



# Latent Tuberculosis Infection(Positive PPD) and INH Treatment

## PATIENT EDUCATION SERIES

### What is TB and how is it contracted?

Tuberculosis (TB) is a disease caused by a germ called *Mycobacterium tuberculosis* that is spread from person to person through air. TB usually affects the lungs but can affect other parts of the body, such as the brain, the kidneys or the spine. When a person with infectious TB coughs or sneezes, droplets containing *Mycobacterium tuberculosis* are expelled into the air. If another person inhales air containing these droplets, he or she may become infected. However not everyone infected with TB becomes sick. Two TB conditions exist: latent TB (LTBI) and active TB disease.

### What is a PPD test?

The PPD (purified protein derivative) skin test is used to screen for tuberculosis by identifying people who have the tuberculosis (TB) organism in their bodies. A positive PPD skin test means that you are infected with the bacteria, *Mycobacterium tuberculosis*, and it is present in your body. TB bacteria live in the bodies of most infected people in an inactive form and do not cause any symptoms of disease; this condition is referred to as Latent TB Infection (LTBI).

Overall, 10% of people with LTBI will have the bacteria become active and become very sick, over their lifetime. The risk for developing active disease is greatest within the first year after developing a positive PPD skin test. It is also greater for those individuals who use intravenous drugs or who have diseases such as HIV, silicosis, diabetes, leukemia, weakened immune systems, kidney disease, and some other chronic diseases. Also, as people get older the tuberculosis germ can become active, start to grow, and cause illness.

Without treatment for LTBI, 10% of people with a positive PPD will develop active tuberculosis at some time. Not only will those individuals who develop active TB become very sick and require treatment with multiple, sometimes toxic drugs for months, but they can easily spread TB to others. This is why it is so important to identify and treat latent TB before it becomes active. Treatment for 9 months can stop the conversion of latent to active TB in over 90% of people who complete the full course of medication.

In order to distinguish between the active and latent form of the disease, you will need to have a chest x-ray. Your health care provider may also take a medical history and perform a brief physical exam. If you have a normal chest x-ray and do not have evidence of active disease in your lungs or elsewhere, then you have what is known as latent tuberculosis infection (LTBI). Persons with active TB can spread the disease to others. Persons with latent TB do not spread the disease to others and can be easily treated to prevent the development of active TB.

### What else can cause a positive PPD skin test?

A recent BCG (Bacille-Calmette-Guerin) vaccination may sometimes cause a positive PPD skin test. BCG is a vaccine given in many countries where TB is endemic to prevent TB infection. However, efficacy of BCG ranges only from 56-80% and the protective effect of BCG lasts only a few years. BCG is not routinely given in the United States. The Center for Disease Control generally advises that those with positive TB skin tests receive treatment for LTBI regardless of BCG history. In some cases, a special TB blood test is advised to help with treatment decisions. Your provider will discuss whether this is indicated for you.

### What are the symptoms of active TB?

Some people don't have symptoms. Others may develop:

- cough, sometimes with blood tinged mucous
- fever
- night sweats
- unintentional weight loss
- unusual decreased appetite
- shortness of breath
- body sweats at night

### Treatment for Latent TB infection

The good news is that there are effective medications available.

The most commonly prescribed medication is isoniazid (INH). It is given as a pill and is usually

taken once daily for nine months. The American Thoracic Society and the Centers for Disease Control recommend nine months as the optimal duration of treatment. Again, the protective effect may be as high as 90% if all the medication is taken properly.

At Health Services, once you start on 9 months of INH treatment, you will generally be required to have follow-up appointments with an RN (working together with your provider) at least every 2 months to make sure all is going well. You will receive reminders for INH visits.

## INH (Isoniazid) Facts

Serious toxicity due to INH is uncommon. Stomach upset such as bloating or nausea can occur with initial doses, but usually disappears after several doses. Drug-induced hepatitis (inflammation of the liver) occurs in about 0.1% of younger individuals. Higher rates of hepatitis occur in older populations, those with some chronic medical conditions, risk factors for hepatitis such as underlying liver disease, or those who use alcohol during INH treatment. Pregnant or postpartum women are also at greater risk. Discuss any medical conditions you have with your provider prior to starting INH. The side effect of liver inflammation is usually reversible when the INH is stopped. Your provider will order a baseline blood test at the start of INH treatment to make sure that your liver function is normal. Occasionally repeat blood tests may be necessary, depending on your medical history, during the course of treatment.

**It is recommended that you abstain from alcohol completely during your INH treatment because alcohol can increase the risk of hepatitis.**

Rarely, in less than 0.2% of people, INH may cause irritation of the nerves (neuropathy) in your hands and feet. This may lead to symptoms of numbness or tingling and are more likely in people with underlying chronic conditions such as diabetes, kidney disease, and with frequent alcohol use. Your provider may prescribe Vitamin B6 which usually helps to prevent this problem.

### Symptoms to watch for while on INH:

- Unusual fatigue or malaise greater than 3 days duration
- Rash

- abdominal discomfort/pain, especially in the right upper abdomen
- unexplained fever, greater than 3 days duration
- itchy skin
- nausea
- vomiting
- unexplained lack of appetite
- unusual decrease in appetite or weight loss
- cola-colored urine
- pale clay-colored stool
- yellow skin/eyes
- joint aches
- easy bleeding/bruising

If ANY of the above symptoms develop, stop your INH and call your RN/provider at Health Services as soon as possible. It is important to seek care early if any hepatitis symptoms might be developing. Your RN/provider will want to check your blood liver enzymes and examine you as soon as possible.

- INH should be taken daily on an empty stomach. If stomach upset occurs, INH can be taken with a small snack. Antacids should not be taken along with INH as they interfere with its absorption. If antacids are needed, they should be taken at least one hour after the dose of INH.
- If a dose is missed, tell your RN or health care provider at your next follow-up appointment. Do not take the extra dose as no more than one dose of INH should be taken in a 24 hour period. If you have missed 2 weeks or more of daily INH, call Health Services as soon as possible for an appointment.
- Drug interactions can occur between INH and other medications, herbal supplements and over the counter medicines. Your provider will check initially to make sure that any medication you take regularly does not interact with INH, but be sure to discuss any new medications (prescribed by another provider outside Health Service for example) or OTCs/supplement with your RN or provider.

Once you have been treated of LTBI, there is no need to ever have another PPD test, as once the PPD is positive, it is positive for life. When you complete a course of treatment with INH for LTBI, Health Services will provide you with a card/letter which documents your past history of Positive PPD and your treatment. This documentation can be presented in the future to any agency or medical provider who may request TB screening, as an explanation for why you do not need a TB screen again.