

PERITONEAL TB

CASE REVIEW

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Introduction

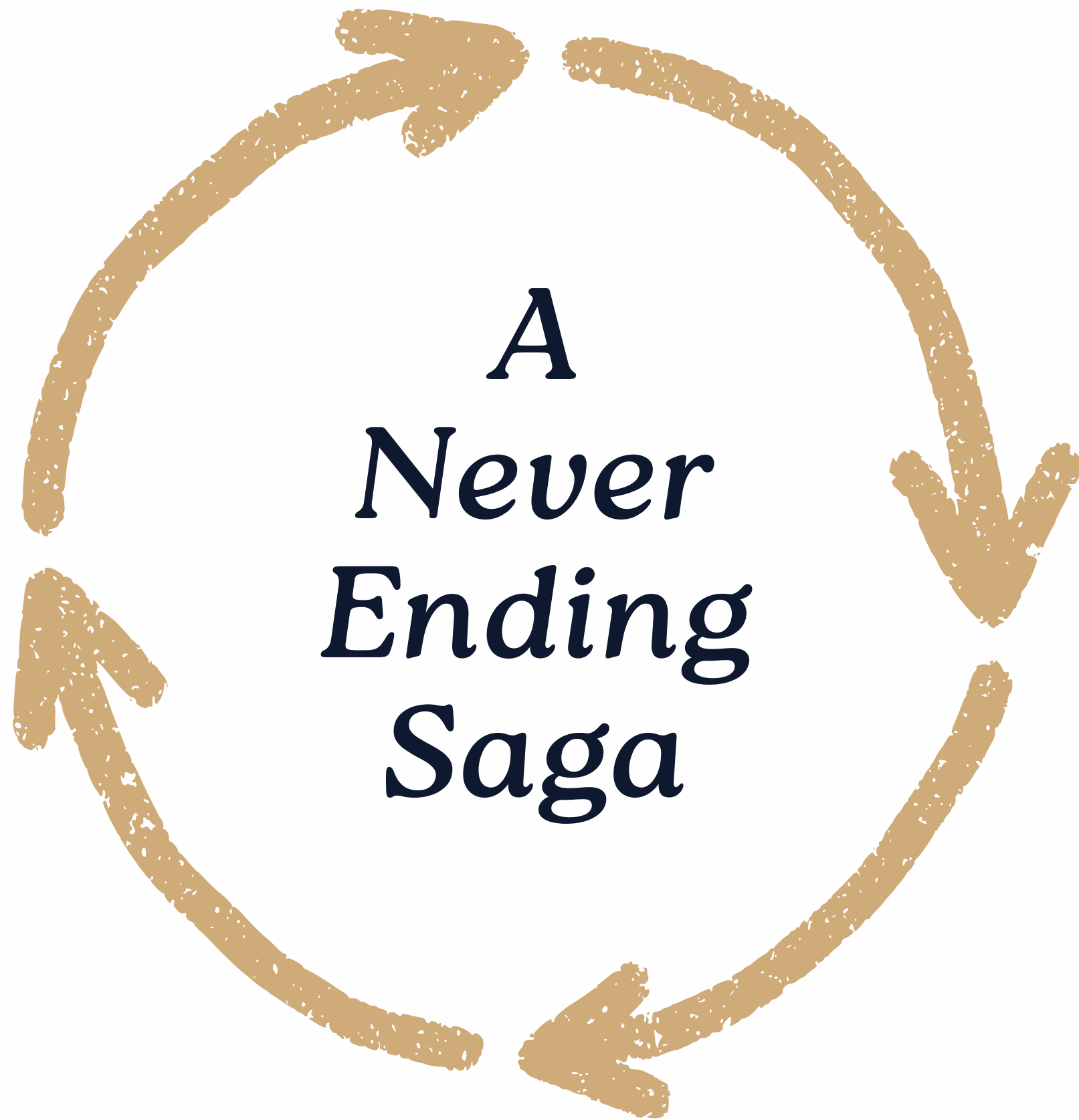
As TB Case Managers we all have stories to share. Each are unique, different scenerios, different circumstances but all with the same goal: To beat TB.

I would like to thank our local Infectious Disease Physicans, Wisconsin State TB program staff, and medical consultant, Dr. Misch for their guidance.



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**A
Never
Ending
Saga**



Chapters

1. First Encounter
2. Second Attempt
3. Three Times the Charm
4. Are We There Yet



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First Encounter



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Initial Referral



CALIFORNIA

- June 2022: Notification from San Diego CA
 - 22 yr old Hispanic male with lower abdominal pain, fever, chills, night sweats for 3 weeks, and recent 30 lb weight loss
 - CXR pleural thickening and possible nodules
 - Pleural & Peritoneal fluid - TB-PCR positive
 - Sputum smear negative x3, cultures pending
 - Frequent travel to Mexico
 - Started on standard HRZE 6/7/2022
 - Upon hospital discharge will be moving to WI



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Initial Encounter

- June 2022: Phone Call
 - Discharged from CA hospital with 30 day supply TB medication
 - No medical records sent with
 - Additional information obtained
 - IGRA 5/31/2022 Indeterminate
 - DX with bilateral DVT & RUL Pulmonary Emboli in CA
 - US born
 - Treatment plan reviewed
- June 29 2022: Office Visit - admitted to Local Hospital
 - Hypoxic during ambulation low 80's
 - Paracentesis/thoracentesis attempted
 - Discharged 7/1/2022
 - 115 lbs (18.67 BMI)
 - INH 300 mg, Rifampin 600 mg, Pyrazinamide 1250 mg, Ethambutol 800 mg



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July 2022

- Home Visit
 - Standard TB treatment plan & DOT agreements signed
 - DOT visits arranged
 - Developed severe nausea, loss of appetite, and abdominal pain
 - TB medications held
- Hospitalized July 20 - 22
 - CT very large right sided pleural effusion compromising 50-75% of right chest cavity with significant atelectasis
 - Finding consistent with Pertoneal TB
 - Elevated Labs
 - LFT's
 - Alk phos (628)
 - TBIL (4.5)
- “Drug Holiday” until labs improve



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August - October 2022

- August 18: Medications resumed one at a time in the following order:
 - RIF, INH, PZA, and EMB
- Culture result received from CA: *Mycobacterium bovis*
- Late August/September limited genotypic results
 - rpoB no amplification
 - inhA no mutation detected
 - katG no mutation detected
 - fabG1 no mutation detected,
 - Phenotypic results PZA - resistant, MXF susceptible
- September 15: All TB Meds resumed & officially restarted treatment
- Continued to improve
- End of October, full phenotypic report available
 - INH, RIF, EMB all susceptible, PZA resistant (expected due to *M. bovis*)
 - All other medications listed by CDC were susceptible



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November & December 2022

- Returned to work full time
- VDOT arranged for his convenience
- Starting to miss VDOTs, resumed DOTs
- November 28: last day of contact
 - Many phone calls, text messages, attempted FaceTime
 - Messages left on parents and siblings phone to contact me
 - Mom feels terrible he is not responding or taking medication
 - Dad keeps telling him to call
- Client canceled upcoming provider appointments
- Provider attempted to contact with no response
- December: finally spoke directly with client, now feeling well and no longer wants to take TB medication due to great improvement in symptoms



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Trivia Time

What interventions would you implement at this point?

- A. Provide education on treatment failure and relapse, risk for pulmonary or infectious TB, and the Health Department's authority to require isolation.
- B. Educate on signs and symptoms to self-monitor and document the education.
- C. Provide contact info. for Health Department and provider in the event that symptoms were to return.
- D. Add education and notes for future providers and public health staff that if client presents in future that: sputum collection, CXR, and provider evaluation are warranted promptly.
- E. Encourage client to follow with his current ID team and if seeking care elsewhere encourage providing history of prior incomplete treatment for TB.



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Last Contact 2023

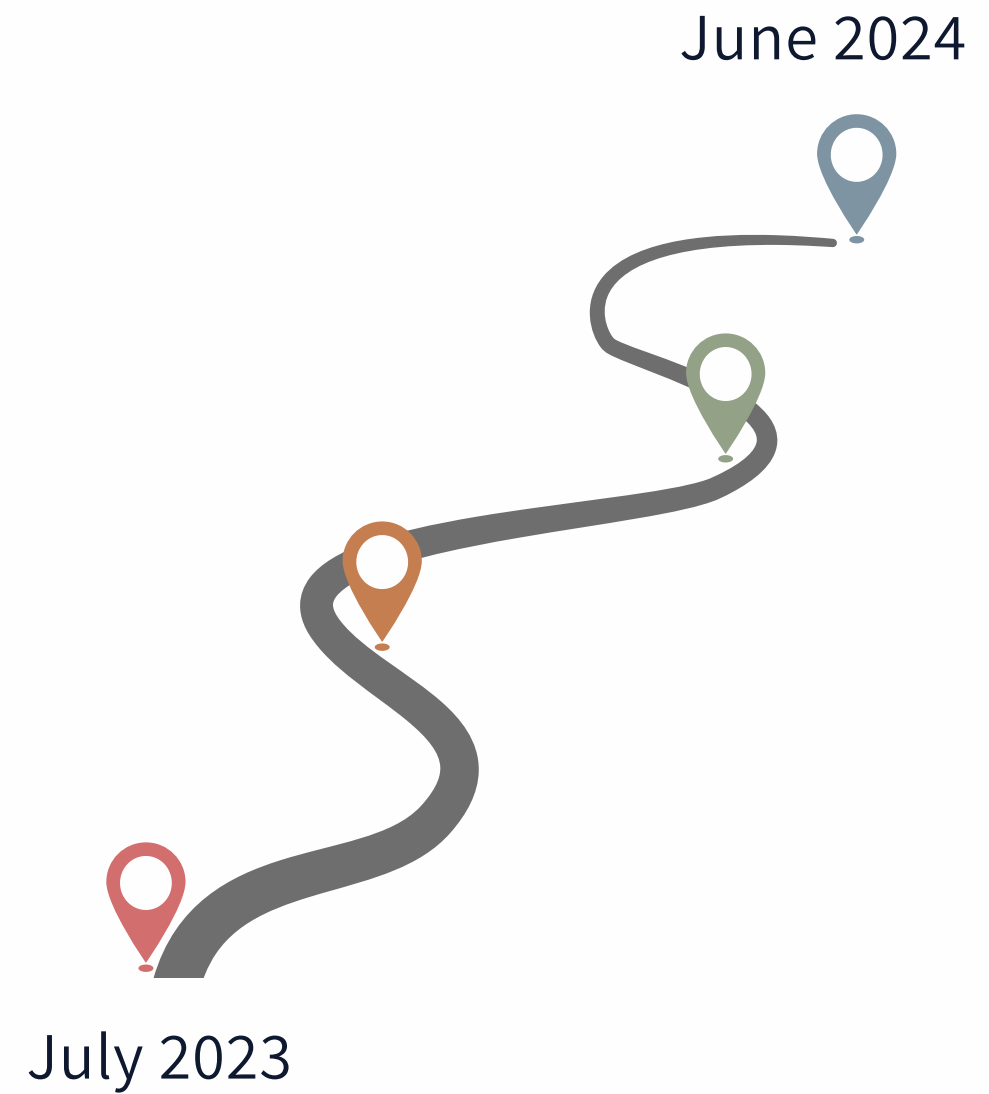
- January 2023
 - No clinical or microbiologic signs of infectiousness to implement respiratory isolation and restrictions to encourage continued treatment
 - Continue to provide education on importance of continuing the medication & possible outcomes if did not continue
 - Attempted to address side effects and inconvenience of DOT via incentives & enablers, VDOT, changing schedule of medication administration. Client not interested in pursuing any of these options
 - Recommended repeat CT Scan and sputum collection attempts
 - Provided letter regarding incomplete treatment & summary
 - Directed to inform PHN & Provider if any s/s of TB & did not complete previous treatment
- May 2023
 - Text messages with client
 - Doing well, feels good, working nights
 - Recommended to contact provider for follow up and CT Scan



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Second Attempt



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24/7 Support

July 2023: Phone call

- Lost about 10 pounds
- No appetite
- Stomach pains
- Same symptoms
- “My TB is back”
- Not as bad as first time



So....



- Sputum collected
 - AFB smears negative
 - Cultures subsequently negative
- Recommended repeat peritoneal specimen collection, repeat CXR, no peritoneal fluid was present that could be sampled per surgical consult
- Attempted re-collection for assessment of TB susceptibility prior to restarting treatment unsuccessful



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Treatment Restarted

- Importance of medication and treatment reinforced
- TB treatment agreement attempted; refused this time
- DOT in home until client felt well enough to meet outside his home and then he preferred to come to Health Department
- INH, RIF, EMB restarted at previous dose
- Treatment INH (300 mg) & RIF (600 mg) x 9 months, EMB (800 MG) X 2 months



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November No Shows



- Started a new job working nights
- Does not want to come in once home from work or be woken up for visit
- Requesting VDOT, agreement signed on Nov. 20
- Arrangements to call when he wakes up from his first nap & eats
- Client motivated to complete therapy in full this time, expressed understanding of TB relapse and importance of completing treatment plan



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Winter Blues



- Several VDOTs missed in Dec. & Jan.
- Switched back to DOT during the week & SAT weekends/holidays
- Job change/returned to school



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Cute Companions



Treatment Complete

- March - mid April: gradually switched back from all DOT to VDOT during the week and SAT weekends/holiday
- Late April: VDOT during work week with one weekly DOT
- May 28: c/o Constipation
- May 30, 2024: Round 2 treatment complete
 - INH & RIF 9 months and EMB 2 months
- May 31: Radiology showed fecal material and air in colon
- Plan to follow closely with ID provider post treatment completion



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Third Time's a Charm



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Unhappy & Frustrated

- July
 - Phone call not feeling well, no appetite, cough, fever,
 - Hospitalized for one week
 - Extensive testing including BAL, bone marrow, gastric fluid, blood, urine, stool
 - CT did not suggest lung or pleural infection
 - QFT positive
- August
 - Endoscopic ultrasound retroperitoneal lymph node biopsy
 - Treatment to restart
 - Readmitted for bowel obstruction, fever, and malnutrition
 - Exploratory laparoscopy with small bowel resection
 - Right and left pleural effusions with thoracentesis



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Round 3

- Hospitalized 8/17/2024 - 10/1/2024
- Pathology specimen with numerous AFB
- Primary specimen had been discarded, attempted to locate formalin fixed tissue block
- Retroperitoneal LN FNA smear negative, PCR positive, sent to CDC for MDDR
- Gastric aspirate collected smear positive PCR positive
- Receiving TPN, provider reports client's condition rapidly deteriorating, initiated ordering BPALM but currently NPO due to bowel obstruction
- Started IV Bridge regimen
- CDC MDDR report:
 - rpob mutationi detected
 - inhA mutation detected
 - pncA mutation detected

Rifampin (RIF)

RIF interpretation
rpoB*

Comments and Disclaimers

* DTBE Reference Laboratory has transitioned from the E. coli to the M. tuberculosis numbering system for reporting rpoB gene mutations.

Result

Ser450Leu

Interpretation

RIF resistant

Isoniazid (INH)

INH interpretation
inhA
fabG1
katG

Result

C-15T
No mutation
No mutation

Interpretation

INH resistant

Ethambutol (EMB)

EMB interpretation
embB

Result

No mutation

Interpretation

Cannot rule out EMB resistance.

Pyrazinamide (PZA)

PZA interpretation
pncA

Result

His57Asp

Interpretation

PZA resistant. The His57Asp mutation is common to M. bovis/BCG.

Fluoroquinolones (FQ)

FQ interpretation
gyrA
gyrB

Result

No mutation
No mutation

Interpretation

Cannot rule out FQ resistance.



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Trivia Time

What might have caused the newly discovered drug resistance when the patient's specimen was retested?

- A. Low drug levels of HRE due to site of disease.
- B. Patient may not have been taking medications consistently and may have missed more doses than were known.
- C. Treatment stoppage after initial few months of treatment.
- D. A and B.
- E. All of the above probably contributed in some way.



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“Hospitalitis”

- Discharge planning meetings
- All medications gradually switched to oral
- BPLaM started in hospital 9/18/2024, initially ordered for standard duration of 26 weeks
- “*M. bovis* identified again via genotyping at CDC, only match available in the database is one specimen, the patient's initial specimen. Likely recurrence of prior disease with new resistance conferring mutations now present.”
- Monthly therapeutic drug monitoring and EKG arranged

RESULT	VALUE
TB GENOTYPING LINEAGE	Bovis



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BPaLM Challenges



- Paperwork
- Intake form
- Prior authorizations
- Insurance coordination
- Medication supply
- Coordinating different medication from pharmacies
- Obtaining TDM levels from out-of-state laboratory

Prescription Order

FAX TO: 615-312-9903
MMS Phone: 855-691-0963 (toll free); 615-312-9888 (local)

Date: _____	Facility Name: _____
PO#: _____	Metro Account #: _____
Patient Last Name: _____	Facility Phone: _____
Patient First Name: _____	Facility Fax: _____
Patient Date of Birth: _____	Facility Address: _____
Patient Phone: _____	Facility City, ST, Zip: _____
Patient Address: _____	
Patient City, ST, Zip: _____	

***Orders cannot be shipped directly to Patient
**All orders must be shipped to the Prescriber address or Facility/Site of Care Address

Drug Allergies: _____

ITEM #	MEDICATION	QTY	DIRECTIONS FOR USE
	Sirturo 100mg tabs (NDC:59676-0701-01)		
Other	_____	_____	_____
Other	_____	_____	_____
Other	_____	_____	_____
Other	_____	_____	_____

Patient Assistance Program (PAP) Application

TO BE COMPLETED BY THE HEALTHCARE PROFESSIONAL (HCP)—all information is required.

1 Prescription for SIRTURO® (bedaquiline) Tablets

Patient Name: _____

ICD Code: M. tuberculosis / resistant Name of Product: SIRTURO

Strength: 100mg Sig: 4 tabs po qday x 2 weeks then 2 tabs po 3x per week x 24 wks

Quantity: 68 Days Supply: 26 wks Number of Refills (maximum): 4

List any patient allergies: _____ or NKDA

None

List patient's current medications: _____ or none

Nitrofurantoin, Rifampin, Ethambutol, Isoniazid, Tylenol, Zolpidem, Valium, Gabapentin

If you are a prescriber in New York, you must attach prescription on your state official prescription form with this application.
The prescriber is responsible for ensuring the prescription complies with their state-specific prescription requirements, such as e-prescribing, state-specific prescription form, or fax language. Noncompliance with state-specific requirements could result in outreach to the prescriber.
The prescriber is responsible for providing a separate prescription to the pharmacy.

2 HCP Information:

Name: _____

State Contact: _____

Winter Blues Return



- Doing well until late December
- Increase in LFT's & Alk. Phos.
- UW Madison Hepatology consult
- Nausea continues
- Eventually affect more positive
- Medication readjusted based upon TDM's
 - Moxifloxacin to 600 mg daily
 - Linezolid decreased frequency to 600 mg three times a week from daily



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Renewed Hope

- Full time job
- Appetite improved
- Continued TDM monthly for entirety of treatment and demonstrated adequate dosing of BPaLM
- Active
- Last day BPaLM: 10/6/2025 total of 55 weeks via DOT
- Post treatment plan to include
 - Surveillance abdominal CT's at 6, 12, & 24 months post treatment completion
 - Monthly (at minimum) symptom monitoring with Case Manager
 - Infectious Disease follow up office visits at regular intervals until 2 years post treatment

Are We There Yet



Follow-up Continues

- 11/21/2025 CT scan
- December missed medical appointment
- Not responding to phone calls & messages



Round 4?



- Report from client not gaining more weight
- No appetite, forces himself to eat
- Client worried TB is coming back and wants to forget the last few years of his life “lost 3 summers to TB”
- Dad called, not eating, “getting skinny again”, and acts like he did before when he got TB



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Reassurance

- CT scan done
- Medical office visit with Infectious Disease
- No TB, results stable
- Father and client relieved
- Returned to school 1/26/2026
- Continue to connect every 2-3 weeks
- Doing well and active but not gaining weight



QUESTIONS



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