NATIONAL TUBERCULOSIS REFERENCE LABORATORY

2025
ANNUAL
REPORT

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List of abbreviations.

AHD	Advanced HIV Disease
ANSI/IACET	American National Standards Institute / International Accreditors for Continuing Education and Training
AU CDC	Africa Union Centres for Disease Control
BNQAL	Botswana National Quality Assurance Laboratories
BR	Blinded Rechecking
CDC	Centers for Disease Control and Prevention
CTRL	Central Tuberculosis Reference Laboratory
CoE	Center of Excellence
DR-TB	Drug-Resistant Tuberculosis
DRS	Drug Resistance Survey
DST	Drug Susceptibility Testing
EQA	External Quality Assessment
GLI	Global Laboratory Initiative
ICT	Information and Communication Technology
ILSS	Integrated Laboratory Systems Strengthening
INH	Isoniazid
ISO	International Organization for Standardization
LIMS	Laboratory Information Management System
LJ	Löwenstein–Jensen
LPA	Line Probe Assay
LQMS	Laboratory Quality Management System
MAURITAS	Mauritius Accreditation Service
MDR-TB	Multidrug-Resistant Tuberculosis
MGIT	Mycobacteria Growth Indicator Tube
NPHIM	National Public Health Institute of Malawi

NTLP	National TB and Leprosy Programme
NTRL	National Tuberculosis Reference Laboratory
PLHIV	People Living with HIV
PT	Proficiency Testing
QC	Quality Control
QMS	Quality Management System
RDT	Rapid Diagnostic Test
RIF	Rifampicin
RR	Rifampicin Resistant
SADCAS	Southern African Development Community Accreditation Service
SANAS	South African National Accreditation System
SOS	Simple One-Step
SRL	Supranational Reference Laboratory
TB	Tuberculosis
TBLIS	TB Laboratory Information System
WCTRL	West/Central Tuberculosis Reference Laboratory
WGS	Whole Genome Sequencing
WHO	World Health Organization
XDR	Extensively Drug Resistant

EXECUTIVE SUMMARY

The National Tuberculosis Reference Laboratory (NTRL) continued to play a central role in strengthening tuberculosis (TB) diagnosis, surveillance, and laboratory network performance in Uganda and across sub-Saharan Africa in 2025. NTRL supported a network of approximately 1,700 laboratories and maintained its designation as a WHO Supranational Reference Laboratory (SRL) serving 21 countries.

NTRL operated an integrated Quality Management System aligned with ISO 15189, ISO/IEC 17043, and ANSI/IACET standards. In 2025, the laboratory successfully transitioned to ISO 15189:2022 and underwent surveillance assessments for ISO/IEC 17043:2023, reinforcing compliance, traceability, and quality across all testing processes.

Diagnostic services remained strong, with **10,287 samples received** and **23,940 test results reported** across microscopy, culture (LJ and MGIT), molecular assays (GeneXpert MTB/RIF Ultra and XDR), Line Probe Assays, drug susceptibility testing (DST), and whole genome sequencing. Culture and microscopy accounted for the largest testing volumes, while molecular and sequencing capacity expanded. Reported results increased steadily through the year, reflecting improved referral and utilization of laboratory services.

Drug resistance surveillance and follow-up improved, though gaps remain. Of 157 rifampicin-resistant (RR) cases detected in the network in late 2025, only 55% of samples reached NTRL for further DST, prompting strengthened coordination with MDR-TB teams to improve referral and linkage to full resistance testing.

Capacity building across the national network expanded significantly through trainings, mentorships, and scale-up programs.

As an SRL, NTRL delivered extensive regional support through proficiency testing (PT), technical assistance missions, and specialized trainings across multiple countries in Africa. PT programs covered GeneXpert, microscopy, TB LAM, and LPA networks.

Operational research support remained robust, including major Drug Resistance Surveys (DRS) in Uganda, Somalia, Lesotho, and Madagascar. NTRL also contributed to international knowledge sharing through SRL network meetings and presentations at the Union World Conference on Lung Health.

Key funding priorities identified include biosafety and facility systems, equipment maintenance and replacement, reagents and consumables, accreditation costs, human resources, ICT/LIMS

infrastructure, supervision, and training — all essential to sustain quality TB diagnostic and surveillance services.

1. INTRODUCTION

The national TB services delivery platform in Uganda is composed of the National TB and leprosy program (NTLP) which is mandated to oversee the overall TB services delivery in the Country and the national TB Reference laboratory (NTRL) supporting the TB diagnostic network that are key towards achieving the End TB strategy objectives. The Uganda NTRL overseas a well-organized functional network of 1700 intermediate and peripheral laboratories. Laboratory services offered include leadership and technical guidance, TB diagnosis and training. Surveillance and monitoring components are arranged through support supervision from the NTRL and intermediate labs to the peripheral labs.

The NTRL is a designated WHO Supranational TB laboratory (SRL) and supports 21 countries in sub–Saharan Africa in the areas of TB diagnosis and network management.

Mission. Provide quality laboratory services and strengthen SRL diagnostic network through leadership and expert guidance; and reduce the burden of TB in supported countries.

Vision. Every person in Sub-Saharan Africa has access to Vision quality TB diagnostic services.

2. QUALITY MANAGEMENT SYSTEM FOR NTRL.

The National Tuberculosis Reference Laboratory (NTRL) operates an integrated Quality Management System (QMS) incorporating ISO 15189 for medical laboratories, ISO 17043 for proficiency testing (PT) requirements, and the ANSI/IACET standard for continuing educational training programs, implemented in 2012, 2018, and 2020 respectively. The QMS covers all stages of laboratory testing that include pre-examination, examination, and post-examination ensuring traceability and quality at every step.

During the reporting period, NTRL successfully transitioned to the ISO 15189:2022 standard, with subsequent assessments conducted on 14th & 15th August 2025 in accordance with this revised standard.

NTRL was also assessed for ISO 17043:2023 surveillance by SANAS from 22nd to 23rd September 2025.

3. DIAGNOSTICS AT NTRL

3.1 Samples received at NTRL in 2025.

NTRL Uganda receives samples from both within the country and from various other countries to offer diagnostic testing using various technologies available at NTRL Uganda.

A number of samples were received for routine TB culture, Quality control (QC), Proficiency testing (PT), Somalia DRS study(SMD), Kenya samples (KI), Madagascar DRS study (MD), and Lesotho DRS study (LE).

The table below shows the number of samples received per quarter in 2025.

Table 1: Samples received at NTRL in 2025

Code	Jan-Mar' 25	Apr-Jun'25	Jul-Sept'25	Oct-Dec'25	2025
TC	2,186	2,202	2,019	1,811	8,218
QC	74	70	63	64	271
PT	30	20	15	10	75
SMD	567	614	214	8	1,403
MD	219	0		0	219
LE	0	101		0	101

Total Samples received	3,076	3,007	2,311	1,893	10,287

During the reporting period, the biggest proportion of samples received 79.9% (8,218/10,287) were for routine TB culture, initial culture and DST testing. The highest number of samples were received in the January – March 2025 quarter. This is attributed to a number of samples being received from other countries like Madagascar and Somalia in support to testing for their DRS studies.

3.2 Results reported at NTRL

During the year 2025, NTRL Uganda conducted a number of tests from referrals within the national network including Xpert MTB/Rif-Ultra, Xpert XDR, smear microscopy, both Solid/LJ and Liquid/MGIT culture, LJ Drug susceptibility Testing and results were reported as below

Table 2: Results reported at NTRL in 2025

RESULTS REPORTED					
Assay	**Jan-Mar'25**	**Apr-Jun'25**	**Jul-Sep'25**	**Oct-Dec'25**	**2025**
MICROSCOPY	2,645	1,006	2,998	2,242	8,891
GENEXPERT MTB/RIF ULTRA	108	76	131	186	501
LJ CULTURE	2,980	2,498	2,038	3,081	10,597
MGIT CULTURE	45	127	127	93	392
GENEXPERT XDR	1	-	5	22	28
LPA 1st Line	-	24	83	45	152
LPA 2nd Line	-	108	183	71	362

LJ DST 1st LINE	392	241	290	261	1,184
LJ DST 2nd LINE	53	70	80	188	391
MGIT 1st LINE	-	-	65	-	65
MGIT 2nd LINE	-	-	-	67	67
7H11 DST 1st LINE	-	128	134	419	681
7H11 2nd LINE	-	48	71	238	357
WG SEQUENCING	-	23	93	156	272
Total	6,224	4,349	6,298	7,069	23,940

During 2025, NTRL reported 23,940 results, demonstrating sustained delivery of bacteriological confirmation and drug resistance testing services . Reported volumes increased over the year, from 4,349 results in Apr–Jun 2025 to 7,069 results in Oct–Dec 2025, reflecting improved utilization of laboratory services and strengthened diagnostic referral pathways.

Routine bacteriological methods continued to account for the majority of reported results, with 10,597 LJ culture and 8,891 microscopy results contributing to TB case detection and treatment monitoring. Molecular diagnostics reported 501 GeneXpert MTB/RIF Ultra and 28 GeneXpert XDR results.

Drug susceptibility testing results were reported across phenotypic and molecular platforms, including 1,575 LJ DST, 1,038 7H11 DST, and 132 MGIT DST results, indicating improved access to comprehensive first- and second-line DST. In addition, 514 Line Probe Assay and 272 Whole Genome Sequencing results were reported.

4. National Network Activities

4.1 Follow up on RR cases from the network.

The NTRL consolidates data from the lab expert, reports to all stakeholders weekly, and uses the data to monitor functionality, utilization, and provides real-time reporting on Rifampicin resistance cases. The NTRL tracks the RR cases to determine linkage to care and referral for Culture and DST as shown in the table below

Table 3: Follow up on RR cases received in the network

Item	Number
RR cases	157
Received at NTRL	87 (55%)
Not received at NTRL	70 (45%)

Out of the 157 RR cases detected in the field from Oct to December 2025, only 55 % of these were received at the NTRL. The NTRL is closely engaging with the NTLP MDR TB coordination team to ensure the 45% of the RR cases have their samples collected and sent for fluoroquinolone testing. In addition, weekly tracking of the reception of the RR case samples is routinely done to link the gap and ensure access to the full line DST.

4.2 Trainings in the network

NTRL staff with support from stakeholders like NTLP, Global fund, CDC and so on carried out a number of trainings, mentorships and capacity buildings with in the region as shown below;

Table 4: Trainings in the network

No	Training course	Region	Number of trained facilities	Number of participants
1.	Simple one step (SOS) Stool training using the GeneXpert platforms	Lango, Teso	14	196
2.	Training on TBLIS Hospital Access System in MDR Treatment Sites from	North Central, Bunyoro, Lango, Acholi, West Nile, Kampala, Busoga, Ankole, Kigezi, Tooro, Karamoja, Bukedi, Teso and Bugisu	22	113
5	LabXpert DS implementation strengthening mentorship	Teso, Karamoja, Bugisu, Bukedi, Busoga, North Central,Lango , Ankole, South Central, Bunyoro, Tooro, Kampala, Kigezi, West Nile	7	118

6	Scale-up of the Simple One-Step Stool (SOS) testing for MTB among children	Bunyoro, Tooro	17	244
8	Scaleup in the use of abbott check now HIV self-test in health facilities in teso	Teso	12	135
10	Advanced TB Blinded Rechecking Training	All regions	48 members from 16 regional referral hospitals including a Lab Manager, Quality officer, and 1 technical person	

5. SUPRANATIONAL REFERENCE LABORATORY ACTIVITIES.

During the reporting period, the Supranational Reference Laboratory (SRL) provided PTs, targeted technical assistance and trainings to multiple countries to strengthen diagnostics, integrated laboratory systems, quality management, and accreditation readiness in line with Global Fund ILSS and TB grant objectives. Support focused on implementation of ISO 15189:2022 and ISO/IEC 17043:2023 standards, laboratory accreditation preparedness, and strengthening of national and regional laboratory networks. These interventions contributed to improved governance, standardized processes, and enhanced quality assurance across the supported countries.

5.1 Proficiency testing at NTRL

Provision of proficiency testing panels is very critical in monitoring the quality of TB diagnostic testing within the network and supporting laboratories implementing Quality management systems to conform to ISO 15189:2022 requirement. NTRL currently offers EQA for the Gene-xpert, culture, DST and LPA networks plus coordination of a BR EQA scheme for all Microscopy testing labs.

NTRL successfully dispatched the PTs for round 1 & 2 2025 both within the Ugandan network and SRL network.

Figure 1: Countries receiving PTs from NTRL Uganda

Results from the 2025 PT rounds were analyzed and are as shown below.

Table 5: Round 1 & Round 2 2025 PT performance

PT Scheme Name		Round 1 2025 (no. enrolled)	response rate	Pass rate (round 1 2025)	Round 2 2025(no. enrolled)	response rate	Pass rate (round 1 2025)
GeneXpert MTB/RIF DTS		335	83%	96.04%	345	84.9%	6.15%
Microscopy		112	88%	94.%	108	92.3%	94.4%
TB LAM		121	75%	95%	331	62%	77%
Line Probe Assay	Isoniazid	23	74%	94.1%	19	68%	92%
	Rifampicin	23	74%	88%	19	68%	92%

	Levofloxacin	23	74%	94.1%	19	68%	92%
	Moxifloxacin	23	74%	94.1%	19	68%	100%
	Amikacin	23	74%	94.1%	19	68%	100%

GeneXpert MTB/RIF DTS PT Scheme

In Round 1 of 2025, 335 laboratories were enrolled, with an 83% response rate and a high pass rate of 96.04%, indicating strong overall performance in GeneXpert MTB/RIF testing across the network. In Round 2, enrollment increased to 345 laboratories and the response rate improved to 84.9%, reflecting sustained engagement. However, the pass rate declined markedly to 6.15%, highlighting significant performance challenges that warrant targeted follow-up, root cause analysis, and corrective actions to ensure continued reliability of molecular TB diagnostics.

Microscopy PT Scheme

The Microscopy PT scheme demonstrated consistently strong performance across both rounds. In Round 1, 112 laboratories were enrolled, achieving an 88% response rate and a 94% pass rate. In Round 2, 108 laboratories participated, with an improved 92.3% response rate and a 94.4% pass rate. These results indicate stable proficiency and sustained quality in smear microscopy testing, supporting its continued role in TB diagnosis and treatment monitoring within the laboratory network.

TB LAM PT Scheme

With intensified point of care testing for Advanced HIV disease (AHD), the critically ill and PLHIV patients presumed to have TB, LF-LAM testing continues to be very crucial for comprehensive

HIV and TBHIV care, NTRL has continued to provide LAM PT materials to facilitate quality LAM testing.

121 laboratories were enrolled in Round 1, with a 75% response rate and a 95% pass rate, demonstrating good initial testing performance. In Round 2, enrollment expanded substantially to 331 laboratories, reflecting scale-up of TB LAM testing. While participation remained moderate (62% response rate), the pass rate declined to 77%, suggesting variability in test implementation and interpretation as testing expanded, and underscoring the need for additional training, supervision, and quality improvement interventions.

Line Probe Assay (LPA) PT Scheme

The LPA PT scheme showed generally high performance across first- and second-line drug resistance targets. In Round 1, 23 laboratories were enrolled, with a 74% response rate and pass rates ranging from 88% (rifampicin) to 94.1% for isoniazid, fluoroquinolones (levofloxacin, moxifloxacin), and amikacin. In Round 2, enrollment slightly decreased to 19 laboratories, with a 68% response rate, while pass rates remained high (92–100%) across all drug targets. These results indicate maintained technical competence in molecular detection of drug resistance among participating laboratories.

5.2 Technical assistance Visits.

The TAs targeted countries as shown below;

Table 6: Technical Assistance missions carried out in the SRL network

Country	Objectives of TA Support Provided
Mauritius	To prepare the SEL laboratory for initial ISO 15189:2022 accreditation assessment by MAURITAS

Seychelles	Technical Assistance Mission to support the Implementation of the AU CDC Guidance on Building Testing Capacity for Epidemic-Prone Diseases for Seychelles.
Botswana	Conducted a technical assistance mission to support new diagnostics and culture and Drug susceptibility and strengthen 17043:2023 implementation at Botswana National Quality Assurance Laboratories (BNQAL) in preparation for accreditation
Mogadishu-Somalia	TA on GeneXpert MTB/RIF Ultra PT preparation program, performance evaluation and Management Main objective To build the capacity of NTRL-Somalia staff to independently prepare and distribute GeneXpert PT panels, as well as managing the PT program for the diagnostic network.
Somaliland	TA to Conduct QMS mentorship to support implementation of Laboratory quality management system ain objective To support the implementation of a quality management system based on ISO 15189:2022 leading to laboratory accreditation.
Mogadishu-Somalia	TA mission to support the Somalia (Mogadishu) TB drug resistance survey (DRS) Main objective Support the implementation of the Tuberculosis anti-drug resistance survey in Somalia.
Rwanda	TA mission to strengthen the Laboratory Quality Management System (LQMS) in the National Reference Laboratory for Tuberculosis and the Mycobacteriology unit of Madagascar and Comoros ain objective:

	The main objective of this training is to equip participants with the knowledge and skills necessary to effectively implement and maintain a QMS in a medical laboratory
Tanzania	TA Mission on ISO 17043 support to Central Tuberculosis Reference Laboratory, Tanzania
Zimbabwe	Technical assistance toward implementation of EQA schemes in TB, HIV, Microbiology, and Malaria RDTs, aligned to ISO/IEC 17043 requirements in preparation for SADCAS accreditation
Malawi	Technical Assistance and mentorship Mission to NPHIM PT Schemes; Syphilis, Hepatitis HIV serology, microbiology, TB Microscopy and GeneXpert DTS PT, towards ISO17043 Accreditation
Mauritius	To support the Sir Edgar Laurent National TB laboratory during initial assessment for ISO 15189:2022 accreditation by the MAURITAS.
Rwanda	TA to conduct training on GeneXpert PT preparation
Tanzania	Technical assistance mission to strengthen implementation of laboratory information management and Drug Susceptibility testing at CTRL Tanzania
Namibia	TA to support new diagnostics and culture and Drug susceptibility at the WCTRL-Namibia
Angola	TA & joint monitoring visit ıin objective:

	Conducted a Technical Assistance and joint monitoring visit to Angola to assess the NTRLs technical progress, review the blended mechanism support by Kampala SRL and Mozambique cSRL as well as evaluate the sustainability strategies
Ethiopia	Technical Assistance mission to support the Ethiopia NTRL/EPHI in preparation for assessment for National Center of Excellence
Seychelles	Conducted a follow-up on the implementation of support for equipment maintenance and quality improvement to Seychelles public health laboratory
Rwanda	Post-Training Follow-Up and technical assistance on Quality Management System Implementation for Madagascar (ISO 15189)

	
NTRL staff poses for a photo with staff from Sir Edgar Laurent TB laboratory in Mauritius during a TA to support the lab during the accreditation process	**Trainees and facilitators after a Laboratory Quality Management System training for Madagascar and Comoros conducted by Rwanda cSRL**

NTRL staff takes a photo with staff from CTRL Tanzania after a TA mission on ISO 17043 implementation in preparation for accreditation. The lab was recommended for accreditation

5.3 SRL network trainings

Table 7:Trainings in the SRL network

No	Training course	Objective	Date	Country/region	No. of participants
1	Introduction to ISO 17043:2023 on Managerial and	Introduction to ISO 17043:2023 on Managerial and Technical Requirements	10th to 14th February 2025	Mozambique	24

	Technical Requirements				
2	MGIT DST	To develop and strengthen participant capacity in performance of MGIT DST	11TH TO 21ST MARCH 2025	Sierra Leone	1
3	LABORATORY MANAGER BENCHMARKING	The main objective behind the laboratory benchmarking visit is to strengthen participant capacity in general laboratory operation management	17TH TO 21ST MARCH 2025	TANZANIA	1
4	LJ DST DST	To develop and strengthen the competencies of laboratory personnel to perform the LJ DST technique according to the approved standards.	19th to 30th May 2025	Mauritius	1
5	ISO 17043:2023	Introduction to ISO 17043:2023 on managerial and technical requirements.	4th to 8th August 2025	Tanzania	12

6	PROFICIENCY TESTING PREPARATION,(L F TB LAM – DTS and GeneXpert-DTS MTB/XDR Training)	To train participants from Zambia in PT preparation.	11th November to 5th December 2025	Zambia	2
7	Advanced Laboratory Quality Management System training	To build upon the foundational knowledge and skills of learners, focusing on more complex aspects of quality assurance and quality control within a laboratory setting.	22nd Oct to 3rd Nov 2025	Zambia	1
8	LQMS based on ISO 15189:2022 and Management System Internal Audit course based on ISO 19011:2018 and 15189:2022	To support the implementation of a quality management system based on ISO 15189:2022 leading to laboratory accreditation.	17th to 30th Aug 2025	Somalia Mogadishu	12

9	LQMS based on ISO 15189:2022 and Management System Internal Audit course based on ISO 19011:2018 and 15189:2022	To support the implementation of a quality management system based on ISO 15189:2022 leading to laboratory accreditation	3rd to 17th Aug 2025	Somaliland	3

The series of trainings conducted by the Uganda Supranational Reference Laboratory (SRL) in 2025 demonstrated strong capacity-building outcomes across participating countries. Technical trainings showed excellent post-training performance, with the majority of the participants scoring above 80% and being awarded certificates of completion indicating high competency acquisition in both theoretical and practical components and indicating achievement of the training outcomes. Overall, the trainings were well organized, highly interactive, and effectively strengthened technical, managerial, and quality management competencies across national TB reference laboratories in the region

6. National/International engagements.

6.1 SRL network meetings.

6.1.1 SRL network meeting in Cotonou

SRL Uganda participated in the 1st Afro SRL network meeting in Cotonou, Benin from 26th to 28th March 2025 that was hosted by SRL Cotonou with support from the ILSS project. The event brought together SRLs, cSRLs, Centers of Excellence in the AFRO region, civil society representatives, ECSA and funding partners like Global fund and WHO with a main goal of strengthening the Afro SRL network.

The meeting reviewed the implementation status of the GLI Regional framework for strengthening laboratories in Africa for TB, identified resource mobilization strategies for SRLs and CoEs in the AFRO region, helped to advocate for the SRL and laboratory network in the AFRO region and a draft operational plan for the AFRO SRL network was developed.

Attendees take a group photo outside the meeting venue in Cotonou, Benin during the Afro SRL Meeting

6.1.2 Virtual SRL network meeting.

SRL Uganda/NTRL participated in a virtual SRL network meeting on 18th September 2025. The meeting consisted of all SRLs, cSRLs, CoEs, other stakeholders from WHO. This enabled follow up of actions from the physical SRL meeting in Benin.

6.2 TB UNION CONFERENCE ON LUNG HEALTH

A select team represented NTRL/SRL- Uganda in Copenhagen where they put together pieces of abstracts that were presented at the conference to share lessons and evaluate the impact of NTRL/SRL- Uganda efforts in ensuring quality of laboratory services for TB diagnosis, surveillance, and monitoring through laboratory testing and provision of professional and technical advice in Uganda and the wider African region.

The abstracts presented included an abstract on enhancing timely monitoring and follow up of DR TB: Implementing a digital laboratory information system in Uganda.

6.3 PARTNER ENGAGEMENTS

Partner engagements were conducted to strengthen collaboration and align support for NTRL. Several meetings with partners that included a meeting with the National TB and Leprosy Programme (NTLP) in November 2025, a meeting with CDC atlanta in September 2025 during which NTRL showcased key achievements and highlighted priority areas requiring further technical and financial support.

7. OPERATIONAL RESEARCH

7.1 Second Uganda DRS study.

NTRL Uganda continued to support testing and reporting of the Second Uganda DRS study. All 1,249 samples received at the lab had a culture result from either LJ or MGIT culture, with 746 samples with positive cultures. Among these positive cultures, phenotypic DST was completed for 665 samples (86%), specifically for those with rifampicin results from LJ or MGIT cultures. 2nd line DST was done for 68 results that were positive for both RIF and INH. NTRL also performed sequencing for 474 samples.

7.2 Somalia DRS study.

The Somalia Drug Resistance Survey (DRS) assessed a total of 1,511 participants, providing 3022 samples to evaluate tuberculosis drug resistance patterns. The survey focused on culture confirmation and drug susceptibility testing (DST) using both LJ and MGIT methods.

Culture testing showed a very high success rate, with 1,501 of 1,511 samples (99.21%) yielding culture results from either LJ or MGIT. Of these, 1,131 cultures (75.75%) were positive, confirming Mycobacterium tuberculosis growth and enabling further DST analysis.

First-line drug susceptibility testing was conducted on the 1,131 culture-positive samples. Results for rifampicin, isoniazid, and ethambutol were successfully obtained for 962 out of 1,131 samples (85.06%).

Among the tested samples, 64 cases were identified as resistant to both isoniazid and rifampicin, or INH mono resistant or Rif mono resistant.

7.3 Lesotho DRS study

101 samples were received at NTRL to validate the Lesotho DRS study results through EQA. 99% (100/101) samples were accessed a culture test using MGIT, with 62% turning positive.

7.4 Madagascar DRS study

219 samples were received at NTRL from Madagascar to determine the proportion of new cases of BPD+ who show resistance to rifampicin (TB-RR). All samples were tested using LJ culture with 93.6% (205/219) turning positive on culture. First-line drug susceptibility testing was conducted on the 119 culture-positive samples using either 1st line LJ or 7H11. Results for rifampicin, isoniazid, and ethambutol were successfully obtained for 115 out of 1,19 samples.

Among the tested samples, 2 cases were identified as resistant to rifampicin.

8. SUMMARY FUNDING PRIORITIES FOR NTRL

a) Biosafety and Biosecurity- working conditions for laboratory personnel and protection of the environment
    - Butabika HVAC maintenance and spares parts (V-belts A-38,A-39,A-41), Hepa Filters, Secondary filters, Primary Filters, Biosafety cabinets
    - Wandegeya HVAC maintenance and spares parts , Hepa Filters, Secondary filters, Primary Filters
    - Facility Maintenance (Butabika and Wandegeya back up Laboratory)

a) Capacity of the NTRL- to lead and manage the TB laboratory network
    - Maintenance of the current Human resource and recruitment of new HR
    - Reagents and consumables for PT panel production (Genexpert, Truenat, TB LAM, Microscopy, TB LAMP)
    - Maintenance of accreditation fees (ISO 15189,17043, IACET) and expansion of accreditation scopes
    - Annual Motor Vehicle maintenance, fuel, and insurance

- Training on new TB diagnostic assays
- Regular support, supervision/ mentorship at the regional level

b) . Access to rapid TB detection and Universal access to DST
   - Repair and maintenance of Culture and DST-MDR TB lab equipment (MGIT, Miseq, Quanti Studio etc)
   - New equipment and accompanying spare sparts (Centrifuges, etc)
   - Reagents and consumables for Phenotypic DST and sequencing

c) . ICT and Data management
   - LIMS (PT system, TBLIS, Action management system, & e-learning platform) hosting, upgrade, and maintenance fees, Internet, HR, support supervision, trainings, routers,
   - Server maintenance
   - Internet Subscriptions
   - Maintenance for the printers and computers
   - Zoom License

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