



LABORATORY INFORMATION MANAGEMENT TRAINING

Module 6 - LIMS Maintenance

SUPRANATIONAL REFERENCE LABORATORY, UGANDA

Module Objectives

At the end of this module, participants will be able to:

- ☁ Understand the need for a laboratory information management system maintenance program
- ☁ Explain procedure for maintaining a laboratory information management system

Rationale for LIMS Maintenance

☁ Once roll-out is “complete” and the system is in use, regular training, updating of the system, supervision and monitoring are needed **to make sure the system remains fit for the purpose**

Rationale for LIMS Maintenance



Short Term Aspects of a Maintenance Program

- ☁ Ensure LIS is fully operational & stable
- ☁ Conduct routine preventive maintenance
- ☁ Define operational budget for consumables
- ☁ Continued user training

Long Term Aspects of a Maintenance Program

- ☁ Enhancements to the deployed system, e.g. adding specimen storage module
- ☁ Expansion to other sites or departments
- ☁ Daily Operations Report useful tool

Long Term Aspects of a Maintenance Program

- ☁ Standard Operating Procedures (SOPs) -key for effective maintenance
- ☁ Ensure program can sustain post implementation and post government partner support, i.e., maintained by MOH
- ☁ Ultimate goal is autonomy and self-sufficiency

Maintenance Roles & Responsibilities

Group	Responsibility
Sponsor & Working Groups	Ensure approach is thought through and mechanisms/framework are in place re fiscal budget and allocation
LIS Task Force	Provides the recommendations and Standard Operating Procedures (SOPs) related to operations
Change Management & Control Committee	Specify and ensure change management SOPs
LIS Vendor	Provides ongoing maintenance, upgrade support/new software versions, user training
Hardware & System Software Vendor	Provide ongoing maintenance, upgrade software support and anything else team needs

Maintenance Roles & Responsibilities...

Group	Responsibility
Instrumentation Vendors	Ongoing maintenance, software upgrade support and anything else team needs, e.g., PCR ABI Fast 7500 upgrade
Infrastructure Vendors	Ongoing maintenance, upgrade software support
Lab Management	<ul style="list-style-type: none">• Ensures adherence to relevant SOPs, budget planning and monitoring, human resources, capacity planning and tracking• Provides information for yearly budget planning
Super Users	Participate in developing and implementing SOPs; fulfill first responder role to system emergency needs; Both LIS and lab technical expertise
Lab End-users	Follow applicable SOPs

Preventative Actions

- ☁ Have current SOPs in place that define preventive maintenance (PM)
- ☁ Conduct routine PM
- ☁ Have a manual back-up paper system in place if extended computer network failure
- ☁ Test the manual back-up process

Corrective or Remedial Actions

- ☁ Resolution of non-conformances or problems
- ☁ Part of the lab-wide QMS
- ☁ May require a Corrective Action Form (CAF)

Data Back Up

- ☁ Scheduling back-up
- ☁ Separate SOP
- ☁ Manual or automated
- ☁ Separate location (Off-site)
- ☁ Data archiving policy
- ☁ External hard drives



Hardware Maintenance



- ☁ Servers, switches, cabling
- ☁ Hardware maintenance / support fees
- ☁ Utility software license (antivirus, backup, productivity suite)

Hardware Maintenance...

- ☁ Limited equipment lifespan
- ☁ Replacement hardware
- ☁ Replacement of malfunctioning and out-of-warranty generators, UPS, voltage stabilizers

Hardware Maintenance...

- ☁ Repair/maintenance or replacement of air conditioners
- ☁ Replacement of end-of-life and out-of-warranty computing equipment
- ☁ Utility bills, e.g., electricity, internet access
- ☁ Preprinted stationery for paper-based system

Software Maintenance

- ☁ LIMS Database patches
- ☁ Incorporate LIMS new versions
- ☁ Basic software updates
- ☁ Specialized software update
- ☁ Operating systems
- ☁ Anti-virus software



Contracts

If there are any contracts related to LIMS implementation;

- ☁ Sustainability support is required in initial Statement of Work (SOW) for LIMS
- ☁ Define service level requirements up-front
- ☁ Annual service contract - fixed rate with variable coverage, e.g., normal or after hours
- ☁ Periodic review of contracts and request modifications
- ☁ Always negotiate contracts



Exercise

1. Why is it important to implement a maintenance programme for any LIMS?
2. Discuss the key areas of consideration in a LIMS maintenance programme

References

- ☁ GLI Quick Guide to TB Diagnostics Connectivity Solutions
- ☁ WHO/ERS. Digital health for the End TB Strategy: an agenda for action 2015
- ☁ WHO Guide on Electronic Recording and Reporting for Tuberculosis Care and Control
- ☁ WHO Laboratory Quality Management System (LQMS) handbook

Acknowledgments

