Serve The People health community center

Nursing treatment guidelines for co-visit

PPD Reading (Positive)

**PPD Reading may initially be done by MA. If found positive, visit will turn in into a co-visit.**

**Requirements for Reading Results**

* Test should have been placed 48-72 hours prior to reading.
* If patient no-shows:
  + positive test may still be read up to 1 week later.
  + negative reaction read beyond 72 hours is not valid and needs to be repeated in 1-3 weeks

**Subjective/Objective**

* Repeating vitals unnecessary if they were within normal limits at time of PPD placement.
* Symptoms of TB **(if patient is coughing, place mask on patient and yourself immediately):**
  + Productive cough, chest pain, prolonged cough (>3 weeks), fatigue, enlarged lymph nodes, hemoptysis (coughing up blood), night sweats, fever, chills, decreased appetite, or weight loss
* Review/screen patient for the following risks and document in chart if positive:
  + History of a previously positive PPD. Consult with provider or nurse if patient has hx of positive PPD.
  + History of exposure to foreign visitors in the home from a high-risk country including Asia, Africa, Latin America, Eastern Europe, Russia.
  + HIV infected, immunosuppressed or before starting immunosuppressive therapy (e.g., chronic steroid use, TNF blockers\*\*, chemotherapy)
  + Homeless (see below for additional notes.)
  + Staff member caring for high-risk populations (e.g., homeless shelters, drug/alcohol treatment facilities)
  + Health care worker (including volunteers) in facilities that care for patients at risk for TB
  + Inmate and staff of jails and prisons
  + Foster child, but only if no history is available of prior exposures to active TB

**Assessment**

* PPD Tuberculosis Screening, Z 11.1, Pending Work Up
* Measure indurated (hard, swollen) area, across the forearm, see
* PPD considered **positive** if
  + ≥ 5mm and patient meets the criteria found below
  + ≥ 10mm see below.
  + ≥ 15mm for all other individuals, see below.
* Document all results (even negative) in mm. Examples are 0mm or 5mm.

| **Classification of the Tuberculin Skin Test Reaction** | | |
| --- | --- | --- |
| An **induration of 5 or more millimeters** is considered positive in  -HIV-infected persons  -A recent contact of a person with TB disease  -Persons with fibrotic changes on chest radiograph consistent with prior TB  -Patients with organ transplants  -Persons who are immunosuppressed for other reasons (e.g., taking the equivalent of >15 mg/day of prednisone for 1 month or longer, taking TNF- antagonists) | An **induration of 10 or more millimeters** is considered positive in  -Recent immigrants (< 5 years) from high-prevalence countries  -Injection drug users  -Residents and employees of high-risk congregate settings  -Mycobacteriology laboratory personnel  -Persons with clinical conditions that place them at high risk  -Children < 4 years of age  - Infants, children, and adolescents exposed to adults in high-risk categories | >An **induration of 15 or more millimeters** is considered positive in any person, including persons with no known risk factors for TB. However, targeted skin testing programs should only be conducted among high-risk groups. |

**Positive PPD (R76.11)**

* ***Place patient in isolation room if available*, *(room #10)***
* Any patient with a positive test should be sent for a chest x-ray unless patient is in the first trimester of pregnancy. In this case the patient should be sent during the 2nd trimester.
  + If the pregnant patient is a contact or has symptoms of TB the provider should be consulted right away to decide if she should have the chest x-ray anyway.
* Chest x-ray should be PA and Lat for patients < 12 years old, all others should be PA only.
  + Ask provider for chest X-Ray order (ICD 10 code, R76.11)
  + Fax to DMI or appropriate radiology facility per patients insurance.

**Chest X-ray Results, see below**

* Abnormal films. If the initial chest x-ray is abnormal and compatible with active or inactive TB, send the patient to Orange County Health Care Agency for further evaluation. They can f/u with PCP after treatment there.
* Normal films.
  + If the initial chest x-ray is normal, the individual may receive their LTBI treatment through Serve the People Community Health Center.
  + Repeat chest x-rays are not indicated unless the individual develops signs or symptoms of TB disease.
  + Anyone considering LTBI tx should have a current chest x-ray to rule out active pulmonary TB disease.
  + See treatment regimen below.
  + Please note, when screening for Homeless Shelter patients, a patient with a history of a positive ppd only needs a negative chest xray 2 years in a row. Once negative x 2 years, they would not need an additional cxr unless they should become symptomatic.

**Treatment**

* See guidelines for dispensing INH found below
* Latent TB Protocol INH
  + Dosing for adults 5mg/kg/day (max 300mg per day) x 9 months
  + Children 10-15mg/kg/day (max of 300mg per day) x 9 months
  + Round dose to the nearest 50mg

Meds should be taken for 9 months, a 6 month regimen also offers substantial protection but 9m is preferred.

* INH should be given at bedtime with plenty of water due to possible stomach upset.
* Print and give attached INH medication information sheets in [English](#INH_instructions) or [Spanish](#INH_instructionsSP).
* Routine monitoring of liver function is not necessary unless patient is at risk for hepatic disease or HIV infected
* Vitamin B6 (Pyridoxine) is used occasionally for adults to reduce the risk of peripheral neuropathy. (Pyridoxine
  + See also special considerations section on pages 9 & 10 of from the Latent TB Protocol (CHS LTBI Protocol File)
* Recall via tasking for evaluation in 30 days.

**Education**

* Importance of taking daily medication for 9 months.
* Monthly evaluation by phone or appointment at provider discretion
* Handouts in [English](#English) and [Spanish](#Spanish) explaining TB.

*Call back for appointment with provider if:*

* Patient reports symptoms of TB
* Liver function test are abnormal
* Patient develops symptoms of hepatitis (jaundice, abdominal pain, tea color urine, nausea or vomiting)

Document all of Above in Medical Record and have PCP Cosign

\*\* TNF blockers target and neutralize tumor necrosis factor-alpha (TNF-α), a protein that, when overproduced in the body due to chronic inflammatory diseases, can cause inflammation and damage to bones, cartilage and tissue. The drugs in this class include Remicade (infliximab), Enbrel (etancercept), Humira (adalimumab), Cimzia (certolizumab pegol) and Simponi (golimumab). (FDA, 2009).

Medical Director \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature

Printed Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Effective date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date reviewed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date revised \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**From Denver Health Community Health Services Protocol for Latent TB Infection (LTBI) Diagnosis and Management Pediatric and Adult Patients, from page 9 and on.**

***D. Classifying the TST*** [***back to top***](#Assessment)

|  |  |
| --- | --- |
| Whether a reaction to the TST is classified as positive depends on the size of the induration and the person's medical and epidemiologic risk factors for TB. Patients who have a positive TST reaction should receive a clinical evaluation, including a chest x-ray, to rule out active TB disease. **5 or more millimeters of induration** | **10 or more millimeters of induration** |
| 􀂃Significant exposure to anyone with suspected or known TB  􀂃Any individual being evaluated for disease consistent with tuberculosis  􀂃Persons with x-ray evidence of old, healed TB (e.g., stable, fibrotic upper lobe infiltrates)  􀂃Persons with behavioral risk factors for HIV infection who decline HIV testing, including persons of unknown HIV status who have a history of drug injection **‡**  􀂃Immunosuppressive conditions or patients currently taking or planning to take certain medications: **‡**  􀂾HIV-seropositive  􀂾Congenital conditions causing immunosuppression  􀂾Malignancies / cancers (e.g. cancer of the head and neck, lymphomas, leukemias)  􀂾Individuals receiving the equivalent of > 15 mg/day of prednisone for at least one month. (Children receiving 0.5 mg/kg/day of prednisone)Individuals receiving inhaled steroids are not usually considered at increased risk unless unusually large doses are given  􀂾Chemotherapy for cancer  􀂾Tumor Necrosis Factor (TNF) blockers such as infliximab (Remicade), etanercept (Enbrel) for arthritis/Crohn’s disease  􀂾Transplant patients (solid organ or bone marrow) on medications to prevent rejection  􀂾Other medications such as methotrexate or cytoxan  􀂃Those having an Immigration and Naturalization Service (INS) “change of status” exam | 􀂃All children younger than 5 years old (i.e., up to the day of the fifth birthday)  􀂃Persons who were born or lived in a country or area where TB incidence is high (e.g. Asia, Africa, Latin America, Eastern Europe, Russia or parts of Western Europe)  􀂃Employees (including volunteers) or residents of congregate settings, such as hospitals, correctional facilities, homeless shelters, nursing homes, or drug treatment centers  􀂃Employees or volunteers in health care facilities  􀂃Persons with a history of drug injection or substance abuse (i.e., alcohol abuse or crack cocaine use) who are known to be HIV seronegative  􀂃Persons with an increased risk of progression to TB disease (excluding HIV) such as: diabetes mellitus, silicosis, cancer of the head and neck, hematologic and reticuloendothelial disease (e.g., leukemia and Hodgkin's disease), end-stage renal disease, intestinal bypass or gastrectomy, chronic malabsorption syndromes, or low body weight (10% or more below ideal) ‡ |

**‡** Common causes of anergy, the patient may have a negative or a smaller TST test despite having TB infection.

■ Do NOT place a TST if the individual has recently (within 6 wks) had a live virus vaccination (e.g. MMR, Varicella). It can result in a false-negative TST.

■ Low risk patients do not need screening. If a TST is placed, interpret as positive if > 15 mm induration.

III. Clinical Evaluation for TB Infection and Active Disease

All individuals found to have a positive TST reaction should be screened by history for signs, symptoms and risk factors of active TB and should have a chest x-ray, to rule out pulmonary TB disease before initiating treatment for LTBI. The primary site of infection is the lung, but systemic dissemination of bacilli results in seeding of multiple organs. Hence, TB may present in variable combinations of pulmonary and extra pulmonary disease, especially in children. The likelihood of these presentations differs significantly depending on the age of the patient at the time, particularly the age at the time of primary infection.

NOTE: The presence of TB symptoms should always lead to a new clinical and/or chest x-ray evaluation.

***A. Chest X-Rays***

**1. Chest x-ray views**

**PA and Lateral**. Children 12 years of age or younger (i.e., up to the 13th birthday) should have both a PA and a lateral chest x-ray (age 12 years recommended by John Ogle M.D., 2002 ATS/CDC guidelines say age 5 years). The lateral view is important to help visualize adenopathy.

**PA only**. Children and adults over age 13 years only need a PA view, with additional views at the provider’s discretion.

**2. Scheduling and timing of chest x-rays**

Chest x-rays should be performed at the hospital. (If possible, for pediatric films, try to have them taken between 7am and 3pm Monday through Thursday. The quality of the film is usually much better, and the need to repeat the films is dramatically reduced if films are taken at these times. An under-penetrated or uninflated film is still easily interpretable where the question is bronchiolitis, but usually needs to be repeated if the question is TB.)

Indicate on the chest x-ray request that the patient has a positive TST. Inadvertent treatment of active TB with isoniazid alone can lead to acquired drug-resistance, so the timing of a chest x-ray before starting LTBI treatment is important.

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**3. Chest x-ray findings**

**Abnormal films**. If the initial chest x-ray is abnormal and compatible with active or inactive TB, send the patient to the Orange County Health Care Agency TB Clinic for further evaluation.

Radiographically, active TB is characterized by various combinations of: hilar, mediastinal, and/or paratracheal lymphadenopathy; atelectasis, consolidation of lung parenchyma; mid- and lower lung zone infiltrates or scarring; nodules; calcifications and pleural effusion. Cavitary lesions and upper lobe infiltrates, which are typical in adult TB, are uncommon in children, but may be seen with malnutrition, immunodeficiency or in adolescents. A study of immigrants undergoing INS “change of status” exams in Denver found 42% were PPD-positive. Chest x-rays with any abnormality were found in 10% of TST-positive immigrants, and 1.7% of those evaluated for abnormal X-rays had active TB. Thus, active TB was found in 1.7 per 1,000 immigrants with a positive TST.

**Normal films**. If the initial chest x-ray is normal, the individual may receive their LTBI treatment through Community Health Services. Repeat chest x-rays are not indicated unless the individual develops signs or symptoms of TB disease. Anyone considering LTBI treatment should have a current chest x-ray to rule out active pulmonary TB disease.

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***C.*** ***Side Effects***

Some of the common symptoms patients may present with are:

􀂃Fatigue, Malaise ■ Loss of appetite ■ Abdominal pain

􀂃Nausea, vomiting ■ Jaundice ■ Persistent dark urine

􀂃Abdominal tenderness ■ Peripheral neuropathies ■ Itching/rash

􀂃Unexplained elevated temp > 3 days

**Hepatitis** is the most severe toxic effect of isoniazid. Underlying liver conditions and concurrent use of other potentially hepatotoxic drugs and alcohol pose the greatest risk.

The risk for INH-related hepatitis is minimal in infants, children, and adolescents, who generally tolerate the drug better than adults. Young children have less than 1% risk of hepatotoxicity. Routine monitoring of serum liver enzyme concentrations is not necessary in healthy children or adults but should be considered in individuals with known liver disease, patients on hepatotoxic drugs, HIV-infected or others with compromised immune systems. Patients/parents should be counseled at each visit to watch for the early symptoms of hepatotoxicity, anorexia and malaise. Later symptoms are abdominal pain, nausea, and vomiting. Jaundice is a very late finding. The INH should be held and LFTs checked if symptoms of hepatotoxicity occur. In most individuals, LFTs will be normal. The most common cause of minor gastrointestinal symptoms is gastritis that generally improves with continuation of therapy. Therapy is interrupted only in asymptomatic individuals with liver function abnormality **3-5 times** **the normal range** or in symptomatic individuals with lesser degrees of hepatitis. When children taking anti-TB therapy develop hepatitis, a search for causes other than INH or other drugs should be undertaken and the therapy discontinued.

**Peripheral neuropathy**, caused by interference with metabolism of pyridoxine (vitamin B6), is associated with INH administration but is uncommon in children on a normal diet or in adults when INH is given at a dose of 5 mg/kg. In persons with diabetes, uremia, alcoholism, malnutrition, and HIV infection, neuropathy is more common and pyridoxine should be given with INH. Pregnant women and persons with seizure disorders should also take both pyridoxine and INH. Routine administration of pyridoxine (vitamin B6) is not necessary for children taking INH, but may be considered for:

􀂃breastfeeding infants

􀂃children and adolescents with diets likely to be deficient in pyridoxine (meat/milk deficient diet, malnourished)

􀂃pregnant teens

􀂃HIV-infected children

􀂃children who experience paresthesias while taking INH

**Mild central nervous system effects** (sleepiness, insomnia, headaches) are common with INH and may necessitate adjustments in the timing of administration of the drug to enhance compliance. Taking medications a couple of hours after eating rather than first thing in the morning on a completely empty stomach can often eliminate nausea and GI disturbances. Bedtime is a good time to suggest taking INH.

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***D.*** ***Drug Interactions***

INH has been reported to inhibit the metabolism of the following drugs. Nurses prescribing LTBI treatment by protocol should discuss possible side effects and drug interactions with a provider if the patient is on any of the following medications as dosages of these drugs may need to be adjusted to prevent toxicity:

􀂃anticonvulsants

􀂃haldoperidol

􀂃ketoconazole

􀂃theophylline

􀂃warfarin

􀂃phenytoin- The interaction with isoniazid increases the serum concentration of both drugs, when given concomitantly, the serum level of phenytoin should be monitored

􀂃disulfiram (Antabuse)- Some publications recommend against the use of isoniazid for persons taking disulfiram, but a recent article showed it can be used safely in patients being treated for active TB. It appears to be safer than alcohol abuse combined with isoniazid treatment.

􀂃antiretroviral medications for HIV/AIDS- There are no known interactions that exist between INH and the antiretroviral medications used for the treatment of HIV infection.

􀂃acetaminophen- It is important to caution patients/parents about excessive use of acetaminophen, and that ibuprofen is a better choice while taking isoniazid.

***E. Dispensing LTBI Medications***

The following medications should be dispensed in the same way as all other clinic medications. The patient should see the RN or provider monthly to receive refills/prescriptions. Only one month of medication should be given at a time with no refills.

Isoniazid (INH) - 300 mg scored tablets in bottles of #30

Isoniazid (INH) - 100 mg scored tablets in stock bottles of #100. These will need to be repackaged by the pharmacy into a quantity sufficient for 30 days.

Pyridoxine (Vitamin B6) - 25 mg bottles of #30. Not typically given to children, but used occasionally

**INH Instructions on how to take INH** (2.6.2)

* Take 1 pill every day
* Try to take INH at the same time every day
* If you miss a day, do not take extra amounts of the medicine
* Try to take INHG two (2) hours before or after you eat
* Take Vitamin B6 along with the INH if not a child.
* Avoid alcohol while taking INH
* Your dose is \_\_\_\_\_\_\_\_mg every day
* You will take INH for \_\_\_\_\_\_\_ months.
* Do LFT’s if symptomatic or history of liver problems.

# Possible side effects

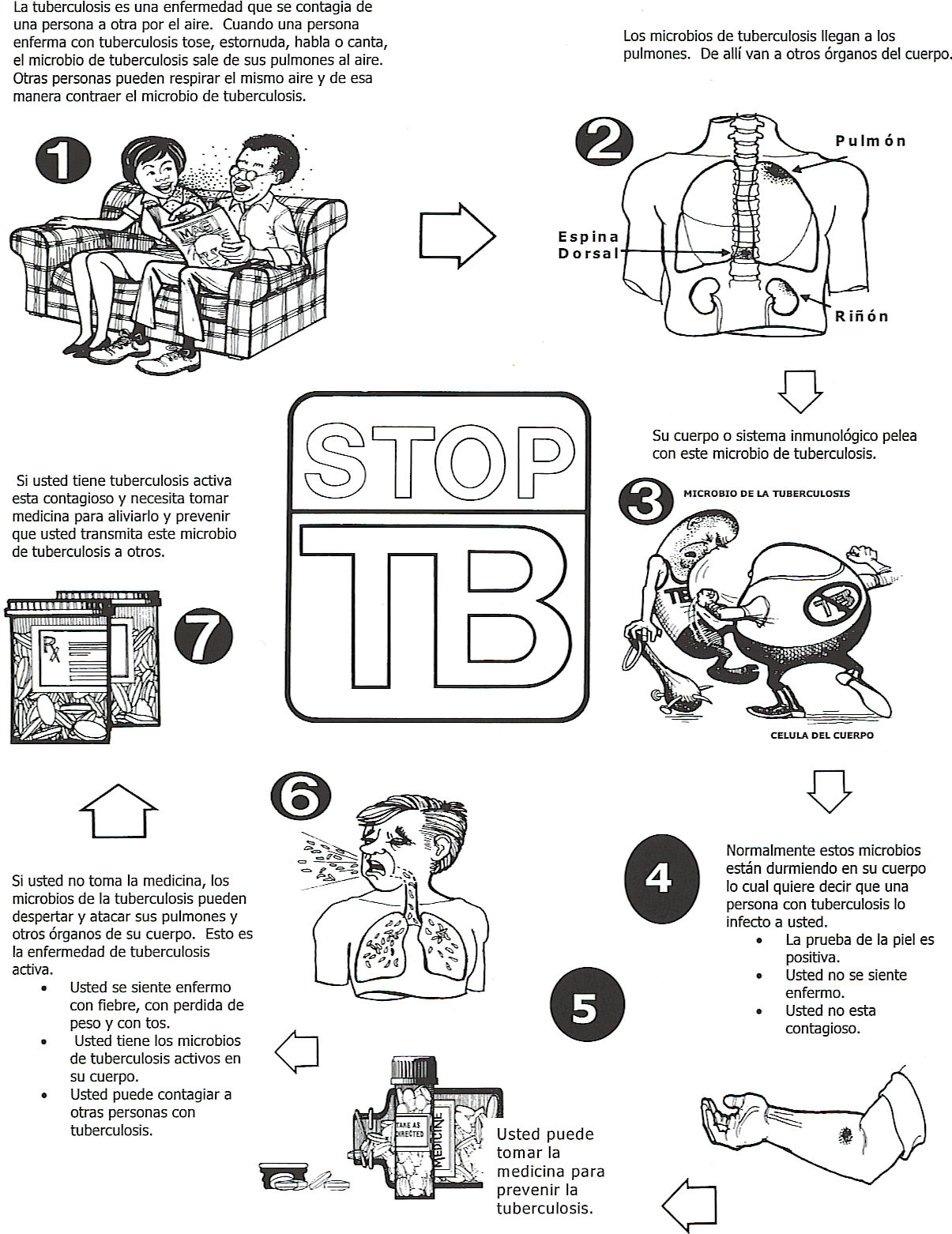
* Rash
* Nausea/Vomiting
* Fever Feeling unusually tired
* Numbness or tingling in arms/legs
* Yellowing of skin/eyes
* Dark urine like coffee or tea

**INH instrucciones para como tomar INH** (2.6.3)

* Tome una pastilla diariamente
* Trate de tomarla a la misma hora todos los días
* Si se olvida un día, no tome 2 pastillas
* Trate de tomarla 2 horas antes o después de comer
* Tome la vitamina B6 junto con el INH
* No consuma bebidas alcohólicas mientras esta tomando INH
* El tratamiento es por \_\_\_\_\_\_\_\_\_\_\_\_\_ meses
* Su dosis es de \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_mg al día
* Haga LFT’s si es sintomático o si tiene historia de problemas con el hígado

# Efectos secundarios posibles

* Sarpullido, Erupción de la piel, Picazón
* Nauseas o Vómito
* Fiebre
* Ictericia (piel amarilla o lo blanco del ojo amarillo)
* Adormeciendo u hormigueo en los brazos o piernas
* Orina oscura de color del café o té
* Sentirse más cansado de lo común

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