What is SLMTA?

SLMTA – A Mentoring and Training Program with Structured Improvement Methodology

Strengthening **L**aboratory **M**anagement **T**oward **A**ccreditation (SLMTA) is a mentoring and training program designed to bring about immediate and measurable improvement in laboratory quality and services using available resources.

SLMTA Implementation requires approximately 1 year, and consists of 3 workshops, separated by time to implement tailored improvement projects facilitated by site visits and/or on-site mentoring.

10 Management Topics

1 - Productivity Management
2 - Work Area Management
3 - Inventory Management
4 - Procurement Management
5 - Equipment Maintenance
6 - Quality Assurance
7 - Specimen Management
8 - Laboratory Testing
9 - Test Result Reporting
10 - Documents & Records

Six Building Blocks of SLMTA

CONTENT		
What do you do?	**How do you do it?**	**Proof that you've done it!**
66 Management tasks and routines	45 Hands-on training activities	Training content mapped to the SLIPTA Checklist items
IMPLEMENTATION		
3-workshop Series	**Improvement Projects (IPs)**	**Site Visits/ On-site Mentoring**
Behavioral and cultural changes take time!	Translates knowledge into action	Provides site-specific coaching and ensures IP success

The SLMTA Process

66 Laboratory Management Tasks and Desired Outcomes

What is SLMTA? Katy Yao, 2015, CDC, USA

Key Areas of Work	Desired Outcome	What do managers do (Tasks and Routines)?
1. Productivity Management	▪ Efficient workflow ▪ Evenly distributed workload ▪ Uninterrupted service delivery	1. Organize the laboratory and coordinate work space to allow for smooth, efficient service operations 2. Design workflow for optimal productivity 3. Prioritize and assign work according to personnel skill level, workloads, and completion timeframe 4. Assess personnel competency against standards and determine corrective action and training needs 5. Conduct weekly staff meetings to coordinate activities, review lab operations, reward success, celebrate accomplishments, and resolve issues 6. Meet with staff individually to communicate expectations, provide feedback, coaching, or on-the-job training to ensure competency and productivity 7. Provide/coordinate new-hire orientation and training to staff 8. Maintain and update personnel records (training, certification, competency assessment) 9. Create a work plan and budget based on personnel, test, facility, and equipment needs 10. Create/review/forward reports on lab operations to upper management 11. Implement measures to motivate staff to improve quality of work and productivity (e.g., training, job rotation, employee of the month, thank-you letter, etc.) 12. Develop and implement lab improvement plans based on best practices and feedback from staff, patients, customers, quality indicators, and external assessment 13. Communicate to upper management regarding personnel, facility, and operational needs
2. Work Area Management	Clean, adequate, safe, and functional equipment, work space, and storage area	1. Assess any reported incidence or abnormalities 2. Authorize and follow up on repairs 3. Monitor staff adherence to safety rules & practices 4. Ensure appropriate physical work environment for testing 5. Ensure that safety equipment is accessible and readily available (e.g., place safety equipment such as sharp box and PPE close to work station to encourage use) 6. Ensure Safety Manual with safety procedures for laboratory functions and possible emergencies is accessible to and reviewed by all staff 7. Ensure reagents and chemicals are stored properly 8. Ensure that waste is properly disposed
3. Inventory Management	▪ No over-stocking ▪ No under-stocking ▪ No stock-out	1. Review inventory log of all equipment and parts 2. Review inventory log of all supplies and reagents 3. Monitor consumption rate and inventory level to determine when and how much to re-order 4. Enforce good stock management practices (proper storage, stock cycling, inspection of incoming orders, etc.) 5. Inspect quality of existing inventory and dispose of expired test kits, reagents, supplies and equipment according to policy
4. Procurement Management	Fresh supplies are always available for continuous service	1. Accurately evaluate needs for equipment, supplies and reagents taking into consideration past patterns, present trends, and future plans 2. Place orders as necessary in accordance with needs and budgetary constraints 3. Monitor procurement orders 4. Appropriately document and maintain accurate records of all purchase orders and requisitions

66 Laboratory Management Tasks and Desired Outcomes

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Key Areas of Work	Desired Outcome	What do managers do (Tasks and Routines)?
5. Routine/Preventive Maintenance of Equipment	Equipment functioning all the time to ensure uninterrupted and quality service	1. Consolidate and post equipment service information (contact, service frequency & dates, etc.) at site 2. Ensure proper preventive maintenance (i.e., cleaning, proper shutdown) on instruments when used 3. Perform and record troubleshooting on malfunctioning equipment 4. Review and sign maintenance logs to ensure regular preventive maintenance and timely repairs 5. Take corrective actions or issue repair orders and record all issues 6. Follow up on all corrective action – see if equipment is properly functioning, observe for trends or determine training needs 7. Communicate to upper management equipment specifications and maintenance needs
6. Quality Assurance	Consistently accurate and reliable test processes (pre-analytical, analytical, post-analytical)	1. Ensure that the Quality Manual with quality assurance policies and procedures is accessible to and reviewed by all staff 2. Ensure that QC material is tested according to SOP 3. Establish acceptable ranges for control material 4. Validate new equipment, reagents, and supplies 5. Track test performance (e.g., Levy-Jennings chart) for trends 6. Review discordant rates and determine appropriate action 7. Review records of environmental checks & QC trends to assess impact on testing and take corrective action 8. Review occurrence log for patterns/trends and take corrective action 9. Monitor reagent performance 10. Customize site-specific SOPs as needed 11. Ensure that SOP are read and understood by staff 12. Enroll in EQA program, monitor results, and take corrective actions 13. Periodically observe/assess accuracy of staff performance and take corrective action
7. Specimen Collection & Processing	Proper specimen collection, labeling, packaging, storage, tracking, and disposal	1. Determine appropriate tests based on test request and assign test responsibility 2. Review specimen log for completeness 3. Enforce good specimen handling and processing practices 4. Ensure adherence to specimen referral requirements 5. Track specimen referral status and review referral reports to ensure timely return of test results
8. Laboratory Testing	All laboratory tests are performed promptly and accurately; test results are validated and recorded before release	1. Monitor testing to ensure SOPs are followed and tests are performed and reported properly and promptly 2. Cross-check test reports against test request to ensure completion of all tests 3. Review test records and findings promptly to ensure accuracy and timely release of test results 4. Validate assigned tests and specific abnormal results
9. Test Result Reporting	Reporting of accurate test results and findings within established turn around time; satisfied clients	1. Aggregate and report all test findings for each patient 2. Ensure test results reach referral sites or test requestors 3. Consult with clients regarding specimen quality, test results and findings in a professional manner and ensure each issue is resolved promptly and documented appropriately 4. Conduct customer satisfaction survey to identify areas for improvement
10. Documents & Records Management	Permanent, secure, and traceable records and approved, up-to-date, and easily accessible documents	1. Maintain a library of documents (policies, guidelines, SOPs, references, etc.); review and update annually 2. Maintain integrity, organization, and confidentiality of records (client test results, specimen transfer logs, maintenance logs, inventory logs, etc.) 3. Assure proper record retention, rotation to storage, and disposal according to protocol

45 Training Activities in the SLMTA Curriculum

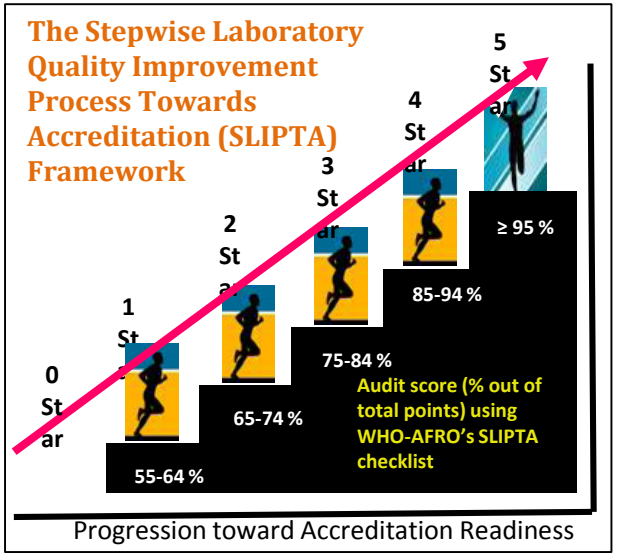
What is SLMTA? Katy Yao, 2015, CDC, USA

Module	Activity
Introduction	Envision Your Dream Laboratory
	"My Lab" Key Message Puzzles
Cross-cutting	Process Mapping
	Managing Performance – The Balanced Scorecard
	PDCA Cycle as the Improvement Method
	Workstation Set-up
	What Would You Do?
	Planning Improvement Projects – Master Class
	Reporting Improvement Projects
	Conducting a SLMTA Follow-up Visit
Productivity Management	Process + Structure = Outcome
	Mapping Out The Floor Plan of Your Laboratory
	Redesigning The Floor Plan of Your Laboratory
	Improving a Problem Floor Plan
	Making a Cup of Tea
	Whisper Down the Alley
	What are the Benefits of a Standardized Process?
	How Do You Assign Personnel to Tasks?
	Creating a Management Calendar
	Competency Assessment
	Planning and Conducting a Staff Meeting
	Creating a Personnel File

Module	Activities
Work Area Management	Laboratory Safety Demonstrations
	Assessing Safety Incidents
	Conducting a Safety Audit
	What did we see on the Site Visits?
Inventory Management	Creating a List of Supplies for a Test
	What's Wrong with this Storeroom?
	Did You Receive What You Ordered?
Procurement Management	Forecasting and Calculating Ordering Amounts
Maintenance Of Equipment	Creating a Maintenance and QC Log
	Making a Service Call
Quality Assurance	Using Standard Operating Procedures
	Is QC That Important?
	Is There More to QC Than Just Plotting the Data?
Specimen Collection and Processing	Specimen Collection: Phlebotomy Role-Play
	Specimen Management
	Packaging Specimens for Shipment to Referral Sites
	Tracking Referral Specimens
Laboratory Testing	Validation of Test Results
	Is the Test Report Ready To Be Released?
Test Result Reporting	Customer Service
	Meet the Clinician
Documents and Records Management	Why Was the Outdated Version Used?

How is SLMTA Evaluated?

SLIPTA – A Benchmark Framework that Measures a Lab's Compliance with ISO 15189



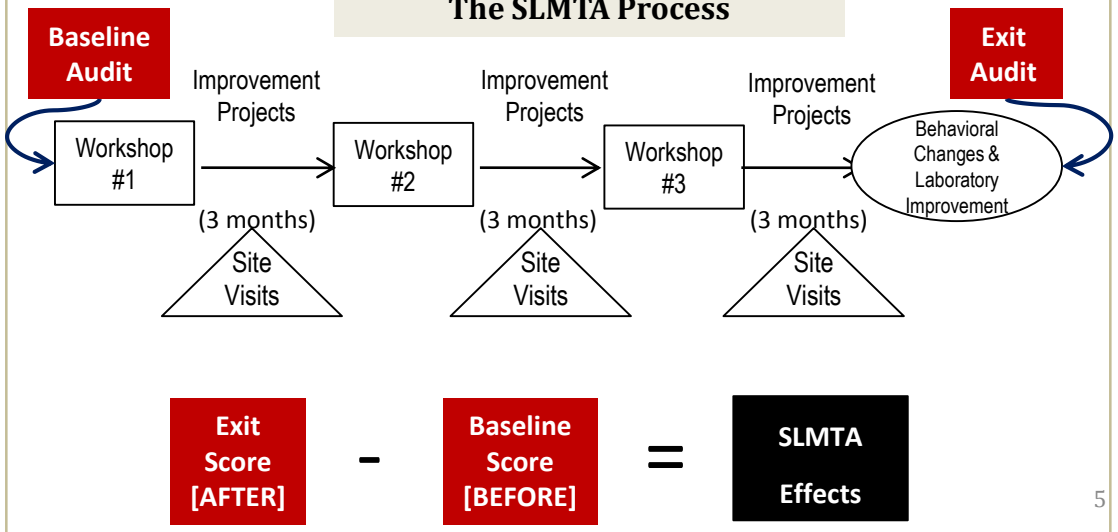
WHO-AFRO's SLIPTA Checklist

Audit Sections	Score
Section 1: Documents and Records	25
Section 2: Management Reviews	17
Section 3: Organization & Personnel	20
Section 4: Client Management & Customer Service	8
Section 5: Equipment	30
Section 6: Internal Audit	10
Section 7: Purchasing & Inventory	30
Section 8: Process Control and Internal & External Quality Assessment	33
Section 9: Information Management	18
Section 10: Corrective Action	12
Section 11: Occurrence Management & Process Improvement	12
Section 12: Facilities and Safety	43
TOTAL SCORE	258

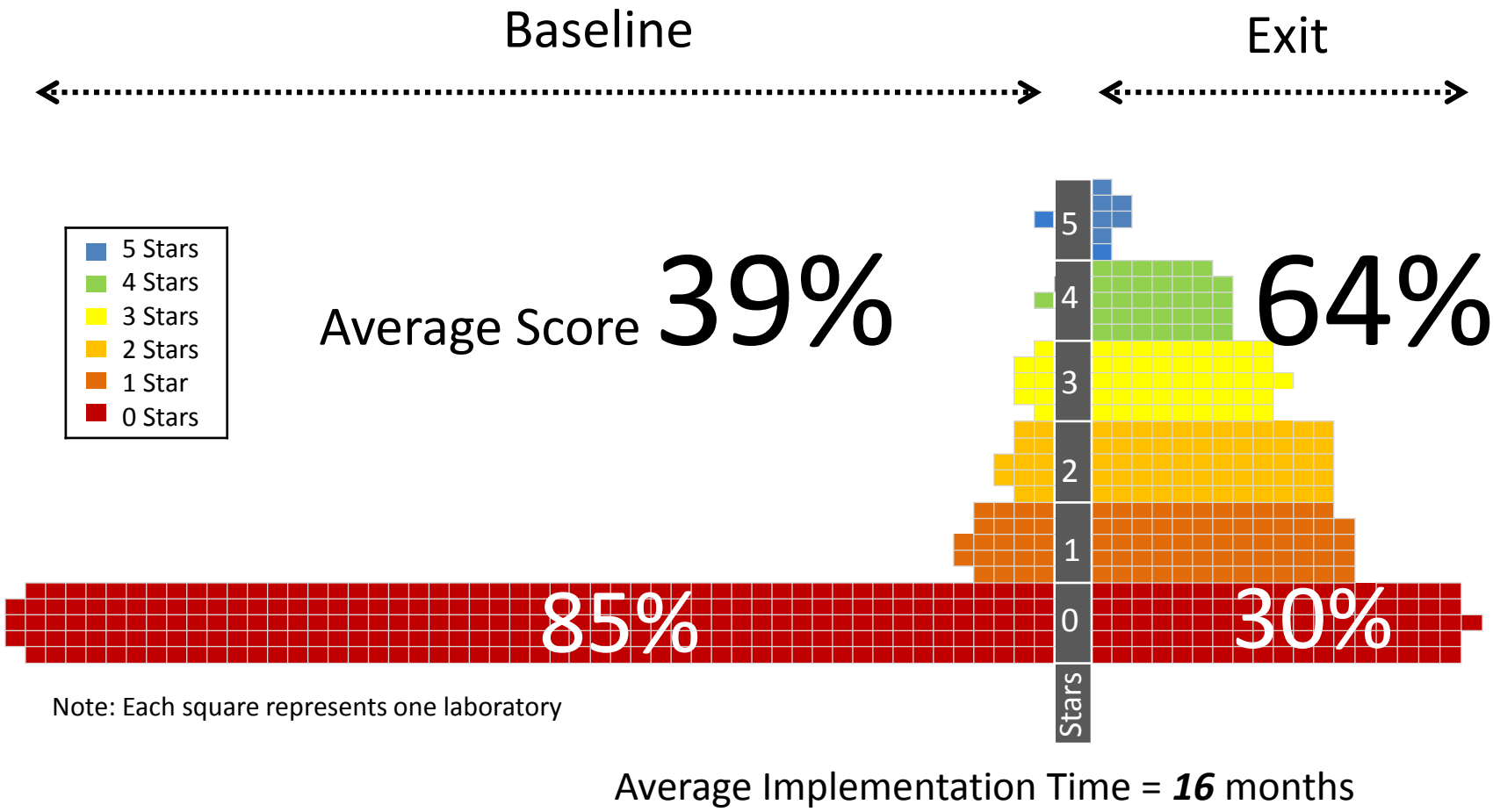
Each laboratory participating in SLMTA is audited in the beginning (baseline) and at the end (exit) using the SLIPTA checklist. The difference between baseline and exit scores, and their respective star ratings, is calculated to quantify the effect of the program on laboratory function and quality.

In addition to SLIPTA scores, laboratories may have Improvement Project data such as turn-around time (TAT), sample rejection rate, stockout rate, and photographs of physical improvements.

The SLMTA Process



Baseline vs. Exit Audit Results (n=302)

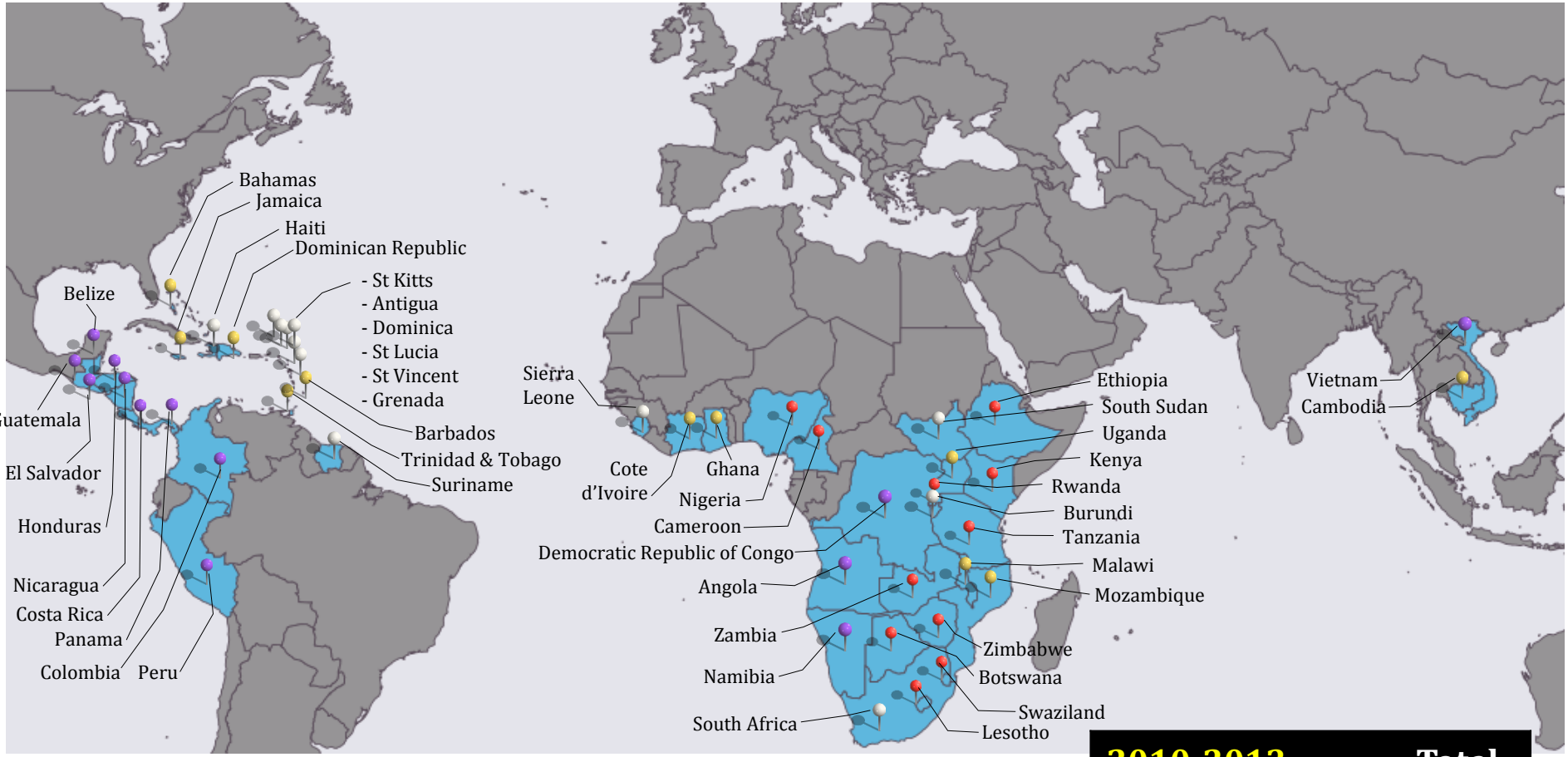


Note: Each square represents one laboratory

Average Implementation Time = ***16*** months

Yao K, Luman E, SLMTA Collaborating Authors. *Evidence from 617 Laboratories in 47 Countries for SLMTA-Driven Improvement in Quality Management Systems*. Afr J Lab Med 2014;3(2):35-45.

Spread of the SLMTA Program



Year when SLMTA was initiated: 2010 2011 2012 2013

2010-2013	Total
# countries	47
# labs enrolled	617
# people trained	1,923

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Examples of SLMTA Results

Waste Reduction

Botswana
- Reduced expired reagent from $17,000 to $280 USD, and improved quality of test results

Rwanda
- Sample rejection rate dropped from 80% to 20%

10 laboratories achieved ISO accreditation

Revenue and Efficiency

Cameroon:
- Doubled lab revenue from $12,000 to $24,000 USD
- Increased # patients served from 74 to 194 per week

The Human Factor

Empowered, motivated, and committed laboratory personnel

Special supplement for Afr J Lab Med on transforming the quality of laboratory medicine through the Strengthening Laboratory Management Toward Accreditation program in 2014. http://www.ajlmonline.org/index.php/ajlm/issue/view/6