Texas Department of State Health Services
TB Medication Availability Notice

Isoniazid (INH) stock remains low at the DSHS Pharmacy. Please adhere to these criteria ***until otherwise instructed*** *by the DSHS Tuberculosis and Hansen's Disease Unit.*

INH may ONLY be used for these priority groups (Updated 5/30/2023):

- Patients with fluoroquinolone (FQN) resistance (moxifloxacin, levofloxacin).
- Pregnant women.
- Children under the age of 10 years.
- Patients in whom a consultation from a DSHS Recognized TB Medical Consultant approves the use of INH.

All other eligible patients currently on isoniazid will need an alternate regimen outlined in this document. Refer to page 5 for current availability of rifampin and other drugs.

Patients with Known/Suspected TB Disease:

- **New Patients with Known/Suspected TB Disease:**
  - Do not start new patients on INH; refer to Table 1.
  - Treat with rifampin (RIF), ethambutol (EMB), pyrazinamide (PZA), and a FQN when indicated.
    - In these regimens, EMB and PZA are not discontinued.
    - If PZA is not tolerated, it may be reduced to two months if using Option 1.

Table 1: INH-Alternate Regimens for TB Disease

Options	Regimen	Duration	Notes
Option 1	RIF, EMB, PZA, and a FQN	Daily 6-9* months	• Moxifloxacin (MFX) is the preferred FQN • If the patient is intolerant to MFX, levofloxacin (LFX) may be substituted • If PZA is not tolerated for at least 40 doses (M-F dosing), extend to 9 months of RIF/EMB/FQN • Ensure vision monitoring, as EMB is used for duration (refer to DSHS SDOs) • Do not use this regimen if there is evidence of rifampin resistance. If so, seek consultation
Option 2	RIF, EMB, PZA	Daily 6-9* months	• **Seek consultation prior to using this regimen** • Consider this option only if FQN-resistant or intolerant • Ensure vision monitoring, as EMB is used for duration (refer to DSHS SDOs)

**Considerations to extend therapy to 9 months include: treating extensive disease (i.e., cavitation at 2 months, slow conversion of AFB smears, slow conversion of AFB cultures beyond two months), and/or when PZA cannot be used for the full initial phase in Option 1.*

- **Existing Patients with TB Disease:**

Patients who recently started the **initial phase** on all 4 drugs (RIPE) while DSTs are pending

- Discontinue INH and substitute MFX (can substitute LFX if necessary).
- Treat them the same as **Option 1.**
- They will remain on RIF/EMB/PZA, and the FQN daily for 6-9 months.
  - Do not discontinue EMB or PZA.
  - If PZA was not tolerated for at least 40 doses, continue RIF/EMB/FQN for 9 months.
  - Consider consultation if RIF/EMB/FQN is not tolerated.

Patients in the **continuation phase**, currently on INH/RIF

- **If isolate was susceptible to a FQN, do the following:**
  - Discontinue INH and substitute MFX (can substitute LFX if necessary); the FQN is a 1:1 substitution for INH.
  - Treat with the FQN/RIF daily for 6 -9 months as originally planned.
  - If there is concern about extensive disease, minimal symptomatic improvement, etc., consider seeking consultation.

- **If isolate was resistant to a FQN:**
  - Continue INH.

For patients with culture negative TB, clinical TB

- Discontinue INH and substitute MFX (can substitute LFX if necessary).
- They will remain on RIF/EMB/PZA, and the FQN daily for 4-6 months.
  - Do not discontinue EMB or PZA.
  - If they do not tolerate PZA after the initial phase/40 doses, it may be discontinued, and they will remain on RIF/EMB/FQN for remainder of therapy.
  - Seek consultation if any drug is not tolerated.

Table 2: Fluoroquinolone Dosing

Fluoroquinolone	Typical Adult Dosing	Pediatric Dosing
Moxifloxacin	≥ 40kgs: 400 mg PO daily	**10-15 mg/kgs** ≥ 27 kgs: 400mg
Levofloxacin	40 – 55 kgs: 750 mg PO daily 56 – >70 kgs: 1,000 mg PO daily Renal failure/dialysis: 750–1000 mg/dose, 3 times weekly (not daily) for creatinine clearance <30ml/min; strongly consider moxifloxacin	**15-20mg/kg** ≥ 37.5 kg: 750 mg daily

Reference: http://sentinel-project.org/wp-content/uploads/2022/03/DRTB-Field-Guide-2021_v5.pdf

Latent Tuberculosis Infection (LTBI), Including Window Prophylaxis

- Do not start new patients on INH.
- Consider suspending targeted testing activities until INH regimens are available:
  - Exceptions: continue to test targeted immigrant groups (i.e., Uniting for Ukraine, newly arrived immigrants, other parolees, etc.), patients with HIV, transplant, or TNF alpha inhibitor patients.

➢ New Patients with LTBI, Window Prophylaxis:

- Do not start on INH.
- May use a rifamycin or FQN; refer to Table 3.

Table 3. Tiered Regimens for LTBI, Window Prophylaxis During INH Shortage

Tier 1	Tier 2	Tier 3
4 Months Rifampin (4R)	**4 Months Rifabutin (RBT)**	**6 Months MFX or LFX**

• Rifampin duration is 4 months, 120 doses, for TB infection regimens	• Duration/total doses:4 months, 120 doses
	• Consider for patients with significant drug-drug interactions with rifampin, including those who:
	  ○ are taking protease inhibitors (PIs) and/or nonnucleoside reverse transcriptase inhibitors (NNRTIs)
	  ▪ *check for drug interactions of any antiretroviral prior to using RBT;*
	  ○ are transplant recipients;
	  ○ are taking methadone; and/or
	  ○ have a sensitivity/intolerance to rifampin.
	• Review drug/drug interactions and consider comorbidities impacting renal function prior to RBT; consider consultation if needed.
	Dosing:
	Pediatric dosing is 5mg/kg/day
	• < 30kg = Do not use without a consult
	• Children ≥ 30kg can take 150mg
	• Children ≥ 60kg can take 300mg
	Adult dosing
	• 300 mg daily
		• By consultation only

➢ Existing Patients with Latent TB Infection (LTBI) Already on Isoniazid:

If 3HP** has been started, the following applies:

- Patient will need to switch to RIF or RBT (Tiers 1 or 2, above)
- For each month of 3HP administered, credit can be given towards a four-month rifamycin regimen

- *Example: If the patient completed two months of 3HP (8 doses total), they may complete their LTBI regimen with two additional months of daily RIF. This totals 4 months.*
- Reminder: 3HP can be completed at 11 doses if the 12th dose in not available.

If a 6–9-month INH monotherapy regimen was started, switch to a rifamycin unless contraindicated:

- If patient has taken > 3months of INH, continue remaining months of RIF or RBT to complete 6 months total.
- If patient has taken < 3 months of INH, restart with RIF or RBT for a full 4 months.

If INH monotherapy was started and a rifamycin is contraindicated, substitute INH with a FQN to complete six months total:

- The FQN is a 1:1 substitution with INH.
- This should be considered only if a rifamycin can't be used.

If 3HR** was started:

- Replace INH with MFX (or LFX) and continue treatment to completion.

*** 3HP = 3 months of once weekly dosing of isoniazid and rifapentine (12 doses).*
3HR= 3 months of isoniazid and rifampin, given daily.

Coordinating FQN DSTs With the Laboratory

DSHS Austin Laboratory

- Verify that drug susceptibility testing for FQN was not done (some reference laboratories used by DSHS during the 10/2022 – 1/2023 laboratory renovation performed moxifloxacin DSTs. In this case you may not need additional DSTs).
- If specimen was not tested for FQN DSTs, do the following:
  1) Make a list of all patients who need to switch from INH to a FQN.
  2) Send one email to the DSHS Austin Laboratory contacts:
     - Include Patient's Name/DOB; and
     - Include AMRF, AMRC, or AMCC number, if available.

NOTE: DSHS Laboratory keeps most viable TB isolates for several years. Turnaround time for ofloxacin DST is approximately 3 weeks, depending on quality of sample.

External Laboratories

- Contact DSHS Laboratory to determine if patient's isolate has been retained at the laboratory.
  - Many laboratories send isolates to DSHS Laboratory for DSTs.
  - All TB isolates are required to be submitted to the state lab for genotyping.
  - DSHS Laboratory mycobacteriology team will provide guidance on next steps if necessary.

Lab contacts: jan.owen@dshs.texas.gov; copy benjamin.alpers@dshs.texas.gov

Additional Guidance During the INH Shortage

- If INH is discontinued, ensure pyridoxine (Vitamin B6) is also discontinued.
- For any change in regimen, ensure the patient signs a new medication consent form and that monthly toxicity monitoring is modified according to the regimen/drug.
- Review any drug/drug interactions prior to using anti-TB medications. Suggested resources include https://www.drugs.com/drug_interactions.html and *Tuberculosis Medication Drug and Food Interactions*, published by Heartland National TB Center (HNTC).
- **For pregnant patients:** FQN use is safe in pregnancy. When necessary, communicate with obstetricians if there is a concern of FQN use. Contact the TB Unit or HNTC if supporting literature is needed (tb.feedback@dshs.texas.gov).
- For additional questions, seek consultation at Heartland National TB Center.

Status Update on Other TB Medications, 5/30/2023

Rifampin (RIF) *is available*:

- RIF 300mg and RIF 150mg capsules are both available with no restrictions; they may be ordered for bulk orders and/or for DOT packets.
  - When ordering in PIOS, only medications that are currently available will be visible.
  - Please order in monthly increments only.

Other TB medications *are available* for routine ordering:

- First-line medications are available:
  - Ethambutol
  - Pyrazinamide
  - Rifabutin

- Second-line medications are available:
  - If a fluoroquinolone (MFX or LFX) is used, refer to the following for recommended monitoring: https://www.dshs.texas.gov/sites/default/files/IDCU/disease/tb/forms/PDFS/NursingGuideSecond-LineTBMedications.pdf.
  - Medical consultation is not required when using a FQN if following this guidance; otherwise, consultation requirements should be followed as per DSHS Standing Delegation Orders (SDOs).