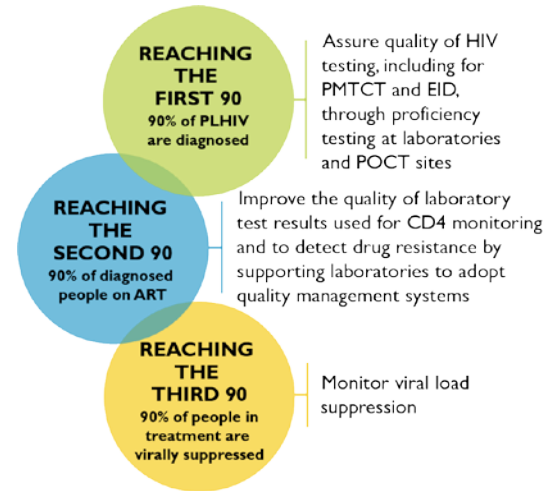


Medical laboratories are a critical component of quality health care and provide essential data for patient care and treatment, disease prevention and control, and public health policy development. Medical laboratory services must be accurate, timely, and reliable, yet in many resource-constrained countries, 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 15 years, as well as devastating outbreaks of infectious diseases such as Ebola, have illuminated the need for further support of global laboratory systems development. Effective laboratories and functioning national laboratory systems require a competent workforce, effective leadership and management, and an underpinning of laws and regulations that ensure quality of services, and whose policies shape processes and mechanisms for optimal laboratory system performance and international cooperation as required by the World Health Organization's (WHO) International Health Regulations.



## I-TECH Capacity

I-TECH recognizes laboratory strengthening as a core component of its work. I-TECH's Laboratory Systems Strengthening (LSS) team's mission is to improve laboratory operations for optimal patient care and treatment, disease surveillance and response, biosecurity, and policy development. The LSS team fosters the development of sustainable laboratory systems and laboratory capacity in multiple countries throughout the world 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 engages directly with Ministries of Health and funders to accomplish mutual objectives.

## Program Reach

<b>Professional Certificate Program in Laboratory Leadership and Management</b> (North Africa and the Middle East, Zambia, Côte d'Ivoire)	<b>Development and support of laboratory referral networks</b> (Ethiopia, Zambia, Côte d'Ivoire)
<b>In-service Quality Management Systems (QMS) training, mentoring and implementation</b> (Botswana, Cambodia and Lao PDR, Zambia, Côte d'Ivoire)	Supporting <b>early infant HIV diagnosis</b> 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)
<b>Development and support of national proficiency testing programs</b> (Botswana)	<b>Strategic planning and policy development</b> to address laboratory practice (WHO/EMRO, Kazakhstan, Georgia, Armenia, Côte d'Ivoire)
<b>Strengthening pre-service educational programs in medical laboratory science</b> (South Africa, Botswana, Mozambique)	<b>Biosafety training</b> (Côte d'Ivoire)

# I-TECH Case Studies



**Cambodia:** For the period of September 2013-September 2016, I-TECH conducted an implementation science research project to improve laboratory quality in Cambodia. The primary objective of the project was to implement a mentored laboratory quality stepwise implementation (LQSI) program to strengthen the quality and capacity of Cambodian hospital laboratories. As a result, target laboratories improved their operations in the areas of: biosafety, organization, personnel, equipment maintenance, purchasing and inventory, testing accuracy, process management, documentation and communication. The project recruited and trained four laboratory technician to be mentors, training staff from 12 referral hospital laboratories in QMS, and reinforcing skills acquisition through in-person mentoring.

Participating laboratories reported a 36% increase in quality management, 29% improvement in data management, and 25% improvement in specimen collection and handling. The laboratories established the foundational practices of a QMS, and the LQSI program has improved the visibility of the laboratory within the hospitals.

**Côte d'Ivoire (2016- 2021):** I-TECH provides direct TA to the National Public Health Laboratory, district health teams, and collaborates with PEPFAR Implementing Partners to build a functional, accredited laboratory network to reach 80% saturation for HIV care and treatment in 79 districts nationwide. This is accomplished through multiple interventions:

- Strengthen and implement national laboratory strategic plans, policies to increase adherence to national guidelines
- Implement laboratory quality management systems throughout the laboratory network to increase number of accredited laboratories providing reliable, accurate, and timely results
- Improve HIV diagnostic testing through proficiency testing and improved point-of-care testing
- Strengthen the use of laboratory data through implementation of laboratory information management systems
- Increase safe blood access by supporting accreditation of three blood bank laboratories



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August 2017