



AFENET-LAB Newsletter

Networking you to the latest laboratory
developments in public health

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AFENET-Lab is Born

This month, the African Field Epidemiology Network (AFENET) is celebrating the launch of AFENET-Lab.

What began as an idea in 5th meeting of the Regional HIV/AIDS public health laboratory network, held in September 2008 in Dakar, Senegal, was finally adopted in October 2008.

The AFENET-Lab initiative is the brain child of Professor John Nkengasong, at the U.S. Centers for Disease Control and Prevention's Global AIDS Program (CDC/GAP) Chief International Laboratory Branch.

and a quarterly newsletter," added Mr. Mukanga.

Prof. John Nkengasong works for CDC Atlanta and his passion is seeing the African public health systems revitalized. He has helped a number of African initiatives in the public health such as the Maputo Declaration on Technical and Operational Recommendations for Clinical Laboratory Testing Harmonization and Standardization, and regional meetings on HIV/AIDS Public Health Laboratory Networks.

One of the products of AFENET-Lab is the *AFENET-Lab Newsletter*.

AFENET, with assistance from CDC/GAP's International Laboratory Branch, has established AFENET-Lab with the aim of creating a forum for regional and district laboratory experts to network and share best practices on issues related to integrated quality management systems essential for laboratory diagnosis of multiple diseases of public health importance including HIV/AIDS, TB, and Malaria.

AFENET-Lab is a network alliance dedicated to helping Ministries of Health (MOHs) in Africa build stronger, effective and sustainable laboratory services to improve public health systems.

Commenting on the launch of AFENET-Lab, the Executive Director of AFENET, Mr. David Mukanga said that this initiatives will help coordinate the sharing of best practices, training events, online resources, and provide a forum for laboratorians where information can be found in one central location. "We would like to begin doing this by introducing the idea to the target audience through country-level exchanges with key players, a website,

The primary objective of the newsletter is to facilitate information sharing and enable rural district laboratorians to access current news updates on public health laboratory experiences, best practices, and upcoming technologies.

The newsletter will be released every three months. According to Mr. Mukanga, the newsletter will be distributed via emails and, for those without email access, it will be sent out through existing MOH mechanisms to their districts, but will be encouraged to have emails.

"Through this we hope that we can reach a large majority of our audience with news and information across Africa," concluded Mr. Mukanga.

PHOTO

Mr. William Kabasa (AFENET-Lab Project Officer) and Mr. Ndlovu Nqobile (Zimbabwe Lab Surveillance Officer) will be responsible for the production and distribution of the *AFENET-Lab Newsletter*. ❖

INSIDE THIS ISSUE:

AFENET-Lab is Born	1
Message from the AFENET Executive Director	2
WHO Malaria Update	2
Tanzania Trains Laboratorians on HIV/AIDS Care	3
Cholera Characterization in Zimbabwe	3
Latest Developments in Laboratory Testing Technologies	4
Some Regional Public Health Networks	4



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Message from the AFENET Executive Director

I welcome you to our maiden issue of the *AFENET-Lab Newsletter*. The objective of this quarterly newsletter is to facilitate the information-sharing of best practices and latest laboratory developments in the public health.

AFENET established AFENET-Lab which is an initiative to strengthen laboratory networking in Africa and AFENET-Lab was started in December 2008. It has started its activities in Uganda and in the near future it will cover Kenya, Rwanda, and Tanzania and then it will be rolled out to the rest of Africa. AFENET-Lab is a network initiative dedicated to helping MOHs in Africa build stronger, effective and sustainable laboratory services. For the latest news, visit www.AFENET-Lab.net.

We welcome your stories, announcements and feedback. Please contact the editor-in-chief for details.

Thank you,

David O. Mukanga



WHO Malaria RDTs Update

The World Health Organization (WHO) has released an update useful for guiding procurement decisions and for developing funding proposals and implementation plans for Rapid Diagnostic Tests (RDTs).

Evidence exists that current test accuracy in the field is variable, due to poor manufacture or exposure to high temperatures during transport and storage.

It is recommended to procure from manufacturers with evidence of quality of manufacturing, as evidenced by ISO 13485:2003 compliance. Selection of RDTs should be guided by Plasmodium species to be detected, sensitivity and specificity, thermal stability, ease of use, costs, product support and appropriate packaging, among other things.

RDTs: Future Developments

WHO is collaborating in the development of stable, well-calibrated positive control wells, containing recombinant antigens and

designed to allow testing of malaria RDTs at clinic or village levels. These positive control wells will enable rapid direct evaluation of RDTs performance in remote locations without the need for cross-checking against expert microscopy.

In addition, a panel of wells of different antigens is also under development for standardized testing to be carried out at national level, which could have application for national regulatory testing and pre- or post-purchase lot-testing. ❖

Monitoring RDT Performance in the Field

The following procedures are recommended

- Compare RDT results with expert light microscopy for blood films from the same patient
- Every month, 40 RDTs (20 positive and 20 negative) should be cross checked against corresponding 40 blood films by expert microscopy
- Expert microscopy may be available at the 'sentinel' sites used for monitoring therapeutic efficacy of antimalarial medicines or reference laboratory

Tanzania Trains Laboratorians on HIV/AIDS Care

Together with its partners, the Tanzania Ministry of Health and Social Welfare has embarked on training laboratory personnel with the objectives of giving them skills to support and care for HIV/AIDS patients.

The training programme begun with the formation of the National Laboratory Training Team (NLTT) in 2006 which oversees all the training activities.

Training modules on CD4, Hematology, Clinical Chemistry and Laboratory Management were adopted and customized from the American Society for Clinical Pathology (ASCP) and HIV Rapid test module from CDC.

The trainings were conducted

using the Training of Trainers and Teach back approach which was then followed by rollout trainings. The trainings were conducted concurrently with the training need assessment and review of Curriculum for Training Laboratory Schools.

According to Dr. Fausta Moshia, the Tanzanian Lab Resident Advisor for FELTP, “there is a NLTT which meets quarterly. About 350 laboratory personnel from care and treatment sites have been trained on CD4, hematology, and clinical chemistry and 70 on laboratory management. About 900 health workers have also been trained on HIV Rapid Test.”

Currently, the development of a comprehensive Laboratory Training

Plan is still ongoing with the review of Laboratory Assistant training curriculum, while the Laboratory Diploma Training curriculum review has been completed and incorporated all the adopted training modules.

Dr. Fausta emphasized that the professional development of laboratory staff at schools and at working places in relation to HIV/AIDS/STI control is an important component in the fight against AIDS. Laboratory infrastructure and personnel should be developed alongside the health system to respond to the needs of the National Aids Care and Treatment Programme, she said. ❖

Cholera Characterization in Zimbabwe

The Zimbabwe National Microbiology Reference Laboratory (NMRL) has by the end of February confirmed about 100 cholera isolates from different parts of the country, said Mr. James Mudzori, the coordinator of NMRL.

In the wake of the cholera outbreak that affected all the provinces in Zimbabwe, two different strains of *Vibrio cholerae* O1 have been isolated so far from human cases.

“The two serotypes we have been isolating from different epicenters are Ogawa and Inaba and these serotypes are not unique but common in Zimbabwe” confirmed Mr. Owen Chitsatso, the senior microbiologist at NMRL.

The two serotypes have been found in different places: Ogawa in Harare urban and Beitbridge city, Matabeleland South; and both Ogawa and Inaba in Chegutu and Makonde districts, Mashonaland West.

Districts and provinces have been sending their specimens and isolates to NMRL since the beginning of the outbreak. Some district laboratories are able to identify the *Vibrio* through culturing on TCBS and through sensitivity testing. However the existing network requires that such should be confirmed still at the NMRL.

Specimens were sent to NMRL, some at room temperature and others in cooler boxes depending on the distance. Swabs were transported using Cary Blair medium and in some cases in Stuarts Medium.

“The laboratory techniques that we have used to



Stool specimens taken from Chitungwiza town during the cholera outbreak

confirm the cholera outbreak were culture on TCBS and subsequent serotyping using monovalent Ogawa, Inaba and O139,” said Mr. Chitsatso.

According to the laboratory surveillance officer, Mr. Nqobile Ndlovu, the *Vibrio* was 100% sensitive to Ciprofloxacin and about 65% sensitive to Doxycycline - the first line drug of choice. All isolates were resistant to Cotrimoxazole. ❖

To find out more about the African Field Epidemiology Network-Lab (AFENET-Lab) and the latest information and best practices among the public health laboratories, visit: www.AFENET-Lab.net.

Latest Developments in Laboratory Testing Technologies

New TB Drug Resistance Test

The challenges of detecting Multi-drug-resistant TB (MDR-TB) may be over said the officials from WHO as they unveiled a new test that can detect MDR-TB in two days instead of the standard two to three months.

“The new test is revolutionary,” said Dr. Mario Raviglione, WHO’s director of TB control, because “it changes completely the way we will be dealing with MDR-TB.”

Laboratory diagnosis of TB takes a longer time especially in developing countries owing to the lack of laboratory equipment and consumables. TB culture itself requires a longer time period of up to three months. The new test, called line probe assay, costs less than \$8 and detects mutations in bacterial DNA linked to drug resistance.

The principle of the test involves extraction of the DNA from a sputum specimen and then uses amplifying techniques to produce large numbers of copies of the DNA. This enables the detection of certain genetic mutations that are linked to resistance with the most important anti-TB drugs, isoniazid and rifampin.

The test has been used in South Africa, and there is a consensus for its widespread use in that country. Lesotho and Latvia are also using the test and Ethiopia may adopt it later this year. Thirteen additional countries are expected to begin using it by 2011 under support from Unitaaid.

Researchers Report Quick, Inexpensive HIV Test

An HIV test which works by capturing immune cells on a microchip and then analyzing them has been developed by researchers in the HMS Division of AIDS, working with scientists at the University of Texas, Austin.

The test is said to be fast, inexpensive, and ultimately expected to fit in the palm of the hand. Whilst the invasiveness of some test is a challenge, this one requires no more than a drop or two of blood from a simple finger stick.

“The ultimate goal is that we could have a hand-held device that a relatively untrained person could use in the field, in a rural or resource-poor area and be able to get the critical tests that are needed to monitor HIV in minutes,” said Rodriguez, HMS instructor in medicine at Massachusetts General Hospital.

This development has been seen as a solution to the challenges of bulky and expensive flow cytometers. It is estimated that the device will cost between \$600 and \$800, a fraction of the \$70,000 to \$100,000 price tag on current HIV-testing equipment. The cost of a single test to monitor an individual patient’s CD4 count will be about a dollar and a half, compared to \$25 for existing methods.

“In parallel with making the drugs cheaper, we are making the tests cheaper,” said Rodriguez. “The combination is necessary to really treat people with HIV around the world.” ❖

Some Regional Public Health Networks

A number of public health laboratory networks exists in Africa, as briefly described below.

National Health Laboratory Service Network of South Africa

It integrates the following bodies:

- South Africa Institute for Medicine Research (SAIMR),
- National Institute for Virology (NIV), and
- National Centre for Occupational Health (NCOH).

It uses the common laboratory management systems and transport networks to facilitate transport of specimens, referral of tests to referral laboratories, and delivery of results.

Africa Regional Polio Laboratory Network

This is one of the 15 regional reference laboratory networks of 145 virology laboratories that was established by WHO to support surveillance activities of polio eradication initiative (PEI). They analyses stool specimens from patients and environmental samples for the presence of polioviruses.

Veterinary Diagnostic Laboratory Networks for Control of Epizootics (PACE)

PACE is a network for the sero monitoring of rinderpest and the evaluation of post vaccination campaigns in Africa.

WHO/AFRO Public Health Laboratory Network

This includes national reference centers, sub-regional, and regional reference laboratories for specific diseases. It also has a WHO collaborating centers for plague.

These laboratories have adopted the WHO recommended standard materials, methods and operating procedures for cholera, bacillary dysentery, bacterial meningitis and plague.

The laboratories are equipped with essential reagents and antigens for rapid investigation and confirmation of outbreaks. A monthly bulletin on epidemiological and laboratory data is shared with countries and partners. ❖