

QUALITY ASSURANCE IN SPUTUM SMEAR MICROSCOPY

District Laboratory Supervisor

PARTICIPANT COURSE WORK BOOK



April 3, 2007

**Provincial Tuberculosis Control Programme Punjab
Provincial Reference Laboratory Punjab
Association for Social Development (ASD) Pakistan
Nuffield Institute for Health (NIH) UK**

CONTRIBUTORS

TB Control Programme

1. Dr. Darkhshan Badar Manager, Provincial Tuberculosis Control Programme Punjab
2. Dr. Zarfshan Tahir Manager, Provincial Reference Laboratory Punjab

Association for Social Development Pakistan

1. Dr Muhammad Amir Khan Chairman
2. Dr. Nayyar Ghias Central Coordinator
3. Dr. Jaffar Saleem Regional Coordinator
4. Dr Nauman Safdar Lead Professional
5. Mr. Abdul Rauf Qadir IT Specialist

Systems Development Experts

1. Dr. Maqsood Ahmad Former Dean, Institute of Public Health Lahore
2. Dr. Muhammad Arif Munir Former Director, Directorate of Malaria Control Islamabad
3. Dr John D Walley Nuffield Centre for International Health and Development, University of Leeds UK

TABLE OF CONTENTS

Inaugural Session	INTRODUCTION AND COURSE OBJECTIVES	1
1.	EQA in AFB microscopy	1
2.	Course Objectives	1
3.	Course Outline	1
Session-1	WHY QUALITY ASSURANCE IS IMPORTANT	3
1.1	Purpose of EQA	3
1.2	Methods used in EQA	3
1.3	Role of Laboratory Staff, MO incharge, DLS, DTC and PRL in TB sputum smear microscopy EQA	3
Session-2	LABORATORY SUPPLY ESTIMATION & REAGENT PREPARATION	4
	Session Objectives	4
2.1	Estimate the required amount of reagents	4
2.2	Prepare required amount of reagents	5
Session-3	HEALTH FACILITY VISIT PREPARATION	6
	Session Objectives	6
3.1	Preparation of Monthly Plan	6
3.2	Preparing for on site replenishment of laboratory materials	6
3.3	Preparing motorbike for the field visit	7
3.4	Review of previous visit report	7
Session-4	HEALTH FACILITY SUPERVISORY VISIT	8
	Session Objectives	8
4.1	Laboratory functioning	8
4.2	Laboratory input replenishment	9
Session-5	HEALTH FACILITY SUPERVISORY VISIT Recording, Reporting and Supervision	10
	Session Objectives	10
5.1	Recording and Reporting	10
5.2	Microscope maintenance, Slide storage and Waste disposal	10
Session-6	SUPERVISORY VISIT - SLIDES CROSS-EXAMINATION	11
	Session Objectives	11
6.1	Sampling	11
6.2	Smear Assessment	11
6.3	Re-examination process	12
Session-7	Communication with PRL	14
Annexure	EQA FORMS	15
	Lab Performance Data form	19
	QA Entry Form	20

Session Objectives

At the end of this session the participants are expected to be able to understand and discuss:

- Importance of sputum smear microscopy and its quality
- Course Objectives
- Course Outline

EQA in AFB microscopy

Read from the DLS guidelines section A.1 to A.2

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

Course Objective

Read the course objectives given below.

At the end of this course the participants are expected to be able to;

- Make necessary preparations at district health office
- Conduct an effective supervisory health facility visit
- Reexamine the slides effectively and report to the PRL.

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

Course Outline

To achieve the objective, course has been organized around following sessions:

Session-1: Quality Assurance of Laboratory Services

This session describes the purpose of EQA in sputum smear microscopy, methods used in EQA and the roles of Laboratory Staff, MO incharge, DLS, DTC and the Provincial Reference Lab.

Session-2: Requirement Estimation and Reagent Preparation

This session focuses on exercise on estimation of required amount of reagents, preparation of required reagents/stains and estimation/arrangement of the other Lab. Supplies.

Session-3: Health Facility Visit Preparation

This session aims at skill development in preparation of DLS monthly plans, preparing for on site replenishment of laboratory materials, preparing the motorbike for the field visit and review of previous visit report.

Session-4: Health Facility Visit (I)

This session is based on exercises for assessing the laboratory functioning and on laboratory input replenishment

Session-5: Health Facility Visit (II)

This session focuses on recording and reporting, staff technical skills development, microscope maintenance, slide storage and waste disposal

Session-6: Slides Reexamination

This session aims at developing the skills in sampling of slides for reexamination, assessment of smear and reexamination of slides

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

Session Objectives

At the end of this session the participants are expected to be able to understand and discuss:

1.1 Quality Assurance in Lab. Services

1.2 Methods used in EQA

1.3 Role of Laboratory Staff, MO Incharge, DLS, DTC and PRL in TB sputum smear microscopy EQA

1.1 Purpose of EQA

Read from the DLS guidelines section A.3.1-A3.2

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

1.2 Methods used in EQA

Read from the DLS guidelines section A.3.3

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

1.3 Role of Laboratory Staff, MO Incharge, DLS, DTC and PRL in TB sputum smear microscopy EQA

Read from the DLS guidelines section A.4

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

Session Objectives

At the end of this session the participants are expected to be able to:

2.1 Estimate and prepare the reagents/stains

2.2 Estimate and arrange the Lab. Supplies (sputum container, slides, print materials -TB04)

2.1 Estimate the required amount of reagents and Lab supplies

Read from the DLS guidelines section B.1 and do the following exercise.

Exercise

Estimate the requirements of reagents and other lab. Supplies for six months of your district using the table Estimated Requirement of Laboratory Supplies in a District (6 months)" on page 6 of guidelines.

Estimated Requirement of Laboratory Supplies in a District (6 months)

Item	Diagnostic Centre Requirement - 6 month (A)	District Requirement	
		# litres of prepared solution (B) (A x # DCs in a district)	Quantity of chemical/ reagent
Reagents			
1. 25% H ₂ SO ₄ (250 ml acid for 1 liter solution)	5 litres (1 litre pack)		(B / 4 litres)
2. 1% Carbol fuchsin (10 gm powder for 1 litre solution)*	5 litres (1 litre pack)		(B x 10 gms)
3. 0.3% Methylene blue (3gm powder for 1 litre solution)*	5 litres (1 litre pack)		(B x 3 gms)
4. Immersion oil (500ml bottle)	1 bottle		
5. Xylene or Toluene (250 ml bottle)	1 bottle		
6. Methylated spirit (1 litre bottle)	1 bottle		
General Supplies			
1. Glass slides	14 packs (72 each)		
2. Sputum containers	1000		
3. Slide storing boxes (100 slides)	2 boxes		
4. TB laboratory register (TB04)			
5. Wire loop	One per diagnostic centre. Replenished only when required.		
6. Diamond pen			
7. Functioning microscope			

Facilitator Note:

- Explain the exercise
- Check the answers, discuss any variations and respond to any queries.

2.2 Prepare required amount of reagents

Read from the DLS guidelines section B.2 and do the following exercise.

Exercise:

i. Prepare 1000 ml of Ziehl's Carbol Fuchsin

Read from the DLS guidelines section B.2.1 and prepare 1000 ml of Ziehl's Carbol Fuchsin.

Facilitator Note:

- Arrange the required equipment, glassware and reagents
- Explain the exercise
- Observe practice, discuss any variations and respond to any queries.

ii. Prepare Decolorizer

Read from the DLS guidelines section B.2.2 and prepare the following;

B.1 Prepare 1000 ml Sulfuric Acid (25%)

Facilitator Note:

- Arrange the required equipment, glassware and reagents
- Explain the exercise
- Observe practice, discuss any variations and respond to any queries.

iii. Prepare 1000 ml Methylene Blue (0.3%)

Read from the DLS guidelines section B.2.3 and prepare 1000 ml Methylene Blue (0.3%).

Facilitator Note:

- Arrange the required equipment, glassware and reagents
- Explain the exercise
- Observe practice, discuss any variations and respond to any queries.

CHECKLIST: LABORATORY MATERIALS KIT

Item	Quantity for the Kit	Available in kit	To be replenished in the Kit
25% H ₂ SO ₄	1 bottle (1 liter)		
1% Carbon fuchsin	1 bottle	1 bottle	
0.3% Methylene blue	1 bottle		
Immersion Oil	1 pack 200 ml		
Xylene or Toluene	1 pack 250 ml	1 pack 250 ml	
Glass slide	4 Packets (50 each)		
Sputum container	300	100	
TB04	1 register	1 register	
Slide storing box (Empty)	1 (100 slide capacity each)	None	
Slide storing box (EQA)	1 (25 slide capacity)	1 (25 slide capacity)	
EQA Forms	2	1	
Wire Loop	1	None	
Diamond Pen	1	1	

Facilitator Note:

- Explain the exercise
- Check the answers, discuss any variations and respond to any queries.

3.3 Preparing motorbike for field visit

Read from the DLS guidelines section C.3

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

3.4 Review of previous visit report

Read from the DLS guidelines section C.4

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

Session Objectives

At the end of this session the participants are expected to be able to:

- 4.1 Assess laboratory functioning and take appropriate actions
- 4.2 Replenish laboratory inputs

4.1 Laboratory Functioning

Read from the DLS guidelines section D.1 and do the following exercise.

Exercise:

Identify and record the possible reasons of non-functioning of Lab. and their possible solutions in the EQA Form-1, Section1 given below.

EQA Form-1
Section-1: Laboratory Functioning

No. of days Lab. Remained non functional	Reasons	Actions already taken	Actions required/agreed
10 days	1.	X	
	2.	X	
	3.	X	
	4.	X	
	5.	X	

Facilitator Note:

- Explain the exercise
- Check the answers, discuss any variations and respond to any queries.

4.2 Laboratory Input Replenishment

Read from the DLS guidelines section D.2 and do the following exercise.

Exercise:

Calculate and fill-up the amount of materials to be replenished at health facility in the column 'Stock replenishment" of EQA Form-1, Section 2 given below. Also record any specific actions required in the last column.

EQA Form-1
Section-2: Laboratory Input Replenishment

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
25% H ₂ SO ₄	1 bottle (1 liter)	0.5 bottle			
1% Carbon fuchsin	1 bottle	0.5 bottle			
0.3% Methylene blue	1 bottle	0.75 bottle			
Immersion Oil	1 pack (0.2 litre)	1.50 pack			
Xylene or Toluene	1 pack (0.2 litre)	1 pack			
Glass Slides	4 Packets (75 each)	2 packets			
Sputum Containers	300	175			
TB04	1	1			
Slide Storing Boxes	2 (100 slide capacity each)	1			
Wire Loop	1	1			
Diamond Pen	1	1			
Functioning Microscope	1	0			
Trained Lab. staff (1)		0			

Facilitator Note:

- Explain the exercise
- Check the answers, discuss any variations and respond to any queries.

Session Objectives

At the end of this session the participants are expected to be able to:

5.1 Review Lab. recording and reporting and take appropriate actions

5.2 Assess and guide on microscope maintenance, slide storage and waste disposal

5.1 Recording and Reporting

Read from the DLS guidelines section D.3 and do the following exercise.

Exercise:

Review the provided TB04 and fill-up EQA Form-1, Section 3 given below.

**EQA Form-1
Section-3: Recording & Reporting**

Characteristic	Formula	Statistic	Comments
Specimens examined per TB suspect.	Total slides examined / Total suspects		
Proportion of suspects found smear positive on AFB testing. (Suspect positivity rate)	# SS ⁺ / # suspects examined		
Proportion of total slides found positive (Smear positivity rate)	# positive smears / Total smears examined		
Annual Slide Volume (ANSV)	Total diagnostic slides + Total follow-up slides		
TB04 (Lab. Register) Recording	Complete/Correct		

Facilitator Note:

- Provide filled TB04
- Explain the exercise
- Check the answers,
- Discuss any variations and
- Ask them (if required) to read Session -VII from Laboratory Training Course Module.
- Respond to any queries.

5.2 Microscope Maintenance, Slide Storage and Waste Disposal

Read from the DLS guidelines section D.4

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

Session Objectives

At the end of this session the participants are expected to be able to:

- 6.1 Sample the slides for Reexamination
- 6.2 Assess the smear
- 6.3 Reexamine slides and record the results

6.1 Sampling

Read from the DLS guidelines section E.1 and do the following exercise.

Exercise:

Step-1: Look in the laboratory register for the first and the last serial number of patients examined in the last completed calendar month

Step-2: Count the total number of patients examined for the identified range of serial numbers.

Step-3: Divide the total number of patients examined by the required sample size, to get the sample number value "n".

Step-4: Choose randomly the first number to start sampling from. Out of the first "n" group, select one serial number randomly. Then from the remaining serial numbers, every nth serial number is systematically selected.

Step-5: Retrieve the slides with selected serial numbers from the storage boxes.

Facilitator Note:

- Provide the TB04.
- Provide the slide boxes for which TB04 has been provided.
- Explain the exercise
- Check the answers/ slides retrieved, discuss any variations and respond to any queries.

6.2 Smear Assessment

Read from the DLS guidelines section E.2 and do the following exercise.

Exercise:

Step-1: Check the slides selected for Reexamination in the previous session for; specimen quality, size, thickness, evenness, staining, smear cleanliness and labeling.

Step-2: Record your observations in the EQA Form-1 Section 5 given below.

EQA Form-1

Section-5: Smear Assessment of Selected Slides

Slide No.	1.Specimen Quality		2.Size		3.Thickness		4.Evenness		5.Labeling		6.Slide Staining		7.Smear cleanness	
	A*	NA**	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
Total														
Remarks***														

Facilitator Note:

- Provide the selected slides
- Explain the exercise
- Check the answers
- Discuss any variations
- Ask them (if required) to read Session-4 (Sputum smear preparation) and Session-5 (Smear staining) from Laboratory Training Course Module.
- Respond to any queries

6.3 Reexamination Process

Read from the DLS guidelines sections E. to G and do the following exercise.

Exercise:

Step-1: Perform the microscopic examination of the slides selected in the previous session.

Step-2: Record your observations in the EQA Form-1, section 6 given below.

EQA Form-1

Section-6: Reexamination by DLS*

S. No	Lab. Serial No.	Reexamine Result	Diagnostic Center Result	AG (# Slides Correct)	Errors					Remarks
					HFP	LFP	HFN	LFN	QE	
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
Summary results										

* Write grading of positive slides

Facilitator Note:

- Explain the exercise
- Check the answers
- Discuss any variations
- Respond to any queries

Step-4: Transfer the findings in the EQA Form-2

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

Session Objectives

At the end of this session the participants are expected to be able to:

7.1 Fill-up Lab. Performance Data

7.2 Fill-up QA Entry Form

7.1 Fill-up Lab. Performance Data

Read through section E.6.3 of the guidelines.

Exercise:

Fill up 'Lab Performance Data' on page 19 with the help of TB04 provided on page 21-24 of workbook

Facilitator Note:

- Explain the exercise
- Check the answers
- Discuss any variations
- Respond to any queries

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

Fill-up QA Entry Form

Read through section E.6.4 of the guidelines.

Exercise:

Fill up 'QA Entry Form' on page 20 with the help of EQA Form-1 provided on page 25-28

Facilitator Note:

- Explain the exercise
- Check the answers
- Discuss any variations
- Respond to any queries

Participant Note:

- ☞ Discuss with the facilitator to clarify points not understood
- ☞ Wait for the facilitator to proceed

NTP
External Quality Assurance (EQA) Form-1

Name of Health Facility _____ Date of Visit _____

Section-1: Laboratory Functioning

No. of days Lab. Remained non functional	Reasons	Actions already taken	Actions required/agreed

Section-2: Laboratory Input Replenishment

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
25% H ₂ SO ₄	2 bottle				
1% Carbol fuchsin	2 bottle				
0.3% Methylene blue	2 bottle				
Immersion Oil	1 bottle				
Xylene or Toluene	1 bottle				
Methylated Spirit	1 bottle				
Glass Slides	5 Packets				
Sputum Containers	200				
TB04	1				
Slide Storing Boxes	2 (100 slide capacity each)				
Wire Loop	1				
Diamond Pen	1				
Functioning Microscope	1				
Trained Lab. staff (1)					

Section-3: Recording & Reporting

Characteristic	Formula	Statistic	Comments
Specimens examined per TB suspect.	Total slides examined / Total suspects		
Proportion of suspects found smear positive on AFB testing. (Suspect positivity rate)	# SS ⁺ / # suspects examined		
Proportion of total slides found positive (Smear positivity rate)	# positive smears / Total smears examined		
Annual Slide Volume (ANSV)	Total diagnostic slides + Total follow-up slides		
TB04 (Lab. Register) Recording	Complete/Correct		

Section-4: Microscope maintenance, Slide storage and Waste disposal

Characteristic	Acceptable		Action/Comments
	Yes	No	
Microscope cleanliness			
Microscope functioning			
Slide Storage			
Disposal of used slides			
Disposal of used sputum containers			

Section-5: Smear Assessment of selected slides

Lab. Serial No.	Specimen Quality		Size		Thickness		Evenness		Labeling		Slide Staining		Smear cleanness	
	1		2		3		4		5		6		7	
	A*	NA**	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
Total														
Remarks***														

Key:

*A - Acceptable, **NA - Not Acceptable, *** Remarks – Gives overall performance of the characteristic under consideration. If for any characteristic, three or more slides are found not acceptable (NA) then overall performance on that characteristic is labeled as Not Acceptable (NA).

Section-6: Reexamination by DLS*

S. No	Lab. Serial No.	Reexamine Result	Diagnostic Center Result	AG (# Slides Correct)	Errors					Remarks
					HFP	LFP	HFN	LFN	QE	
11.										
12.										
13.										
14.										
15.										
16.										
17.										
18.										
19.										
20.										
Summary results										

* Write grading of positive slides

Section-7: Review with Medical Officer

Agreed actions/comments	
Implementation of previous agreed actions	
Signature: _____ DLS	Signature: _____ MO/Date

External Quality Assurance (EQA) Form-2 (Page 2)

3. Discordant Slides

S. No	Name of Facility	Lab. Serial No.	Cross-exam Results	Health Facility Results	Reference Lab. Result	Error of: DC staff/DLS
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

Signature (DLS): _____

Signature (DTC): _____

3. Feedback to the District

Signature: _____
Manager PRL

National TB Control Programme
TUBERCULOSIS LABORATORY REGISTER

TB 04

Lab Serial No.	Date	Name (in full)	Address of patient	Sex M/F	Age	Facility from where patient referred	Reason for Examination		Results of specimen			Signature	Remarks
							Diagnosis	Follow up of chemotherapy (Record Dist. TB No.)	1	2	3		
241	2-4-07	Anwar S/o Sultan	Zura Abad colony	M	20	THQ	/		Neg	Neg		/	Only 2 sample
242	4-4-07	Tahir	Rana Tawan	M	30	BHU	/		Pos	Pos	Neg	/	
243	6-4-07	Ghulam Rasual S/o Ghulam muhammad	Nayee Abaddi	M	50	BHU	/		Neg	Neg	+2	/	
244	9-4-07	Amna bibi	Guli Number 10 H. No. 11 Maka colony	F	60	BHU		/	Neg			/	
245	12-4-07	Fatima W/o Hanif	Gali No. 4 H. No. 15 gulabad	F	65	THQ	/		2+		1+	/	
246	14-4-07	Shabbir	Street 10 H. No 1 Gung Bukash Tawn	M	20	THQ			Neg			/	Salina
247	17-4-07	Rehmat s/o Aslam	Samnaabad Lahore	M	15	THQ	/		Neg			/	
248	19-4-07	Rashida D/o Rasheed	Shadman Lahore	F	45	THQ	/		Neg	Pos	Pos	/	
249	21-4-07	Ilm Din s/o Ghulam	Gali No. 20 H.No. 30 Nishat colony	M	50	BHU	/		Neg	Neg	Neg	/	
250	22-4-07	Ruqia w/o Imran			55	BHU		107/33	1+			/	
251	24-4-07	M. Shanef S/o M. Jamil	H.No. 24 Thana Model Town	M	40	BHU	/		Neg	Neg	Neg	/	
252	26-4-07	M. Lateef	H.No. No. 20 GALI NO 11 Achirah Lahore	M	60	BHU	/		Neg	1+	Pos	/	
253	28-4-07	Gamay Khan s/o M. Ali			70	BHU	/		Neg	Neg	1+	/	
254	29-4-07	Shami Bibi W/o Allah Dita		F	75	BHU	/		Neg	Neg	Neg	/	

National TB Control Programme
TUBERCULOSIS LABORATORY REGISTER

TB 04

Lab Serial No.	Date	Name (in full)	Address of patient	Sex M/F	Age	Facility from where patient referred	Reason for Examination		Results of specimen			Signature	Remarks
							Diagnosis	Follow up of chemotherapy (Record Dist. TB No.)	1	2	3		
255	1-5-07	Aziz Ahmed S/o M.Haneef	Zura Abad colony	M	20	THQ	/		Neg	Neg	Neg	/	
256	3-5-07	M.Irfan S/o M.Hashim	Rana Tawan	M	30	BHU	/		Pos	Pos	Neg	/	
257	5-5-07	Aziz S/o Barkat	Nayee Abaddi	M	50	BHU	/		Neg	Neg	+2	/	
258	7-5-07	Kaloom w/o barkat	Guli Number 10 H. No. 11 Maka colony	F	60	BHU	/		Neg	Neg	Neg	/	
259	9-5-07	Shehnaz W/o Yousaf Khan	Gali No. 4 H. No. 15 gulabad	F	65	THQ	/		2+	1+	1+	/	
260	10-5-07	Muhammad Ashiq S/o Barkat	Street 10 H. No 1 Gung Bukash Tawn	M	20	THQ	/		Neg	Neg	Neg	/	
261	12-5-07	Paras S/o Umar din	Samnaabad Lahore	M	15	THQ	/		Neg	Neg	Neg	/	
262	14-5-07	Haneefa Bibi w/o Rasheed	Shadman Lahore	F	45	THQ	/		Neg	Pos	Pos	/	
263	16-5-07	Muhammad Buta s/o Qasim	Gali No. 20 H.No. 30 Nishat colony	M	50	BHU	/		Neg	Neg	Neg	/	
264	18-5-07	Rubina w/o Sajid		F	55	BHU	/		Neg	1+	Neg	/	
265	19-5-07	Royat Ali S/o Jalal din	H.No. 24 Thana Model Town	M	40	BHU	/		Neg	Neg	Neg	/	
266	20-5-07	M. Shareef S/o Nizam din	H.No. No. 20 GALI NO 11 Achirah Lahore	M	60	BHU	/		Neg	1+	Pos	/	
267	23-5-07	Sadiq s/o Mazhar		M	70	BHU	/		Neg	Neg	1+	/	
268	24-5-07	Maryam W/o Shabir		F	75	BHU	/		Neg	Neg	Neg	/	

National TB Control Programme
TUBERCULOSIS LABORATORY REGISTER

TB 04

Lab Serial No.	Date	Name (in full)	Address of patient	Sex M/F	Age	Facility from where patient referred	Reason for Examination		Results of specimen			Signature	Remarks
							Diagnosis	Follow up of chemotherapy (Record Dist. TB No.)	1	2	3		
269	25-5-07	Muhammad Sarwar S/o Lal Din	Zura Abad colony	M	20	THQ	/		Neg	Neg		/	
270	26-5-07	Abdul Majeed S/o Ashraf	Rana Tawan	M	30	BHU	/		Pos	Pos	Neg	/	
271	26-5-07	Shahid Sarwar S/o Muhammad Sarwar	Nayee Abaddi	M	50	BHU	/		Neg	2+	2+	/	
272	27-5-07	Najma bibi w/o Qadir baksh	Guli Number 10 H. No. 11 Maka colony	F	60	BHU	/		Neg	Neg	Neg	/	
273	28-5-07	Kaloom W/o Mushtaq	Gali No. 4 H. No. 15 gulabad	F	65	THQ	/		2+	1+	1+	/	
274	29-5-07	Shaukat Ali S/o Ishaq	Street 10 H. No 1 Gung Bukash Tawn	M	20	THQ	/		Neg	Neg		/	
275	30-5-07	Hakim Ali s/o Ilim din	Samnaabad Lahore	M	15	THQ	/		Neg	Neg		/	
276	30-5-07	Rahat w/o Ishaq	Shadman Lahore	F	45	THQ	/		Neg	Pos	Pos	/	
277	1-6-07	Hakim Ali s/o Farzand Ali	Gali No. 20 H.No. 30 Nishat colony	M	50	BHU	/		Neg	Neg	Neg	/	
278	2-6-07	Zainab w/o Faqeer Muhammad		F	45	BHU	/		Neg	1+		/	
279	4-6-07	M. yaqoob S/o M. Ishaq	H.No. 24 Thana Model Town	M	40	BHU	/		Neg	Neg	Neg	/	
280	6-6-07	Karim Ali S/o M.Sharif	H.No. No. 20 GALI NO 11 Achirah Lahore	M	60	BHU	/		Neg	1+	Pos	/	
281	7-6-07	Maqbool Baluch s/o hashim			70	BHU	/		Neg	Neg	1+	/	
282	7-6-07	Qamar W/o Jamshed		F	75	BHU	/		Neg	Neg	Neg	/	

**National TB Control Programme
TUBERCULOSIS LABORATORY REGISTER**

TB 04

Lab Serial No.	Date	Name (in full)	Address of patient	Sex M/F	Age	Facility from where patient referred	Reason for Examination		Results of specimen			Signature	Remarks
							Diagnosis	Follow up of chemotherapy (Record Dist. TB No.)	1	2	3		
283	8-6-07	Mukhtar S/o shabir	Zura Abad colony	M	20	THQ	/		Neg	Neg		/	
284	11-6-07	Fayaz S/O Nawaz	Rana Tawan	M	30	BHU	/		Pos	Pos	Neg	/	
285	12-6-07	Ijaz S/o Nawaz	Nayee Abaddi	M	50	BHU	/		Neg	Neg	+2	/	
286	13-6-07	Anbreen w/o junaid	Guli Number 10 H. No. 11 Maka colony	F	60	BHU	/		Neg	Neg		/	
287	15-6-07	Nazia W/o Aslam	Gali No. 4 H. No. 15 gulabad	F	65	THQ	/		2+	1+	1+	/	
288	16-6-07	Tariq Mashee S/o Phatoo	Street 10 H. No 1 Gung Bukash Tawn	M	20	THQ		124	Neg			/	
289	18-6-07	Asif Mashee s/o Haq Nawaz	Samnaabad Lahore	M	15	THQ	/		Neg			/	
290	21-6-07	Sabika D/o Haroon	Shadman Lahore	F	18	THQ	/		Neg	Pos	Pos	/	
291	23-6-07	Parvez s/o Akbar	Gali No. 20 H.No. 30 Nishat colony	M	50	BHU	/		Neg	Neg	Neg	/	
292	24-6-07	Zulaikha w/o Abdul Razaq		F	55	BHU	/		1+	Neg	Neg	/	
293	26-6-07	Mudassar S/o Zafar	H.No. 24 Thana Model Town	M	40	BHU	/		Neg	Neg	Neg	/	
294	28-6-07	Abbas S/o Ghulam Muhammad	H.No. No. 20 GALI NO 11 Achirah Lahore	M	60	BHU	/		Neg	1+	Pos	/	
295	29-6-07	M,Ashraf s/o Imam Din		M	70	BHU	/		Neg	Neg	1+	/	
296	30-6-07	Fatima W/o Hameed		F	75	BHU	/		Neg	Neg	Neg	/	

NTP
External Quality Assurance (EQA) Form-1

Name of Health Facility THQ Tandlianwala Date of Visit 5-4-07

Section-1: Laboratory Functioning

No. of days Lab. Remained non functional	Reasons	Actions already taken	Actions required/agreed
0			

Section-2: Laboratory Input Replenishment

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
25% H ₂ SO ₄	2 bottle	2 bottle			
1% Carbol fuchsin	2 bottle	2 bottle			
0.3% Methylene blue	2 bottle	2 bottle			
Immersion Oil	1 bottle	200 ml			
Xylene or Toluene	1 bottle	500 ml			
Methylated Spirit	1bottle	1bottle			
Glass Slides	5 Packets	5 Packets			
Sputum Containers	200	150	50		
TB04	1	1			
Slide Storing Boxes	2 (100 slide capacity each)	100 slide	100 slide		
Wire Loop	1	1			
Diamond Pen	1	1			
Functioning Microscope	1	1			
Trained Lab. staff (1)					

Section-3: Recording & Reporting

Characteristic	Formula	Statistic	Comments
Specimens examined per TB suspect.	Total slides examined / Total suspects	3	
Proportion of suspects found smear positive on AFB testing. (Suspect positivity rate)	# SS ⁺ / # suspects examined	12.7	
Proportion of total slides found positive (Smear positivity rate)	# positive smears / Total smears examined	10.9	
TB04 (Lab. Register) Recording	Complete/Correct	Correct	

Section-4: Microscope maintenance, Slide storage and Waste disposal

Characteristic	Acceptable		Action/Comments
	Yes	No	
Microscope cleanliness	Y		
Microscope functioning	Y		
Slide Storage	Y		
Disposal of used slides	Y		
Disposal of used sputum containers	Y		

Section-5: Smear Assessment of selected slides

Lab. Serial No.	Specimen Quality		Size		Thickness		Evenness		Labeling		Slide Staining		Smear cleanliness	
	1		2		3		4		5		6		7	
	A*	NA**	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
266B	/		/		/		/		/		/		/	
276B	/		/		/		/		/		/		/	
277C	/		/		/		/		/		/		/	
282B	/		/		/		/		/		/		/	
291A	/		/		/		/		/		/		/	
293C	/		/			/	/		/		/		/	
298A		/	/			/	/		/		/		/	
304A	/		/		/		/		/		/		/	
307C	/		/		/		/		/		/		/	
311B	/		/		/		/		/		/		/	
Total	9	1	10	0	8	2	10	0	10	0	10	0	10	0
Remarks***	A		A		A		A		A		A		A	

Key:

*A - Acceptable, **NA - Not Acceptable, *** Remarks – Gives overall performance of the characteristic under consideration. If for any characteristic, three or more slides are found not acceptable (NA) then overall performance on that characteristic is labeled as Not Acceptable (NA).

Section-6: Reexamination by DLS*

S.No	Lab. Serial No.	Reexamine Result	Diagnostic Center Result	Comparison					Remarks
				AG	HFP	LFP	HFN	LFN	
1.	266B	NEG	NEG	/					
2.	276B	NEG	NEG	/					
3.	277C	3+	3+	/					
4.	282B	NEG	NEG	/					
5.	291A	2+	2+	/					
6.	293C	NEG	NEG	/					
7.	298A	1+	NEG				/		
8.	304A	NEG	NEG	/					
9.	307C	NEG	1+		/				
10.	311B	NEG	NEG	/					
Summary results				8	1	0	1	0	

* Write grading of positive slides

Section-7: Review with Medical Officer

Agreed actions/comments	
Implementation of previous agreed actions	
Signature: _____ DLS	Signature: _____ MO/Date

NTP
External Quality Assurance (EQA) Form-1

Name of Health Facility RHC Pindi Skmusa Date of Visit 9-4-07

Section-1: Laboratory Functioning

No. of days Lab. Remained non functional	Reasons	Actions already taken	Actions required/agreed

Section-2: Laboratory Input Replenishment

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
25% H ₂ SO ₄	2 bottle	1 bottle	1		
1% Carbol fuchsin	2 bottle	1 bottle	1		
0.3% Methylene blue	2 bottle	2 bottle			
Immersion Oil	1 bottle	200 ml			
Xylene or Toluene	1 bottle	500 ml			
Methylated Spirit	1bottle	1bottle			
Glass Slides	5 Packets	5 Packets			
Sputum Containers	200	150	50		
TB04	1	1			
Slide Storing Boxes	2 (100 slide capacity each)	100 slide	100 slide		
Wire Loop	1	1			
Diamond Pen	1	1			
Functioning Microscope	1	1			
Trained Lab. staff (1)					

Section-3: Recording & Reporting

Characteristic	Formula	Statistic	Comments
Specimens examined per TB suspect.	Total slides examined / Total suspects	1.75	
Proportion of suspects found smear positive on AFB testing. (Suspect positivity rate)	# SS ⁺ / # suspects examined	12.5	
Proportion of total slides found positive (Smear positivity rate)	# positive smears / Total smears examined	12.5	
TB04 (Lab. Register) Recording	Complete/Correct	Correct	

Section-4: Microscope maintenance, Slide storage and Waste disposal

Characteristic	Acceptable		Action/Comments
	Yes	No	
Microscope cleanliness	Y		
Microscope functioning	Y		
Slide Storage	Y		
Disposal of used slides	Y		
Disposal of used sputum containers	Y		

Section-5: Smear Assessment of selected slides

Lab. Serial No.	Specimen Quality		Size		Thickness		Evenness		Labeling		Slide Staining		Smear cleanliness	
	1		2		3		4		5		6		7	
	A*	NA**	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
338B	/		/		/		/		/		/		/	
346C	/			/		/		/		/		/	/	
361B		/		/		/		/		/		/	/	
378B		/		/		/		/		/		/	/	
385B		/		/		/		/		/		/	/	
402A		/	/			/		/		/		/	/	
422A		/	/			/		/		/		/	/	
441C	/		/		/		/		/		/		/	
Total	3	5	4	4	2	6	4	4	8	0	2	6	8	0
Remarks***	Not Acceptable		Not Acceptable		Not Acceptable		Not Acceptable		Acceptable		Not Acceptable		Acceptable	

Key:

*A - Acceptable, **NA - Not Acceptable, *** Remarks – Gives overall performance of the characteristic under consideration. If for any characteristic, three or more slides are found not acceptable (NA) then overall performance on that characteristic is labeled as Not Acceptable (NA).

Section-6: Reexamination by DLS*

S.No	Lab. Serial No.	Reexamine Result	Diagnostic Center Result	Comparison					Remarks
				AG	HFP	LFP	HFN	LFN	
1.	338B	NEG	NEG	/					
2.	346C	1+	1+	/					
3.	361B	NEG	NEG	/					
4.	378B	NEG	1+		/				
5.	385B	2+	NEG				/		
6.	402A	NEG	NEG	/					
7.	422A	SCANTY +	NEG					/	
8.	441C	NEG	NEG	/					
9.									
10.									
Summary results				5	1	0	1	1	

* Write grading of positive slides

Section-7: Review with Medical Officer

Agreed actions/comments	
Implementation of previous agreed actions	
Signature: _____ DLS	Signature: _____ MO/Date

