THE LAB DIGEST

THE REPUBLIC OF UGANDA

NEWSLETTER

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ISSUE I

MINISTRY OF HEALTH

- Increasing access and coverage of HIV Early Infant Diagnosis through use of Point of Care testing in Uganda.
- Uganda's fight against Antimicrobial Resistance: The Journey so far

- Thousands run for Sickle Cell during the Kabaka Birthday run

- Kayunga hospital reconstruction to prioritize laboratory services

Editor's Note

Esteemed reader,
Welcome to the first issue of The Lab Digest, a quarterly newsletter that brings you updates and insights from the world of laboratory and diagnostics, a brainchild of the department of National Health Laboratory and Diagnostic Services of the Ministry of Health.

We are deeply delighted to have made it this far, and we can only pledge better in our subsequent issues. Special appreciation to the editorial team and the National Health Laboratory and Diagnostic Services Management.

In this issue, we cast a light on the Point of Care Early Infant Diagnosis as a key intervention in the fight against mother-to-child transmission of HIV. Is it a viable option? What can we as a country do different?

From the facilities whose ongoing refurbishment and expansion is prioritizing Lab services to the recently concluded Kabaka Birthday Run where over 50,000 people ran in support of the fight against Sickle Cell Disease.
We can only hope that you enjoy your read!

Please feel free to reach out on our
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our social media platforms; @UNHLS1 on Twitter, CPHL on Facebook, or our website at www.cphl.go.ug.

With warmest thanks,

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National Health Laboratory and Diagnostics Services (NHLDS)

Commonly known as Central Public Health Laboratories, NHLDS is a department in the Ministry of Health mandated to provide stewardship and management of laboratory services in Uganda and provide laboratory support for disease surveillance through investigation and confirmation of disease outbreaks and feeding into the HMIS database at the Ministry of Health resource centre.

NHLDS leadership

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NHLDS

Our Vision

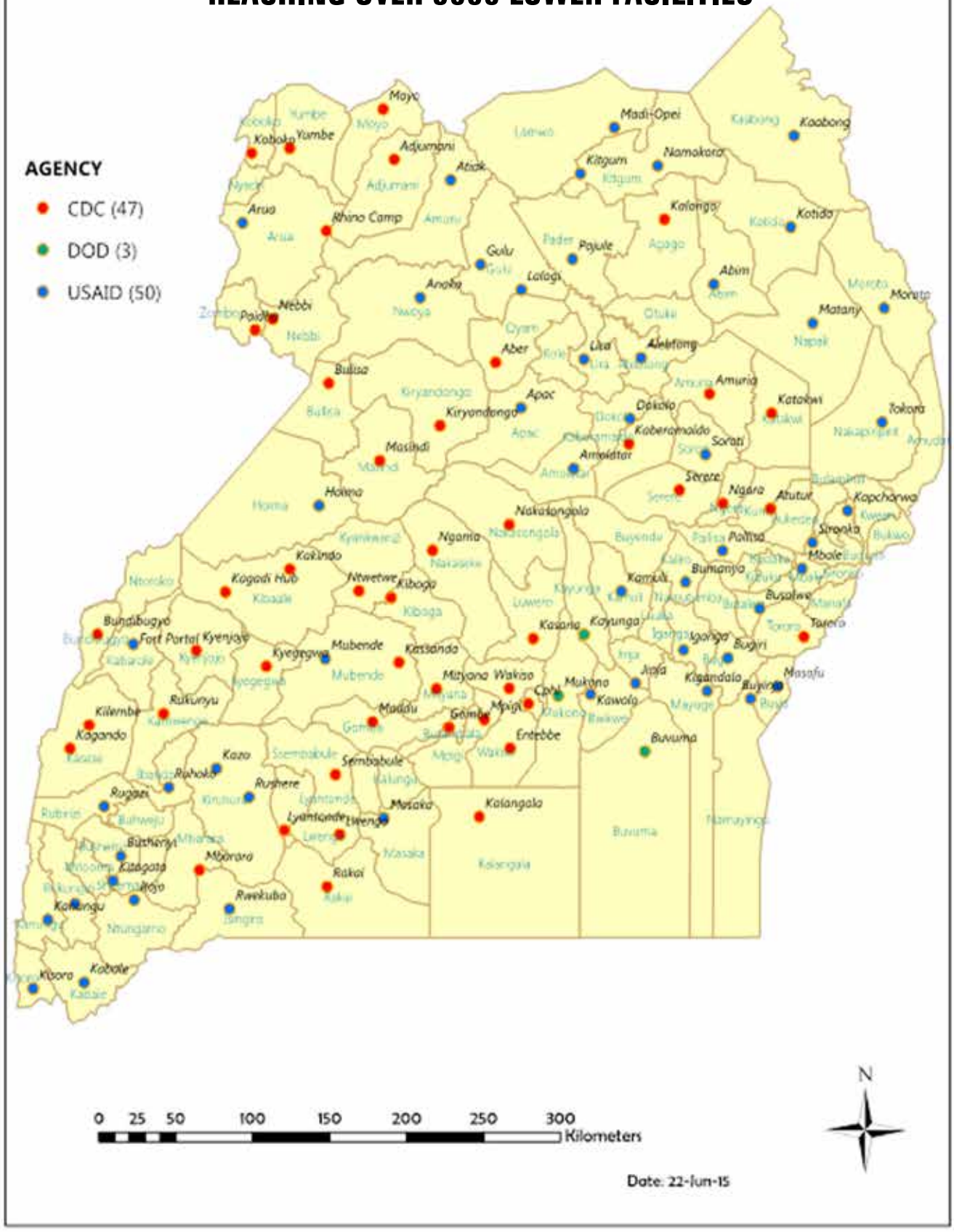
Quality health laboratory services available to all people in Uganda.

Our Mission

Provide quality, cost effective and sustainable health laboratory services to support the delivery of the Uganda National Minimum Health Care Package at all levels.

DR. SEWANYANA ISAAC
Lab Director NHLDS

THE 100 HUBS EVENLY DISTRIBUTED ACROSS THE COUNTRY REACHING OVER 3000 LOWER FACILITIES



Improving coverage and access to HIV Early Infant Diagnosis (EID) in Uganda: Is Point of Care (POC) testing the magic bullet?

Uganda has an estimated 1.4 million people are living with HIV with about 52,000 new infections occurring every year. Vertical transmission of HIV from mother to child is the second most common route of transmission of HIV in Uganda, accounting for 18% of all new infections. Peak mortality for infants born with HIV occurs between 2 and 3 months of age and without treatment, up to 30% of infected children will die by their first birthday, and 50% by their second, if not placed on life-saving ART (UNAIDS 2017). However, studies show that access to ART can dramatically reduce infant mortality and HIV progression, especially if initiated early before immunological and clinical disease progression.

Providing HIV-infected infants access to life-saving Antiretroviral Treatment (ART) is a public health priority, and the World Health Organization (WHO) recommends that all HIV-exposed infants should have a virological test done within 2 months of birth and that all HIV-positive infants should be initiated on ART immediately after diagnosis. Early Infant Diagnosis (EID) is a critical step for prompt linkage to care and for initiation of ART for HIV-infected infants to improve childhood survival and development.

What is POC, and why use it?

Pont of Care (POC) testing, also known as bedside testing, near-patient testing, remote testing, mobile testing and rapid diagnostics is medical testing that can be performed outside of a laboratory setting.

Whereas there has been dramatic growth in EID testing volumes across Uganda, there remain gaps in testing coverage for HIV-exposed infants with just 56% of children having access to testing using conventional testing where samples are transported from all over the country to the state-of-the art MOH centralized Laboratory in Kampala (UPHIA, 2016).

Uganda carried out POC implementation pilot for HIV EID between November 2017 and December 2018 in which 3 different platforms of POC equipment including Gene

xpert, Alere Q, and Samba were placed in the Laboratory hubs and in non-conventional entry points such as Nutrition units, Children's wards, and ART clinic in 33 health facilities across the country. This was part of the drive to improve access to HIV EID, care and treatment for HIV positive babies, and therefore to improve their chances of survival.

Preliminary findings have shown promising results with over 40% of HIV-positive infants identified through alternative entry points. There was marked increase in sample volumes and positivity yield for both on-site POC testing and referred samples for centralized conventional testing from the same sites, probably due to intensified mentorship and support supervision during the pilot. The yield increased even much more when exposure status was taken into consideration.

An obvious advantage of POC over the conventional method of testing was the improvement in turnaround time where 15% of the infants' caregivers received their results on the same day, and 54% received their results within 7 days as opposed to all conventional testing where results do not reach caregivers before 7 days of blood sampling.

Majority of the HIV positive children identified from alternative entry points were above 6 months of age, and were likely to be those who had not been enrolled in PMTCT program.

Following the success of this pilot, Ministry of Health will continue implementing POC in the 33 facilities in the next 12 months with financial support from Centers for Disease Control and Prevention (CDC) and Unit Aid through Clinton Health Access Initiative (CHAI).

It was strongly recommended that HIV EID testing using both POC and centralized conventional method should be accompanied by periodic mentorship and support supervision visits to the sites.

KAYUNGA HOSPITAL RECONSTRUCTION TO PRIORITIZE LABORATORY SERVICES

The Permanent Secretary Ministry of Health Dr. Diana Atwine led a team from the Ministry's top management and the Central Public Health Laboratories on a tour of the Kayunga hospital, currently under reconstruction and expansion.

The tour was intended to establish the progress of works vis-a-vis the set timelines, as well as the services rendered to the community within the currently available space.

Dr. Atwine emphasized the need to work on the Laboratory, theatre and maternity areas given their critical importance and impact on health outcomes.

She applauded the engineering and contracting teams for the commitment exhibited towards the timely completion of reconstruction works at the facility.

As part of routine support supervision, the team also held a meeting with district leadership and other stakeholders to assess the operations of the Kayunga hub and how it benefits the communities.

Kayunga district has a total of 12 functional labs, one at the hospital, two at Health Centre IVs, eight at Health Centre IIIs, while one is a Private Not-For-Profit.

Kayunga hub became functional in 2013, serves 29 health facilities within Kayunga district and beyond, and was internationally accredited in October 2018.

UGANDA GETS HI-TECH LABORATORIES TO DIAGNOSE CANCER AND HEPATITIS B VIRAL LOAD

The National Health Laboratory Diagnostics Services (NHLDS) department of Ministry of Health received yet another boost in its effort to become the regional center of excellence in laboratory services.

Two reference laboratories were launched, including a high- level reference cancer diagnostic laboratory, the first of its kind in Uganda.
The National Heme Path Flow Cytometry Laboratory for cancer diagnosis will help improve diagnosis of particularly blood cancers especially lymphomas and leukemias.

While officiating at the commissioning of the Laboratories, Minister of Health, Hon. Dr. Jane Ruth Aceng decried the ever increasing Cancer incidence in Uganda, yet diagnostic capacity for cancers is still low. She said that the new reference laboratory for cancer diagnosis is critical in helping the doctors to plan the most appropriate course of treatment and in monitoring the effectiveness of therapy.

"I am reliably informed that this technology detects the presence and extent of the blood cancers even minimal residual disease – the small number of cancer cells that may remain after treatment despite no evidence of disease from other testing techniques" Hon. Aceng noted.

The second reference laboratory that was commissioned is the Hepatitis B Viral load laboratory to strengthen the country's response to viral Hepatitis B.

According to the Population-based HIV Impact Assessment Survey, 2016, Hepatitis B prevalence stands at 4.3% with highest prevalence in northern region at 4.6%.

Hon Aceng says that the Government of Uganda is committed in the fight against viral Hepatitis and in demonstration of this commitment, Government issued two statutory instruments to advance the fight against Hepatitis B, and also committed 10 billion shillings annually towards addressing the burden of Hepatitis B.

The Permanent Secretary, Ministry of Health, Dr. Diana Atwine said that the launch of these laboratories will not only solve issues around availability but also accessibility while appreciating partners for supporting this cause. She called upon the public to utilize these services.

During the same occasion, three other laboratories received certificates for international accreditation. The accredited labs include, Kiryandongo General Hospital, Kayunga General Hospital and St. Raphael of St. Francis Nsambya.

The accredited Laboratories join National Early Infant Diagnosis (EID)/ Viral Load laboratory, Mildmay Uganda laboratory, UVRI HIV reference laboratory and JCRC among others that already received international accreditation.

The Commissioner, NHLDS, Dr. Susan Nabadda appreciated the development partners including CDC, USAID, Global Fund ROCHE and all those who have supported the Government of Uganda in enhancing laboratory services to make them available and accessible to the people of Uganda.

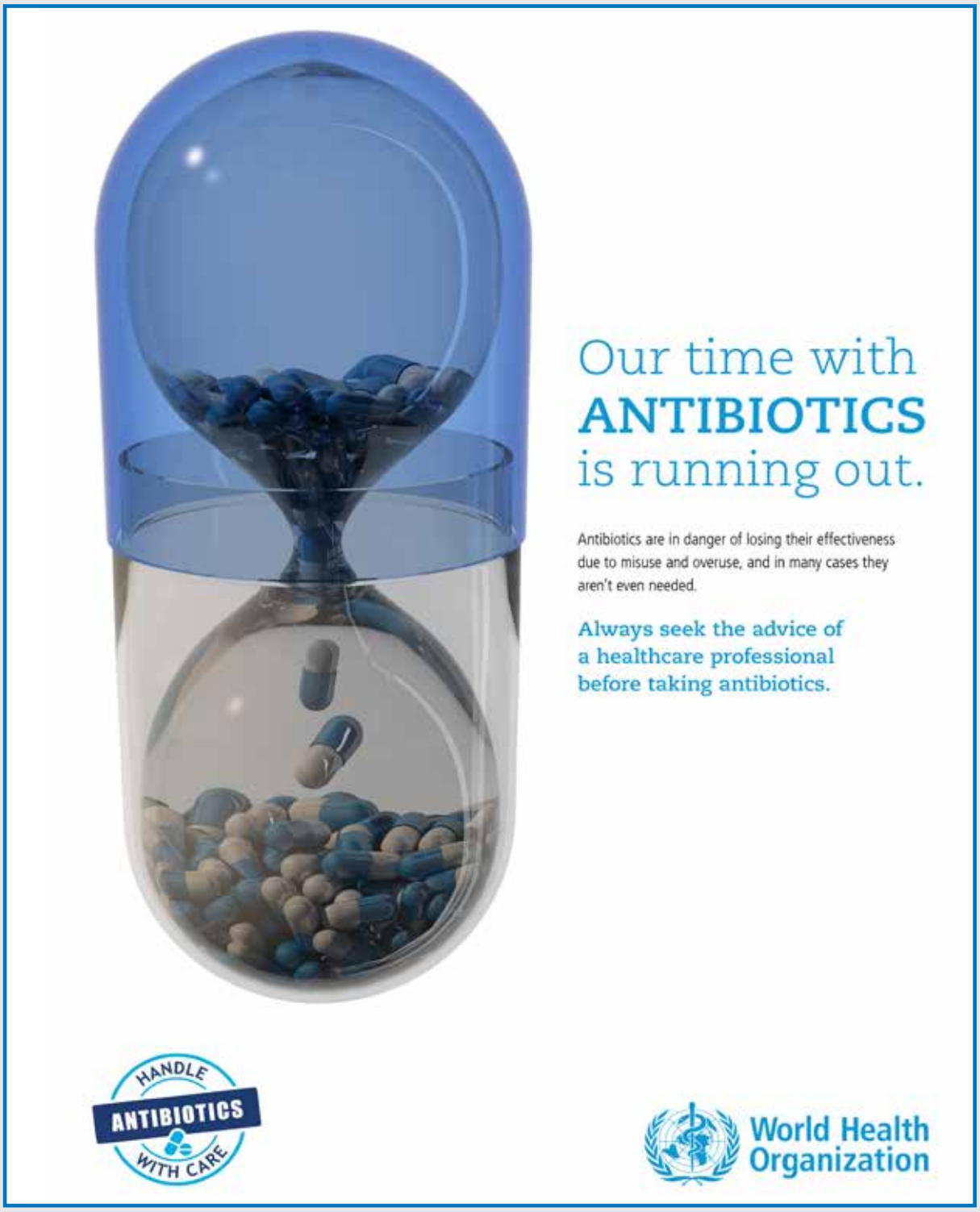
Uganda's fight against Antimicrobial Resistance:
The Journey so far

Antimicrobial Resistance (AMR) occurs when microorganisms or germs such as bacteria, viruses, fungi and parasites change in ways that render the medications used to cure the infections they cause ineffective. When the microorganisms become resistant to most antimicrobials they are often referred to as "superbugs". This is a major concern because a resistant infection may kill, can spread to others, and imposes huge costs to individuals, Governments and local societies.

The discovery of antibiotics has saved millions of lives with new molecules and formulary considered as wonder drugs or magic bullets in the fight against disease causing germs which increased the human lifespan and the greatest weapon to keep many deadly diseases away.

Drug resistant infections occur when bacteria change in response to the use of the commonly available antibiotics used to treat bacterial infections (such as urinary tract infections, pneumonia, bloodstream infections) making them ineffective as well as broadly encompassing resistance to drugs that treat infections caused by other microbes as well, such as parasites (e.g. malaria or hook worms, viruses like HIV and fungi like Candida).

According to World Health Organisation and World Bank future and current projections, these super bugs currently kill at least 23 000 people in Africa, Europe- 25,000 deaths per year. In India 58,000 babies died due to mother to baby resistant germs and USA estimated 23,000 deaths annually with more hospitalized. Therefore, the current global projections show that in 2050 about 10 million will die of antibiotic resistant infections each year, (WHO Report 2017)



In 2015 the World Health Organisation came up with the Global Action for Antibiotic Surveillance (GLASS) and urged all member countries to come up with country specific national action plans in order to address AMR at country level. Therefore, Uganda as a member country took heed of this call and embarked on the policy formulation regarding the AMR control.

Resistance among different disease causing germs can occur naturally but can further be facilitated by the inappropriate use of antibiotics, for example using antibiotics for viral infections such as cold or flu, or sharing antibiotics.

Unfortunately, due to the irrational use of antibiotics, bacteria have genetically changed structures causing antibiotics to fail hence giving rise to superbugs to survive against antibiotics that would normally erase their existence, it's happening right now across the world, the full impact is not yet known and without urgent action many modern antibiotics would be obsolete, turning even common infections into deadly threats.

Low-quality medicines, wrong prescriptions and poor infection prevention and control also encourage the development and spread of drug resistance.
Weak policy enforcement strategies by concerned government agencies with commitment to address these issues,
Poor surveillance and a diminishing arsenal of tools to diagnose, treat and prevent also hinders the control of antimicrobial drug resistance in the general public.
The Government of Uganda through its MDAs and the key Development and implementing partners, has embarked on the implementation of this action plan package to address AMR at all levels and sectors.
In that regard, tremendous strides have been met to address this under the One Health Approach of Human health, Animal health, Wild life and the environment ministries and sectors. This is because the drivers of resistance are prevalent from all the sector of life for example human health, animal health, wildlife and the environment.

These efforts have given birth to the AMR-National Action Plan (NAP) with five key focus areas namely;

- Surveillance for laboratory resistant bugs,
- Surveillance for antibiotic use, access and stewardship,
- Infection prevention and control with in hospitals, farms and WASH for sanitation,
- AMR public awareness and communication as well as,
- AMR national research agenda.

Indeed, AMR isn't just a public health problem but a problem of humanity that threatens to make the sustainable development goals unattainable.
We ought to look at these medicine as an exhaustible resource that should be accessible to those that need it but jealously protected against excessive use. In many of our heath care facilities, drug shops and homes, we continue to use antibiotics in an unregulated manner, offering a chance for resistant organisms to proliferate. The situation is probably worse in the animal production where antimicrobials are used as growth promoters, with the sector accounting for more than 80% of all antimicrobials used globally.
AMR is therefore a cross-cutting problem whose causes and consequences span beyond human health to involve the environment, agriculture as well as the economy. Its containment therefore requires a concerted multi-sectoral approach from across all government sectors and society.

Facts about Antibiotic Resistance

• Antibiotic resistance is one of the most urgent threats to the public's health.

• Every time a person takes antibiotics, sensitive bacteria are killed, but resistant ones may be left to grow and multiply.

• Overuse of antibiotics is a major cause of increases in drug-resistant bacteria.

• Overuse and misuse of antibiotics threatens the usefulness of these important drugs. Decreasing inappropriate antibiotic use is a key strategy to control antibiotic resistance.

• Antibiotic resistance in children and older adults is of particular concern because these age groups have the highest rates of antibiotic use.

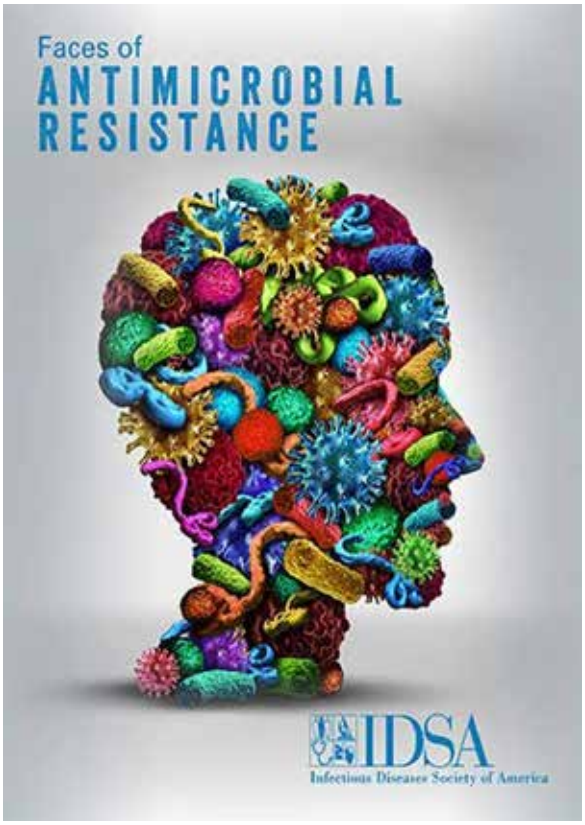
• Antibiotic resistance can cause significant suffering for people who have common infections that once were easily treatable with antibiotics.

• When antibiotics do not work, infections often last longer, cause more severe illness, require more doctor visits or longer hospital stays, and involve more expensive and toxic medications. Some resistant infections can even cause death.

• Without effective antibiotics, the success of major surgery and cancer chemotherapy would be compromised.

• The cost of health care for patients with resistant infections is higher than care for patients with non-resistant infections due to longer duration of illness, additional tests and use of more expensive drugs.

• In 2016, 490 000 people developed multi-drug resistant TB globally, and drug resistance is starting to complicate the fight against HIV and malaria, as well.



Thousands run for Sickle Cell during the Kabaka Birthday run

The annual Kabaka birthday run has for the past three years supported the screening and mass sensitization about sickle cell disease.
The 3rd and final run aimed at creating awareness for sickle cell disease took place on Sunday April 7, 2019 and was flagged off by His Royal Highness the Kabaka, Ronald Muwenda Mutebi II at Lubiri, Mengo.

The amount of support garnered from this annual run has been steadily increasing over the past three years, with the most recent one in 2018 supporting the purchase of test kits worth over 200million shillings.

More people today know their status while many more have adequate knowledge about the disease. Increased advocacy and mass sensitization continues across the country to reach the masses.

The Permanent Secretary, Dr. Diana Atwine urged couples to test for sickle cell and know their status before marriage. "If any of you has a sickle cell trait, chances are high that your children will be affected by Sickle Cell Disease" she informed the mass gathering.

Days leading up to the Kabaka Run saw hundreds and thousands of Ugandans receive free testing and screening services of the Sickle Cell trait.

The National Health Laboratory and Diagnostic services department of the Ministry of Health appreciates His Royal Highness the Kabaka, Buganda Kingdom and all the partners that have supported this noble cause.

Abbott Visit

Abbott
A Promise for Life

Ministry of Health and partners during a courtesy visit by the Abbott Rapid Diagnostics top leadership to reinforce efforts towards strengthening laboratory services towards achieving the 90:90:90 goals by 2020, and the long-term goal of eradicating HIV/AIDS, Tuberculosis and Malaria in Uganda.

Buganda Minister for Social Services, Owek. Prosperous Nankindu's visit to NHLDS, Butabika

Launch of strategic documents

Sample collection unit at NHLDS

Owek. Prosperous Nankindu tours the Lab

LIFECARE DIAGNOSTICS LTD.

For quality point-of-care testing (POCT)

LifeCare Diagnostics Limited (LDL) is an Exclusive Representative/Distributor of Diagnostic products from Alere International Ltd- NOW ABBOTT, which is a global leader in near-patient diagnostics and health management services and is an established international manufacturer and supplier of Point of Care (POC) Diagnostic systems with a vision to shape the future of patient-centered care and to improve patient outcomes through decentralizing diagnostic systems.
LDL was formed in 2009 to procure and supply POC testing platforms to Health facilities and act as a model of excellence in the provision Quality Assurance program for use of POC testing Devices in the delivery of health care services in Uganda. LDL operates in a regional network of all the twelve (12) Ministry of Health regions in Uganda that is; (Arua, Gulu, Soroti, Karamoja, Mbale, Jinja, Kampala, Masaka, Mbarara, Kabale, Hoima and Rwenzori)

SOME OF THE PRODUCTS

- Alere Pima CD4 Analyzer- enables CD4 T-cell analysis at the point-of-care from a finger stick or venous whole-blood sample in only 20 minutes, providing an effective and affordable tool in the management of HIV patients, specifically designed to serve the needs of the healthcare professional in the field, the laboratory or the office.

- Alere TB LAM- detects the LAM antigen in urine samples, assisting you in your TB screening to rule-in sooner than traditional methods and enabling earlier treatment for your patient. This empowers you, at the point-of-care, to screen for active TB in HIV positive patients, providing results in just minutes

- Alere Determine™ HIV-1/2- helps healthcare workers across the world diagnose individual infection, prevent mother-to-child transmission, monitor HIV prevalence, and screen blood donations. With its simple one-step procedure for serum/plasma or two-step procedure for whole blood, the Alere Determine™ HIV-1/2 is quick and easy to use, delivering clear, dependable results in just 15 minutes
- Alere Q Analyzer- The Alere Q is a point-of-care nucleic acid testing that can detect, differentiate and quantify HIV-1 and HIV-2 RNA/DNA within 52 minutes and has the potential to improve the cascade of care and antiretroviral therapy monitoring in HIV patients. It is perfectly suited for the challenges of virological testing in infants and adults in resource limited settings.
- Alere Afinion AS100 Analyzer- The Alere Afinion™ AS100 Analyzer is a compact rapid, multi-assay analyzer that provides valuable near patient testing at the point-of-care. It utilizes the latest technology and provides a simple, fast and reliable method by which to monitor patients' disease progression. This will improve your patient's compliance and satisfaction with fewer lab and office visits. The Alere Afinion™ AS100 Analyzer helps you make timely decisions on therapy changes when needed for better patient management and monitoring metabolic control. Immediate feedback motivates patients to make protocol modifications.

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