THE REPUBLIC OF UGANDA
MINISTRY OF HEALTH

UGANDA Supranational® Reference Laboratory

Timely Accurate Diagonostics for a TB-Free Africa

Training on EQA and National TB Laboratory Network

Module 5: Data Compilation, Analysis and Reporting of AFB Lab Performance- Manual

Date

Uganda Supranational Reference Laboratory

Content Outline

- Manual compilation, analysis and interpretation of rechecking results
- Computer reporting, analysis and interpretation of rechecking results

Compilation, Reporting and Analysis

- According to a manual system alone
- Or together with a workbook
  - Computerized
  - National and (eventually) intermediate level
- Compilation and analysis always quarterly and annually

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Manual Rechecking Documents (1)

- Form 1: Blinded Rechecking of Smear examinations for AFB
  - Filled by supervisor taking the sample
  - Registration of sampled slides for rechecking
  - One form for each lab: one copy with results, one without results (for the 1st controller)
  - Coordinator fills results on both copies after receiving 1st controller's results
  - Coordinator identifies discordant results

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Manual Rechecking Documents (2)

- Form 2: List of Discordants
  - Coordinator lists discordant slides on Form 2 with both results
    - One or more labs under one controller on one form
    - Column 1st and 2nd result for lab and 1st controller results respectively.
  - 2nd controller receives form 2 with the discordant slides
  - 2nd controller enters results in “result” column and returns form 2 to coordinator

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Manual Rechecking Documents (3)

- Coordinator adds 2nd controllers result to both copies of form 1
- Coordinator fills boxes on form 1, below slide list
- Coordinator completes form 1 by adding recommendations at bottom, depending on findings
- One copy for feedback to lab, one with coordinator for preparation of quarterly report (form 3)

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Manual Rechecking Documents (4)

- Summary Report Form
  - Compiles number of slides rechecked types of errors obtained for an area for all labs controlled
  - Only summary counts, not individual slides
  - Sent quarterly to the area TB supervisor

Blinded Rechecking of Sputum Smear Examinations for Acid-Fast Bacilli

Form 1

Peripheral Laboratory: _____ First controller: _____

Local technician(s): _____ Laboratory: _____

Date sampled: _____ Second controller: _____

Period in lab. register checked: _____ Laboratory: _____

Peripheral lab		Results of						
Slide no.	Result	first control	second control	Specimen	Size	Thickness	Staining	Comment

Peripheral lab		Results of						
Slide no.	Result	first control	second control	Specimen	Size	Thickness	Staining	Comment

Specimen, Size, Thickness and Staining : M=Marginal, P=Poor

Peripheral Laboratory				
Totals reported results on the samples (nos.)				
Positive: _____	Scanty: _____	Negative: _____		
Summary of errors identified (nos.)				
HFP	LFP	HFN	LFN	QE

HFP =High False Positive; HFN =High False Negative;
LFP =Low False Positive; LFN =Low False Negative;
QE =Quantification Error

First controller				
Totals reported results on the samples (nos.)				
Positive: _____	Scanty: _____	Negative: _____		
Summary of errors identified (nos.)				
HFP	LFP	HFN	LFN	QE

HFP =High False Positive; HFN =High False Negative;
LFP =Low False Positive; LFN =Low False Negative;
QE =Quantification Error

Conclusions: _____

Recommendations: _____

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Blinded Rechecking Form 1

Discordants Form 2

RE-CHECKING OF SPUTUM SMEARS FOR AFB

LIST OF DISCORDANTS **Form 2**

District _____ **First controller** _____

Second controller _____

Date _____ **Period covered by sample** _____

Lab checked	Slide no.	Result 1	Result 2	Second controls	
				Result	Remarks

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Analysis

- Errors by type and centre for each series
- Final analysis after full year sample
- Interim analysis
  - Feedback for continuous motivation
  - Improve compliance, if applicable
  - Further investigation if problems and remedial action
  - Check on improvement of performance in following series

Error Frequencies

- Not accurate per centre
- Better for all centres of large area
- By type; denominator all slides with +, -, or scanty result reported
  - by laboratory
  - by first controller

Evaluation

- No single agreement for all results
  - Loss of valuable information
  - Aim is not to score centres, but detection of specific problems

Validation

- Comparison of sum of FN of all labs under a first controller with FN by controller
  - Always
  - Check on controller's reliability
- May be misleading
  - In case positives were over sampled
  - If restaining of discordants only

Interpretation

- Annual report
  - Number of errors by microscopy centre and first controller
  - No HFP allowed; LFP ignored unless too frequent
  - Not a single FN error allowed if d=0
  - Interpretation and decision on corrective action on total numbers and type of errors
- Calculation of error frequencies and performance indicators
  - Not per centre, but for defined area
  - At which level? Decision by NTP management

Example of Annual Rechecking Report

RE-CHECKING OF SPUTUM SMEARS FOR AFB

QUARTERLY / ANNUAL REPORT FORM **Form 3**

Region Urban **First controller(s)** C

Quarter **Second controller** A

Year 2006 **QA coordinator** B

#	Names of the laboratories	Performance of peripheral laboratories: Numbers of smears re-checked* Pos.	Scanty	Neg.	Numbers of errors** HFP	LFP	HFN	LFN	QE	Performance of the first controller: Controller ID***	Numbers of smears re-checked**** Pos.	Scanty	Neg.	Numbers of errors***** HFP	LFP	HFN	LFN	QE
	A	4	0	56	0	0	0	0	0	C	4	1	55	0	1	0	0	0
	B	3	0	57	0	0	2	0	1	C	5	0	55	0	0	0	0	0
	C	5	1	54	0	1	3	1	0	C	8	2	50	0	0	0	0	0
	D	3	1	56	0	0	11	2	3	C	14	2	44	0	1	0	0	0
	E	8	2	50	1	0	1	2	0	C	9	3	48	0	1	0	0	0
	F	15	2	43	4	2	0	2	2	C	11	4	45	0	0	0	0	0
	G	4	0	56	0	0	6	1	4	C	10	1	49	0	0	0	0	2
	TOTALS	42	6	372	5	3	23	8	10		61	13	346	0	3	0	0	2

Date **Signature**

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Summary

- Reporting and analysis of rechecking results can be done either manually or by means of the computerized tool (MS Excel based Workbook)

- Properly filled in laboratory performance and rechecking reports (quarter / annual) provide a basis for the comprehensive analysis and evaluation of laboratory performance

Assessment

- What laboratory performance and rechecking documents are used for reporting purposes?
- Why is it necessary to validate rechecking results?

References

- WHO/GLI Tools.
- John, R. (1999). External Quality Assessment for AFB Smear Microscopy. *Public Health Practice Program Office Centers for Disease Control and Prevention, Rosemary Humes. Association of Public Health Laboratories, 17.*
- GLI Training package on EQA overview & Planning

Acknowledgments

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