Preanalytical Quality Assurance: Submitting Specimens to the State TB Laboratory

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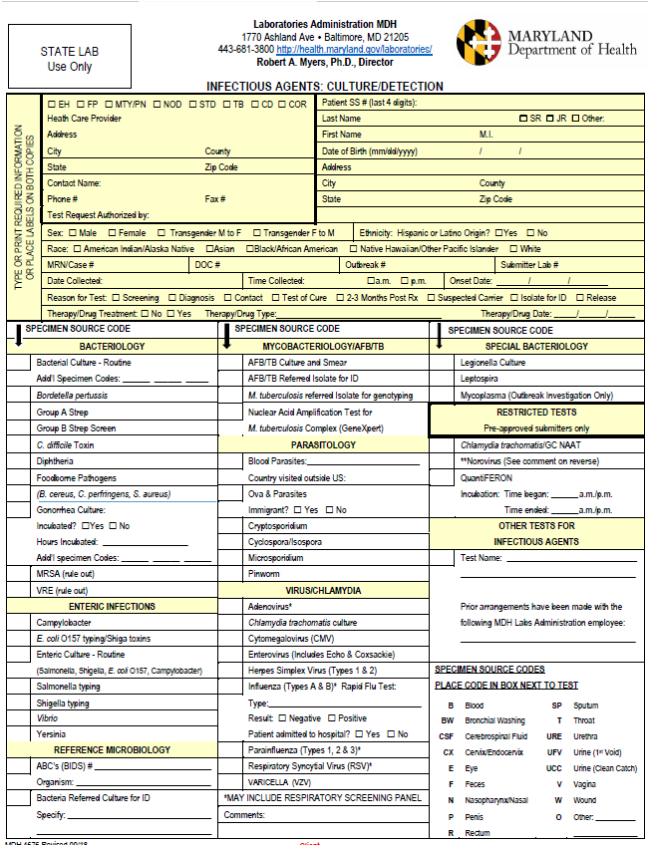
Preanalytical Quality Assurance

- Everything done before laboratory diagnostic testing to ensure the most accurate results possible.
- Our results can only be as good as the specimen and information we receive.
- Poor handling and storage of specimens, as well as improper specimen labeling and missing information on lab requisitions, can affect the accuracy of our results.

Filling out the lab requisition

- Submitter information, including ordering physician.
- Date of specimen collection.
- Source of specimen and tests requested.
- Patient information, as completely as possible.
- Make sure identifiers on lab slip match the identifiers on the specimen.

Infectious Agents Form



STATE LAB
Use Only

Laboratories Administration MDH
1770 Ashland Ave • Baltimore, MD 21205
443-681-3800 http://health.maryland.gov/laboratories/
Robert A. Myers, Ph.D., Director

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INFECTIOUS AGENTS: CULTURE/DETECTION

TYPE OR PRINT REQUIRED INFORMATION OR PLACE LABELS ON BOTH COPIES

☐ EH ☐ FP ☐ MTY/PN ☐ NOD ☐ STD ☐ TB ☐ CD ☐ COR
Health Care Provider
Address
City County
State Zip Code
Contact Name:
Phone # Fax #
Test Request Authorized by:

Patient SS # (last 4 digits):
Last Name ☐ SR ☐ JR ☐ Other:
First Name M.I.
Date of Birth (mm/dd/yyyy) / /
Address
City County
State Zip Code

Sex: ☐ Male ☐ Female ☐ Transgender M to F ☐ Transgender F to M
Ethnicity: Hispanic or Latino Origin? ☐ Yes ☐ No
Race: ☐ American Indian/Alaska Native ☐ Asian ☐ Black/African American ☐ Native Hawaiian/Other Pacific Islander ☐ White
MRN/Case # DOC # Outbreak # Submitter Lab #
Date Collected: Time Collected: ☐ a.m. ☐ p.m. Onset Date: ____/____/____
Reason for Test: ☐ Screening ☐ Diagnosis ☐ Contact ☐ Test of Cure ☐ 2-3 Months Post Rx ☐ Suspected Carrier ☐ Isolate for ID ☐ Release
Therapy/Drug Treatment: ☐ No ☐ Yes Therapy/Drug Type: Therapy/Drug Date: ____/____/____

SPECIMEN SOURCE CODE

BACTERIOLOGY
- Bacterial Culture - Routine
- Add'l Specimen Codes: _____ _____ _____
- *Bordetella pertussis*
- Group A Strep
- Group B Strep Screen
- *C. difficile* Toxin
- Diphtheria
- Foodborne Pathogens
- (*B. cereus, C. perfringens, S. aureus*)
- Gonorrhea Culture:
  - Incubated? ☐ Yes ☐ No
  - Hours Incubated: _____
  - Add'l specimen Codes: _____ _____ _____
- MRSA (rule out)
- VRE (rule out)

ENTERIC INFECTIONS
- Campylobacter
- *E. coli* O157 typing/Shiga toxins
- Enteric Culture - Routine
- (Salmonella, Shigella, *E. coli* O157, Campylobacter)
- Salmonella typing
- Shigella typing
- *Vibrio*
- Yersinia

REFERENCE MICROBIOLOGY
- ABC's (BIDS) # _____
- Organism: _____
- Bacteria Referred Culture for ID
- Specify: _____

SPECIMEN SOURCE CODE

MYCOBACTERIOLOGY/AFB/TB
- AFB/TB Culture and Smear
- AFB/TB Referred Isolate for ID
- *M. tuberculosis* referred Isolate for genotyping
- Nuclear Acid Amplification Test for
- *M. tuberculosis* Complex (GeneXpert)

PARASITOLOGY
- Blood Parasites: _____
- Country visited outside US: _____
- Ova & Parasites
- Immigrant? ☐ Yes ☐ No
- Cryptosporidium
- Cyclospora/Isospora
- Microsporidium
- Pinworm

VIRUS/CHLAMYDIA
- Adenovirus*
- *Chlamydia trachomatis* culture
- Cytomegalovirus (CMV)
- Enterovirus (Includes Echo & Coxsackie)
- Herpes Simplex Virus (Types 1 & 2)
- Influenza (Types A & B)* Rapid Flu Test:
  - Type: _____
  - Result: ☐ Negative ☐ Positive
  - Patient admitted to hospital? ☐ Yes ☐ No
- Parainfluenza (Types 1, 2 & 3)*
- Respiratory Syncytial Virus (RSV)*
- VARICELLA (VZV)

*MAY INCLUDE RESPIRATORY SCREENING PANEL
Comments:

SPECIMEN SOURCE CODE

SPECIAL BACTERIOLOGY
- Legionella Culture
- Leptospira
- Mycoplasma (Outbreak investigation Only)

RESTRICTED TESTS
Pre-approved submitters only
- Chlamydia trachomatis/GC NAAT
- **Norovirus (See comment on reverse)
- QuantiFERON
  - Incubation: Time began: _____ a.m./p.m.
  - Time ended: _____ a.m./p.m.

OTHER TESTS FOR INFECTIOUS AGENTS
- Test Name: _____

Prior arrangements have been made with the following MDH Labs Administration employee: _____

SPECIMEN SOURCE CODES
PLACE CODE IN BOX NEXT TO TEST

B	Blood	SP	Sputum
BW	Bronchial Washing	T	Throat
CSF	Cerebrospinal Fluid	URE	Urethra
CX	Cervix/Endocervix	UFV	Urine (1st Void)
E	Eye	UCC	Urine (Clean Catch)
F	Feces	V	Vagina
N	Nasopharynx/Nasal	W	Wound
P	Penis	O	Other: _____
R	Rectum		

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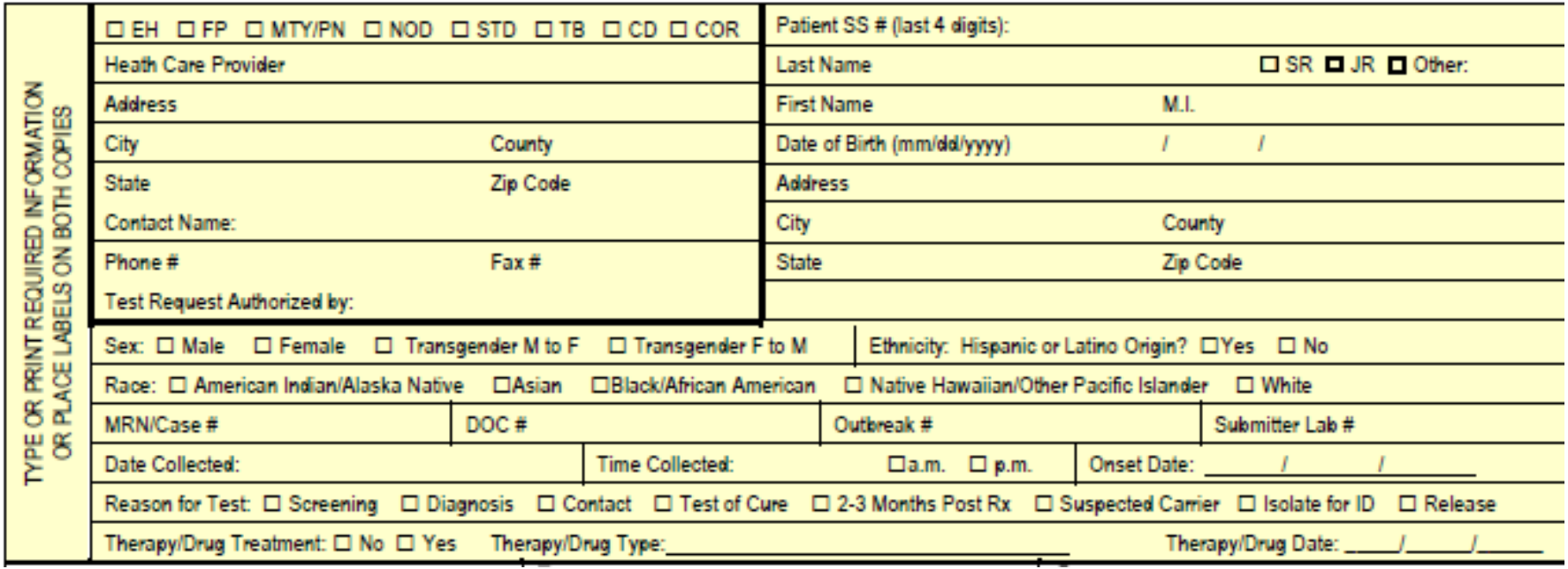
Submitter and patient information



TYPE OR PRINT REQUIRED INFORMATION OR PLACE LABELS ON BOTH COPIES

☐ EH ☐ FP ☐ MTY/PN ☐ NOD ☐ STD ☐ TB ☐ CD ☐ COR

Heath Care Provider

Address

City | County

State | Zip Code

Contact Name:

Phone # | Fax #

Test Request Authorized by:

Patient SS # (last 4 digits):

Last Name ☐ SR ☐ JR ☐ Other:

First Name | M.I.

Date of Birth (mm/dd/yyyy) / /

Address

City | County

State | Zip Code

Sex: ☐ Male ☐ Female ☐ Transgender M to F ☐ Transgender F to M

Ethnicity: Hispanic or Latino Origin? ☐ Yes ☐ No

Race: ☐ American Indian/Alaska Native ☐ Asian ☐ Black/African American ☐ Native Hawaiian/Other Pacific Islander ☐ White

MRN/Case # | DOC # | Outbreak # | Submitter Lab #

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Therapy/Drug Treatment: ☐ No ☐ Yes Therapy/Drug Type:_____ Therapy/Drug Date: ____/____/____

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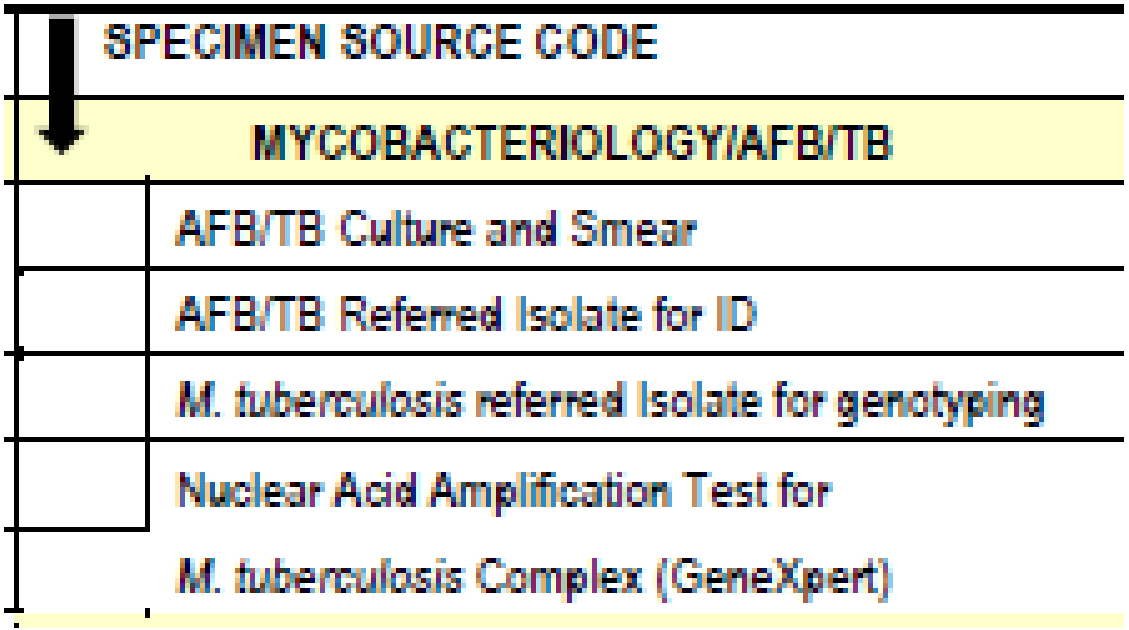
Specimen type

SPECIMEN SOURCE CODES

PLACE CODE IN BOX NEXT TO TEST

B	Blood	SP	Sputum
BW	Bronchial Washing	T	Throat
CSF	Cerebrospinal Fluid	URE	Urethra
CX	Cervix/Endocervix	UFV	Urine (1st Void)
E	Eye	UCC	Urine (Clean Catch)
F	Feces	V	Vagina
N	Nasopharynx/Nasal	W	Wound
P	Penis	O	Other: _____
R	Rectum		_____

Test requested



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Sputum specimens

- First morning specimens are often best.
- 5 mL is the optimum volume.
- Watery specimens may not yield good results.

Other specimen collection considerations:

- Follow specimen collection instructions included with collection kit.
- Check that the patient has collected an appropriate specimen.
- Ensure that tube is closed tightly and properly and that biohazard “ziplock” bag is sealed properly.
- Refrigerate specimens as much as possible during storage/transport.
- Submit to lab ASAP – do not batch!

1 calendar day delivery time goal:

- “Benchmark is receipt within 1 day of specimen collection.”
- Expedite lab testing.
- Disallow for the growth of contaminating organisms.

Contaminated culture

TB Clinical

Microscopy Report — Performed by: M. Plehn — Date: 1/11/16

Fluorochrome - AFB Not Found

Final Culture Report — Performed by: A. Rivera — Date: 1/28/16

Contaminated. Please submit another sample.

Ken Jost – Texas Department of State Health Services

	% of sputum specimens with AFB Culture result:				
transit time (days)	contam	neg	ntm	tb	Total
0	1%	59%	19%	22%	100%
1	2%	70%	8%	20%	100%
2	3%	70%	8%	19%	100%
3	2%	73%	8%	17%	100%
4	3%	74%	8%	15%	100%
5	3%	74%	7%	15%	100%
6	3%	75%	6%	15%	100%
7	5%	72%	8%	15%	100%
8	7%	70%	7%	16%	100%
9	5%	72%	8%	15%	100%
10	6%	74%	7%	14%	100%
>10	8%	71%	7%	14%	100%
NA	2%	74%	12%	11%	100%
Total	3%	73%	8%	17%	100%

Current turnaround times:

2017	2018 YTD	Description of turnaround times (TAT) for initial diagnostic specimens
		1. Promote rapid delivery of specimens. (TAT goal: Specimens should be received in the laboratory within 24 hours of specimen collection.) Report the percent of specimens received within 1, 2, and 3 calendar days.
37	29	% of specimens received within 1 calendar day.
58	56	% of specimens received within 2 calendar days.
79	74	% of specimens received within 3 calendar days.

How can we work together to improve?

- Check lab reports for date collected vs. date received.
- Identify changes to practices or workflow to expedite specimen submission.
- Notify the lab of any ways we may be able to assist.
- Be aware of specimens taking >7 days to arrive in the lab and take steps to prevent.

GeneXpert testing

- Only performed on sputum, bronch wash, trach aspirates, and tissue specimens.
- Liquid abscess drainage or aspirates and swabs not acceptable.
- Automatically performed on smear positive specimens from patients with no known history of TB.
- Testing of smear negative specimens must be requested verbally within 7 days of specimen receipt in the laboratory.

Drug Susceptibility Testing

- Performed automatically on all new isolates of TB.
- Repeated every 3 months if pan sensitive and every 2 months if there is any resistance.
- Second line drugs set up automatically if any resistance to first line drugs is detected.
- Results should be available about 2-3 weeks after culture ID.

Quantiferon

- Proper specimen handling and incubation necessary for accurate results.
- Incubator temperatures must be monitored closely and documented.
- Be aware of tube expiration dates!
- Tubes must be filled to indicated level.

QFT request

RESTRICTED TESTS Pre-approved submitters only	
	Chlamydia trachomatis/GC NAAT
	**Norovirus (See comment on reverse)
	QuantiFERON Incubation: Time began: _____ a.m./p.m. Time ended: _____ a.m./p.m.

QFT labeling

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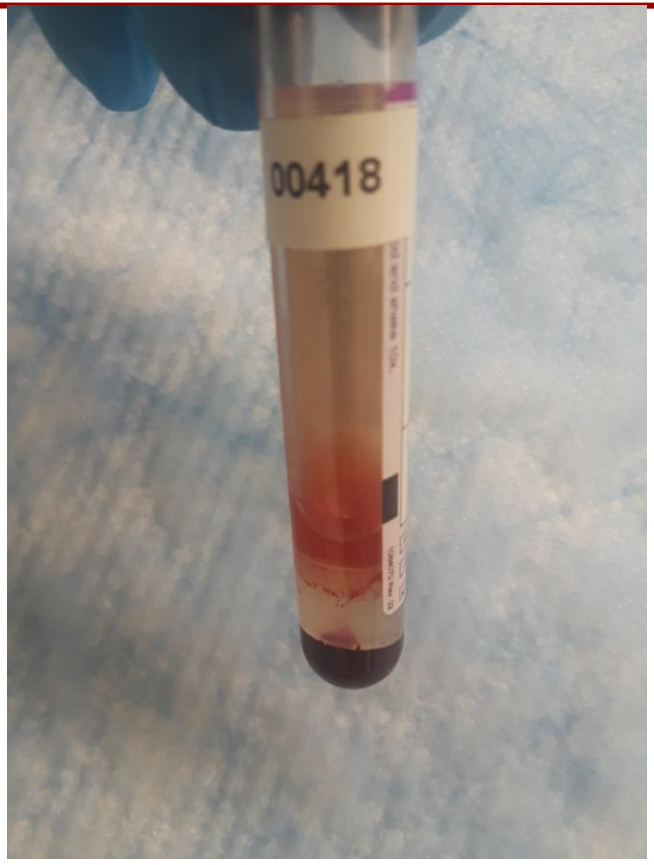
QFT labeling (cont.)



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https://health.maryland.gov/laboratories/Pages/Tuberculosis-(TB)-Laboratory.aspx

HOME DIVISIONS CERTIFICATES OF LICENSURE LABORATORY ADVISORY COMMITTEE

Quick Links

- Lab Hours
- Holiday Schedule
- Influenza Webpage
- Arbovirus Travel-Associated Panel (Zika, Dengue, Chikungunya)
- ARLN Webpage
- Biosafety Outreach for Sentinel Laboratories
- Requests to Access or Update Records
- About the Labs

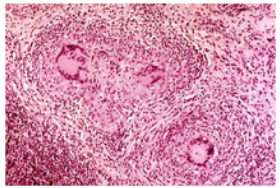
Laboratory Guides

- Guide to Public Health Laboratory Services
- Guide to Environmental Laboratory Services

Laboratory Testing & Order Forms

- Infectious Agents Culture Detection Form and Instructions (Fillable Form)
- Serological Testing Form and Instructions (Fillable

TB/ Mycobacteriology Lab:
443-681-3942



Laboratory Scientist Supervisor:
Rich Oatis
443-681-3944

Laboratory Scientist Lead:
Bryan Burall
443-681-3950

The main focus of our work in the Mycobacteriology Laboratory is to provide testing to aid in the diagnosis and control of TB in the State of Maryland. As a secondary goal, our lab also acts as a reference lab, assisting area hospital labs in the identification of a wide range of mycobacterial species.

Testing offered Monday through Friday includes:

§ *Culture and Smear*: We process a wide range of clinical specimens for AFB smear and culture. All smears are read by Fluorochrome staining with positives confirmed by Kinyoun. Culture is performed in both MGIT broth and Lowenstein-Jensen slants and held for seven (7) weeks incubation.

Microbiology Labs:

- Microbiology Home
- Bioterrorism
- Clinical Microbiology
- Enteric, Diarrheal & Foodborne Diseases
- Gonorrhea(GC)
- Tuberculosis (TB)

Mycobacteriology Menu:

- TB Lab Annoucements
- TB/ Mycobacteriology FAQs
- Sputum Collection Instructions
- Therapeutic Drug Monitoring (TDM) Instructions
- Specimen Collection QA

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Questions?

- TB Lab – (443) 681-3942
- Rich – (443) 681-3944