

STANTON TERRITORIAL HEALTH AUTHORITY

Yellowknife, Northwest Territories

TITLE: Mycobacteria Reporting	Revision Date: 07-April-2017	Issue Date: 07-April-2015
Document Number: MIC81700	Status: Approved	
Distribution: Mycobacteria Manual	Page: 1 of 8	
Approved by: Gloria Badari, Director, Corporate Services and Chief Financial Officer	Signed by: (Original Signed Copy in Microbiology)	

PURPOSE:

To standardize the reporting of direct smear results using Fluorescence stain. Opening of positive culture tubes for Kinyoun smear is no longer practiced at Stanton due to Containment Level restrictions. Positive cultures are reported out finalized as such and are referred to Provincial Lab in Edmonton.

INTRODUCTION:

The presence of an active and highly infectious Mycobacteria case in clinical samples is determined by the Direct Smear, and confirmed by culture. The presence of latent Mycobacteria infection is determined from direct smear negative but culture positive cases.

The option to send positive Direct Smear concentrates to Prov Lab Edmonton for PCR for MtB identification and Rifampin resistance detection is optional and up to the physician in charge. Historically Rifampicin resistance is not prevalent in the Northwest Territories.

In Direct Smear negative patients, PCR MtB probe is not recommended as a confirmatory method to Direct Smear results. Direct Smear Negative samples, even if they contain Mycobacteria, may contain such low numbers of AFB that even amplification techniques give unreliable results.

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FILENAME: MIC81700MycobacteriaReportingPRO.doc | PRINT DATE: 9 March 2015

TITLE: Mycobacteria Reporting	Revision Date: 07-April-2017	Issue Date: 07-April-2015
Document Number: MIC81700	Status: Approved	
Distribution: Mycobacteria Manual	Page: 2 of 8	

Positive Cultures will be referred out to Provincial Lab. New Mycobacteria guidelines advise to prepare culture smears in a CL-3 Lab, which Stanton Bacteriology is currently not.

SPECIAL SAFETY PRECAUTIONS:

- Handle all patient samples and testing reagent using “Routine Practices”
- Please refer to the Northwest Territories Infection Prevention and Control Manual, March 2012
- Prior to testing all patient are to be identified as per I-0500 Use of Two Patient Identifiers.

DIRECT SMEAR MISCROSCOPY (AUROMINE-RHODAMINE):

- Read the QC slide first. If results are as expected, the patient sample smears can be read. If not, re-stain all smears with a new QC slide.
- Refer to Expected Results chart above in the Quality Control of AFB Smears section.
- Read smears under DRY objectives. Scan using 20 x and move to 40 x objective if suspicious bacilli are seen.
- If AFB are seen in the direct smear, or if Tech is in doubt of AFB presence on smear, perform a Kinyoun smear to confirm for presence/absence of suspicious bacilli. Do not use Kinyoun smear for Direct Smear quantification.

TITLE: Mycobacteria Reporting	Revision Date: 07-April-2017	Issue Date: 07-April-2015
Document Number: MIC81700	Status: Approved	
Distribution: Mycobacteria Manual	Page: 3 of 8	

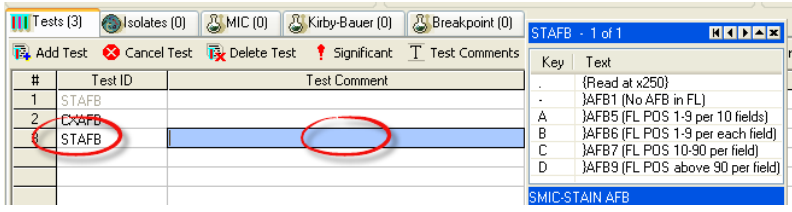

INTERPRETING DIRECT SMEAR RESULTS:

- Direct Smears are interpreted in a graded format for quantities

If	Then	Action																								
AFB is quantified and interpreted following the chart below:																										
AFB seen	Smear positive	<p>Confirm direct smear with a Kinyoun stain. Kinyoun offers better morphological characteristics of the bacilli.</p> <ul style="list-style-type: none"> • Kinyoun can be done directly over the A/R stain or a new smear can be made from the concentrate (more time consuming; must let new concentrate dry and fix). <p>Quantify according to the Direct Smear Interpretation Chart below.</p> <p style="text-align: center;"><u>Direct Smear Interpretation Chart</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th># of fields</th> <th># of AFB</th> <th>Quantity Reported</th> <th>STAFB Keypad code</th> </tr> </thead> <tbody> <tr> <td>Entire smear</td> <td>< 6</td> <td>Negative (no AFB)</td> <td>AFB1</td> </tr> <tr> <td>10</td> <td>1-9</td> <td>1+ (rare)</td> <td>AFB5</td> </tr> <tr> <td>1</td> <td>1-9</td> <td>2+ (few)</td> <td>AFB6</td> </tr> <tr> <td>1</td> <td>10-90</td> <td>3+ (moderate)</td> <td>AFB7</td> </tr> <tr> <td>1</td> <td>>90</td> <td>4+ (numerous)</td> <td>AFB9</td> </tr> </tbody> </table> <p>Record result in ink on the TB worksheet. Log into Soft to result the Direct Smear.</p>	# of fields	# of AFB	Quantity Reported	STAFB Keypad code	Entire smear	< 6	Negative (no AFB)	AFB1	10	1-9	1+ (rare)	AFB5	1	1-9	2+ (few)	AFB6	1	10-90	3+ (moderate)	AFB7	1	>90	4+ (numerous)	AFB9
# of fields	# of AFB	Quantity Reported	STAFB Keypad code																							
Entire smear	< 6	Negative (no AFB)	AFB1																							
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1	10-90	3+ (moderate)	AFB7																							
1	>90	4+ (numerous)	AFB9																							
No AFB -OR- <6 bacilli seen	Smear negative	<ul style="list-style-type: none"> • Kinyoun smear not required unless Tech is unsure of direct smear results. <p>Record result in ink on the TB worksheet. Log into Soft to result the Direct Smear.</p>																								

TITLE: Mycobacteria Reporting	Revision Date: 07-April-2017	Issue Date: 07-April-2015
Document Number: MIC81700	Status: Approved	
Distribution: Mycobacteria Manual	Page: 4 of 8	

RESULTING DIRECT SMEARS IN LIS:

Step	Prompt	Action
Follow the steps below to Result AFB direct smears:		
1	Result Entry	Type in order # of sample to access log
2	Locate "STAFB"	<p>Click Ctrl+K to access keypad if it is not already open.</p> <ul style="list-style-type: none"> From STAFB keypad chose the option corresponding to Direct Smear chart above. 
4		Status the Test (Finalize STAFB line).
5	Click Instant Report button	<p>A SDR rule will automatically fire, asking to send a report to HPU. Click "No" for now. You'll have another option to do so when you save the report.</p> 
6		<p>Preview Instant Report. Example below:</p> <pre> <u>Stain, Direct AFB Smear</u> B FINAL 23/01/15 14:11 23/01/15 Microscopic Report: Direct Smear was examined by Fluorescent stain. Acid Fast Bacilli WERE NOT seen. <u>Culture, AFB</u> - PLATED </pre>
7	Save Culture	<p>SDR violation box automatically pops up again.</p> <p>Clicking "Yes" will CC the report to HPU. This is desired in patient samples, but not TB Weekly (QC) cultures.</p> <p>Do Not click "Yes" for any QC samples.</p>

File the TB Worksheet in the appropriate slot in the water room.

TITLE: Mycobacteria Reporting	Revision Date: 07-April-2017	Issue Date: 07-April-2015
Document Number: MIC81700	Status: Approved	
Distribution: Mycobacteria Manual	Page: 5 of 8	

CULTURE SMEAR MISCROSCOPY (KINYOUN STAIN) :

- Smears from culture are not performed due to CL restrictions
- Perform Kinyoun stains on Direct Smears that are difficult to interpret or for confirmation of AFB seen in Fluorescent stain
- Kinyoun stain may be done directly over top of the fluorescent smear. A new smear does not need to be made but can be done if desired. Remaking a new smear will require the smear to dry and be fixed again (may take an hour before staining)
- Make a QC slide for Kinyoun stain. After staining, read the QC slide first. If results are as expected, the patient sample smears can be read.
- Refer to Expected Results chart above in the Quality Control of AFB Smears section.
- Scan smears on 50x oil immersion and switch to 100x to confirm morphology.. Read the entire smear. This may take up to 45 mins to an hour in some smears.

RESULTING KINYOUN SMEARS MADE FROM DIRECT SMEARS:

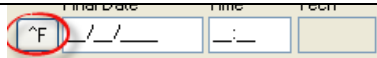
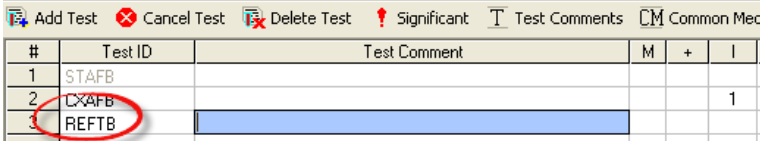

- Kinyoun smears are examined for the presence or absence of AFB. Quantities for reporting should be graded using the results of the Fluorescent stain. Kinyoun should be used a confirmatory tool. Refer to Direct Smear guidelines above.

RESULTING POSITIVE CULTURES IN LIS:

Step	Prompt	Action
Follow the steps below to result positive MGIT and LJ cultures:		
1	Result Entry	Type in order # of sample to access log
2	Media Comments (plate log)	Locate "MGIT" or "LJ" in plate log below CXAFB. Click Ctrl+K to access keypad if it is not already open (see step below).

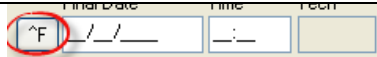

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Document Number: MIC81700	Status: Approved	
Distribution: Mycobacteria Manual	Page: 6 of 8	

3	MGIT Media line Or LJ Media line	Follow the keypad to add the positive growth culture to the isolates tab.
	Isolate Tab	Ensure the Quantitation (weeks to positivity) is entered and the Isolate comment is added "Culture will be referred out for further examination at ALBERTA PROVINCIAL LABORATORY OF PUBLIC HEALTH in EDMONTON."
	Finalize the culture.	Click the "AF" button 
	Add a referral test code: REFTB	This provides the ability to transcribe results from Prov Lab. See Miscellaneous Tests Procedures. 
	Click Instant Report button	A SDR rule will automatically fire, asking to send a report to HPU. Click "No" for now. You'll have another option to do so when you save the report. 
	Preview Instant Report	Culture, AFB should display everything in the Isolates Tab. Referral Test code should say "Plated".
	Save Culture	SDR violation box automatically pops up again. Clicking Yes CC the report to HPU. This is desired in patient samples, but not for AFB quality control cultures. If resulting a patient test, click "Yes". If resulting an AFB control, click "No" (do not want the results to be faxed to HPU).

TITLE: Mycobacteria Reporting	Revision Date: 07-April-2017	Issue Date: 07-April-2015
Document Number: MIC81700	Status: Approved	
Distribution: Mycobacteria Manual	Page: 7 of 8	

RESULTING 7 WEEK NEGATIVE CULTURES IN LIS:

Step	Prompt	Action
Follow the steps below to result AFB cultures:		
1	Result Entry	Type in order # of sample to access log
2	Media Comments (plate log)	Locate “MGIT” or “LJ” in plate log below CXAFB. Click Ctrl+K to access keypad if it is not already open (see step below).
3	MGIT Media line Or LJ Media line	MGIT – Negative (MGIT will have automatically crossed the Negative result over). LJ – Manually result. Follow the keypad to add the negative growth comment “No growth after 7 weeks”.
	CXAFB Test Comment	Follow keypad CXTB1 (Urines) or CXTB2 (Resp) to result negative cultures → AFB2 code <ul style="list-style-type: none"> “Mycobacteria Cultures were Negative after 7 weeks incubation”.
	Finalize the culture.	Click the “ ^F ” button 
	Click Instant Report button	A SDR rule will automatically fire, asking to send a report to HPU. Click “No” for now. You’ll have another option to do so when you save the report. 
	Preview Instant Report	
	Save Culture	SDR violation box automatically pops up again. Clicking Yes CC the report to HPU. This is desired in patient samples, but not for AFB quality control cultures.

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Distribution: Mycobacteria Manual	Page: 8 of 8	

REFERRAL OF POSITIVE CULTURES TO PROVINCIAL LAB:

Positive MGIT or LJ cultures should be sent out as Category A. See referral manual for instructions. Provincial Lab referred in isolate forms are available on the shared drive or pre-printed by the Bacteriology door.

RELATED DOCUMENTS

- MIC81500 Auramine-Rhodamine Stain
- MIC81600 Kinyoun Stain
- See Section 5 of Specimen Management Manual - Referrals

REFERENCES:

- Northwest Territories Health and Social Services. (2014). *NWT Tuberculosis Manual*. Yellowknife: Northwest Territories Health and Social Services.
- Ontario Mycobacteriology Bench Manual, Central Public Health Laboratory, 2003.

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	3-FEB-2015	Initial Release	L. Driedger
	03Feb2015	Review	S. Webber