

LAB CULTURE

THE ASLM NEWSLETTER FOR
LABORATORY PROFESSIONALS
ACROSS AFRICA

February 2012, Issue 2



SUPPLY CHAINS

The weak link in laboratory capacity-building?

IN THIS ISSUE:

ASLM Highlights the Role of Laboratories in Combating AIDS at ICASA 2011

An Interview with Dr. Fausta Mosha, Secretary of the ASLM Board of Directors

ASLM Hosts First French-Language Writing Workshop

Call for Papers!

AJLM serves as a forum for perspectives on the role of laboratories in public health and clinical care. It also fosters communication among laboratory staff, clinicians, scientists, the medical community, public health officials, and policymakers.

AJLM is published on a rolling basis, and can be accessed for free online. Article topics of particular interest include: the conversion of laboratory expertise, procedures and technology into clinical care; the intersection of laboratory and medical science; laboratory-based epidemiology, and laboratory investigations and their real-world application and effectiveness. Submissions accepted in French or English.

For more information on the AJLM or to submit manuscripts, please visit www.afslm.org or contact editor@ajlmonline.org.

Volunteers Needed!

Publication Mentors:

Seeking experienced laboratory researchers, epidemiologists, and statisticians to help with research methods/analysis, scientific communication skills, manuscript preparation/submission, and peer review. Mentors will offer guidance for papers recommended for consideration for publication. Subject matter expertise not necessary. Volunteer time commitment depends on mentee needs.

Writing Workshop Mentors:

Seeking laboratory researchers, statisticians, and epidemiologists with extensive publication experience. Help with daily lectures and discussions and work with a small group of participants on manuscript development. Mentors will provide guidance on research methods, analysis, laboratory or epidemiology subject matter within their expertise, manuscript preparation, scientific interpretation, and communication skills. The time commitment is a two-week workshop.

Manuscript Submission:

Seeking laboratory-related manuscripts. Of particular interest: the role of laboratories in clinical care and public health; the translation of laboratory knowledge; the juncture of laboratory and medical science; laboratory-based epidemiology; laboratory investigations. Submissions accepted in French or English.

Peer Reviewers:

Seeking objective reviewers with a high level of expertise to evaluate the quality of manuscripts. Reviewers will offer detailed comments and suggestions, and make recommendations to accept, accept with revisions, reconsider with major revisions, or reject submissions. Reviewers will be contacted before being forwarded manuscripts. A 2-3 week turnaround is expected.

For more information or to volunteer, please contact: editor@afslm.org

Lab Culture | Call for Submissions

ASLM is accepting submissions to *Lab Culture*, our quarterly newsletter. We invite you to submit articles (200-500 words) on the following topics:

- Standards & Accreditation
- Research
- Education & Training
- Clinical Medicine

If you are interested in advertising in *Lab Culture* or providing a photo or article contribution, please email us at newsletter@afslm.org.



LETTER FROM THE CEO

A Budding ASLM Flourishes in its First Year 2

MEMBER NEWS

ASLM Highlights Role of Laboratories in Combating AIDS at ICASA 2011 3

Member Spotlight: An Interview with Dr. Fausta Mosha 4

ASLM Plans Historic First International Conference 5

LABORATORY STANDARDS AND ACCREDITATION

Challenges in Building Laboratory Capacity 10

RESEARCH

ASLM Hosts First French-Language Workshop 11

ASLM Research Advisory Board Develops Blueprint 12

EDUCATION AND TRAINING

SLMTA: A Grassroots Movement 13

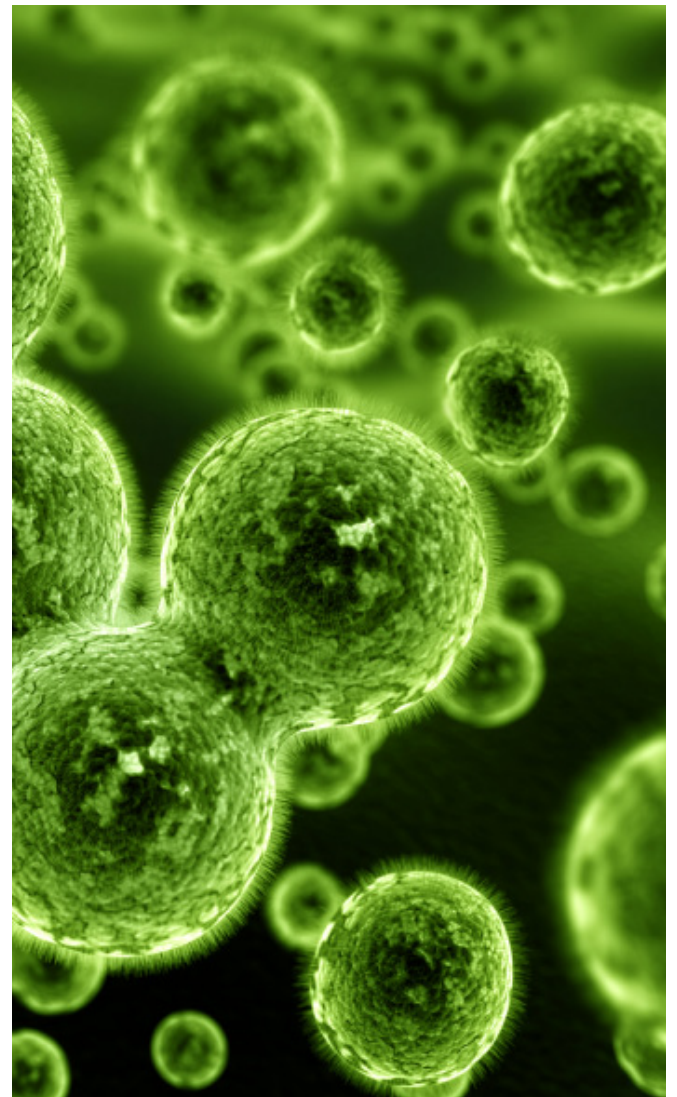
CLINICAL MEDICINE

Building Bridges between Laboratory Professionals and Clinicians at the Institut Pasteur of Côte d'Ivoire 15



FEATURE ARTICLE

Supply Chains: the Weak Link in Laboratory Capacity-Building? 6



Editorial Team:

Rachel Crane (GSSHealth)
Jessica Fried, MPH (GSSHealth)
Aaron Krol (GSSHealth)
Jhosetta Goudelock (CDC)

Lead Editor: Paula Fernandes, MBA, PhD (GSSHealth)
For submissions and inquiries contact: Newsletter@AfSLM.org

A BUDDING ASLM FLOURISHES IN ITS FIRST YEAR

At the recent ASLM official registration meeting, I was struck by the progress our budding Society has made in such a short time. In the past few months, ASLM has officially registered as an international organization, had a strong presence at the International Conference on AIDS and STIs in Africa (ICASA), sponsored its first Francophone writing workshop, and begun planning its upcoming Grant and Proposal writing workshop. In addition, we welcome the newest member of the ASLM family, Teferi Mekonen, the ASLM Accreditation Officer who will lead the effort to assist laboratories to attain nationally, regionally, or internationally-recognized accreditation. He will also serve as the ASLM focal point for the WHO AFRO Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA), a framework for improving the quality of public health laboratories in developing countries to achieve ISO 15189 standards.



ASLM is making great strides towards attaining its goals of advocating for laboratory medicine in Africa, providing regional guidance, establishing a pan-African laboratory network, promoting disease prevention and diagnosis, strengthening laboratory workforce development in scientific, grant, and proposal writing, and training and certifying ASLM SLIPTA Anglophone and Francophone auditors to conduct SLIPTA audits using the WHO AFRO SLIPTA Checklist.

In Lab Culture's second edition, we continue to provide you with pertinent information on Africa-wide laboratory medicine issues in addition to ASLM activities. We have included sections devoted to Member News, Laboratory Standards and Accreditation, Research, Education and Training, and Clinical Medicine. On page 6, you will find this issue's feature article on the laboratory supply chain that highlights some of the major challenges and potential solutions. As this topic is central to our mission, I strongly encourage you to read the article, comment and contribute ideas that may empower laboratory professionals and logisticians to find realistic ways to improve this important area of our work.

This year, ASLM aims to continue providing the best services we can to you, our members. We have a number of activities planned for 2012. Our second Grant and Proposal Writing Workshop, sponsored in collaboration with the US Centers for Disease Control and Prevention (US CDC), will take place from 25-31 March in Addis Ababa, Ethiopia. Writing mentors will work with participants to prepare funding applications and help refine their writing skills. Training of Francophone SLIPTA auditors will take place from 23-28 April in Côte d'Ivoire. We are also planning our first International Conference, with the theme of "Accurate Laboratory Diagnostics—A Pillar of Quality Healthcare." This will be hosted by ASLM from 4-7 December at the Cape Town International Convention Centre in South Africa. A website for the conference is currently in development.

We invite you to read this newsletter, discuss the topics within, and encourage others in our field to participate with ASLM. Together, with concerted effort and harmonized coordination, we can effect change in laboratory medicine. I am privileged to be part of this change with you.

Dr. Tsehaynesh Messele, CEO, ASLM

ASLM HIGHLIGHTS THE ROLE OF LABORATORIES IN COMBATING HIV/AIDS AT ICASA 2011



Dr. Nkengasong speaking at ICASA 2011

ASLM participated in the 16th annual International Conference on AIDS and Sexually Transmitted Infections in Africa (ICASA) from December 4-8. The conference took place at Millennium Hall in Addis Ababa, Ethiopia. ASLM's presence at ICASA included presentations, a satellite symposium, workshops and a networking booth.

ICASA 2011, Africa's largest conference on HIV/AIDS and platform for the achievement of the UN's Millennium Development Goals, brought together more than 10,000 participants from 103 countries. Participants included scientists, health professionals, policymakers, people living with HIV, non-governmental organizations, activists and government representatives who came together to share and learn about the successes, challenges and innovations in the prevention and control of HIV/AIDS and sexually transmitted infections (STIs).

The highlight of ASLM's involvement was ASLM Board Chair Dr. John Nkengasong's presentation before a conference plenary session of 7,000 participants on December 7. The topic of his presentation was "Health Systems Strengthening in Africa: Innovation Technologies for HIV Response in Africa."

Dr. Nkengasong spoke about ASLM and the WHO AFRO Stepwise Laboratory (Quality) Improvement Process Towards Accreditation (SLIPTA) during his presentation. He emphasized that the SLIPTA framework for improving the quality of public health laboratories in developing countries to achieve ISO 15189 standards provides a critical roadmap for strengthening laboratory networks and implementing quality management systems within Africa. ASLM would serve as the implementing body in the African region, he said, working closely with WHO AFRO and other key partners. He demonstrated how the Strengthening Laboratory Management Towards Accreditation (SLMTA) program has shown immediate, measurable improvement in laboratories in resource-limited settings in 22 countries, with a total of 283 laboratories enrolled and 865 people trained. He insisted that new technologies are meaningless if there are no health systems to deliver them, and health systems are only meaningful if they are

strengthened to support technologies for program scale-up. He reiterated that partnership and collaboration of all stakeholders were critical to embarking upon the SLIPTA journey, and his welcome for all to join in this groundbreaking venture was met with invigorating enthusiasm.

Dr. Nkengasong's panel on health systems strengthening in Africa, chaired by Dr. Kevin M. DeCock, director, Center for Global Health, Centers for Disease Control and Prevention (CDC), was highlighted as the feature article on the cover of the ICASA Daily Bulletin.

ASLM Networking Booth

ASLM's presence at ICASA was met with an enthusiastic response, with more than 3,000 participants visiting the ASLM booth. ASLM representatives Ms. Etalem Engeda and Ms. Stella Ekallam distributed information about the organization and ASLM's first annual meeting, to be held from 4-7 December 2012 in Cape Town, South Africa.



ASLM Welcomes Meeting Participants at the Booth

ASLM held its satellite symposium, Strengthening Health Systems: The Critical Role of the WHO/AFRO Stepwise Laboratory Quality Improvement Process Towards Accreditation and Millennium Development Goals in Africa, on December 7. Speakers at the symposium included Dr. John Nkengasong (CDC Atlanta), Dr. Thomas Kenyon (CDC Ethiopia), Professor Souleymane Mboup (University of Dakar), and Dr. Giorgio Roscigno (ASLM). ASLM CEO Dr. Tsehaynesh Messele chaired the symposium.

ASLM led a skill-building workshop in conjunction with ICASA organizers, which featured three speakers from the ASLM Board of Directors and Senior Leadership

(continued on page 5)



MEMBER SPOTLIGHT

Dr. Fausta Mosha, Secretary of the ASLM Board of Directors, sat down with us to talk about her passion for solving clinical mysteries, the challenges of her work, and the future of the Society.

Editors: Jessica Fried, MPH and Jhosetta Goudelock (Editorial Team)

What first interested you in a career in laboratory medicine?

As a clinician, I enjoy solving disease-related problems through the use of laboratory tools, clinical studies, disease models and other experimental systems that advance the understanding and treatment of diseases. I also enjoy teaching and mentoring other laboratory professionals in the field.

Could you tell me a little about your work as lab director of the National Health Laboratory Quality Assurance and Training Centre, Ministry of Health and Social Welfare in Tanzania?

As laboratory director, I work in both administration and science. I oversee the implementation of laboratory strategic planning and resource management, as well as the mobilization of financial resources. I provide technical advice to the head of diagnostic services in the country and to clinical and preventive services on matters related to laboratory diagnostics. I provide leadership in the development of laboratory training programs and I manage laboratory staff and align their efforts with the goals of the National Health Laboratory Strategic Plan. I also coordinate laboratory disease surveillance.

Can you describe your typical workday?

On a typical day, I am involved in meetings, administration, responding to emails and working in the laboratory. I go to the laboratory to discuss plans and progress with laboratory staff. I meet with staff and partners to discuss the development of joint programs and disease control teams. I also teach master's degree candidate students and laboratory staff about laboratory management and surveillance.

What do you enjoy the most about your work?

I most enjoy solving the clinical mystery of diseases. I enjoy investigating unknown disease outbreaks and working with a team of motivated laboratory staff to solve the puzzles.

What is the biggest challenge you face in your work today?

Laboratories in most African countries are experiencing multiple challenges, but my biggest challenges are advocating for the critical role of laboratories in disease control and making laboratories a priority. The importance of the laboratory must be recognized in order for necessary resources and equipment to be allocated to them.

“Economic limitations, like competing resources and priorities, force scientists to focus on urgent issues rather than on planning for the future.”

What barriers do African scientists face?

African scientists struggle with the lack of proper policies for the use of science for decision-making. Economic limitations, like competing resources and priorities, force scientists to focus on urgent issues rather than on planning for the future. African scientists also face social problems such as poor training and illiteracy. Lack of infrastructure further limits what scientists can accomplish.

What are the challenges of working in laboratory medicine in Africa?

As I mentioned before, the lack of appreciation for the critical role laboratories play in disease management is a major challenge. Because of this, many laboratories do not have reagents, supplies or functioning equipment. There are also staff shortages, both qualitatively and quantitatively. Lastly, a poor networking infrastructure prevents laboratories from being able to support each other.

Have you seen the recognition of laboratory medicine increase over the past few years?

Yes, there is more appreciation of laboratories and emphasis on laboratory quality. We're seeing initiatives like SLIPTA (Stepwise Laboratory Quality Improvement Process Towards Accreditation) for laboratory quality improvement as well as the improvement of infrastructure.

What role do you play as a member of the ASLM Board of Directors?

I am currently serving as Secretary of the Board, a role that allows me to work closely with the Chairman and board members to organize meetings and events and plan the strategic direction for the organization.

(continued on next page)

ASLM PLANS HISTORIC FIRST INTERNATIONAL CONFERENCE



ASLM continues to make remarkable progress in planning for its first international conference, to take place from 4-7 December 2012 at the Cape Town International Convention Centre in South Africa.

The conference will convene an expected 1500 participants around the theme, "Accurate Laboratory Diagnostics – A Pillar of Quality Healthcare." Healthcare professionals and policymakers will discuss progress and proposals for diagnostics and national laboratory health systems and networks, and the influence they have on disease surveillance and healthcare delivery.

We have already secured a host of exciting speakers including Professor Barry Schoub, chairman of the Scientific Advisory Panel, and Dr. Robert C. Gallo, Director of the Institute of Human Virology at the University of Maryland School of Medicine. Prof. Schoub has published over 280 scientific

publications, 16 chapters in books and has written a book on HIV/AIDS, entitled *AIDS & HIV in Perspective*. Dr. Gallo is best known for his role in the discovery of the Human Immunodeficiency Virus (HIV), the infectious agent responsible for Acquired Immune Deficiency Syndrome (AIDS), and has been a major contributor to subsequent HIV research.

The conference will have pre- and post-conference workshops and satellite sessions, plenary sessions, symposia, posters, and aural sessions. Sessions prior to and following the conference will provide networking and training opportunities. We are currently in talks to collaborate with the Southern African HIV Clinicians Society to incorporate symposia and trainings in both organizations' first international conferences about the clinical laboratory interface and point-of-care testing.

The conference will serve as a platform for discussions on improving quality point-of-care laboratory diagnostics; strengthening laboratory-based surveillance, biosafety and biosecurity; fostering the use of resources for local capacity; preparing laboratory research to address new and changing public health issues; communicating knowledge and best practices for improving laboratory services; and exchanging experiences and knowledge on establishing effective, operational laboratory networks.

Additional information about the ASLM Annual meeting will be posted on www.afslm.org as it becomes available. Please contact Ms. Etalem Engeda at eengeda@afslm.org for more information.

Writer: Rachel Crane (Editorial Team); Editors: Aaron Krol and Jhosetta Goudelock (Editorial Team)

MEMBER SPOTLIGHT

(continued from previous page)

What kind of support could ASLM provide to assist medical laboratory professionals across Africa?

ASLM can do a lot for laboratory professionals. It serves as a professional organization that guides laboratory development within Africa. It can promote laboratory strengthening efforts and guide the certification process to advocate for high quality laboratory training. ASLM can also work with bodies like the WHO-AFRO and other partners to implement laboratory policies and guidelines in the African region.

Do you have anything else to add?

I would just like to add that it is time for laboratory scientists to gain recognition so that they can be equal partners, involved in patient decision-making processes, and provide the diagnostics and laboratory support that society needs.

Editors: Rachel Crane and Jessica Fried, MPH (Editorial Team)

ASLM HIGHLIGHTS THE ROLE OF LABORATORIES IN COMBATING HIV/AIDS AT ICASA 2011

(continued from page 3)

team. Dr. Giorgio Roscigno gave a presentation on "The Potential and Importance of Integrated Laboratory Approach, Taking TB/HIV Laboratories as Examples." Dr. Fausta Mosha (National Public Health Laboratories, Tanzania) spoke about the Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA) framework, and Dr. Trevor Peter (Clinton Health Access Initiative [CHAI] Botswana) presented on the "Laboratory Clinic Interface as a Foundation for Patient Management as well as Disease Prevention and Control."

Writer: Rachel Crane (Editorial Team); Editor: Aaron Krol (Editorial Team); Contributor: Angelii Abrol, MHS (CDC)

SUPPLY CHAINS

The weak link in laboratory capacity-building?

Through the combined efforts of national governments and international aid organizations, the prevalence of quality-assured laboratories in low-income countries (LIC) has increased considerably in recent years. Laboratory staff and diagnostic products now reach isolated and sparsely populated areas that historically had difficulty accessing even basic medical services. However, increasing the number and dispersal of laboratories is only the first step in providing universal access to the fast, reliable diagnostics needed to provide efficient health care and timely and accurate disease detection and monitoring. Even in regions with laboratories in place, a wide range of variables can disrupt quality services. Laboratory equipment, reagents, kits, consumables and durables may not be available in sufficient quantities, may be mismatched to the needs of a specific area or laboratory level, or may be priced beyond the financial resources of local medical authorities. Transportation in remote areas of LICs, which often suffer from poor infrastructure, remains a difficult and risky endeavour, leading to delays, supply stoppages and damage in transit. In summary, six factors are at play in the diagnostic supply chain: bringing the right product in the right quantity and the right condition to the right place at the right time for the right price.

If even one of these factors is mismanaged, even the best-equipped laboratory with the most highly trained staff will be unable to carry out reliable and efficient testing services. Laboratories require constant upkeep and, particularly, continuous access to essential laboratory commodities, from chemicals and reagents to large high-throughput equipment.

In principle, the challenges of the laboratory supply chain do not appear intractable. The global health community has made huge strides in improving the pharmaceutical supply chain across Africa and beyond, an enterprise that faces similar fundamental difficulties. Like the laboratory supply chain, the pharmaceutical supply chain is a multi-tiered operation in which every step must proceed smoothly. Raw materials for drugs must be manufactured at a reasonable cost; in a secondary manufacture process the drugs are created and packaged; pharmaceutical companies distribute the final products to regional and national representatives; and, finally, smaller distributors ensure that the products reach the right hospitals and clinics. Laboratory equipment also goes through a complex manufacturing and distribution process in which individual laboratories may have to navigate between Ministries of Health, independent donors and the open market to acquire all the equipment they need to function effectively.

So why have we been so successful in managing the distribution of pharmaceuticals, yet so frustrated in our efforts to improve the laboratory supply chain? The simple answer is that laboratory commodities can be far more complex than pharmaceuticals. In many cases, a single drug or drug combination is sufficient to combat

¹ USAID | DELIVER PROJECT, Task Order 1, 2009. Laboratory Logistics Handbook: A Guide to Designing and Managing Laboratory Logistics Systems

² Maputo Declaration on Strengthening Laboratory Systems: http://www.who.int/diagnostics_laboratory/Maputo-Declaration_2008.pdf

³ Consultation on Technical and Operational Recommendations for Clinical Laboratory Testing Harmonization and Standardization: http://www.who.int/hiv/amds/amds_cons_tech_oper_lab_test.pdf

the prevalent disease in a specific area. Moreover, that drug will often operate effectively against the same disease in a variety of environments and requires comparatively little in the way of training to administer or infrastructure to support.

By contrast, there are numerous laboratory commodities for a single test and these must be individually tailored to a laboratory's specific environment and situation. Aside from the basic, though very real, challenge of having sufficient electricity or water to operate laboratory equipment, there are a number of other potential obstacles to consider. Diagnostic equipment may not function adequately in certain temperatures or humidity levels and, in much of Sub-Saharan Africa, dust is a continual hindrance. Almost all diagnostic equipment requires regular maintenance and targeted training to operate, so qualified technicians and service engineers must be available. Reagents face many of the same limitations as pharmaceuticals, including short shelf lives and finely tuned storage conditions. For instance, reagents that must be refrigerated require a continuous cold chain from manufacturer to laboratory. Even when a cold chain can be maintained, most reagents face expiry if not used quickly; large, irregularly-timed deliveries lead to waste and, generally, stockpiling is not an option. In some cases, reagents may be available for equipment that has broken down. In other cases reagents will arrive at a laboratory before the testing equipment that calls for them, and by the time the equipment arrives and can be installed and serviced by trained technicians, the reagents have expired. Without adequate communication or monitoring of supplies, laboratories may even retain large quantities of reagents they will be unable to use before the expiration date, while other nearby laboratories face dire shortages of the very same reagents.

Moreover, the diversity and sheer number of products needed in a properly stocked laboratory compounds the storage problems. Even the most elementary products present far more variables than a single drug. For example, pipette tips are not standardized and must be matched to a laboratory's pipettes. Graduated cylinders may be glass or plastic, but plastics will disintegrate if used with certain acids. Laboratories may go through huge quantities of gloves, but long-term storage can lead to deterioration at higher temperatures, and storage space is almost always at a premium.

“The laboratory supply chain is still in its infant stages, globally. Collective effort and commitment by governments, donors, implementing partners, supply chain organizations and health facility staff will minimize the challenges and bring the laboratory aspect of the supply chain upfront with the pharmaceuticals.”

The enormous complexity of overseeing the laboratory supply chain makes reforming it a daunting task, and there is no quick or simple solution to supply problems in the field of diagnostics. However, small changes

in management can have a major impact in quality of care at little cost, especially when implemented together. To begin, although the laboratory system calls for customized solutions to local challenges, there is room for greater standardization: different labs in the same country should not be using different equipment for the same task unless their situations require it. Different testing platforms call for different products to sup-

port them, so standardizing equipment allows donors and Ministries of Health to stockpile the appropriate commodities and components, providing greater availability to all laboratories nationwide. The standardization movement has grown since the 2008 Maputo Declaration on Strengthening of Laboratory Systems². Many laboratories across Africa have taken steps to develop and adopt strategic plans for laboratory services that embrace standardization across each level of the laboratory network (described in the Consultation on Technical and Operational Recommendations for Clinical Laboratory Testing Harmonization and Standardization³) as a key step in the effort to streamline procurement, training, servicing and maintenance.

While improving standardization will positively impact the laboratory supply chain, quantification and communication are of equal importance. Individual laboratories should be required to carefully monitor their stocks of equipment and be aware of low supplies before a shortage occurs, and should



be prepared to test products to ensure they meet national standards. For this process to be effective there must be comprehensive and regular communication between labs, suppliers and health officials, including inventory reports and training in the operation of new equipment. Furthermore, quantification should be a multi-tiered process, with new counts in every stage of the supply chain, from purchase through storage, distribution and transportation to the local laboratories themselves, providing alerts for irregularities, shortages and expiries. Even patients can be of invaluable service in the communication chain. In Uganda, the Ministry of Health has seen benefits from providing outlets for consumer feedback within the healthcare system, employing regional customer care officers at health facilities and installing email services and toll-free help lines to process complaints. This not only makes diagnostic services more responsive, it also allows laboratory officials to collect data on shortages and oversights, effectively double-checking the stocks of regional laboratories and flagging discrepancies.

Zambia's Operational Plan for the National Laboratory System is a sterling example of strict standardization producing large and immediate benefits in laboratory effectiveness. The program, first developed in 2006, recognized the need for a strong laboratory system as an indispensable component of the country's HIV/AIDS program, and set about defining a standard set of tools required for clinical chemistry, haematology and CD4 tests. Since then, all laboratories in Zambia have been encouraged to follow a centralized list when procuring new equipment. Defining which tests must be supported nationally has reduced the total variety of commodities needed by a staggering 80%. The costs of servicing the equipment on the list have dropped accordingly through economies of scale. Furthermore, standardization has opened up two additional cost-saving measures. First, by guaranteeing suppliers a constant market for select products, the Ministry of Health has been able to renegotiate contracts to include regular maintenance of equipment by the suppliers. Second, Zambian laboratories are now more readily able to transfer supplies from

one location to another, preventing wasteful expiry of reagents. The primary benefit, however, is not financial but operational: Zambian laboratories have more reliable access to essential products. In 2007, when the Ministry of Health drew up a list of 185 priority commodities, approximately 70% of these were out of stock in the central warehouse. By the end of 2008, this had fallen to 2%. Similar standardization programs have met with success in Ethiopia, Tanzania, Uganda, and several other African countries. In Kenya, national standardization reduced the total laboratory commodities in circulation from over 3,000 varieties to fewer than 300 without sacrificing quality of care.

Benefits of standardization:

- **Lower cost due to bulk procurement**
- **Ease of service due to limited variety of platforms**
- **Higher manufacturer investment in service and distribution**
- **Ease of staff training due to common user interface**
- **Minimal additional training when staff members are relocated**
- **Better standardization of reference ranges and test results leading to higher quality care**

Sadly, these programs are exceptions rather than the rule. Many countries lack representation by a high-level laboratory official in the Ministry of Health to recommend and implement central policies. Worse, without the ability to track local demand through regular quantification and communication with individual laboratories, small efforts at standardization can hinder more than they help. South Sudan, with its growing network of roads and wireless communication, has the potential for a flexible and responsive laboratory supply chain. However, with centralization still uncertain after independence, the Ministry of Health is unable to tailor deliveries to the needs of individual laboratories. Instead, laboratory commodities are bundled together in predetermined kits. The supplies in these kits may not function with a given laboratory's equipment; even when they do, they cannot account for what a laboratory has on hand, so a kit may contain too much of an abundant commodity and not enough of another, under-stocked product. Such kits are in service in numerous

countries and, if not properly implemented, can reduce the responsiveness of the laboratory system.

Fortunately, the process of standardization and efficient regulation of the laboratory supply chain is growing easier as the number of countries implementing successful programs approaches a critical mass. Experimentation by early adopters of standardization was an essential and educational first step; these pioneering laboratory scientists offer their colleagues a useful guide to what works and what doesn't when altering the supply chain

PSM TOOLBOX
PROCUREMENT & SUPPLY MANAGEMENT TOOLBOX

[HOME](#)
[ALL TOOLS](#)
[MY TOOLS](#)
[TOOL SEARCH](#)
[NEWS](#)
[PSM TRAINING](#)
[SUBMIT A TOOL](#)
[CONTACT](#)
[DEMOs](#)
[LINKS](#)
[USB](#)

Welcome to the PSM Toolbox website

1 PSM AREA
2 SUB-CATEGORY
3 COMMODITY
4 ORGANISATION
5 LANGUAGE
6 LEVEL OF USE

Choose a PSM Area
Choose a sub-category
Choose a Commodity
Choose an organisation
Choose a language
Choose level of use

VIEW

INSTRUCTIONS

How to find your tool?
Use the pull down menu on the left side to select the tool characteristics, and then click "VIEW" to see the tools in your selection.

In 2007, the WHO AIDS Medicines and Diagnostics Service (AMDS) created a platform to improve access through the internet to procurement and supply management (PSM) tools. WHO/AMDS in collaboration with the AMDS partner network developed it further. It has evolved into a database that lists available PSM tools and is presented in the form of a search engine to find and select PSM tools that are needed for a particular PSM technical area of interest to the professional.

The tools are developed, published and submitted by AMDS partners who regularly update them by submitting newer versions or new tools. Any professional or organizations can submit a tool by using the [submit](#) option found in the PSM Toolbox database. WHO will accept or reject the submission based on objective criteria that the PSM Toolbox working group has developed.

With the support of i+solutions who is an active AMDS partner, the maintenance of the PSM Toolbox data base, a [downloadable version](#) has been developed in 2011 to allow professionals to save or update an offline-PSM Toolbox version on a personal USB stick/ hard disk. Occasionally i+solutions avails USB sticks to professionals from developing countries with unreliable access to the internet.

Should you need more information on the PSM Toolbox, please contact Dr Vincent Habiambere from WHO/AMDS at habiamberev@who.int. If you have questions or have problem with downloading an offline PSM toolbox, please contact i+solutions at info@iplusolutions.org.

The PSM Toolbox project was initiated by WHO/AMDS and its partner organizations. The secretariat would like to thank all organizations and other individuals who have contributed to this project during its initial phase of development.

Inclusion of specific tools does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not included. The responsibility for the interpretation and use of the tools rests with the users. In no event shall the World Health Organization be liable for damages arising from its use.

QUICK SEARCH

[Advanced Search](#)

PSM TOOLBOX NEWS

Downloadable PSM Toolbox Available Now (October 1st 2011)
[Read more >>](#)

Good practices for selecting and procuring rapid diagnostic tests for malaria (June 22nd 2011)
[Read more >>](#)

WEEKLY TOOL HIGHLIGHT

Country Commodity Manager (CCM)
[More info >>](#)

FORUM

[Share your tool experiences on the FORUM](#)

LAST UPDATED ON

14/02/2012

PSM Toolbox

routine. In addition to national laboratory plans, there is an increasing number of effective resources that cross national lines, particularly as Internet access grows. One such resource, the Procurement and Supply Management (PSM) toolbox (available at <http://www.psmtoolbox.org/en/>), consolidates services from major international public health organizations like the WHO, CDC and the United States Agency for International Aid (USAID). It provides guidelines for product use, access to technical training, self-study courses, and registration for receiving laboratory supplies and pharmaceuticals, in addition to software programs that track inventory or create frameworks for managing supply chains. Because the PSM toolbox is user-generated, it is constantly adapting to include new technology and procedures through



South Sudan must build its laboratory supply chain system from the ground up

updates by laboratory and medical staff in the field. Lastly, other resources are becoming available from international partners like President's Emergency Plan for AIDS Relief (PEPFAR), John Snow Inc (JSI), Crown Agents, United National Development Programme (UNDP), United Nations Children's Fund (UNICEF), i+solutions and the Global Fund, all of whom are enthusiastic about collaborating with national and local governments to provide commodities, technical training, and training in management systems and best practices, as developed in standardization programs across Africa.

As one prominent insider said in an interview, "The laboratory supply chain is still in its infant stages, globally. Collective effort and commitment by governments, donors, implementing partners, supply chain organizations and health facility staff will minimize the challenges and bring the laboratory aspect of the supply chain upfront with the pharmaceuticals." Following this advice, continued support and assistance of the global community must be encouraged and cultivated, and there must be a focus on enforcing stricter management, quantification, and communication. Through these strategies, African laboratories will see a remarkable growth in their efficiency and capacity to effect change in healthcare in Africa.

Writer: Aaron Krol (Editorial Team); Editor: Jessica Fried, MPH (Editorial Team); Contributors: Vincent Habiambere MD PhD, Charles Mazinda, Paula Fernandes MBA PhD and laboratory logistical staff (who requested to remain anonymous)



Copyright GSSHealth 2012.

CHALLENGES IN BUILDING LABORATORY CAPACITY: A PERSPECTIVE FOR SMALL, LOW-INCOME COUNTRIES AND POST-CONFLICT SETTINGS IN THE AFRICAN REGION

Generating reliable data for diagnosis, treatment and control of diseases is the driving force behind strengthening laboratory capacity in resource-constrained countries. In many small, low-income countries (SLICs) in Africa, such as South Sudan and Somalia, there is an overwhelming and urgent need to address the insufficient technical and human capacities needed to deliver quality laboratory services such as microscopy, cultures and rapid diagnostic tests. Often amplifying these deficiencies in SLICs is a language barrier, the overcoming of which would enable governments and institutions to confront the inequities in health research.

SLICs simultaneously present great challenges and opportunities in demonstrating the contribution that quality laboratory services can make in improving health by providing evidence for detection, prevention and research of diseases. While there is a movement to motivate African nations to prioritize laboratory services in their national health plans, take advantage of

new funding mechanisms, and commit more domestic resources to health care services, countries or regions emerging from armed conflict should be targeted, as they are in dire need of quality laboratory services.

The establishment and strengthening of laboratory services in Africa and, in particular, in SLICs or regions emerging from armed conflicts is clearly an important goal. An innovative integration of capacity-building activities, such as training, supervision and opportunities for refresher courses and skill upgrades, may provide an entry point for participation of and contributions by these regional players. However, improvements in laboratory services cannot be addressed in isolation and will not be effective unless similar or greater attention is given to the broader healthcare system. The use of evidence-based decision-making in medical care will require a change in attitude, to one that values laboratory data.

Writer: Edward Mberu Kamau;

Editor: Jessica Fried, MPH (Editorial Team)

ASLM HOSTS FIRST FRANCOPHONE WORKSHOP

ASLM hosted its first Francophone scientific writing workshop from 16-27 January at a retreat centre in Saly, Senegal. Eight mentors led 14 participants in promoting scientific manuscript-writing and creating publication-worthy, peer-reviewed scientific manuscripts for inclusion in the African Journal of Laboratory Medicine (AJLM), which accepts submissions in French and English.

Participants came with manuscript drafts, abstracts or research results and, with the help of mentors, worked to finalize their manuscripts. Workshop study topics ranged from disease-specific prevalence and risk factors to laboratory testing techniques. Presentations and group work focused on the writing and submission process.

Laboratory medicine and epidemiology experts from four countries (Senegal, Belgium, France, and the US) volunteered as mentors for the workshop. Workshop mentors included Amadou Sall (Institut Pasteur), Christophe Longuet (Fondation Mérieux), Tandakha Dieye (Le Dantec), Luc Kestens (Belgium), and Coumba Toure Kane (Le Dantec). Participants came from Burkina Faso, Guinea Bissau, Mali, and Senegal.

Several partners joined ASLM in supporting the workshop, including the host institution West African Network of Excellence on TB, AIDS, and Malaria (WANETAM), Laboratoire Bactériologie Virologie (LBV), the West African Platform for HIV Research (WAPHIR), Institut Pasteur, Fondation Mérieux, ITM Antwerp, and the CDC.

The workshop contributed to the advent of the AJLM and aimed to disseminate quality scientific research



Workshop participant Noëlie Henry discusses the methodology of her study on malaria treatments with mentor Prof. Souleymane Mboup. Photo by Dr. Beth Luman.

generated by African laboratories. The workshop also helped participants to better understand the manuscript submission process and prepared them to share the experience gained at the workshop with others in their home laboratories.

"I think this workshop is very important as a collaborative effort between partners," said Prof. Souleymane Mboup, director of the workshop. "Those trained here will be able to train others at the local level. This is a very good exercise for them, and will help to catalyze a larger process."

In order to participate, candidates were required to submit a completed application form and article abstract. They were selected based on the following requirements:

- Fluency in French
- Principal authorship of a manuscript in development
- Commitment to submitting a completed manuscript to the AJLM
- Willingness to fund one's own travel and lodging expenses
- Letter of financial support
- Importance of research topic to the advancement of laboratory medicine
- Current status of manuscript, with preference given to those with a completed draft
- Quality of data and status of analysis

This is the first in ASLM's 2012 Writing Workshop Series, which will include workshops in both English and French to assist with grant applications, protocols, and manuscripts. The next workshop, scheduled for March in Ethiopia, will focus on grant and proposal writing. Please visit the ASLM website (www.afslm.org) for more information.

Writers: Elizabeth Luman, PhD (CDC) and Rachel Crane (Editorial Team); Editor: Aaron Krol (Editorial Team)



Writing workshop participants and mentors assemble for a group photo. Photo by Dr. Beth Luman.



Members of the ASLM Research Advisory Board discuss ASLM's research strategy (from left, Dr. Jack Nyamongo, Dr. Tsehaynesh Messele, Prof. Souleymane Mboup, Dr. Fausta Mosha, Dr. Giorgio Roscigno). Photo by Dr. Beth Luman.

ASLM RESEARCH ADVISORY BOARD DEVELOPS BLUEPRINT

Addis Ababa, Ethiopia—On 21-22 November 2011, at the ASLM headquarters in Addis Ababa, the Research Advisory Board held a consultative meeting to frame the Society's research strategy. Attendees included the ASLM senior leadership team and Society representatives from Kenya, Tanzania, Senegal and the US.

Research is one of the eight key pillars of ASLM and vital to helping public health laboratories improve services and facilitate evidence-based decision-making. ASLM developed its research strategy based on specific goals and initiatives.

ASLM aims to enhance laboratory research in Africa through the development of basic curricula, improvement of in-country research capacity, and dissemination of results. To aid in these goals, the Society stresses the importance of collaboration between Ministries of Health, academic institutions, and Ministries of Science and Technology, as well as between clinicians and laboratory professionals. ASLM plans to take a proactive role in enhancing these synergies by advocating for broader laboratory participation at national and international levels and acting as a conduit to facilitate multi-country research projects. It will support these activities by aiding in the development of a laboratory research agenda, promoting evidence-based decision-making for public health, soliciting funding, and facilitating research. Finally, the Society will advocate for

the local manufacturing of diagnostics, drugs, and vaccines by providing links to suppliers, supporting clinical trials, ensuring quality and standardization, and creating the capacity to evaluate new products and conduct post-market surveillance.



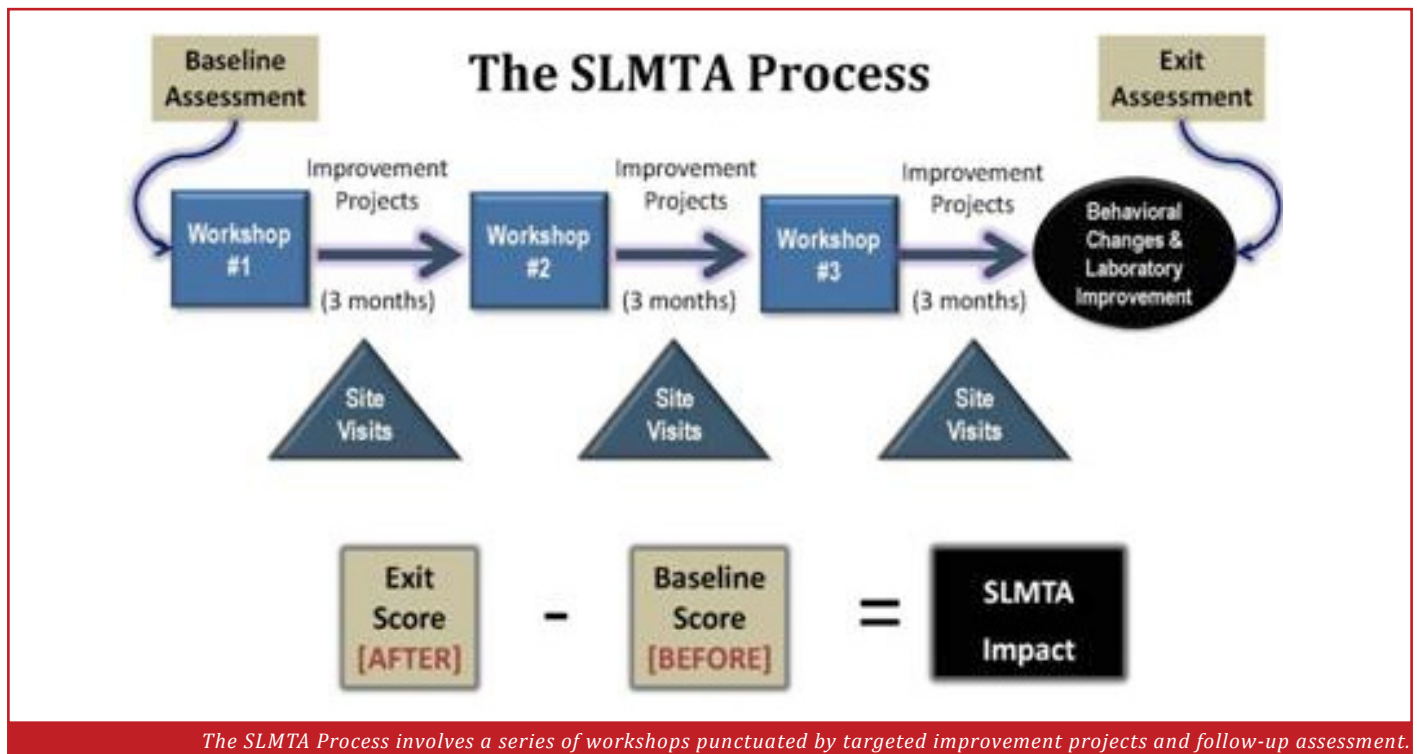
ASLM's research strategy aims to bridge the interests of academic institutions with those of governmental and multilateral stakeholders to enhance collaboration and strategic planning

Following the Board's consultative meeting, ASLM has already seen the implementation of elements of its strategy through a series of workshops focusing on grant and proposal writing. The goal of ASLM writing workshops is to strengthen the ability of individuals and organizations to respond to funding opportunities with well-conceived and well-written funding proposals and to effectively disseminate the information and knowledge gained from these studies through peer-reviewed journals. This will ultimately support countries' ability to identify, financially source, and manage research capacity.

Members of the Research Advisory Board include Dr. Alash'le Abimiku, PhD (University of Maryland, USA), Dr. Elizabeth Luman, PhD (CDC, USA), Dr. Souleymane Mboup, PharmD (Cheikh Anta Diop University [CADU], Senegal), Dr. Tsehaynesh Messele, PhD (ASLM, Ethiopia), Dr. Fausta Mosha, MD (ASLM), Dr. Jack Nyamongo, MD (Association of Public Health Laboratories [APHL], Kenya), Dr. Trevor Peter, MD (CHAI, USA), and Dr. Giorgio Roscigno, MD (ASLM, Ethiopia).

Writer: Rachel Crane (Editorial Team); Editor: Jessica Fried, MPH (Editorial Team)

SLMTA: IMPROVING LABORATORY QUALITY MANAGEMENT SYSTEMS ACROSS AFRICA THROUGH COUNTRY OWNERSHIP



Strengthening Laboratory Management Toward Accreditation (SLMTA) is a structured laboratory improvement program that supports the WHO AFRO's Stepwise Laboratory Improvement Process Toward Accreditation (SLIPTA), a framework for improving quality of public health laboratories in developing countries to achieve ISO 15189 standards.

Launched in Kigali in July 2009, SLMTA has grown rapidly over the past two years, gaining support at the grass-roots level and spreading across many African countries, Southeast Asia and the Caribbean. In Africa, 16 countries and 259 laboratories have adopted the program. So far, seven countries (Lesotho, Rwanda, and Tanzania, Zimbabwe, Cameroon, Ethiopia, and Kenya) have completed the 12-18 month process (see graphic) and graduated their first respective cohorts. Initial positive findings of the assessment seem to confirm the efficacy of SLMTA as measured by the data comparing baseline and exit assessments conducted using the WHO-AFRO accreditation preparedness checklist.



SLMTA has enabled laboratories to improve their quality management systems despite resource limitations. Through the effective management of work areas, inventory, and procedures, laboratories have been able to work more efficiently while reducing waste. SLMTA teaches participants the importance of keeping standard operating procedures and records for maintenance and quality control.

In Southeast Asia, Cambodia launched the program in 2011. Due to its success, a regional training workshop targeting Vietnam, Cambodia and Thailand is on the agenda for early 2012. SLMTA is also growing in the Caribbean region; the SLMTA process has begun for Barbados, Trinidad and Tobago, Jamaica, and the Bahamas. In Central America, the

Dominican Republic held its first SLMTA workshop in August 2011. If SLMTA's expansion continues at this pace, it will have a strong impact on the quality of laboratory medicine in the developing world.

Writer: Rachel Crane (Editorial Team); Contributors: Katy Yao, PhD (CDC) and Angelii Abrol, MHS (CDC)

ASLM HELPS SCIENTISTS BUILD GRANT-WRITING SKILLS



Participants of the first ASLM Grant and Proposal Writing Workshop. Photo by Dr. Beth Luman.

ASLM held a five-day grant and proposal writing workshop from 10-14 October in Johannesburg, South Africa. The course taught 19 participants how to identify and respond to laboratory-related grant opportunities from funding sources such as Global Fund, GATES and USG.

The workshop aimed to build public health officials' capacity to successfully compete for grants in Africa, with an emphasis on laboratory-focused projects. Throughout the week, participants worked on developing proposals on the topic of their choice.

The workshop featured interactive, hands-on activities interspersed with brief lectures. This approach helped participants identify sources and "hot topics" in grant funding, write bio-sketches, underscore organizational capabilities, develop goals and objectives, generate budgets, create effective presentations and understand the submission process.

On the final evening of the workshop, participants pitched their proposal concept papers to course instructors, who were posing as funders at a mock fundraising social. Participant Dr. Hilary Lumano, National Chairperson for the Biomedical Society of Zambia, called the workshop "most enlightening... I now understand how potential funders think and how to capture their attention in text. What I've found most rewarding is that I have learned how to be specific, to the point and concise."

The course participants came from 10 countries, including Cameroon, Kenya, Lesotho, Mozambique, Nigeria, Rwanda, South Africa, Tanzania, Zambia, and Zimbabwe. Participants included national-level

laboratory directors and researchers, nongovernmental organization (NGO) program coordinators, university students, and Field Epidemiology Laboratory Training Program (FELTP) students and residents.

The African Centre for Integrated Laboratory Training (ACILT) hosted the workshop in collaboration with the National Health Laboratory Services of South Africa. Course mentors Dr. Connie Sexton and Dr. Elizabeth Luman, of US CDC, coordinated and facilitated the course. The workshop's lead trainer was Mr. Jack Smith, a professional grant-writing instructor with over 30 years of experience. Other notable attendees included course keynote speaker Dr. Wendy Stevens, Senior Editor of the African Journal for Laboratory Medicine, and guest facilitator Zawadi Chipeta, laboratory advisor for CDC-South Africa.

Writers: Elizabeth Luman, PhD (CDC) and Rachel Crane (Editorial Team)



Course coordinator and mentor Dr. Connie Sexton works with participant Dr. Hilary Lumano on his grant proposal. Photo by Dr. Beth Luman.

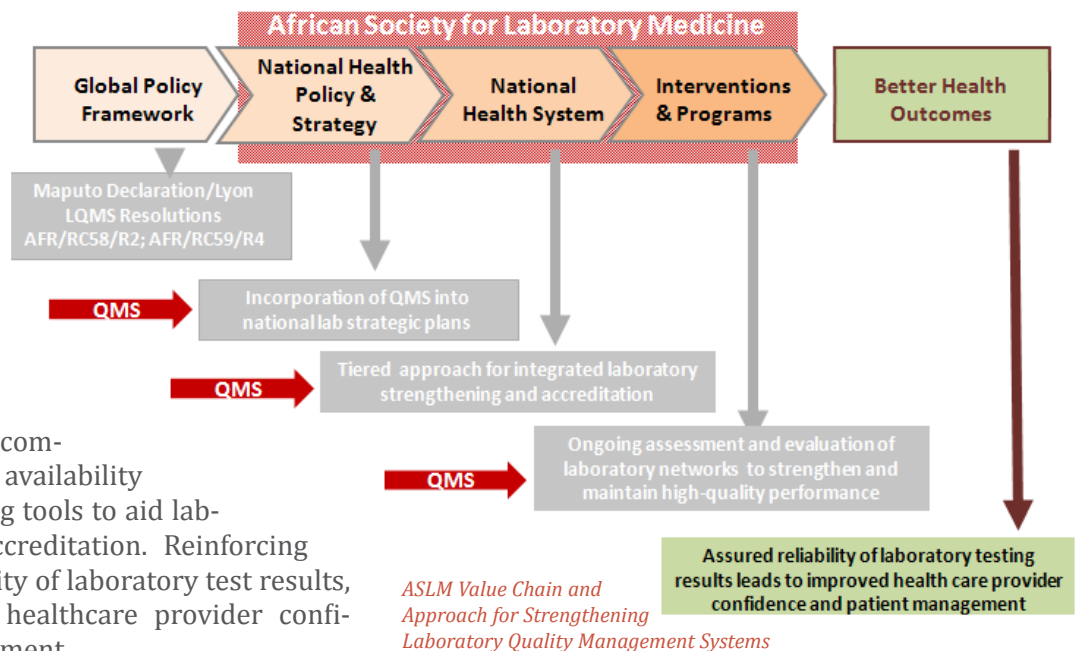
ASLM FRAMES PLAN TO STRENGTHEN LABORATORY QUALITY MANAGEMENT SYSTEMS

The ASLM SLIPTA Independent Advisory Committee (IAC) hosted a meeting from 24-25 November 2011 at ASLM headquarters in Addis Ababa to formulate the Committee's approach to strengthening laboratory quality management systems (QMS) in Africa though the development of partnerships, improved communication, and increased availability of information and training tools to aid laboratories in achieving accreditation. Reinforcing QMS improves the reliability of laboratory test results, which in turn improves healthcare provider confidence and patient management.

The IAC outlined the Society's national laboratory strategic plan, focusing on enhancing capacity and increasing awareness of the importance of quality management in laboratories throughout Africa. ASLM will strive to achieve this by reviewing the QMS component of the strategic planning guidelines, encouraging the integration of SLMTA and SLIPTA recommendations within national laboratory guidelines, disseminating WHO guidelines, and assisting African countries that have existing national laboratory strategic plans.

Central to the success of the national laboratory strategic plan is the fostering of cooperative relationships between regional economic and professional communities. The IAC defined a communication strategy for the Society that entails promoting the implementation of QMS by encouraging collaborations and engagement with countries and contacts through collaborative efforts with the WHO, ASLM and other partners.

Through improved communications with regional partners, ASLM aims to integrate monitoring and evaluation of laboratories towards accreditation, ultimately resulting in an improvement in the quality and reliability of laboratory testing.



These ASLM initiatives and strategic plans, coupled with building partnerships, advocating for QMS, and increasing the accessibility of training tools will improve the quality of laboratory services and positively impact healthcare throughout Africa.

The two day meeting included the following committee members: Dr. Christopher Gilpin (Chair, WHO Geneva), Mr. Patrick Mateta (Vice-chair, Clinical and Laboratory Standards Institute [CLSI] USA), Prof. Essiagne Sess (Vice-chair, Centre Regional d'Evaluation en Sante et d'Accreditation des Etablissements Sanitaires en Afrique [CRESAC] Côte d'Ivoire), Dr. David Turgeon (CDC USA), Dr. Jean-Bosco Ndiokubwayo (WHO AFRO), Dr. Laetitia Gahimbare (Supply Chain Management System [SCMS] Rwanda), Ms. Linda de Gouveia (National Institute for Communicable Diseases [NICD] South Africa), Prof. Ephata Kaaya (Muhimbili University of Health and Allied Sciences [MUHAS] Tanzania) and Mr. Marcel Gbaguidi (WAQP Burkina Faso).

Writer: Rachel Crane (Editorial Team); Editor: Jessica Fried, MPH (Editorial Team)

BUILDING BRIDGES BETWEEN LABORATORY PROFESSIONALS AND CLINICIANS AT THE INSTITUT PASTEUR IN CÔTE D'IVOIRE



Since its founding in 1972, the Institut Pasteur in Côte d'Ivoire (IPCI) has been at the forefront of microbiology in Africa, a regional hub of scientists and clinicians who provide education, training, diagnostic services, public health support and original research from their base in Abidjan. Notably, researchers from the IPCI were instrumental in developing rapid diagnostic techniques for arboviruses like those responsible for African swine fever, dengue fever and yellow fever. As a member of the Institut Pasteur International Network since 1989, the IPCI coordinates major studies of HIV, malaria, tuberculosis, influenza, buruli ulcers and hemorrhagic fevers, and serves as the regional reference laboratory for avian flu. In short, the IPCI has long been a leading African institution not only in original microbiological research, but also in addressing practical problems in combating infectious disease. To this end, almost 50% of its activities are devoted to pathological diagnostics as well as the surveillance of epidemic infectious diseases (cholera, meningitis, etc.), eradicable diseases (polio), and controllable diseases (measles, influenza, hepatitis).

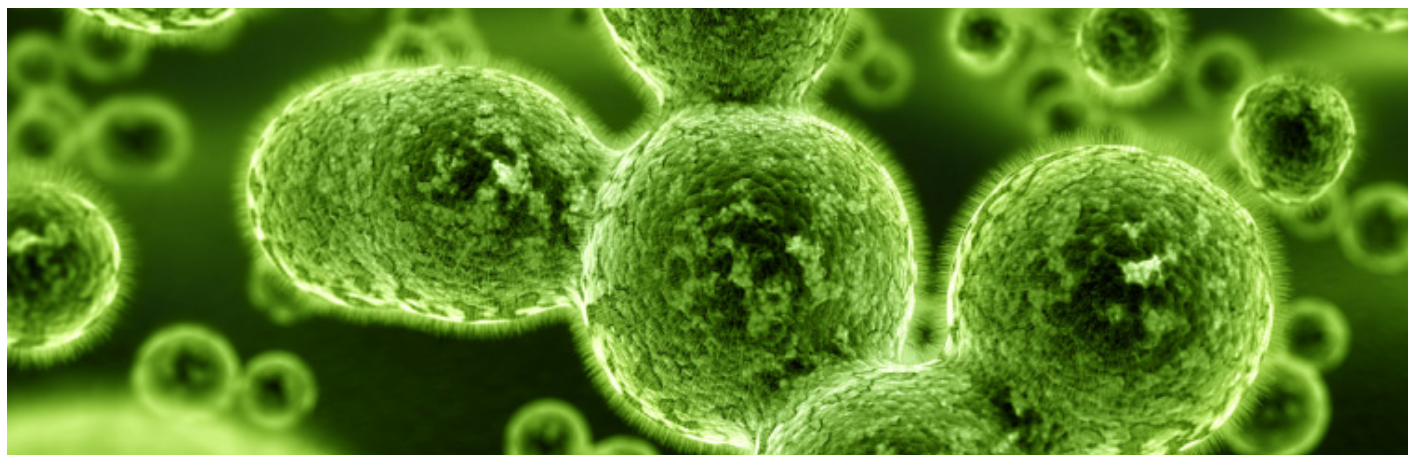
Today, staff and administrators in the IPCI recognize that one of the major barriers to efficient public health systems is a lack of coordination between laboratory officials and clinicians that hampers rapid diagnostics and fails to effectively tailor treatment to individual patients. The IPCI has taken the lead in training laboratory and clinical staff alike in regular, open communication, and instilling habits of close clinico-biological relationships in all medical personnel operating in Côte d'Ivoire. With the purpose of improving laboratory results, the IPCI

has implemented regular exchanges through training sessions, workshops for drafting documents, audits of service requests, participation in weekly hospital ward meetings, through the platform of regional and national scholarly societies, and through personnel rotations.

The key to changing the professional coordination between clinicians and biologists lies in education, where understanding of the mutual reliance of laboratories and clinicians is first developed. Through its association with the University of Cocody-Abidjan, the IPCI involves biologists in the training of clinicians in specialist disciplines, ensuring that future clinicians in fields like Public Health, Traumatology, Pediatric Surgery and Gynaecology learn to make connections between biological analyses and clinical syndromes. Regional and national scholarly societies also serve as platforms for the exchange of experiences between clinicians and biologists and allow the creation of courses of study that necessitate mutual participation.

The IPCI also fosters joint workshops between clinicians and biologists to draft national documents regarding the treatment of HIV, STIs, tuberculosis, diarrhoea and acute respiratory infections, among others. Such collaborations are encouraged on both the national and local scale. For instance, at the University Hospital of Yopougon, microbiologists developing an institutional assistance document for biocollections in children were joined by paediatricians from the same hospital, resulting in a responsive document that has improved the management of paediatric patients.

(continued on page 16)



An audit was performed on the requesting of services, carried out through an analysis of requests received by the laboratory. The presentation of recommendations from the audit opened a discussion about the path toward improving the use of laboratory results.

A major success in transforming attitudes toward clinico-biological relations is evident in the University Hospital of Cocody. Monthly, the Clinical Bacteriology Department of IPCI participates in the meetings of the Paediatric Surgery Department and the Pulmonary Medicine Department. Throughout the course of these meetings, microbiological test data are compared to clinical data from the patients. This has resulted in the rapid diagnosis of infections, notably those linked to bacterial strains resistant to antibiotics and found in certain patients, as well as the modification of antibiotic prescriptions. Furthermore, the interest shown by the laboratory in discussions of clinical cases has encouraged paediatric surgeons and pneumologists to call upon the laboratory more often and to therefore improve patient management. In the same hospital, laboratory collaboration with the intensive care unit (ICU) has led to a significant reduction in nosocomial infections.

Throughout the course of their training at the hospital internship program, interns with clinical concentrations/specialties participate in an internship of six months in a laboratory; this enables them to determine the constraints related to analyses carried out in laboratories.

By focusing its administrative and education practices on building a closer sense of community between laboratory biologists and clinicians in the field, the IPCI is continuing its tradition of responsiveness to practical challenges in medical services. Through the dedication and pragmatic outlook of IPCI officials, a vigorous training policy has been implemented over the past few years at the university level and in training institutions for technical officers. This policy has favoured the emergence of a Laboratory Medicine Department comparable to departments of Medicine and Surgery. Partner support of the infrastructural capacity of laboratories and of their personnel has played a central role in this change. Increased visibility of the laboratory as a service for public health together with the honing of laboratory personnel skills have helped bring credibility to medical biology in Côte d'Ivoire. As a consequence, biologists receive clinicians' respect and consideration and have a better understanding of the necessity of developing positive and innovative public health communities, whose mission it is to help reduce poverty and promote country development.

Writers: Dosso M; Kette H, Kouassi M'Bengue A., Kakou N'Douba A, Aoussi F and Achy Brou; Editor: Aaron Krol (Editorial Team); Translator: Rachel Crane (Editorial Team)

ASLM
Behind the Friendship Building
P.O. Box 5487
Bole Road, Bole Sub-City
Addis Ababa, Ethiopia
www.AfSLM.org
Newsletter@AfSLM.org