REVIEW ON AFB PROGRAM

Ms Patricia KL Leung
HKIMLSQAP AFB Smear Panel Head

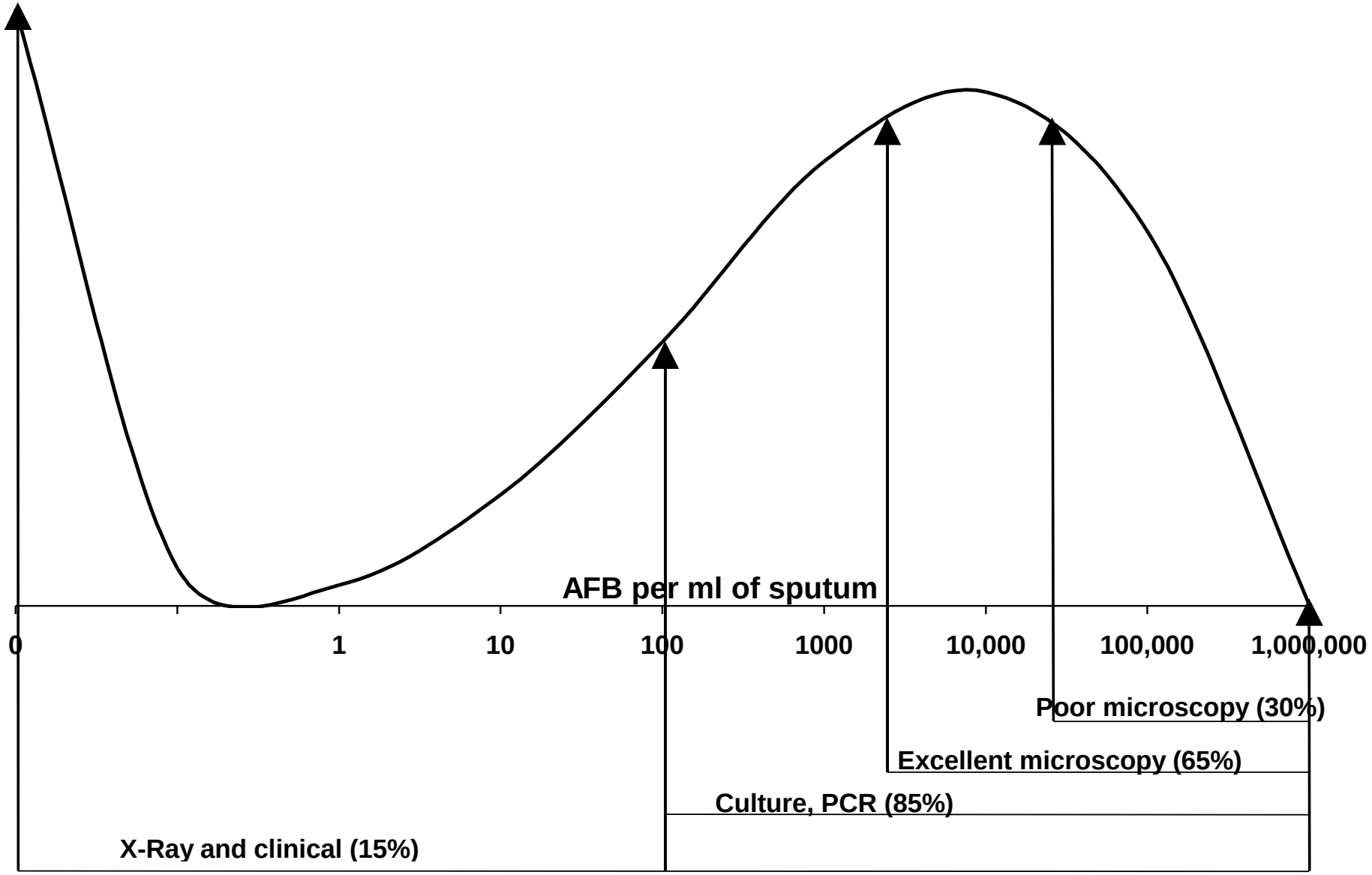
Impression

- Old technology (>100 years)
- Limited sensitivity (5000-10000 AFB/ml)
- Not much development
- For remote/resource limited area only
- Molecular, molecular….

Importance of Smear Examination in TB Control

- Individual
  - Smear-positive patients are much more likely to die if untreated
  - Correlate with the severity of the disease
- Community
  - Transmitter of infection
  - Smear-positive patients are 4-20 times more infectious
  - Untreated, a smear-positive patient may infect 10-15 persons/year
- Management
  - Rapid, simple, low cost

DIAGNOSTIC METHODS FOR PTB RELATED TO NUMBERS OF BACILLI PRESENT



"The focus of EQA is on identification of laboratories where there may be serious problems resulting in poor performance, not on the identification of individual slide errors or the validation of individual patient diagnoses"

-External Quality Assessment for AFB Smear Microscopy, APHL

Quality control in AFB Smear microscopy

- On site evaluation
- Blind Re-checking
- Panel Testing

AFB Smear Panel

Objective

- Assess the performance of participants in performing AFB staining and microscopy examination

Program outline

- 4 survey exercises per year
- 4 survey slides of fixed sputum smear in each survey exercise
- Stain and examine for the presence/absence of AFB in each slide

Survey slides

- Liquefied patient sputum (either AFB positive or AFB negative)
- Fixed onto glass slides

Quality Control in the Program

- Slides are randomly selected for:
  - Homogeneity check
    - after preparation of each batch of survey slides
    - before each dispatch
  - Stability check
    - after closing of the survey
- Stained and counted, statistically analyzed

Scoring

- Scores of "2" for each correct result
- Scores of "0" for each incorrect result, **late return** and nil return
  - Implemented in 2013
- Maximum scores for each survey exercise: 8 (4x2)

Reports

- Individual survey reports for each survey exercises
- Individual year-end report for overall performance throughout the year, statistic summaries
- Annual report on the overall performance of the participants throughout the year, statistic summaries

Individual report for each survey

AFB SMEAR
Survey Report 2 (2013)
Laboratory Code: XXX

HONG KONG INSTITUTE OF MEDICAL LABORATORY SCIENCES
Quality Assurance Programme Limited
In collaboration with
Tuberculosis Laboratory
Public Health Laboratory Services Branch
Centre for Health Protection
Department of Health

AFB Smear
SURVEY REPORT: 2 (2013)

Laboratory Code:	XXX			
Sample Codes:	TB13999	TB13999	TB13999	TB13999

AFB SMEAR RESULT

SAMPLE CODE	TB13999	TB13999	TB13999	TB13999
SAMPLE ID	XXX	XXX	XXX	XXX
INTENDED RESULT	AFB Present	AFB Present	AFB Absent	AFB Absent
YOUR RESULT	AFB Present	AFB Absent	AFB Present	AFB Absent
YOUR SCORE	2	0	0	2
TOTAL SCORE	4 / 8			
YOUR STAINING METHOD	Any stain			

Control smears AFB count per field by ZN (100X objective)

Sample ID	Range	Median	Sample ID	Range	Median
X38	0	0	X40	1-13	4
X39	0-14	2	X41	0-16	3

N.B. Scores of "two" and "zero" is assigned to correct and incorrect/nil result, respectively.
An incorrect answer is a major error; if so please review your AFB procedures.
Late or nil return will be scored as "zero" and documented in your report.
You can return the slide(s) to the Quality Assurance Programme Subcommittee at P.O. Box 70094 KOWLOON CENTRAL POST OFFICE for confirmation if indicated.

<< END OF REPORT >>

For any queries on this report, please contact HKIMLSQAP at your ease.

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AFB Smear
Annual Summary Report 2012
Laboratory code: XXX

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AFB Smear
Annual Summary Report 2012

Laboratory code: XXX
Laboratory results:

Survey No.	Sample code	Smear ID	Intended result	Your result	Your score
2012-1	TB12999	XXX	AFB Present	AFB Present	2
2012-1	TB12999	XXX	AFB Present	AFB Absent	0
2012-1	TB12999	XXX	AFB Absent	AFB Present	0
2012-1	TB12999	XXX	AFB Absent	AFB Absent	2
2012-2	TB12999	XXX	AFB Present	AFB Present	2
2012-2	TB12999	XXX	AFB Present	AFB Absent	0
2012-2	TB12999	XXX	AFB Absent	AFB Present	0
2012-2	TB12999	XXX	AFB Absent	AFB Absent	2
2012-3	TB12999	XXX	AFB Present	AFB Present	2
2012-3	TB12999	XXX	AFB Present	AFB Absent	0
2012-3	TB12999	XXX	AFB Absent	AFB Present	0
2012-3	TB12999	XXX	AFB Absent	AFB Absent	2
2012-4	TB12999	XXX	AFB Present	AFB Present	2
2012-4	TB12999	XXX	AFB Present	AFB Absent	0
2012-4	TB12999	XXX	AFB Absent	AFB Present	0
2012-4	TB12999	XXX	AFB Absent	AFB Absent	2
YOUR STAINING METHOD	Any stain(2012-1) / Any stain(2012-2) / Any stain(2012-3) / Any stain(2012-4)				
TOTAL SCORE	16 / 32				

Page 1 of 2

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AFB Smear
Annual Summary Report 2012
Laboratory code: XXX

	33
	33 (100%)
	28 (84.8%)
	88%-100%

Correct	No. Incorrect	% Correct
64	2	97
130	2	98.5
33	0	100
32	1	97
99	0	100
99	0	100
65	1	99.7
522	6	98.9
392	4	99
130	2	98.5

)12:

2012-2	2012-3	2012-4
2	2	2
15	16	17
11	11	12

<T>>

Individual year-end report

HKIMLSQAP Annual Report 2012

ACID FAST BACILLUS

K.L. Leung, C.W. Yip, C.S. Tam

A total of 16 survey slides were dispatched to participating laboratories in four quarterly survey exercises (four slides per quarter) in 2012. Participants were required to stain and examine for acid fast bacilli (AFB), and report the results and the staining method(s) to Hong Kong Institute of Medical Laboratory Sciences Quality Assurance Programme before the due dates.

Survey results returned by participating laboratories were analyzed. Scores of "two" and "zero" were assigned to correct and incorrect result or nil return, respectively. Survey reports were issued quarterly to the participating laboratories documenting the sample identities, intended results, reported results, scores and staining methods used. Late and nil return were marked on the individual reports of participating laboratories. False positivity and false negativity are considered as major errors. Year-end summaries of the total scores and the successful rate of individual laboratories in identifying the micro-organisms were compiled and released.

Table 1 shows the summary of control smears in year 2012.

Control smears	Total Numbers	Number of Correct Returns	Number of Incorrect Returns	Accuracy (%)
Overall total	528	522	6	98.9
Positive control	396	392	4	99
Negative control	132	130	2	98.5

Prepared and authorized by Mr Leung Ka-ling, Panel Head of Medical Microbiology Speciality, HKIMLSQAP
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Date: 3rd April, 2013

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SQAP Annual Report 2012

ers rect ns	Correct Returns (%)
	97
	98.5
	100
	97
	100
	100
	99.7
	98.9
	99
	98.5

12.

	n (%)
	33 (100%)
	28 (84.8%)
	88% - 100%

IAP 2

SQAP 3

ILSQAP Annual Report 2012

in year 2012.

Correctness (%)

ILSQAP Annual Report 2012

ing methods in 2011.

Third	Fourth
2	2
16	17
11	12

iographs: Mycobacteria.

guide for the level III Public Health Service,

IQAP 4

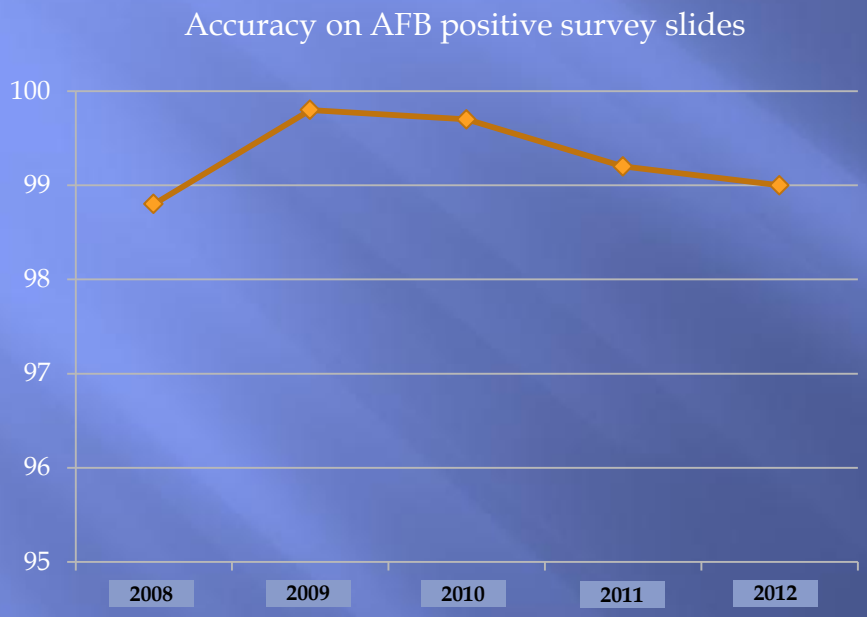
Phone: (852) 2499 0015 Fax: (852) 2124 2798 E-mail: info@hkimlsqap.org URL: http://hkimlsqap.org
Date: 3rd April, 2013

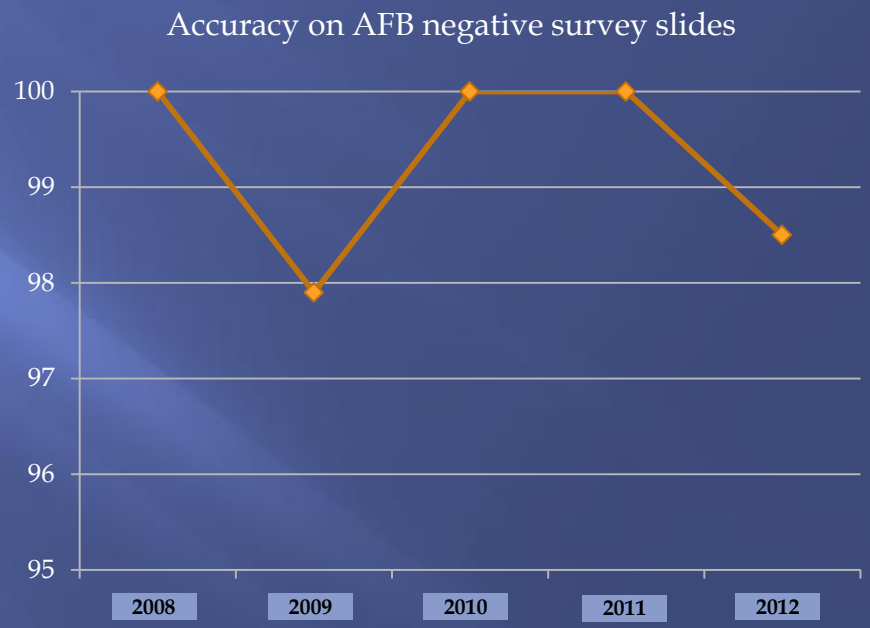
Annual report

Statistics on year 2012

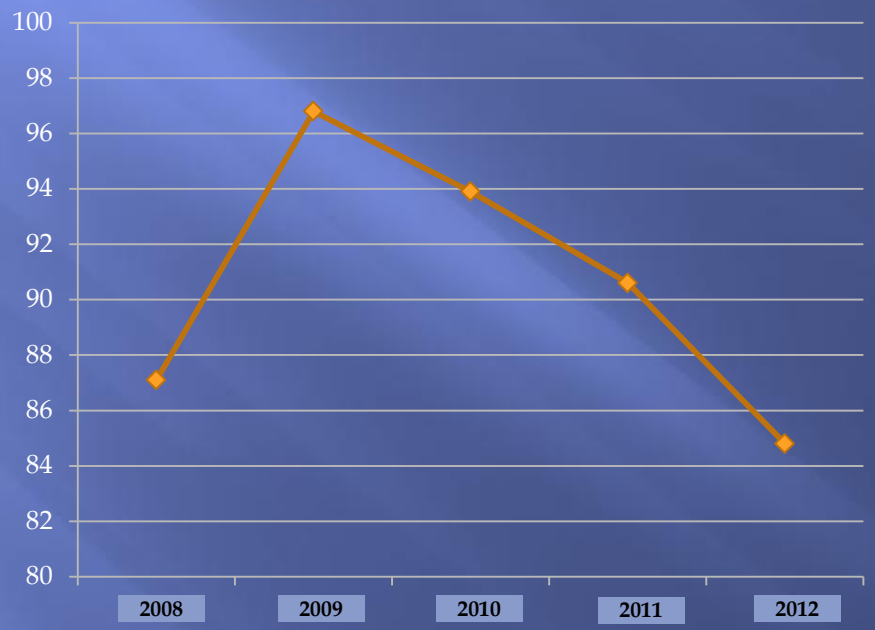
- No. of participants completing 4 survey exercises: 33
- No. of participants with fully matched results in all 4 survey exercises: 28
- Overall accuracy on AFB-positive survey slides: 99%
- Overall accuracy on AFB-negative survey slides: 98.5%

Performance of the participants

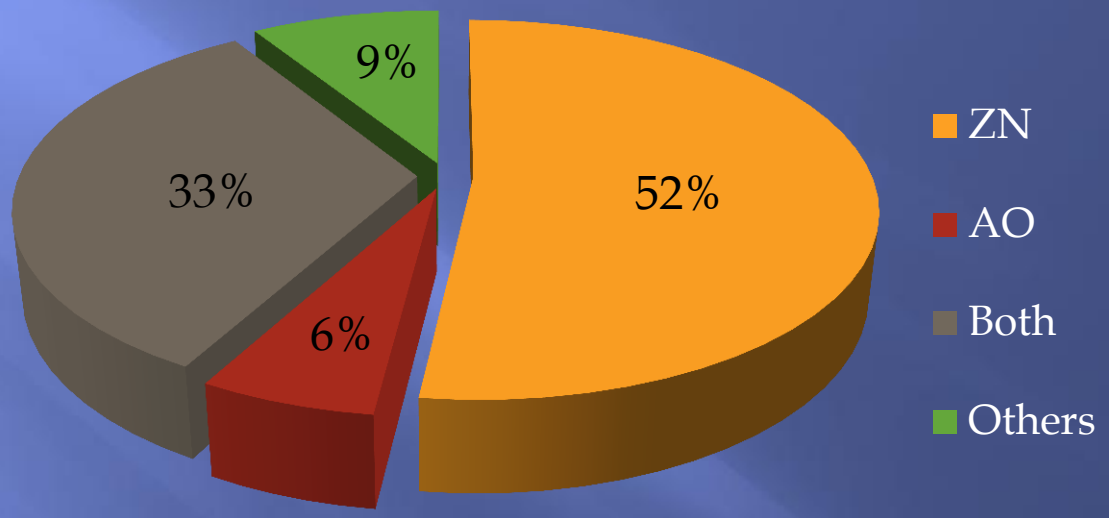




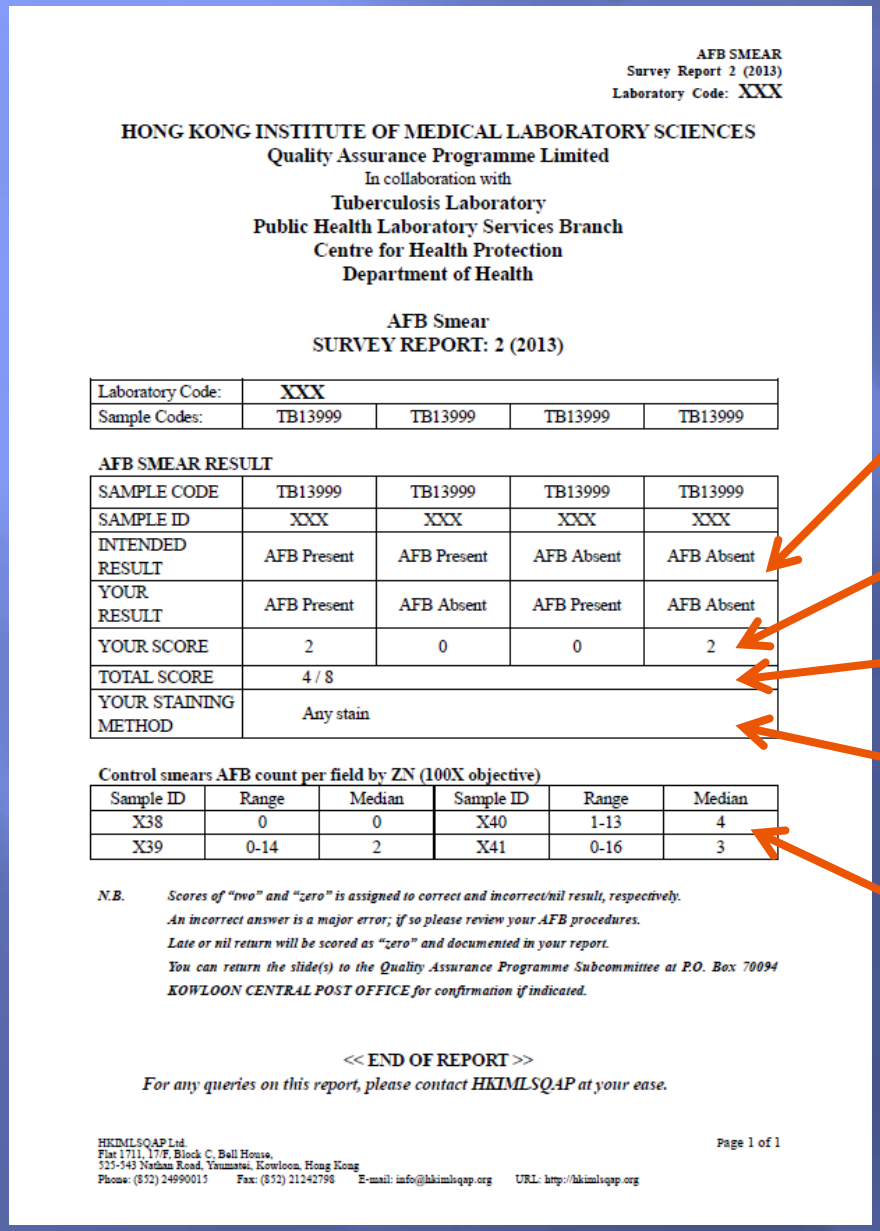
Percentage of participants has full score in all 4 rounds



- Staining methods:



Reporting format



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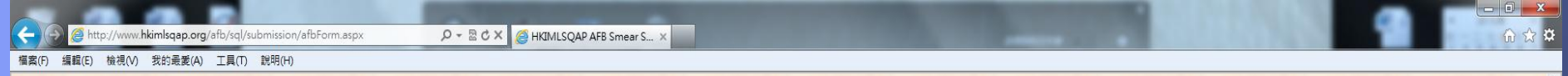
- Reporting format:
  - Intended results and participants' results
  - Participant's score on each slides
  - Total score obtained in the round
  - Staining method used
  - AFB count in the control slides (Range and median) (stained by ZN)

Updates on the panel

- HOKLAS accreditation
- Online submission

On-line submission

- On-line submission:
  - Efficient submission and retrieval of survey result
  - Framework constructed, will be launched very soon



This page is for HKIMLSQAP staff only. Please exit if you are QAP participants

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AFB SMEAR

HKIMLSQAP Home | AFB Result Submission | Log out | Change Password | FAQ

Laboratory Code: a

Result last modified: 2013/09/26 12:04 Date of Return: on or before 19 August 2013

Sample Code: TB 13 289 - 444

Type of specimen / clinical details:

Four glass slides of fixed sputum smear prepared from 4 patients suspected of pulmonary tuberculosis.

Request:

Stain and examine the slides for Acid Fast Bacilli (AFB).

Your result:

N.B. Please fill in the Sample Codes printed on your slides.

		(Click ◉ as appropriate) AFB Present	AFB Absent
Sample Code	TB 13 373	◉	○
Sample Code	TB 13 374	◉	○
Sample Code	TB 13 375	○	◉
Sample Code	TB 13 376	◉	○

Staining method used:

	(Click ◉ as appropriate)
Auramine O fluresence Acid-fast stain	○
Ziehl-Neelsen Acid-fast stain	◉
Both	○
Others:	○

Submit Reset Print

Thank you **Nick Lai**, **John Tam** and **Taki Sun** for their nice work on this!

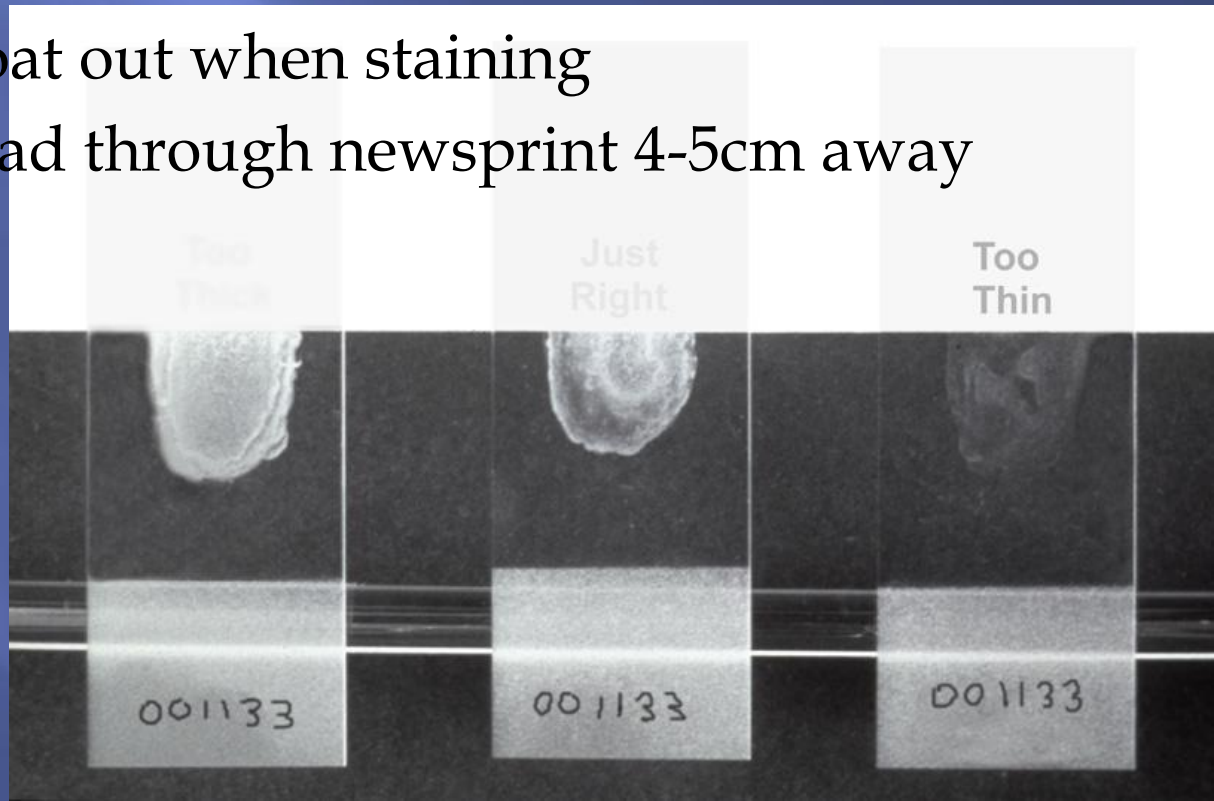
Thank you Mr. **WS Wong** for coordinating

- Features:
  - Layout similar to paper return form format
  - Type-in samples codes
  - Simply click appropriate button for the results (AFB present/AFB Absent) and the staining method used
  - Unlimited access/edit your submitted data before closing of the survey
  - Hard-copy printout (optional/recommended)

- For online submission: unable to submit/edit result after closing of survey ☹
- Still keep original paper form

Good Smear

- Choice of sputum
  - Thicker (purulent) particles
- Thickness
  - Too thin => too few AFB, false –ve
  - Too thick => float out when staining
  - Good => can read through newsprint 4-5cm away
- Size
  - 1cm x 2cm



- Good stain
  - Reliable brand
- Good staining technique
  - Proper decolorization
  - Timing of counterstain
- Good microscope maintenance

"Good Quality Smear Examination

makes

A Good Quality TB Control Programme"

~ Thank You ~