

# Supervision and External Quality Assurance of Malaria Laboratory Services

## PARTICIPANT COURSE WORK BOOK



February 2007

**Provincial Malaria Control Programme Punjab  
Association for Social Development (ASD) Pakistan  
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**Session Objectives**

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

- Importance of malaria microscopy and its quality
- Course Objectives
- Course Outline

- **EQA in malaria microscopy**

Read from the DLS guidelines section A.1 to A.3

**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
- Re-examine 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: Over view of External Quality Assurance in Malaria Control**

This session describes the purpose of EQA in blood smear microscopy, methods used in EQA and the roles of DLS, Laboratory Staff, District RBM Focal Person, MO Incharge, and the Provincial Reference Lab.

**Session-2: Requirement Estimation and Reagent Preparation**

This session focuses on exercise on estimation of required amount of supplies and reagents and preparation of Giemsa stain.

**Session-3: Health Facility Visit Preparation**

This session aims at skill development in preparation of DLS monthly visit schedule, 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 re-examination 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 malaria control

1.2 Methods used in EQA

1.3 DLS, Laboratory Staff, District RBM Focal Person, MO Incharge, and the Provincial Reference Lab

**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 District Laboratory Supervisor, Laboratory Staff, District RBM Focal Person, MO Incharge, and the Provincial Reference Lab**

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 (disposable lancets/prickers, slide storage boxes, dropping bottle, tally counter, timing clock, staining troughs, slide drying rack, laboratory register (DHS-05), and laboratory desk guide and module)

**2.1 Estimate the required amount of reagents**

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

**Exercise**

Estimate the requirements of reagents for three months of your district using the table; “Estimation of Reagent Requirement” on page 5 of guidelines.

**Arrange and maintain stock of laboratory supplies and reagents required for malaria microscopy centers in the district**

Laboratory Item	Microscopy Center Requirement (A)	District Requirement (A x No. of Microscopy centers in a district)
<b>General Supplies</b>		
Functioning Microscope	1	
Glass slides (72 slide packs)	6 packs	
Disposable lancets/ prickers	450	
Slide storage boxes (capacity: 100 slides)	2	
Drop bottle (60 ml – glass or polyethylene)	1	
Laboratory register	1	
Laboratory desk-guide and module	1	
Tally Counter (4 digit)	1	
Timing clock (hand operated)	1	
Staining troughs (for 20 slides)	1	
Xylene glass Jar	1	
Slide drying rack	1	
Pipette 5ml.	1	
Measuring cylinder 100 ml.	1	
pH paper (packet)	1	

Laboratory Item	Microscopy Center Requirement (A)	District Requirement (A x No. Microscopy centers in a district)
<b>Reagents/Chemicals</b>		

Methyl alcohol (anhydrous, acetone free)	1 bottle (2.5 Litres)	
Giemsa Solution (Ready Made)	1 bottle 2500 ml	
Immersion oil	1 bottle (500 ml)	

**Facilitator Note:**

Explain the exercise

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





**CHECKLIST: LABORATORY MATERIALS KIT**

<b>Item</b>	<b>Quantity for the Kit</b>	<b>Available in the Kit</b>	<b>Checked &amp; replenished</b>
Glass slides (72 slides per pack)	6 packets	4 Packets	2 Packets
Disposable lancets	450	300	150
Methyl alcohol 2.5 Litre bottle (Anhydrous, acetone free)	1	0	1
Giemsa Stock Solution (ready made) (2500ml bottle)	1	1	--
Immersion Oil (500ml)	1	1	--
PH paper (packet)	1	1	--
Slide storing box (for 25 slides)	1	-	1
Drop bottle 60 ml (Glass or polyethylene)	1	-	1
Laboratory register (DHS-05)	1	-	1
Malaria Microscopy Module and Desk guide	1 each	1	0
EQA Forms I	1 Pad		

**Facilitator Note:**

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

**3.3 Review of previous visit report**

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

**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.

**Section-1: Laboratory Functioning (EQA Form-1)**

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.

### Section 2: Laboratory Input Stock Replenishment (EQA Form-1)

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
Glass slide	6 Packets (72 each)				
Disposable lancets	450				
Methyl alcohol (anhydrous, acetone free)	1 bottles (2.5 Litre)				
Giemsa stain (ready made)	2500 ml (1 bottle)				
Immersion Oil	1 bottle (500 ml)				
Slide storing box (for 100 slides)	2				
Drop bottle 60ml	1 dropping bottle				
Lab Register (DHS-05)	1 register				
Module and Desk guide	1 each				
Tally Counter (4 digit)	1				
Timing clock (hand operated)	1				
Staining troughs (for 20 slides)	1				
Xylene glass jar (50 ml.)	1				
Slide drying rack	1				
Measuring cylinder (100 ml)	1				
Measuring pipette (5 ml)	1				
pH paper (packet)	1				

### 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 OPD Register and Lab. Register (DHS-05) and fill-up EQA Form-1, Section 3 given below.

**Section 3: Recording & Reporting (EQA Form 1)**

Characteristic	Formula	Value	Comments
Total number of clinical malaria (from OPD abstract register)			
Total number of slides examined for MP			
Proportion of clinical malaria cases examined for MP	# Examined for MP/ # Clinical malaria		
Proportion of the examined slides found positive for malaria parasite	# MP positive / # Total slides examined		
Proportion of slides found positive for <i>P. falciparum</i> .	# <i>P. falciparum</i> positive / # total slides examined		
Lab. Register (FR8) recording			

**Facilitator Note:**

- Provide filled OPD register and Lab Register (DHS-05)
- Explain the exercise
- Check the answers,
- Discuss any variations and
- 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 Re-examination
- 6.2 Assess the smear
- 6.3 Re-examine 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 at the laboratory register provided and find out the first and the last serial number of cases examined in the last completed calendar month.

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

Step-3: Divide the total number of slides examined by the required sample size to get the resulting number “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 “n<sup>th</sup>” serial number is systematically selected.

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

**Facilitator Note:**

- Provide the Laboratory register (DHS-05). See Page 14.
- Provide the slide boxes for which DHS-05 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, shape, thickness), labeling, smear cleanliness and staining

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



8.							
9.							
10.							
<b>Cross-examination Summary</b>							

AG = In agreement

FP=False positive

FN=False negative

**Facilitator Note:**

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

Step-3: 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

**Exercise**

You are a DLS and has reached RHC for EQA on his monthly visit.

- i. You are required to have the knowledge of sampling as this to be done by doctor .Identify the serial No. form the RHC Lab register attached at page no. 14
- ii. Retrieve the slide with selected serial no. from the slide storage box.

Sr. No.	Lab. Serial No.

**EXERCISE:** You are district Laboratory supervisor and visited the health facilities in the district. You have filled EQA form-1 of each health facility in the district. Given are the three forms of the health facilities filled by you (on pages 15-20). You are requested to fill the EQA form-2 given on page 21 of the workbook



## Examination: Blood: Malaria Parasite

1	2	3	4	5	6		7	8						
					Serial No.	Date			Name	Fee (Y/N)	OPD No./ Ward No.	Out Patient		Result
												Internal/ External (I/E)	New/Old Cases (N/O)	
243	1/6/05	Akbar Khan	N	432/ 05	I	N	Not Seen							
244	1/6/05	Maqbool Baluch	N	B2431/05	I	N	Not Seen							
245	1/6/05	Karim Baksh	N	A2334/05	I	N	Not Seen							
246	2/6/05	Shafaat khan	N	414/05	I	N	Plasmodium vivax							
247	2/6/05	Maqsood Anwar	N	B2463/05	E	N	Not Seen							
248	3/6/05	Zafar Iqbal	N	449/ 05	I	O	Not Seen							
249	4/6/05	Munawar Ahmed	N	B2446/05	I	N	Not Seen							
250	4/6/05	Nazia chaudhry	N	A2449/05	I	N	Plasmodium falciparum							
251	4/6/05	Anbreen khwaja	N	444/05	I	N	Not Seen							
252	4/6/05	Elizbet Mashee	N	774/05	I	N	Plasmodium vivax							
253	5/6/05	Amir saeed	N	A2378/ 05	I	N	Not Seen							
254	5/6/05	Nadeem Asheaf	N	489/05	I	N	Plasmodium vivax							
255	5/6/05	Sabra Tahseen	N	A2409/05	E	N	Not Seen							
256	5/6/05	Saeed ullah	N	982/05	I	O	Not Seen							
257	6/6/05	Gulshan Karim	N	502/05	I	N	Not Seen							
258	6/6/05	Andrias mashee	N	B2491/05	I	N	Plasmodium vivax							
259	7/6/05	Masooma Shah	N	B2513/05	I	N	Not Seen							
260	7/6/05	Babar qureshi	N	439/05	I	N	Plasmodium falciparum							
261	7/6/05	Zahida batool	N	A2519/05	E	N	Not Seen							
262	8/6/05	Habib Masood	N	937/05	I	N	Plasmodium vivax							
263	8/6/05	Majeed Ahmed	N	901/ 05	I	O	Not Seen							
264	9/6/05	Javeria Jaleel	N	B2441/05	I	N	Not Seen							
265	9/6/05	Raza Shah	N	A2541/05	I	N	Plasmodium vivax							
266	9/6/05	Shabnam Azam	N	415/05	E	N	Not Seen							
267	10/6/05	Liaquat Khattak	N	B486/05	I	N	Not Seen							
268	11/6/05	Akbar Khan	N	432/ 05	I	N	Not Seen							
269	11/6/05	Maqbool Baluch	N	B2431/05	I	N	Not Seen							
270	12/6/05	Karim Baksh	N	A2334/05	I	N	Not Seen							
271	12/6/05	Shafaat khan	N	414/05	I	N	Plasmodium vivax							
272	13/6/05	Maqsood Anwar	N	B2463/05	E	N	Not Seen							
273	14/6/05	Zafar Iqbal	N	449/ 05	I	O	Not Seen							
274	14/6/05	Munawar Ahmed	N	B2446/05	I	N	Not Seen							
275	15/6/05	Nazia chaudhry	N	A2449/05	I	N	Plasmodium falciparum							
276	16/6/05	Anbreen khwaja	N	444/05	I	N	Not Seen							
277	17/6/05	Elizbet Mashee	N	774/05	I	N	Plasmodium vivax							
278	17/6/05	Nadeem Asheaf	N	489/05	I	N	Plasmodium vivax							
279	18/6/05	Sabra Tahseen	N	A2409/05	E	N	Not Seen							
280	18/6/05	Saeed ullah	N	982/05	I	O	Not Seen							
281	19/6/05	Gulshan Karim	N	502/05	I	N	Not Seen							
282	19/6/05	Andrias mashee	N	B2491/05	I	N	Plasmodium vivax							
283	20/6/05	Masooma Shah	N	B2513/05	I	N	Not Seen							
284	21/6/05	Babar qureshi	N	439/05	I	N	Plasmodium falciparum							
285	22/6/05	Zahida batool	N	A2519/05	E	N	Not Seen							
286	23/6/05	Habib Masood	N	937/05	I	N	Plasmodium vivax							
287	20/6/05	Majeed Ahmed	N	901/ 05	I	O	Not Seen							
288	24/6/05	Javeria Jaleel	N	B2441/05	I	N	Not Seen							
289	25/6/05	Raza Shah	N	A2541/05	I	N	Plasmodium vivax							
290	26/6/05	Shabnam Azam	N	415/05	E	N	Not Seen							
291	27/6/05	Liaquat Khattak	N	B486/05	I	N	Not Seen							
292	28/6/05	Akbar Khan	N	432/ 05	I	N	Not Seen							
293	29/6/05	Raza Shah	N	A2541/05	I	N	Plasmodium vivax							
294	30/6/05	Shabnam Azam	N	415/05	E	N	Not Seen							

## External Quality Assurance (EQA) Form-1

Name of Health Facility THQ Jhang Date of Visit 5-6-2007

### Section-1. Laboratory Functioning

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

### Section 2: Laboratory Input Stock Replenishment (EQA Form-1)

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
Glass slide	6 Packets (72 each)	4	2		
Disposable lancets	450	250	200		
Methyl alcohol (anhydrous, acetone free)	1 bottles (2.5 Litre)	½ Bottle	½ Bottle		
Giemsa stain (ready made)	2500 ml (bottle)	500 ml	1000 ml		
Immersion Oil	1 bottle (500 ml)	150ml	350ml		
Slide storing box (for 100 slides)	2	2	0		
Drop bottle 60ml	1 dropping bottle	1	0		
Lab Register (DHS-05)	1 register	1	0		
Module and Desk guide	1 each	1	0		
Tally Counter (4 digit)	1	1	0		
Timing clock (hand operated)	1	1	0		
Staining troughs (for 20 slides)	1	1	0		
Xylene glass jar (50 ml)	1	1	0		
Slide drying rack	1	1	0		
Measuring cylinder (100 ml)	1	1	0		
Measuring pipette (5 ml)	1	1	0		
pH paper (packet)	1	1	0		

### Section 3: Recording & Reporting

Characteristic	Formula	Value	Comments
Total number of clinical malaria (from OPD abstract register)	91		
Total number of slides examined for MP	28		
Proportion of clinical malaria cases examined for MP	# Examined for MP/ # Clinical malaria		
Proportion of the examined slides found positive for malaria parasite	# MP positive / # Total slides examined		
Proportion of slides found positive for <i>P. falciparum</i> .	# <i>P. falciparum</i> positive / # total slides examined		
Lab. Register (FR8) recording	Complete and correct		

**Section 4: Microscope maintenance, slide storage, material disposal**

Characteristic	Acceptable		Action/Comments
	Yes	No	
Microscope cleanliness	✓		
Microscope functioning	✓		
Slide storage			
Disposal of used slides		✓	
Disposal of used lancets/prickers	✓		

**Section - 5: Smear Assessment of Selected Slides**

Slide Serial No.	1. Quality of blood smear						2. Labeling of slides		3. Staining of smears		4. Smear Cleanlines s	
	Size of smears		Shape of smears		Thickness of smears		A	NA	A	NA	A	NA
	A*	NA**	A	NA	A	NA						
243	✓		✓		✓		✓		✓		✓	
250	✓		✓		✓		✓		✓		✓	
257	✓		✓		✓		✓		✓		✓	
264	✓		✓		✓		✓		✓		✓	
271	✓		✓		✓		✓		✓		✓	
278	✓		✓		✓		✓		✓		✓	
285		✓	✓			✓	✓		✓		✓	
292		✓	✓			✓	✓		✓		✓	
299		✓	✓			✓	✓		✓		✓	
306		✓	✓			✓	✓		✓		✓	
Total		✓	✓			✓	✓		✓		✓	
Remarks***	NA		A		NA		A		A		A	

**Section 6: Cross-examination by DLS**

S. No.	Lab. Serial Number	Cross-exam Result	Microscopy Center Result	Comparison			Remarks
				AG	FP	FN	
1.	243	NEG	NEG	✓			
2.	250	NEG	NEG	✓			
3.	257	NEG	NEG	✓			
4.	264	<i>Plasmodium vivax</i>	<i>Plasmodium vivax</i>	✓			
5.	271	NEG	NEG	✓			
6.	278	NEG	NEG	✓			
7.	285	<i>Plasmodium viva</i>	NEG			✓	
8.	292	NEG	<i>Plasmodium falciparum</i>		✓		
9.	299	NEG	NEG	✓			
10.	306	<i>Plasmodium vivax</i>	<i>Plasmodium vivax</i>	✓			
<b>Cross-examination Summary</b>							

**Section-7: Review with RBM Focal Person**

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

## External Quality Assurance (EQA) Form-1

Name of Health Facility \_\_\_\_\_ RHC Shah Jeevna Date of Visit \_\_\_\_\_ 7-6-2007 \_\_\_\_\_

### Section-1. Laboratory Functioning

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

### Section 2: Laboratory Input Stock Replenishment (EQA Form-1)

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
Glass slide	6 Packets (72 each)	4	2		
Disposable lancets	450	250	200		
Methyl alcohol (anhydrous, acetone free)	1 bottles (2.5 Litre)	½ Bottle	½ Bottle		
Giemsa stain (ready made) solution)	2500 ml (bottle)	500ml	1000ml		
Immersion Oil	1 bottle (500 ml)	150ml	350ml		
Slide storing box (for 100 slides)	2	2	0		
Drop bottle 60ml	1 dropping bottle	1	0		
Lab Register (DHS-05)	1 register	1	0		
Module and Desk guide	1 each	1	0		
Tally Counter (4 digit)	1	1	0		
Timing clock (hand operated)	1	1	0		
Staining troughs (for 20 slides)	1	1	0		
Xylene glass jar (50 ml)	1	1	0		
Slide drying rack	1	1	0		
Measuring cylinder (100 ml)	1	1	0		
Measuring pipette (5 ml)	1	1	0		
pH paper (packet)	1	1	0		

### Section 3: Recording & Reporting

Characteristic	Formula	Value	Comments
Total number of clinical malaria (from OPD abstract register)	54		
Total number of slides examined for MP	19		
Proportion of clinical malaria cases examined for MP	# Examined for MP/ # Clinical malaria		
Proportion of the examined slides found positive for malaria parasite	# MP positive / # Total slides examined		
Proportion of slides found positive for <i>P. falciparum</i> .	# <i>P. falciparum</i> positive / # total slides examined		
Lab. Register (FR8) recording			

**Section 4: Microscope maintenance, slide storage, material disposal**

Characteristic	Acceptable		Action/Comments
	Yes	No	
Microscope cleanliness	✓		
Microscope functioning	✓		
Slide storage	✓		
Disposal of used slides		✓	
Disposal of used lancets/prickers		✓	

**Section - 5: Smear Assessment of Selected Slides**

Slide Serial No.	1. Quality of blood smear						2. Labeling of slides		3. Staining of smears		4. Smear Cleanlines s	
	Size of smears		Shape of smears		Thickness of smears		A	NA	A	NA	A	NA
	A*	NA**	A	NA	A	NA						
11	✓		✓		✓		✓		✓		✓	
15	✓		✓		✓		✓		✓		✓	
19	✓		✓			✓	✓		✓		✓	
24	✓		✓			✓	✓		✓		✓	
28	✓		✓			✓	✓		✓		✓	
32	✓		✓			✓	✓		✓		✓	
36	✓		✓			✓	✓		✓		✓	
40	✓		✓			✓	✓		✓		✓	
Total												
Remarks***	A		A		NA		A		A		A	

**Section 6: Cross-examination by DLS**

S. No.	Lab. Serial Number	Cross-exam Result	Microscopy Center Result	Comparison			Remarks
				AG	FP	FN	
1.	11	<i>Plasmodium vivax</i>	<i>Plasmodium vivax</i>	✓			
2.	15	NEG	NEG	✓			
3.	19	NEG	NEG	✓			
4.	24	<i>Plasmodium viva</i>	NEG			✓	
5.	28	NEG	<i>Plasmodium falciparum</i>		✓		
6.	32	NEG	NEG	✓			
7.	36	<i>Plasmodium vivax</i>	<i>Plasmodium vivax</i>	✓			
8.	40						
9.							
10.							
<b>Cross-examination Summary</b>							

**Section-7: Review with RBM Focal Person**

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

## External Quality Assurance (EQA) Form-1

 Name of Health Facility RHC Garh Mahraja Date of Visit 8-6-2007
**Section-1. Laboratory Functioning**

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

**Section 2: Laboratory Input Stock Replenishment (EQA Form-1)**

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
Glass slide	6 Packets (72 each)	4	2		
Disposable lancets	450	250	200		
Methyl alcohol (anhydrous, acetone free)	1 bottles (2.5 Litre)	½ Bottle	½ Bottle		
Giemsa stain (ready made)	2500 ml (bottle)	500ml	1000 ml		
Immersion Oil	1 bottle (500 ml)	150ml	350ml		
Slide storing box (for 100 slides)	2	2	0		
Drop bottle 60ml	1 dropping bottle	1	0		
Lab Register (FR8)	1 register	1	0		
Module and Desk guide	1 each	1	0		
Tally Counter (4 digit)	1	1	0		
Timing clock (hand operated)	1	1	0		
Staining troughs (for 20 slides)	1	1	0		
Xylene glass jar (50 ml)	1	1	0		
Slide drying rack	1	1	0		
Measuring cylinder (100 ml)	1	1	0		
Measuring pipette (5 ml)	1	1	0		
pH paper (packet)	1	1	0		

**Section 3: Recording & Reporting**

Characteristic	Formula	Value	Comments
Total number of clinical malaria (from OPD abstract register)	48		
Total number of slides examined for MP	12		
Proportion of clinical malaria cases examined for MP	# Examined for MP/ # Clinical malaria		
Proportion of the examined slides found positive for malaria parasite	# MP positive / # Total slides examined		
Proportion of slides found positive for <i>P. falciparum</i> .	# <i>P. falciparum</i> positive / # total slides examined		
Lab. Register (FR8) recording			

**Section 4: Microscope maintenance, slide storage, material disposal**

Characteristic	Acceptable		Action/Comments
	Yes	No	
Microscope cleanliness		✓	
Microscope functioning	✓		
Slide storage	✓		
Disposal of used slides		✓	
Disposal of used lancets/prickers	✓		

**Section - 5: Smear Assessment of Selected Slides**

Slide Serial No.	1. Quality of blood smear						2. Labeling of slides		3. Staining of smears		4. Smear Cleanlines s	
	Size of smears		Shape of smears		Thickness of smears		A	NA	A	NA	A	NA
	A*	NA**	A	NA	A	NA						
171	✓		✓		✓		✓		✓		✓	
176	✓		✓		✓		✓		✓		✓	
181	✓		✓		✓		✓		✓		✓	
186	✓		✓		✓		✓		✓		✓	
191	✓		✓		✓		✓		✓		✓	
196	✓		✓		✓		✓		✓		✓	
201	✓		✓		✓		✓		✓		✓	
207	✓		✓		✓		✓		✓		✓	
Total												
Remarks***												

**Section 6: Cross-examination by DLS**

S. No.	Lab. Serial Number	Cross-exam Result	Microscopy Center Result	Comparison			Remarks
				AG	FP	FN	
1.	171	NEG	NEG	✓			
2.	176	NEG	NEG	✓			
3.	181	NEG	NEG	✓			
4.	186	<i>Plasmodium vivax</i>	<i>Plasmodium vivax</i>	✓			
5.	191	NEG	NEG	✓			
6.	196	NEG	NEG	✓			
7.	201	NEG	NEG	✓			
8.	207	<i>Plasmodium falciparum</i>	<i>Plasmodium falciparum</i>	✓			
9.							
10.							
<b>Cross-examination Summary</b>							

**Section-7: Review with RBM Focal Person**

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





**3. Discordant Slides**

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

Signature (DLS): _____	Signature (DTC): _____
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**3. Feedback to the District**

Signature: \_\_\_\_\_  
Manager PRL

## 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 Stock Replenishment (EQA Form-1)

Item	Minimal Stock Level	Stock available	Stock replenishment (Quantity)		Comments/Actions to be taken
			Supplied	To be arranged	
Glass slide	6 Packets (72 each)				
Disposable lancets	450				
Methyl alcohol (anhydrous, acetone free)	1 bottles (2.5 Litre)				
Giemsa stain (ready made)	2500 ml (bottle)				
Immersion Oil	1 bottle (500 ml)				
Slide storing box (for 100 slides)	2				
Drop bottle 60ml	1 dropping bottle				
Lab Register (DHS-05)	1 register				
Module and Desk guide	1 each				
Tally Counter (4 digit)	1				
Timing clock (hand operated)	1				
Staining troughs (for 20 slides)	1				
Xylene glass jar (50 ml)	1				
Slide drying rack	1				
Measuring cylinder (100 ml)	1				
Measuring pipette (5 ml)	1				
pH paper (packet)	1				

### Section 3: Recording & Reporting

Characteristic	Formula	Value	Comments
Total number of clinical malaria (from OPD abstract register)			
Total number of slides examined for MP			
Proportion of clinical malaria cases examined for MP	$\frac{\# \text{ Examined for MP}}{\# \text{ Clinical malaria}}$		
Proportion of the examined slides found positive for malaria parasite	$\frac{\# \text{ MP positive}}{\# \text{ Total slides examined}}$		
Proportion of slides found positive for <i>P. falciparum</i> .	$\frac{\# \text{ P. falciparum positive}}{\# \text{ total slides examined}}$		
Lab. Register (FR8) recording			





**3. Discordant Slides**

S. No	Name of Facility	Lab. Serial No.	Cross-exam Results	Health Facility Results	Reference Lab. Result	Error of: Lab. staff/DLS
16.						
17.						
18.						
19.						
20.						
21.						
22.						
23.						
24.						
25.						
26.						
27.						
28.						
29.						
30.						

Signature (DLS): _____	Signature (DTC): _____
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**3. Feedback to the District**

Signature: \_\_\_\_\_  
Manager PRL