Peritoneal Dialysis Guideline

Tuberculosis Screening & Follow-Up

Contents

1.0 Scope of Guideline

This guideline provides tuberculosis (TB) screening and follow-up recommendations and procedures for incident (new to dialysis) adult peritoneal dialysis patients.

The guideline is applicable to all new Peritoneal Dialysis (PD) patients attending training at the regional PD outpatient units in British Columbia.

Refer to Appendix 1 for an overview of the TB Screening & Follow-Up Workflow.

2.0 Summary of the Literature & Internet

Tuberculosis (TB) is a disease caused by the bacteria *Mycobacterium tuberculosis* that is spread from person to person through droplets in the air. TB usually affects the lungs, but it can also affect other parts of the body, such as lymph nodes, the brain, kidneys or the spine.

M. tuberculosis can exist in an active or latent state in the human body:

1. Active TB, also called TB disease, is usually symptomatic and often transmissible. With active TB, tests for TB bacteria are usually positive and radiologic tests may be abnormal.
2. Latent TB infection (LTBI), also called TB infection, is the presence of latent or dormant TB bacteria in the body but no evidence of active TB. This means that the person does not have TB symptoms, there is no evidence of radiographic changes consistent with active TB and microbiologic tests are negative. LTBI is not infectious; however, if left untreated, healthy persons diagnosed with LTBI have a 5-10% lifetime risk of progressing to active TB. This percentage increases significantly when additional risk factors exist, such as end-stage kidney disease, with cited relative risks ranging from 7 - 50 times the background incidence (Canadian TB Standards, 7th Edition, 2014).

This guideline provides recommendations aimed at reducing the incidence of active TB in the chronic kidney disease (CKD) population in BC through incident screening and identification and treatment of dialysis patients with LTBI. Treatment of patients with LTBI will reduce the number of active TB cases in the dialysis population, avoiding time and labour-intensive contact follow-up. Fewer active cases will, in turn, reduce transmission of TB within the larger CKD population.

The TB screening program recommended for dialysis patients in this guideline includes 3 components:

1. TB screening questionnaire
2. Chest radiography (x-ray)
3. Interferon Gamma Release Assays (IGRA)
    - IGRAs are immunological tests that are (1) not influenced by prior BCG vaccine or exposure to most nontuberculous mycobacteria; and (2) are more robust that Tuberculin skin Test (TST) in their performance in immunocompromised patients (including those on dialysis) (BCCDC, 2019).
    - The traditional tuberculin skin test (TST) has a high false negative rate (because of a high prevalence of anergy in dialysis patients). The IGRA is reported to be a more sensitive test than the TST in the dialysis population, while offering a comparable level of specificity. (Ferguson, 2014). Further, compared to the TST, the IGRA was associated more strongly with risk factors for LTBI in end-stage kidney disease. (Rogerson, 2013).
    - The sensitivity and specificity of testing varies depending upon the population being tested (BCCDC,2019).
    - There are two types of IGRA tests available in BC: (1) QuantiFERON®-TB Gold Plus® [QFT – Plus] (Enzyme-linked Immunosorbent Assay (ELISA) on whole blood); and (2) T-SPOT® (Enzyme-linked Immunospot Assay on peripheral blood mononuclear cells). These tests

appear to have similar sensitivity and specificity, however, QFT-Plus is easier to use and less expensive. As a result, QFT-Plus is used more often in TB screening of dialysis patients in BC.

3.0 Recommendations

Recommendation #1: Screen the following patients for TB during the initial week of PD training:

1. **All patients who start chronic dialysis (see recommendation #2 for exception)**
2. **Chronic dialysis patients who move to BC from another province/country**

Recommendation #2: Do not rescreen patients previously screened using the BCCDC/BCR screening process (questionnaire, IGRA and chest x-ray) (see recommendation #3 for exception). This includes patients changing treatment types (e.g., PD to HD, transplant to HD, KCC to PD) regardless of the length of time since the initial screening (refer to Procedure section for ways to identify if previous screening was done). The BCCDC/BCR screening process started in 2016.

For patients with a previous documented IGRA test (anytime in the past) but not as part of the 3-component protocol outlined in this guideline:

- Submit the TB screening questionnaire and chest x-ray as per the 3-component protocol.
- Do not repeat the IGRA. Enter the date the IGRA was completed, and the TB Physician will advise if a more recent IGRA is required.

In general, repeat, or serial IGRA testing is not recommended. In certain circumstances, it may be appropriate, most commonly following a known TB exposure. If unclear for a specific case, contact the Nurse Consultants in TB Services (phone: BCCDC, 604.707.5678; Island Health, 250-519.1510).

Recommendation #3: For patients who received dialysis while travelling in a country where TB is endemic:

1. If dialysis **was** for **less than 3 months**, it is not necessary to rescreen for TB. Please be aware that the patient is at higher risk for TB and watch for symptoms.
2. If dialysis was for **longer than 3 months** while travelling in a country where TB is endemic (rate higher than 50/100,000 population):
    - If the baseline IGRA was **negative**, it is recommended that the nephrologist order an IGRA test. If the IGRA result is reactive/positive, refer patient to BCCDC via the usual TB screening process in PROMIS, including completion of the TB screening questionnaire and arranging a chest x-ray.
    - If the baseline IGRA was **positive**:
        - Do not repeat IGRA.
        - If previously treated for latent TB, nothing more is required.
        - If not previously treated for latent TB, complete TB screening questionnaire in PROMIS, arrange chest x-ray and refer to BCCDC via PROMIS. Prophylactic treatment may be rediscussed at this stage.

To identify whether TB is endemic:

- Go to the World Health Organization website (WHO, Data, TB data, TB country, regional and global profiles)
- Go to the green bar at the top of the page and select the country
- Review the "Total TB incidence" rate (first line). If greater than 50/100,000 population, IGRA is recommended.

Recommendation #4: Utilize the BCCDC/BCR 3-component protocol to screen for TB:

1. TB screening questionnaire
2. IGRA blood test: QFT- Plus
3. Chest x-ray within the past 6 months

The TB Screening Tracking Report in PROMIS shows the TB Assessment Date (completion of TB screening questionnaire), chest X-Ray order date, TB IGRA order date and the date that BCCDC was alerted (BCCDC is alerted automatically by PROMIS when the three components are completed).

TB screening questionnaire (see Appendix 2 for example)

This questionnaire is available as a fillable form in PROMIS. Print the questionnaire from PROMIS (demographics will auto populate), discuss the questions with the patient and enter the responses into PROMIS. BC Centre for Disease Control (BCCDC) will have access to the completed questionnaire, along with the results of the IGRA test and chest x-ray, in PROMIS for analysis.

IGRA testing (see Appendix 3 for example of IGRA lab requisition)

The IGRA lab requisition is available in PROMIS (demographics will auto populate). Print the requisition from PROMIS and place with the blood sample prior to sending to the laboratory. BE SURE TO USE THE IGRA LAB REQUSITION IN PROMIS and not the standard lab requisition.

IGRA blood samples may be drawn in any hospital that has been designated (trained and set up) as an *IGRA collection site* by the BCCDC Provincial Health Laboratory.[1] See www.bccdc.ca/resource-gallery/Documents/Educational%20Materials/TB/IGRAsites.pdf (note the restricted days/hours for IGRA blood collection).[1] Pre-analytical processing of samples is performed in any hospital that has been designated (trained and set up) as an *IGRA processing site*. Accurate results rely on specific collection methods and care of samples after the blood draw.

- If the receiving laboratory is a designated *IGRA processing site*:
    - Samples are incubated for 16-24 hours.
    - Samples are centrifuged and the plasma portion pipetted off into new vials.
    - Plasma samples are transported to the BCCDC Public Health Laboratory for analysis.
- If the receiving laboratory is *NOT* a designated *IGRA processing site*:
    - The receiving laboratory packages the samples (insulated so that the samples are maintained at room temperature).

[1] All hospitals with PD units are IGRA collection sites.

- The receiving laboratory transports the samples to a designated IGRA processing site within the HA for processing (Note: samples must be incubated within 16 hours of collection at the designated IGRA processing site).

BCCDC will have access to the results of the IGRA test, along with the completed questionnaire and chest x-ray report, in PROMIS for analysis. The results of the IGRA tests are usually available within 1 week of the sample being drawn.

Chest x-ray (see Appendix 4 for example of chest x-ray requisition)
The chest x-ray requisition is available in PROMIS (demographics will auto populate). Print the requisition and give to the patient. BE SURE TO USE THE CHEST X-RAY REQUSITION IN PROMIS and not the standard radiology requisition.

The patient may have his/her chest x-ray at any hospital medical imaging department. Once the report is available, a copy will be sent by the medical imaging department to the PD unit and to the BCCDC (copy to the BCCDC is noted on the PROMIS requisition). BCCDC will manually upload the report into PROMIS.

If the patient has had a chest x-ray within the past 6 months, a repeat chest-ray is not required. Enter the date the x-ray was completed into PROMIS. BCCDC will manually upload the x-ray report into PROMIS. If this report/image is inconclusive, BCCDC will advise the PD unit to provide the patient with a chest x-ray requisition specific for ruling out TB.

BCCDC will have access in PROMIS to all 3 components of TB screening for analysis - the completed TB screening questionnaire, IGRA test results and the chest x-ray report.

Recommendation #5: If an IGRA result is "indeterminant" or "unsatisfactory," repeat once (if available at your site, consider T-spot instead of a second QFT). If the second result comes back indeterminant or unsatisfactory, do not repeat. The TB physician will review the file and issue a report based on the information available.

Recommendation #6: Once all 3 components in recommendation #4 have been completed, PROMIS will automatically alert BCCDC.

Once BCCDC receives the "Alert" from the renal unit, they will check PROMIS for the completed TB screening questionnaire, the IGRA blood test result and the chest x-ray report. If any of these components are missing one month after the "Alert" was sent, BCCDC will notify the patient's unit. The unit will be responsible for follow-up with the patient. If components are still missing after another 2 months, the incomplete information will be sent to the TB screening physician who will issue a report indicating incomplete results.

If the patient wishes to complete the screening in the future (e.g., when starting the transplant process), the process/referral will need to be started again at that time.

Recommendation #7: After analysis of the results, BCCDC TB Services will issue a report/letter, including recommendations.

BCCDC TB Services will manually upload the report/letter including recommendations, into PROMIS. Reports/letters will be available in PROMIS within 1 month of the three components being received by the BCCDC. To review the report/letter in PROMIS, search for the patient, go to "Documents," then filter by "TB Services Recommendations."

Distribution of the reports/letters and follow-up of results will depend upon the outcome of the testing. See Appendix 5 for an overview of report/letter distribution and follow-up for each type of result. Copies of the reports/letters for different result types are available in Appendix 6.

For Island Health: BCCDC will fax copies of the TB screening questionnaire, IGRA blood test results and the chest x-ray report to the Island Health TB program (BCCDC will also upload a copy of the chest x-ray report into PROMIS). The Island Health TB program will analyze the results and issue a report, including recommendations. The Island Health TB Clinic will alert BCCDC TB Services of the availability of a report in Panorama. BCCDC TB Services will upload the report into PROMIS. The Island Health TB Clinic will follow up on the results with the patient/appropriate care providers.

Recommendation #8: Implement appropriate TB precautions within the PD unit as per follow-up protocols.

LBTI is not infectious, therefore, there are no specific infection control procedures required for patients diagnosed with LTBI. If active TB is identified, local facility infection control procedures should be implemented and reported to BCCDC.

4.0 Procedure

1. Designate a person(s) responsible for TB screening processes and to ensure the process is completed for every new PD patient (e.g., PD nurse, Patient Care Coordinator, unit clerk).

2. Utilize the TB Screening Tracking Report in PROMIS to track new chronic PD patients and the status of each component of TB screening:
    - Go to Reports, TB Screening.
    - Enter the dates of interest (based on start date of chronic dialysis), dialysis type and dialysis or primary management centre.
    - Click on Run.

    The report will show the TB Assessment Date (completion of questionnaire), chest X-Ray order date, IGRA order date and the date that BCCDC was alerted (BCCDC is alerted automatically by PROMIS when the first three components are completed).

3. On admission ensure the following orders are included for new PD patients:
   a. Complete TB screening questionnaire
   b. IGRA blood test (QFT-Plus)
   c. Chest x-ray within past 6 months

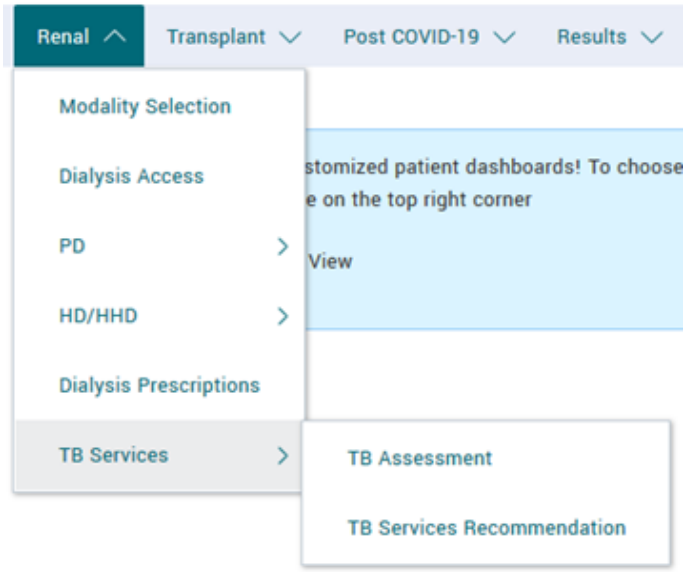
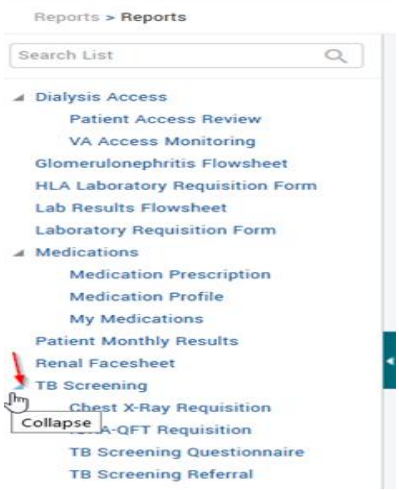
4. Once patient is registered in PROMIS, print the following documents and add to patient record (unless a previous TB screening report is on file):
   a. Auto-populated TB screening questionnaire
   b. Auto-populated Laboratory requisition for IGRA (QFT-Plus) blood test (unless a previous IGRA result is on file)
   c. Auto-populated Chest x-ray requisition (unless a chest x-ray was completed within the previous 6 months)

   *It is important to use the forms in PROMIS that are auto-populated. DO NOT USE STANDARD LAB REQUISITIONS/CHEST X-RAY FORMS.

Procedure

Component		Action	Responsibility
1	Check for previous IGRA/TB screening report	Check if patient previously screened for TB using the BCCDC/BCR screening process (questionnaire, IGRA and chest x-ray). If so, screening does not need to be repeated. To check for previous TB screening: • On PROMIS 4, go to Renal > TB Assessment • If the TB Screening Questionnaire Summary is blank, TB screening was not previously completed • If there is a pre-existing TB Screening Questionnaire, click to open • Click on or scroll down to TB Services Completes to see if there has been a TB physician review To view the TB physician narrative report: • On PROMIS 4, go to Documents, filter by TB Services Recommendation • TB Physician/Nurse Practitioner narratives are also automatically uploaded to CareConnect under Documents	RN/Unit Clerk

2	TB screening questionnaire
	
	See Appendix 2
		After patient is registered in PROMIS, prepare questionnaire:
		• Search for patient.
		• Under Renal menu, select TB Services.
		• Under TB Assessment tab, select Add:
		  • Enter assessment date.
		  • Check Population at Risk checkbox.
		  • Select Renal TB screening as the Reason for Screening.
		  • Under Risk Factors, check Chronic Renal Disease/Dialysis.
		• Click Save.
			Unit Clerk

Component		Action	Responsibility
	TB screening questionnaire cont'd		
		Print questionnaire from PROMIS: • Select Reports menu (same line as Renal menu).  • Select arrow next to TB Screening to view list of reports. • Select TB Screening Questionnaire. • Select Assessment Date entered above. • Select Run Report. • Print TB Screening Questionnaire and place in patient's record. 	Unit Clerk
		Fill out Questionnaire with patient information.	RN

Component		Action	Responsibility
	TB screening questionnaire cont'd	Enter completed Questionnaire into PROMIS: • Search for patient. • Under Renal menu, select TB Services. • Under TB Assessment tab, select record with the corresponding Assessment Date. • Select pencil icon next to Nurse Completes to edit the record. • Enter information (from completed Questionnaire). • Select Save. Discard hard copy of Questionnaire once entered into PROMIS	Unit Clerk
3	IGRA (QFT-Plus) blood test See Appendix 3	Check Care Connect/PROMIS for previous IGRA test. If none, print lab requisition from PROMIS: • Search for patient. • Select Reports Menu (same row as the Renal menu). • Select arrow next to TB Screening to view list of reports. • Select IGRA QFT Requisition. **Note: Primary nephrologist will show as the ordering physician – do not change.** • Select Run Report. • Print requisition and provide to RN.	Unit Clerk
		Give requisition to patient & ask to take to lab or request lab staff come to PD unit (check with local laboratory as to limitations on days that IGRA samples can be collected). If lab staff coming to PD unit, call to inform them of IGRA test. Special blood collection and handling techniques are required.	RN/Unit clerk
		Document that patient was provided the requisition (or lab collected blood sample) or date a previous IGRA test was completed in PROMIS: • Search for patient. • Under Renal menu, select TB Services. • Under TB Assessment tab, select the record with the corresponding Assessment Date. • Select pencil icon next to Nurse Completes to edit the record. • Under IGRA test section, check IGRA Test QFT checkbox and enter IGRA Order Date. • Click Save.	RN/Unit Clerk
4	Chest x-ray See Appendix 4	Check Care Connect for chest x-ray performed in past 6 months. If none, print requisition from PROMIS: • Search for patient. • Select Reports Menu (same row as the Renal menu). • Select arrow next to TB Screening to view a list of reports. • Select Chest X-Ray Requisition. **Note: Primary nephrologist will show as the ordering physician – do not change.** • Under Management Centre, select PD Clinic	Unit Clerk

Component		Action	Responsibility
	Chest x-ray cont'd	• Under Unit, select PD unit • Select Run Report • Print requisition & give to patient. Instruct patient to have chest x-ray done at a hospital medical imaging department during PD training week.	
		Document that patient was provided the requisition or had a chest x-ray completed within the past 6 months in PROMIS: • Search for patient. • Under Renal menu, select TB Services. • Under TB Assessment tab, select the record with the corresponding Assessment Date. • Select pencil icon next to Nurse Completes to edit the record. • Under Chest X-Ray section, enter Order Date. • Click Save. BCCDC will review results and upload into PROMIS.	Unit Clerk
5	BCCDC will be notified	Once all 3 components have been completed, PROMIS will automatically alert BCCDC.	PROMIS

BCCDC contact for questions: TB Services, phone: 604-707-5678 or tbnurseconsultants@bccdc.ca. For Island Health, call 250.519.1510.

5.0 References

BC Centre for Disease Control (BCCDC). TB Manual: Interferon gamma release assay testing guideline for latent tuberculosis infection: Physician guidelines. www.bccdc.ca/resource-gallery/Documents/Communicable-Disease-Manual/Chapter%204%20-%20TB/TB_manual_IGRA_guidelines.pdf (July 2021). Accessed Nov 1, 2022.

BC Centre for Disease Control (BCCDC). (2019). Communicable Disease Control Manual, Chapter 4: Tuberculosis. www.bccdc.ca/health-professionals/clinical-resources/communicable-disease-control-manual/tuberculosis. Accessed Nov 1, 2022.

BC Centre for Disease Control (BCCDC). TB screening decision support tool - Non-certified practice. www.bccdc.ca/resource-gallery/Documents/Communicable-Disease-Manual/Chapter%204%20-%20TB/4.0b%20TB%20Screening%20DST.pdf. Oct 2019. Accessed Nov 1, 2022.

Public Health Agency of Canada, The Lung Association and Canadian Thoracic Society. Canadian Tuberculosis Standards, 7th Edition, 2014. https://cts-sct.ca/wp-content/uploads/2018/01/Canadian-Tuberculosis-Standards_7th-edition_Complete.pdf.. Accessed Nov 1, 2022.

Ferguson, TW et. al. (2014). The diagnostic accuracy of tests for latent tuberculosis infection in hemodialysis patients: A systematic review and meta-analysis, *Transplantation*, Oct 3 (Epub). http://www.ncbi.nlm.nih.gov/pubmed/25286055. Accessed Nov 1, 2022.

Rogerson, TE et. al. (2013). Tests for latent tuberculosis in people with ESRD: A systematic review. *Am J Kidney Dis*, 61(1): 33-43. http://www.ncbi.nlm.nih.gov/pubmed/23068425. Accessed Nov 1, 2022.

6.0 Sponsors

Original version (2015) developed by:

- A working group of representative groups of renal clinicians and directors/managers, BC laboratories, BCCDC TB Services, Island TB Clinic and BC Renal (BCR)

Original version (2015) approved by:

- BCR Peritoneal Dialysis Committee
- BCR Medical Advisory Committee
- Provincial Committee for Implementation of TB Screening for Dialysis Patients (BCR/BCCDC, BC Public Health Microbiology and Reference Lab)

Update in 2019 reviewed by:

- Representatives from Zoonotic Diseases & Emerging Pathogens Laboratory, BCCDC Public Health Laboratory (Team Lead & Technical Coordinator)
- BCPRA Hemodialysis Committee (Sept 11, 2019 – discussed but not reviewed)

In 2022, the 2019 version was adapted and updated to incorporate Kidney Care Clinic (KCC) patients referred for transplant. The 2022 update was completed in collaboration with representatives from the BC Centre for Disease Control, PROMIS Team and the BC Renal Kidney Care, PD and HD Committees.

In 2024, the 2022 version was updated following a review of various details of testing with BCCDC. The changes were summarized in a memo sent out in January 2024.

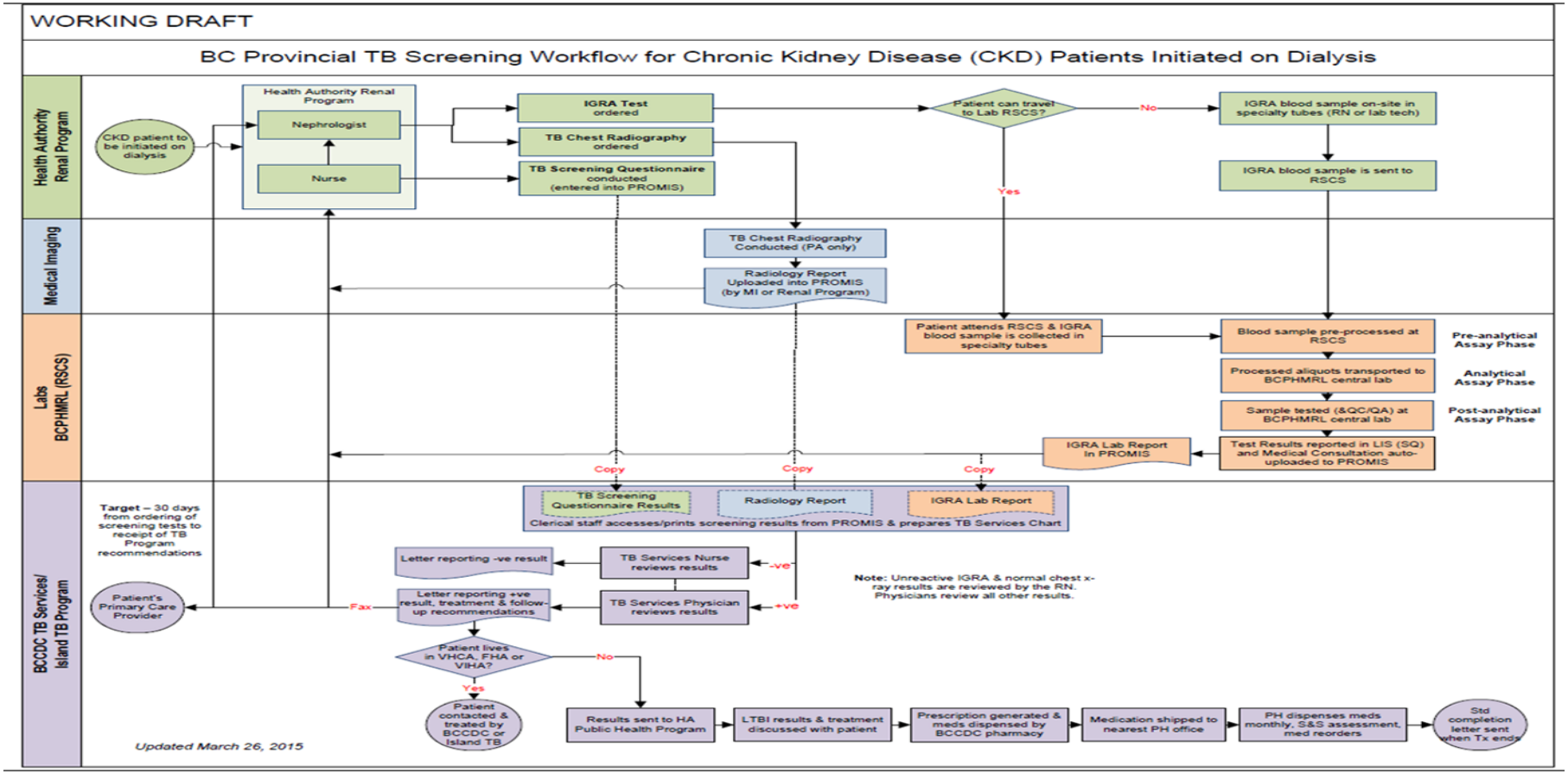
7.0 Appendices

Appendix 1: TB Screening Workflow for Renal Patients
Appendix 2: TB Screening Questionnaire (printed from PROMIS)
Appendix 3: IGRA Lab Requisition (printed from PROMIS)
Appendix 4: Chest X-Ray Requisition (printed from PROMIS)
Appendix 5: Distribution of Reports/Letters & Follow up of Results
Appendix 6: Samples of Follow- up Reports/Letters for Different Results:

- Letter 1: Non-Reactive IGRA Results
- Letter 2: Reactive IGRA Results (Latent TB infection)

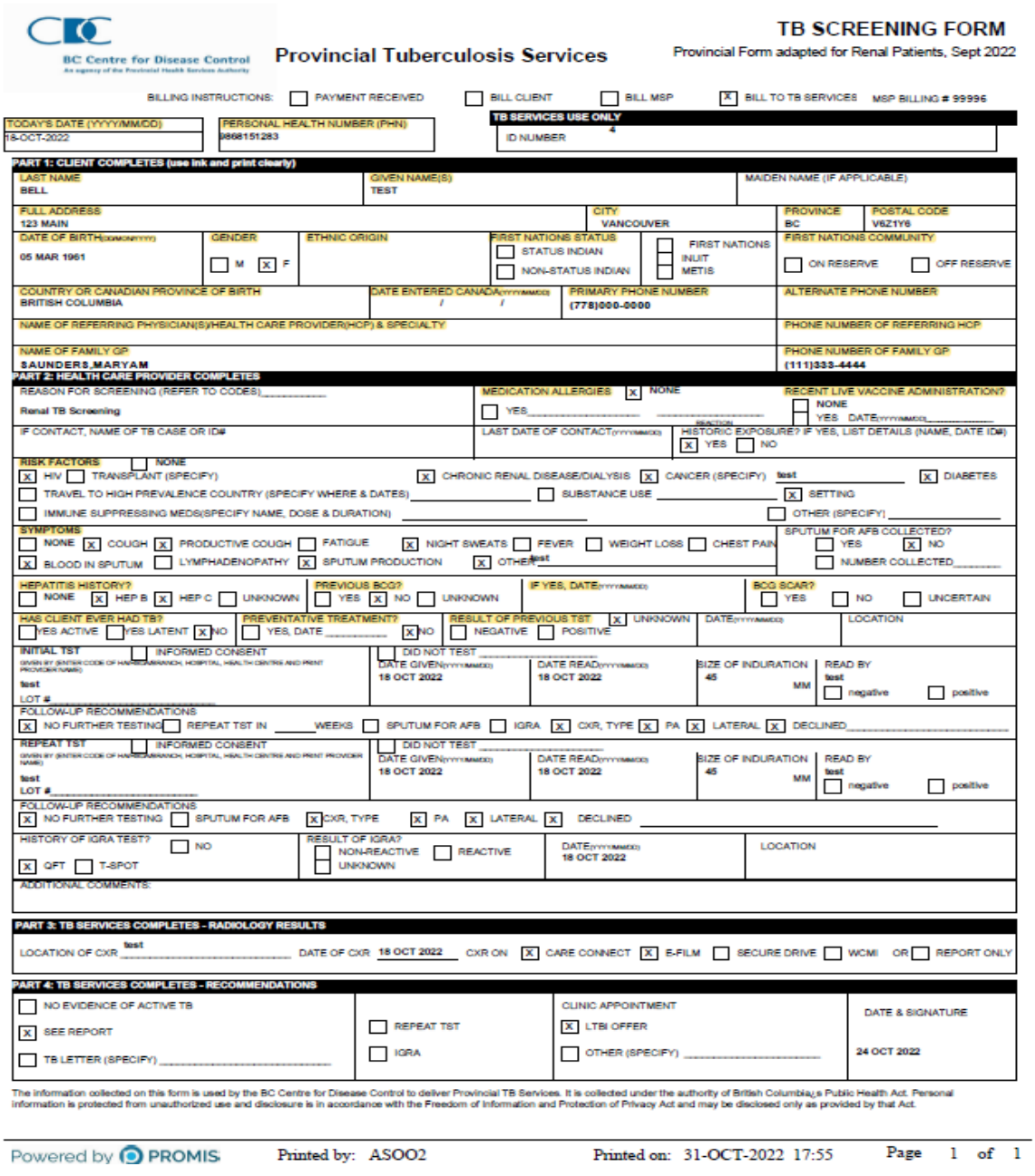
Appendix 1: BC TB Screening Workflow for Renal Patients

This workflow applies to patients starting on dialysis (hemodialysis and peritoneal dialysis and patients attending Kidney Care Clinics referred for transplant.



Appendix 2: TB Screening Questionnaire in PROMIS

1. Please complete all sections highlighted in yellow (unless pre-populated with correct information).
2. Reason for screening: Provincial Renal TB Screening.



BC Centre for Disease Control
An agency of the Provincial Health Services Authority

Provincial Tuberculosis Services

TB SCREENING FORM
Provincial Form adapted for Renal Patients, Sept 2022

BILLING INSTRUCTIONS: ☐ PAYMENT RECEIVED ☐ BILL CLIENT ☐ BILL MSP ☒ BILL TO TB SERVICES MSP BILLING # 99996

TODAY'S DATE (YYYY/MM/DD)	PERSONAL HEALTH NUMBER (PHN)	TB SERVICES USE ONLY ID NUMBER
18-OCT-2022	9868151283	4

PART 1: CLIENT COMPLETES (use ink and print clearly)

LAST NAME	GIVEN NAME(S)	MAIDEN NAME (IF APPLICABLE)
BELL	TEST	

FULL ADDRESS	CITY	PROVINCE	POSTAL CODE
123 MAIN	VANCOUVER	BC	V6Z1Y6

DATE OF BIRTH (DD/MON/YYYY)	GENDER	ETHNIC ORIGIN	FIRST NATIONS STATUS		FIRST NATIONS COMMUNITY
05 MAR 1961	☐ M ☒ F		☐ STATUS INDIAN ☐ NON-STATUS INDIAN	☐ FIRST NATIONS ☐ INUIT ☐ METIS	☐ ON RESERVE ☐ OFF RESERVE

COUNTRY OR CANADIAN PROVINCE OF BIRTH	DATE ENTERED CANADA (YYYY/MM/DD)	PRIMARY PHONE NUMBER	ALTERNATE PHONE NUMBER
BRITISH COLUMBIA	/ /	(778)000-0000	

NAME OF REFERRING PHYSICIAN(S)/HEALTH CARE PROVIDER(HCP) & SPECIALTY	PHONE NUMBER OF REFERRING HCP

NAME OF FAMILY GP	PHONE NUMBER OF FAMILY GP
SAUNDERS,MARYAM	(111)333-4444

PART 2: HEALTH CARE PROVIDER COMPLETES

REASON FOR SCREENING (REFER TO CODES)	MEDICATION ALLERGIES	RECENT LIVE VACCINE ADMINISTRATION?
Renal TB Screening	☒ NONE ☐ YES _____ REACTION _____	☐ NONE ☐ YES DATE (YYYY/MM/DD) _____

IF CONTACT, NAME OF TB CASE OR ID#	LAST DATE OF CONTACT (YYYY/MM/DD)	HISTORIC EXPOSURE? IF YES, LIST DETAILS (NAME, DATE ID#)
		☒ YES ☐ NO

RISK FACTORS ☐ NONE
☒ HIV ☐ TRANSPLANT (SPECIFY) ☒ CHRONIC RENAL DISEASE/DIALYSIS ☒ CANCER (SPECIFY) test ☒ DIABETES
☐ TRAVEL TO HIGH PREVALENCE COUNTRY (SPECIFY WHERE & DATES) _____ ☐ SUBSTANCE USE _____ ☒ SETTING
☐ IMMUNE SUPPRESSING MEDS(SPECIFY NAME, DOSE & DURATION) _____ ☐ OTHER (SPECIFY) _____

SYMPTOMS
☐ NONE ☒ COUGH ☒ PRODUCTIVE COUGH ☐ FATIGUE ☒ NIGHT SWEATS ☐ FEVER ☐ WEIGHT LOSS ☐ CHEST PAIN
☒ BLOOD IN SPUTUM ☐ LYMPHADENOPATHY ☒ SPUTUM PRODUCTION ☒ OTHER test

SPUTUM FOR AFB COLLECTED? ☐ YES ☒ NO ☐ NUMBER COLLECTED _____

HEPATITIS HISTORY?	PREVIOUS BCG?	IF YES, DATE (YYYY/MM/DD)	BCG SCAR?
☐ NONE ☒ HEP B ☒ HEP C ☐ UNKNOWN	☐ YES ☒ NO ☐ UNKNOWN		☐ YES ☐ NO ☐ UNCERTAIN

HAS CLIENT EVER HAD TB?	PREVENTATIVE TREATMENT?	RESULT OF PREVIOUS TST	DATE (YYYY/MM/DD)	LOCATION
☐ YES ACTIVE ☐ YES LATENT ☒ NO	☐ YES, DATE _____ ☒ NO	☐ NEGATIVE ☐ POSITIVE ☒ UNKNOWN		

INITIAL TST					
☐ INFORMED CONSENT (GIVEN BY (ENTER CODE OF HA/REGION/BRANCH, HOSPITAL, HEALTH CENTRE AND PRINT PROVIDER NAME))	☐ DID NOT TEST _____	DATE GIVEN (YYYY/MM/DD)	DATE READ (YYYY/MM/DD)	SIZE OF INDURATION	READ BY
test LOT # _____		18 OCT 2022	18 OCT 2022	45 MM	test ☐ negative ☐ positive

FOLLOW-UP RECOMMENDATIONS
☒ NO FURTHER TESTING ☐ REPEAT TST IN _____ WEEKS ☐ SPUTUM FOR AFB ☐ IGRA ☒ CXR, TYPE ☒ PA ☒ LATERAL ☒ DECLINED _____

REPEAT TST					
☐ INFORMED CONSENT (GIVEN BY (ENTER CODE OF HA/REGION/BRANCH, HOSPITAL, HEALTH CENTRE AND PRINT PROVIDER NAME))	☐ DID NOT TEST _____	DATE GIVEN (YYYY/MM/DD)	DATE READ (YYYY/MM/DD)	SIZE OF INDURATION	READ BY
test LOT # _____		18 OCT 2022	18 OCT 2022	45 MM	test ☐ negative ☐ positive

FOLLOW-UP RECOMMENDATIONS
☒ NO FURTHER TESTING ☐ SPUTUM FOR AFB ☒ CXR, TYPE ☒ PA ☒ LATERAL ☒ DECLINED _____

HISTORY OF IGRA TEST?	RESULT OF IGRA?	DATE (YYYY/MM/DD)	LOCATION
☐ NO ☒ QFT ☐ T-SPOT	☐ NON-REACTIVE ☐ REACTIVE ☐ UNKNOWN	18 OCT 2022	

ADDITIONAL COMMENTS:

PART 3: TB SERVICES COMPLETES - RADIOLOGY RESULTS

LOCATION OF CXR test DATE OF CXR 18 OCT 2022 CXR ON ☒ CARE CONNECT ☒ E-FILM ☐ SECURE DRIVE ☐ WCMI OR ☐ REPORT ONLY

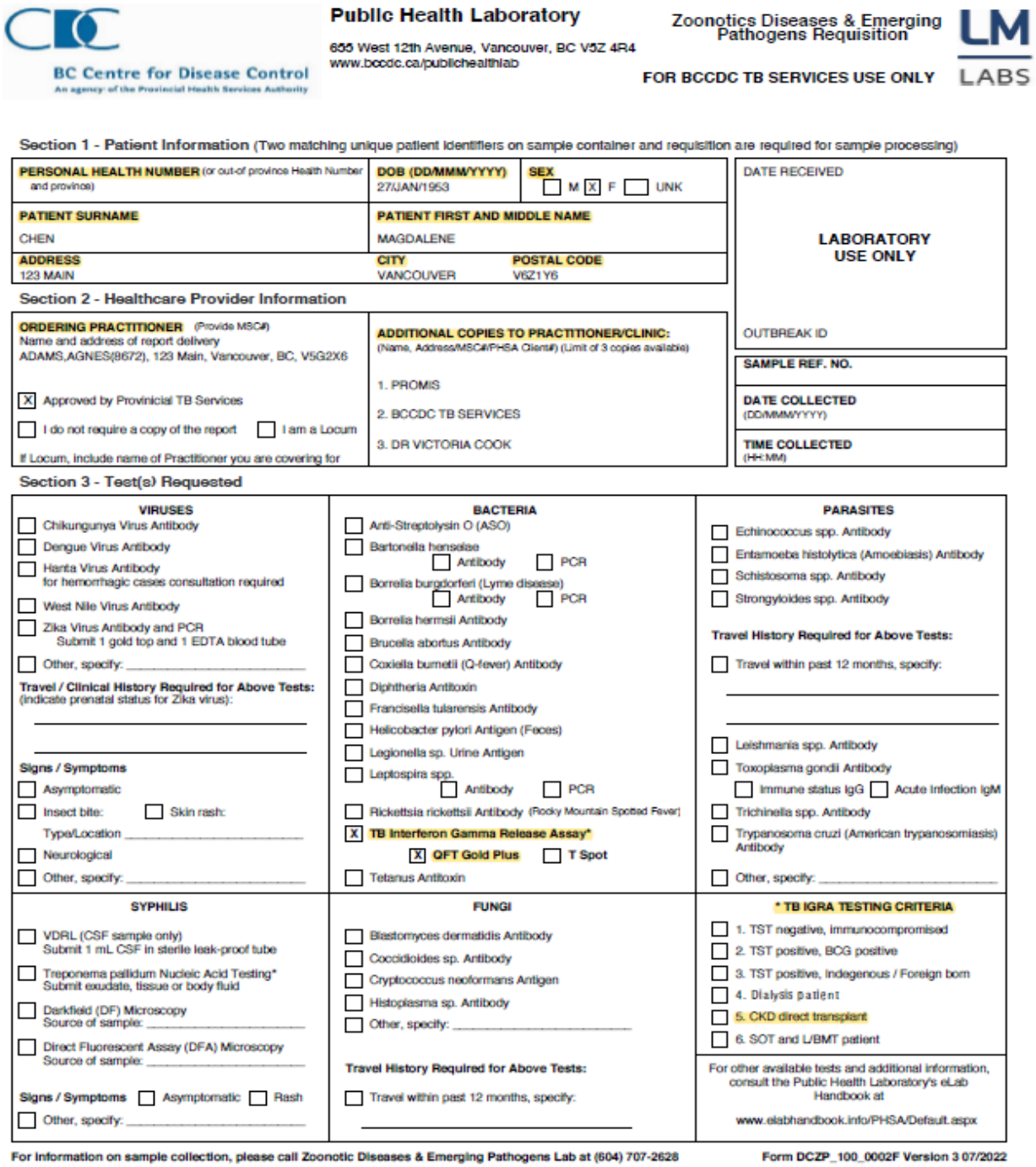
PART 4: TB SERVICES COMPLETES - RECOMMENDATIONS

☐ NO EVIDENCE OF ACTIVE TB		CLINIC APPOINTMENT	DATE & SIGNATURE
☒ SEE REPORT	☐ REPEAT TST	☒ LTBI OFFER	
☐ TB LETTER (SPECIFY) _____	☐ IGRA	☐ OTHER (SPECIFY) _____	24 OCT 2022

The information collected on this form is used by the BC Centre for Disease Control to deliver Provincial TB Services. It is collected under the authority of British Columbia's Public Health Act. Personal information is protected from unauthorized use and disclosure is in accordance with the Freedom of Information and Protection of Privacy Act and may be disclosed only as provided by that Act.

Powered by PROMIS Printed by: ASOO2 Printed on: 31-OCT-2022 17:55 Page 1 of 1

Appendix 3: IGRA Lab Requisition in PROMIS



BC Centre for Disease Control
An agency of the Provincial Health Services Authority

Public Health Laboratory
655 West 12th Avenue, Vancouver, BC V5Z 4R4
www.bccdc.ca/publichealthlab

Zoonotics Diseases & Emerging Pathogens Requisition

FOR BCCDC TB SERVICES USE ONLY

LM LABS

Section 1 - Patient Information (Two matching unique patient identifiers on sample container and requisition are required for sample processing)

PERSONAL HEALTH NUMBER (or out-of province Health Number and province)	DOB (DD/MMM/YYYY)	SEX
	27/JAN/1953	☐ M ☒ F ☐ UNK
PATIENT SURNAME	**PATIENT FIRST AND MIDDLE NAME**	
CHEN	MAGDALENE	
ADDRESS	**CITY**	**POSTAL CODE**
123 MAIN	VANCOUVER	V6Z1Y6

DATE RECEIVED

LABORATORY USE ONLY

OUTBREAK ID

SAMPLE REF. NO.

DATE COLLECTED (DD/MMM/YYYY)

TIME COLLECTED (HH:MM)

Section 2 - Healthcare Provider Information

ORDERING PRACTITIONER (Provide MSC#)
Name and address of report delivery
ADAMS,AGNES(8672), 123 Main, Vancouver, BC, V5G2X6

☒ Approved by Provinicial TB Services

☐ I do not require a copy of the report ☐ I am a Locum

If Locum, include name of Practitioner you are covering for

ADDITIONAL COPIES TO PRACTITIONER/CLINIC:
(Name, Address/MSC#/PHSA Client#) (Limit of 3 copies available)

1. PROMIS
2. BCCDC TB SERVICES
3. DR VICTORIA COOK

Section 3 - Test(s) Requested

VIRUSES
- ☐ Chikungunya Virus Antibody
- ☐ Dengue Virus Antibody
- ☐ Hanta Virus Antibody for hemorrhagic cases consultation required
- ☐ West Nile Virus Antibody
- ☐ Zika Virus Antibody and PCR Submit 1 gold top and 1 EDTA blood tube
- ☐ Other, specify: _____

Travel / Clinical History Required for Above Tests: (indicate prenatal status for Zika virus):

_____

_____

Signs / Symptoms
- ☐ Asymptomatic
- ☐ Insect bite: ☐ Skin rash:
  Type/Location _____
- ☐ Neurological
- ☐ Other, specify: _____

BACTERIA
- ☐ Anti-Streptolysin O (ASO)
- ☐ Bartonella henselae ☐ Antibody ☐ PCR
- ☐ Borrelia burgdorferi (Lyme disease) ☐ Antibody ☐ PCR
- ☐ Borrelia hermsii Antibody
- ☐ Brucella abortus Antibody
- ☐ Coxiella burnetii (Q-fever) Antibody
- ☐ Diphtheria Antitoxin
- ☐ Francisella tularensis Antibody
- ☐ Helicobacter pylori Antigen (Feces)
- ☐ Legionella sp. Urine Antigen
- ☐ Leptospira spp. ☐ Antibody ☐ PCR
- ☐ Rickettsia rickettsii Antibody (Rocky Mountain Spotted Fever)
- ☒ **TB Interferon Gamma Release Assay*** ☒ **QFT Gold Plus** ☐ **T Spot**
- ☐ Tetanus Antitoxin

PARASITES
- ☐ Echinococcus spp. Antibody
- ☐ Entamoeba histolytica (Amoebiasis) Antibody
- ☐ Schistosoma spp. Antibody
- ☐ Strongyloides spp. Antibody

Travel History Required for Above Tests:
- ☐ Travel within past 12 months, specify:

_____

_____
- ☐ Leishmania spp. Antibody
- ☐ Toxoplasma gondii Antibody ☐ Immune status IgG ☐ Acute infection IgM
- ☐ Trichinella spp. Antibody
- ☐ Trypanosoma cruzi (American trypanosomiasis) Antibody
- ☐ Other, specify: _____

SYPHILIS
- ☐ VDRL (CSF sample only) Submit 1 mL CSF in sterile leak-proof tube
- ☐ Treponema pallidum Nucleic Acid Testing* Submit exudate, tissue or body fluid
- ☐ Darkfield (DF) Microscopy Source of sample: _____
- ☐ Direct Fluorescent Assay (DFA) Microscopy Source of sample: _____

Signs / Symptoms ☐ Asymptomatic ☐ Rash
- ☐ Other, specify: _____

FUNGI
- ☐ Blastomyces dermatidis Antibody
- ☐ Coccidioides sp. Antibody
- ☐ Cryptococcus neoformans Antigen
- ☐ Histoplasma sp. Antibody
- ☐ Other, specify: _____

Travel History Required for Above Tests:
- ☐ Travel within past 12 months, specify:

_____

*** TB IGRA TESTING CRITERIA**
- ☐ 1. TST negative, immunocompromised
- ☐ 2. TST positive, BCG positive
- ☐ 3. TST positive, Indegenous / Foreign born
- ☐ 4. Dialysis patient
- ☐ 5. CKD direct transplant
- ☐ 6. SOT and L/BMT patient

For other available tests and additional information, consult the Public Health Laboratory's eLab Handbook at

www.elabhandbook.info/PHSA/Default.aspx

For information on sample collection, please call Zoonotic Diseases & Emerging Pathogens Lab at (604) 707-2628

Form DCZP_100_0002F Version 3 07/2022

Powered by PROMIS Printed by: KRITHIKAU Printed on: 25-OCT-2022 03:58 Page 1 of 3

Appendix 4: Chest X-Ray Requisition in PROMIS

Provincial Health Services Authority
Province-wide solutions. Better health.

MSP billing number: 99996

Chest X-Ray Requisition

Patient Information

Name: CHEN, MAGDALENE DOB: 27-JAN-1953

PHN: 9870983905 Phone: 250-585-8596

Address: 123 MAIN, VANCOUVER, BC, V6Z1Y6

Date 02-NOV-2022

Ordering Physician:
ADAMS, AGNES - 8672

Vancouver Hospital And H.S.C.

Hemodialysis Unit

Additional Copies to:
BCCDC TB Services, Dr Victoria Cook

Chest X-Ray Exam Reason

- **Exam Requested: Chest**
  - ☒ Posterior anterior (PA) ☒ Lateral ☐ Other, Specify: _____
- **Exam Reason:**
  - ☐ TB Contact
  - ☒ TB Screening
  - ☐ Rule Out Active TB
    - ☐ Symptoms
  - ☐ Repeat CXR
    - ☐ On Treatment
      - ☐ Active
      - ☐ Latent
    - ☐ End of Treatment
      - ☐ Active
      - ☐ Latent
    - ☐ Surveillance
      - ☐ Immigration
      - ☐ Other, Specify: _____

Respiratory Precautions Required: ☐ YES ☐ NO

For Radiology Use Only

BC CENTRE FOR DISEASE CONTROL TUBERCULOSIS SERVICES

655 West 12th Avenue
Vancouver, BC
V5Z 4R4

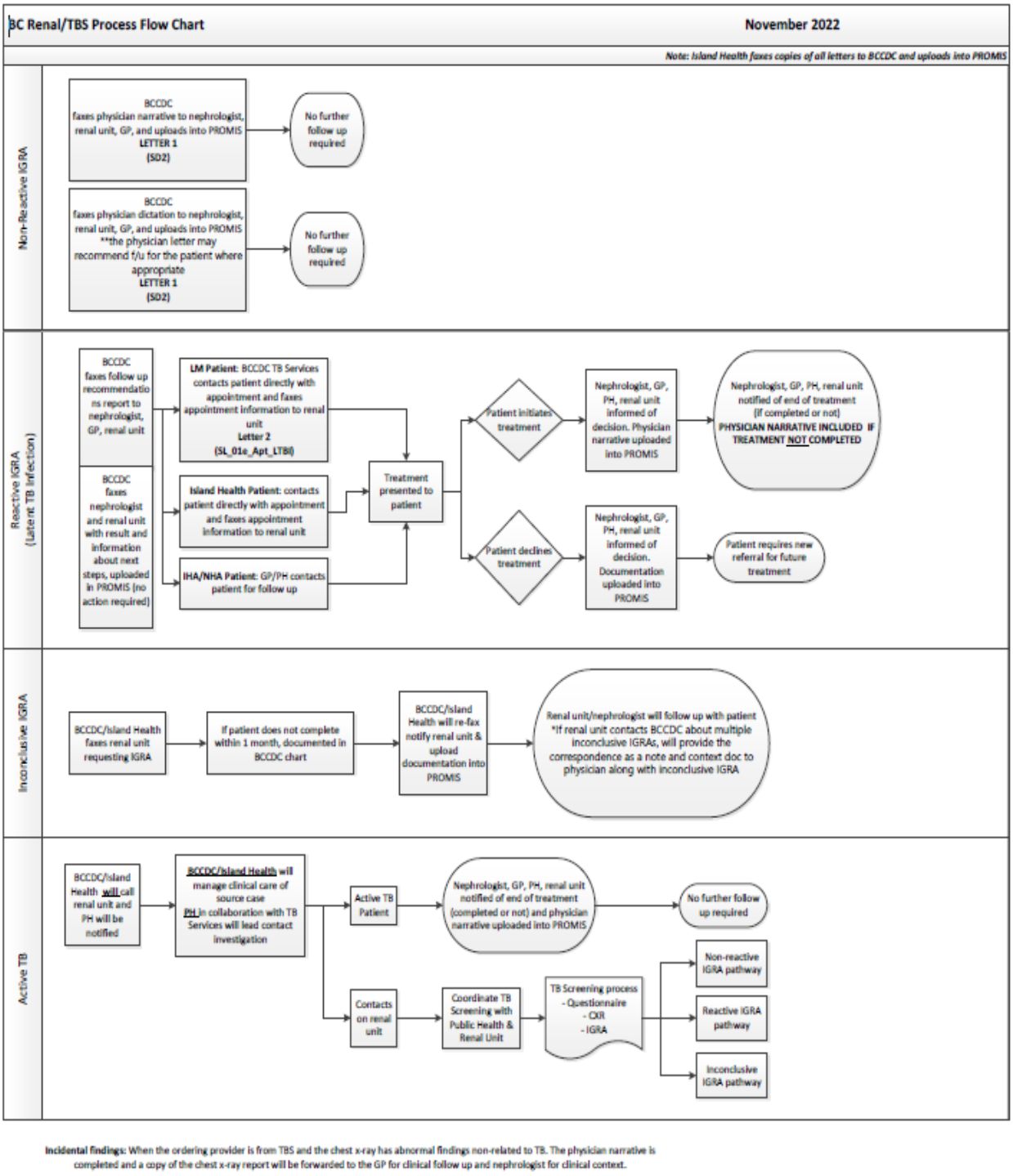
IF PHN NOT VALID

- ☐ Bill Client
- ☐ Invoice TB Services

BC Centre for Disease Control · First Nations Health Authority · fraserhealth · Interior Health · island health · northern health · Vancouver Coastal Health

Powered by PROMIS Printed by: KRITHIKAU Printed on: 02-NOV-2022 10:11 Page 1 of 3

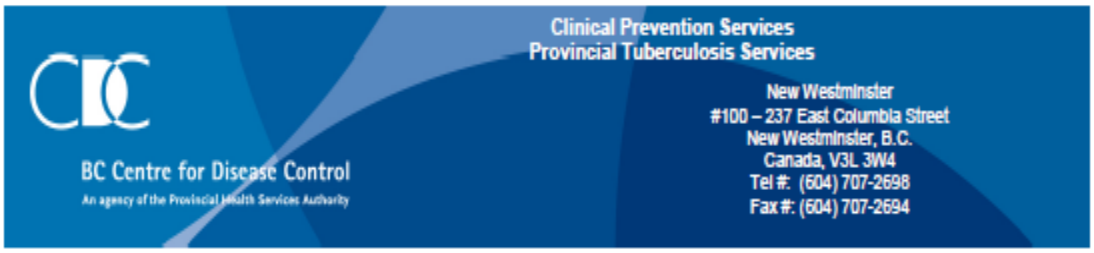
Appendix 5: Distribution of Reports/Letters & Follow Up of Results



Incidental findings: When the ordering provider is from TBS and the chest x-ray has abnormal findings non-related to TB. The physician narrative is completed and a copy of the chest x-ray report will be forwarded to the GP for clinical follow up and nephrologist for clinical context.

Appendix 6: Samples of Follow-Up Reports/Letters

Letter 1: Non-Reactive IGRA Results



TB Screening for this patient was completed.

From the information provided, there is no evidence of TB exposure, infection or disease.

This patient is cleared for TB screening purposes. If the TB Screening Form was initiated prior to immune-suppressing treatments or transplant, these treatments may proceed without delay. Please note that IGRA screening is not required if changing to a new biological product, if changing dose or if adding supplementary agents.

Further testing or treatment for TB infection is not recommended at this time. Reassessment would be in accordance with disease specific protocols, if symptoms develop or at the discretion of a physician.

Letter 1 (SD2)

Letter 2: Reactive IGRA Results (Latent TB Infection)

This letter applies to Lower Mainland Patients only.

Month Day, Year

Attn Pt Full Name
c/o Pt Address

Re Appointment

Dear Pt First Name:

Screening tests show that you ***may*** have sleeping or dormant TB germs in your body. This is called latent TB infection (LTBI). We'd like to talk to you about options for keeping you healthy.

To learn more, please read the LTBI fact sheet (enclosed) and watch the TB germ video www.bccdc.ca/TBVideos (available in English, Korean, Mandarin, Punjabi, Tagalog and Vietnamese).

Your appointment is on **Appt Date at Appt Time**.

NEW WESTMINSTER TB CLINIC
100 237 EAST COLUMBIA
NEW WESTMINSTER, BC V3L 3W4
(604) 707-2698

Please note that this appointment is by:

- ☐ Video
- ☐ Telephone (Please call our clinic to confirm your phone number before your appointment)
- ☐ In person (Please come 15 minutes early to check-in)

If you would like to talk to us another time, please call us at the number above.

Sincerely,
TB Services

Provincial TB Services, Clinical Prevention Services
BC Centre for Disease Control

SL1e

To learn more about tuberculosis (TB), please watch the TB germ video www.bccdc.ca/TBVideos (available in English, Korean, Mandarin, Punjabi, Tagalog and Vietnamese).

Provincial Health Services Authority
Province-wide solutions. Better health.

A research and teaching centre affiliated with UBC