Investigating Quality Indicators XC 03

#### **Test Statistics**

## Monthly Laboratory Report October 20XX

	MONTI	HLY LABORATO	RT REPORT
Kayunga	October 20XX		
LABORATORY:		LOCATION:	
Pre-analytical	Res	sults	Acceptable
	Number	Percentage	
Specimens received for Testing			
Rejected specimens			
Specimens by testing areas			
Biochemistry	689		
Hematology	217		
CD4	47		
HIV	611		
Microbiology			
ТВ	38		
Malaria	142		
Syphilis			
Others			
Specimens referred to central laboratory			
Referral specimens			

Test Statistics show a reduction of tests completed by 17% for the month of October compared to the average of the past 6 months.

### **Quality Indicator Monthly Summary**

Several internal laboratory factors noted for the month. Further investigation required.

#### **QUALITY INDICATOR MONTHLY SUMMARY** Tick if condition present or supply data for each day indicator is monitored. Month October Year 20XX Equipment Down Indicate Analyzer affected Customer Satisfaction Note complaint Test Statistics See monthly Lab report Tech Productivity Note test monitored Stock out Indicate Item affected Service Interruption Note type TAT Specify test monitored **EQA** Pass or Fail Specimens Rejected Analyzer 2 3 CD4 -√ Heme 4 0 28.9 hrs Analyzer √ Heme Lab tech 0 rude Analyzer ТВ 6 10 Smears 8 / 8 day 7 8 5 9 10 Lab Tech √ Chem CD4 -Specimen 11 2 #3 at Reagents 34.7 hrs lost training $\sqrt{}$ 12 3 attention Unable to $\sqrt{}$ 13 13 do test 5 / 7 day 14 0 15 Long wait 16 17 √ Chem CD4 -F-18 3 Reagents 30.1 hrs Heme 19 20 14 9 / 9 day 21 0 22 2 23 24 CD4 -25 0 29.3 hrs 2 26 27 17 8 / 8 day

28

29

Poor

service

0

1

### Patient / Specimen Register

Patient Number	Day / Date Year 20XX	Patient Name	Location	Test	Results	Rejected / Reason
#555	Wed / Oct 13	O J Sumbe	Wakiso District Hospital	LFTs		Patient left – no testing done
#556	Wed / Oct 13	K Mubajje	Wakiso District Hospital	НВ		Patient left – no testing done
#557	Wed / Oct 13	W Mukiibi	Wakiso District Hospital	CD4		Patient left – no testing done
#558	Wed / Oct 13	F Ohala	Wakiso District Hospital	НВ	10.7	
#559	Wed / Oct 13	G Akembano	Wakiso District Hospital	LFTs		Patient left – no testing done
#560	Wed / Oct 13	K Makubele	Wakiso District Hospital	НВ	12.1	
#561	Wed / Oct 13	G Leturra	Wakiso District Hospital	LFTs	ALT 30.1 AST 27.6	
#562	Wed / Oct 13	C Ocowun	Wakiso District Hospital	FBC		Patient left – no testing done
#563	Wed / Oct 13	P Ahija	Wakiso District Hospital	CD4	330	
#564	Wed / Oct 13	M Nukemo	Wakiso District Hospital	CD4	175	
#565	Wed / Oct 13	S Tusubira	Wakiso District Hospital	FBC		Patient left – no testing done

#### Patient / Specimen Register

Patient Number	Day / Date	Patient Name	Location	Test	Results	Rejected / Reason
#555	Wed / Aug 13	O J Sumbe	Wakiso District Hospital	LFTs	AST 36.5 ALT 26.6	
#556	Wed / Aug 13	K Mubajje	Wakiso District Hospital	НВ	12.6	
#557	Wed / Aug 13	W Mukiibi	Wakiso District Hospital	CD4	194	
#558	Wed / Aug 13	F Ohala	Wakiso District Hospital	НВ	10.7	
#559	Wed / Aug 13	G Akemba	Wakiso District Hospital	LFTs	AST 38.9 ALT 29.6	
#560	Wed / Aug 13	K Makubel	Wakiso District Hospital	НВ	12.1	
#561	Wed / Aug 13	G Leturra	Wakiso District Hospital	LFTs	ALT 30.1 AST 27.6	
#562	Wed / Aug 13	C Ocowun	Wakiso District Hospital	FBC	HB 12.1 WBC 7.9 RBC 4.6	

Review of the past 6 months of specimen registers show no significant change in the number of patients presenting for testing.

#### Speak to Laboratory Tech #1



Tech states that patients left when there was a long wait during week 2. The long wait occurred because there was not enough staff to meet the demand for testing.

### **Equipment Down Time**

### **Equipment Service Record**

Service Data	Service Performed	Service Representative
April 8, 20XX	<b>✓</b>	Moses Kiggundu
May 21, 20XX	<b>✓</b>	Moses Kiggundu
June 15, 20XX	<b>✓</b>	Moses Kiggundu
July 31, 20XX	<b>✓</b>	Moses Kiggundu
September 3, 20XX	<b>✓</b>	Moses Kiggundu
October 5, 20XX	<b>✓</b>	Moses Kiggundu

## Preventive Maintenance Log

For the last 6 months, the Preventive Maintenance Logs have shown frequent failures of daily & weekly maintenance.

Participant Handouts Page

#### Clinic Laboratory Maintenance Log SN# AJ33055

#### Month/Year

inal	ZOXX	841			Daily					Weekly		Comments		
q1	MANY	Startup	Waste	Background	Reproducibility	QC (L,	, N, H)	Shutdown	Extended	Rinse	Wipe	As Needed/Non Scheduled		
Date	Tech		O.K.	Count		Performed	Plotted	1 hour	Clean	Flow Cell	Instrument	Maintenance		
1		_	-	,						-				
2	KB		~				~	-		-				
3	2 5	2 9 2 1						-	-					
5	11	×	x	X	X	X	1		Y	Y	Y			
6	-		- 6			^	-							
7	0	9										9 8 9		
8		,	,	,	,	,								
9	10	4,	1	V ,	1	1	1			-				
10	716	1	1	1	1	1	1							
12	MY				_		•							
13														
14	(2)	168												
15		71.2										11125		
16	10.7													
17	KB		1		~		-	-						
19	PB													
20	181	100												
21	7.7										2			
22			,	,	,		,			,	,	- 1 F I		
23	N	1	-	1	1	-	1	11.1	4	1	٧,			
24	MD			-	•	-	•	-	-	4	-			
25 26	-							-						
27	16(1:0)	7										Dost 6 months		
28							,	-				Past 6 months Show similar		
29	KB			-	-	-	-					Show similar		
30														
31												results		

Initial/check mark indicates value within instrument limits; maintenance procedure performed as required.

# Phone Call To: Other Laboratories with the same instrument



They have had no service calls or malfunctions in the past 6 months.

## Phone Call To: The Service Representative



He states that the tubing reveals dried crystalline material indicative of inadequate cleaning and preventive maintenance

## **Quality Indicator Monthly Summary**

For the last 6 months, the Hematology Analyzer has been down for at least 3 days per month.

							YSUMM		
	Tick if c	ondition p	resent or Mon	r supply o th <u>Octo</u>	data for Hoev Y	each day	y indicator	is monitor	red.
Day	Equipment Down Indicate Analyzer affected	Stock out Indicate Item affected	s e	TAT Specify test monitored		Specimens Rejected	Customer Satisfaction Note complaint	Service Interruption Note type	Tech Productivity Note test monitored
1	√ Heme Analyzer					4			
2	,								
3									
4	√ Heme Analyzer			CD4 – 28.9 hrs		0			
5	√ Heme Analyzer					0	Lab tech rude		
6						10			TB Smears 8 / 8 day
7						3			
8						5			
9									
10									
11		√ Chem Reagents		CD4 – 34.7 hrs		2	Specimen lost	Lab Tech #3 at training	
12		√				3	No attention	1	
13		√				13	Unable to do test	1	5 / 7 day
14		√				0		1	
15		√				1	Long wait	↓	
16									
17		./ 01		CD4	F-				
18		√ Chem Reagents		CD4 – 30.1 hrs	Heme	3			
19						0			
20						14			9 / 9 day
21 22						2			
23									
24									
25				CD4 -		0			
26				29.3 hrs		2			
27						17			8 / 8 day
28						0	Poor		070 day
29						1	service		

#### **Stock Outs**

	<b>Inventory Stock Card</b>
Item Name: Creatinine Kit	
Item Number: C-113	

Unit/Size: 30 kits/ case Price per unit Reorder Level: 2 cases

Reorder Level. 2 cas	ses				
Date Received/Returned	Received from or returned to	Quantity	Total Quantity on Shelf	Expiry Date	Comments
5 OCT 20XW	Central Store	4 cases	6 cases	NOV 20XY	
7 JAN 20XX	Central Store	3 cases	5 cases	NOV 20XY	
4 JUL 20XX					
2 OCT 20XX					

#### **Inventory Stock Card**

Chemistry reagents not inventoried since Jan 20XX. Previously reagents in stock.

#### **Procurement Records**

Chemistry reagents last ordered in Jan 20XX. No other records are available. No worksheets available to determine how the order amount was determined.

MONTHLY LABOR	RATORY REPORT
TORY: LOCATION	N: MONTH/YEAR:
ytical Results	Acceptable
Number Percenta	age
received for Testing	
ecimens	
s by testing areas	
Biochemistry	No report for 8 months
Hematology 345	
CD4 75	
HIV 865	
Microbiology 78	
TB 38	
Malaria 200	
Syphilis 652	
Others	
s referred to central laboratory	
Others	

#### **Monthly Laboratory Report**

No data reported on Chemistry testing for the last 8 months.

#### Turn-Around-Time

## Preventive Maintenance Log

Preventive Maintenance Logs show routine maintenance performed on a regular basis. No equipment down time noted.

#### Department of Laboratory Services

#### **Maintenance Log**

	1	2	3	4	5	6	7	8	9	0	1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2	1	2 2	2	2	2 5	2	2 7	2	9	3	3
DAILY		/			1.	,					Ī	_					Ė		/		-	-	,	Ť	,		,		,	U	•
Clean/Deproteinize Probes*	V			/	V	1	1	V		Г	1	/	V	V	V			V	V	V	1	1			V	V	V	1	V		_
Prime Fluids*	V			V	V	V	V	V			V	V	V	V	V			V	V	V	1	V	,		V	V	V	V	V	1	
Change Activator	V			V	V	1	V	1			V	V	V	V	V			V	V	V	V	V			V	V	V	V	V		
ISE System:	1		3353	1/		/										,															
Check Deproteinizer	/			V	V	V	V	V			V	V	V	V	V			V	V	V	V	7			V						
Check Icons:						/																							A		
Cassette, Cassette Data	V			1/	V	1	V	V			1	V	V	V	V	,		1	./	V	V	V	-		1	V	L	V	V		
<b>Data Station</b> , What if BOD	1			V	1	V	V	V			V	V	V	1	1			V	V	1	1	1	,		/	V	1	10	1		
Test Status, Test Data	V			/	V	U	V	V	1		V	1/	10	V	V	1		V	1	V	U	1	/		/	V	V	V	V		
Analyzer	1			1	1	V	V	V			V	V	V	V	V	/		1/	1	V	V	V	/		V	V	V	V	V		
Service	/			V	1	V	V	U			V	V	V	V	V			V	V	V	V	1	,		V	V	V	V	V		
	/						V.7		/		-			-	1	/			/	,	1	/							/		8
Remove Expired Cassettes	V		_	V	V	V	V	11	_		V	V	V	V	/	_		V	V,	V	VI	V			V	V	V	V	1		
<b>Prepare</b> Required Materials	V			V	V	V	V	V	/		V	10	V	V	V	/		V	V	1	$\vee$	V	,		V	, 1	10	V	V		
Rectify Blocked Status	V			V	/	V	V	V			V	V	V	V	V			V	V	1	V	1			V	K	V	V			
Initials	86	000	OC	d	ight	by	100	100	ol		B	P	B	88	80			il	ol	'gl	d	d	0		8	2	3	2	X		

<sup>\*</sup>This is part of BOD function.

Reviewed by Completing

Date 1 Oct 20 XX

N:\LAB4\123DAT\CHEM\Integra 400 and 800\Integra 800 Maintenance Log 2.dog

10/06

#### **Inventory**

Reagents in stock.



## **Quality Indicator Monthly Summary**

Note staffing levels.
Lab Tech #3 at
training this week.
Other lab techs
overloaded.

#### **QUALITY INDICATOR MONTHLY SUMMARY**

Tick if condition present or supply data for each day indicator is monitored.

Month October Year 20XX

			Mon	th <u>Octo</u>	<del>rber</del> Y	ear <u>202</u>			
Day	Equipment Down Indicate Analyzer affected	Stock out Indicate Item affected	Test Statistics See monthly Lab report	TAT Specify test monitored	<b>EQA</b> Pass or Fail	Specimens Rejected	Customer Satisfaction Note complaint	Service Interruption Note type	Tech Productivity Note test monitored
1	√ Heme Analyzer					4			
2	,								
3									
4	√ Heme Analyzer			CD4 – 28.9 hrs		0			
5	√ Heme Analyzer					0	Lab tech rude		
6						10			TB Smears 8 / 8 day
7						3			
8						5			
9									
11		√ Chem Reagents		CD4 – 34.7 hrs		2	Specimen lost	Lab Tech #3 at training	
12		√				3	No attention	1	
13		√				13	Unable to do test	<b>↓</b>	5 / 7 day
14		√				0		<b>↓</b>	
15		√				1	Long wait	<b>↓</b>	
16 17									
18		√ Chem Reagents		CD4 – 30.1 hrs	F - Heme	3			
19		rteagents		00.11113	TICITIC	0			
20						14			9 / 9 day
21						0			
22						2			
23									
24									
25				CD4 – 29.3 hrs		0			
26						2			
27						17	Poor		8 / 8 day
28						0	Poor service		
29						1			

### EQA

#### **EQA** Result



#### **Proficiency Testing**

Specimen FL-02	No. Labs	Mean	S.D.	C.V.	Median	Low Value	High Value	Your Lab Grade
BD FACSCalibur	89	204	16.2	7.9	205	163	239	Data reported from Lab X not reviewed or included – Submitted beyond acceptable postmark date.

#### **EQA Results Submission**



 Results postmarked 2 days after the published deadline

#### Speak with Performing Lab Tech #3



The tech stated that she was on leave and she had completed the analysis immediately upon her return.

#### Speak to Other Laboratory Techs

Tech #1 & #2



State that Tech #3 is the best one to perform this analysis, so she does all the Proficiency Testing.
When she is on leave, the specimen waits for her.

### Specimens Rejected

#### Patient / Specimen Register

Patient Number	Day / Date	Patient Name	Location	Test	Results	Rejected / Reason
#555	Wed / Oct 6	O J Sumbe	Mukono HC IV	LFTs		Rejected
#556	Wed / Oct 6	K Mubajje	Mukono HC IV	НВ		Rejected
#557	Wed / Oct 6	W Mukiibi	Mukono HC IV	CD4		Rejected
#558	Wed / Oct 6	F Ohala	Wakiso Hospital	НВ	10.7	
#559	Wed / Oct 6	G Akembano	Mukono HC IV	LFTs		Rejected
#560	Wed / Oct 6	K Makubele	Sambura HC IV	НВ	12.1	
#561	Wed / Oct 6	G Leturra	Wakiso Hospital	LFTs	ALT 30.1 AST 27.6	
#562	Wed / Oct 6	C Ocowun	Mukono HC IV	FBC		Rejected
#563	Wed / Oct 6	P Ahija	Sambura HC IV	CD4	330	
#564	Wed / Oct 6	M Nukemo	Wakiso Hospital	CD4	175	
#565	Wed / Oct 6	S Tusubira	Mukono HC IV	FBC		Rejected

#### Review Patient / Specimen Register

Patient Number	Day / Date	Patient Name	Location	Test	Results	Rejected / Reason
#555	Wed / Aug 6	O J Sumbe	Mukono HC IV	LFTs		Rejected
#556	Wed / Aug 6	K Mubajje	Mukono HC IV	НВ		Rejected
#557	Wed / Aug 6	W Mukiibi	Mukono HC IV	CD4		Rejected
#558	Wed / Aug 6	F Ohala	Wakiso Hospital	НВ	10.7	
#559	Wed / Oct 6	G Akembano	Mukono HC IV	LFTs		Rejected
#560	Wed / Aug 6	K Makubele	Sambura HC IV	НВ	12.1	
#561	Wed / Aug 6	G Leturra	Wakiso Hospital	LFTs	ALT 30.1 AST 27.6	
#562	Wed / Aug 6	C Ocowun	Mukono HC IV	FBC		Rejected
#563	Wed / Aug 6	P Ahija	Sambura HC IV	CD4	330	
#564	Wed / Aug 6	M Nukemo	Wakiso Hospital	CD4	175	
#565	Wed / Aug 6	S Tusubira	Mukono HC IV	FBC		Rejected

Review the past 3 months. Note the pattern.

Most rejected specimens are from a rural Health Clinic IV in Mukono.

The specimens are logged into the lab on Wednesday.

#### Visit to Mukono Health Center IV



- Find that one clinician has drawn all the rejected blood samples
- He is on holiday on the day of the visit.

#### **Customer Satisfaction**

#### **Customer Satisfaction Survey**



- Customer's comments
   Included:
  - "I had a long wait"
  - "The technologist gave me no attention"
  - "The lab told me they were too busy to do my testing"
  - "The lab cannot find my specimen; they say it is lost & they must recollect it"

### QI Monthly Summary

Reviewed other QI indictors –

Stock Outs,

Service Interruption due to Staff Issues are

also influencing customer satisfaction in second week of the month.

Tick if condition present or supply data for each day indicator is monitored.  Month October Year 20XX										
Day	Equipment Down Indicate Analyzer affected	Stock out Indicate Item affected	Test Statistics See monthly Lab report	TAT Specify test monitored	<b>EQA</b> Pass or Fail	Specimens Rejected	Customer Satisfaction Note complaint	Service Interruption Note type	Tech Productivity Note test monitored	
1	√ Heme Analyzer					4				
2										
3										
4	√ Heme Analyzer			CD4 – 28.9 hrs		0				
5	√ Heme Analyzer					0	Lab tech rude			
6						10			TB Smears 8 / 8 day	
7						3				
8						5				
9										
10								Lab Tech		
11		√ Chem Reagents		CD4 – 34.7 hrs		2	Specimen lost	#3 at training		
12		√				3	No attention	↓		
13		√				13	Unable to do test	↓	5 / 7 day	
14		√				0		↓		
15		V				1	Long wait	↓		
16										
17		√ Chem		CD4 -	F-					
18		Reagents		30.1 hrs	Heme	3				
19						0			0 / 0 day	
20 21						14 0			9 / 9 day	
22						2				
23										
24										
25				CD4 – 29.3 hrs		0				
26				20.01113		2				
27						17			8 / 8 day	
28						0	Poor service			
29						1				

## Service Interruption due to Staffing Issues

#### Monthly Lab Report

#### October 20XX

	MONTI	ILY LABORATO	RY REPORT			
Kayunga	October 20XX					
LABORATORY:	LOCATION:					
Pre-analytical	Res	sults	Acceptable			
	Number	Percentage				
Specimens received for Testing						
Rejected specimens						
Specimens by testing areas						
Biochemistry	689					
Hematology	217					
CD4	47					
HIV	611					
Microbiology						
ТВ						
Malaria	142					
Syphilis	516					
Others						
Specimens referred to central laboratory						

Test Statistics show a reduction of tests completed by 17% for the month of October compared to the average of the past 6 months; for example, FBCs decreased from 348 to 217 this month.

### QI Monthly Summary

Tech productivity decreased from 8 of 8 TB smears to 5 of 7 TB smears per day during the second week of month.

QUALITY INDICATOR MONTHLY SUMMARY											
	Tick if condition present or supply data for each day indicator is monitored.  Month <u>October</u> Year <u>20XX</u>										
				tn <u>Octo</u>	b <u>oer</u> Y	ear <u>202</u>					
Day	Equipment Down Indicate Analyzer affected	Stock out Indicate Item affected	Test Statistics See monthly Lab report	TAT Specify test monitored	<b>EQA</b> Pass or Fail	Specimens Rejected	Customer Satisfaction Note complaint	Service Interruption Note type	Tech Productivity Note test monitored		
1	√ Heme Analyzer					4					
2											
3											
4	√ Heme Analyzer			CD4 – 28.9 hrs		0					
5	√ Heme Analyzer					0	Lab tech rude				
6	·					10			TB Smears 8 / 8 day		
7						3					
8						5					
9											
10								Lab Tech			
11		√ Chem Reagents		CD4 – 34.7 hrs		2	Specimen lost	#3 at training			
12		√				3	No attention	<b>+</b>			
13		√				13	Unable to do test	↓	5 / 7 day		
14		√				0		↓			
15		V				1	Long wait				
16											
17		/ Oh		004	_						
18		√ Chem Reagents		CD4 – 30.1 hrs	F - Heme	3					
19						0			0.40 days		
20 21						14 0			9 / 9 day		
21						2					
23											
24											
25				CD4 – 29.3 hrs		0					
26				20.01113		2					
27						17			8 / 8 day		
28						0	Poor service				
29						1					

#### Talk to Laboratory Tech #2



Indicated that she was covering 3 workstations during week 2 and was not able to concentrate fully on TB smears.

#### **Technologist Productivity**

### QI Monthly Summary

Tech productivity decreased from 8 of 8 TB smears to 5 of 7 TB smears per day during second week of month.

## Tick if condition present or supply data for each day indicator is monitored. Month October Year 20XX

Day	Equipment Down Indicate Analyzer affected	Stock out Indicate Item affected	Test Statistics See monthly Lab report	TAT Specify test monitored	<b>EQA</b> Pass or Fail	Specimens Rejected	Customer Satisfaction Note complaint	Service Interruption Note type	Tech Productivity Note test monitored
1	√ Heme Analyzer					4			
2									
3									
4	√ Heme Analyzer			CD4 – 28.9 hrs		0			
5	√ Heme Analyzer					0	Lab tech rude		
6						10			TB Smears 8 / 8 day
7						3			
8						5			
9									
		√ Chem		CD4 -			Specimen	Lab Tech	
11		Reagents		34.7 hrs		2	lost	#3 at training	
12		√				3	No attention	<b>↓</b>	
13		<b>√</b>				13	Unable to do test	<b>↓</b>	5 / 7 day
14		√ √				0		<b>↓</b>	
15 16		V				1	Long wait	<b>↓</b>	
17									
18		√ Chem Reagents		CD4 – 30.1 hrs	F - Heme	3			
19		rteagents		30.11113	Ticilic	0			
20						14			9 / 9 day
21						0			
22						2			
23									
24									
25				CD4 – 29.3 hrs		0			
26						2			
27						17	Daar		8 / 8 day
28						0	Poor service		
29						1			

#### Talk to Laboratory Tech #2



Indicated that she was covering 3 workstations during week 2 and was not able to concentrate fully on TB smears.