

**MODEL TUBERCULOSIS  
PREVENTION PROGRAMS  
FOR COLLEGE CAMPUS**

THE UNIVERSITY OF TEXAS HEALTH CENTER AT TYLER

**HEART** *Land*  
NATIONAL TB CENTER

A PARTNERSHIP OF UT HEALTH CENTER AND TCID

*June 2007 Edition*

---

---

---

---

---

This project was made possible by a grant through the Centers for Disease Control and Prevention.

THE UNIVERSITY OF TEXAS HEALTH CENTER AT TYLER

# HEART *Land* NATIONAL TB CENTER

A PARTNERSHIP OF UT HEALTH CENTER AND TCID

National Tuberculosis Center is funded by the Centers for Disease Control and Prevention and is a joint project of the University of Texas Health Center at Tyler and the Texas Center for Infectious Disease.

A note of appreciation is extended to the Heartland National TB Center Staff, Lynelle Phillips – CDC Public Health Advisor, MU Sinclair School of Nursing, Heartland Center for Public Health Preparedness and Knorr Marketing for their support and hard work.



A special thank you to all our reviewers: Theresa Crisp of the Oklahoma State Department of Health, Pam Dolata of Carroll College, June Doyle of Wisconsin Department of Health and Family Services, Pat Infield of the Nebraska Department of Health and Senior Services, Julie Klahn of the University of Nebraska at Kearney, Elisabeth Kingdon of the Minnesota Department of Health, Dean Kniss of the Kansas Department of Health and Environment, Rita Lichterman of the Waukesha Public Health Division, Jo McGuffin of the University of Central Oklahoma, Dana Mills of Marquette University Student Health Services, David Oeser of the Missouri Department of Health and Human Services, Alice Reilly-Myklebust of the University of Wisconsin – River Falls, Irmine Reitl of the Milwaukee Health Department, Dianne Robinson of Pierce County Public Health Department, and Sue Weston of Creighton University.

All materials in this document are in the public domain and may be used or printed without special permission; citation of source is appreciated.

Suggested citation:

Heartland National Tuberculosis Center

Model Tuberculosis Prevention Program for College Campuses. 2006.

This document is available through the:

Heartland National Tuberculosis Center  
2303 SE Military Drive  
San Antonio, Texas 78223  
Phone (800) 839-5864  
Fax (210) 531-4590  
Website: [HeartlandNTBC.org](http://HeartlandNTBC.org)

# CONTENTS

---

---

## EXECUTIVE SUMMARY

A TUBERCULOSIS PRIMER .....	1
What is tuberculosis? .....	1
How is tuberculosis spread? .....	2
Is tuberculosis a real threat in the United States? .....	2
Who is at risk on my campus? .....	2
What happens if someone on my campus develops active tuberculosis disease? .....	3
What can be done to prevent a tuberculosis outbreak on my campus? .....	3
How does the cost of implementing a tuberculosis policy compare to the benefits of doing so? .....	3
How do I get started and how long will it take to put a policy in place? .....	4
A student's fight against tuberculosis .....	5

## SETTING A TUBERCULOSIS POLICY

The need for a screening policy.....	6
Who should be screened .....	6
How to screen for tuberculosis risk .....	6
When to screen for tuberculosis risk.....	6
Screening existing students.....	7
Ensuring compliance .....	7
Tuberculosis testing policy.....	7
A word on discrimination.....	7
Developing a tuberculosis core team.....	8
Creating a policy .....	8

## SETTING THE STAGE FOR IMPLEMENTATION

CHECKLIST FOR COLLEGES WITH A STUDENT HEALTH CENTER .....	9
CHECKLIST FOR COLLEGES WITHOUT A STUDENT HEALTH CENTER .....	10
HOW TO PARTNER WITH THE LOCAL HEALTH DEPARTMENT .....	11

## **TUBERCULOSIS TESTING**

TUBERCULOSIS TESTING GUIDELINES: To be followed by colleges with a student health center .....	12
TUBERCULOSIS TESTING GUIDELINES: To be followed by colleges without a student health center or one with limited resources .....	13

## **TUBERCULOSIS DIAGNOSIS** .....

TUBERCULOSIS DIAGNOSIS GUIDELINES: To be followed by colleges with a student health center .....	14
TUBERCULOSIS DIAGNOSIS GUIDELINES: To be followed by colleges without a student health center or one with limited resources .....	15
TUBERCULOSIS AND OTHER RESPIRATORY ILLNESSES .....	16
Tuberculosis and pneumonia .....	16
Tuberculosis and SARS .....	16
Tuberculosis and Avian Influenza .....	16

## **LATENT TUBERCULOSIS INFECTION TREATMENT** .....

LTBI TREATMENT GUIDELINES: To be followed by colleges with a student health center .....	17
LTBI TREATMENT GUIDELINES: To be followed by colleges without a student health center or one with limited resources .....	19

## **ACTIVE TUBERCULOSIS** .....

GUIDELINES FOR ACTIVE TUBERCULOSIS .....	21
Public Relations Talking Points .....	23

## **FINANCIAL IMPLICATIONS** .....

Implications for colleges .....	24
Implications for students .....	24

## **PROGRAM EVALUATION** .....

25



## **SAMPLE FORMS**

<b>SAMPLE TUBERCULOSIS POLICY</b> .....	26
Policy purpose.....	26
Risk screening policy .....	26
Administering risk screening questionnaire for new students .....	26
Evaluation of risk screening questionnaires.....	26
Testing Policy.....	26
Testing Protocol.....	27
Administration Risk Assessment Questionnaire/Symptom Review .....	29
<b>SAMPLE PRESS RELEASE</b> .....	30
Student Diagnosed with Active Tuberculosis Disease.....	30
TB Screening Sample Form Immunization / TB Screening Requirements Initiation of DOT Sample Forms Sample Letter Notifying Students of Need for TST LTBI Monitoring Forms Refusal of Treatment for LTBI Annual Statement for Tuberculin Reactors Isoniazid (INH) Fact Sheet (SOT) Isoniazid (INH) Fact Sheet (DOT) Isoniazid (INH) Fact Sheet	

## **PATIENT EDUCATION**

Tuberculosis Symptoms Review List /  
Tuberculosis Medication Side Effects (translations)  
Tuberculosis Fact Sheet (translations)

## **HELPFUL RESOURCES**

Incentives and Enablers  
Centers for Disease Control and Prevention (websites)  
International Resources (websites)  
State TB Control Offices  
Diagnosis of Tuberculosis Disease

## **GLOSSARY**

# EXECUTIVE SUMMARY

Tuberculosis is not a disease we think much about in the United States. When compared to more common ailments like influenza, it barely registers on our radar screens. However, in other less developed countries, tuberculosis is a serious, often life-threatening and prevalent health problem. When people from these countries travel to, attend school or live in the United States, tuberculosis becomes a health issue that warrants ongoing attention.

Tuberculosis is a disease less common in the United States than in other countries and it often mimics other respiratory diseases. Consequently, it is frequently misdiagnosed. Delays in diagnosis increase the potential for transmission, particularly in a congregate setting such as a college campus. Promoting a tuberculosis control program on a campus and in the surrounding medical community gives physicians and health-care providers a top-of-mind awareness about tuberculosis as a potential diagnosis, an important intervention in controlling the spread of disease.

In addition to promoting awareness, having a tuberculosis control program in place is also helpful in protecting a campus from other respiratory diseases such as Severe Acute Respiratory Syndrome (SARS) and Avian Influenza. While these diseases are far less prevalent in United States and globally, they have been widely publicized in the media. Campuses may face questions regarding control and prevention activities for these diseases, particularly if there are international students who live on campus and are from these areas of concern. The respiratory control procedures for tuberculosis in health-care settings can also be implemented to protect campuses from other respiratory diseases.

The guidance that follows will help student health centers promote accurate diagnosis of tuberculosis vs. other common and uncommon but highly publicized respiratory diseases.

Avoiding a tuberculosis outbreak should be a priority for higher education administrators. The goal of this document is to help you do exactly that. It explains the basics about tuberculosis, who is most at risk, and what screening and testing policies you can put into place to lower the chances of tuberculosis spreading on your campus. *The Model Tuberculosis Prevention Program for College Campuses* is a how-to manual that can be used by those on your campus who will be responsible for the practical development and implementation of a tuberculosis screening and testing policy. The manual is designed as a reference document and includes many helpful resources that can provide detailed information on different tuberculosis-related topics.

## A TUBERCULOSIS PRIMER

(and reasons colleges should care)

### What is tuberculosis?

Tuberculosis, commonly known as TB, is a disease that is most often found in the lungs, but can also be found in other parts of the body such as the lymph nodes, the pleura, the brain, the kidneys, or the bones. TB can cause serious illness. Two stages of TB exist: latent tuberculosis infection and active tuberculosis disease.

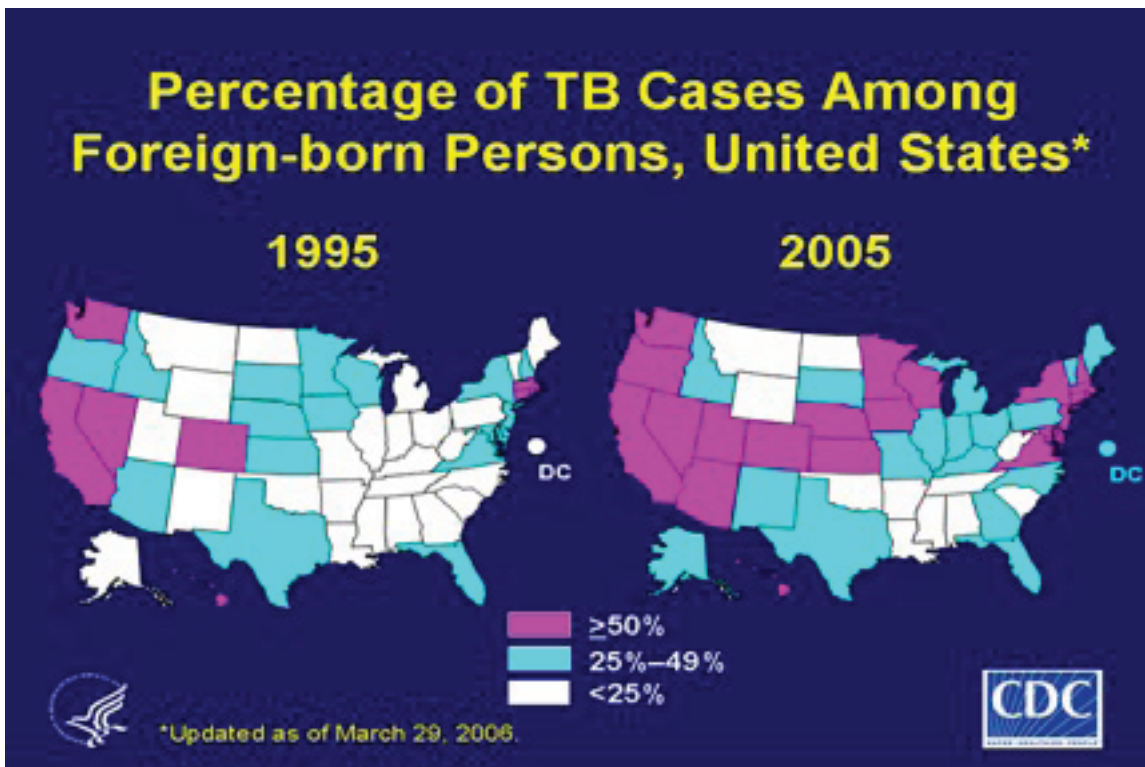
<i>A person with latent tuberculosis infection...</i>	<i>A person with active tuberculosis disease...</i>
<ul style="list-style-type: none"><li>• has tuberculosis <b>bacteria</b> in his body, but the <b>bacteria</b> are inactive</li><li>• does not feel sick</li><li>• is not contagious</li><li>• has the potential to develop disease if the tuberculosis <b>bacteria</b> become active and multiply in his body</li><li>• is treatable – so progression to TB disease <b>can be prevented</b></li></ul>	<ul style="list-style-type: none"><li>• has active tuberculosis <b>bacteria</b> in his body</li><li>• feels sick and experiences symptoms such as coughing, fever and weight loss</li><li>• is capable of spreading the disease to others if the tuberculosis <b>bacteria</b> are active in the lungs or throat</li><li>• is curable if diagnosed accurately and early</li></ul>

## How is tuberculosis spread?

Tuberculosis is spread when a person with active, untreated tuberculosis germs in the lungs or throat expels those germs into the air by coughing, sneezing or even speaking. Only people who subsequently breathe these germs into their lungs may become infected. Those who breathe in tuberculosis germs usually have had very close, day-to-day contact with someone who has the disease. The close confines of classrooms and dormitories make the college campus an environment where tuberculosis germs can spread quickly.

## Is tuberculosis a real threat in the United States?

Worldwide, tuberculosis infects more people than any other infectious disease. In fact, nearly one-third of the world's population is infected with tuberculosis, and roughly eight to 10 million new cases develop annually. The disease kills more than three million people each year —more than AIDS, malaria and tropical diseases combined. While it is true tuberculosis does not occur in the United States at the epidemic level of some other countries, 10 to 15 million people in this country are infected with tuberculosis. The Centers for Disease Control and Prevention continues to make great progress in eliminating tuberculosis in people born in the United States. In fact, in recent years the cases of tuberculosis in the foreign born have outnumbered those in U.S. born.



More than half of the tuberculosis cases in the United States occur in foreign-born people; progress must be made in reducing the foreign-born cases of tuberculosis or U.S. citizens will remain at risk for tuberculosis.

## Who is at risk on my campus?

Students from countries with a high incidence of tuberculosis are most at risk of recent exposure and infection with tuberculosis. Many of these international students come to the United States for their education by using student visas. Unlike standard visas issued for immigration, obtaining student visas does not require screening for any form of tuberculosis before a person can enter the country. This means they can arrive on campus with active tuberculosis disease or unknowingly harboring tuberculosis germs in the latent stage.

Also at risk are students born in the United States who have had recent contact with an active case of tuberculosis in the United States, have traveled to countries where tuberculosis is endemic or who have worked or lived in a situation where transmission of tuberculosis is more likely to occur. These students may also have either latent tuberculosis infection or active tuberculosis disease and not realize it.

Once infected with tuberculosis, a person has a 10 percent lifetime risk of developing active tuberculosis disease. At least 50 percent of this risk occurs within the first one to two years after infection.

Specific risks for your campus related to foreign-born students and visiting faculty will depend on their country of origin, as some countries have higher prevalence of tuberculosis than others. It naturally follows that students and faculty from those high-occurrence countries, or U.S. born students who have traveled to those countries, are at a greater risk to be carrying the disease. While specific numbers of college students with latent tuberculosis infection or active tuberculosis disease are not included in state surveillance data, reports of campuses involved in tuberculosis outbreak responses are not uncommon. For instance, in 2004 and 2005 the St. Louis County Health Department had a total of six cases of active tuberculosis disease spread among five different campuses in its county.

### **What happens if someone on my campus develops active tuberculosis disease?**

A major concern of having a student with a case of active tuberculosis disease is the potential for a delayed diagnosis and a delay in seeking treatment, both of which promote the spread of tuberculosis. As a result of academic pressures, an infected student may put off seeking care until symptoms are absolutely intolerable or until there is a break in his school schedule. In addition, because physicians in the United States do not see many patients with tuberculosis, its common symptoms of coughing and fever may not be recognized as tuberculosis, delaying an accurate diagnosis. Consequently, the infected person has ample opportunity to unwittingly expose others to the disease.

Once active tuberculosis disease is diagnosed, the recommendation is to notify and test all people who have come in close, regular contact with the infected person. This can have a domino effect on a college campus.

### **What can be done to prevent a tuberculosis outbreak on my campus?**

Preventing active tuberculosis disease on a college campus begins with a simple screening process in which students fill out a questionnaire to assess certain risk factors for tuberculosis. By screening all students for their risk, colleges have the opportunity to identify students with latent tuberculosis infection and offer them treatment **before it progresses to active disease.**

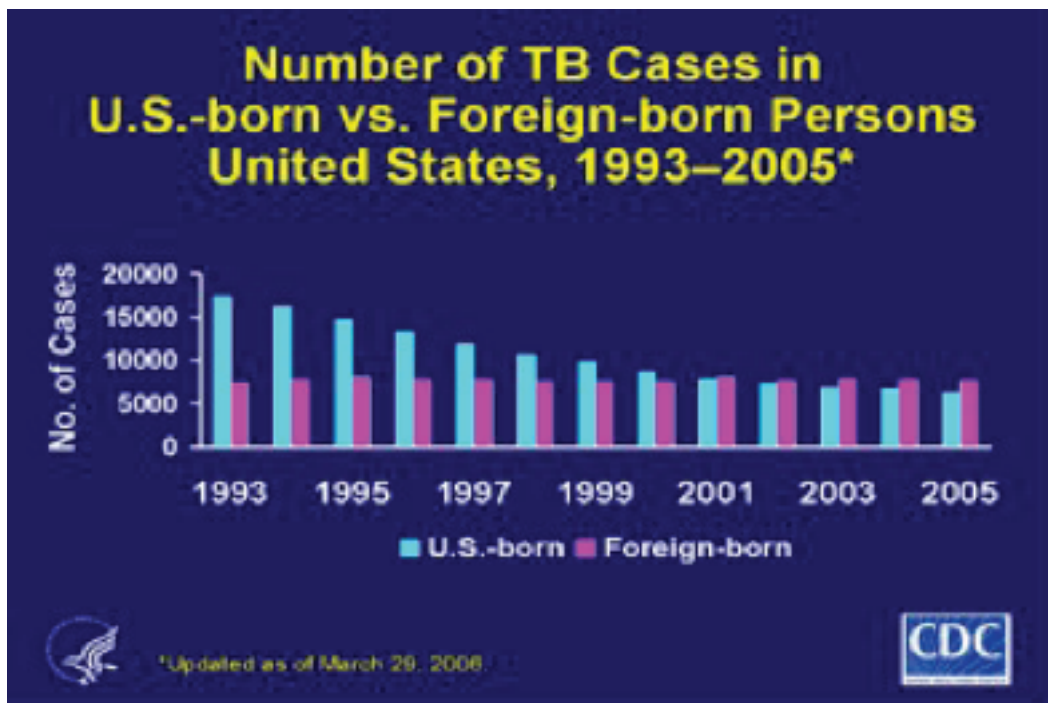
Many colleges already have a policy in place requiring students to have an updated measles/mumps/rubella (MMR) vaccine, so a tuberculosis policy is a natural outgrowth of that disease prevention activity. The contents of *Model Tuberculosis Prevention Program for College Campuses* provide assistance for developing a tuberculosis policy and guidelines on how to then follow through with that policy.

### **How does the cost of implementing a tuberculosis policy compare to the benefits of doing so?**

The bulk of implementing a tuberculosis policy involves screening students, a relatively simple and inexpensive process that involves the cost of paper for the screening questionnaire and minimal staff time to assess the screening forms once they are returned. Students who are identified as at-risk and require further testing and potentially treatment will create some additional expense, mostly in the staff time necessary to guide students through the process of being tested and potentially treated. Even in these instances, it is estimated that less than one staff person is necessary to fulfill these duties for a campus of 30,000 students.



College administrators are familiar with doing cost/benefit ratios, so how exactly do the costs discussed compare to the benefits of preventing an outbreak of a potentially deadly, contagious disease on a campus? Simply put, the costs are a quantifiable dollar figure but the benefits are immeasurable. How do you measure the good will lost from students, their parents and the community when a case of active tuberculosis disease occurs on your campus and you had no measures in place to help prevent it? How do you put a price tag on failing to keep safe the very student body with which you have been trusted? Acting now to protect the health of your students is ultimately worth the cost and effort your college will put into implementing a tuberculosis policy.



#### How do I get started and how long will it take to put a policy in place?

Implementing a tuberculosis policy on a college campus is a fairly simple process, but it will mean involving various departments, from the registration office to the student health center/health administrator. *Model Tuberculosis Prevention Program for College Campuses* can be used to guide colleges through the process of developing and following through with a tuberculosis policy. This manual includes a checklist of processes for colleges to put in place before actual implementation of a tuberculosis policy can begin. Once a college is ready to implement its policy, the manual also provides detailed guidelines on how to navigate through the steps of screening, testing, diagnosis and treatment.

Although the length of time it takes to put a tuberculosis policy and procedure in place will vary, colleges can expect it to take an average of three to six months from the time it first begins to develop its policy until the time it is ready to implement it. Some colleges may implement a policy in as short as two to three months; others may choose a phase-in approach that takes up to a year to fully implement.

## A student's fight against tuberculosis

For Chinese student Peijun Zheng, learning her visa had been granted and that she would be able to come to America to pursue her doctorate degree was a bittersweet moment. While her acceptance to the University of Alabama in Tuscaloosa fulfilled her dream of studying in the United States, the moment was marred by the knowledge that she must leave behind her mother, who had recently been diagnosed with colon cancer. Little did Peijun know that within three months of her arrival in America, she would learn that her mother was going to die, not from cancer but from tuberculosis.

Sadly, the news about her mother's tuberculosis was not a complete surprise to Peijun. The disease had first ravaged her sister-in-law then her brother, in recent years. When her mother became infected with it after caring for her brother, Peijun was faced with a dilemma. Should she return to China to visit her mother one last time and risk being exposed to the multidrug resistant strain of the disease that had killed two family members and was about to kill a third?

Ultimately, Peijun elected to go home to say good-bye to her mother. Before leaving for China, she wanted to learn whether there were any preventive measures she could take. She visited the campus student health center, where her tuberculosis status was already being monitored closely because of her family history. She was told there was little she could do other than start proactive treatment for tuberculosis once she returned from China. Six weeks into that treatment, she was told she had active germs in her body.

Whether she was exposed to those germs during one of the two visits she made to her brother when he was dying from the disease or during her deathbed visit to her mother, Peijun will never know. Despite her family's experience with tuberculosis, she was taken aback by the news that she had active tuberculosis disease. "That was really a shock," recalls Peijun. "I knew it was possible I could get it, but I really wasn't exposed that much to my family."

Peijun had already been on preventive medicine for six weeks. Three of the four drugs she had been taking were not working. This confirmed her fear that she, like her family, had the deadly multidrug resistant version of tuberculosis. A new regime was developed for her and for three months she made trips to the student health center five days a week to take her treatment. "The medicine was really strong," Peijun says. "I was sick all the time, stayed in bed for hours and vomited after most every dose." Even when her treatments were reduced down to three times a week, Peijun struggled. "After a while, you look at the medicine and you know it's going to make you sick and you don't want to take it," she says. "I always tell people how much the care and support from the people in the clinic meant to me. I know the clinic staff really cared about me and I didn't want to let them down."

After 13 months of treatment, Peijun received both good news and bad news. The good news was that she was cured; the bad news was that she needed to continue treatment for five more months to ensure the tuberculosis didn't come back. In early June of 2003, she took her last treatment and celebrated her survival while mourning a mother, brother and sister-in-law who had not been so lucky.

She attributes much of that luck to the early medical intervention she received in America. Looking back, Peijun believes she was originally cleared to come to the United States with questionable test results. Chinese doctors found a small spot on her chest x-ray but chalked it up to a calcification scar from a childhood tuberculosis episode, even though Peijun insisted she did not remember ever having tuberculosis. When she completed the required tuberculosis screening upon her arrival at the University of Alabama in Tuscaloosa, she was flagged for additional testing because of her family history with the disease. When clinic staff saw the spot, they asked her to come back every three months so they could monitor it.

Peijun takes comfort in that thorough care, knowing that even without the early intervention created by her visit to her mother, clinic staff would have diagnosed her disease sooner rather than later, and that sooner gave her a new chance at life.



# SETTING A TUBERCULOSIS POLICY

The first step toward preventing an outbreak of tuberculosis on a college campus is establishing a policy to screen for tuberculosis risk. The term “screening for tuberculosis” should not be confused with “testing for tuberculosis.” Screening is simply a tool to help identify which individuals on campus may be at risk for tuberculosis. When screening reveals an individual is at risk, testing can then be done to determine whether he does indeed have either latent tuberculosis infection or active tuberculosis disease.

This section will guide college administrators in setting both a tuberculosis risk screening and tuberculosis testing policy for their campus. Recommendations are based on American College of Health Association (ACHA) guidelines.

## **The need for a screening policy**

Tuberculosis is a potentially life-threatening disease that has the ability to spread quickly in the close confines of classrooms and dormitories on a college campus. It is much easier to prevent an outbreak than it is to control one once a case of active tuberculosis disease occurs. The simplest, most cost-effective way to prevent an outbreak is to screen all students for their risk of having tuberculosis. Putting a formal policy in place to institute tuberculosis risk screening is necessary to ensure that the risk screening occurs on a consistent basis. Strict adherence to the policy through consistent risk screening is critically important in accomplishing the goal of avoiding a tuberculosis outbreak. A basic tuberculosis risk screening policy should include guidelines on exactly who should be screened and how to best accomplish that screening.

## **Who should be screened**

It is recommended that ALL students be screened for tuberculosis risk. For some colleges, a risk screening policy for faculty and staff may be necessary as well. For instance, if a college has a significant number of visiting foreign-born faculty or U.S. born faculty who frequently travel out of the country to countries with high tuberculosis prevalence, having a risk screening policy in place for faculty and staff is encouraged as well.

## **How to screen for tuberculosis risk**

Screening for tuberculosis can be accomplished by completion of a simple questionnaire that assesses an individual’s risk for tuberculosis. Is the student from a country where tuberculosis is common? Has the student traveled to a country where tuberculosis is common? Does the student have a chronic medical condition that impairs the immune system? Is the student a health-care worker or a volunteer or employee of a nursing home, prison or other residential institution? Has the student had contact with a person known to have active tuberculosis? Answering “yes” to any of these questions will necessitate that the individual undergo further evaluation and testing to ensure he does not have latent tuberculosis infection or active tuberculosis disease.

The risk screening tool should be based on guidelines from the American College of Health Association and Centers for Disease Control and Prevention. A sample screening questionnaire is found in the “Sample Forms” section of this manual.

## **When to screen for tuberculosis risk**

Ideally, all students new to campus should complete the risk screening questionnaire at the beginning of their first academic term. Early screening will allow enough time for follow-up evaluation and testing, if deemed necessary, to be conducted before registration begins for the next academic term.

Colleges will need to determine the department on their campus that will be in charge of distributing the risk screening forms to new students and subsequently tracking and documenting the return of the forms. For some campuses, the logical choice for this task will be a department that is already involved with contacting students prior to their arrival on campus, such as the admissions or registration departments. Colleges already screening for compliance with MMR or meningitis vaccination requirements can easily adapt the process for tuberculosis. Example screening forms that include



both vaccination and tuberculosis risk factor screening are found in the “Sample Forms” section of this manual.

### **Screening existing students**

When a new risk screening policy is initiated on a campus, a college will have to make a decision about whether to screen existing students for their tuberculosis risk or phase the policy in by only screening new students. If the decision is made to screen existing students, the most efficient way to do this will vary from college to college. Sending risk screening questionnaires (along with pre addressed and stamped return envelopes) to the local addresses of existing students at the beginning of the academic term and asking them to complete and return the form within a designated time period is one approach to implementing the policy among existing students.

As with new students, colleges will need to assign a department to be in charge of distributing risk screening forms to existing students and then tracking and documenting compliance as well as the results of the screening.

### **Ensuring compliance**

To ensure new and existing students complete and return the risk screening form, colleges must establish a meaningful consequence for those students not complying with the tuberculosis screening and testing policy requirement. For instance, a college could place an administrative hold on registration for subsequent academic terms until students return the form.

### **Tuberculosis testing policy**

While less than 1 percent of U.S. born students who undergo the initial screening will be identified as being at risk for tuberculosis, the same cannot be said of foreign-born students. As much as 90 percent of this student population will answer “yes” to one or more questions on the questionnaire, thereby screening positive for being at high risk for tuberculosis. These students will need to undergo further evaluation and testing. The recommended protocol for evaluating and testing students who screen positive for being at high risk for tuberculosis is found in the sample policy included in this section. A college’s tuberculosis policy should clearly outline the protocol to be followed in these cases. This policy should include provisions for:

- Ensuring students who test positive for tuberculosis infection receive an annual signs and symptoms review should they decline or fail to complete treatment.
- Outlining circumstances when a student should be under respiratory isolation and prevented from attending class or other campus events.

Issues to consider in developing a thorough policy for your campus will be discussed in the Latent Tuberculosis Infection and Active Disease sections of this manual. An algorithm at the end of this section outlines the general protocol your college can use in implementing a tuberculosis policy.

### **A word on discrimination**

A sound tuberculosis risk screening policy will avoid discriminating against any group by requiring risk screening for *all* students. Students who are found to be at-risk for tuberculosis will undergo further evaluation and testing, not based on their nationality or race, but because of their screening results. By initially risk screening *all* students, colleges will not only be conducting a thorough tuberculosis risk assessment but will also be avoiding any appearance of discrimination. However, it is suggested colleges consult with their legal counsel before adopting any tuberculosis screening policy.

### Developing a tuberculosis core team

When developing a tuberculosis policy for a campus, it is advisable to involve the areas that will be responsible for implementing the policy. Departments to consider involving and their potential roles include:

<i>Department to involve</i>	<i>Role</i>
Admissions	Sending/tracking risk screening forms
Registration	Enforcing registration restrictions for students who have not completed a risk screening form
Student health center	Coordinating testing and treatment protocols for tuberculosis policy
Fiscal administration	Identifying cost issues of policy
Public relations	Developing a plan for communicating the implementation of the new screening policy to students, parents, faculty and staff. Developing a communication plan to respond to questions/concerns in the event of an active tuberculosis case on campus, or when students have visible reactions to a tuberculosis skin test
Legal counsel	Ensuring policy is appropriate/non-discriminatory
International student groups	Consulting on logistics or potential issues of concern to international student population

### Creating a policy

A sample policy can be found at the end of this section to help colleges in creating a policy of their own. Two things should be noted:

- The sample policy is simply meant to be a template. Colleges will need to adapt it to fit the processes and departments that are individual to their campuses. For instance, colleges without a student health center will need to designate an alternative department to take the lead in coordinating and documenting testing.
- For simplicity sake, the sample policy contains very broad guidelines on how to handle tuberculosis screening, testing and treatment. More detailed information on all of these aspects is included in the appropriate sections of this manual.



## SETTING THE STAGE FOR IMPLEMENTATION

Developing a policy to screen students for tuberculosis is an important first step toward protecting the health of all students and faculty on campus, as well as the health of the local community. However, to be completely successful, the effort cannot end there. Colleges must be prepared to follow up on the eventual consequences of the policy. The facts are as follows:

- Since so many parts of the world are tuberculosis-endemic, campuses can estimate that the majority of international students will fall into a high-risk category, particularly campuses that tend to enroll students from Asian, African or South American countries.
- An average of one-third of all international students will have a positive tuberculin skin test or positive blood test.

Following up on these screening and test results will be the challenging part of putting a tuberculosis policy in place. Laying the necessary groundwork — such as establishing testing and treatment protocols and developing a relationship with the local health department — is crucial to the ultimate success of the policy. How the stage is set before the policy becomes operational will vary from college to college, depending on the on-campus resources available, particularly whether a college has a student health center. For instance, colleges with a student health center may have trained medical personnel who can offer testing, diagnosis and treatment on site. Colleges without a student health center will need to focus their efforts on establishing relationships with agencies that can assist in coordinating that testing, diagnosis and treatment.

This section addresses the issues that colleges will need to consider as they establish procedures to follow through on positive risk screening results and positive tuberculin skin tests or positive blood tests. It is essential to have these protocols in place before implementing a tuberculosis risk screening policy on a college campus. For ease of use, there are two checklists — one for colleges with a student health center and one for colleges with no student health center. Colleges that have a student health center with limited resources may find it most beneficial to follow the latter checklist. A separate checklist is also provided for establishing a working relationship with a local health department, a necessity regardless of whether a college has a student health center.

### CHECKLIST FOR COLLEGES WITH A STUDENT HEALTH CENTER

- Establish a partnership with the local health department. More information on developing this relationship is found later in this section.
- If medical personnel at the student health center will be offering testing, diagnosis and/or treatment, follow the guidelines in the Centers for Disease Control and Prevention's *Core Curriculum on Tuberculosis* accessible at <http://www.cdc.gov/nchstp/tb/pubs/dtbeoth.htm> to ensure standard protocols are being met.
- If medical personnel at the student health center will be offering skin testing, prepare and train staff to conduct and interpret Mantoux skin tests. The CDC's Mantoux Tuberculin Skin Test training video and booklet is one suggested resource for this training. The "Helpful Resources" section of this manual provides information on where to obtain a free copy of this video and booklet.
- If the student health center does not have equipment to perform chest x-rays, find out which medical facilities in the area (hospitals, radiology clinics, health departments) offer that test and will accept referred students.
- If medical personnel at the student health center will be offering treatment on site, develop a process for administering



that treatment, particularly directly observed therapy (DOT). The goal of the process should be to make it as easy as possible for the student to receive treatment, while at the same time, allowing staff to monitor the student's adherence to the treatment regimen. In the "Sample Forms" section of this manual there is a student handout that colleges can use as an example of how they might handle the treatment process on their campus.

- Be prepared to answer and respond to students who have had the *Bacille Calmette Guerin* (BCG) vaccine and believe they are protected from tuberculosis.
- Be prepared to answer and respond to students who have had previous positive skin tests and a history of treated tuberculosis.
- Acquire patient education materials on tuberculosis that can be given to students. Materials should cover basics of tuberculosis, as well as testing and treatment protocols for tuberculosis. Have translated information on hand for students who do not speak English well. Some of these materials can be found in the "Patient Education" section of this manual.
- Prepare college fiscal staff and student health center staff to respond to students' questions about the costs they may incur for testing and treatment if they do not have health insurance. Explore availability of free care from public agencies for procedures such as chest x-rays and sputum cultures and the availability of free medication for treatment.
- If a college requires international students to purchase health insurance as part of enrollment, contact the college's affiliated insurer. Determine which medical expenses (chest x-rays, office visits, etc.) associated with the diagnosis of latent tuberculosis infection or active tuberculosis disease is covered under the policy.

## CHECKLIST FOR COLLEGES WITHOUT A STUDENT HEALTH CENTER

- Establish a partnership with the local health department. More information on developing this relationship is found later in this section.
- Prepare a list of names and numbers for medical providers who can perform tuberculosis testing. The list might include local family physicians, internists and nurse practitioners as well as any local health agencies and community clinics that offer skin testing or blood tests for tuberculosis. The local health department can assist in developing this list. Provide this list to students who screen positive for tuberculosis risk and need further testing to determine whether they have tuberculosis.
- Prepare a list of names and numbers of medical facilities in the area that perform chest x-rays. The list might include local hospitals, radiology clinics and health agencies. The local health department can assist in developing this list. Provide this list to students who have a positive tuberculin skin test or blood test and need a chest x-ray to determine whether they have active tuberculosis disease.
- Since students will be receiving testing, diagnosis and treatment from medical providers outside the college, a protocol must be established for those providers to report back to the college about the results of a student's tuberculosis testing, diagnosis and treatment.
- Be prepared to answer and respond to students who have had the *Bacille Calmette Guerin* (BCG) vaccine and believe they are protected from tuberculosis.

- ❑ Be prepared to answer and respond to students who have had previous positives and a previous history of tuberculosis.
- ❑ Acquire patient education materials on tuberculosis that can be given to students as needed. Materials should cover basics of tuberculosis, as well as testing and treatment protocols for tuberculosis. Have translated information on hand for students who are not fluent in English. Some of these materials can be found in the “Patient Education” section of this manual.
- ❑ Prepare college fiscal staff to respond to students’ questions about the costs they may incur for testing and treatment if they do not have health insurance. Explore availability of free care from public agencies for procedures such as chest x-rays and sputum cultures and the availability of free medication for treatment.
- ❑ If a college requires international students to purchase health insurance as part of enrollment, contact the college’s affiliated insurer. Determine which medical expenses (chest x-rays, office visits, etc.) associated with the diagnosis of latent tuberculosis infection or active tuberculosis disease is covered under the policy.

## HOW TO PARTNER WITH THE LOCAL HEALTH DEPARTMENT

Before implementing a campus tuberculosis policy, it is vital to establish a partnership with the local health department. The college must become familiar with the assistance offered by the local health department as well as the public health requirements related to tuberculosis. Below are some issues to discuss when developing this relationship.

- ❑ Colleges without student health centers or medical personnel to administer diagnostic tuberculosis testing and/or chest x-rays should find out what kind of assistance the health department offers in these areas and what the charges are for these tests. If the department does not provide these services, seek its guidance on other community resources that can help.
- ❑ What reporting should be done to the health department when a college learns that a student has tested positive for tuberculosis in the past?
- ❑ What reporting should be done to the health department when a college learns that a student has a previous history of tuberculosis?
- ❑ What is the protocol for communicating to the health department medical information about students who test positive for active tuberculosis disease?
- ❑ Will the health department offer treatment for students who have been diagnosed with latent tuberculosis infection or active tuberculosis disease?
- ❑ In the event of an active case of tuberculosis disease, how does the health department want to partner with the college in managing the case? What assistance can the health department offer in contact investigation and identifying an appropriate place to isolate the student when isolation is necessary?
- ❑ What patient education materials can the health department provide?
- ❑ What free or low-cost services are available to students who need testing or treatment but do not have insurance or the financial means to pay for their medical care?



# TUBERCULOSIS TESTING

Students who answered “yes” to one or more questions on the screening questionnaire are at risk for having latent tuberculosis infection or active tuberculosis disease. To determine whether they have tuberculosis infection or have active tuberculosis disease, further evaluation and testing is necessary.

This section will guide colleges through the process of notifying students of their need to be tested and will provide direction, advice and resources on how to proceed with tuberculosis testing. How the testing process is handled will vary from college to college, depending on the on-campus resources available, particularly whether a college has a student health center. For instance, colleges with a student health center may have trained medical personnel who can offer testing on site. Colleges without a student health center will need to focus their efforts on establishing a relationship with the local health department for assistance with testing.

For ease of use, this section is divided into two parts — one for colleges with a student health center and one for colleges with no student health center or a student health center with limited resources.

## TUBERCULOSIS TESTING GUIDELINES

To be followed by colleges with a student health center

- STEP 1** Notify student of the need to be tested for tuberculosis
- STEP 2** Respond to any questions student may have about the tuberculosis testing process
- STEP 3** Conduct tuberculosis testing and clinical evaluation
- STEP 4** Discuss test results with student and document results in student’s file

### **STEP 1: Notify student of the need to be tested for tuberculosis**

Once the screening questionnaire identifies a student as at-risk for tuberculosis, the college should notify the student about the need to be tested for tuberculosis. This communication should explain that the student requires testing as a result of the screening questionnaire and should provide information on how the student should proceed with getting tested. As part of this communication with the student, it is suggested that colleges include patient education handouts with information about tuberculosis and the testing process.

A sample letter is found in the “Sample Forms” section of this manual. Patient education information can be found in the “Patient Education” section of this manual.

### **STEP 2: Respond to any questions student may have about the tuberculosis testing process**

Staff at the campus student health center should be prepared to respond to any questions or concerns a high-risk student may have about being tested. While most students will undergo tuberculosis testing willingly, some students may question their need to be tested. The “Patient Education” section of this manual contains handouts that can be given to students to help educate them about the process.

### **STEP 3: Conduct tuberculosis testing and clinical evaluation**

To determine whether a student has tuberculosis, the Mantoux single-step skin test can be performed. The Mantoux skin test is performed by placing an intradermal (just under the skin) injection of purified protein derivative (PPD) tuberculin into the inner surface of the forearm. The student must return to the campus student health center within 48 to 72 hours after the injection to have the reaction to the Mantoux test read by a trained health-care worker. Being adequately trained in administering and reading Mantoux skin test results is crucial to yielding accurate results. When administering and reading the results of tuberculin skin tests, health-care workers should follow the guidelines in the Centers for Disease Control and Prevention’s *Core Curriculum on Tuberculosis*. The link to this site can be found in the resources section of the manual. **Since the student is undergoing testing for identified risk factors, a result of 10mm or greater would always be considered positive, and in some situations a result of 5mm may be positive.**



Tuberculosis testing also can be accomplished with a blood test known as the QuantiFERON-TB Gold test, which has recently been approved by the Food and Drug Administration. The QuantiFERON test eliminates the false positive results found with tuberculin skin testing as they relate to the *Bacille Calmette Guerin* (BCG) vaccine. Colleges who want details on using this blood test in place of skin testing can consult the CDC's Web site at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5415a4.htm>.

#### **STEP 4: Discuss test results with student and document results in student's file**

Once a student's test results are known, student health center staff should discuss with the student whether the tuberculosis test was positive or negative. Students who have a negative test, who do not have signs or symptoms of tuberculosis and do not indicate any risk factors, do not have active tuberculosis disease or latent tuberculosis infection, and no further testing is necessary. A positive test requires further evaluation and diagnosis. Details on conducting that process can be found in the "Tuberculosis Diagnosis" section of this manual.

The test results should be documented in the student's file. A sample form that documents this information is included in the "Sample Forms" section of this manual. Please refer to FERPA (Family Education Rights and Privacy Act) for guidelines on handling student medical records at <http://www.ed.gov/policy/gen/guid/fpco/ferpa/index.html>.

## **TUBERCULOSIS TESTING GUIDELINES**

To be followed by colleges without a student health center or one with limited resources

- STEP 1**     Notify local health department of student's need to be tested
- STEP 2**     Notify student of the need to be tested and provide guidance on testing process
- STEP 3**     Document tuberculosis test results in student's file

#### **STEP 1: Notify local health department of student's need to be tested**

Most local health departments will be willing to conduct testing for those students whose screening questionnaire identifies them as at-risk for tuberculosis. Notifying the health department in advance of the student's need to be tested will help them coordinate the process so that they can track individual students and report test results back to the college.

#### **STEP 2: Notify student of the need to be tested and provide guidance on testing process**

Once the screening questionnaire identifies a student as at-risk for tuberculosis, the college should notify the student about the need to be tested. This communication should explain that the student is being targeted for testing as a result of the screening questionnaire. Inform the student that they should contact the local health department to arrange testing and should return documentation from the health department once the testing is complete.

As part of this communication with the student, colleges may choose to include patient education handouts with information about tuberculosis and the testing process. The "Patient Education" section of this manual contains handouts that can be given to students to help educate them about the process. Students who have further questions should be referred to the health department.

#### **STEP 3: Document tuberculosis test results in student's file**

The health department should provide the student with documentation of the test results. The student must then give that documentation to the college. A sample form that documents this information is included in the "Sample Forms" section of this manual.

Students who have a negative test, who do not have signs or symptoms of tuberculosis and do not indicate any risk factors, do not have active tuberculosis disease or latent tuberculosis infection, and no further testing is necessary. A positive test requires further evaluation and diagnosis. Details on conducting that process can be found in the "Diagnosis" section of this manual.

## TUBERCULOSIS DIAGNOSIS

Students who have a positive tuberculosis test result have likely been exposed to tuberculosis at some point in their life and are now infected with the bacteria that causes tuberculosis. A person can be infected with the bacteria that causes tuberculosis and not have active tuberculosis disease. This is known as latent tuberculosis infection and is not contagious. But at some point, latent tuberculosis infection can become active tuberculosis disease that is contagious. In fact, a person with latent infection has a 10 percent lifetime risk of developing active tuberculosis disease. At least 50 percent of this risk occurs within the first one to two years after infection, and the remainder of the risk occurs during total lifespan.

When a student has a positive tuberculosis test result, it is important to do further diagnosis to determine whether they have latent tuberculosis infection or active tuberculosis disease. This section will guide colleges through the process of diagnosing students who have a positive tuberculosis test result and will provide advice and resources on how to communicate with students about their need to diagnose their tuberculosis status. How the diagnostic process is handled will vary from college to college, depending on the on-campus resources available, particularly whether a college has a student health center. For instance, colleges with a student health center may have trained medical personnel who can provide physician examinations on site. Colleges without a student health center will need to focus their efforts on establishing a relationship with the local health department for assistance with diagnosis.

For ease of use, this section is divided into two parts — one for colleges with a student health center and one for colleges with no student health center or student health center with limited resources.

### TUBERCULOSIS DIAGNOSIS GUIDELINES

To be followed by colleges with a student health center

**STEP 1** Provide student with patient education about the meaning of a positive tuberculosis test

**STEP 2** Discuss with student financial/insurance issues related to diagnosis

**STEP 3** Schedule an appointment for the student to have a chest x-ray

**STEP 4** Conduct a medical examination of the student

**STEP 5** Discuss results of exam/chest x-ray with student and recommend how to proceed

**STEP 6** Document the results of the diagnosis in student's file

#### **STEP 1: Provide student with patient education about the meaning of a positive tuberculosis test**

When a student has a positive tuberculosis test result, it is likely he will have many questions. These questions may be as basic as “what is tuberculosis” to more complicated questions about whether having the Bacille Calmette Guerin (BCG) vaccine protects him from tuberculosis. Staff at a college's student health center should have patient education materials available to give students to help answer these questions.

While it is impossible to anticipate all potential questions or issues students may raise, the “Patient Education” section of this manual provides answers to some of the more common issues that colleges may encounter.

#### **STEP 2: Discuss with student financial/insurance issues related to diagnosis**

During the diagnosis phase, it is necessary for students with a positive tuberculosis test result to have a chest x-ray and medical exam. Who pays for this medical care can become an issue for students who do not have health insurance. College officials should be prepared to respond to these issues. The “Financial Implications” section of this manual can provide additional guidance in assisting students.

#### **STEP 3: Schedule an appointment for the student to have a chest x-ray**

The most effective diagnostic tool to determine whether a person's tuberculosis is latent infection or active disease is

a chest x-ray. If a college's student health center has equipment to perform a chest x-ray on site, an appointment should be scheduled for the student to have the chest x-ray done. Most student health centers, however, will not have the radiological capabilities on site. In these cases, the student health center should make arrangements for the student to have the chest x-ray done at a qualified facility and have the results reported back to the student health center.

#### **STEP 4: Conduct a medical examination of the student**

In addition to a chest x-ray, a physician or other qualified health-care provider should get a medical history and do a physical examination of the student, checking for symptoms of tuberculosis. It is recommended that the physical examination be done after the student health center has the results of the student's chest x-ray so that the results of both the x-ray and medical exam can be discussed with the student at the same time. Hints for conducting this examination can be found in the "Resources" section of this manual.

#### **STEP 5: Discuss results of exam/chest x-ray with student and recommend how to proceed**

Once results of the medical examination and chest x-ray are available, the physician should discuss with the student whether he has latent tuberculosis infection or whether it is possible he has active tuberculosis disease and needs further testing. Guidelines on recommendations to make to students with latent tuberculosis infection (LTBI) are found in the "LTBI" section of this manual. Guidelines on how to proceed with students who may have active tuberculosis are found in the "Active TB" section of this manual.

#### **STEP 6: Document the results of the diagnosis in student's file**

Once it is known whether the student has latent tuberculosis infection or whether it is possible the student has active tuberculosis disease and needs further testing, the tuberculosis status of the student should be noted in his file. How that diagnosis will affect the student's ability to register for courses also should be indicated.

## **TUBERCULOSIS DIAGNOSIS GUIDELINES**

To be followed by colleges without a student health center or one with limited resources

**STEP 1** Work with local health department to ensure student receives chest x-ray, medical exam and patient education

**STEP 2** Discuss with student financial/insurance issues related to diagnosis

**STEP 3** Document the results of the diagnosis in student's file

#### **STEP 1: Work with local health department to ensure student receives chest x-ray, medical exam and patient education**

The partnership between most colleges and health departments will involve the health department taking the lead in following up with students who have a positive tuberculosis test result. During this diagnostic phase, colleges can expect their partner health departments to coordinate chest x-rays and medical exams, as well as provide patient education and recommendations to students about what they need to do next based on the diagnosis they received. Colleges should work with the health department to determine the best way they can assist in these efforts.

#### **STEP 2: Discuss with student financial/insurance issues related to diagnosis**

During the diagnosis phase, the health department will arrange for students who have a positive tuberculosis test result to have a chest x-ray and medical exam. Who pays for this medical care can become an issue for students who do not have health insurance. College officials should be prepared to respond to these issues. The "Financial Implications" section of this manual can provide additional guidance in assisting students.

#### **STEP 3: Document the results of the diagnosis in student's file**

Colleges should ensure there is a procedure in place with the local health department for receiving documentation

about the tuberculosis status of students who have a positive tuberculosis test result. Whether they are diagnosed with latent tuberculosis infection or active tuberculosis disease — and how that diagnosis will affect their ability to register for courses — should be noted in their file.

## **TUBERCULOSIS AND OTHER RESPIRATORY ILLNESSES**

### **Tuberculosis and pneumonia**

Misdiagnosing tuberculosis as community acquired pneumonia (CAP) can be a real threat to controlling these two diseases on a college campus. Although CAP is more prevalent, tuberculosis should be suspected when a patient — particularly a patient with risk factors for tuberculosis and/or history of a positive skin test — presents with a persistent cough lasting greater than three weeks, fatigue, night sweats, weight loss, loss of appetite, productive cough, hemoptysis and fever. The American Thoracic Society recommends that all patients suspected of having CAP receive a chest radiograph to confirm the diagnosis. A chest x-ray can help distinguish tuberculosis from CAP because tuberculosis disease typically is found in the middle and upper lobes, while CAP is in the lower lobes. Making an accurate diagnosis has become even more critical with the increased use of quinolones to treat CAP. Quinolones are effective against tuberculosis and are listed in the category of second line drugs (e.g. levofloxacin, moxifloxacin, ciprofloxacin, etc.). Tuberculosis patients mistakenly diagnosed with CAP and placed on quinolone treatment will show improvement but will not be cured by this treatment alone. Repeated treatment with quinolones will potentially render the patient quinolone-resistant, causing the loss of an important second-line drug. See <http://www.thoracic.org/sections/publications/statements/pages/mtpi/commaq1-25.html>.

Student health centers should adopt a policy of chest x-ray confirmation of CAP, particularly for patients with known risk factors for tuberculosis. Ruling out tuberculosis and assuring that the patient is receiving appropriate antibiotic therapy is critical for the control of tuberculosis and CAP on campus.

### **Tuberculosis and SARS**

Tuberculosis and SARS have similar symptoms and without a balanced diagnostic process, tuberculosis can be misdiagnosed as SARS. As an example, in the 2002 and 2003 SARS outbreaks in China, 60 patients were incorrectly diagnosed with SARS when they actually had tuberculosis.

Again, diligent attention to evaluation and diagnosis for the patient at risk for both is needed. SARS typically begins abruptly with upper respiratory cold-like symptoms (cough, sore throat, rhinorrhea, chills, rigors, myalgia, headache), while tuberculosis tends to have a more insidious onset that usually does not involve cold symptoms. Chest radiographs for SARS are more similar to pneumonia than tuberculosis. See <http://www.cdc.gov/ncidod/sars/clinicalguidance.htm>.

### **Tuberculosis and Avian Influenza**

With the publicity about the looming threat of a pandemic influenza that many believe will begin in Asia, colleges must recognize this threat to a campus and prepare for its eventuality. A well-designed tuberculosis prevention and control program easily will allow campuses to prepare for flu. At-risk students (those from endemic countries or who travel to endemic countries) will have been identified and screened for tuberculosis. These screening programs could be readily adapted for Avian Flu surveillance. Preparing for pandemic and/or avian flu, campuses should work closely with the local public health system to design a comprehensive system to control against both tuberculosis and pandemic flu strain outbreaks on campus. Influenza symptoms are also more abrupt with rapid onset of high fever and myalgias, in contrast to tuberculosis, whose symptoms have a more gradual onset over several weeks. For more information on Avian Flu, see <http://www.cdc.gov/flu/avian>.



# LATENT TUBERCULOSIS INFECTION TREATMENT

Usually, students who have a positive skin or blood test, a normal chest x-ray and no signs or symptoms of tuberculosis will be diagnosed with latent tuberculosis infection, or LTBI. Having LTBI means a person has been exposed to tuberculosis at some point in his life and is now infected with the bacteria that cause the disease, but the disease remains dormant in the person's body and the person is not contagious. However, latent tuberculosis infection can become active tuberculosis disease that can be contagious. In fact, a person with latent infection has a 10 percent lifetime risk of developing active tuberculosis disease. At least 50 percent of this risk occurs within the first one to two years after infection, and the remainder of the risk occurs during total lifespan.

Therefore, the goal for students with LTBI is to treat them with medication that will rid their body of tuberculosis bacteria, thereby avoiding progression to active tuberculosis disease. Students with LTBI who are foreign-born are particularly crucial to treat because studies show that infected foreign-born persons are at higher risk for progressing to active disease within five years of arrival in the United States.

This section will guide colleges through the process of treating students with LTBI and will provide advice and resources on how to communicate with students about the advantages of having their tuberculosis infection treated. Colleges should be aware of the anxiety a tuberculosis diagnosis can create in international students, who may be particularly fearful the treatment will interfere with their plans to complete their studies in the United States. It also is important for colleges to recognize how difficult it can be for a student to complete treatment, which on average takes nine months. Providing support and encouragement to these students and making the process as easy as possible can be extremely helpful in raising treatment acceptance and completion rates on campus. For legal reasons, most colleges will not find it advisable to require treatment for LTBI, so this effort to support students and encourage acceptance and adherence to treatment is a critical component of a college's implementation of a tuberculosis policy.

How LTBI treatment is handled will vary from college to college, depending on the on-campus resources available, particularly whether a college has a student health center. For instance, colleges with a student health center may have trained medical personnel who can provide treatment on site. Colleges without a student health center will rely on the relationship they have established with the local health department to gain assistance with treatment.

For ease of use, this section is divided into two parts — one for colleges with a student health center and one for colleges with no student health center or student health center with limited resources.

## LTBI TREATMENT GUIDELINES

To be followed by colleges with a student health center

- STEP 1** Discuss with student financial/insurance issues related to treatment
- STEP 2** Discuss with student the LTBI diagnosis and recommended treatment
- STEP 3** Prepare to respond to student reluctance to take treatment
- STEP 4** If student consents to treatment, explain treatment schedule and process
- STEP 5** Document complete or incomplete treatment in student's file
- STEP 6** If student refuses treatment, explain follow-up requirements and document refusal

### **STEP 1: Discuss with student financial/insurance issues related to treatment**

Students who do not have health insurance may have concerns about who will pay for their medical treatment of latent tuberculosis infection (LTBI). College officials should be prepared to respond to this issue. Most states will provide the isoniazid (INH) medication used to treat LTBI at no charge to patients, so colleges should check with their local health



department about their state's policies. If coverage is not available, the "Financial Implications" section of this manual can provide guidance in assisting students.

### **STEP 2: Discuss with student the LTBI diagnosis and recommended treatment**

Once a diagnosis of LTBI is made, discuss with the student the meaning of the diagnosis and recommend treatment to keep the latent tuberculosis infection from progressing to active tuberculosis disease. The recommended treatment for LTBI is either an intermittent regimen of two oral doses of isoniazid (INH) medication each week for nine months, or daily INH for nine months. The standard of care for intermittent regimens in tuberculosis calls for directly observed therapy (DOT) of the INH medication, which is accomplished by having students visit the student health center twice a week so that staff can observe them take their medicine. Many students prefer this treatment regimen because it involves taking fewer pills and taking them less frequently in comparison to a daily self-administered treatment regimen (discussed below). DOT facilitates a partnership with the student health center staff to encourage students through their lengthy treatment and ensures students do not forget any doses. Students undergoing twice a week DOT must allow 48 hours between doses of INH medication, and treatment should continue for nine months as this duration has been shown to be the most effective. However, given the academic calendar, six months may be an acceptable alternative. Monthly check-ups with a health provider also are part of the DOT protocol.

While DOT is the preferred method of medication administration, it also is possible for students to do self-administered treatment (SAT) of the INH drugs. Self-administered treatment involves a daily oral dose of INH for nine months and monthly check-ups with a health-care provider.

The "Patient Education" section of this manual contains handouts that can be given to students to help educate them about LTBI and its treatment, including side effects of treatment. Student health center staff can find detailed guidelines for treatment in the Centers for Disease Control and Prevention's Core Curriculum on Tuberculosis accessible at <http://www.cdc.gov/nchstp/tb/pubs/dtbeoth.htm>. In addition, more detailed guidance can be found in the resource section of this manual.

### **STEP 3: Prepare to respond to student reluctance to take treatment**

Colleges should expect many students with LTBI to be reluctant to take treatment and should be prepared to respond to concerns about being treated. The reasons for this reluctance often can be overcome simply by educating the student fully about the clinical consequences of refusing treatment. Staff at a college's student health center should have patient education material available to give students to help answer their questions and concerns about treatment. While it is impossible to anticipate all potential reasons students may resist treatment, the "Patient Education" section of this manual provides suggested responses to some of the more common issues students may raise.

When it is feasible, colleges may consider offering incentives to encourage students to seek treatment for LTBI and to follow through completely with that treatment. Lack of rapport, support or encouragement between clinics and LTBI patients can be a major factor in reducing completion rates. Tuberculosis control and prevention programs often use incentives and enablers to either reduce financial barriers that can influence the patient's ability to complete treatment, or help facilitate a positive relationship between the clinic staff and the patient. These small and inexpensive gestures may be important strategies in building rapport with international students in particular, who often are skeptical about the need for LTBI treatment. Incentives and enablers may range from bus tokens to small rewards for completion milestones. Campuses have used bookstore coupons, small treats or gifts such as hats and gloves in the winter, candy and pizza coupons. One student health center had a cake and ice cream party when each student completed treatment. Other enablers for students who take self-administered therapy may include calendars, blister packs of pills, reminders and counseling at monthly follow-up appointments. **More suggestions for using incentives and enablers can be found in the "Helpful Resources" section of this manual.**

#### **STEP 4: If student consents to treatment, explain treatment schedule and process**

Once a student consents to receiving treatment for LTBI, student health center staff should go over in detail how the treatment process will work. Using a handout similar to the one included in the “Sample Forms” section of this manual may help allay concerns a student has about the process. Whether a student’s therapy is directly observed or self-administered, the student should be advised of the need to receive monthly monitoring. Student health center staff should emphasize the importance of following the medication regimen and should explain what to do if a dose is missed. Staff also should explain adverse drug reactions to the medicine and what the student should do if any signs or symptoms of these reactions occur.

#### **STEP 5: Document complete or incomplete treatment in student’s file**

Success or failure in completing LTBI treatment should be noted in their file. As part of the overall tuberculosis policy, campuses should require students with LTBI who refuse treatment or start but do not complete treatment to undergo an annual symptom evaluation by a medical professional familiar with tuberculosis before registering for courses for subsequent academic terms, and this requirement should be indicated in their file.

#### **STEP 6: If student refuses treatment, explain follow-up requirements and document refusal**

Despite a college’s best efforts, some students with LTBI will refuse to receive treatment. Most colleges will not find it advisable to require treatment, but they should require a student with LTBI to have an annual symptom evaluation by a medical professional familiar with tuberculosis before the student can register for courses for subsequent academic terms. In addition, these students should be given patient education information about the signs and symptoms of LTBI progression to active tuberculosis disease. Students should be advised to seek immediate medical attention if they begin experiencing any of those symptoms.

Students who decline treatment must complete a refusal of treatment form, and that documentation, along with the annual medical evaluation requirement, should be noted in their file. A sample refusal of treatment form and an annual health evaluation update form are found in the “Sample Forms” section of this manual.

## **LTBI TREATMENT GUIDELINES**

To be followed by colleges without a student health center or one with limited resources

**STEP 1** Work with local health department to ensure student receives information

**STEP 2** Discuss with student financial/insurance issues related to treatment

**STEP 3** If student consents to treatment, document complete or incomplete treatment in file

**STEP 4** If student refuses treatment, explain follow-up requirements and document refusal

#### **STEP 1: Work with local health department to ensure student receives information**

The partnership between most colleges and health departments will involve the health department taking the lead in following up with students who are diagnosed with latent tuberculosis infection (LTBI). During this stage, colleges can expect their partner health departments to provide students with patient education and recommendations on receiving treatment for their LTBI. Most health departments also will be able to provide students with the isoniazid (INH) medication used to treat LTBI. If the health department cannot provide this treatment on site, it can coordinate care with another local provider. Colleges should work with the health department to determine the best way they can assist in these efforts.

#### **STEP 2: Discuss with student financial/insurance issues related to treatment**

Students who do not have health insurance may have concerns about who will pay for their medical treatment of latent tuberculosis infection (LTBI). College officials should be prepared to respond to this issue. Most states will provide the

isoniazid (INH) medication used to treat LTBI at no charge to patients, so colleges should check with their local health department about their state's policies. If coverage is not available, the "Financial Implications" section of this manual can provide guidance in assisting students.

**STEP 3: If student consents to treatment, document complete or incomplete treatment in file**

Colleges should ensure there is a procedure in place for receiving documentation about the treatment status of students who have LTBI. Whether students with LTBI complete treatment should be noted in their file. Students with LTBI who refuse treatment or start but do not complete treatment should be required to undergo an annual symptom evaluation by a medical professional familiar with tuberculosis before registering for courses for subsequent academic terms, and this should be indicated in their file.

Sample forms that document an annual symptom check and the status of a student's LTBI treatment are included in the "Sample Forms" section of this manual.

**STEP 4: If student refuses treatment, explain follow-up requirements and document refusal**

During the treatment stage, colleges can expect their partner health departments to provide patient education to students about why treatment is recommended for their LTBI. Despite these efforts, some students with LTBI will refuse to receive treatment.

Most colleges will not find it advisable to require treatment, but they should require a student with LTBI to have an annual symptom evaluation by a medical professional familiar with tuberculosis before the student can register for courses for subsequent academic terms. In addition, the health department should give these students patient education information about the signs and symptoms that indicate LTBI might be progressing to active tuberculosis disease. Students should be advised to seek immediate medical attention if they begin experiencing any of those symptoms.

Students who decline treatment must complete a refusal of treatment form, and that documentation, along with the annual evaluation requirement, should be noted in their file. Colleges should ensure there is a procedure in place for receiving this documentation from the health department. A sample refusal of treatment form and an annual health evaluation update form are found in the "Sample Forms" section of this manual.

## ACTIVE TUBERCULOSIS

Students who have a positive skin or blood test, abnormal chest x-ray and/or signs and symptoms consistent with tuberculosis may have active tuberculosis disease and should be considered tuberculosis suspects. Further testing will need to be done to confirm active tuberculosis disease. In these instances where the skin or blood test is positive and the chest x-ray is abnormal, colleges should notify the local health department if it is not already involved in the case. The local health department will determine the extent and duration of isolation for those students suspected of having active tuberculosis disease.

The health department will be able to provide guidance on further evaluation of the student, which typically involves getting sputum samples to be examined by smear and culture. Colleges with a student health center that want to assume the responsibility of gathering a sputum sample from the student should coordinate their efforts with the local health department. Sputum and other specimens should be shipped to the state's tuberculosis lab for examination unless the state advises some alternative.

Colleges can expect the results of the sputum examination and medical evaluation to lead to one of the following two scenarios:

- The student does not have active tuberculosis disease, meaning the chest x-ray is abnormal for some other reason. However, because the skin or blood test is positive, it is assumed the student has latent tuberculosis infection (LTBI). In these instances, treatment is recommended and the student may continue attending classes. For these students, colleges should follow the protocols outlined in the "LTBI" section of this manual.
- The student is diagnosed with active tuberculosis disease. In conjunction with the local health department, the student should be isolated and prescribed a treatment regimen and cannot return to classes until a local health department has certified him as non-contagious and compliant with treatment. To further understand this process, refer to the algorithm found at the end of the "Sample Tuberculosis Policy" section of this manual.

This section will guide colleges through the process of handling an active case of tuberculosis disease on campus.

## GUIDELINES FOR ACTIVE TUBERCULOSIS

**STEP 1** Transfer care of infected student to local health department

**STEP 2** Establish a location to isolate infected student during treatment

**STEP 3** Determine who has come in contact with the infected student and provide the health department with a list so they can arrange testing for those individuals

**STEP 4** Prepare public relations materials to address the issue with students and public

**STEP 5** Discuss with student financial/insurance issues related to treatment

**STEP 6** Document treatment status in student's file

### **STEP 1: Transfer care of infected student to local health department**

Regardless of whether a campus has a student health center, if a student is diagnosed with active tuberculosis disease, a college must immediately report the case to the local health department and should transfer care of the infected student to the local health department. Active, contagious tuberculosis disease can be deadly and can spread relatively easily if it is not contained. Health department staff will be trained and experienced in handling the situation. In some cases, students may be co-managed by the college's student health center and the local health department. In other situations, it will be necessary for the health department to take over all aspects of the student's care, from educating the student on what having active contagious tuberculosis means to outlining the treatment necessary to cure the disease.

Colleges should work with the health department to determine the best way they can assist in these efforts.

### **STEP 2: Establish a location to isolate infected student during treatment**

Students who are diagnosed with active, contagious tuberculosis disease will probably not be hospitalized during their entire contagious period but will need to be isolated from unprotected contact with other people. In all likelihood, that means they will not be able to stay in their campus dorm. In most instances, a college and health department can work together to identify a place the student can stay in isolation while undergoing treatment. The student should remain in isolation until no longer contagious, which typically means meeting the following criteria:

- The student has a negligible likelihood of multidrug-resistant tuberculosis (e.g. no known exposure to multidrug-resistant tuberculosis).
- The student has received the standard multidrug antituberculosis therapy.
- The student has demonstrated clinical improvement.
- The student has provided three consecutive AFB-smear negative sputum specimens, collected 8 to 24 hours apart, with at least one morning specimen.

The local health department will determine when the student is no longer contagious and can be released from isolation.

### **STEP 3: Determine who has come in contact with the infected student and provide the health department with a list so they can arrange testing for those individuals**

A student infected with active, contagious tuberculosis disease has the potential to expose a large number of people to the disease. Those exposed are primarily limited to people who have had close, regular contact with the infected person, such as time spent together in a living space or classroom. It is important to identify as many of those contacts as possible **through a contact investigation**. The health department, college and infected student should work together to determine who may have been exposed. Once those contacts have been determined, the college should provide the health department with the list of names and phone numbers so it can arrange for those individuals to receive testing to determine if they have been exposed during their contact with the infected student. Due to patient confidentiality issues, it is illegal to publicize the infected student's name and to ask people who have had contact with the student to come forward for testing. The investigation of tuberculosis contacts varies from case to case depending on the student's living situation and level of activity. For example, all students who attended class in a small classroom with a highly infectious student may need to be tested. However, it is unlikely that everyone in the infected student's dormitory would need testing; instead testing would be done only on people with whom the infected student reported having close, personal contact.

### **STEP 4: Prepare public relations materials to address the issue with students and public**

**When a case of active, contagious tuberculosis disease occurs on a college campus, it will almost immediately become news. Students, their parents, faculty and the local community will all have a need for information. Colleges should be prepared ahead of time to manage the dissemination of that information in an honest, forthright and proactive manner that at all times protects the identity of the infected student. Preparing press kits containing basic information about tuberculosis will help educate those reporters who are covering the story. Identify one campus spokesperson to address questions about how the college is handling the situation and develop talking points for the spokesperson. It is advisable to leave the medical-related questions to the local health department to answer.**

Although every situation is different, a sample press release and talking points are included at the end of this section. Colleges can use these as a template for developing their own material specific to their situation. Basic information about tuberculosis can be found in the "Patient Education" section of this manual. Much of the information in this section can be adapted for dissemination to different audiences.

### **STEP 5: Discuss with student financial/insurance issues related to treatment**

Students who do not have insurance may have concerns about who will pay for their diagnostic tests and medical treatment for active tuberculosis disease. College officials should be prepared to respond to this issue. Most states will provide the medication used to treat active tuberculosis disease at no charge to patients, so colleges should check with their local health department about their state's policies. If coverage is not available, the "Financial Implications" section of this manual can provide guidance in assisting students.

### **STEP 6: Document treatment status in student's file**

Colleges should ensure there is a procedure in place for receiving documentation from the health department on the student's treatment status. Once the local health department has provided the college with documentation that the student is non-contagious and adhering to treatment, the student may return to class and may continue with coursework as long as treatment is maintained. If at any time the health department notifies the college that the student is not adhering to treatment, the student will not be allowed to continue enrollment at the college.

## **Public Relations Talking Points**

In the event a student on campus is diagnosed with active tuberculosis disease, designate a single spokesperson from the college to speak to the media about the actions being taken to ensure the health of the infected student and others on campus. It is recommended the college spokesperson defer medical questions regarding tuberculosis to the local health department.

While the details will vary with every case of active tuberculosis disease, below are some basic talking points the college spokesperson can use when communicating with the media, students, faculty and the local community. **A sample press release is available in the "Sample Forms" section of this manual.**

#### **Basic Talking Points:**

- There is a student with active tuberculosis disease on our college campus.
- Since this case of active tuberculosis disease is contagious, we are following public health guidelines that call for the isolation of the infected person.
- This student's tuberculosis was discovered as a result of a tuberculosis screening and testing policy the college has in place.
- Without the policy in place, it likely would have taken much longer to diagnose the student with tuberculosis, which means the student's health probably would have deteriorated and in the process would have exposed hundreds more students and faculty to the disease.
- The student will be allowed to return to class once the local public health agency deems the student is adhering to treatment and is no longer contagious.





# FINANCIAL IMPLICATIONS

Implementing a tuberculosis policy on a college campus has financial implications for both the college and its students. This section addresses those expenses and provides guidance to colleges on ways to handle them.

## Implications for colleges

The primary financial expense colleges will incur is in staff resources. A certain amount of staff time will need to be dedicated each academic term to assessing screening forms returned by incoming students new to the college. For students who are identified as at-risk for tuberculosis, staff time also will need to be allotted to guiding and tracking those students through the process of getting tested and, if necessary, treated.

The staff time necessary to ensure the policy is appropriately implemented will likely be split between different areas of campus. For instance, the initial assessment of screening forms might be done by a staff person in the admissions or registration department. Testing of students for tuberculosis might be done by a staff member of a college's student health center.

Colleges who have implemented a tuberculosis policy on their campus have found that they were able to do so with existing staff by sharing the implementation responsibilities among several staff members. Of course every college will be different, but as an example, the University of Missouri-Columbia used the equivalent of less than one staff person to fully implement its tuberculosis policy on its campus of 27,000 students.

## Implications for students

For colleges that enforce student visa requirements for international students to have health insurance, the financial implications to students will be few, if any, because most insurance plans will cover the costs associated with testing for tuberculosis and treatment medications.

Colleges that do not enforce the student visa requirement for health insurance should be prepared to assist students who may not have the financial resources to pay for testing and treatment that results from the tuberculosis policy's implementation. While medical costs will vary in different parts of the country, in general, students can expect the following costs associated with testing and treating tuberculosis.

<b>Skin test</b>	\$0-\$15
<b>Chest x-ray</b>	\$75-\$150
<b>Doctor visit to diagnose TB status</b>	\$50-\$250
<b>Isoniazid (INH) medication</b>	\$10-\$20 for nine months of treatment

Colleges can assist uninsured students who do not have the ability to pay for these medical expenses, primarily in two ways.

- Identify medical providers or public agencies that will offer testing and treatment to uninsured students for free or at a reduced cost. If the local health department does not offer these reduced cost services, seek its assistance in finding other area providers that might.
- Identify insurance providers who will insure the student at an affordable rate. There are several companies that focus on offering insurance to college students, with some of them insuring only international students.



## PROGRAM EVALUATION

Once colleges have fully implemented a tuberculosis risk screening and tuberculosis testing policy, they may want to consider an evaluation of the program. It is likely that this type of evaluation will necessitate a database tracking system, which at a minimum should include the following parameters to be collected for each student:

- Student name
- Date of birth
- Country of origin
- Year of arrival
- Address
- Phone number
- Date tested
- Date skin test read
- Mm reading of skin test
- Reason tested
- Chest x-ray results
- Treatment
- Completion of treatment
- If treatment not completed, cite reason (adverse event, patient chose not to complete, etc.)

Once the information above is gathered for each student and is entered into a database system, the individual data can be analyzed in aggregate. Local health departments may have LTBI tracking systems readily available for use to accomplish this level of evaluation. It is highly recommended that campuses coordinate closely with health departments before developing a surveillance system. Surveillance data needed for evaluation, at a minimum, should include the following:

- Number of students tested
- Number of students evaluated (include students completing tuberculin skin tests or blood tests plus students with positive tuberculin skin tests or blood tests who complete chest x-rays and physical exams)
- Number of cases of active tuberculosis disease
- Number of cases of latent tuberculosis infection
- Number of students eligible for treatment
- Number of students starting treatment
- Number of students completing treatment
- If treatment not completed, cite reason (adverse event, patient chose not to complete, etc.)

Collecting this surveillance data will assist college administrators in evaluating the outcome of having the tuberculosis risk screening and tuberculosis testing policy in place for their campuses. In addition, the data may generate the desire for further study, such as evaluating the reasons or barriers to initiating treatment or completion of treatment. Delving into these issues will involve more process-oriented evaluation questions and should be implemented under the guidance of specialized expertise either at the state or local health department or expertise on campus. For more information on evaluating targeted testing sites, please review the following Web site: [http://www.cdc.gov/nchstp/tb/pubs/PDF/ARPEs\\_manual.pdf](http://www.cdc.gov/nchstp/tb/pubs/PDF/ARPEs_manual.pdf).



# SAMPLE TUBERCULOSIS POLICY

## POLICY PURPOSE

To help avoid an outbreak of tuberculosis on campus, the following policy concerning risk screening and testing for tuberculosis is in place for (COLLEGE NAME).

## RISK SCREENING POLICY

All new students are required to complete a screening questionnaire to assess their risk factors for tuberculosis.

### Administering risk screening questionnaire for new students

The risk screening questionnaire will be sent to students accepted to (COLLEGE NAME) with all other forms students are required to complete. The risk screening questionnaire must be completed within the first two weeks of a student's first academic term at (COLLEGE NAME). The (DEPARTMENT NAME) is responsible for ensuring that the questionnaire is sent to all newly accepted students.

### Evaluation of risk screening questionnaires

Completed questionnaires will be sent to the (DEPARTMENT NAME). The (DEPARTMENT NAME) is responsible for documenting the return of the form and the initial evaluation of each completed questionnaire. The following information should be indicated in each student's file:

- Date the questionnaire was received and evaluated
- The number of "yes" responses checked in the questionnaire
- Copy of completed questionnaire

Students whose questionnaires contained all "no" responses are deemed NOT to be at risk for tuberculosis. These students do NOT need to be tested for tuberculosis and will be allowed to register for courses. This should be noted in their file.

Students whose questionnaires contained one or more "yes" responses must undergo further evaluation and testing to determine if they have tuberculosis. These questionnaires should be sent to the Student Health Center for further action. These students will NOT be allowed to register for courses for the next academic term until further testing has been completed, and that restriction will be noted in their file. It is the responsibility of the (DEPARTMENT NAME) to initially notify students that they need to undergo further testing for tuberculosis and that a registration restriction has been placed on their file until that testing is completed. Follow-up contact to arrange testing will be made by the Student Health Center (see below).

## TESTING POLICY

All students who answered "yes" to one or more questions on the risk screening questionnaire are required to undergo further evaluation and testing to determine whether they have tuberculosis, unless they have documented negative results of a tuberculin skin test done in the United States in the last year and did not indicate any risk factors. Students who have a history of positive tuberculin skin tests or previous tuberculosis disease should provide documentation of appropriate evaluation. The Student Health Center is responsible for notifying students of their need for further testing and should do so within the first two weeks of the current academic term. Students who need further testing must complete the evaluation process as soon as possible. (Policy note to colleges: A policy concerning the evaluation should be practical for your campus but must be stringent enough to ensure prompt compliance by the student. For example, students who fail to comply within the time frame established in the policy may be administratively dropped from classes and/or may have registrations held for future academic terms.)



## **Testing protocol**

The following testing protocol should be followed for all students who answered “yes” to one or more questions on the screening questionnaire.

### **Step 1 — tuberculosis testing**

All students who answered “yes” to one or more questions on the screening questionnaire are required to be tested for tuberculosis, unless there is evidence of a previous documented negative skin test result from the United States done in the last year and no risk factors were indicated. The Student Health Center is responsible for administering this test or coordinating the test with an agency/health-care provider for students who are not currently on campus. Once notified of their need to be tested for tuberculosis, students have two weeks to be tested.

Students whose tuberculosis test is NEGATIVE and have not indicated any risk factors, are deemed NOT to be infected with tuberculosis and no further testing is needed. These students will be allowed to register for the subsequent academic term. It is the responsibility of the Student Health Center to notify the student of the negative finding and to notify the (DEPARTMENT NAME) that the student’s course registration restriction is lifted; it is the responsibility of the (DEPARTMENT NAME) to ensure this update is made in the student’s file.

Students whose tuberculosis test is POSITIVE must undergo a chest x-ray and clinical evaluation to assess signs and symptoms of tuberculosis. It is the responsibility of the Student Health Center to notify the student of the positive test result and the need for a chest x-ray.

### **Step 2 — chest x-ray and diagnosis**

All students whose tuberculosis test is POSITIVE or are symptomatic for active tuberculosis disease must undergo a chest x-ray and physical exam with emphasis on signs and symptoms of tuberculosis. The Student Health Center will make arrangements for these students to have a chest x-ray done at a qualified facility as soon as possible. Results of the chest x-ray must be provided to the Student Health Center by a certified health provider within one week of learning of a positive tuberculosis test result.

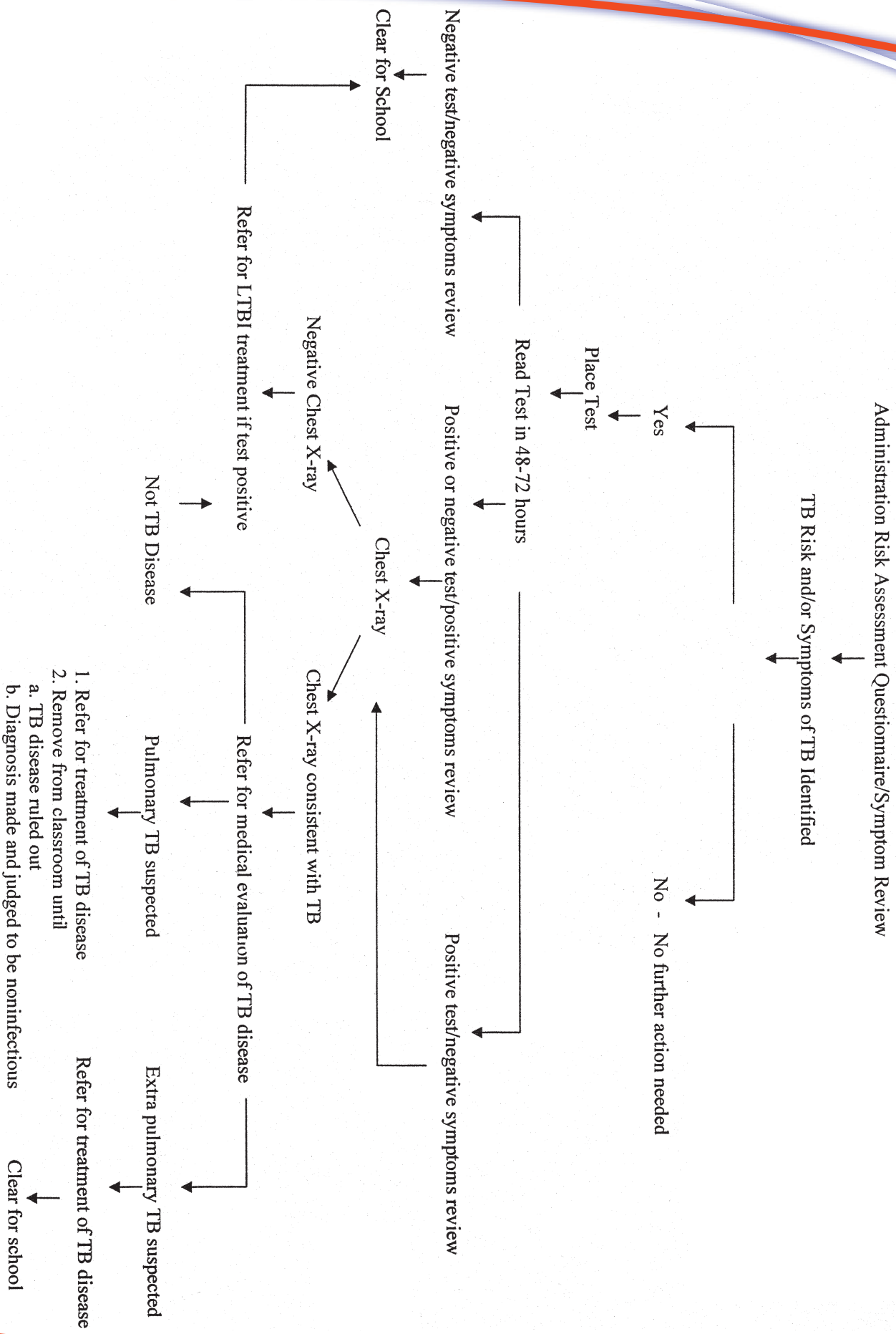
Students whose tuberculosis test is POSITIVE, chest x-rays are NORMAL and have a negative physical exam do not have active tuberculosis disease but meet the diagnostic criteria for latent tuberculosis infection. It is recommended that these students undergo treatment. It is the responsibility of the Student Health Center to coordinate and document whether a student completes treatment. It is also the responsibility of the Student Health Center to document if a student begins treatment but does not complete it, or if a student refuses treatment altogether. In these instances, the student should be required to receive an annual symptom evaluation by a medical professional familiar with tuberculosis before being allowed to register for subsequent academic terms.

Students whose chest x-rays are ABNORMAL need further testing to determine whether they have active tuberculosis disease. It is the responsibility of the Student Health Center to notify the local health department that a student has a positive tuberculosis test result and an abnormal chest x-ray and to seek its guidance on further evaluation. One of the following three scenarios can be expected:

If upon further testing it is determined a student does not have active tuberculosis disease, a diagnosis of latent tuberculosis infection is assumed. It is recommended that these students undergo treatment. It is the responsibility of the Student Health Center to coordinate and document whether a student completes treatment. It is also the responsibility of the Student Health Center to document if a student begins treatment but does not complete it, or if a student refuses treatment altogether. In these instances, the student is required to receive an annual symptom evaluation by a medical professional familiar with tuberculosis before being allowed to register for subsequent academic terms.

If upon further testing a student is diagnosed with active tuberculosis disease that is non-contagious (as determined by the local health department), the student must undergo treatment to remain enrolled at (COLLEGE NAME). The student may continue to attend classes as long as he adheres to treatment. It is the responsibility of the Student Health Center to document that a student has completed treatment for non-contagious active tuberculosis disease.

If upon further testing a student is diagnosed with active tuberculosis disease that is contagious, the Student Health Center will work closely with the local health department to isolate and treat the infected student and to identify and test people who have come in contact with the infected student. The (COLLEGE NAME) will implement appropriate communication efforts with students, parents and the community to inform them of the diagnosis of active tuberculosis disease on the (COLLEGE NAME) campus. All students who have been diagnosed with active tuberculosis disease must be certified by the local health department as non-contagious and in adherence with their treatment before they are allowed to return to campus. The Student Health Center is responsible for documenting this in the student's file.



## SAMPLE PRESS RELEASE

For more information, contact:  
(CONTACT NAME HERE)  
(CONTACT PHONE NUMBER HERE)

(DATE OF RELEASE)  
FOR IMMEDIATE RELEASE

### **(COLLEGE NAME) Student Diagnosed With Active Tuberculosis Disease**

(CITY, STATE) — A student at (COLLEGE NAME) has been diagnosed with active tuberculosis disease and has been temporarily isolated from unprotected contact with others while undergoing treatment for the disease.

Tuberculosis, commonly known as TB, is a disease that can damage a person's lungs or other parts of the body, causing serious illness. It is spread when a person with active, untreated tuberculosis germs in the lungs or throat expels those germs into the air by coughing, sneezing or speaking. Only people who breathe these germs into their lungs can become infected. Usually people who have had very close, day-to-day contact with the infected person are the only persons who are at a higher risk of contracting the illness. TB is less contagious than measles, mumps, chicken pox and influenza.

While the college is not naming the student for confidentiality reasons, college officials are working with the student and the local health department to identify those people who are known to have had close, regular contact with the student. Those people are being contacted and asked to come in for testing to determine whether they have been exposed to the disease.

"Because the close confines of classrooms and dormitories make the college campus an environment where tuberculosis can spread quickly, (COLLEGE NAME) follows the public health recommendation to isolate any student with active tuberculosis disease," said (NAME), (TITLE) at (COLLEGE NAME). "Once a public health agency deems the student is improving and is no longer contagious, the student will be able to return to class."

The diagnosis of a case of active tuberculosis disease came as a direct result of a tuberculosis screening and testing policy that (COLLEGE NAME) implemented in (YEAR). The policy mandates that all students new to campus complete a questionnaire that screens them for their risk of tuberculosis. Students who screen positive must undergo a skin or blood test to determine whether they have been exposed to the disease. Those whose skin or blood tests are positive undergo further testing to determine whether they have latent tuberculosis infection or active tuberculosis disease. Students with latent tuberculosis infection have tuberculosis germs in their bodies but the germs are inactive and are not contagious. These students are encouraged to receive treatment to prevent their tuberculosis germs from becoming active. According to the policy, students who are diagnosed with active tuberculosis disease must undergo treatment even if their disease is deemed non-contagious. All contagious active tuberculosis disease cases require isolation and treatment.

According to college officials, since implementing the policy (NUMBER) cases of latent tuberculosis infection have been diagnosed, but this is the first case of active tuberculosis disease identified. "The good news is that we were able to identify this person and get treatment started a lot sooner than we might have otherwise since most tuberculosis symptoms like coughing, fatigue and fever mimic other illnesses," said (LAST NAME OF SPOKESPERSON). "Without the policy in place, this person's health likely would have deteriorated before an accurate diagnosis was made, and in the process hundreds more students and faculty could have been exposed."

# TB Screening Sample Form

Name _____		
Address _____		
Student # _____		
DOB _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female

Date \_\_\_\_\_

Daytime Phone \_\_\_\_\_

(circle) Grad Student Undergrad Student

Area of Study \_\_\_\_\_

Ethnic Origin (circle) Hispanic Non Hispanic

**Race** (circle) Alaskan Native American Indian Asian Black Pacific Islander White Other

**Occupation** Student Other \_\_\_\_\_ Employer \_\_\_\_\_

**Country of Origin** USA Other \_\_\_\_\_ Arrival Date to USA \_\_\_\_\_ Refugee? Yes or No

Spent time in foreign countries? Yes or No If Yes, which country? Date and reason for visits \_\_\_\_\_

**Screening History** Self Other \_\_\_\_\_ **Reasoning for testing** Required Job Required Other \_\_\_\_\_

BCG Vaccine	
History of BCG Vaccine? Yes No Unknown	
If Yes, Date _____	Unknown

TB Skin Test	
History of TB skin test? Yes No Unknown	
If Yes, Date _____	Unknown
Where _____	
Reason _____	
<b>Type</b> Mantoux PPD Tine Unknown	
<b>Result</b> Positive Negative Unknown	
mm induration _____	Unknown

Chest X-ray	
History of Chest X-ray? Yes No Unknown	
If Yes, Date _____	Unknown
Where _____	
Reason _____	
<b>Result</b> Normal Unknown	

## Treatment / Disease History

Have you ever been diagnosed with TB infection? Yes or No with TB disease? Yes or No

Have you ever taken medication for TB exposure or TB infection? Yes or No for TB disease? Yes or No

If Yes, Dates of Treatment? \_\_\_\_\_ Unknown Length of treatment? \_\_\_\_\_ Unknown Did you complete the treatment? Yes or No

Where were you treated (facility, city, state)? \_\_\_\_\_ Unknown

What medications did you take? (circle) Streptomycin Isoniazid (INH) Rifampin (RIF) Pyrazinamide (PZA) Ethambutol (EMB) Unknown  
Other \_\_\_\_\_

## Risk Review (check any of the following that apply):

<input type="checkbox"/> Recent contact to active TB case <input type="checkbox"/> Known or suspected HIV positive <input type="checkbox"/> Abnormal chest x-ray <input type="checkbox"/> Immunosuppressive condition such as organ transplant or immunosuppressive or corticosteroid drug therapy	<b>≥ 5mm</b>
<b>Medical Conditions</b> <input type="checkbox"/> diabetes mellitus <input type="checkbox"/> end-stage kidney disease <input type="checkbox"/> silicosis <input type="checkbox"/> intestinal bypass or gastrectomy (stomach removal) <input type="checkbox"/> head and/or neck cancer <input type="checkbox"/> chronic malabsorption syndromes <input type="checkbox"/> Leukemia, lymphoma or Hodgkin's disease <input type="checkbox"/> low body weight (10% or more below ideal) <input type="checkbox"/> IV drug use <input type="checkbox"/> Foreign born, recent arrivals (<5yrs) from high prevalence countries, spent ≥ 2 consecutive months in TBEN countries, or spent < 2 months in TBEN countries and had routine contact with hospital, prison, or homeless shelter populations. <input type="checkbox"/> Mycobacteriology laboratory personnel <input type="checkbox"/> Health care worker: resident or employee of high risk setting (hospital or other health care facility, mental health facility, correctional facility, nursing home, homeless shelter, or residential facility for persons with AIDS)	<b>≥ 10mm</b>
<input type="checkbox"/> No known risk	<b>≥ 15 mm</b>
<b>Potential Causes of Anergy (absence of reaction)</b> <input type="checkbox"/> Sarcoidosis <input type="checkbox"/> Current severe or febrile illness <input type="checkbox"/> Current viral infection <input type="checkbox"/> Had live vaccine within past 6 weeks (Yellow fever, MMR, Varicella, Smallpox)	
<b>Tuberculosis Disease Symptoms (refer to proficer if TB is suspected)</b> <input type="checkbox"/> Chest pain <input type="checkbox"/> Fatigue <input type="checkbox"/> Productive cough (coughing up something) <input type="checkbox"/> Chills <input type="checkbox"/> Unexplained fever <input type="checkbox"/> Respiratory difficulty (shortness of breath) <input type="checkbox"/> Cough ≥ 3 weeks <input type="checkbox"/> Loss of appetite <input type="checkbox"/> Unexplained weight loss <input type="checkbox"/> Coughing up blood <input type="checkbox"/> Night sweats <input type="checkbox"/> Weakness	

I have read the TB Fact Sheet and have had the opportunity to ask questions. I believe I understand the benefits and risks, and authorize tuberculin skin testing.

**Patient Signature** \_\_\_\_\_

# TB Screening Sample Form

(Insert name of school and address here)

---

## For Office Use Only

- Symptoms review completed. Patient asymptomatic / symptomatic\*
- PPD not placed due to: Past Positive PPD (see checklist below\*\*) / Other
- TB Fact Sheet given to patient to read? Yes or No English language / Native language

---

### Application - PPD #1 ( #1 of )

Date of tuberculin test application \_\_\_\_\_ Time \_\_\_\_\_

PPD Dosage / Site / Route / Manufacturer / Lot# / Exp date: 0.1 ml / \_\_\_\_\_ forearm / ID / Aventis / \_\_\_\_\_ Expires: \_\_\_\_\_

Nurse's Signature \_\_\_\_\_

Reading Date read \_\_\_\_\_ Time read \_\_\_\_\_ Induration \_\_\_\_\_ mm

Interpretation\*\*\* Negative / Positive Nurse's Signature \_\_\_\_\_

---

### Application - PPD #2 \_\_\_\_\_ (Front of form reviewed/changes initialed - Nurse Initials \_\_\_\_\_ )

Date of tuberculin test application \_\_\_\_\_ Time \_\_\_\_\_

PPD Dosage / Site / Route / Manufacturer / Lot# / Exp date: 0.1 ml / \_\_\_\_\_ forearm / ID / Aventis / \_\_\_\_\_ Expires: \_\_\_\_\_

Nurse's Signature \_\_\_\_\_

Reading Date read \_\_\_\_\_ Time read \_\_\_\_\_ Induration \_\_\_\_\_ mm

Interpretation\*\*\* Negative / Positive Nurse's Signature \_\_\_\_\_

---

**Disposition** PPD results submitted for compliance Yes or No MMR Compliant? Yes or No 1. \_\_\_\_\_  
Needs to provide records 2. \_\_\_\_\_

#### Negative Tuberculin test

- No further action needed
- Repeat testing (Advised in \_\_\_\_\_ weeks / months / years); Date / Time of appointment \_\_\_\_\_
- Patient symptomatic (see front of form)\*
- Refer to provider \_\_\_\_\_ Reason \_\_\_\_\_ Date of appointment \_\_\_\_\_
- Other \_\_\_\_\_

#### Positive Tuberculin test

- CXR ordered; Date / Time or CXR appointment \_\_\_\_\_
- Sputum collection started
- Prevention Nurse notified of Positive PPD
- Refer to provider \_\_\_\_\_ Date / Time of appointment \_\_\_\_\_
- Other \_\_\_\_\_

---

#### \*\*Past Positive PPD Documentation Checklist:

- Domestic + Mantoux PPD reported in mm induration
- Domestic CXR report/film
- Tx completed
- Tx refused
- Requests Tx - Initiate + TB Skin Test Packet
- H&P with provider
- Needs Annual Symptom Review

#### Key

\*  $\geq 10$  mm induration positive for all who answer yes to any risk item identified in the questionnaire; an increase of  $\geq 10$ mm within a 2 year period is considered positive for all

\*\*\* Refer to Provider regardless of interpretation

Nurse Signature \_\_\_\_\_



## Immunization / TB Screening Requirements

Please read carefully. Failure to complete as instructed could result in second semester call registration delays.  
For questions on completion, please call (insert phone number here) or email (insert email here).

**Part I is mandatory for all students. Parts II and III are mandatory for students as indicated.**

**Send immunization documents directly to the Student Health Center at the address below.**

Please **do not** return immunization documents with materials being sent to other university departments.

**Mail** Insert address here

**Fax** Insert number here

**Email** Insert email address here

Last Name _____	First Name _____	MI _____	Student ID# _____
Address _____	City _____	State _____	Zip _____
Phone _____	Date of Birth _____		
Email Address _____			

### Instructions

Obtain copies of your immunization records and attach to this form. Students should retain original documents. Copies of records may be destroyed after entry into the University database. Examples of acceptable documents include:

- Copies** of personal immunization records ("baby book")
- Copies** of physician office or Health Department immunization records
- Copies** of high school or previous college immunization records

### Part I Measles, Mumps, Rubella

### Required for all students

The (insert name of school) requires that all newly enrolled or readmitted students born after December 31, 1956 must comply with the two-dose Measles Immunization Policy. If a second immunization is needed, it must be the combined MMR vaccine. Students who do not comply will not be allowed to register or pre-register for their second semester.

Requirements:

**2 doses of MMR vaccine.** The first dose must have been given at age 12 months or later.  
The second dose must have been given at least one month after the first one.

**OR**

**1 dose of MMR vaccine AND 1 dose of rubeola** at 12 months of age or later.  
The second dose must have been given at least one month after the first dose.

**OR**

**Titer** (blood test) results proving immunity to measles (rubeola), mumps and rubella. Documentation is required.

### Part II Meningococcal Vaccine

### Required for all students living in residence halls

(Insert regulation that) requires students in university housing to either:

- 1) Show documentation of meningococcal vaccine, or
- 2) Sign a waiver that indicates they have been provided educational materials but have chosen not to receive the vaccine at this time.

**A. Check any that apply:**

- From or have lived for two months or more in Asia, Africa, Central or South America or Eastern Europe.
- Have been diagnosed with a chronic medical condition that may impair your immune system.
- A health care worker.
- A volunteer or employee of a nursing home, prison or other residential institution.
- Contact with a person known to have active tuberculosis.
- None of the above apply.

**B. If any of the above do apply, TB Screening is required.****TB Skin Test Screening**

Call the Student Health Center at (insert phone number here) to schedule an appointment for screening.

**OR**

**Provide documentation of TB screening** (PPD Mantoux skin test read and documented in millimeters of induration) done in the U.S. within the past 12 months. Chest x-rays will be required for anyone with a positive skin test.

X-rays can be taken at the Student Health Center or you may bring chest x-ray films taken within the last 12 months.

A negative chest x-ray is not a substitute for a skin test.

**OR**

**Provide documentation of prior treatment of active TB disease.**

**Tetanus/Diphtheria** administered within the past 10 years.

**Hepatitis B series** (3 doses). Even if incomplete, provide dates of any doses received.

**Influenza vaccine.** Available each fall and advisable for all students but in particular those with asthma or other chronic illnesses.

**Varicella (chicken pox).** No vaccine is needed if there is a good history of natural infection. If history is questionable, a blood test can be done at the student's expense to determine immune status. If history of chicken pox infection, indicate approximate date:

Month \_\_\_\_\_ Year \_\_\_\_\_

## Sample

### Initiation of DOT (Twice Weekly) Prevention Nurse Checklist

- |   |   |
|---|---|
| <input type="checkbox"/> Date treatment started _____   | <input type="checkbox"/> Date treatment stopped _____       |
| <input type="checkbox"/> Treatment completed _____  | <input type="checkbox"/> Treatment DC'd reason _____        |
| <input type="checkbox"/> Provider _____   | <input type="checkbox"/> Weight at start of treatment _____ |
| <input type="checkbox"/> Chest x-ray date taken _____   | <input type="checkbox"/> Chest x-ray result _____           |
| <input type="checkbox"/> Baseline Labs drawn LFT CBC Platelets Uric Acid                            | <input type="checkbox"/> Date _____                         |
| <input type="checkbox"/> Baseline Lab result reviewed WNL, redraw PRN                               | <input type="checkbox"/> Redraw in _____ months             |
| <input type="checkbox"/> Refer back to provider; reason _____                                       |   |
| <input type="checkbox"/> Allergies _____  |   |
| <input type="checkbox"/> Review of current medications _____  |   |
| <input type="checkbox"/> Review of chronic medical conditions _____                                 |   |
| <input type="checkbox"/> Pregnant or attempting to become pregnant Yes or No                        | <input type="checkbox"/> Breastfeeding Yes or No            |
| <input type="checkbox"/> Prescribed meds <input type="checkbox"/> INH + Vit B6 for 6 / 9 months DOT | <input type="checkbox"/> Rifampin / PZA for 2 months DOT    |

### Review with patient

#### How to Take Medicine

- Full 8 oz. water
- On an empty stomach; 1 hour before and 2 hours after eating
- Twice weekly  At least 48 hours apart  No more than 2 doses a week
- Orientation to individualized dosing system
- What to do if dose is missed or taken late: Review missed dose section of medication fact sheet

#### How we Track

- |  |   |
|--|---|
| <input type="checkbox"/> Sign in student number on clipboard   | <input type="checkbox"/> 2 months = 16 doses (must complete within 3 months)  |
| <b>OR</b>  |   |
| <input type="checkbox"/> Punch cards   | <input type="checkbox"/> 6 months = 52 doses (must complete within 9 months)  |
| <b>OR</b>  |   |
| <input type="checkbox"/> Talk to nurse at least once a month via note on punch card unless questions or problems | <input type="checkbox"/> 9 months = 76 doses (must complete within 12 months) |

#### Medication / Food Interactions / Side Effects

- Review interaction section of medication fact sheet
- Instruct patient to report any side effects before taking next dose
- Most common side effects
- Some side effects may subside / decrease over time

#### Other Points of Interest

- Review other things needed to know on medication fact sheet
- Alcohol avoidance
- Incentive program
- Literature given in English and native language \_\_\_\_\_
- What to do if questions arise
- Contact information; phone numbers / email (give Prevention Nurse's business card)

#### Reassurance / Clarification

- Confidentiality
- Recommended, not required
- Will not affect ability to attend classes or stay in U.S.
- Clarification of active vs in active (disease vs Latent TB infection)
- Signs / symptoms of active TB
- Medication intended to kill current infection, once off medication can become re-infected
- Fees (SHC visits, CXR, lab work, medication)

Completed by \_\_\_\_\_ Date \_\_\_\_\_

## Sample

### Initiation of DOT (Daily) Prevention Nurse Checklist

- |   |  |
|---|--|
| <input type="checkbox"/> Date treatment started _____   | <input type="checkbox"/> Date treatment stopped _____  |
| <input type="checkbox"/> Treatment completed _____  | <input type="checkbox"/> Treatment DC'd reason _____   |
| <input type="checkbox"/> Provider _____   | <input type="checkbox"/> Weight at start of treatment _____  |
| <input type="checkbox"/> Chest x-ray date taken _____   | <input type="checkbox"/> Chest x-ray result _____  |
| <input type="checkbox"/> Baseline Labs drawn LFT CBC Platelets Uric Acid                            | <input type="checkbox"/> Date _____  |
| <input type="checkbox"/> Baseline Lab result reviewed WNL, redraw PRN                               | <input type="checkbox"/> Redraw in _____ months  |
| <input type="checkbox"/> Refer back to provider; reason _____                                       |  |
| <input type="checkbox"/> Allergies _____  |  |
| <input type="checkbox"/> Review of current medications _____  |  |
| <input type="checkbox"/> Review of chronic medical conditions _____                                 |  |
| <input type="checkbox"/> Pregnant or attempting to become pregnant Yes or No                        | <input type="checkbox"/> Breastfeeding Yes or No   |
| <input type="checkbox"/> Prescribed meds <input type="checkbox"/> INH + Vit B6 for 6 / 9 months SOT | <input type="checkbox"/> Rifampin / PZA for 2 months SOT <input type="checkbox"/> RIF / INH for 4 months SOT |

### Review with patient

#### How to Take Medicine

- Full 8 oz. water
- On an empty stomach; 1 hour before and 2 hours after eating
- Every day, at least 24 hours apart
- No more than 1 dose per day
- What to do if dose is missed or taken late: Review missed dose section of medication fact sheet

#### How to get Medicine

- |   |  |
|---|--|
| <input type="checkbox"/> Can only release 1 month of medication<br><b>OR</b>    | <input type="checkbox"/> 2 months = 60 doses (must complete within 3 months)   |
| <input type="checkbox"/> Appointment with Prevention Nurse monthly<br><b>OR</b> | <input type="checkbox"/> 4 months = 120 doses (must complete within 6 months)  |
| <input type="checkbox"/> Talk to nurse if questions or problems                 | <input type="checkbox"/> 6 months = 180 doses (must complete within 9 months)  |
|   | <input type="checkbox"/> 9 months = 270 doses (must complete within 12 months) |

#### Medication / Food Interactions / Side Effects

- Review interaction section of medication fact sheet
- Instruct patient to report **any** side effects **before** taking next dose
- Most common side effects
- Some side effects may subside / decrease over time

#### Other Points of Interest

- Review other things needed to know on medication fact sheet
- Alcohol avoidance
- Incentive program
- Literature given in English and native language \_\_\_\_\_
- What to do if questions arise
- Contact information; phone numbers / email (give Prevention Nurse's business card)

#### Reassurance / Clarification

- Confidentiality
- Recommended**, not required
- Will not affect ability to attend classes or stay in U.S.
- Clarification of active vs in active (disease vs Latent TB infection)
- Signs / symptoms of active TB
- Medication intended to kill current infection, once off medication can become re-infected
- Fees (SHC visits, CXR, lab work, medication)

Completed by \_\_\_\_\_ Date \_\_\_\_\_

## Sample letter notifying Students of their need to be tested for Tuberculosis

The results of the tuberculosis screening questionnaire you completed indicate you are at risk for tuberculosis. To determine whether you have been exposed to the disease, further testing is necessary. Please contact the campus student health center at (insert phone number here) to schedule a time for you to receive a tuberculin skin test. The skin test must be completed within two weeks of receiving this letter. It is the policy of (insert College name here) that all students must be tested for tuberculosis if their screening questionnaire indicates they are at risk for the disease. Students who do not comply with this policy will not be able to register for classes next semester.

Information about tuberculosis and the testing process are included with this letter. If you have additional questions, you may contact a physician or nurse at the student health center by calling (insert phone number here).

Your cooperation in this matter is appreciated.

Sincerely,

Name

Title

# LBTI Monitoring form - SAT

Length of Tx: 6 mo / 9 mo  
Allergies: NKDA / \_\_\_\_\_

	Date	Month #								
INH _____ mg daily Rx										
B6 _____ mg daily Rx										
Oth _____ Rx										
Weight										
Liver Panel Collected (Y/ N)										
Adverse Effects (Y/N)										
Fatigue										
Weakness										
Loss of Appetite										
Nausea										
Vomiting										
Diarrhea										
Abdominal Pain										
Dark Urine										
Jaundice										
Peripheral Neuropathy										
Vision Problems										
Rash, itching										
Fever										
Joint Pain										
<b>Medications</b>										
Adherence to regimen? (Y/N)										
S & S of TB? (Y/ N)										
Alcohol use in past mo? (Y/N)										
Adverse effects reviewed? (Y/N)										
<b>Return Appointment Date</b>										

Initials / Signature \_\_\_\_\_ Initials / Signature \_\_\_\_\_ Initials / Signature \_\_\_\_\_

# LBTI Monitoring form - DOT

Length of Tx: 6 mo / 9 mo

Allergies: NKDA / \_\_\_\_\_

<b>Symptom Review Date</b>																
INH _____mg 2X/wk Rx																
B6 _____mg 2X/wk Rx																
<b>Weight</b>																
<b>Liver Panel Collected (Y/N)</b>																
<b>Adverse Effects (Y/N)</b>																
Fatigue																
Weakness																
Loss of Appetite																
Nausea																
Vomiting																
Diarrhea																
Abdominal Pain																
Dark Urine																
Jaundice																
Peripheral Neuropathy																
Vision Problems																
Rash, itching																
Fever																
Joint Pain																
<b>Medications</b>																
Adherence to regimen? (Y/N)																
S & S of TB? (Y/N)																
Alcohol use in past mo? (Y/N)																
Adverse effects reviewed? (Y/N)																

Signature \_\_\_\_\_



# LBTI Monitoring form - DOT

Length of Tx: 6 mo / 9 mo

Allergies: NKDA / \_\_\_\_\_

	1	2	3	4	5	6	7	8	9	10	11	12	13
Date													
Dose #													
INH _____ mg 2X/wk													
B6 _____ mg 2X/wk													
Symptom Review (Y/N)													
Initials													

Date
Dose #
INH _____ mg 2X/wk
B6 _____ mg 2X/wk
Symptom Review (Y/N)
Initials

	14	15	16	17	18	19	20	21	22	23	24	25	26
Date													
Dose #													
INH _____ mg 2X/wk													
B6 _____ mg 2X/wk													
Symptom Review (Y/N)													
Initials													

Date
Dose #
INH _____ mg 2X/wk
B6 _____ mg 2X/wk
Symptom Review (Y/N)
Initials

	27	28	29	30	31	32	33	34	35	36	37	38	39
Date													
Dose #													
INH _____ mg 2X/wk													
B6 _____ mg 2X/wk													
Symptom Review (Y/N)													
Initials													

Date
Dose #
INH _____ mg 2X/wk
B6 _____ mg 2X/wk
Symptom Review (Y/N)
Initials

	40	41	42	43	44	45	46	47	48	49	50	51	52
Date													
Dose #													
INH _____ mg 2X/wk													
B6 _____ mg 2X/wk													
Symptom Review (Y/N)													
Initials													

Date
Dose #
INH _____ mg 2X/wk
B6 _____ mg 2X/wk
Symptom Review (Y/N)
Initials

	53	54	55	56	57	58	59	60	61	62	63	64	65
Date													
Dose #													
INH _____ mg 2X/wk													
B6 _____ mg 2X/wk													
Symptom Review (Y/N)													
Initials													

Date
Dose #
INH _____ mg 2X/wk
B6 _____ mg 2X/wk
Symptom Review (Y/N)
Initials

	66	67	68	69	70	71	72	73	74	75	76
Date											
Dose #											
INH _____ mg 2X/wk											
B6 _____ mg 2X/wk											
Symptom Review (Y/N)											
Initials											

Date
Dose #
INH _____ mg 2X/wk
B6 _____ mg 2X/wk
Symptom Review (Y/N)
Initials

Initials / Signature \_\_\_\_\_

Initials / Signature \_\_\_\_\_

Initials / Signature \_\_\_\_\_

(Insert school name and address here)

### Refusal of Treatment for Latent Tuberculosis Infection

You have been identified as being infected with tuberculosis. As explained to you earlier, you have a lifetime risk of developing tuberculosis disease. Your healthcare provider has suggested a course of treatment with isoniazid INH or Rifampin. Treatment with this drug will prevent the disease in most individuals who complete a recommended course of this drug. The medication and the appropriate nursing supervision would be provided to you at no cost.

Without INH or Rifampin, in approximately 10% of persons with normal immune systems who are infected with TB, TB disease will develop. Some medical conditions increase the risk that latent TB infection will progress to active TB disease.

I have read the information on this form about treatment of my latent TB infection. I believe I understand the potential benefit of treatment for latent TB infection and risk of progression for disease. I have had an opportunity to ask questions, which were answered to my satisfaction.

The (insert college) has offered to provide me with the medication and the nursing supervision in order to decrease my risk for developing tuberculosis disease. However, I have chosen not to take the medication as recommended. If I should have a change of mind in my intention to take the medication, I understand that the Prevention Nurse at (insert name of college here) will be available to advise me on this matter.

Reason for refusal

---

---

---

Should I develop any of the following symptoms, I understand it is recommended to seek immediate medical attention:

Easy Fatigability	Appetite Loss
Cough lasting longer than 3 weeks	Unexplained fever
Night sweats	Unexplained weight loss
Coughing up blood	Chest pain
Chills	Respiratory difficulty

Signature of Person Refusing Treatment \_\_\_\_\_ Date \_\_\_\_\_

Provider / Nurse Signature \_\_\_\_\_ Date \_\_\_\_\_

Name _____
Student ID# _____
Date of Birth _____

**Annual Statement for Tuberculin Reactors**

Tuberculin reactors are persons with latent tuberculosis infection (LTBI). Persons with LTBI have a positive reaction to a tuberculin skin test, a chest x-ray which is negative for active tuberculosis, and do not have symptoms of active tuberculosis. Even if you have completed treatment, we want to check on the status of your health annually by reviewing the symptoms of tuberculosis disease and inquiring whether you are experiencing any symptoms at this time.

If you choose not to receive treatment for your LTBI, we would like to again offer treatment to you. There is no charge for the medication and nursing supervision is provided by the Student Health Center. LTBI treatment is recommended for the following groups:

- Persons who have arrived in the U.S. (within the past 5 years) from countries with a high prevalence of tuberculosis
- Persons who convert from negative to positive on a tuberculin skin test within a 2 year period
- Persons who are a recent contact to a person with active tuberculosis
- Persons with an abnormal chest x-ray consistent with old TB who have never been previously treated after active TB is excluded
- HIV positive persons and other persons who are immunosuppressed  
(e.g., persons with organ transplants or taking immunosuppressive drugs or treatments)
- Persons working or training in high-risk settings  
(e.g., hospitals and other health care facilities)
- Persons with chronic medical conditions
- Persons who are injection drug users

**As part of our campus TB Prevention Program, we would like you to complete the following survey**

Daytime Phone Number \_\_\_\_\_

Have you completed six to nine months of treatment for LTBI? Yes or No

If No, are you interested in starting treatment at this time? Yes or No

Please circle Yes or No next to each question below. Add comments for any item circled "Yes".

Symptoms of active tuberculosis		_____
Chest pain	Yes or No	_____
Chills	Yes or No	_____
Cough lasting more than 3 weeks	Yes or No	_____
Coughing up blood	Yes or No	_____
Fatigue	Yes or No	_____
Unexplained fever	Yes or No	_____
Loss of appetite	Yes or No	_____
Night sweats	Yes or No	_____
Productive cough (coughing up sputum)	Yes or No	_____
Respiratory difficulty (shortness of breath)	Yes or No	_____
Unexplained weight loss	Yes or No	_____
Weakness	Yes or No	_____

If you circled "Yes" for any of these symptoms, please make an appointment with a Student Health Center provider as soon as possible by calling (insert phone number here). If you circled "No" for all items, you currently have no symptoms of active tuberculosis. If at any time you develop any of these symptoms, please seek prompt medical attention.

If you have any questions, or would like to talk to a nurse about treatment for LTBI, please schedule an appointment with the TB Nurse at (insert phone number here).

Please sign and date this statement. If returning this statement by mail, please place it in the enclosed envelope and mail to the (insert address here).

Thank You. Prevention Team, Student Health Center

Student Signature \_\_\_\_\_ Date \_\_\_\_\_

For Clinic Use Only. Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

# Isoniazid (INH) Fact Sheet

Student Health Center

University of Missouri - Columbia

## Self Observed Therapy (SOT) / Daily

### What does Isoniazid (INH) do?

ISONIAZID (INH) is an antibiotic agent that treats or prevents TB (tuberculosis).

### What should my healthcare provider know before I take INH?

- Names of any medications you are taking; including prescription, non-prescription and herbal
- If you have any chronic medical conditions, especially
  - Dental disease
  - Liver disease
  - Seizure disorder
  - Diabetes
- If you are pregnant or trying to get pregnant
- If you are breast-feeding
- Allergy or reaction to INH, any other medicines, foods, dyes or preservative

### How should I take this medicine?

- Take by mouth with a full 8 ounce glass of water
- Take on an empty stomach at least 1 hour before and 2 hours after eating
- Every day, at least 24 hours apart, no more than 1 dose per day
- We will release only one month of medicine at a time
- Must have at least a monthly appointment with Prevention Nurse
- INH alone is given for at least 6 months = 180 doses (must complete Within 9months) **or**
- INH alone is given for 9 months = 270 doses (must complete within 12 months).**or**
- INH with Rifampin is given for 4 months = 120 doses (must complete within 6 months)

### What if I miss a dose?

- If you are late, take as soon as possible; wait for at least 24 hours before taking your next dose
- Remember: no more than 1 dose per day
- Any missed doses will be added to the end of your treatment schedule

### Do other medications and foods interact with INH?

INH may interact with:

- seizure medicines
- blood thinners
- birth control pills

# Isoniazid (INH) Fact Sheet

Student Health Center

University of Missouri - Columbia

## Directly Observed Therapy (DOT) / Twice Weekly

### What does Isoniazid (INH) do?

ISONIAZID (INH) is an antibiotic agent that treats or prevents TB (tuberculosis).

### What should my healthcare provider know before I take INH?

- Names of any medications you are taking; including prescription, non-prescription and herbal
- If you have any chronic medical conditions, especially
  - Dental disease
  - Liver disease
  - Seizure disorder
  - Diabetes
- If you are pregnant or trying to get pregnant
- If you are breast-feeding
- Allergy or reaction to INH, any other medicines, foods, dyes or preservative

### How should I take this medicine?

- Come to Student Health twice weekly to take your medicine. Allow at least 48 hours between your twice a week doses
- Take by mouth with a full 8 ounce glass of water
- Take on an empty stomach at least 1 hour before and 2 hours after eating
- Take no more than 2 doses a week; no more than 1 dose per day
- INH is given for 6 months = 26 weeks = 52 doses (mst be completed within 9 months) or
- INH is given for 9 months = 38 weeks = 76 doses (mst be completed within 12 months)
- Take no more than one dose out of your drawer unless you have received special permission
- Write your student number on sign-in sheet

### What if I miss a dose?

- If you are 1-2 days late, take as soon as possible; wait for at least 2 days (48 hours) before taking your next dose
- If you are 3 days late and it is time for your next dose, take only that dose
- Any missed doses will be added to the end of your treatment schedule
- If you are going out of town, speak with the Prevention Nurse to make arrangements to take your medication with you

### Do other medications and foods interact with INH?

INH may interact with:

- seizure medicines
- blood thinners
- birth control pills

## ISONIAZID (INH) FACT SHEET

### WHAT IS ISONIAZID (INH)?

Isoniazid (INH) is an antibiotic for the treatment of tuberculosis. It may be used along with at least one other drug to treat active disease. It may also be used to treat latent tuberculosis infection (LTBI), an inactive infection in which dormant tuberculosis mycobacteria are present in the body but do not cause disease. ***A person with LTBI is not sick, has no symptoms of tuberculosis, and is not infectious.*** Treatment of LTBI prevents the progression to active disease in >90% of persons who complete treatment.

Treatment regimens for active tuberculosis which include INH last for at least six months but may be extended for up to one year. Treatment for LTBI should continue for nine months to give maximum protection.

### HOW DO I TAKE INH?

INH should be taken 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.

When the INH dose consists of more than one tablet, all INH tablets should be taken together at the same time. INH should be taken daily unless a directly observed treatment (DOT) regimen is given in which case treatment may be daily or twice weekly.

### WHAT IF I MISS A DOSE OF INH?

If a dose is missed, identify this to your health care provider (physician or nurse) at your next monthly appointment. Do not take the extra dose. No more than one dose of medication should be taken in a twenty-four hour period. Missed doses will be added to the end of the treatment regimen. This will extend the duration of therapy by the number of days that treatment was missed.

### WHAT ELSE SHOULD I BE AWARE OF?

Drug – drug interactions occur with several other medications and INH. Tell your doctor about any medication you are taking. This includes herbal supplements and other over the counter medications such as Tylenol. If you are taking seizure medications, blood thinners, anti-anxiety medications, Tylenol or others, the dose of that medication may need to be changed or additional monitoring for adverse effects be done.



## WHAT ARE THE SIDE EFFECTS OR TOXICITIES OF INH?

You may experience some stomach upset such as nausea or bloating with the initial doses of INH. These effects usually improve or disappear after several doses.

Other *rare side effects* are:

- joint aches, dizziness,
- rash, headache,
- change in sleep patterns, and
- changes in several blood tests.

Although most of these effects disappear after several doses, it is important to let your physician or nurse know about any that persist more than several days at the beginning of treatment or that develop later during your treatment.

Serious toxicity due to INH is uncommon. Drug induced hepatitis (inflammation of the liver) occurs in less than 1% of younger individuals. Higher rates of hepatitis occur in older populations or others with additional medical risk factors for hepatitis. Drug induced hepatitis is more common in persons who have underlying liver disease such as viral hepatitis or who use alcohol during treatment with INH. Women who are pregnant or in the first four months postpartum also have an increased risk of drug induced hepatitis. Persons who have chronic medical conditions or are on chronic medical therapy may have an increased risk. Discuss any medical conditions you have with your physician prior to starting INH.

A pregnancy test will usually be given prior to the start of therapy. Let your physician know if you become pregnant during treatment. INH is safe for mothers and babies during pregnancy but extra monitoring for drug induced hepatitis is needed.

Rarely INH may cause irritation in the nerves (neuropathy) of your hands or feet. You may experience tingling, numbness or difficulty grasping objects with your hands. These changes in your nerves are more common in persons who have poor nutrition, diabetes, chronic kidney disease, take seizure medications, are pregnant or nursing, or who use alcohol each day. Vitamin B6 usually helps to prevent this problem.

## WHAT ARE THE SYMPTOMS OF DRUG INDUCED HEPATITIS AND WHAT SHOULD I DO IF THEY OCCUR?

Early symptoms of hepatitis include fatigue, rash, mild abdominal discomfort and bloating. Later symptoms include nausea, vomiting, dark urine, clay colored stools, itching or fever. **If any early or later symptoms develop, STOP taking your INH and call your health care provider.** Usually your doctor will want to do blood tests to check your liver enzymes right away and will have you wait until the results of the tests are available before wanting you to restart the INH. If the liver enzymes are increased, your INH will be held or stopped. This decision will be made by your doctor based on your risk of TB, laboratory results, and your medical history. If INH is stopped, another drug may be recommended for treatment of LTBI.

ENGLISH	JAPANESE	ENGLISH	JAPANESE
Tuberculosis Symptoms Review List	結核症状観察リスト	Tuberculosis Medication Side Effects	抗結核剤副作用
Chest pain	胸痛	Abdominal pain	腹部の痛み
Chills	寒気	Dark brown urine	濃い茶色の尿
Cough ≥ 3 weeks	3週間以上続く咳	Diarrhea	下痢
Coughing up blood	喀血	Headaches	頭痛
Fatigue	疲労感	Joint aches (PZA)	関節痛
Fever	熱	Nausea	むかつき
Loss of appetite	食欲不振	Numbness/tingling of hands/feet	手足の無感覚／ひりひりする感覚
Night sweats	寝汗	Rash/itching	発疹／かゆみ
Productive cough	痰等が出る咳	Visual changes (EMB)	視覚変化
Respiratory difficulty	呼吸困難	Vomiting	嘔吐
Weight Loss	体重減少	Jaundice	黄疸

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.

ENGLISH	KOREAN	ENGLISH	KOREAN
Tuberculosis Symptoms Review List	결핵 증상 점검표	Tuberculosis Medication Side Effects	결핵치료제 부작용
Chest pain	가슴통증	Abdominal pain	복부통증
Chills	오한	Dark brown urine	흑갈색 소변
Cough ≥ 3 weeks	3주이상 기침	Diarrhea	설사
Coughing up blood	피를 토하는 기침	Headaches	두통
Fatigue	피로	Joint aches (PZA)	관절통
Fever	고열	Nausea	메스꺼움
Loss of appetite	식욕감퇴	Numbness/tingling of hands/feet	수족마비
Night sweats	취침중 땀을 많이 흘림	Rash/itching	발진, 가려움
Productive cough	기침 생성	Visual changes (EMB)	시력감퇴
Respiratory difficulty	호흡곤란	Vomiting	구토
Weight Loss	체중감소	Jaundice	황달

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.

ENGLISH	RUSSIAN	ENGLISH	RUSSIAN
<b>Tuberculosis Symptoms Review List</b>	Перечень симптомов туберкулёза	<b>Tuberculosis Medication Side Effects</b>	Побочные эффекты лекарств от туберкулёза
<b>Chest pain</b>	Боли в груди	<b>Abdominal pain</b>	Боль в животе
<b>Chills</b>	Озноб	<b>Dark brown urine</b>	Тёмно коричневая моча
<b>Cough ≥ 3 weeks</b>	Кашель больше 3 недель	<b>Diarrhea</b>	Понос
<b>Coughing up blood</b>	Отхаркивание кровью	<b>Headaches</b>	Головная боль
<b>Fatigue</b>	Утомление	<b>Joint aches (PZA)</b>	Боль в суставах
<b>Fever</b>	Жар	<b>Nausea</b>	Тошнота
<b>Loss of appetite</b>	Потеря аппетита	<b>Numbness/tingling of hands/feet</b>	Онемение конечностей
<b>Night sweats</b>	Потливость ночью	<b>Rash/itching</b>	Сыпь/Чесотка
<b>Productive cough</b>	Кашель с мокротой	<b>Visual changes (EMB)</b>	Изменение зрения
<b>Respiratory difficulty</b>	Загрудинное дыхание	<b>Vomiting</b>	Рвота
<b>Weight Loss</b>	Потеря веса	<b>Jaundice</b>	Желтуха

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.



ENGLISH	FRENCH	ENGLISH	FRENCH
<b>Tuberculosis Symptoms Review List</b>	Symptômes de la Tuberculose (pulmonaire)	<b>Tuberculosis Medication Side Effects</b>	Réactions secondaires de la médication
<b>Chest pain</b>	Mal à la poitrine, douleur	<b>Abdominal pain</b>	Douleurs abdominales (Mal à l'abdomen)
<b>Chills</b>	Frissons	<b>Dark brown urine</b>	Urine marron foncé
<b>Cough ≥ 3 weeks</b>	Toux de plus de 3 semaines	<b>Diarrhea</b>	Diarrhée
<b>Coughing up blood</b>	Tousser avec du sang dans les crachats	<b>Headaches</b>	Maux de tête, mal à la tête
<b>Fatigue</b>	Fatigue	<b>Joint aches (PZA)</b>	Mal aux joints (point d'articulation)
<b>Fever</b>	Fièvre	<b>Nausea</b>	Nausée, envie de vomir
<b>Loss of appetite</b>	Perte d'appétit	<b>Numbness/tingling of hands/feet</b>	Engourdissement/Picotements des mains/jambes (fourmillements)
<b>Night sweats</b>	Sueur (transpiration) nocturne	<b>Rash/itching</b>	Eruption/démangeaisons
<b>Productive cough</b>	Toux grasse	<b>Visual changes (EMB)</b>	Change de la vision
<b>Respiratory difficulty</b>	Difficultés respiratoires (Gêne dans la respiration)	<b>Vomiting</b>	Vomissements
<b>Weight Loss</b>	Perte de poids	<b>Jaundice</b>	Jaunisse, ictère

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.

ENGLISH	CHINESE	ENGLISH	CHINESE
Tuberculosis Symptoms Review List	肺结核症状 - 表	Tuberculosis Medication Side Effects	肺结核药物副作用
Chest pain	胸痛	Abdominal pain	腹痛
Chills	寒颤	Dark brown urine	尿色深黄
Cough ≥ 3 weeks	咳嗽三周以上	Diarrhea	腹泻
Coughing up blood	咳血	Headaches	头痛
Fatigue	疲倦	Joint aches (PZA)	关节痛
Fever	发烧	Nausea	反胃
Loss of appetite	食欲减退	Numbness/tingling of hands/feet	手脚麻木 / 刺痛
Night sweats	夜间盗汗	Rash/itching	出疹子/发痒
Productive cough	咳中带血	Visual changes (EMB)	视力改变
Respiratory difficulty	呼吸困难	Vomiting	呕吐
Weight Loss	体重减轻	Jaundice	黄疸

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.



## Arabic

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.

Tuberculosis Medication Side Effects	الاعراض الجانبية الناتجة عن تناول الادوية المستخدمة في علاج مرض السل
Abdominal pain	لم في منطقة البطن
Dark brown urine	اختلاف لون البول الى بني غامق او لسود
Diarrhea	الاصابة بالاسهال
Headaches	لصداع
Joint aches (PZA)	آلم في المفاصل
Nausea	الغثيان
Numbness - tingling of hands and feet	الاحساس بالخدر - او الوخز الخفيف (التنمل) في اليدين
Rash / itching	الحكة لطفح الجلدي
Visual changes (EMB)	اختلاف بصري - في قدرة العينين
Vomiting	القيء
Jaundice	اليرقان - اصفرار الجلد و بياض العيون

Tuberculosis Symptoms Review List	اعراض مرض السل تشتمل على
Chest pain	آلم في الصدر
Chills	الاحساس بالبرد القشعريرة
Cough ≥ 3 weeks	السعال (لمدة) ٣ اسابيع و اكثر
Coughing up blood	خروج دم مع السعال
Fatigue	الارهاق - الاحساس بالاجهاد و لتعب
Fever	الحمى - ارتفاع درجة الحرارة
Loss of appetite	لعدم الشهية و نقصانها
Night sweats	تصبب لعرق اثناء النوم
Productive cough	السعال المنتج للبلغم
Respiratory difficulty	ضيق في التنفس
Weight loss	نقصان الوزن

<b>ENGLISH</b>	<b>SPANISH</b>	<b>ENGLISH</b>	<b>SPANISH</b>
<b>Tuberculosis Symptoms Review List</b>	Lista de los síntomas de la tuberculosis	<b>Tuberculosis Medication Side Effects</b>	Efectos secundarios al tratamiento de tuberculosis
<b>Chest pain</b>	Dolor del pecho	<b>Abdominal pain</b>	Dolor abdominal
<b>Chills</b>	Escalofríos	<b>Dark brown urine</b>	Orina marrón oscura
<b>Cough ≥ 3 weeks</b>	Tos ≥ 3 semanas	<b>Diarrhea</b>	Diarrea
<b>Coughing up blood</b>	Tos con sangre	<b>Headaches</b>	Dolor de cabeza
<b>Fatigue</b>	Fatiga	<b>Joint aches (PZA)</b>	Dolores de las articulaciones (PZA)
<b>Fever</b>	Fiebre	<b>Nausea</b>	Náusea
<b>Loss of appetite</b>	Pérdida del apetito	<b>Numbness/tingling of hands/feet</b>	Adormecimiento/hormigueo de las manos y pies
<b>Night sweats</b>	Sudores nocturnos	<b>Rash/itching</b>	Erupciones cutáneas y comezón
<b>Productive cough</b>	Tos productiva	<b>Visual changes (EMB)</b>	Cambios en la visión (EMB)
<b>Respiratory difficulty</b>	Dificultad respiratoria	<b>Vomiting</b>	Vómitos
<b>Weight Loss</b>	Pérdida de peso	<b>Jaundice</b>	Ictericia

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services  
 Translated from English by Culture Guides, Inc.

ENGLISH	PORTUGUESE	ENGLISH	PORTUGUESE
<b>Tuberculosis Symptoms Review List</b>	Lista de sintomas de tuberculose	<b>Tuberculosis Medication Side Effects</b>	Efeitos Colaterais de Medicamentos para Tuberculose
<b>Chest pain</b>	Dor de tórax	<b>Abdominal pain</b>	Dor abdominal
<b>Chills</b>	Calafrios	<b>Dark brown urine</b>	Urina marrom-escura
<b>Cough ≥ 3 weeks</b>	Tosse ≥ [a mais de] 3 semanas	<b>Diarrhea</b>	Diarréia
<b>Coughing up blood</b>	Tossindo sangue	<b>Headaches</b>	Dores de cabeça
<b>Fatigue</b>	Fadiga	<b>Joint aches (PZA)</b>	Dores nas juntas ([Pyrazinamide] PZA)
<b>Fever</b>	Febre	<b>Nausea</b>	Náuseas
<b>Loss of appetite</b>	Perda de apetite	<b>Numbness/tingling of hands/feet</b>	Entorpecimento / formigamento de mãos / pés
<b>Night sweats</b>	Suores noturnos	<b>Rash/itching</b>	Erupção cutânea / coceira
<b>Productive cough</b>	Tosse produtiva	<b>Visual changes (EMB)</b>	Mudanças Visuais ([ethambutol] EMB)
<b>Respiratory difficulty</b>	Dificuldade respiratória	<b>Vomiting</b>	Vômito
<b>Weight Loss</b>	Perda de peso	<b>Jaundice</b>	Icterícia

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.



ENGLISH	GERMAN	ENGLISH	GERMAN
<b>Tuberculosis Symptoms Review List</b>	Liste von Symptomen der Tuberkulose ("Schwindsucht")	<b>Tuberculosis Medication Side Effects</b>	Nebenwirkungen von Medikamenten der Tuberkulose
<b>Chest pain</b>	Brustschmerzen	<b>Abdominal pain</b>	Unterleibsschmerzen
<b>Chills</b>	Fieberhafte Erkältung	<b>Dark brown urine</b>	Dunkler brauner Urin
<b>Cough ≥ 3 weeks</b>	Husten mehr als drei Wochen	<b>Diarrhea</b>	Durchfall
<b>Coughing up blood</b>	Husten mit blutigem Auswurf	<b>Headaches</b>	Kopfschmerzen
<b>Fatigue</b>	Müdigkeit	<b>Joint aches (PZA)</b>	Schmerzen der Gelenke
<b>Fever</b>	Fieber	<b>Nausea</b>	Übelkeit
<b>Loss of appetite</b>	Appetitslosigkeit	<b>Numbness/tingling of hands/feet</b>	Taubheit / Kribbeln der Hände / Füße
<b>Night sweats</b>	Nachtschweiß	<b>Rash/itching</b>	Hautausschlag / Jucken
<b>Productive cough</b>	Husten mit Auswurf (von Schleim)	<b>Visual changes (EMB)</b>	Sehstörungen
<b>Respiratory difficulty</b>	Atmungsschwierigkeiten	<b>Vomiting</b>	Erbrechen
<b>Weight Loss</b>	Gewichtsabnahme	<b>Jaundice</b>	Gelbsucht

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.

ENGLISH	TURKISH	ENGLISH	TURKISH
<b>Tuberculosis Symptoms Review List</b>	Verem Belirtilerinin Toplamının Listesi	<b>Tuberculosis Medication Side Effects</b>	Verem ilacının yan etkileri
<b>Chest pain</b>	Göğüs Ağrısı	<b>Abdominal pain</b>	Karın Ağrısı
<b>Chills</b>	Titreme	<b>Dark brown urine</b>	Koyu Kahverengi İdrar
<b>Cough ≥ 3 weeks</b>	3 haftadan fazla süren öksürük	<b>Diarrhea</b>	İshal
<b>Coughing up blood</b>	Kan Öksürme	<b>Headaches</b>	Bas ağrısı
<b>Fatigue</b>	Yorgunluk	<b>Joint aches (PZA)</b>	Eklemler Ağrıları
<b>Fever</b>	Ateş	<b>Nausea</b>	Mide Bulantısı
<b>Loss of appetite</b>	İstahsızlık	<b>Numbness/tingling of hands/feet</b>	El ve Ayaklarda Uyuşukluk Karıncalanma
<b>Night sweats</b>	Gece Terlemesi	<b>Rash/itching</b>	Deri Döküntüsü Kaşınma
<b>Productive cough</b>	Balgamlı Öksürük	<b>Visual changes (EMB)</b>	Görüş Bozuklukları
<b>Respiratory difficulty</b>	Solumun Güçlüğü	<b>Vomiting</b>	Kusma
<b>Weight Loss</b>	Kilo Kaybı	<b>Jaundice</b>	Sarılık

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.

Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
Translated from English by Culture Guides, Inc.

<b>ENGLISH</b>	<b>MALAY</b>	<b>ENGLISH</b>	<b>MALAY</b>
<b>Tuberculosis Symptoms Review List</b>	Batuk kering- tanda-tanda aduan sakit	<b>Tuberculosis Medication Side Effects</b>	Kesan sampingan ubat batuk kering
<b>Chest pain</b>	Sakit dada	<b>Abdominal pain</b>	Sakit perut
<b>Chills</b>	Rasa kesejukan	<b>Dark brown urine</b>	Air kencing warna coklat pekat
<b>Cough ≥ 3 weeks</b>	Batuk ≥ 3 minggu	<b>Diarrhea</b>	Cirit-birit
<b>Coughing up blood</b>	Batuk berdarah	<b>Headaches</b>	Sakit kepala
<b>Fatigue</b>	Letih dan lesu	<b>Joint aches (PZA)</b>	Sakit sendi
<b>Fever</b>	Demam panas	<b>Nausea</b>	Rasa mual
<b>Loss of appetite</b>	Tiada selera makan	<b>Numbness/tingling of hands/feet</b>	Kebas
<b>Night sweats</b>	Berpeluh waktu malam	<b>Rash/itching</b>	Ruam/gatal-gatal
<b>Productive cough</b>	Batuk berkahak	<b>Visual changes (EMB)</b>	Kabur penglihatan
<b>Respiratory difficulty</b>	Kesukaran untuk bernafas	<b>Vomiting</b>	Muntah-muntah
<b>Weight Loss</b>	Kurang berat badan	<b>Jaundice</b>	Sakit kuning

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.



ENGLISH	THAI	ENGLISH	THAI
<b>Tuberculosis Symptoms Review List</b>	ตามทบทวนอาการโรค วัณโรค	<b>Tuberculosis Medication Side Effects</b>	อาการข้างเคียงของวัณโรค
<b>Chest pain</b>	เจ็บหน้าอก	<b>Abdominal pain</b>	อาการปวดหน้าท้อง
<b>Chills</b>	หนาว ๆ ร้อน ๆ	<b>Dark brown urine</b>	ปัสสาวะเป็นสีน้ำตาล
<b>Cough ≥ 3 weeks</b>	ไอมากกว่า 3 สัปดาห์	<b>Diarrhea</b>	อุจจาระร่วง
<b>Coughing up blood</b>	ไอเป็นเลือด	<b>Headaches</b>	อาการปวดศีรษะ
<b>Fatigue</b>	อาการเหนื่อยอ่อน	<b>Joint aches (PZA)</b>	ปวดตามข้อ
<b>Fever</b>	มีไข้	<b>Nausea</b>	อาการคลื่นไส้ อากาารง เวียน
<b>Loss of appetite</b>	เบื่ออาหาร	<b>Numbness/tingling of hands/feet</b>	อาการชาและปวดเสียวตามมือและเท้า
<b>Night sweats</b>	เหงื่อออกตอนกลางคืน	<b>Rash/itching</b>	อาการผื่นคัน
<b>Productive cough</b>	อาการไอเรื้อรัง	<b>Visual changes (EMB)</b>	สายตาเปลี่ยน
<b>Respiratory difficulty</b>	มีปัญหาระบบหายใจ	<b>Vomiting</b>	อาเจียร
<b>Weight Loss</b>	น้ำหนักลด	<b>Jaundice</b>	โรคคิขาน

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.

<b>ENGLISH</b>	<b>ROMANIAN</b>	<b>ENGLISH</b>	<b>ROMANIAN</b>
<b>Tuberculosis Symptoms Review List</b>	Simptome in Tuberculoza	<b>Tuberculosis Medication Side Effects</b>	Efecte secundare ale tratamentului in tuber
<b>Chest pain</b>	Durere in piept	<b>Abdominal pain</b>	Durere abdominala
<b>Chills</b>	Frisoane	<b>Dark brown urine</b>	Urina de culoare maroniu inchis
<b>Cough ≥ 3 weeks</b>	Tuse ≥ 3 saptamani	<b>Diarrhea</b>	Diaree
<b>Coughing up blood</b>	Tuse cu sange	<b>Headaches</b>	Dureri de cap
<b>Fatigue</b>	Oboseala	<b>Joint aches (PZA)</b>	Dureri articulare
<b>Fever</b>	Febra	<b>Nausea</b>	Greata
<b>Loss of appetite</b>	Pierderea pozei de mancare	<b>Numbness/tingling of hands/feet</b>	Amorteli/Furnicaturi in maini/picioare
<b>Night sweats</b>	Transpiratii nocturne	<b>Rash/itching</b>	Eruptie cutanata/Mancarime
<b>Productive cough</b>	Tuse productiva	<b>Visual changes (EMB)</b>	Tulburari de vedere
<b>Respiratory difficulty</b>	Greutate in respiratie	<b>Vomiting</b>	Varsaturi
<b>Weight Loss</b>	Scadere in greutate	<b>Jaundice</b>	Icter

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
Translated from English by Culture Guides, Inc.

# Tuberculosis Symptoms Review List

ENGLISH	ARABIC	CHINESE	FRENCH	GERMAN	JAPANESE	KOREAN	MALAY
<b>Tuberculosis Symptoms Review List</b>	اعراض مرض السل تشتمل على:	肺结核症状 - 表	Symptômes de la Tuberculose (pulmonaire)	Liste von Symptomen der Tuberkulose ("Schwindsucht")	結核症状観察1) スト	결핵 증상 점검표	Batuk kering- tanda-tanda aduan sakit
<b>Chest pain</b>	آلم في الصدر	胸痛	Mal à la poitrine, douleur	Brustschmerzen	胸痛	가슴통증	Sakit dada
<b>Chills</b>	الاحساس بالبرد القشعريرة	寒颤	Frissons	Fieberhafte Erkältung	寒気	오한	Rasa kesejukan
<b>Cough ≥ 3 weeks</b>	السعال (لمدة ٣ اسبوع او اكثر)	咳嗽三周以上	Toux de plus de 3 semaines	Husten mehr als drei Wochen	3週間以上続く 咳	3주이상 기침	Batuk ≥ 3 minggu
<b>Coughing up blood</b>	خروج دم مع السعال	咳血	Tousser avec du sang dans les crachats	Husten mit blutigem Auswurf	咯血	피를 토하는 기침	Batuk berdarah
<b>Fatigue</b>	الارهاق - الاحساس بالاجهاد والتعب	疲倦	Fatigue	Müdigkeit	疲労感	피로	Letih dan lesu
<b>Fever</b>	الحصى - ارتفاع درجة الحرارة	发烧	Fièvre	Fieber	熱	고열	Demam panas
<b>Loss of appetite</b>	انعدام الشهية او نقصانها	食欲减退	Perte d'appétit	Appetitslosigkeit	食欲不振	식욕감퇴	Tiada selera makan
<b>Night sweats</b>	تصبب العرق لثناء النوم	夜间盗汗	Sueur (transpiration) nocturne	Nachtschweiß	寝汗	취침중 땀을 많이 흘림	Berpejuh waktu malam
<b>Productive cough</b>	السعال المنتج للبلغم	咳中带血	Toux grasse	Husten mit Auswurf (von Schleim)	痰等の出る咳	기침 생성	Batuk berkahak
<b>Respiratory difficulty</b>	ضيق في التنفس	呼吸困难	Difficultés respiratoires (Gêne dans la respiration)	Atmungsschwierigkeiten	呼吸困難	호흡곤란	Kesukaran untuk bernafas
<b>Weight Loss</b>	نقصان الوزن	体重减轻	Perte de poids	Gewichtsabnahme	体重減少	체중감소	Kurang berat badan

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.

Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services. Translated from English by Culture Guides, Inc.



# Tuberculosis Symptoms Review List

ENGLISH	PORTUGUESE	ROMANIAN	RUSSIAN	SPANISH	THAI	TURKISH
<b>Tuberculosis Symptoms Review List</b>	Lista de sintomas de tuberculose	Simptome in Tuberculoza	Перечень симптомов туберкулёза	Lista de los Síntomas de la Tuberculosis	ตารางพบทวนอาการโรควัณโรค	Verem Belirtilerinin Toplamının Listesi
<b>Chest pain</b>	Dor de tórax	Durere in piept	Боли в груди	Dolor del pecho	เจ็บหน้าอก	Göğüs Ağrısı
<b>Chills</b>	Calafrios	Frisoare	Озноб	Escalofríos	หนาว ๆ ร้อน ๆ	Titrene
<b>Cough ≥ 3 weeks</b>	Tosse ≥ [a mais de] 3 semanas	Tuse ≥ 3 săptămâni	Кашель больше 3 недель	Tos ≥ 3 semanas	ไอบ่อยกว่า 3 สัปดาห์	3 haftadan fazla süren öksürük
<b>Coughing up blood</b>	Tossindo sangue	Tuse cu sange	Отхаркивание кровью	Tos con sangre	ไอบ่อยเลือด	Kan Öksürme
<b>Fatigue</b>	Fadiga	Oboseala	Утомление	Fatiga	อาการเหนื่อยอ่อน	Yorgunluk
<b>Fever</b>	Febre	Febra	Жар	Fiebre	มีไข้	Ateş
<b>Loss of appetite</b>	Perda de apetite	Pierderea pozei de mancare	Потеря аппетита	Pérdida del apetito	เบื่ออาหาร	İştahsızlık
<b>Night sweats</b>	Suores noturnos	Transpiratii nocturne	Потливость ночью	Sudores nocturnos	เหงื่อออกตอนกลางคืน	Gece Terlemesi
<b>Productive cough</b>	Tosse productiva	Tuse productiva	Капель с мокрой	Tos productiva	อาการไอเรื้อรัง	Balgamli Öksürük
<b>Respiratory difficulty</b>	Dificuldade respiratória	Greutate in respiratie	Затруднённое дыхание	Dificultad respiratoria	มีปัญหาเรื่องระบบหายใจ	Solumum Güçlüğü
<b>Weight Loss</b>	Perda de peso	Scadere in greutate	Потеря веса	Pérdida de peso	น้ำหนักลด	Kilo Kaybi

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.

# Tuberculosis Medication Side Effects

ENGLISH	ARABIC	CHINESE	FRENCH	GERMAN	JAPANESE	KOREAN	MALAY
Tuberculosis Medication Side Effects	الاعراض الجانبية لتناول الادوية الخاصة بعلاج السل:	肺结核药物副作用	Réactions secondaires de la médication	Nebenwirkungen von Medicamenten der Tuberkulose	抗結核劑副作用	결핵치료제 부작용	Kesan sampingan ubat batuk kering
Abdominal pain	لم في منطقة البطن	腹痛	Douleurs abdominales (Mal à l'abdomen)	Unterteilsschmerzen	腹部の痛み	복부 통증	Sakit perut
Dark brown urine	اختلاف لون البول إلى بني غامق أو أسود	尿色深黄	Urine marron foncé	Dunkler brauner Urin	濃い茶色の尿	흑갈색 소변	Air kencing warna coklat pekat
Diarrhea	الإصابة بالاسهال	腹泻	Diarrhée	Durchfall	下痢	설사	Cirit-birit
Headaches	الصداع	头痛	Maux de tête, mal à la tête	Kopfschmerzen	頭痛	두통	Sakit kepala
Joint aches (PZA)	آلم في المفاصل	关节痛	Mal aux joints (point d'articulation)	Schmerzen der Gelenke	關節痛	관절통	Sakit sendi
Nausea	الغثيان	反胃	Nausée, envie de vomir	Übelkeit	むかつき	메스꺼움	Rasa mual
Numbness/ Tingling of hands/feet	الإحساس بالخدر - أو الوخز الخفيف (التشنج) في اليدين	手脚麻木 / 刺痛	Engourdissement/ Picotements des mains/jambes (fourmillements)	Taubheit / Kribbeln der Hände / Füße	手足の無感覺 / ひりひりする感覚	수족마비	Kebas
Rash/ Itching	طفح الجلدي / الحكّة	出疹子/发痒	Eruption/ démangeaisons	Hautausschlag / Jucken	発疹 / かゆみ	발진, 가려움	Ruam/gatal-gatal
Visual changes (EMB)	اختلاف بصري - في قدرة العينين	视力改变	Change de la vision	Sehstörungen	視覚変化	시력감퇴	Kabur penglihatan
Vomiting	القيء	呕吐	Vomissements	Erbrechen	嘔吐	구토	Muntah-muntah
Jaundice	اليرقان - اصفرار الجلد أو بياض العينين	黄疸	Jaunisse, ictère	Gelbsucht	黄疸	황달	Sakit kuning

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.



# Tuberculosis Medication Side Effects

ENGLISH	PORTUGUESE	ROMANIAN	RUSSIAN	SPANISH	THAI	TURKISH
<b>Tuberculosis Medication Side Effects</b>	Efeitos Colaterais de Medicamentos para Tuberculose	Efecte secundare ale tratamentului in tuber	Побочные эффекты лекарств от туберкулёза	Efectos secundarios al tratamiento de tuberculosis	อาการข้างเคียงของวัณโรค	Verem ilacinin yan etkileri
<b>Abdominal pain</b>	Dor abdominal	Durere abdominala	Боль в животе	Dolor abdominal	อาการปวดหน้าท้อง	Karın Ağrısı
<b>Dark brown urine</b>	Urina marrom-escura	Urina de culoare maroniu inchis	Тёмно коричневая моча	Orina marrón oscura	ปัสสาวะเป็นสีน้ำตาล	Koyu Kahverengi İdrar
<b>Diarrhea</b>	Diarréia	Diaree	Понос	Diarrhea	อุจจาระร่วง	İshal
<b>Headaches</b>	Dores de cabeça	Dureri de cap	Головная боль	Dolor de cabeza	อาการปวดศีรษะ	Baş ağrısı
<b>Joint aches (PZA)</b>	Dores nas juntas ([Pyrazinamide] PZA)	Dureri articulare	Боль в суставах	Dolores de las articulaciones (PZA)	ปวดตามข้อ	Eklemler Ağrısı
<b>Nausea</b>	Náuseas	Greata	Тошнота	Náusea	อาการคลื่นไส้ อากาวิงเวียน	Mide Bulantisi
<b>Numbness/ Tingling of hands/feet</b>	Entorpecimento / formigamento de mãos / pés	Amorteli/Furnicaturi in maini/picioare	Онемение конечностей	Adormecimiento/hormigueo de las manos y pies	อาการชาและปวดเล็กน้อยตามมือและเท้า	El ve Ayaklarda Uyuşukluk Karıncalanma
<b>Rash/ Itching</b>	Erupção cutânea / coceira	Eruptie cutanata/ Mancarime	Сыпь/Чесотка	Erupciones cutáneas y comezón	อาการผื่นคัน	Deri Döküntüsü Kaşıntı
<b>Visual changes (EMB)</b>	Mudanças Visuais ([ethambutol] EMB)	Tulburari de vedere	Изменение зрения	Cambios en la visión (EMB)	สายตาเปลี่ยน	Görüş Bozuklukları
<b>Vomiting</b>	Vômito	Varsaturi	Рвота	Vómitos	อาเจียร	Kusma
<b>Jaundice</b>	Ictericia	Icter	Желтуха	Ictericia	โรคที่ขาน	Sarılık

Developed by the University of Missouri-Columbia Student Health Center Prevention Team.  
 Funding for translation project provided by the Centers for Disease Control and Prevention and Missouri Department of Health and Senior Services.  
 Translated from English by Culture Guides, Inc.

# Tuberculosis Fact Sheet

Student Health Center

University of Missouri - Columbia

## What is Tuberculosis (TB)?

TB is a disease caused by an infection with a germ (bacteria) transmitted through the air by a person with active TB. A person with active TB is contagious to others and is required to undergo treatment with antibiotics. A person with inactive latent TB infection is not contagious to others but has the TB infection. Treatment is recommended to prevent the development of active TB and to cure the infection.

## What is the difference between active and inactive Latent TB Infection?

**Active:** An individual with active TB is someone who has been infected with the TB bacteria and this bacteria has reproduced and attacks the body, usually the lungs. Active TB may develop shortly after being exposed to a contagious person or after many years. Persons with untreated inactive TB may develop active TB even many years later.

**Inactive Latent TB Infection:** If a patient has the following, they are classified as infected with TB but do not have active disease:

- \*Positive skin test
- \*No TB symptoms
- \*Negative chest x-ray

## How is TB spread?

The TB germ is spread only from a person with untreated active TB by tiny droplets from the nose, mouth, lung or lymph fluid. Someone who shares close breathing space with the infected person over a long period of time can then inhale these germs. TB is usually spread between household contacts, close friends and people who work together.

## What are the symptoms of TB?

- \*persistent cough
- \*fatigue
- \*weight loss
- \*loss of appetite
- \*fever
- \*night sweats
- \*coughing up blood
- \*shortness of breath
- \*chest pain
- \*chills

## Who gets TB?

Anyone can get TB. You are at a higher risk of getting TB if you:

- \* Are infected with HIV
- \* Live or spend time in close contact with a person who has active TB
- \* Have certain medical conditions (diabetes, silicosis, blood disorders, cancer, renal failure and certain gastrointestinal disorders)
- \* Are immunosuppressed
- \* Use IV drugs
- \* Are addicted to alcohol
- \* Are 10 percent below ideal body weight
- \* Are from a country with a high TB rate
- \* Are or have been a resident or employee of a correctional facility, nursing home or mental institution
- \* Are a health worker and/or student
- \* Are or have been migrant, homeless, medically underserved or from a low income background
- \* Recently converted from a negative to a positive skin test
- \* Have an abnormal CXR



# TUBERCULOSE

A tuberculose, uma doença que pode ser debilitante ou até mesmo fatal, está em alta e revisitando tanto países em desenvolvimento, como aqueles desenvolvidos. Mundialmente, a tuberculose é a causa número um de mortes resultantes de uma só doença infecciosa. Presentemente, ela mata 3 milhões de pessoas por ano e, se esta tendência continuar, é provável que ela seja a causa da morte de mais de 30 milhões de pessoas na próxima década. O aumento recente nas migrações misturou rapidamente comunidades infectadas com aquelas não infectadas, o que contribuiu para a disseminação da doença.

## O que é a tuberculose?

A tuberculose é uma doença infecciosa causada pelo microorganismo *Mycobacterium tuberculosis*. Ela pode afetar vários órgãos do corpo humano, inclusive o cérebro, os rins e os ossos. Mas, mais comumente, ela ataca os pulmões (tuberculose pulmonar). Normalmente, a primeira fase da infecção dura vários meses. Durante este período, as defesas naturais do corpo (sistema imunológico) resiste à doença, e a maior parte das bactérias, senão todas, são envolvidas por uma cápsula fibrosa que se desenvolve na área. Antes que este ataque inicial termine, algumas bactérias podem escapar e entrar na corrente sanguínea. Elas são levadas para outras partes do corpo onde elas são mais uma vez envolvidas. Em muitos casos, a doença nunca vai além dessa fase (na qual a doença é chamada de infecção tuberculosa). Se o sistema imunológico não conseguir parar a infecção e ela não for tratada, a doença progride para a segunda fase, quando o germe se multiplica rapidamente e destrói os tecidos dos pulmões (ou de qualquer órgão afetado). Em alguns casos, a doença, apesar de controlada a princípio, volta após um período de latência. Às vezes, este período pode durar anos, e as bactérias se tomam ativas quando a oportunidade se apresenta, especialmente quando a imunidade está baixa.

Como dito acima, a segunda fase da doença (chamada de doença ativa) é caracterizada pela destruição ou "consumo" dos tecidos do órgão afetado. Quando o pulmão é afetado, o resultado é a diminuição da capacidade respiratória, associada com outros sintomas; quando outros órgãos são afetados, mesmo se tratados adequadamente, pode ser que a doença deixa marcas permanentes e debilitantes.

## Quais são os sintomas?

A fase inicial da doença pode não apresentar quaisquer sintomas, ou a pessoa pode experimentar sintomas parecidos com o de uma gripe. Na fase seguinte, chamada de doença ativa, pode ser que haja uma febre moderada, suores noturnos, perda de peso e fadiga, dentre outros sintomas, dependendo da parte do corpo afetada. A tuberculose dos pulmões (tuberculose pulmonar) é normalmente associada com uma tosse seca, a qual pode levar a uma tosse produtiva com esputo (escarro) manchado de sangue. Pode ser que haja também dores no peito e falta de ar. Esta fase secundária, se afetando os pulmões, é a fase contagiosa, na qual as bactérias podem ser transmitidas para outras pessoas.

## Como a tuberculose é transmitida?

O germe da tuberculose é carregado em gotículas no ar e pode entrar no corpo humano através das vias respiratórias. Uma pessoa com tuberculose pulmonar ativa pode transmitir a doença ao tossir ou espirrar. O processo de pegar tuberculose envolve dois estágios: primeiro a pessoa tem que ser infectada; depois, a infecção tem que se tornar doença. Para ser infectada, a pessoa tem que entrar em contato próximo com outra pessoa sofrendo de tuberculose ativa. Em outras palavras, a pessoa tem que respirar o mesmo ar no qual a pessoa com a doença ativa tosse ou espirra.

## Quais são as chances de se tornar infectado?

A pessoa tem que entrar em contato com alguém que tenha tuberculose ativa com germes de tuberculose no esputo. A probabilidade de isto acontecer também depende de quanto tempo se permanece em contato com a pessoa com a doença ativa.

Se o tratamento for interrompido nesta fase, ou se os medicamentos não forem tomados como prescrito, bactérias terão a oportunidade de desenvolver resistência contra as drogas, e o tratamento vai tornar-se ineficaz. Se você for diagnosticado com tuberculose ativa, é necessário que você tome os medicamentos e, talvez, que você passe por um período de confinamento se a doença ainda for considerada infecciosa.

### **O teste de tuberculose (TB test)**

Com o objetivo de manter um ambiente saudável para estudantes, corpo docente e funcionários, a Universidade de Illinois procura tomar as medidas necessárias para garantir que o campus esteja livre de tuberculose. Porque diferentes países têm diferentes padrões para testar e avaliar esta doença, a universidade requer que o centro de saúde teste todos os novos alunos internacionais.

Se você está preocupado com alguma diferença entre o seu tratamento e as informações neste panfleto, você deve contactar o médico e/ou instituição encarregados do seu tratamento.

#### **Referências:**

*C.D.C. TB Core Curriculum, 1994.*

*W.H.O., Global Tuberculosis Program, 1997.*

**This handout does not claim to be all-inclusive.  
For further information or advice specific to your needs, see your health care provider.**

# Verem (Tüberküloz) Hakkında Bilmeniz Gerekenler

*University of Missouri Columbia*

## □ **Verem nedir?**

Verem, aktif halde verem mikrobu taşıyan birisinden hava yolu ile bulaşan bir hastalıktır. Aktif halde verem mikrobu taşıyan bir kimse hastalığı başkalarına da bulaştırır ve mutlaka antibiyotik tedavisi görmesi gerekir. Bazı kimselerdeki verem mikrobu aktif değildir ve diğer insanlara bulaşmaz ancak mikrobun tekrar aktif olmasını önlemek için tedavi görmeleri gerekir.

## □ **Aktif ve aktif olmayan verem arasındaki fark nedir?**

**Aktif:** Aktif olan veremde hasta verem mikrobunu kapmıştır ve mikrop sürekli üreyerek başta akciğerler olmak üzere tüm vücuda yayılır. Hastalık verem olan birinden bulaşır, bazen hemen bazen de yıllar sonra ortaya çıkabilir. Verem mikrobunu kapmış kişi, mikrop aktif olsa da olmasa da eğer tedavi edilmez ise hastalık yıllar sonra tekrar nüksedebilir.

**Aktif olmayan verem:** Hastada aşağıda yazanlar bulunursa, hastaya verem bulaşmış ancak verem mikrobu henüz aktif hale geçmemiş demektir.

- Pozitif deri testi
- Verem belirtileri yok
- Negatif göğüs röntgeni

## □ **Verem nasıl yayılır?**

Verem mikrobu, verem olan birisinin sümüğü, salyası ve balgamı ile yayılır. Verem hastasının soluduğu havayı uzun süre soluma ile mikrop akciğerden vücuda girer. Bu yüzden verem, ev halkı, yakın arkadaşlar ve birlikte çalışan insanlar arasında çok çabuk yayılır.

## □ **Veremin belirtileri nelerdir?**

Sürekli öksürük, halsizlik, kilo kaybı, iştahsızlık, ateş, gece terlemeleri, kanlı öksürük, nefes kesilmesi.

## □ **Kim verem olur?**

Herkes verem olabilir. Verem olma olasılığı şu hallerde yüksektir:

- AIDS'e yakalanmış olanlar
- Verem olan birisi ile irtibatta olanlar
- Bazı hastalıklarda (Şeker hastaları, silicosis, kansızlık, kanser, böbrek yetmezliği, sindirim sistemi bozuklukları)
- İlaç alerjisi olanlar
- Damardan ilaç kullananlar
- Alkolikler
- Normalden %10 zayıf olanlar
- Verem oranı yüksek ülkelerde yaşayanlar



- Hapishaneler, darülaceze, akıl hastahanesi, hastahaneler gibi kalabalık yerlerde çalışmış olanlar
- Göçmenler, evsizler, gelir durumu düşük olanlar
- Negatif deri testinden pozitif dönüşmüş olanlar
- Göğüs röntgeninde leke tesbit edilenler

□ **Deri testi nedir?**

Verem sadece deri testi ile belli olur. Birden fazla deri testi yöntemi olmasına rağmen genellikle Mantoux deri testi tercih edilir. Bu test için dirsek bölgesindeki deri altına bir sıvı tatbik edilir. Deri testinin sonucu 48 ila 72 saat arasında belli olur. Bu süre sonunda sağlık merkezine geri dönülüp sonucun alınması çok önemlidir. Süre geçerse testin tekrar yapılması gerekir.

□ **Hangi durumlarda deri testi yapılmaz?**

Deri testi sonucu önceden pozitif çıkmış kimselere deri testi yapılmamalıdır. Ancak önceden BCG (Verem) aşısı olmuş kimselere deri testi yapılabilir. Deri testi pozitif çıkanlarda BCG aşısından ziyade verem mikrobunun etkisi vardır. Aşağıda sözü edilenlerden şikayetçi iseniz hemşireye durumu bildirin ki başka bir deri testi uygulansın. Yüksek ateş, gribal enfeksiyonlar, Hodgkin hastalığı, sarcoidosis, son altı hafta içinde kızamık, sıtma ve suçiçeği aşısı olanlar.

□ **Deri testinin riskleri nelerdir?**

Aşırı duyarlı kimselerde test bölgesinde, su toplama, kızarıklık, rahatsızlık, kaşınma, renk değişikliği, şişmeler görülebilir.

□ **Hangi sıklıkla test yapılmalıdır?**

Daha önce sözü edilen yüksek risk taşıyan kimselerde her yıl deri testi yapılmalıdır.

□ **Pozitif deri testi ne demektir?**

Verem mikrobi kapmış kimselerde deri testi yapılan bölge 48 ila 72 saat sonra şişer. Buna deri testi pozitif çıktı denir ve hastalığın ilerleme durumunu saptamak için başka testler de yapılır. Deri testi pozitif çıkanlarda göğüs röntgeni çekilir ve hastalığın belirtileri gözlenir.

□ **Verem nasıl tedavi edilir?**

Tedavi, veremin ciddi ve bulaşıcı bir hastalık olması nedeni ile kanunen zorunludur. Hasta gözetiminde tutularak en az altı ay boyunca günde dört defa olmak üzere ilaç tedavisi uygulanır. Aktif olmayan verem olanlar da Isoniazide (INH) adı verilen bir antibiyotiği altı ila dokuz ay boyunca kullanırlar. Bu ilaç veremin aktif olmayan halden aktif hale geçmesini önler.

*Daha fazla bilgi için sağlık merkezini (Student Health Center) arayın.*

## **Isoniazid (INH) hakkında bilmeniz gerekenler**

*Student Health Center*

*University of Missouri Columbia*

**Directly Observed Therapy (DOT) - Gözaltında tedavi Haftada iki defa**

### **□ INH nedir?**

INH (Isoniazid) veremi tedavi eden ve önleyen bir antibiyotiktir.

### **□ INH almadan önce doktorumun neleri bilmesi gerekir?**

- Kullandığınız ilaçları: reçeteli, reçetesiz, kocakarı ilaçları
- Kronik hastalığınız olup olmadığı: Diş, karaciğer hastalıkları, nöbet geçirme, şeker hastalığı gibi...
- Hamile olup olmadığınız
- Bebek emzirip emzirmedeğiniz
- Bazı ilaçlara, yemeklere alerjinizin olup olmadığı

### **□ İlacı nasıl almalıyım?**

- Student Health Center'a (Sağlık merkezine) haftada iki defa gelin ve ilacınızı alın.
- İki doz arasında en az 48 saat olsun. Örneğin Salı günü geldiyseniz daha sonra Cuma günü gelin.
- Hapı bir bardak su ile, aç karnına alın.
- Haftadan iki dozdan fazla, günde bir dozdan fazla kullanmayın.
- INH hapı 6 ay=26 hafta=52 doz (9 ay içinde tamamlanmalı) ya da
- INH hapı 9 ay=38 hafta=76 doz (12 ay içinde tamamlanmalıdır)
- Öğrenci numaranızı imza defterine yazın.
- Özel izin almadıkça çekmecedan birden fazla doz almayın.
- Her iki dozu da Cuma günü öğlen 12 de aldığınızdan emin olun.

### **□ Dozu kaçıırırsam ne olur?**

- Bir iki gün kaçırmışsanız hapı hemen alın, ancak sonraki hapı en az 48 saat sonra alın.
- Üç gün kaçırmışsanız, sadece sonraki dozu alın iki tane birden almayın.
- Kaçırılan dozlar tedavi süresine eklenir.
- Şehir dışına çıkacaksanız hemşire ile konuşun ve hapları yanınıza alın.

### **□ Başka haplar veya yiyecekler INH'yi etkiler mi?**

- Nöbet önleyen ilaçlar
- Kanı sulandırıcı ilaçlar (tansiyon ilacı gibi)
- Doğum kontrol hapları etkileyebilir.

- Histamin ve Tyramin içeren yiyecekler başdönmesi ve başağrısına neden olabilir.
- Eski kaşar ve peynirler
- İşlenmiş et ve balık ürünleri (pastırma gibi)
- Bira, kırmızı şarap
- Avokado, muz, incir ve üzüm
- Soya sosu, miso (soya ürünleri)
- Mayalı ürünler

Bu ürünleri az ya da hiç kullanmamak INH'nin yan etkilerini azaltacaktır.

□ **INH nin yan etkileri nelerdir?**

Aşağıdaki şikayetler görülürse mutlaka hemşireye bildirin.

- Kanlı idrar, idrar miktarında azalma
- Koyu sarı veya kahverengi idrar
- Gözde ve deride sararma
- Olağandışı kanama, deride çürüklük
- Ateş, titreme, boğaz ağrısı
- Deri döküntüsü, kaşınma
- Nöbet geçirme
- Aşırı yorgunluk, zayıflık
- Karıncalanma, ellerde ayaklarda ağrı ve uyuşma
- Başağrısı, aksama, sakarlık
- Göz ağrısı, göz bozukluğu, renklerde değişme
- Soluma güçlüğü
- Mide bulantısı, kusma, iştahsızlık, mide ağrısı, ishal

İlacı aldığınız her dört haftada bir hemşireye uğrayıp konuşmak faydalıdır.

□ **INH hakkında diğer bilgiler.**

- INH vücuttaki B6 Vitaminini azaltır bu yüzden vitamin hapı kullanılabilir.
- Alkol kullanımı karaciğere zarar verebilir.
- Antacid (Mide rahatlatıcı ilaç ya da ülser ilacı) kullanımı INH'yi etkisiz bırakır. Bu yüzden antacid kullanıldıktan en az dört saat sonra INH kullanılmalıdır.
- Doğum kontrol hapı kullanıyorsanız, fazladan bir doğum kontrol yöntemi daha kullanın.
- İlacı yanınıza alırsanız, çocuklardan uzak tutun, karanlıkta ve oda sıcaklığında saklayın, kullanılmayan hapları hemşireye geri getirin.

*Daha fazla bilgi için 882 9240 'ı arayın veya 882 7481 'den randevu alın.*

INH (イソニコチン酸ヒドラジッド, 抗結核剤) データ表  
学生ヘルスセンター ミズーリ大学コロンビア校

直接観察療法 (週 2 回)

INHは、どのような効果がありますか？

INH (イソニコチン酸ヒドラジッド) は、結核を治療・予防する抗生物質です。

私がINHを服用する前に、私の医療提供者は何を知っているべきですか？

- あなたが服用している薬品の名前 (処方薬・処方薬以外・薬草を含む)
- あなたが、何か慢性症状を持っているかどうか、特に：
  - 歯の病気
  - 肝臓病
  - てんかん等の急な発作
  - 糖尿病
- あなたが現在妊娠しているか、妊娠しようとしているかどうか
- あなたが現在授乳しているかどうか
- INHやその他の薬品・食品・染料・防腐剤等にアレルギーがあるかどうか

私はこの薬をどのように服用すべきですか？

- 週に2回、学生ヘルスセンターに、自分の薬を取りに来て下さい。  
週に2回の服用の間隔を、最低48時間は開けて下さい。
- コップ一杯の水 (8 oz, 約236 ml) と一緒に服用して下さい。
- 空腹時 (最低、食事の1時間前か2時間後) に服用して下さい。
- 週に2回以上、また、1日に1回以上、服用してはいけません。
- INHは、6ヶ月間=26週間=52回分 処方されます：  
9ヶ月以内に終了しなければなりません。または、
- INHは、9ヶ月間=38週間=76回分 処方されます：  
12ヶ月以内に終了しなければなりません。
- あなたの学生番号を受け付け時の署名シートに記入して下さい。
- 特別な許可を得ない限り、1回服用分以上を引き出しから取り出さないで下さい。
- 必ず毎週金曜日の午後12時までに、2回の服用の両方を済ませて下さい。

薬の服用をし損なった場合は？

- もし1-2日遅れた場合は、すぐに服用して下さい。次の服用まで最低2日 (48時間) 待って下さい。



- もしも3日遅れていて、もう次の服用の時間が来ている時は、その次の服用分だけ取って下さい。
- 服用し損なった分は、治療スケジュールの最後に追加されます。
- もしも街を離れる時は、予防看護人に話して、薬を手元に持って行けるよう手配をして下さい。

INHは、他の薬品や食品と相互作用し合いますか？

INHは下記の物と作用し合うかもしれません：

- 発作止め薬品
- 血液溶剤
- 避妊用ピル

何人かの人、ヒスタミンやチラミンを含む食品（下記参照）を取ると、軽い顔のほてりや頭痛を経験するかもしれません。それらの食品の例は：

- 成熟チーズ
- 熟成・スモーク・漬け込み・加工した肉類・魚類
- ビール・エール；ワイン（特に赤ワイン）
- アボカド、バナナ、いちじく、レーズン
- 醤油
- みそ
- イースト溶液
- 豆腐

これらの食品の摂取を減らしたり避けたりすることで、望ましくない副作用を減らせるかもしれません。

INHを服用すると、どのような副作用が起こり得ますか？

下記のような副作用が出た時は、それ以上薬を服用する前に、予防看護人に報告して下さい：

- 血尿；尿量の減少
- 濃い黄色・または茶色の尿
- 目や皮膚の黄ばみ
- 異常な出血・あざ
- 熱や寒気、喉の痛み
- 発疹・かゆみ
- 発作（ひきつけ）
- 異常な疲労感・心身の衰弱
- 手足への、ひりひりする感覚・痛み・無感覚
- 頭痛、動きのぎこちなさ・不安定感
- 視界のかすみ、眼痛、色の見え方の変化
- 呼吸困難
- むかつき、吐き気、食欲不振、胃痛、下痢

この薬の服用期間中は、4週間毎に看護人に会い、話をすることが必要です！

INHの服用に付いて、私が他に知っていなければならない事は何ですか？

- INHが体内のビタミンB6（ピリドキシン）を消耗するので、そのビタミンが同時に与えられます。
- 肝臓へのダメージの可能性があるので、アルコール飲料は避けましょう。
- 制酸剤（Antacid）はINHの効果を妨げます。もしあなたが制酸剤を服用するのなら、次のINHの服用の4時間前まで待つか、最後のINH服用の2時間後まで待って下さい。
- もし避妊用ピルを使用しているなら、他の避妊方法も追加して下さい。
- もしもあなたが自分の手元に薬を持って行かなければならないなら、以下のように薬品を保管して下さい：
  - 子供の手の届かない所に保管して下さい。
  - 直射日光を避けて下さい。
  - 室温で保管して下さい。
  - 使用しなかった薬品は、予防看護人に戻して下さい。

お問い合わせは、SHC予防看護人（882-9240）まで  
お電話下さい。予約のためには、882-7481までお電話下さい。

Korean (한국어)  
INH 복용 설명서  
(Isoniazid(INH) Fact Sheet)

미조리 주립대 학교 보건소

직접치료제-일주일에 두 번 복용

**INH는 무엇인가?**

- INH는 결핵을 치료하는 항생제입니다.

**의료진은 환자가 INH를 복용하기 전에 무엇을 인지해야하는가?**

- 환자가 복용하고 있는 처방약이나 미처방약 또는 허브약
- 환자가 특히 다음과 같은 질병(만성으로 앓고 있는 병)을 가지고 있는지 여부
  - 치통
  - 간염
  - 발작 증세
  - 당뇨
- 환자가 임신중이거나 임신을 시도하고 있는지 여부
- 수유를 하고 있는지 여부
- INH나 다른 약, 음식 등에 알레르기 반응을 일으키는지 여부

**본인은 어떻게 이 약을 복용해야 하나?**

- 일주일에 두 번 학교 보건소를 방문해서 약을 취득한 후 일주일에 두 번 48시간 간격으로 복용한다.
- 물 한컵 (8온스)과 함께 복용한다.
- 일주일에 2회 이상 복용하지 말고 하루에 1회 이상 복용하지 말아야 한다.
- INH는 6개월동안 52번 복용되거나 (9개월 이내에 완결)
- INH는 9개월동안 76번 복용된다 (12개월 이내에 완결)
- Sign-in sheet에 본인의 학생번호를 적는다
- 특별한 지시 없이는 한번에 한 회분 이상 복용하지 않는다.

**만약 복용시간을 놓친 경우에 어떻게 하나?**

- 만약 1-2일이 늦었으면 가능한 빨리 복용해야 한다. 그리고 48시간을 기다려 다음 양을 복용해야 한다.
- 만약 3일이 늦었으면 기다렸다가 다음 양을 복용해야 한다.
- 놓친 복용 양은 복용을 다 마친 후에 추후로 복용해야 한다.
- 외부 출타 시에는 간호사와 상의한 후 필요한 양의 약을 받아 출타 중에도 복용하도록 한다.

## Korean (한국어)

### 다른 약이나 음식과 INH 복용과 상관이 있는가?

INH는 다음과 같은 약과 상관이 있을 수 있다.

- 발작 치료제
- 경구 피임약
- 혈액 희석제
- 소수의 사람들은 다음과 같은 히스타민제나 티라민제가 포함된 음식을 먹으면 두통이나 약간의 흥분을 경험하게 된다.

- 오래된 치즈
- 오래되거나 훈제된, 절인, 혹은 가공된 고기나 생선
- 맥주나 와인 (특히 레드와인)
- 아보카도, 바나나, 무화과, 건포도
- 간장
- 된장
- 효모제
- 두부

위의 음식을 즐기거나 끊으면 원치 않는 부작용을 줄일 수 있다.

### 어떠한 부작용이 나타나는가?

다음과 같은 부작용 증상이 나타나면 약을 더 복용하기 전에 간호사와 상의해야 한다.

- 소변에 피가 섞이거나 소변 양이 줄어든 경우
- 짙은 노란색, 혹은 갈색 소변인 경우
- 눈이나 피부색이 노랗게 변하는 경우
- 이상하게 피가 나거나 멍이 드는 경우
- 고열, 오한, 또는 목안이 아픈 경우
- 피부 발진이나 가려움
- 발작이나 경련
- 이상하게 피로나 허약해지는 경우
- 수족이 마비가 되거나 통증이 있는 경우
- 두통이나 불안 증세
- 시력감퇴, 동통, 색맹증세
- 호흡곤란
- 구토, 멀미, 식욕감퇴, 위장장애, 설사

복용 시 매 4주마다 간호사를 만나 당신의 복용상태를 알려주고 상의해야 합니다.

## Korean (한국어)

**본인은 INH를 복용하는데 있어서 또 무엇을 알아야 합니까?**

●비타민 B6와 함께 INH를 복용해야 합니다. 왜냐하면 INH 복용시, 비타민 B6가 당신의 몸에서 부족할 수 있기 때문입니다.

●음주는 간을 손상시킬 우려가 있으므로 금물입니다.

●제산제는 INH가 효과적으로 작용하는 것을 방해하므로 INH 복용 4시간 전이나 2시간 후에 제산제를 복용해야 합니다.

●만약 경구 피임약(birth control pills)을 복용한다면 다른 임신 조절 방법을 사용해야 합니다.

●약 보관요령

-어린이의 손길이 닿지 않는 곳

-실온에서 보관

-직사광선을 피할 수 있는 곳

-여분의 약은 보건소에서 회수

더 많은 정보가 필요하시면 882-9240으로 전화해 간호사와 통화하시거나, 882-7481로 전화해 방문예약 하시기 바랍니다.



**Isoniazid (INH) 事实说明书**

Student Health Center

University of Missouri - Columbia

直接观察治疗 / 每周两次  
Directly Observed Therapy (DOT) / Twice Weekly

**Isoniazid (INH) 有何作用？**

Isoniazid (INH) 是一种用来治疗或预防肺结核的抗生素药剂。

在我开始服用 INH 之前，我的医护人员需要知道哪些关于我的事情？

- \_你目前在服用的任何药品名称；包括处方，非处方和草药
- \_你是否有任何长期或慢性病症，特别是：
  - \_牙齿的疾病
  - \_肝方面的疾病
  - \_癫痫症
  - \_糖尿病
- \_如果你正怀孕中或是想怀孕
- \_如果你目前在喂母乳
- \_对 INH 或任何药物，食物，染料，防腐剂有过敏反应

**我该如何服用这个药物？**

- \_每周两次到学生保健中心服药；两次服药之间至少要相隔 4 8 小时
- \_用 8 盎司的水口服
- \_空腹服用（至少饭前 1 小时或饭后 2 小时）
- \_一周不得超过两个剂量；一天不得超过一个剂量
- \_服用 INH 6 个月 = 2 6 周 = 5 2 个剂量（必须在 9 个月内完成），或者
- \_服用 INH 9 个月 = 3 8 周 = 7 6 个剂量（必须在 1 2 个月内完成）
- \_在签到单上填写你的学生号码
- \_除非得到特别许可，否则只能从你的抽屉中拿取一份药剂
- \_要确定每周五中午 1 2 点之前，你两个剂量都已服用

**我忘了吃药时该怎么办？**

- \_如果只迟了一天或两天，马上服用；然后至少等两天（4 8 小时）后才服用下个剂量
- \_如果已迟了三天，并且已到了服用下一个剂量的时间，就只服那一个剂量
- \_任何忘了服用的剂量将会被延加到你的治疗时程
- \_如果你要出门远行，请跟保健中心的护士联络，以便安排你带着药上路

**别的药物或食物会跟 INH 相互影响吗？**

INH 会跟下列药物或食物产生作用：

- \_癫痫症药物
- \_血液稀释剂
- \_避孕药

## Chinese

有些人吃了含有 histamines 或是 tyramines 的食品后可能会有轻微的潮红和头痛，  
例如：

- \_陈年乳酪
- \_陈年，薰过，腌过，或经处理的肉或鱼类
- \_啤酒，麦酒，其它酒类（特别是红酒）
- \_鳄梨，香蕉，无花果，葡萄乾
- \_酱油
- \_味噌
- \_酵母萃取物
- \_豆腐

减少或避免食用这些食物可能会减轻服用 INH 的副作用

我服用 INH 时可能会有哪些副作用？

如果你有任何下列的副作用，在继续服用更多 INH 之前，请告知保健中心的护士：

- \_尿中带血，尿量减少
- \_尿呈深黄或褐色
- \_眼睛或皮肤发黄
- \_不寻常的流血或淤青
- \_发烧，寒颤，喉咙痛
- \_皮肤出疹或发痒
- \_癫痫或痉挛
- \_不寻常的疲倦或虚弱
- \_手脚刺痛，疼痛或麻木
- \_头痛，行动笨拙或不稳
- \_视力模糊，眼睛痛或辨色能力改变
- \_呼吸困难
- \_反胃，呕吐，食欲减退，胃痛或腹泻

在你服药过程中，每四周你必须和护士商讨。

服用 INH 时，我还需要知道哪些别的事项？

- \_维他命B6 (pyridoxine) 也会一并提供给你，因为 INH 会消耗你体内维他命B6 的供应
- \_避免饮用含有酒精的饮料，因为它可能使肝功能受到损害
- \_抗胃酸药会抑止 INH 的功用，所以你若服用抗胃酸药，必需等至少在服用下一个 INH 剂量前四小时，或是在服用上一个 INH 剂量之后两小时
- \_如果你使用避孕药，必需增加另一个避孕方式
- \_如果你必需把药带着，如何存放你的药：
  - \_放在儿童拿不到的地方
  - \_放在阴暗处
  - \_存放于室温
  - \_将没服用的药交回给保健中心的护士



# Isoniazid (INH) Fact Sheet

Student Health Center  
University of Missouri - Columbia

صفحة المعلومات عن الدواء المسمى أيزونيازايد (اي، ان، اتش)  
(العلاج يتطلب اشراف طبي مباشر - مرتان كل اسبوع)

- ما هي فعالية أيزونيازايد (اي، ان، اتش)؟  
هذا الدواء هو مضاد حيوي - مضاد بكتيري - يستعمل للوقاية من ميكروب السل او العلاج من مرض السل.
- ما هي المعلومات التي يجب ان يعرفها الشخص المشرف على علاجي، قبل ان ابدأ بتناول دواء الايزونيازايد؟  
(١) أسماء كافة الادوية التي تاخذها حالياً، سواء كانت ادوية وصفها لك طبيب، او ادوية ابتعتها من الصيدلية من غير وصفة طبيب، او اية اعشاب طبيعية تتناولها لغاية علاجية.  
(٢) اية امراض او صعوبات صحية مزمنة تعاني منها، وخصوصاً:
  - امراض الاسنان واللثة
  - امراض الكبد
  - نوبات التشنج
  - السكري
- (٣) ان كنت امرأة في اشهر الحمل او تحاولين الحمل
- (٤) ان كنت امرأة مرضعة
- (٥) ان كنت تعاني من الحساسية او ردود فعل سلبية بعد تناول دواء الايزونيازايد (اي، ان، اتش) او ان كنت تعاني من حساسية حيال اية ادوية اخرى، اية اطعمة معينة، صبغات، او مواد حافظة للطعام.
- ما هي كيفية العلاج بهذا الدواء؟  
(١) عليك ان تأتي الى مركز صحة الطلبة مرتان اسبوعياً حتى تحصل على جرعات الدواء المخصصة لكل اسبوع. ويجب ان تحرص على ان تترك فترة ٤٨ ساعة (يومان) ما بين الجرعة الاسبوعية الاولى والجرعة الثانية.  
(٢) تناول الجرعات عن طريق الفم، مع كأس من الماء حجمه ٨ اونصات.  
(٣) تناول الدواء على معدة فارغة، اما ساعة قبل تناول وجبة طعام، او ساعتين بعد تناول وجبة طعام.  
(٤) لا تأخذ الدواء اكثر من مرتين اسبوعياً، او اكثر من جرعة واحدة في اليوم الواحد.  
(٥) دواء (اي، ان، اتش) يطعى لمدة ستة اشهر = لمدة ٢٦ اسبوع = لمدة ٥٢ جرعة. ويجب انهاء العلاج خلال فترة لا تتعدى التسعة اشهر.  
(٦) دواء (اي، ان، اتش) يعطى لمدة تسعة اشهر = لمدة ٣٨ اسبوع = لمدة ٧٦ جرعة (يجب انهاء العلاج خلال فترة لا تتعدى السنة (١٢ شهر).  
(٧) كل مرة تأتي الى مركز الصحة، عليك كتابة رقم الطالبة/الطالب على سجل

(٨) لا تخرج اكثر من جرعة واحدة من درجك الا بعدما تأخذ الاذن الخاص كي تقوم بذلك.  
(٩) عليك ان تكون قد تناولت كلا الجرعتان قبل حلول الساعة الثانية عشرة ظهرا من يوم الجمعة من كل اسبوع.

- ماذا علي ان افعل اذا لم اخذ احدي الجرعتين الاسبوعيتين؟  
اذا تأخرت يوما او يومان في اخذ احدي الجرعتين، عليك اخذ الجرعة في اسرع وقت ممكن ومن غير تاجيل اكثر. انتظر على الاقل ٤٨ ساعة (يومان) قبل تناول الجرعة الاسبوعية الثانية.

- اذا تأخرت ثلاثة ايام وحان موعد الجرعة الثانية، خذ فقط الجرعة الثانية.  
- اية جرعات لا تأخذها خلال الاسباع المخصصة ستضاف الى برنامجك العلاجي وتطيل فترة العلاج.

- اذا كنت ستسافر خارج المدينة، اخبر مشرف الصحة الوقائية (الممرض او الممرضة المشرفة على علاجك) ببرنامج سفرك حتى تتخذ الترتيبات التي تمكنك من اخذ جرعات الدواء معك.

- هل تتعارض الادوية الاخرى او الاطعمة مع (اي، ان، اتش)؟  
هنالك احتمال ان (اي، ان، اتش) قد يتعارض مع اي من، او كل من الادوية التالية:  
(١) ادوية حالات التشنج  
(٢) الادوية التي تخفف كثافة الدم  
(٣) حبوب منع الحمل  
(٤) بعض الافراد قد يتسبب لهم الصداع او حالة خفيفة من الحمى اذا اخذوا (اي، ان، اتش) وتناولوا اطعمة تحتوي على مواد ال (هستامينز) وال (تايرامينز) مثل:  
- الجبن المحفوظ لازمان طويلة  
- اللحوم والاسماك المحفوظة لمدة طويلة عن طريق التجفيف او التدخين او التخليل، او الاطعمة المصنعة.

- البيرة بانواعها، الخمر، وخصوصا الخمر الاحمر.  
- الافوكادو، الموز، التين، الزبيب  
- صلصة او مرق فول الصويا  
- الميسو (فول الصويا المعجون والخمر - وجبة يابانية)  
- الخميرة  
- التوفو (عجين فول الصويا المخثر)

لذلك فان التقليل من تناول هذه الاطعمة او الابتعاد عنها في فتره العلاج قد يؤدي الى تلافي بعض الاعراض الجانبية لها.

ما هي الاعراض الجانبية التي قد لاحظها في فترة علاجي ب (اي، ان، اتش)؟  
عليك ان تنتبه لنفسك جيدا خلال فترة العلاج، فاذا لاحظت ايا من الاعراض الجانبية التالية، اذكرها فورا للشخص المشرف على علاجك، وقبل ان تواصل اخذ الجرعات:

- دم في البول  
- تغير لون البول الى بني غامق او اسود

- النزف من غير سبب واضح، او ملاحظة خدوش او رضوض في الجسم.
  - الحمى، القشعريرة، التهاب الحنجرة
  - الحكّة او الطفح (على الجلد)
  - نوبات التشنّج
  - الارهاق والاحساس بالضعف على غير العادة
  - الوخز الخفيف (التنمل) الالم، او لتخدر في اليدين او القدمين
  - الصداع، انعدام التوازن
  - عدم وضوح الرؤية، الم في العيون، او اختلاف في مقدرة رؤية الالوان.
  - صعوبة في التنفس
  - الغثيان، القيء، نقصان او انعدام الشهية، الم في الامعاء، او الاسهال.
- ملاحظة مهمة جدا: خلال كافة اشهر علاجك، من الضروري ان ان تاتي الى مركز صحة الطلبة كل اربعة اسابيع وتناقش تفاصيل وتطورات علاجك مع المشرف الصحي.
- ماذا ايضا علي ان اعرف عن (اي، ان، اتش)؟
- (١) خلال فترة العلاج سنزودك بفيتامين ب٦ (باريودوكساين) لان (اي، ان، اتش) يستهلك مخزون الجسم من هذا الفيتامين.
- (٢) عليك تفادي المشروبات الكحولية حتى تتفادي ايداء الكبد.
- (٣) المواد المضادة للحموضة تمنع (اي، ان، اتش) من فعاليته. لذلك ان كنت تتعاطى المواد المانعة للحموضة (انتي اسيدس) انتظر على الاقل ٤ ساعات من اخذ ال (انتي اسيدس) قبل ان تاخذ (اي، ان، اتش). او خذ ال (انتي اسيد) على الاقل بعد ساعتين من تناول ال (اي، ان، اتش).
- (٤) ان كنت امرأة تستخدم حبوب منع الحمل، اختاري طريقة مختلفة غير الحبوب خلال فترة العلاج.
- كيفية وقاية الدواء من التلف والحفاظ عليه ان كنت محتاجا ان تاخذه معك بدلا من تناوله في مركز الصحة:
- (١) احتفظ به بعيدا عن متناول الاطفال
- (٢) احتفظ به بعيدا عن الضوء
- (٣) احفظه في درجه حرارة عادية (حرارة الغرفة)
- (٤) ارجع اية جرعات لم تتناولها الى المشرف الصحي علي علاجك.

للمزيد من المعلومات، اتصل بمرض/ممرضة الصحة الوقائية في مركز صحة الطلبة في جامعة ميزوري على هاتف ٨٢٤-٩٢٤ او هاتف ٨٨٢-٧٤٨١ لتحدد موعد للزيارة.

## Hoja de información sobre Isoniazid (INH)

Centro de Salud Estudiantil

Universidad de Missouri-Columbia

### Terapia Directamente Observada (TDO)/Dos veces a la semana

#### ¿Cuál es la acción del isoniazid (INH)?

El Isoniazid (INH) es un antibiótico que trata o previene la TB (tuberculosis).

#### ¿Qué debe saber mi proveedor de cuidado médico antes de que yo tome INH?

- Los medicamentos que está usted tomando; incluyendo las hierbas, con y sin recetas.
- Si usted tiene cualquier enfermedad crónica, especialmente
  - Enfermedades dentales
    - Enfermedades hepáticas
    - Convulsiones
    - Diabetes
- Si usted está embarazada o tratando de quedar embarazada
- Si usted está criando a los pechos
- Alergias o reacción a INH, o cualquier otra medicina, comidas, tinturas o conservas

#### ¿Cómo debo tomar esta medicina?

- Concurra al Centro de Salud Estudiantil dos veces por semana para tomar su medicamento. Debe haber un intervalo de 48 horas entre las dos dosis semanales.
- Tómela por boca con un vaso lleno de 8 onzas de agua.
- Tómela con el estómago vacío por lo menos una hora antes y dos horas después de comer.
- No tome más de dos dosis a la semana y no más de una dosis al día.
- El INH se toma durante seis meses = 26 semanas = 52 dosis (tiene que terminarse dentro de 9 meses) o
- El INH se da durante 9 meses = 38 semanas = 76 dosis (tiene que terminarse dentro de 12 meses).
- Escriba su número de estudiante en la hoja de registro.
- No retire más de una dosis de su cajón sin tener autorización especial.
- Asegúrese de haber tomado ambas dosis antes del mediodía de cada viernes.

#### ¿Qué pasa si omito tomar una dosis?

- Si usted se atrasa 1-2 días, tómela lo más pronto posible; espere por lo menos dos días (48 horas) antes de tomar la próxima dosis.
- Si se retrasa 3 días, y es tiempo para la próxima dosis, tome solamente esa dosis.
- Cualquier dosis que usted se omita se agregará al final del tratamiento.
- Si piensa viajar fuera de la ciudad, coordine con la Enfermera de
- Prevención para llevar el medicamento con usted.

#### ¿Hay otros medicamentos o comidas que puedan interferir con el INH?

El INH puede tener reacciones con:

- Antiepilépticos
- Anticoagulantes
- Contraconceptivos
- Algunas personas pueden experimentar mareos y dolores de cabeza cuando consumen comidas que contienen histaminas y tiraminas, tales como:



- Quesos madurados
- Carnes y pescados madurados, ahumados, en vinagre o procesados
- cerveza, cerveza inglesa, vino, especialmente el vino tinto
- aguacates, plátanos, higos, y pasas de uvas
- salsa de soya
- miso
- extracto de levadura
- cuajada de frijoles

Disminuyendo o evitando el consumo de estas comidas reduce los efectos secundarios indeseables.

### **¿Qué efectos secundarios notaré mientras tome Isoniazid?**

Informe a la Enfermera de Prevención cualquiera de los siguientes efectos secundarios antes de continuar con la medicina:

- Sangre en la orina; cantidad reducida de orina
- Orina color amarillo oscuro o marrón
- Ojos o piel amarillentos
- Sangrado inusual o moretones
- Fiebre o escalofríos, dolor de garganta
- Erupción cutánea o comezón
- Ataques epilépticos (convulsiones)
- Cansancio, debilidad anormal
- Hormigueo, dolor o insensibilidad en las manos y/o los pies
- Dolor de cabeza, torpeza o inestabilidad
- Visión borrosa, dolor en los ojos o cambios en la percepción de los colores
- Dificultad respiratoria
- Náusea, vómitos, pérdida de apetito, dolor en el estómago o diarrea.

***Es necesario visitar y hablar con la enfermera cada cuatro semanas durante el período de su tratamiento.***

### **¿Qué otras cosas necesito saber durante este tratamiento con INH?**

- Recibirá vitamina B6 (pyridoxine) pues el INH puede disminuir el contenido de esta vitamina en el cuerpo.
- Evite las bebidas alcohólicas pues puede ocasionar daño al hígado.
- Los antiácidos contrarrestan el efecto del INH; de manera que si usted toma algún antiácido, espere por lo menos 4 horas antes de tomar la próxima dosis, o 2 horas después de la dosis anterior para tomarlos.
- Si usted toma píldoras anticonceptivas, añada otro método de anticonceptivo.
- Como guardar su medicina si necesita llevárselo a algún lugar:
- Manténgala fuera del alcance de los niños.
- Protéjala de la luz.
- Almacénela a temperatura ambiente.
- Devuelva toda medicina no usada a la Enfermera de Prevención.

**POR MÁS INFORMACIÓN, LLAME A LA ENFERMERA DE PREVENCIÓN EN EL CENTRO ESTUDIANTIL DE SALUD AL TELÉFONO 882-9240 O 882-7481 PARA PEDIR CITA.**

# Verem (Tüberküloz) Hakkında Bilmeniz Gerekenler

Student Health Center

University of Missouri Columbia

## □ **Verem nedir?**

Verem, aktif halde verem mikrobu taşıyan birisinden hava yolu ile bulaşan bir hastalıktır. Aktif halde verem mikrobu taşıyan bir kimse hastalığı başkalarına da bulaştırır ve mutlaka antibiyotik tedavisi görmesi gerekir. Bazı kimselerdeki verem mikrobu aktif değildir ve diğer insanlara bulaşmaz ancak mikrobu tekrar aktif olmasını önlemek için tedavi görmeleri gerekir.

## □ **Aktif ve aktif olmayan verem arasındaki fark nedir?**

**Aktif:** Aktif olan veremde hasta verem mikrobu kapmıştır ve mikrop sürekli üreyerek başta akciğerler olmak üzere tüm vücuda yayılır. Hastalık verem olan birinden bulaşır, bazen hemen bazen de yıllar sonra ortaya çıkabilir. Verem mikrobu kapmış kişi, mikrop aktif olsa da olmasa da eğer tedavi edilmez ise hastalık yıllar sonra tekrar nüksedebilir.

**Aktif olmayan verem:** Hastada aşağıda yazanlar bulunursa, hastaya verem bulaşmış ancak verem mikrobu henüz aktif hale geçmemiş demektir.

- Pozitif deri testi
- Verem belirtileri yok
- Negatif göğüs röntgeni

## □ **Verem nasıl yayılır?**

Verem mikrobu, verem olan birisinin sümüğü, salyası ve balgamı ile yayılır. Verem hastasının soluduğu havayı uzun süre soluma ile mikrop akciğerden vücuda girer. Bu yüzden verem, ev halkı, yakın arkadaşlar ve birlikte çalışan insanlar arasında çok çabuk yayılır.

## □ **Veremin belirtileri nelerdir?**

Sürekli öksürük, halsizlik, kilo kaybı, iştahsızlık, ateş, gece terlemeleri, kanlı öksürük, nefes kesilmesi.

## □ **Kim verem olur?**

Herkes verem olabilir. Verem olma olasılığı şu hallerde yüksektir:

- AIDS'e yakalanmış olanlar
- Verem olan birisi ile irtibatta olanlar
- Bazı hastalıklarda (Şeker hastaları, silicosis, kansızlık, kanser, böbrek yetmezliği, sindirim sistemi bozuklukları)
- İlaç alerjisi olanlar
- Damardan ilaç kullananlar
- Alkolikler
- Normalden %10 zayıf olanlar
- Verem oranı yüksek ülkelerde yaşayanlar



- Hapishaneler, darülaceze, akıl hastahanesi, hastahaneler gibi kalabalık yerlerde çalışmış olanlar
- Göçmenler, evsizler, gelir durumu düşük olanlar
- Negatif deri testinden pozitif dönüşmüş olanlar
- Göğüs röntgeninde leke tesbit edilenler

□ **Deri testi nedir?**

Verem sadece deri testi ile belli olur. Birden fazla deri testi yöntemi olmasına rağmen genellikle Mantoux deri testi tercih edilir. Bu test için dirsek bölgesindeki deri altına bir sıvı tatbik edilir. Deri testinin sonucu 48 ila 72 saat arasında belli olur. Bu süre sonunda sağlık merkezine geri dönülüp sonucun alınması çok önemlidir. Süre geçerse testin tekrar yapılması gerekir.

□ **Hangi durumlarda deri testi yapılmaz?**

Deri testi sonucu önceden pozitif çıkmış kimselere deri testi yapılmamalıdır. Ancak önceden BCG (Verem) aşısı olmuş kimselere deri testi yapılabilir. Deri testi pozitif çıkanlarda BCG aşısından ziyade verem mikrobulunun etkisi vardır. Aşağıda sözü edilenlerden şikayetçi iseniz hemşireye durumu bildirin ki başka bir deri testi uygulansın.

Yüksek ateş, gribal enfeksiyonlar, Hodgkin hastalığı, sarcoidosis, son altı hafta içinde kızamık, sıtma ve suçiçeği aşısı olanlar.

□ **Deri testinin riskleri nelerdir?**

Aşırı duyarlı kimselerde test bölgesinde, su toplama, kızarıklık, rahatsızlık, kaşınma, renk değişikliği, şişmeler görülebilir.

□ **Hangi sıklıkla test yapılmalıdır?**

Daha önce sözü edilen yüksek risk taşıyan kimselerde her yıl deri testi yapılmalıdır.

□ **Pozitif deri testi ne demektir?**

Verem mikrobu kapmış kimselerde deri testi yapılan bölge 48 ila 72 saat sonra şişer. Buna deri testi pozitif çıktı denir ve hastalığın ilerleme durumunu saptamak için başka testler de yapılır. Deri testi pozitif çıkanlarda göğüs röntgeni çekilir ve hastalığın belirtileri gözlenir.

□ **Verem nasıl tedavi edilir?**

Tedavi, veremin ciddi ve bulaşıcı bir hastalık olması nedeni ile kanunen zorunludur. Hasta gözetiminde tutularak en az altı ay boyunca günde dört defa olmak üzere ilaç tedavisi uygulanır. Aktif olmayan verem olanlar da Isoniazide (INH) adı verilen bir antibiyotiği altı ila dokuz ay boyunca kullanırlar. Bu ilaç veremin aktif olmayan halden aktif hale geçmesini önler.

*Daha fazla bilgi için sağlık merkezini (Student Health Center) arayın.*

884 6280

**University of Missouri Student Health Center  
South Sixth Street Columbia , MO 65211 (573) 882-7481**

**Refusal of Treatment for Latent Tuberculosis Infection**

**Aktif Olmayan Verem Hastaları İçin Tedaviyi Reddetme Formu**

Aktif olmayan vereme yakalandığınız tesbit edildi. Daha önceden açıklandığı gibi hayatınız boyunca veremin nüksetme olasılığı var. Sağlığınızdan sorumlu kurum, Isoniazid, Rifampin veya PZA ile tedaviyi önerdi. Bu ilaçlar ile tedavi pek çok kimsede veremin nüksetmesini önleyecektir. Gerekli tedavi masrafları tarafımızdan karşılanacaktır.

INH, Rifampin veya PZA olmadan, vereme yakalanmış ortalama olarak normal bağışıklık sistemine sahip kişilerin %10'unda hastalık tekrar nükseder. Diğer sağlık problemleri de veremin nüksetmesini çabuklaştıracaktır.

Bu formda yazılan aktif olmayan verem hakkındaki bilgileri okudum. Önerilen tedavi yönteminin faydalarını ve zararlarını anladım. Sorabildiğim tüm soruları sordum.

UMC Student Health Center, (Öğrenci Sağlık Ocağı) verem olma riskimi azaltmak için gerekli tüm tedavi yöntemlerini ve ilaçları teklif etti. Ancak ben önerilen tedaviyi ve ilaçları almak istemiyorum. İleride fikrimi değiştirip ilaç kullanmayı istersem, UMC Student Health Center'daki Prevention Nurse (Hemşire) tavsiyede bulunabilecek.

Reddetme nedeni \_\_\_\_\_

Aşağıdaki şikayetler oluşursa hemen bir sağlık kurumuna başvurulması tavsiye edilir.

- |                       |                                 |                   |
|-----------------------|---------------------------------|-------------------|
| -Halsizlik            | -Üç haftadan uzun süren öksürük | -Gece terlemeleri |
| -Kan öksürme          | -Titreme                        | -İştahsızlık      |
| -Nedeni belirsiz ateş | -Nedeni belirsiz kilo kaybı     | -Göğüs ağrısı     |
| -Solunma güçlüğü      |                                 |                   |

Tedaviyi Reddedenin İmzası: Signature of Person Refusing Treatment:	Tarih: Date:
Doktor / Hemşire İmzası: Provider/Nurse Signature:	Tarih: Date:

ミズーリ大学 学生ヘルス センター  
South Sixth Street, Columbia, MO 65211  
Tel: 573-882-7481

潜伏性結核感染に対する治療の拒否

あなたは結核に感染していることが認められました。以前にあなたに説明した通り、あなたは生涯を通じて結核病を発病する危険を持っています。あなたへの医療提供者は、イソニコチン酸ヒドラジッド (INH, 抗結核剤) リファンプシン (Rifampin)、またはPZA (Pyrazinamide, ピラジンアミド)を使った一連の治療を提案しました。これらの薬物を使っての治療は、勧められた通りにその治療コースを終了したほとんどの人の発病を防ぐでしょう。この薬物治療と適当な治療の指導は、無料で提供されます。

INH、リファンプシン、PZAのどれも使用しないと、通常レベルの免疫システムを持っていて結核に感染している人のうち、約10%が結核病を発病します。いくつかの症状は、潜伏性結核感染を進行性結核に発展させる危険性を高めます。

私は、この用紙に書かれている、潜伏性結核感染に関する情報を読みました。私は、確かにこの勧められている治療を受ける事による恩恵と危険性を理解しました。私は、質問をし、納得が行くまで回答して貰う機会を得ました。

UMC (ミズーリ大学コロンビア校) 学生ヘルスセンターは、結核病を発病する危険性を減らすために、私に対して薬物治療と治療の指導を提供することを申し出ました。けれども、私は勧められた通りの薬物治療を受けないことを選びました。もしも私がその薬物治療を受けるよう意見を変えた場合は、UMC学生ヘルスセンターの予防看護人が、それについてのアドバイスを提供してくれることを理解しています。

拒否の理由 \_\_\_\_\_

以下の症状が確認された場合は、直ちに診療を受けるべきであることを私は理解しています。

- 疲れやすい
- 3週間以上継続する咳
- 寝汗
- 喀血
- 寒気
- 食欲不振
- 原因不明の熱
- 原因不明の体重減少
- 胸痛
- 呼吸困難

治療を拒否している患者の署名

日付

医療提供者・看護人の署名

日付



Korean(한국어)  
University of Missouri  
Student Health Center  
미조리 주립대 보건소

(Refusal of Treatment for Latent Tuberculosis Infection)

잠재적 결핵 감염에 대한 치료 거부

귀하는 결핵균에 양성반응을 보이는 것으로 판명되었습니다. 먼저 설명 들으셨듯이, 귀하는 일생동안 결핵을 앓을 위험성이 항상 있습니다. 귀하의 의료담당자가 INH, 리팜핀, 또는 PGA등의 약물 치료를 권하셨습니다. 상기의 약물을 지시대로 복용하면 대부분의 경우에는 결핵이 걸리는 것을 막을 수 있습니다. 약과 거기에 필요한 간호지시가 당신에게 무료로 제공될 것입니다.

INH, 리팜핀, PGA 없이는, 결핵에 감염된 정상적인 면역시스템을 가진 사람 중 약 10 퍼센트의 사람들에서 결핵은 진전됩니다. 또한, 건강상태에 따라 잠복기에 있는 결핵이 진전되어 심각한 결핵으로 발전될 수도 있습니다.

나는 위에 설명된 잠복기 결핵에 대한 치료정보를 숙지했습니다. 나는 여기서 추천된 결핵 치료를 택하는데 따르는 장단점 또한 숙지했습니다. 그리고 나는 궁금한 모든 사항에 대해서 묻고 답을 얻었습니다.

미조리 주립대 보건소는 잠복기의 결핵이 진전되는 것을 막기 위해 필요한 약물과 간호대책을 나에게 알리고 선택할 기회를 주었습니다. 그러나 나는 추천된 약물치료를 택하지 않기로 결정하였습니다. 이후, 이 결정을 번복할 시, 나는 미조리 주립대 보건소의 간호사와 이 문제에 관해 상의할 수 있음을 알고 있습니다.

치료 거부 사유: \_\_\_\_\_

나는, 만약 다음과 같은 증상이 발견될 경우, 즉시 병원이나 학교 보건소를 방문해야 하는 것을 알고 있습니다.

- |                |                  |
|----------------|------------------|
| *쉽게 피로함        | *식욕감퇴            |
| *3주 이상 기침      | *이유를 알 수 없는 고열   |
| *취침 중 땀을 많이 흘림 | *이유를 알 수 없는 체중감소 |
| *피를 토하는 기침     | *가슴 통증           |
| *오한            | *호흡곤란            |

치료 거부자의 서명 \_\_\_\_\_ 날짜 \_\_\_\_\_

간호사의 서명 \_\_\_\_\_ 날짜 \_\_\_\_\_

Chinese  
**University of Missouri**  
**Student Health Center**  
 South Sixth Street  
 Columbia, MO 65211  
 (573) 882-7481

**潜伏性肺结核传染病 拒绝治疗书**  
**Refusal of Treatment for Latent Tuberculosis Infection**

你被认定已感染肺结核病菌。就像先前已向你说明的，你一生都有患肺结核病的风险。你的医护人员已建议用 Isoniazid (INH), Rifampin 或 PZA 的疗程；这类药物会帮助大部份完成疗程的人预防这个疾病。药物和适当的医护指导会免费的提供给你。

若是不用 Isoniazid (INH), Rifampin 或 PZA，有正常免疫系统却被肺结核病菌感染的人们中，大约有10%的人会患上肺病。某些（其他）病况会使潜伏性肺结核变成活跃性肺病的风险加大。

我已经读过这个表上有关治疗潜伏性肺结核病的资料，我相信我了解接受这种推荐疗程的利与弊。我也有机会提出问题，并且已得到满意的答覆。

为了减少我发展出肺结核病的风险，密大学生保健中心已提议要给我药物和医护指导。然而，我选择不接受这个服药的忠告。假使我将来改变主意想服药，我了解密大学生保健中心的护士能够在这件事上给我指示。

拒绝治疗的原因 \_\_\_\_\_

我明白如果有以下任何症状出现，我应立即寻医疗途径诊断病情：

- |          |       |
|----------|-------|
| 容易疲倦     | 食欲减退  |
| 咳嗽持续三周以上 | 莫明的发烧 |
| 夜间盗汗     | 体重减轻  |
| 咳血       | 胸痛    |
| 寒颤       | 呼吸困难  |

拒绝治疗者署名 (Signature of Patient)	日期 (Date)
医护人员署名 (Provider/Nurse Signature)	日期 (Date)

White copy to SHC chart      Yellow copy to patient      Pink copy to TB file  
**Simplified Chinese Ed. Revised 3/2002**



**Refusal of Treatment  
for Latent Tuberculosis Infection**

**رفض علاج  
الإصابة بالسل "الكامن"**

انت احد الافراد المصابون بمرض السل الكامن. كما شرحنا لك ميكرا، انت، على مدى حياتك، معرض للخطر في ان تتحول اصابتك من حالة كامنة الى حالة فعالة. لقد اقترح عليك مسؤول الصحة معالجة ميكروب السل الكامن بدواء اسمه ايزونيازيد (اي ان اتش)، ريفامبين، او (بي، زي، اي). ان تناول هذا الدواء وحسب تعليمات مسؤول الصحة، في معظم حالات الاصابة، من شأنه ان يمنع مرض السل/ميكروب السل من تحوله من حاله كامنه الى حاله مرضيه. هذا الدواء، وما يصاحبه من اشراف ترميضي طوال فتره العلاج سيعطيان من غير ايه تكلفة لك.

نود لك ان تعرف انه من غير تناول الدواء المقترح - ايزونيازيد (اي ان اتش)، ريفامبين، او (بي، زي، اي) هنالك عشرة بالمئة من الاشخاص المصابون بميكروب السل الكامن (اشخاص ذوو مناعه جسديه العادية) يتحول عندهم السل الى فعال. وهنالك بعض الظروف الطبية التي تزيد من احتمال تحول السل الى فعال.

لقد قرأت المعلومات الواردة في هذه الوثيقة، عن امكانيه علاجي من ميكروب السل الكامن، واعتقد انني مدرك لفوائد وسلبيات الدواء المقترح، وقد أعطيت فرصه لكي استفسر و تلقيت اجابات مقنعه ومرضية.

ان مركز صحة الطلبة في جامعه ميزوري - كوليبيا - عرض علي ان يعطونني الدواء والاشراف الترميضي حتى يقل احتمال اصابتي بمرض السل. لكنني اختار ان لا اخذ بالاقتراح وتناول الدواء الموصوف. وانا على معرفه بانني اذا غيرت رأيي ونيتي حيال اخذ الدواء المقترح او عدم اخذه، سيكون مشرف الوقايه في مركز صحة الطلبة في جامعه ميزوري على استعداد لارشادي من جديد حول هذا الموضوع.

السبب الذي من اجله لا اريد تلقي العلاج:

انا مدرك انه اذا بدأت اعاني من اي من الاعراض التاليه، علي ان اقصد العلاج الطبي مباشره ومن غير تاجيل:

- الارهاق بسهولة	- نقصان الشهيه	- السعال اذا دام اكثر من ٣ اسابيع
- الحمى من غير سبب	- تصبب العرق اثناء النوم (في الليل)	- نقصان الوزن من غير سبب
- خروج دم مع السعال	- الام في الصدر	- القشعريره
- ضيق التنفس		

التاريخ:

توقيع الشخص الراض العلاج:

التاريخ:

توقيع المشرف الصحي/المرض:

× النسخه البيضاء لملف مركز الصحة × النسخه الصفراء للطالب × النسخه الزهريه لملف السل.

**UNIVERSIDAD DE MISSOURI  
CENTRO DE SALUD ESTUDIANTIL  
SOUTH SIXTH STREET  
COLUMBIA, MO 65211  
(573) 882-7481**

**El rechazo al tratamiento de la infección por Tuberculosis Latente**

Usted ha sido diagnosticado de estar infectado con tuberculosis. Como se le explicó anteriormente, usted está en peligro de por vida de desarrollar esta enfermedad. Los proveedores de su servicio médico le han sugerido un tratamiento con isoniazid (INH), Rifampin o PZA. El tratamiento con esta droga puede prevenir la enfermedad para la mayoría de las personas que terminan el tratamiento con esta droga. La medicación y la supervisión apropiadas serán proporcionadas en forma gratuita.

Sin INH, Rifampin o PZA, aproximadamente 10% de las personas con sistema de inmunidad normal que son infectadas van a desarrollar la enfermedad. Ciertas condiciones médicas aumentan el riesgo de que una infección latente se convierta en una forma activa de TB.

He leído la información en este formulario acerca del tratamiento de mi infección latente de TB. Creo que comprendo los beneficios y riesgos de aceptar este tratamiento recomendado. He tenido la oportunidad de hacer preguntas y han sido contestadas de modo satisfactorio.

El Centro de Salud Estudiantil de la Universidad de Missouri en Columbia (UMC) ha ofrecido proporcionarme el medicamento y la supervisión médica para reducir mi riesgo de desarrollar la enfermedad. Sin embargo, he decidido no aceptar el medicamento recomendado. Si decido cambiar esta decisión en el futuro, es mi entender que la Enfermera de Prevención del Centro de Salud Estudiantil de UMC me indicará los pasos que debo tomar.

Razón del rechazo \_\_\_\_\_

Si sufro de cualquiera de los siguientes síntomas, comprendo que es recomendable recibir atención médica inmediatamente:

- Fatiga excesiva
- Tos que dura más de tres semanas
- Transpiración nocturna
- Salivación de sangre con la tos
- Escalofríos
- Pérdida del apetito
- Fiebre sin causa aparente
- Inexplicable pérdida de peso
- Dolor en el pecho
- Dificultad respiratoria

Firma de la Persona que Rechaza el Tratamiento	Fecha
Firma del Proveedor Médico / de la Enfermera	Fecha

• White copy to SHC chart

• Yellow copy to patient

• Pink copy to TB file

Revised \_\_\_\_\_

# TUBERCULOSIS (TB)

Tuberculosis, una enfermedad a veces incapacitante y mortal, está en aumento y volviendo a visitar a los países desarrollados y a los en vías de desarrollo. Globalmente, es la causa principal de muertes como resultado de una sola enfermedad infecciosa. Actualmente, mata tres millones de personas por año y, si la tendencia presente continúa, es probable que exija más de 30 millones de vidas dentro de la próxima década. Los recientes aumentos en migración han mezclado las comunidades infectadas con las no infectadas contribuyendo a la expansión de la enfermedad.

## ¿Qué es la Tuberculosis?

La tuberculosis es una enfermedad infecciosa causada por el microorganismo *Mycobacterium tuberculosis*. Puede afectar varios órganos del cuerpo humano, como el cerebro, riñones y huesos; pero, es más común que afecte los pulmones (tuberculosis pulmonar). La primera fase de la infección usualmente dura varios meses. Durante este período, las defensas naturales del cuerpo (el sistema inmunológico) resisten la enfermedad, y la mayoría o todas las bacterias están contenidas en una cápsula fibrosa que se desarrolla alrededor del área. Antes de que el ataque inicial haya terminado, bacterias pueden escapar al torrente sanguíneo y llegar a otras partes del cuerpo donde son nuevamente encapsuladas. En muchos casos, la enfermedad nunca se desarrolla más allá de esta fase—y se llama infección de TB. Si el sistema inmunológico falla en detener la infección, y se deja sin tratar, la enfermedad progresa a la segunda fase donde el germen se multiplica rápidamente y destruye los tejidos de los pulmones (u otros órganos afectados). En algunos casos, la enfermedad, aunque detenida inicialmente, puede aparecer después de un período latente. A veces, este período latente es de muchos años, y las bacterias se activan cuando se presenta la oportunidad, sobre todo cuando baja la inmunidad.

Como se mencionó anteriormente, la segunda fase (llamada enfermedad activa) se manifiesta por destrucción o "consumo" de los tejidos del órgano afectado. Cuando el pulmón es afectado, se produce disminución de la capacidad respiratoria. Se presentan diferentes síntomas cuando otros órganos son afectados. Aun cuando se trata adecuadamente, se puede producir una cicatriz permanente, incapacitante.

## ¿Cuáles son los síntomas?

La fase primaria de la enfermedad puede ser sin síntomas, o el individuo puede experimentar síntomas como de gripe. En la fase secundaria, llamada enfermedad activa, podría haber una fiebre ligera, sudores nocturnos, pérdida de peso, fatiga y otros síntomas, dependiendo de las partes del cuerpo afectadas. La tuberculosis del pulmón (tuberculosis pulmonar) se asocia usualmente con una tos seca que en el futuro lleva a una tos productiva con esputo manchado de sangre. También podría haber dolor de pecho y dificultad respiratoria. Esta fase secundaria, si afecta los pulmones, es la fase contagiosa—las bacterias pueden propagarse a otros.

## ¿Cómo se propaga la tuberculosis?

El germen de TB es llevado en gotas en el aire, y puede entrar en el cuerpo a través de la vía aérea. Una persona con tuberculosis pulmonar activa puede extender la enfermedad tosiendo o estornudando. El proceso de tuberculosis contagiosa involucra dos fases: primero, una persona tiene que infectarse; segundo, la infección tiene que progresar para enfermar. Para infectarse una persona tiene que entrar en contacto íntimo con otra persona que tenga la tuberculosis activa. En otras palabras, la persona tiene que respirar el mismo aire que la persona con la enfermedad activa tose o estornuda.

## ¿Qué probabilidad hay de ser infectado?

Una persona tiene que entrar en el contacto con alguien que tiene TB activa con los gérmenes de TB presente en el esputo. La probabilidad de esto también depende del tiempo de exposición al contacto directo con la persona que tiene enfermedad activa. El proceso de progreso de infección a enfermedad se ve en aproximadamente 10% de aquellos infectados, y puede pasar en cualquier momento durante el resto de sus vidas. Aunque la oportunidad de progresión de la enfermedad disminuye con el paso del tiempo, la TB se puede desarrollar más fácilmente si el sistema inmunológico se debilita, como pasa con la desnutrición, SIDA, diabetes, cáncer, o tratamiento con drogas de inmunosupresión. En las personas con ambas infecciones, VIH y TB, tantos como 8% pueden desarrollar TB activa cada año. En los Estados Unidos, aproximadamente 1 persona en cada 5500 se diagnostica como infectado con TB.



## مرض السل

(TUBERCULOSIS, TB)

إن مرض السل هو في بعض الأحيان مرض مقعد وقاتل والإصابات به في حالة ارتفاع في بلاد العالم المتقدماً والنامية على السواء. وعالمياً فإن هذا المرض يعتبر أكبر مسبب للموت بين الأمراض المعدية. وحالياً فإنه يقتل ثلاثة ملايين من الناس سنوياً. وإذا استمر هذا التوجه فمن المحتمل أن يرتفع هذا العدد إلى ثلاثين مليون سنوياً خلال العقد القادم إذ أن الزيادة في الهجرات التي حدثت مؤخراً قد زادت وبشكل سريع اختلاط المصابين مع المجتمعات غير المصابة وساهمت في انتشار هذا المرض .

### ما هو مرض السل

مرض السل هو مرض معد يسببه أحياء دقيقة فطرية بكتريا تسمى *Mycobacterium tuberculosis* و يمكنها أن تؤثر على عدد من أعضاء الجسم بما فيها المخ والكلية والعظام ولكن الإصابات الأكثر شيوعاً هي إصابة الرئتين (التدرن الرئوي). إن المراحل الأولية للإصابة تكون في العادة لعدة شهور وخلال هذه المدة فإن جهاز المناعة الشخصي في الجسم يقاوم المرض حيث يتم إحاطة معظم أو جميع البكتيريا بغلاف ليفي حول المنطقة المصابة. وقبل انتهاء هجوم جهاز المناعة فإن بعض من البكتيريا قد تهرب إلى مجرى الدم الذي بدوره يحملها إلى أجزاء أخرى من الجسم حيث تتغلف ثانية. وفي كثير من الحالات فإن المرض لا يتطور أكثر من هذه المرحلة ويشار إليه بإصابة السل. وإذا لم يستطع جهاز المناعة إيقاف الإصابة ولم يجر معالجتها فإن المرض يتقدم إلى المرحلة الثانية بحيث تتكاثر الجراثيم بسرعة وتتلف أنسجة الرئتين (أو أي عضو آخر مصاب). وفي بعض الحالات وبالرغم من أنه جرى إيقاف أولي للمرض فإنها تهب بعد فترة اختفاء. وفي بعض الحالات تكون فترة الاختفاء لعدة سنوات وتصبح البكتيريا نشطة عندما تكون الفرصة سانحة خصوصاً عندما تكون المناعة الطبيعية ضعيفة. وكما جرى ذكره سابقاً فإن المرحلة الثانية (وتدعى تنشط المرض) تظهر من خلال إتلافها أو استهلاكها لألياف العضو المصاب. وعندما تكون الإصابة في الرئة فإنه ينتج عن ذلك نقص في القدرة على التنفس مع ظهور أعراض أخرى. وعندما تكون الإصابة في أعضاء أخرى من الجسم وحتى لو جرى معالجتها فإنها قد تترك عجز دائم.

### ما هي الأعراض ؟

إن المراحل الأولية للمرض قد تكون دون أية أعراض أو أن يشعر المصاب بأعراض شبيهة بمرض الأنفلونزا. أما في المرحلة المتقدمة والتي تدعى ( المرض النشط) فقد يكون هناك حمى خفيفة وعرق في الليل وتناقص في الوزن وإرهاق وأعراض أخرى حسب العضو المصاب من الجسم . السل الرئوي) يكون في العادة مصحوباً بسعال جاف والذي في النهاية يتحول إلى سعال أكثر شدة مصحوباً ببصاق ملوث بالدم وقد يكون هنالك أيضاً بعض الآلام في الصدر وضيق في التنفس. وفي مثل هذه الحالات المتقدمة والتي تكون الإصابة في الرئتين تصبح المرحلة معدية حيث يمكن للبكتيريا أن تنتشر لتصيب الآخرين.

### كيف ينتشر مرض السل ؟

إن جرثومة السل يحملها الهواء بشكل نقاط صغيرة ويمكنها أن تدخل إلى الجسم من خلال الفتحات التنفسية. والشخص المصاب بالتدرن الرئوي يمكنه نشر المرض بواسطة السعال أو العطس. إن عملية النقاط مرض السل تكون على مرحلتين. الأولى أن يصاب الشخص بالمرض والثانية أن تتقدم الإصابة بحيث تصبح مرضاً. ولكي يصاب الإنسان بالمرض فإن الاحتكاك القريب لشخص مصاب بالسل النشط ينتقل المرض إليه. وبكلام أكثر وضوحاً فإن الشخص يجب أن يتنفس من نفس الهواء الذي سعل أو عطس فيه مريض مصاب بالسل.

### ما هي احتمالات الإصابة بالمرض ؟

يمكن حدوث العدوى للشخص عندما يحتك بشخص آخر مصاب بالمرض و يحتوي بصاقه على جراثيم مرض السل . واحتمال حدوث تلك العدوى يعتمد على المدة التي يقضيها في الاحتكاك مع الشخص المصاب . إن عملية التقدم في الإصابة بالمرض هي حوالي ١٠% من الأشخاص المرشحين للعدوى، ويمكن أن تحدث العدوى في أي وقت من حياتهم بالرغم من أن احتمالات تطور المرض تقل مع مرور الوقت . إن السل يمكنه أن يتطور بسهولة أكثر إذا ضعف جهاز المناعة الشخصي كما يحدث بسبب سوء التغذية أو مرض الإيدز أو السكري (السكر) أو السرطان أو بعد المعالجة بأدوية معطلة للمناعة. والناس المصابون بHIV ولديهم عدوى السل فإن ٨% منهم تتطور حالاتهم إلى سل سنوياً في الولايات المتحدة . وهناك واحد من كل ٥٥٠٠ شخص يجري تشخيصه كمصاب بمرض السل.

## 结核病 (TB)

结核病，一种有时会致残及至死的疾病，渐渐增多且在已开发及发展中的世界中都再发生。全球来说，它是单一感染疾病中的主要死因。现今，它一年内会谋杀三百万人，而且，如果现在的趋势持续的话，很有可能会在下一个十年内夺走超过三千万的生命。现今移民的增加极快地混合了被感染及未被感染的团体，且使疾病蔓延。

### 何谓结核病？

结核病是种微生物Mycobacterium tuberculosis引起的感染性疾病。它能够影响数种人体中的器官，包括脑、肾脏、及骨头；但是，最常见的是对肺脏的影响(肺结核)。主要的或第一阶段的感染通常持续几个月。这段期间里，身体的自然抵抗(免疫系统)会抗拒此病，而大部份或所有的细菌都会被在此处发展的fibrous capsule围堵起来。在最初的侵袭结束前，一些细菌会逃到血流里而被输送到被再围堵的身体其它的地方。在很多例子里，疾病绝不会发展超过此阶段-且被视为TB感染。如果免疫系统无法停止感染，且没有治疗，此病会进到第二阶段，此时细菌快速地繁殖，且摧毁肺部的组织(或其它受影响的器官)。有某些例子是，虽然疾病一开始就停止，潜伏期后又会出现。有时，潜伏期可能是很多年，一有机会时细菌就会活跃起来，特别是在免疫力低时。

如同之前所说，第二阶段(叫做活跃的疾病)以摧毁或“消耗”患病的内脏组织来显现出来。肺部患病时会导致呼吸力减低，跟著也有其它症状；当其它内脏患病时，就算适当地治疗过也可能会留下永久又无力的伤疤。

### 症状为何？

此病的第一期有可能没有症状，或者患者会经历如感冒般的疾病。第二期时，也叫做活跃疾病，可能会轻微发烧、晚间流汗、体重减轻、疲劳及各种其它症状，视患病的身体部位而定。肺结核通常与乾咳有关，乾咳会逐渐导致咳出物带血渍的咳嗽。也有可能胸痛及喘不过气来。第二期，如个患病的是肺部的话，是会传染的一期--细菌也会就此传播给别人。

### 结核病如何传播？

TB菌在空气中由水滴承载，也能由空气道进入身体。一个有活跃肺结核的人，能够以咳嗽或打喷嚏来传播疾病。得到结核病的过程有两期：首先必须被感染；第二，感染必需发展成疾病。若被感染，此人必须与另一个有活跃性结核病的人有密切的接触。换句话说来说，此人得要呼吸到有活跃性疾病的人所咳嗽或打喷嚏的同样空气。

### 感染的机会多大？

与患有活跃性TB病及咳出物带有TB菌的人有所接触才会患病。此事发生的可能性也视与患活跃性疾病的人作接触的时间长短。感染恶化到疾病的过程是感染者中的10%，也能在剩余的生命里的任何时间发生。虽然恶化到疾病的机会随著时间流逝而减小，如果免疫系统弱化，如同在营养缺乏、AIDS、糖尿病、癌症、或用immunosuppressant药物的疗程时会发生的情况，TB也能更易发展。有HIV和TB感染的人，每年多至8%会发展成TB。在美国，大约每5500人中会有一人被诊断为感染了TB。

### 有治疗的方法吗？

是的--TB感染或活跃性TB疾病都可用抗生素疗法。治疗TB感染比较简单，吃六个月的INH会彻底有效。这也叫做防御治疗，强力建议您选用。治疗活跃性TB疾病是要服用数种反结核药品6到9个月，而在被视为会感染时得要被隔离。相同的，您必须吃有营养的食物、有适当的休息、且听从医生其它的建议。很少有的是会需要开刀切除内脏被严重损害的一部分。治疗成功后，您将会需要接受定期检查来确保健康。这也是唯一能察看有无再暴露于疾病下的方法，因为一旦皮肤测验是positive的，有可能永远是positive。



# LA TUBERCULOSE

La tuberculose est une maladie mortelle qui se répand rapidement dans les pays développés et les pays sous-développés. Elle est mondialement reconnue comme étant la principale cause de mort parmi les maladies infectieuses. De nos jours, elle tue environ 3 millions de personnes par an, et cette montée continue, elle atteindra 30 millions de victimes dans la prochaine décennie. Les migrations croissantes ont rapidement mélangé les communautés atteintes et non infectées et contribué à la propagation de la maladie.

## Qu'est-ce que c'est que la tuberculose?

C'est une maladie infectieuse causée par un microorganisme appelé 'Tuberculose mycobactérienne'. Il peut affecter plusieurs organes du corps humain, le cerveau, les reins et les os. Mais, très souvent, elle affecte les poumons (tuberculose pulmonaire). La première phase de l'infection dure quelques mois des fois. Pendant cette période, le système immunitaire du corps résiste à la maladie et toutes les bactéries sont entourées par une capsule fibreuse qui se développe autour de la région. Avant la fin de l'attaque initiale, certaines bactéries s'échappent de l'écoulement sanguin et se retrouvent dans d'autres zones où dans le corps où elles forment une muraille. Dans beaucoup de cas, la maladie ne va pas au delà de cette phase. Si le système immunitaire n'arrête pas l'infection, et aucun traitement n'est fait, elle continue à la deuxième phase où le germe se multiplie rapidement et détruit les tissus pulmonaires (ou les autres organes atteints). Dans certains cas, bien que la maladie s'arrête à la première phase, elle resurgit après une période latente. La période latente peut durer plusieurs années, et la bactérie devient active au moment propice, particulièrement quand l'immunité est basse.

La seconde phase dite maladie active se manifeste par la destruction ou la "consommation" des tissus de l'organe affecté. Quand le poumon est atteint, la capacité respiratoire diminue à laquelle s'ajoute d'autres symptômes. Quand les autres organes sont atteints, même s'ils sont proprement traités, il se peut qu'il est laissé une cicatrice permanente.

## Quels sont les symptômes de la tuberculose?

La première phase peut être sans symptôme, ou l'individu peut avoir une sorte de grippe. La deuxième phase connaît une légère fièvre, des sueurs la nuit, la perte de poids, la fatigue et divers autres symptômes dépendant de la partie affectée du corps. La tuberculose des poumons est souvent associée à une toux sèche qui aboutit à des crachats de sang. Il y a aussi une douleur de la poitrine et de courtes respirations. Cette deuxième phase, si elle atteint les poumons, est la phase de contagion pendant laquelle les bactéries se propagent chez les autres personnes.

## Comment la tuberculose se propage-t-elle?

Le germe de la tuberculose est contenu dans des gouttelettes d'air et peut entrer dans le corps par voie aérienne. Une personne atteinte peut la transmettre par toux ou par éternuement. La maladie se contracte de deux façons: premièrement, une personne devient infectée; deuxième, l'infection se transforme en maladie. Pour être atteinte, il faut approcher une personne atteinte de la maladie. En d'autres termes, la personne non-infectée respire l'air dans laquelle le malade tousse ou éternue.

## Quelles sont les chances de contracter la maladie?

Une personne approche une autre ayant la tuberculose et attrape les germes. Tout dépend du temps passé auprès du malade. 10% des cas d'infection se transforment en maladie pendant le reste de la vie. Bien que le passage de l'infection à la maladie devient faible avec le temps, la tuberculose peut se développer si le système d'immunité s'affaiblit avec la malnutrition, le SIDA, le diabète, le cancer, ou le traitement avec des médicaments qui suppriment l'immunité. Chez les personnes ayant le HIV et une infection de la tuberculose, environ 8% contractent la tuberculose chaque année. Aux USA, environ 1/5500 personnes est déclarée atteinte par la tuberculose.

## ТУБЕРКУЛЕЗ (ТВ)

Туберкулез – заболевание, грозящее инвалидностью и смертельным исходом – распространен как в развивающихся, так и в развитых странах. Туберкулез занимает первое место среди инфекционных болезней, приводящих к смертельным исходам. В настоящее время туберкулез уничтожает три миллиона людей ежегодно, и если темп останется прежним, он унесёт более 30 миллионов жизней в следующем десятилетии. В последнее время из-за увеличения миграции населения увеличился риск инфицирования, что способствовало распространению болезни.

### Что такое туберкулез?

Туберкулез - инфекционная болезнь, вызванная микроорганизмом *Mycobacterium tuberculosis*. Инфекция может поражать отдельные органы человеческого тела, включая мозг, почки и кости; но, чаще воздействует на легкие (легочный туберкулез). Первичная или первая стадия инфекции обычно продолжается несколько месяцев. В течение этого периода защитные силы организма (иммунная система) противостоят болезни. Бактерии окружаются фиброзной капсулой. Прежде чем фиброзная капсула сформируется, некоторые бактерии попадают в кровотоки и оседают в других органах, где они снова инкапсулируются. Во многих случаях развитие болезни останавливается на этой стадии. Если иммунная система не способна остановить инфекцию на этой стадии, болезнь прогрессирует в местах образования капсул, разрушает ткани легких (или другой поврежденный орган). В некоторых случаях болезнь, кажется, останавливается вначале, а затем вспыхивает после скрытого периода. Иногда скрытый период может продолжаться много лет, и бактерии возобновляют свою активность, когда иммунитет подавлен.

Как сказано выше, вторая стадия (называемая болезнью в активной форме) проявляется разрушением или "потреблением" тканей поврежденного органа. Когда легкое повреждено, это приводит к уменьшению дыхательного объема; в других органах остаются шрамы повреждений.

### Каковы признаки?

Первая стадия болезни может быть не иметь симптомов, или имеет проявления, подобные простуде. Во второй, активной стадии, может быть легкая лихорадка, ночная потливость, потеря в весе, усталость и другие симптомы, в зависимости от поврежденного органа. Туберкулез легких обычно сопровождается сухим кашлем, который со временем превращается во влажный, с кровавой мокротой. Также может наблюдаться боль в груди, одышка. В этой стадии больной становится распространителем инфекции, представляя опасность для окружающих.

### Как распространяется туберкулез?

Туберкулез распространяется воздушно-капельным путем. Больной с активным легочным туберкулезом, кашляя или чихая, распространяет болезнь. Заражение вовлекает два процесса: во-первых, инфицирование, а во-вторых, развитие инфекции в болезнь. Чтобы инфицироваться, необходимо войти в близкий контакт с больным активной формой туберкулеза. Другими словами, нужно вдохнуть тот же самый воздух, в котором больной с активной формой туберкулеза кашляет или чихает.

### Каков риск инфицирования?

Для того, чтобы инфицироваться, человек должен войти в контакт с больным активной формой ТВ, имеющим опасную заразную мокроту. Вероятность этого также зависит от времени, проведенного в близком контакте с больным. Инфицированные заболевают в 10% случаев. Если иммунная система ослаблена недоеданием, заболеванием СПИДом, диабетом, раком, лечением иммунодепрессантами, ТВ развивается легче. У людей со СПИДом и ТВ инфекцией, ТВ прогрессирует в 8% случаев ежегодно. В Соединенных Штатах уровень инфицирования ТВ составляет как 1 инфицированный на 5500 человек.

### Существует ли лечение?

Да, для лечения как ТВ инфицирования, так и активной формы ТВ, используется лечение антибиотиками. Проще вылечить болезнь на стадии инфицирования. Наиболее простая и эффективная терапия – INH, принятый в течение 6 месяцев. Такое лечение называется профилактическим. При лечении активной формы ТВ антитуберкулезные препараты назначают в протяжении от 6 до 9 месяцев. Одновременно необходимо хорошее питание, достаточный отдых и следование другим рекомендациям врача. Иногда может быть необходимым хирургическое удаление серьезно поврежденной части органа. Для гарантии здоровья после успешного лечения Вы должны периодически осматриваться врачом. Такие осмотры - это единственный способ проконтролировать отсутствие рецидивов, поскольку кожный тест на ТВ будет всегда положительным, если он был однажды положительным.

(продолжение на обратной стороне)



## 결핵

때때로 사람을 불구로 만들거나 죽음에 이르게 하는 병인 결핵은 세계의 여러 선진국과 개발도상국에서 다시 발생하고 있다. 세계적으로 결핵은 단일 전염병으로서는 가장 높은 사망률을 보이고 있다. 현재, 결핵은 일년에 삼백만에 이르는 사람을 사망에 이르게 하고, 이 현상이 계속된다면, 다음 10년간 삼천만이 넘는 사람을 죽음에 이르게 할 것이다. 최근의 인구 이동의 증가는 결핵 환자의 전염되지 않은 지역으로의 빠른 이동과 그리고 이로 인한 결핵의 확산에 큰 책임이 있다.

### 결핵이란 무엇인가?

결핵은 *Mycobacterium* 이라 불리는 미생물에 의해 발생하는 전염병이다. 이것은 뇌, 신장, 그리고 뼈를 포함한 다수의 인간의 육체 조직에 영향을 준다; 그러나 거의 대부분의 경우 폐에 영향을 준다 (폐결핵.) 감염의 최초단계는 수개월간 계속된다. 이 기간동안 몸의 자연 방어능력 (면역 체계)는 병에 저항한다, 그리고 거의 혹은 모든 세균이 그 부근에서 발생한 섬유소의 캡슐로 둘러싸여 진다. 최초의 발병이 끝나기 전에, 소수의 세균이 인체의 혈류에 침투하여 몸 안의 다른 지역으로 옮겨져 다시 섬유소의 캡슐로 둘러싸여 진다. 많은 경우, 병은 결코 이 단계에서 발전하지 않는다. - 그리고 이것은 결핵감염이라고 불리워진다. 만약 면역 체계가 감염을 중지시키지 못하면, 그리고 이것이 치료되지 않은채 남겨진다면, 병은 병원균이 급속하게 증식하고 폐의 세포조직 (또는 다른 감염된 신체 기관)을 파괴하는 제 2단계로 발전하게 된다. 때때로, 결핵은 일단계에서는 멈춰있었지만, 잠복기 이후에 크게 발전되는 경우가 있다. 때때로 잠복기는 몇 년이 걸리기도 한다. 그리고 세균은 면역기능이 낮게 되었을 때, 스스로 활동을 시작한다.

앞쪽에 언급된, 제 2단계 (활동기라 불린다)는 감염된 세포조직의 파괴나 “소진”에 의해 명백히 되어진다. 폐가 감염된 경우, 호흡능력의 감소나, 관련된 다른 증상을 일으킨다; 다른 조직이 감염된 경우, 심지어는 적절히 처리되었더라도, 결핵은 영구적이고, 불구가 되는 상처를 남긴다.

### 결핵의 증상들은 무엇인가?

초기단계의 결핵에서는 증상이 나타나지 않거나, 어떤 사람들은 감기와 같은 증상을 나타낸다. 활동기라고 불리는 제 2 단계에서는 약간의 열이 나거나, 밤에 땀이 나거나, 체중이 줄거나, 피로를 느끼는 등 감염이 된 신체에 따라 다양한 증상이 나타난다. 폐에 발생한 결핵 (폐결핵)은 흔히 마른 기침과 관련이 있고, 중국에는 피가 섞인 가래를 토하게 된다. 또한 호흡이 가빠지거나 가슴의 통증을 느끼기도 한다. 만약 폐에 감염이 되었다면 이런 제 2 단계는 세균이 다른 사람들에게 퍼지는 전염성의 단계이다

### 결핵은 어떻게 퍼지나?

결핵균은 공기중의 작은 물방울에 의해 옮겨지고, 호흡을 통해 체내로 침투한다. 활동성 폐결핵을 가진 사람은 기침이나 재채기를 함으로써 병을 전파시킨다. 결핵은 두 가지의 단계에 의해 걸리게 된다: 첫째, 개인이 병균에 감염된다; 둘째, 감염이 병으로 발전한다. 감염은 병이 없는 개인이 활동성 결핵을 가진 사람과 밀접한 관계를 맺음으로서 이루어진다. 바꿔 말하면, 활동성 결핵을 지닌 사람이 기침이나 재채기를 한 공기를 결핵이 없는 사람이 호흡할 경우이다.

### 전염은 어떻게 이루어지나?

활동성 결핵균을 가진 사람의 가래를 병이 없는 개인이 접촉할 경우 감염이 된다. 감염의 가능성은 활동성 결핵균을 가진 사람과의 밀접한 접촉시간과도 관련이 있다. 감염이 병으로 발전할 가능성은 감염된 사람의 10% 정도이며, 발병이 감염된 사람의 남은 일생의 언제일지는 알 수 없다. 시간의 흐름에 따라 발병의 가능성은 줄어들지만, 결핵은 영양의 불균형, 에이즈, 당뇨병, 암, 또는 면역 억제제 등의 약물을 사용하는 등, 신체의 면역 체계가 약화된 경우 더욱 쉽게 발병한다. 결핵균과 에이즈 바이러스에 동시 감염된 경우, 많게는 8%가 매년 결핵으로 발전한다. 미국에서는, 5500 명에 1 명의 사람이 결핵 감염으로 진단되어 진다.

### 치료방법은 존재하는가?

존재한다. 결핵 감염뿐 아니라 활동성 결핵 발병의 경우에도 항상 치료방법이 존재한다. 결핵의 치료는 간단하다. 6개월간의 INH의 복용으로 완치될 수 있다. 이것은 예방 요법이라 불리며, 강력히 추천된다. 활동성 결핵의 치료는 다수의 반 결핵 제제를 6에서 9개월간 복용하는 것이고, 전염성이라고 간주될 경우 격리도 가능하다. 동시에 영양이 풍부한 음식을 섭취하고, 적절한 휴식을 취하고, 다른 의사의 권유를 따른다. 드물게는, 손상된 신체조직을 수술로 제거하기도 한다. 성공적인 치료 후에도, 건강을 보장하기 위해서는 정기적인 검진이 필요하다. 피부 검사가 한번 양성반응을 보이게 되면 계속해서 양성 반응을 보이므로, 오직 정기적인 검진만으로 제 감염을 확인할 수 있다.

## 結核 (TB)

結核は時に身体に障害を起こしたり、死に至らせる病気で、先進国と発展途上国の両方で増加の傾向にあり、死の中心で最も流行している国の10年以内には3千万人もの命が失われることになり、最近の移り住みの増加により、この病気を広める原因になっています。

### 結核とは何ですか？

結核とは、マイコバクテリウム・ツベルクローシスと呼ばれる微生物が、この病的に影を落とすことで、脳、腎臓や骨等を含む体の臓器に危害を及ぼします；しかし最も一般的に、この病気の第一段階は通常数週間から数ヶ月にわたって、少量の菌が血中の段階で進んでいくことが多く、この状態のことをTB感染と呼び、第2段階は、免疫機能が弱まっている時など、細菌は機会がある時に再び被膜に包まれます。この第1段階を終え、この状態のままでいると、人為的に治療されず、肺組織（又は他の臓器）を破壊し、潜伏期間後に再発病することもあります。時折、この段階は、免疫機能が弱まっている時など、細菌は機会がある時に再び被膜に包まれます。この第1段階を終え、この状態のままでいると、人為的に治療されず、肺組織（又は他の臓器）を破壊し、潜伏期間後に再発病することもあります。時折、この段階は、免疫機能が弱まっている時など、細菌は機会がある時に再び被膜に包まれます。

前にも述べたように、第2段階期（発病期）は臓器組織の破壊、あるいは“滅失”によって明らかになります。肺が菌によって冒された時、様々な症状に伴ない、呼吸機能の低下が結果として起こります；他の臓器が菌によって冒された時は、適切に治療を行なっても、永久的に障害を残すことがあります。

### どのような症状がありますか？

病気の第一段階中は、症状はなかったり、人によってはインフルエンザに似た症状があります。発病期と呼ばれる第2段階期では、冒される臓器によって症状が違いますが、微熱、寝汗、体重減少、疲れや他の様々な症状が現われます。肺を冒す結核（肺結核）には乾いた咳が伴ない、これが最終的に咳に血たんがでるようになります。また胸の痛みや息切れがあることもあります。肺が冒された場合、この第2段階期は伝染時期です。この段階は細菌が他人に広まります。

### どのようにして結核菌が広まるのですか？

結核菌は空気中の飛沫によって運ばれ、気管を通して体の中に入ります。伝染期の肺結核にかかっている人は咳やくしゃみによって病気を広めます。結核菌にうつるには2つの段階があります：第一は感染すること；第二はその感染が病気へと進行することです。感染するのは伝染期の人と近距離で接触する時です。言い換えれば、伝染期の人の咳やくしゃみをした空気と同じ空気を呼吸するということです。

### 感染する確率はどれくらいですか？

感染するには、結核菌がたんの中に存在している伝染期の結核患者と接触しなくてはなりません。この確率は伝染期の結核病患者とどれくらいの時間接触するにもよります。感染した人の内、約10%の人が結核病に進行しますが、この進行は感染後、一生の間、いつでも起こります。感染してから時間が経つほど、感染から結核に進行する確率は低くなりますが、栄養不良、エイズ、糖尿病、癌や免疫抑制剤等を投与している時などは、免疫機能が低下しているときに、結核がより進行しやすくなります。HIVと結核菌の両方に感染している人の中で、毎年8%の人が結核病へと進行しています。アメリカでは約5500人に1人の割合で結核感染と診断されています。

### 結核は治療可能ですか？

可能です。抗生物質治療によって、結核感染又は結核病のどちらでも治療を行なうことができます。結核感染の治療の方が簡単です；INHの6ヵ月間服用で完全に治療可能です。これは予防治療と呼ばれます。結核病の治療は複数の抗生物質を6～9ヵ月間、他人に感染する恐れがある間は、最初のうち隔離される可能性があります。同時に栄養のある食事や適度な休息を取り、その他医師が指示することに従います。稀に、結核菌に養ひがた無事に行なわれた後、健康状態を確認する為、定期検診を受けることが必要です。また皮膚検査で一度陽性が出ると、その後受ける検査結果も必ず陽性ですので、その都度検査を要求され、これが結核菌感染を調べる唯一の方法でもあります。

# Incentives and Enablers

Enablers increase the opportunity for adherence to the prescribed drug regimen. Some ideas for enablers are:

- Transportation vouchers or Transportation provided by staff
- Bus or subway fare
- Taxi fare
- Flexibility with regimen

Incentives provide rewards for the adherence to a prescribed drug regimen. Some ideas for incentives are:

Food & Drink

- Pizza coupons

- Sweets

- Soda

Gift cards

- School store

- Movies

- Bookstore

Tickets to sporting or entertainment events

Cosmetics

School supplies

School Spirit Items

- T-shirts

- Hats

- Key chains

Holiday baskets

- Easter baskets

- Halloween treats

- Birthday cake and cards



## **Centers for Disease Control and Prevention**

TB Elimination Program

<http://www.cdc.gov/nchstp/tb/default.htm>

Core Curriculum

<http://www.cdc.gov/nchstp/tb/pubs/dtbeoth.htm>

(A slide series highlighting major points of the booklet can be downloaded at

<http://www.cdc.gov/nchstp/tb.>)

Information on the BCG vaccine

<http://www.cdc.gov/nchstp/tb/pubs/tbfactsheets/250120.htm>

Treatment Guidelines for TB

[http://www.cdc.gov/nchstp/tb/pubs/mmwrhtml/maj\\_guide.htm](http://www.cdc.gov/nchstp/tb/pubs/mmwrhtml/maj_guide.htm)

TB Skin Test Training Video

<http://www.cdc.gov/nchstp/tb/pubs/videos.htm>

## **International Resources**

**World Health Organization**

General Website: <http://www.who.int>

TB specific: <http://www.who.int/topics/tuberculosis/en/>

Worldwide Tuberculosis Epidemiology

[http://www.stoptb.org/globalplan/docs\\_maps.asp](http://www.stoptb.org/globalplan/docs_maps.asp)

## State TB Control Offices

### ALABAMA

Alabama Department of Public Health  
RSA Tower, Suite 1450  
201 Monroe Street  
Montgomery, AL 36130-3017  
Tel: 334-206-5330  
Fax: 334-206-5931

### ALASKA

Alaska Department of Health & Social Services  
3601 "C" Street, Suite 540  
Anchorage, AK 99503-5949  
Tel: 907-269-8000  
Fax: 907-562-7802

### ARIZONA

Arizona Department of Health Services  
150 North 18th Avenue  
Phoenix, AZ 85007-3237  
Tel: 602-364-4750  
Fax: 602-364-3267

### ARKANSAS

Arkansas Department of Health  
4815 West Markham Street, Slot 45  
Little Rock, AR 72205-3867  
Tel: 501-661-2152  
Fax: 501-661-2759

### CALIFORNIA

California Department of Health Services  
850 Marina Bay Parkway  
Building P, 2nd Floor  
Richmond, CA 94804-6403  
Tel: 510-620-3000  
Fax: 510-620-3034

### COLORADO

Colorado Department of Public Health  
& Environment Administration Division  
4300 Cherry Creek Drive South  
Denver, CO 80246-1530  
Tel: 303-692-2638  
Fax: 303-691-7749

### CONNECTICUT

Connecticut Department of Public Health  
410 Capitol Avenue, MS-11TUB  
Hartford, CT 06134  
Tel: 860-509-7722  
Fax: 860-509-7743

### DELAWARE

Delaware Department of Health & Social Services  
Jessie S. Cooper Building  
417 Federal Street  
Dover, DE 19901  
Tel: 302-739-6620  
Fax: 302-739-2358

### FLORIDA

Florida Department of Health  
4052 Bald Cypress Way, BIN #A20  
Prather Building, Room 240-N  
Tallahassee, FL 32399-1717  
Tel: 850-245-4350  
Fax: 850-921-9906

### GEORGIA

Georgia Department of Human Resources  
2 Peachtree St., NW, Suite 15-470  
Atlanta, GA 30303  
Tel: 404-657-2700  
Fax: 404 463-3460

**HAWAII**

Hawaii Department of Health  
1700 Lanakila Avenue  
Honolulu, HI 96817-2199  
Tel: 808-832-5737  
Fax: 808-832-5846

**IDAHO**

Idaho Department of Health & Welfare  
450 West State Street, 4th Floor  
Boise, ID 83720-0036  
Tel: 208-334-5939  
Fax: 208-332-7346

**ILLINOIS**

Illinois Department of Public Health  
525 West Jefferson Street, 1st Floor  
Springfield, IL 62761  
Tel: 217 785-5371  
Fax: 217 785-4515

**INDIANA**

Indiana Department of Health  
2 North Meridian Street, 6th Floor  
Indianapolis, IN 46204  
Tel: 317-233-7420  
Fax: 317-233-7747

**IOWA**

Iowa Department of Public Health  
Lucas State Office Building  
321 East 12th Street  
Des Moines, IA 50319-0075  
Tel: 515-281-7504  
Fax: 515-281-4570

**KANSAS**

Kansas Department of Health & Environment  
1000 Southwest Jackson Street Suite 210  
Topeka, KS 66612  
Tel: 785-296-8893  
Fax: 785-291-3732

**KENTUCKY**

Kentucky Department for Public Health  
275 East Main Street  
Frankfort, KY 40621  
Tel: 502-564-7243  
Fax: 502-564-0542

**LOUISIANA**

Louisiana Department of Health & Hospitals  
325 Loyola Avenue, Room 617  
New Orleans, LA 70112  
Tel: 504-568-5015  
Fax: 504-568-5016

**MAINE**

Maine Department of Human Services  
State House Station #11  
157 Capitol Street  
Augusta, ME 04333-0011  
Tel: 207-287-5301  
Fax: 207-287-8186

**MARYLAND**

Maryland Department of Health  
201 West Preston Street, Room 307A  
Baltimore, MD 21201  
Tel: 410-767-6698  
Fax: 410-669-4215

**MASSACHUSETTS**

Massachusetts Department of Public Health  
305 South Street  
Boston, MA 02130-3515  
Tel: 617-983-6970  
Fax: 617-983-6990

**MICHIGAN**

Michigan Department of Community Health  
3423 North Martin Luther King, Jr. Boulevard  
Lansing, MI 48909  
Tel: 517-335-8165  
Fax: 517-335-8121

**MINNESOTA**

Minnesota Department of Health  
Freeman Office Building  
625 N. Robert St. (street address)  
P.O. Box 64975 (mailing address)  
St. Paul, MN 55164-0975  
Tel: 651-201-5414  
Fax: 612-676-4027

**MISSISSIPPI**

Mississippi State Department of Health  
P.O. Box 1700  
Jackson, MS 39215-1700  
Tel: 601-576-7700  
Fax: 601-576-7520

**MISSOURI**

Missouri Department of Health  
930 Wildwood Drive  
Jefferson City, MO 65102  
Tel: 573-751-6122  
Fax: 573-526-6892

**MONTANA**

Montana Department of Public Health and  
Human Services  
Cogswell Building, Room 314C  
1400 Broadway Avenue  
Helena, MT 59620  
Tel: 406-444-0275  
Fax: 406-444-0272

**NEBRASKA**

Nebraska Department of Health & Human Services  
301 Centennial Mall South, 3rd Floor  
Lincoln, NE 68509  
Tel: 402-471-2937  
Fax: 402-471-3601

**NEVADA**

Nevada Department of Human Resources  
505 East King Street, Room 304  
Carson City, NV 89701  
Tel: 775-684-5938  
Fax: 775-684-5999

**NEW HAMPSHIRE**

New Hampshire Department of Health  
& Human Services  
Health & Welfare Building  
29 Hazen Drive  
Concord NH 03301-6504  
Tel: 603-271-4496  
Fax: 603-271-0545

**NEW JERSEY**

New Jersey Department of Health and Senior Services  
P.O. Box 369  
Trenton, NJ 08625-0369  
Tel: 609-588-7463  
Fax: 609-588-7431

**NEW MEXICO**

New Mexico Department of Health  
1190 Saint Francis Drive, Room S1150  
Santa Fe, NM 87502  
Tel: 505-827-2471  
Fax: 505-827-0163

**NEW YORK**

New York State Department of Health  
Empire State Plaze  
Corning Tower, Room 840  
Albany, NY 12237-0627  
Tel: 518-474-7000  
Fax: 518-473-6164

**NORTH CAROLINA**

North Carolina Department of Health  
& Human Services  
225 North McDowell Street, Suite 310 F  
Raleigh, NC 27603  
Tel: 919-733-0821  
Fax: 919-733-0490

**NORTH DAKOTA**

North Dakota Department of Health  
State Capitol  
600 East Boulevard, Dept. 301  
Bismarck, ND 58505-0200  
Tel: 701-328-2377  
Fax: 701-328-2499



**OHIO**

Ohio Department of Health Bureau of Infectious  
Disease and Control  
35 E Chestnut Street, 7th floor  
Columbus, OH 43215  
Tel: 614-387-0652  
Fax: 614-387-2132

**OKLAHOMA**

Oklahoma State Department of Health  
1000 NE 10th Street, Room 608  
Oklahoma City, OK 73117-1299  
Tel: 405-271-4060  
Fax: 405-271-6680

**OREGON**

Oregon Department of Human Services  
800 NE Oregon, Suite 1105  
Portland, OR 97232  
Tel: 503-731-4029  
Fax: 503-731-4608

**PENNSYLVANIA**

Pennsylvania Department of Health  
P.O. Box 90  
Harrisburg, PA 17108  
Tel: 717-787-6267  
Fax: 717-772-4309

**RHODE ISLAND**

Rhode Island Department of Health  
3 Capitol Hill, Room 106  
Providence, RI 02908  
Tel: 401-222-2577  
Fax: 401-222-2488

**SOUTH CAROLINA**

South Carolina Department of Health  
and Environmental Control  
Mills/Jarrett Complex, Box 101106  
1751 Calhoun Street  
Columbia, SC 29211  
Tel: 803-898-0539  
Fax: 803-898-0685

**SOUTH DAKOTA**

South Dakota Department of Health  
615 East 4th Street  
Pierre, SD 57501  
Tel: 605-773-4784  
Fax: 605-773-5509

**TENNESSEE**

Tennessee Department of Health  
Cordell Hull Building, 4th Floor  
425 5th Avenue North  
Nashville, TN 37247-0001  
Tel: 615-741-7247  
Fax: 615-741-3857

**TEXAS**

Texas Department of State Health Services  
1100 West 49th Street  
Austin, TX 78756  
Tel: 512-458-7455  
Fax: 512-458-7601

**UTAH**

Utah Department of Health  
Box 142104  
Salt Lake City, UT 84114-2104  
Tel: 801-538-6096  
Fax: 801-538-9913

**VERMONT**

Vermont Department of Health  
108 Cherry Street  
Burlington, VT 05401  
Tel: 802-863-7245  
Fax: 802-863-7314

**VIRGINIA**

Virginia Department of Health  
109 Governor Street, 1st floor  
Richmond, VA 23219  
Tel: 804-864-7906  
Fax: 804-371-0248

**WASHINGTON**

Washington Department of Health  
New Market Industrial Campus  
7211 Cleanwater Lane, Building 14  
Olympia, WA 98504  
Tel: 360-236-3447  
Fax: 360-236-3470

**WEST VIRGINIA**

West Virginia Department of Health  
& Human Resources  
600 Morris Street, Suite 101  
Charleston, WV 25301-1417  
Tel: 304-388-7120  
Fax: 304-388-7124

**WISCONSIN**

Wisconsin Department of Health & Family Services  
1 West Wilson Street, Room 318  
Madison, WI 53702  
Tel: 608-261-6319  
Fax: 608-266-0049

**WYOMING**

Wyoming Department of Health  
Quest Building, Suite 510  
6101 Yellowstone Road  
Cheyenne, WY 82002  
Tel: 307-777-5658  
Fax: 307-777-5402 or 777-5573

***TERRITORIES*****AMERICAN SAMOA**

Department of Health  
American Samoa Government  
Department of Health  
LBJ Tropical Medical Center  
PO Box F  
Pago Pago, AS 96799  
Tel: 011-684-633-2243  
Fax: 011-684-633-5379

**FEDERATED STATES OF MICRONESIA**

Department of Health, Education & Social Affairs  
Federated States of Micronesia  
P.O. Box PS70  
Palikir, Pohnpei, FM 96941  
Tel: 011-691-320-2619  
Fax: 011-691-320-5263

**GUAM**

Department of Public Health & Social Services  
Government of Guam  
P.O. Box 2816  
Agana, GU 96910-2816  
Tel: 011-671-734-7145  
Fax: 011-671-734-5910

**NORTHERN MARIANA ISLANDS**

Commonwealth Health Center  
Department of Public Health &  
Environmental Services  
P.O. Box 500409 CK  
Saipan, MP 96950-0409  
Tel: 670-234-8950  
Fax: 670-233-0214

**PUERTO RICO**

Puerto Rico Department of Health  
P.O. Box 70184  
San Juan, PR 00936  
Tel: 787-274-5553  
Fax: 787-274-5554

**REPUBLIC OF MARSHALL ISLANDS**

Preventive Services  
P.O. Box 16  
Majuro Hospital  
Majuro, MH 96960-0016  
Tel: 011-692-625-3355  
Fax: 011-692-625-3432

**REPUBLIC OF PALAU**

Ministry of Health

Republic of Palau

P.O. Box 6027

Koror, Republic of Palau 96940-0845

Tel: 011-680-488-2420

Fax: 011-680-488-1211

**VIRGIN ISLANDS**

Virgin Islands Department of Health

Old Municipal Hospital, Building 1

Knud Hansen Complex

St. Thomas, VI 00802

Tel: 340-774-9000

Fax: 340-776-5466

## Diagnosis of Tuberculosis Disease

### When Should You Suspect Tuberculosis (TB)?

TB is a disease caused by *Mycobacterium tuberculosis*. TB disease should be suspected in persons who have the following symptoms:

- Unexplained weight loss
- Loss of appetite
- Night sweats
- Fever
- Fatigue

If TB disease is in the lungs (pulmonary), symptoms may include:

- Coughing for  $\geq 3$  weeks
- Hemoptysis (coughing up blood)
- Chest pain

If TB disease is in other parts of the body (extrapulmonary), symptoms will depend on the area affected.

### How Do You Evaluate Persons Suspected of Having TB Disease?

A complete medical evaluation for TB includes the following:

#### 1. Medical History

Clinicians should ask about the patient's history of TB exposure, infection, or disease. It is also important to consider demographic factors (e.g., country of origin, age, ethnic or racial group, occupation) that may increase the patient's risk for exposure to TB or to drug-resistant TB. Also, clinicians should determine whether the patient has medical conditions, especially HIV infection, that increase the risk of latent TB infection progressing to TB disease.

#### 2. Physical Examination

A physical exam can provide valuable information about the patient's overall condition and other factors that may affect how TB is treated, such as HIV infection or other illnesses.

#### 3. Mantoux Tuberculin Skin Test and/or QuantiFERON®-TB Gold Test

The Mantoux tuberculin skin test (TST) and the QuantiFERON®-TB Gold test (QFT-G) are used to test for *M. tuberculosis* infection. Additional tests are required to confirm TB disease. The Mantoux tuberculin skin test is performed by injecting a small amount of fluid called tuberculin into the skin in the lower part of the arm. The test is read within 48 to 72 hours by a trained health care worker, who looks for a reaction (induration) on the arm.

The QFT-G is a blood test. It measures the patient's immune system reaction to *M. tuberculosis*. Once the blood samples are taken, they must be processed within 12 hours. Interpretation of QFT-G results is influenced by the patient's estimated risk for TB infection.

#### 4. Chest Radiograph

A posterior-anterior chest radiograph is used to detect chest abnormalities. Lesions may appear anywhere in the lungs and may differ in size, shape, density, and cavitation. These abnormalities may suggest TB, but cannot be used to definitively diagnose TB. However, a chest radiograph may be used to rule out the possibility of pulmonary TB in a person who has had a positive reaction to a TST or QFT-G and no symptoms of disease.

### 5. Diagnostic Microbiology

The presence of acid-fast-bacilli (AFB) on a **sputum smear** or other specimen often indicates TB disease. Acid-fast microscopy is easy and quick, but it *does not confirm a diagnosis of TB because some acid-fast bacilli are not *M. tuberculosis**. Therefore, a **culture** is done on all initial samples to confirm the diagnosis. (However, a positive culture is not always necessary to begin or continue treatment for TB.) A positive culture for *M. tuberculosis* confirms the diagnosis of TB disease. Culture examinations should be completed on all specimens, regardless of AFB smear results. Laboratories should report positive results on smears and cultures within 24 hours by telephone or fax to the primary health care provider and to the state or local TB control program, as required by law.

### 6. Drug Resistance

For all patients, the initial *M. tuberculosis* isolate should be tested for drug resistance. It is crucial to identify drug resistance as early as possible to ensure effective treatment. Drug susceptibility patterns should be repeated for patients who do not respond adequately to treatment or who have positive culture results despite 3 months of therapy. Susceptibility results from laboratories should be promptly reported to the primary health care provider and the state or local TB control program.

### Additional Information

American Thoracic Society (ATS) and CDC. Diagnostic standards and classification of tuberculosis in adults and children. *Am J Respir Crit Care Med* 2000;161.

[www.thoracic.org/adobe/statements/tbadult1-20.pdf](http://www.thoracic.org/adobe/statements/tbadult1-20.pdf)

ATS, CDC, and Infectious Diseases Society of America. Treatment of tuberculosis. *MMWR* 2003;52 (No. RR-11).

[www.cdc.gov/mmwr/PDF/rr/rr5211.pdf](http://www.cdc.gov/mmwr/PDF/rr/rr5211.pdf)

Errata - [www.cdc.gov/mmwr/preview/mmwrhtml/mm5351a5.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5351a5.htm)

Centers for Disease Control and Prevention. Guidelines for the investigation of contacts of persons with infectious tuberculosis and Guidelines for using the QuantiFERON®-TB Gold test for detecting *Mycobacterium tuberculosis* infection, United States. *MMWR* 2005; 54 (No. RR-15).

[www.cdc.gov/mmwr/pdf/rr/rr5415.pdf](http://www.cdc.gov/mmwr/pdf/rr/rr5415.pdf)



## Acronyms and Glossary of terms

This section includes a list of common acronyms and abbreviations used throughout *Model Tuberculosis Prevention Program for College Campuses*. Definitions from each of these acronyms can be found within the glossary of terms, also found in this section.

### Acronyms and abbreviations

**ACHA:** American College of Health Association

**BCG:** Vaccine: Bacille Calmette Guerin vaccine

**DOT:** Directly Observed Therapy

**CDC:** Centers for Disease Control

**INH:** Isoniazid

**LTBI:** Latent Tuberculosis Infection

**PPD:** Purified Protein Derivative

**SAT:** Self-administered Therapy

**TB:** Tuberculosis

### Glossary of Terms

**Active tuberculosis disease:** Tuberculosis that involves active germs within the infected person. An infected person whose tuberculosis has progressed to active disease may experience symptoms such as coughing, fever, and weight loss and is capable of spreading the disease to others if the tuberculosis germs are active in the lungs or throat.

**Bacille Calmette Guerin (BCG) vaccine:** A vaccine routinely administered to infants and younger children in countries with high incidence of tuberculosis to prevent disseminated and meningeal TB disease.

**Core Curriculum on Tuberculosis:** Information provided by the Centers for Disease Control and Prevention that outlines testing and treatment protocols for tuberculosis. Primarily directed at medical clinicians, the core curriculum document is available both as a printed book and an up-to-date document on the CDC's website.

**Centers for Disease Control and Prevention (CDC):** The centers are the U.S. Public Health Service's national agencies for control of infectious and other preventable diseases. They work with state and health departments to provide specialized services that the states are unable to maintain on an everyday basis.

**Directly observed therapy (DOT):** Treatment for latent tuberculosis infection or active tuberculosis disease that involves the infected person taking medication in the presence of a health professional to ensure the person does not miss any doses and to create a partnership between the patient and health-care provider. The standard of care for intermittent regimens in tuberculosis calls for directly observed therapy.

**Endemic countries:** Countries with high incidences of tuberculosis.

**Isoniazid:** The drug that is most often used to treat latent tuberculosis infection and also used to treat active tuberculosis disease; although it is relatively safe it may cause hepatitis and other adverse reactions in some patients.

**Latent Tuberculosis infection (LTBI):** Tuberculosis that involves a person who is infected with tuberculosis germs, but the germs are not active in the infected person's body. The infected person is not symptomatic but has the potential to develop tuberculosis disease if the tuberculosis germs become active and multiply in the body. A person with latent tuberculosis infection cannot spread the infection to others unless the germs become active in the lungs or throat.

**Mantoux tuberculin skin test:** The preferred method of testing for tuberculosis infection; done by using a needle and syringe to inject 0.1 ml of 5 tuberculin units of liquid tuberculin between the layers of the skin (intradermally), usually on the forearm; the reaction to this test, usually a small raised area (induration), is measured 48 to 72 hours after the injection and is classified as positive or negative depending on the size of the reaction and the patient's risk factors for tuberculosis.

**Purified protein derivative (PPD) tuberculin:** A type of tuberculin used in the Mantoux skin test, which is injected between the layers of the skin (intradermally), to measure the immune reactivity to the tuberculin.

**QuantiFERON-TB Gold test:** An in-vitro blood test approved by the Food and Drug Administration in 2005 that measures the immune reactivity to mycobacterium tuberculosis; it also eliminates the false positive results found with tuberculin skin testing as they relate to the Bacille Calmette Guerin (BCG) vaccine.

**Respiratory isolation:** As it relates to tuberculosis, separating a person infected with active tuberculosis disease to an area of unshared breathing space to prevent the spread of tuberculosis germs to others.

**Risk screening:** As it relates to tuberculosis, assessing a person's risk factors for exposure to tuberculosis. Risk factors include living or traveling to a country where tuberculosis is common, having a chronic medical condition that impairs the immune system, coming in contact with a person known to have active tuberculosis, and being a health-care worker, volunteer, or employee of a nursing home, prison or other residential institution.

**Self-administered therapy (SAT):** Treatment for latent tuberculosis infection or active tuberculosis disease that involves the infected person taking a daily oral dose of medication (generally for nine months) and receiving monthly check-ups with a health-care provider.

**Tuberculosis (TB):** An infectious disease caused by mycobacterium tuberculosis, can lead to serious illness and even death.

**TB suspect:** A person who is suspected of having tuberculosis disease due to one or all of the following medical factors: the presence of symptoms, the result of their tuberculin skin test, risk factors for tuberculosis, and/or findings on an abnormal chest x-ray. To confirm or rule out a diagnosis of tuberculosis, sputum specimens are collected and examined for mycobacterium tuberculosis.

THE UNIVERSITY OF TEXAS HEALTH CENTER AT TYLER

# HEART *Land* NATIONAL TB CENTER

A PARTNERSHIP OF UT HEALTH CENTER AND TCID

For consultation services

or more information

contact us at

1-800-TEX-LUNG

[www.HeartlandNTBC.org](http://www.HeartlandNTBC.org)

This product produced with  
funds awarded by the Centers  
for Disease Control and  
Prevention (CDC)

June 2007 Edition