

Improving Quality of Laboratory Service through Partnership: *I-TECH Experience in Ethiopia*

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Background

Ethiopia's health service system is federally decentralized among the 9 regions and is comprised of hospitals, health centers (HC) and health stations with laboratory services provided at each level. I-TECH Ethiopia in collaboration with Ethiopian Health and Nutrition Research Institute (EHNRI) and regional health bureaus (RHBS) provides technical support to regional referral Laboratories, zonal/district hospitals and HC laboratories in Amhara, Tigray and Afar regions through implementation of strategic objectives identified in the National Laboratory Master Plan.

Methods

This study focuses in 4 areas of laboratory strengthening: skill building, infrastructure development, coordination of laboratory efforts through partnership and improving quality systems to meet requirements for the WHO/AFRO laboratory accreditation.

Results

Regular mentorship was provided to laboratory professionals in the 36 hospitals, 10 health centers, and 4 regional referral laboratories; over 10 different in service laboratory trainings (Table 1) were provided to over 85% of laboratory professionals (total 510) practicing in the 3 I-TECH operating regions and contributing to the improved laboratory service provision. Trainings considered new sites, staff turn over and expansion of point-of-care testing points at facilities.

Table 1: Laboratory trainings provided to laboratory professionals in the 3 regions

Laboratory trainings
■ Laboratory Quality Management Systems
■ Laboratory Leadership and Management
■ Infant HIV Diagnosis and DBS preparation
■ HIV testing
■ Laboratory Dx of Malaria (microscopy)
■ ART Monitoring (CD4, chemistry, hematology testing) and Preventive Maintenance
■ TB AFB smear microscopy
■ Biosafety
■ Laboratory Dx of <i>Visceral Leishmaniasis</i>
■ Research methodology and ethics



Fig 1. Laboratories before I-TECH intervention (not upgraded)

TB culture and viral load testing laboratories were established in 2 regional laboratories. Infrastructure of 13 hospitals, 1 regional/referral and 2 HC laboratories has been improved through renovation/furnishing contributing to a safe and efficient work environment, improved workflow, quality of service provision and patient care (Fig 1 & 2).



Fig 2. Laboratories after I-TECH intervention (upgraded)

All I-TECH supported laboratories participate in an integrated national External Quality Assessment (EQA) program in HIV rapid test, TB- and Malaria microscopy QA scheme. Majority sites participate EQA through testing international proficiency test panels for CD4, Chemistry and Hematology. The number of laboratories participating in EQA is increasing. Quality Control and EQA results verified quality improvement (QI) and reduced turnaround time (TAT) verified laboratory service delivery improvement (Table 2).

Table 2: Laboratory service delivery improvement as measured by TAT

Laboratory tests	TAT before QSE* implementation	TAT following QSE implementation
HIV	2hrs	1hr
DBS-DNA/PCR for HIV exposed infants	3 weeks	10 days
CD4	6hrs	2hrs
Clinical Chemistry	6hrs	2.5hrs
Hematology	2hrs	50min

QSE: Quality System Essentials

In an effort to address standardized quality practices, I-TECH supports the implementation of the WHO-AFRO step-wise laboratory accreditation program for health laboratories in Ethiopia. Ten laboratories among I-TECH supported laboratories are enrolled in the program and 5 of them were enrolled in the first phase of the program and successfully achieved 1-3 stars (out of 5); QI grades based on the WHO-AFRO accreditation checklist (Fig 3).

Conclusion

There is evidence of improvement of laboratory quality in I-TECH supported laboratories in Amhara, Tigray and Afar regions. An effective partnership with EHNRI, RHBS, implementing partners, and regional health facilities is critical in developing sustainable and quality laboratory service delivery and meet requirements of the WHO/AFRO accreditation.

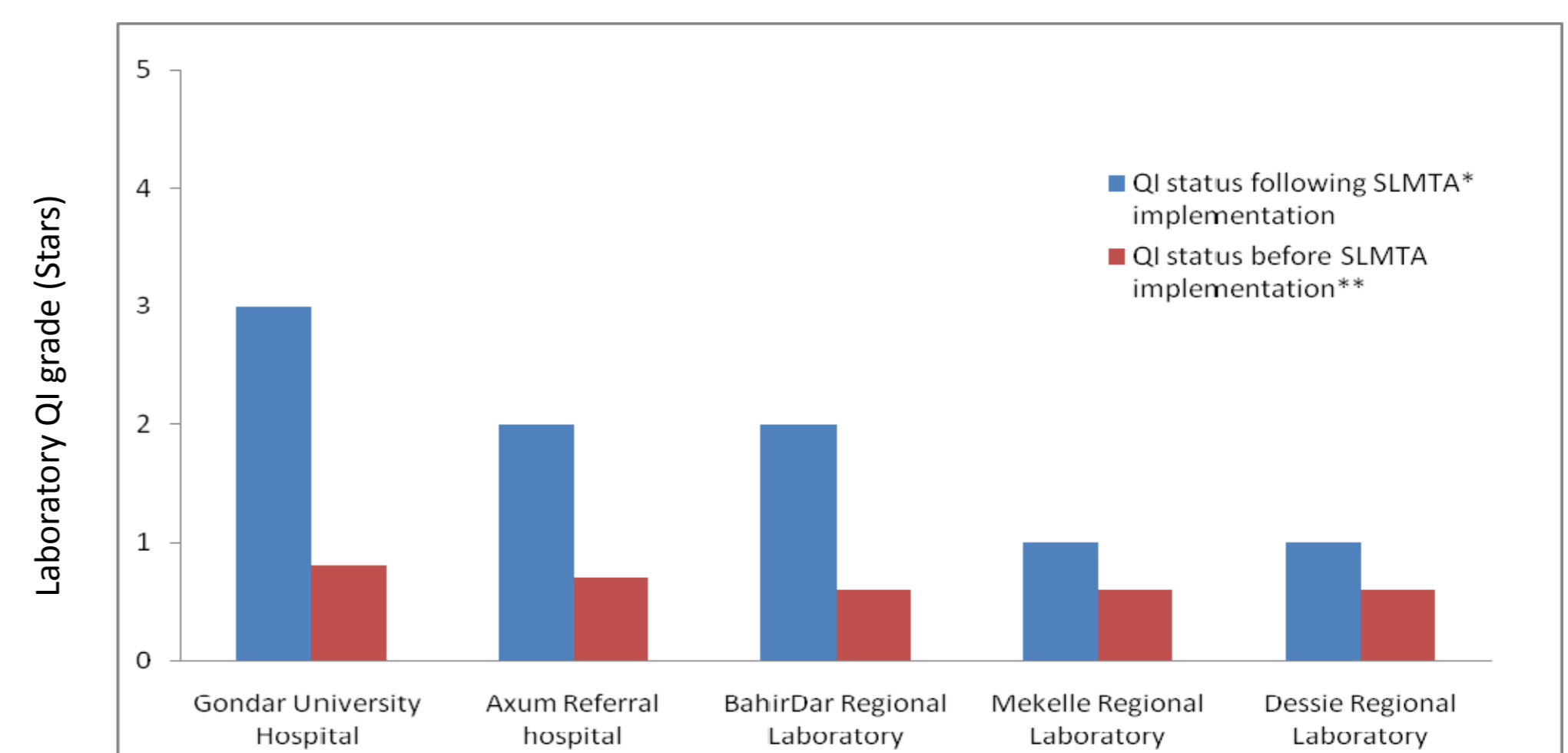


Fig 3. Quality improvement of laboratories as measured by the WHO-AFRO step-wise laboratory accreditation check list.

* SLMTA : Strengthening laboratory management towards accreditation.

** All laboratories scored <1 star before SLMTA implementation

