

ACID FAST BACILLUS

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A total of 16 survey slides were dispatched to participating laboratories in four quarterly survey exercises (four slides per quarter) in 2011. 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 2011.

Control smears	Total Numbers	Number of Correct Returns	Number of Incorrect Returns	Accuracy (%)
Overall total	508	505	3	99.4
Positive control	381	378	3	99.2
Negative control	127	126*	0	100*

* No result reported for one negative control smear.

Table 2 shows the break-down of control slides used in 2011.

Smear ID	Intended Result	Numbers Issued	Numbers of Correct Returns	Numbers of Incorrect Returns	Correct Returns (%)
X28	AFB Present	95	94	1	98.9
X30	AFB Absent	96	96	0	100
X31	AFB Present	32	32	0	100
X32	AFB Present	32	32	0	100
X33	AFB Absent	31	30*	0	100*
X34	AFB Present	127	127	0	100
X35	AFB Present	95	93	2	97.9
	Overall total	508	505	3	99.4
	Positive control	381	378	3	99.2
	Negative control	127	126*	0	100*

* No result reported for one negative control smear.

Table 3 shows the summary of participants' performance in year 2011.

Participants	n (%)
Number of participants completing four survey exercises	31 (96.9%)
Number of participants with fully matched results	29 (90.6%)
Range of correct results derived from participants	94% - 100%

Table 4 shows the break-down of the performance of participants in year 2011.

Participant	Expected Score	Observed Score	Correctness (%)
002	32	32	100
029	32	32	100
062	24	24	100
136	32	32	100
144	32	32	100
168	32	32	100
218	32	32	100
263	32	32	100
275	32	30	94
336	32	32	100
354	32	32	100
361	32	32	100
366	32	32	100
416	32	32	100
456	32	32	100
495	32	32	100
508	32	32	100
523	32	32	100
609	32	32	100
621	32	32	100
626	32	30	94
658	30	30	100
668	32	32	100
683	32	32	100
714	32	32	100
737	32	32	100
762	32	32	100
821	32	32	100
922	32	32	100
947	32	32	100
963	32	32	100
997	32	30	94

One participant did not return all four complete sets of survey results for analysis. Another participant returned a stained smear for confirmation due to an unexpected result. The cause of discrepancy was not definite after investigation and the sample was regarded as “not scored” and excluded from the calculation of statistics.

Table 5 shows the statistics of participants with respect to the staining methods in 2011.

Number of Participants	First	Second	Third	Fourth
Fluorescence Staining only	2	2	2	2
ZN only	19	18	18	19
Fluorescence Staining and ZN	11	12	12	10

One participant did not report the staining method used in the fourth survey.

References:

- Chadwick MC. Institute of Medical Laboratory Sciences Monographs: Mycobacteria. Wright PSG 1982;47-49
- Kent PT, Kubica GP. Public Health Mycobacteriology. A guide for the level III laboratory. US Department of Health and Human Services, Public Health Service, Centers for Disease Control 1985;57-59.

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