

Treating TB Infection

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Learning Objectives

- Identify recommended treatment regimens for LTBI
- Describe baseline evaluations prior to initiating treatment
- List common side effects to assess throughout LTBI treatment and criteria for determining when to stop/hold treatment and refer patient for further evaluation

What is always necessary before starting LTBI treatment?

Ruling out Active TB!

- For patients with TB symptoms or an abnormal chest x-ray, evaluate for active TB disease with a chest x-ray, symptom screen, and if indicated, sputum AFB smears, cultures, and nucleic acid amplification testing. A negative tuberculin skin test or interferon gamma release assay does not rule out active TB disease.

How many common LTBI regimens do you know of?

a) 1





b) 3

c) 5

d) 7

Let's review on the next slide!

LTBI Regimens and Dosage

	DRUG	DURATION	FREQUENCY	TOTAL DOSES	DOSE AND AGE GROUP
Preferred	ISONIAZID[†] AND RIFAPENTINE^{††} (3HP) 	3 months	Once weekly	12	Adults and children aged ≥12 yrs INH: 15 mg/kg rounded up to the nearest 50 or 100 mg; 900 mg maximum RPT: 10–14.0 kg; 300 mg; 14.1–25.0 kg; 450 mg; 25.1–32.0 kg; 600 mg; 32.1–49.9 kg; 750 mg; ≥50.0 kg; 900 mg maximum Children aged 2–11 yrs INH [‡] : 25 mg/kg; 900 mg maximum RPT [‡] : See above
	RIFAMPIN[§] (4R) 	4 months	Daily	120	Adults: 10 mg/kg; 600 mg maximum Children: 15–20 mg/kg [¶] ; 600 mg maximum
	ISONIAZID[†] AND RIFAMPIN[§] (3HR) 	3 months	Daily	90	Adults INH [‡] : 5 mg/kg; 300 mg maximum RIF [§] : 10 mg/kg; 600 mg maximum Children INH [‡] : 10–20 mg/kg [¶] ; 300 mg maximum RIF [§] : 15–20 mg/kg; 600 mg maximum
Alternative	ISONIAZID[†] (6H/9H) 	6 months	Daily	180	Adults Daily: 5 mg/kg; 300 mg maximum Twice weekly: 15 mg/kg; 900 mg maximum
			Twice weekly [¶]	52	
		9 months	Daily	270	Children Daily: 10–20 mg/kg [¶] ; 300 mg maximum Twice weekly: 20–40 mg/kg [¶] ; 900 mg maximum
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Add B6 with regimens including Isoniazid

If the patient has:

- Diabetes
- Chronic Kidney Disease
- Heavy ETOH use
- Malnutrition
- HIV infection
- Pregnant or post-partum
- Seizure disorder



Then, add B6:

- Adult Dosing:
25-50mg if given daily
100mg if given once
weekly

Adult Regimen Case

A 37-year-old, working mother of 2 children presents for LTBI treatment. She tells you: her “uncle got very sick taking medications for TB and never completed the treatment; she works in the orchards near your town and takes regular trips back to her home country.” What regimen would you recommend (*select all that apply*)?

a) 3HP

b) 4R





c) 3HR

d) 6H

e) 9H

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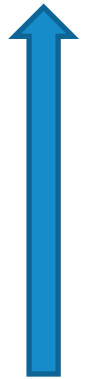
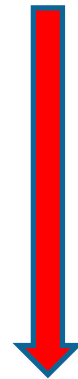


Adult Regimen Case Options

Preferred treatment is **3HP** or **4R**. Now, we need more information (pt's order of priority):

- Uncle's baseline health and sickness after medication?
 - Was he coughing or was the TB asleep in his body?
- When's her next trip to her home country?
 - Is it usually around the same time or is it more based on family needs?
- What is an easier routine for her daily or weekly medication?
- Is she breast feeding?
- HIV status?
- Chronic conditions and other medications?

Patient priorities



Clinician
Priorities





“No, you take the pills”

You have LTBI, which regime would you prefer?

- a) 3HP
- b) 4R
- c) 3HR
- d) 6H
- e) 9H

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Pediatric Regimen Case

A 3-year-old has been living in a house with exposure to an active TB case (non-resistant to INH) and has tested positive for LTBI with active TB ruled out. What treatment do you recommend for this 15kg (33lbs) patient (select all that apply)?

- a) Isoniazid 300mg Daily for 9 months
- b) Rifapentine 225mg Daily for 4 months
- c) INH 375mg and Rifampin 450mg weekly for 12 weeks
- d) None of the above are appropriate for age

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Pediatric Regimen Case Options

Correct answer is D. Preferred treatment is pediatric dosing of **3HP** (INH 350mg-375mg and *Rifapentine* 450mg weekly for 12 weeks).

- Alternative options include- *Rifampin* 225mg-300mg daily for 4 months or INH and Rifampin for 3 months or Isoniazid 150mg-300mg daily for 9 months
- Consider crushing Rifapentine and Isoniazid or opening Rifampin capsule right before administering and mixing with smallest amount of food possible. Once crushed or opened, administer medication right away.
- Expect to devote a significant amount of face-to-face appointment time to educating parents/guardians and reassurance of med/pill burden vs lifetime risk of activation of LTBI.

LTBI Treatment: Monitoring, Adult and Pediatric

- ▶ Routine baseline laboratory testing is not required **EXCEPT if...**

- ▶ HIV co-infected
- ▶ Pregnant or early postpartum
- ▶ History of liver disease or heavy alcohol use
- ▶ Injection drug use
- ▶ Taking other potentially hepatotoxic medications
- ▶ Prior elevated serum transaminase concentrations
- ▶ History of hematologic condition
- ▶ Other known clinical indication

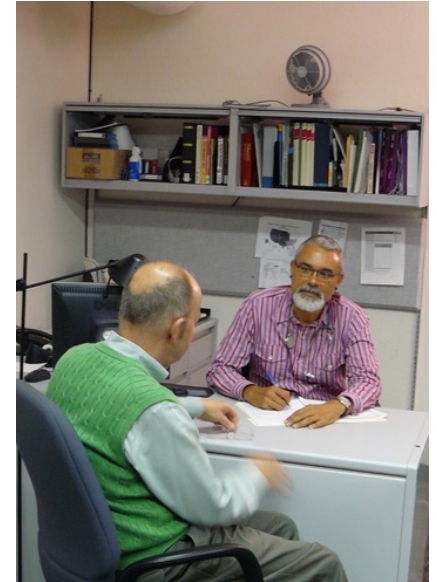
Then obtain...

- Baseline AST, ALT & CBC
- Repeat LFTs if:
 - ▶ baseline abnormal
 - ▶ risk for hepatic disease
 - ▶ signs/symptoms of DILI
 - ▶ continued heavy or daily use of alcohol
- Repeat CBC if:
 - ▶ Flu-like symptoms
 - ▶ Petechiae

- ▶ Offer HIV testing if status unknown
- ▶ Baseline hep serologies when indicated (e.g., from high-incidence area)

LTBI Treatment: Monitoring, Adult and Pediatric (2)

- ▶ Face-to-face assessment monthly for:
 - ▶ Treatment adherence
 - ▶ Symptoms of hepatitis or other side effects
 - Anorexia, nausea or vomiting
 - RUQ abdominal pain
 - Fatigue or weakness
 - Dark urine
 - Rash
 - Numbness/tingling hands or feet (INH only)
- ▶ Hold/Stop LTBI treatment when:
 - ▶ LFTs are greater than 3x ULN and the patient has symptoms
 - ▶ LFTs are greater than 5x ULN
 - ▶ patient is intolerant for other reasons



LTBI Treatment Monitoring Case

A 58-year-old patient with liver disease has had baseline AST, ALT, and CBC prior to starting 3HP which were mildly elevated AST/ALT. At the one-month follow up meeting which of these would NOT be a correct course of action:

- a) Check current AST, ALT, and CBC to monitor because these labs were elevated at baseline
- b) Patient has numbness in their feet, so you redraw an AST, ALT, and CBC
- c) Patient is very happy they are being treated and feels great. No need to draw labs
- d) Hold treatment as their LFTs are 3x ULN and their feet have been feeling numb. You call the local TB controller for advice

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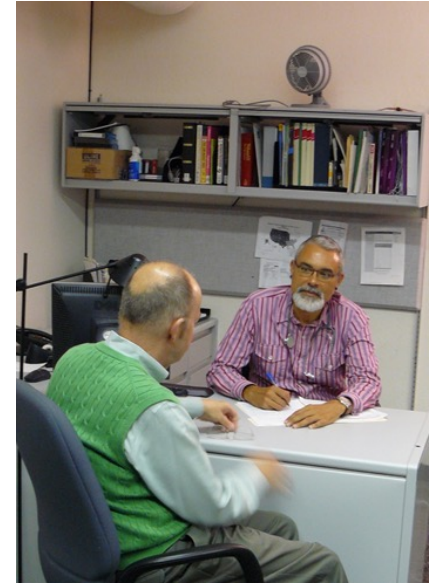
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LTBI Treatment Monitoring Case Options

- C is not an appropriate course of treatment due to elevated baseline labs. (A, B, and D are all correct)
- Labs are not necessary to monitor LTBI treatment in most straightforward, normal cases
- Once you start seeing abnormalities in labs, you usually want to continue to monitor them on at least a monthly basis
- Contact your local TB experts at the county and state levels if treatment and/or monitoring gets confusing or complicated.

Let's talk

- Drive conversations toward addressing patient's concerns and motivations first.
- For demonstration of how to address patient concerns and how to present patient education go to [Latent TB Videos for Healthcare Providers](https://www.currytbcenter.ucsf.edu/products/view/latent-tb-videos-healthcare-providers) at the Curry Center website.
(<https://www.currytbcenter.ucsf.edu/products/view/latent-tb-videos-healthcare-providers>)
- Thank you for treating LTBI in our communities!

Break

- 20-20-20
- The rule says that for every 20 minutes spent looking at a screen, a person should look at something 20 feet away for 20 seconds.

