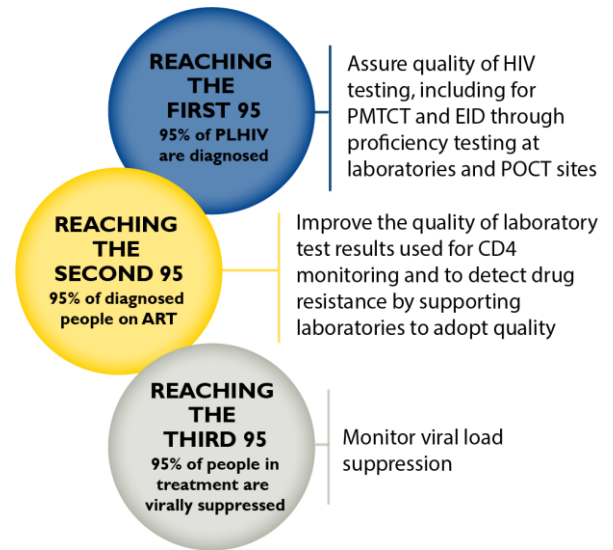


# Diagnosics and Laboratory Systems Strengthening

Medical laboratories are a critical component of quality health care and provide essential data for patient care and treatment, disease prevention and control, and public health policy development. Diagnostic services must be accurate, timely, and reliable, yet in many resource-constrained countries, laboratories still provide poor quality testing that is often unreliable, untimely, or altogether incorrect. Development of functional laboratory systems is increasingly recognized as a key component of sustainable health care systems. Global efforts to ameliorate the burden of HIV and associated infections over the last 17 years, as well as devastating outbreaks of infectious diseases such as Ebola, have illuminated the need for further support of global diagnostics, laboratory and information systems strengthening. Effective national laboratory and diagnostic systems require effective leadership and management, a competent workforce, and an underpinning of national laws and regulations.



## I-TECH CAPACITY

TECH's Laboratory Systems Strengthening (LSS) team's mission is to improve diagnostic testing quality, including laboratory based operations for optimal patient care and treatment, disease surveillance and response, biosecurity, and policy development. The LSS team fosters the development of sustainable diagnostic and laboratory capacity globally and comprises staff at the University of Washington (UW) in Seattle, as well as locally based staff. The team leverages partnerships within UW and with external collaborators globally, and directly supports Ministries of Health and funders to accomplish mutual objectives.

## PROGRAM REACH

- **Professional Certificate Program in Laboratory Leadership and Management** (Middle East and N. Africa, Zambia, Côte d'Ivoire)
- **Development and support of laboratory referral networks** (Ethiopia, Zambia, Côte d'Ivoire)
- **In-service Quality Management Systems (QMS) training, mentoring and implementation** (Botswana, Cambodia and Lao PDR, Zambia, Côte d'Ivoire)
- Supporting **early infant HIV diagnosis (EID)** in Ethiopia by strengthening national laboratories; strengthening in-service clinician training on use and interpretation of HIV viral load testing, scale up, and monitoring (Mozambique, Côte d'Ivoire); HIV Rapid Test Quality Improvement Initiative (Côte d'Ivoire)
- **Development and support of national proficiency testing programs** (Botswana)
- **Strategic planning and policy development** to address laboratory practice (WHO/EMRO, Kazakhstan, Georgia, Armenia, Côte d'Ivoire)
- **Strengthening pre-service educational programs in medical laboratory science** (South Africa, Botswana, Mozambique)
- **Biosafety training** (Côte d'Ivoire, Cambodia)



# I-TECH Case Studies



From 2014-19 I-TECH supported the Bureau of Medical Laboratory Services-Ministry of Health in **Cambodia** to implement a structured training and mentor program with the goal to strengthen the quality and capacity of 12 tertiary level hospital laboratories. As a result of this five-year effort, supported laboratories improved their testing accuracy, timeliness and reliability of services and operations in the areas of: biosafety, organization, personnel, equipment maintenance, purchasing and inventory, testing accuracy, process management, documentation and collaboration

within the laboratory system. The project trained over 200 laboratory professionals in the principles of quality and operational management, organizational leadership, and reinforced these skills through in-person training and remote mentoring using a remote mentoring program modeling on Project ECHO™. Participating laboratories improved significantly in meeting the ISO 15189 standards conformity as measured in an external assessment process.

Since 2009, I-TECH has been supporting the Ministry of Health in **Côte d'Ivoire** to design and implement a laboratory information system (Open ELIS) and since 2016 has been providing additional support to the Ministry of Health, National Public Health Laboratory, National HIV Reference Laboratory, and other PEPFAR implementing partners in an expanded scope of work aimed at building a functional, accredited diagnostic and laboratory network for effective HIV patient care and treatment to meet the UNAIDS 95-95-95 goals. This is accomplished through multiple interventions:

- Develop and implement a new national laboratory strategic plan and assist in the development of laws, regulations and policies.
- Improve laboratory quality management throughout the laboratory network to increase number of ISO 15189 accredited laboratories capable of providing reliable, accurate, and timely test results.
- Improve accuracy of HIV rapid diagnostic testing at >4000 point of care testing sites through development and implementation of a site and personnel certification program including a semi-annual proficiency testing scheme, post marketing surveillance program and log book analysis to study rates of false positive and false negative HIV diagnosis.
- Strengthen the use of diagnostic testing data through design and implementation of a laboratory information management system and linkages with new e-dashboards to monitor key PEPFAR metrics such as viral load and EID.
- Increase safe blood access for the Ivorian population by improving the accuracy of testing the national blood supply and supporting the ISO accreditation of three blood banks.



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