.

Since its roll out in the facility, its utilisation has been optimal both within and outside the County. The machine is used to carry out targeted

TB outreaches within and outside the county in among others the fisherfolk community in the islands and overpopulated areas like market places and slums. So far over 4000 clients have been screened for TB using the machine as of March 2023.

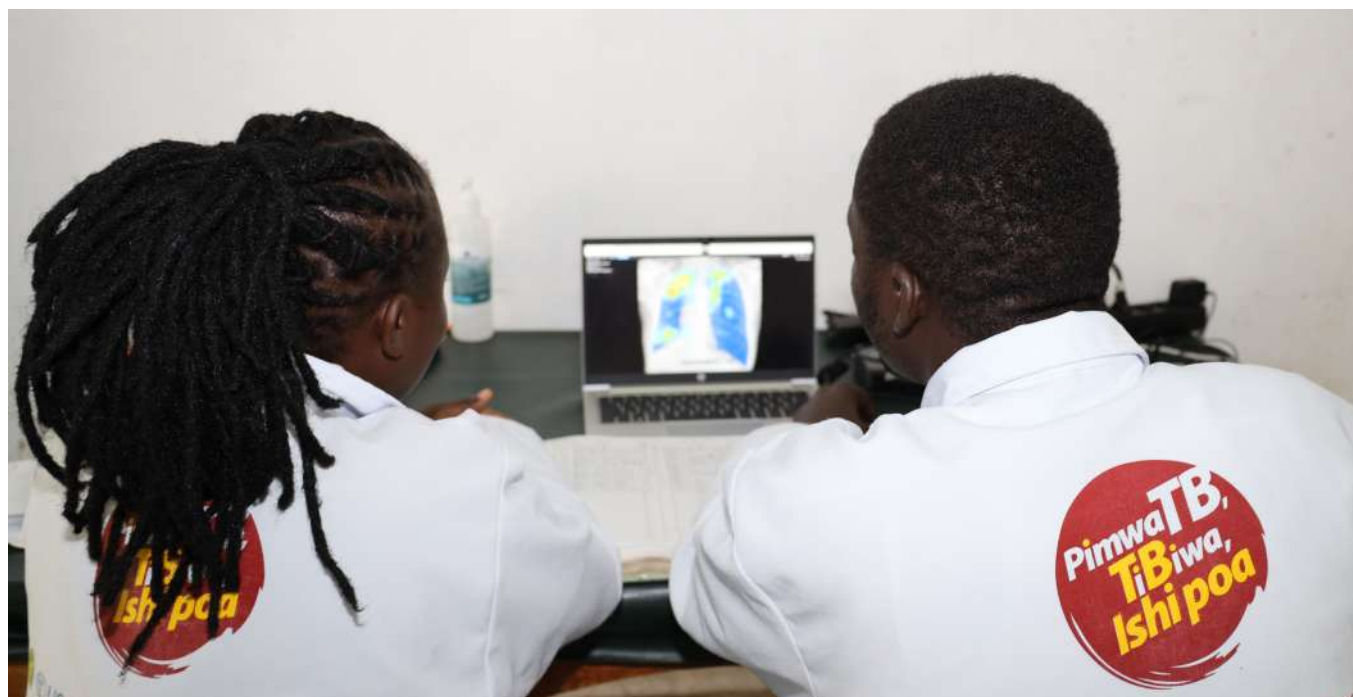
Dr. Felix praises the efficiency of the CAD4TB CXR machine for TB screening services, highlighting several advantages. Firstly, the machine is provided free of charge, ensuring access to all patients regardless of their socio-economic status. Secondly, it has a short turnaround time for releasing and interpreting results. Thirdly, its portability allows healthcare workers to reach patients directly, reducing disease transmission and the financial burden on patients. Dr. Felix also emphasizes the ease of use, with an artificial intelligence component linked to the TIBULIMS system for result relay. This eliminates the need to physically collect results and allows for remote monitoring. Furthermore,

the machine's maintenance is cost-effective as it can be digitally maintained by suppliers, eliminating the need for travel and potential service delays.

Wycliff Onyango, a facility radiographer, praises the efficiency and effectiveness of the machine he operates, which involves taking x-ray images and utilizing the built-in artificial intelligence for interpretation. During outreach programs, they screen approximately 100 patients daily, and in a healthcare facility, an average of 20 patients. If a patient scores above 60, they are referred to clinicians who then send them for a sputum test to confirm tuberculosis (TB). Wycliff emphasizes the user-friendly nature of the machine, as it assists him in interpreting various opacities in the x-ray images. He considers this machine superior to others, providing him with satisfaction when diagnosing patients, initiating treatment, and witnessing their health improvement.

Dissemination of information on the availability of the CAD4TB CXR machine at Madiany has prompted neighboring both private and public

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Wycliffe Onyango- Radiographer and Valery Atieno-Linkage Assistant at Madiany Sub County Hospital look through an X-ray taken by the digital chest x-ray machine placed in the facility by the Ministry of Health's National TB Program

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facilities to be referring their patients for chest x-ray services there.

Jane Otieno, the TB/HIV nursing officer at Mama Anns Odede Community Health Centre, highlights the positive impact of having the CAD4TB CXR machine available near their facility in Madiany for diagnosing tuberculosis. Previously, they had to refer clients to distant hospitals, which posed challenges due to transportation costs and the x-ray fees. Many clients couldn't afford to go or delayed seeking help, resulting in late diagnoses and increased community transmission. However, with the CAD4TB CXR machine, they now screen clients on-site and accompany those who require further screening to Madiany free of charge, using either a motorbike or ambulance. If TB is detected, they initiate treatment and provide ongoing management. So far, they have successfully diagnosed and are managing 19 patients.

Fredrick Ochieng, a 35-year-old carpenter, had been experiencing persistent symptoms including coughing, night sweats, and loss of appetite. Initially, he tried over-the-counter medication, but there was no improvement. On December 21, 2022, he sought treatment at Mama Anns Odede Community Health Centre, where he was referred to Madiany for a chest x-ray. The results were shared with the clinician, who recommended further testing with a sputum sample. Upon receiving the diagnosis of TB, Fredrick received counseling on the disease, its causes, and prevention measures, and he was promptly initiated on treatment. Since starting treatment, he has experienced significant improvement, with his

symptoms disappearing and his ability to provide for his family restored. Fredrick's household members were also screened for TB, and as they were found to be free of the disease, they were placed on preventive therapy. Fredrick expresses gratitude for the availability of the free machine, which played a vital role in diagnosing their condition and providing timely treatment.

George Nyauchi, a 60-year-old tailor, had been suffering from night sweats, chest pain, and severe coughing for over six months, attributing it to the progression of his asthma. Despite seeking medical help from various hospitals and trying over-the-counter medication, his health continued to deteriorate. However, a glimmer of hope emerged when a friend who had undergone chest x-ray screening informed him about it.

The next day, George arrived at Madiany Sub County Hospital in a bedridden state, and after an examination, a chest x-ray revealed abnormalities in his lungs with a score above 60. Further testing with a sputum sample confirmed the diagnosis of TB. He received counseling on the disease, its transmission prevention, and the importance of adhering to treatment, and he was promptly initiated on treatment.

Since starting treatment in July of the previous year and completing it in January, George's health has significantly improved. His symptoms, including chest pain, coughing, and night sweats, have disappeared, and the frequency of his asthma attacks has decreased. George has regained his energy and returned to his tailoring job, even progressing to training

others in the trade. He has gained weight, going from 56 kg to 75 kg. George expresses his gratitude for the availability of the machine that has not only saved his life but also the lives of others in their community. He has referred several individuals with TB symptoms for screening and treatment, and they are all progressing well.

He adds "I have since gone back to my tailoring job that has since progressed to training other people since I feel more energetic now. My weight has improved from 56 kgs to 75 kgs. I am grateful that as a community we are privileged to have benefitted from this machine that has saved my life plus that of others. I have referred several people who have seen with TB symptoms here, were screened and those found with the disease have also been initiated on treatment and are progressing on well."

Stella Omulo, USAID TB ARC II Nyanza Regional Officer recommends the scale-up of the CAD4TB chest X-ray machine to every GeneXpert site as per the WHO guidelines to ensure targeted testing and reduction in cartridge wastage.

"The screening of the clients using the digital chest x-ray machine before sending them to the laboratory has reduced cartridge wastage as it has reduced the number of people who go to the laboratory. Data from this facility shows that at least 2 of 10 people sent to the laboratory will turn positive for TB hence we have targeted testing and reduction in cartridge wastage," Stella says.

Stella notes that the digital machine has a capability of releasing a colour coded x-ray with a score of >60 being TB presumptive makes it easy for health workers to review the results and make a diagnosis efficiently and provide quality of care to patients behold TB.

She concludes by noting that they will soon be publishing best practices publications with data justifications for reference in the scale up on the utilization of the machine in other places. ●

Wycliff Onyango, a facility radiographer, praises the efficiency and effectiveness of the machine he operates, which involves taking x-ray images and utilizing the built-in artificial intelligence for interpretation.



Fredrick Were, the medical technologist at Navakholo Sub County Hospital prepares a sample for TB testing using the molecular TrueNat machine placed in the facility by the Ministry of Health's National TB Program.

Strengthening TB Diagnosis in Kakamega County through the Rollout of the Truenat Machine

By Diana Munjuri CHS - USAID TB ARC II

On a brighter Thursday morning in March 2023, we set on a journey from Kisumu to Navakholo Sub County Hospital, Kakamega County, one of the beneficiaries of the 38 TB molecular Truenat machines rolled out in the country last year.

After driving for at least 45 minutes down the tarmacked road that offered scenic views of the lush green surroundings we arrived at Kakamega town and diverted to join an earthen road leading to Navakholo Sub County

Hospital. What was supposed to be a 30 minute drive took us two and half hours due to the bumpy, slippery and thicket boarded off road terrain despite using a four wheel vehicle driven by one of our organization most experienced drivers. By the time we were getting to the facility, our backs were aching from frictions of uncontrolled body movements as the vehicle navigated over rocks and pot holes along the way. The terrain was so tough that some colleagues joked the Rhino Charge off-road challenge to be held there. Never the less, we arrived in one piece.

A few meters to the hospital, some road construction has began, but still these enhanced road capacities do not necessarily reflect efficient mobility of the local population. Public transport is limited to expensive infrequent public service vehicles or motorbike connections to and from Kakamega town, the county hub.

The impassability of the road leading to the facility has also hampered provision of health services including TB services due to sub-optimal sample networking to the nearest GeneXpert sites hindering TB control.

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"Before the installation of the Truenat machine here, we had a challenge in TB diagnosis as we don't have a geneXpert machine in the entire Sub-county. Previously, we were using microscopy and referring samples to Kakamega County referral hospital for geneXpert which is located over 80 kilometers away. The sample networking was sub-optimal due to the poor terrain," Emily Vukusa, Kakamega County TB, Leprosy and Lung Disease Coordinator shares.

In July last year, the Ministry of Health's National TB Program, USAID Kenya, Stop TB Partnership, Centre for Health Solutions - Kenya (CHS) through the introducing New Tools Project (iNTP) installed a Truenat machine to strengthen TB diagnosis in the sub county.

'Before the placement of the Truenat machine, there was a site assessment of the need to place the machine there, the availability of staff and a safe room to place the machine. Two laboratory staff were then trained on how to operate the Truenat machine and how to report/relay the results," Emily shares.

As a result of having the machine at Navakholo, TB case identification has improved in the Sub-county. All facilities in the sub-county refer their samples to the site.

"In 2022 we diagnosed 121 cases compared to 2021 where we diagnosed only 76 cases. The presence of the machine has improved bacteriological diagnosis given TB is a laboratory diagnosis as per WHO guidelines. Of the 121 cases reported in 2022, 78% were bacteriologically and only 22% were clinically diagnosed," Emily says.

According to Antony Were the facility TB clinician, the presence of the machine has led to early diagnosis and treatment initiation for the patients.

"Our turn around for the getting the results has also gone down. Before the installation of the Truenat machine we used to send samples out for geneXpert and we were reliant on a rider which was very inefficient and unreliable due to the bad roads. It was taking more than five days to get

the results. This led to late diagnosis and community disease transmission," Antony shares.

He adds, "The machine has also improved our management of patients as we are able to detect which patient is resistant to rifampicin."

Fredrick Were, the medical technologist at the facility and one of the end users of the molecular Truenat machine shares that since the installation of the machine from July 9, 2022 to mid-March 2023, they have processed 855 samples, of which 64 were positive, and one multi drug resistant TB. All the positives were put on treatment.

"When we compare our previous diagnostic tests with microscopy with Truenat, Truenat has improved our TB case finding across the sub county. Truenat is more sensitive compared to microscopy hence chances of missing TB are very minimal," Were says.

In a day they test an average of eight samples. In case, of cartridge stock out in the geneXpert sites in the neighboring counties the sample are sent to Navakholo since the Truenat doesn't use a cartridge.

"We use sputum to test for TB and we test an average of five from within the facility. We receive samples from three zones within the sub county through the USAID Afya Nuru project enabled sample networking with the subcounty," Were shares

The Truenat machine capability to function off grid has also favored them since electricity is unreliable in the area.

"The machine is also able to run on battery power when power from the national grid goes off which is the trend here daily. We always ensure that the machine is well charged so that we are able to continue with our work in the absence of electricity," Were says.

Were terms the machine efficient and effective in diagnosing TB, "With the presence of the Truenat machine, work is easier for me. Previously, I used to read more slides with the microscope which was time consuming and cumbersome. As you read more slides

you are likely to miss the TB bacilli in the slides. Truenat is molecular, and more sensitive and has the capability of detecting Rifampicin resistance"

They look forward to utilising the Truenat machine to carry out targeted outreaches as its portable. To ensure there is no disruption of services in case of their absence, they are cascading the knowledge on its usage through on job training to colleagues as well as sensitizing the neighboring facilities of its availability for optimal use in TB control in the sub county.

32 year old Ruth Waitthera,, a mother of two boys and a resident of the area is one of the beneficiaries of the Truenat machine at Navakholo. When she presented in the facility after coughing up blood while doing laundry, she expected to be diagnosed with TB as she had battled the disease five years ago after having similar symptoms as those experienced that day, but not as fast as it happened.

"One day in November 2022, I started coughing at night but the cough went away. The following day in the morning while doing laundry, the cough came back but this time while accompanied by a bloody sputum. It reminded me of the similar symptoms I had in 2017 and was diagnosed with TB. I immediately made up my mind and came to Navakholo where I was requested to produce a sputum for testing," Ruth shares.

She adds, "Unlike my encounter in 2017 where I had to wait for results for like a week, this time the results were back quickly confirming I had TB. After counseling on the importance of completing treatment and how to not spread the disease to others, I was initiated on treatment the same day. Since then, I am been progressing well. The coughing is gone. My weight has increased from 55 to 58 kilograms and I look forward to completing treatment to be completely cured."

Her husband and children were also tested for TB using the Truenat machine. None of them had developed active TB disease and because they

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Turning The Page on Illness: Achieng's journey towards recovery

By John Gitau and Mbetera Felix | DNTLD-P

The elation of finally receiving a TB diagnosis came as a pleasant relief to 30 year old Anne Achieng. She sits calmly alongside her doctor, who offers to translate as we delved deeper into her story. A mother of 2, who hails from Miwani in Kisumu, narrates of how her life had been crippled by TB from her diagnosis in September last year but has been buoyant ever since her recovery.

"I used to operate a small vegetable business where I'd fend for my small family..."she testifies through her doctor.

"I struggled to regain a foothold of my life....

Alot has changed since!!!!..." she adds.

She vividly recalls feeling overwhelmingly tired and excessive sweating. Her cough grew heavy as she reconciled to visit a hospital [Ahero Hospital]

"They conducted multiple tests there, including Salmonella and Typhoid but all in vain!!..."she concedes. Her family was put under lots of distress and agony as they slowly came to terms with the strain of seeking treatment.

"Financially it was draining for us as I had to make constant trips to the hospital all without a proper diagnosis."

Her turning point came in March of last year, when she made her way to "Russia" Hospital [Jaramogi Oginga Odinga Teaching and Referral Hospital]. It was there that a GeneXpert test was administered revealing a positive result for TB. She greeted the diagnosis



Anne Achieng former TB client with Effie Awuor a clinician at the Jaramogi Odiga Hospital TB clinic, Kisumu County during review.

all but with mixed feelings citing the fact that she believed it had no cure.

"I had to self isolate and stayed aloof. I steered clear of all interactions outside my family..."she exclaims through her doctor.

"I feared crowded places!!..."she remarks.

But her doctors counseled her, attributing treatment adherence as key to a cure and eventually reconnecting with society. She confesses that it wasn't easy with bus fare in particular posing a constant challenge with countless hospital visits.

She appeals to persons experiencing symptoms of such as coughing, chest

pain and sweating to seek immediate medical attention. She advocates for early screening of TB and encourages families of patients to stand by their own during treatment as a means of reducing stigmatization in society.

"TB is curable...I held plenty of reservation and even dreaded the treatment process when I began but I'm delighted I went ahead with it. I am recovered and living healthy again!!..." she proclaims. ●



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Strengthening TB Diagnosis in Kakamega County through the Rollout of the Truenat Machine

were her contacts and she had active TB disease, they were put on TB preventive therapy treatment to protect them from developing active TB disease.

"We are all progressing well with our treatments. I am grateful that the TB services are now readily available, free of charge and closer home," Ruth concludes.

42 year old, Caroline Masinde, a TB/HIV champion at the facility had always felt the urge to go for TB testing due to regular interaction with TB patients.

"I usually assist in tracing patients who are lost to follow up after treatment initiation for both TB and HIV. During TB sensitisation meetings the importance of regularly screening and testing for TB as health workers had always been emphasized due to our regular interaction with the patients however, this was hampered by the sub-optimal diagnostic services in the facility. I really wanted to test for TB but I thought of giving priority to the patients who seemed sickly as I did not have any symptoms," Caroline shares.

She adds, "With the availability of the machine at the facility, in November 2022, I decided to produce a sputum for testing using the Truenat machine. The results came back the same day confirming I had TB. After counseling on the importance of completing treatment, I was initiated on treatment. I am progressing on well and will be completing treatment soon."

Caroline concludes by urging other health workers to regularly screen for TB as well as support those battling the disease. She calls for the scale up of the Truenat machine in the country to strengthen TB control especially in the peripheral facilities.

The Truenat machine at Navakholo is among the 38 molecular tools rolled out in the country through the iNTP. Other WHO-approved tools for TB screening, diagnosis, and prevention rolled out since June last year include;

- Treatment courses for TB preventative therapy: the 3RH regimen to benefit 13,000 persons
- Digital Adherence Technology using medication sleeves
- Eight digital chest X-ray equipment kits with accompanying software for the computer-aided detection of TB
- Two interferon-gamma release assay (IGRA) machines to aid in the detection of TB infection
- Connectivity solution for all TB diagnostic equipment known as TIBULIMS. ●

“

TB is curable...I held plenty of reservation and even dreaded the treatment process when I began but I'm delighted I went ahead with it. I am recovered and living healthy again!!.."

”



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