

INSTRUCTION GUIDELINE EXTERNAL QUALITY ASSESSMENT (EQA) FOR ACID FAST BACILLI (AFB) MICROSCOPY	Document No.	<b>MKAK/AFB/PTWP-01-02</b>
	Issue No.	01
	Effective Date	1 November 2019

## MKAK : 2021



**MAKMAL RUJUKAN TB KEBANGSAAN  
MAKMAL KESIHATAN AWAM KEBANGSAAN  
KEMENTERIAN KESIHATAN MALAYSIA**



### EXTERNAL QUALITY ASSESSMENT (EQA) FOR ACID FAST BACILLI (AFB) MICROSCOPY

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#### Introduction

The National Public Health Laboratory (MKAK) monitors the quality of microscopic examination of acid fast bacilli (AFB) through External Quality Assessment (EQA) Program. One of the components in this EQA program is Proficiency Test item; a method that can be used to evaluate the ability of microscopist in identifying AFB and reporting the results according to the guidelines from WHO/IUATLD using a set of proficiency testing item (stained or/and unstained slides).

#### Scheme activities

The proficiency test item shall be dispatched in two rounds a year and each round contains 4 unstained slides. The schedule is as follow:

No.	Program Activities	Round Schedule / Year	
		Round 1	Round 2
1	Date of Sending Slide	1 <sup>st</sup> -2 <sup>nd</sup> Week April	1 <sup>st</sup> -2 <sup>nd</sup> Week September
2	Number of Slide	4	4
3	Date Received Report From Laboratory	3 <sup>rd</sup> -4 <sup>th</sup> week of the date that participants received the slides	
4	Performance Report/Cycle	1 <sup>st</sup> -2 <sup>nd</sup> Week June	1 <sup>st</sup> -2 <sup>nd</sup> Week Nov
5	Yearly Performance Report to State Level	4 <sup>th</sup> Week December	

Any deviation of schedule will be duly informed.

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## Handling instruction

All participants should treat proficiency test item in the same manner as routinely tested sample to portray the actual quality of AFB smear microscopic examination. All PT test items should be stained using Ziehl-Neelsen stain or fluorescence-based stain and report the results according to WHO/IUATLD guideline.

## Important: Before begin

- i. Keep the proficiency test item at room temperature and far from the light/heat source if not stain immediately after receiving.
- ii. Use gentle stream water for washing step in Ziehl-Neelsen (ZN)/Fluorescence (FM) technique.
- iii. All the proficiency test item should be fixed before stain with ZN/FM technique.

## Method information

All proficiency slides should be stained using routinely technique and report the results according to WHO/IUATLD guideline

Table 1: Guideline of reporting AFB smear microscopic examination result for ZN technique.

Number of AFB	Number of fields* examined	What to report
No AFB in 300 fields	300 fields	No Acid Fast Bacilli seen
1–9 AFB in 100 fields	100 fields	Record exact figure (1 to 9 AFB per 100 fields)
10– 99 AFB in 100 fields	100 fields	1 +
1– 10 AFB in each field	50 fields	2 +
More than 10 AFB in each field	20 fields	3 +

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Table 2: Guideline of reporting AFB smear microscopic examination result for fluorescence technique.

IUATLD / WHO SCALE (1000x field=HPF)	FLUORESCENCE (400x magnification;1 length)
Result	Number of AFB
No AFB Seen	No AFB in one length
Confirmation required*	1-2 AFB in one length
Scanty (actual count)	3-24 AFB in one length
1+	1-6 AFB in one field
2+	7-60 AFB in one field
3+	>60 AFB in one field

## Reporting

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- i. All participants must acknowledge on the receiving of proficiency test item through email (eqapt.moh@1govuc.gov.my), fax (03-61402249) or phone (03-61261200) within one week upon receiving the proficiency testing items. Please contact MKAK if not receive as schedule.
- ii. All participants laboratories must check your proficiency test item document to ensure do changes are need. Any changes are immediately effective on the document.
- iii. Unsatisfactory / broken proficiency test item, please contact MKAK.
- iv. Every participant will be given three (3) weeks from the date of dispatch for reporting. The result will not be analysed if the participant fail to report within the time frame. The classification of errors is as Table 3.
- v. All participants must send the results using '**Borang Keputusan Pemeriksaan Mikroskopik AFB**'.

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Table 3: The classification errors of AFB smear microscopic examination.

		Microscopy Center Result				
		No AFB Seen	Scanty	1+	2+	3+
Assessor Result	No AFB seen	Correct	LFP	HFP	HFP	HFP
	Scanty	LFN	Correct	Correct	QE	QE
	1+	HFN	Correct	Correct	Correct	QE
	2+	HFN	QE	Correct	Correct	Correct
	3+	HFN	QE	QE	Correct	Correct

*LFP : Low false positive; HFP : High false positive; LFN : Low false negative; HFN : High false negative; QE : Quantification error.*

## Score

Score will be given based on the table below:

Score	Interpretation of score
2	Result is correct
1	LFN, LFP, QE
0	HFN, HFP

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## **Sending back proficiency test items**

All participants must send all proficiency testing item back to MKAK within one week after the due date for each round using slide mailer in padded envelope (supply in each round).

## **Confidentiality**

- i. All information regarding the PT scheme such as identity of participant, data compilations, results and reports will be treated as confidential.
- ii. The report may be published, rewritten or redistributed to District Health Office (*Pejabat Kesehatan Daerah*), State Health Department (*Jabatan Kesehatan Negeri*), Disease Control Division (*Bahagian Kawalan Penyakit*) and National Indicator Approach (NIA) Organizer for quality assurance monitoring activities.
- iii. The participants are informed in advance on any arrangement of providing PT result direct to the interested party except if regulatory authority requires coordinator to release the result directly to them. This action is then notified to the affected participant in writing. The coordinator will prevent the misuse of personal data held on computers and avoid any unintentional disclosure of information.

## **Lost Or Damage Test Materials**

- i. If the test materials shipped out to participants are lost during transportation,
  - It is the responsibility of the participant to communicate to the coordinator of any delays or failure in receiving the test materials as scheduled through email or call.
  - The coordinator shall make the necessary investigation in the utmost urgency to identify the cause. The coordinator shall try and retrieve the lost package and redirect it to reach the participant.
  - Otherwise, a replacement package of test materials shall be promptly prepared and send to the participant with a revised schedule.
- ii. If the test materials are damage (the slide is broken, slough off smear etc.) or any incomplete material (not enough slide),
  - It is the responsibility of the participant
    - a. To communicate to the coordinator through email or call.
    - b. To discard those slides into sharp bin according to the disposal procedure at their respective facilities and wear a proper Personal protective equipment (PPE).
  - A new slide shall be promptly prepared (if no stock available) and send to the participant with a revised schedule.

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## **Assistance**

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Any enquiries, please contact MKAK through phone or email. The contact number as below:-

EQA and Proficiency Testing Unit  
National TB Reference Laboratory,  
Section of TB & Leprosy,  
Disease Division,  
National Public Health Laboratory.  
Ministry of Health,  
Lot 1853, Kg Melayu Sungai Buloh  
47000 Sungai Buloh, Selangor.  
Phone : 03-61261200 ext : 1289  
Email : [eqapt.moh@1govuc.gov.my](mailto:eqapt.moh@1govuc.gov.my)