

TUBERCULOSIS TODAY

WORLD-WIDE, UNITED STATES, TEXAS

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WHAT IS TB?

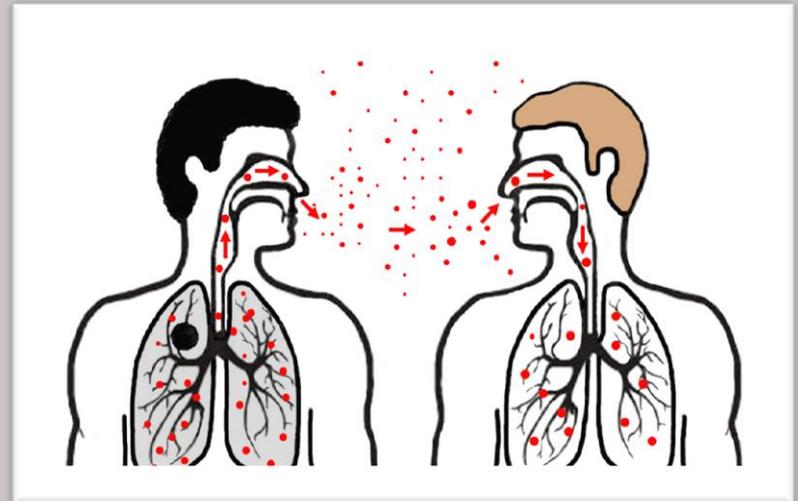
TB is a disease caused by a bacterium called *Mycobacterium tuberculosis* (*M. tuberculosis*).

The bacteria usually attack the lungs, but can attack any part of the body such as lymph nodes, bones and joints, the brain and other organs.

- If TB is treated properly, most people can be cured of TB
- If TB is **NOT** treated properly, people can die from TB or develop drug-resistant forms of TB

TRANSMISSION OF M. TUBERCULOSIS

- *M. tuberculosis* spread via airborne particles called droplet nuclei
- Expelled when person with infectious TB coughs, sneezes, shouts, or sings
- Transmission occurs when droplet nuclei inhaled and reach the alveoli of the lungs, via nasal passages, respiratory tract, and bronchi



TB HISTORY

- Caused by *Mycobacterium tuberculosis*
- Found in Egyptian mummies, circa 2400 BC
- Around 460 BC, Hippocrates termed the disease phthisis or “consumption”
 - “almost always fatal”
 - “most widespread disease of the time”

PUBLIC HEALTH THREAT IDENTIFIED

- An edict issued by the Republic of Lucca (central Italian peninsula), 1699:
 - “Henceforth, human health should no longer be endangered by objects remaining after the death of a consumptive. The names of the deceased should be reported to the authorities, and measures undertaken for disinfection”

PERSON TO PERSON TRANSMISSION

- 1720- Benjamin Marten theorized the TB could be caused by “Wonderfully minute living creatures.....It may be therefore very likely that by an habitual lying in the same bed with a consumptive patient, constantly eating and drinking with him, or by very frequently conversing so nearly as to draw in part of the breath he emits from the lungs, a consumption may be caught by a sound person”

FIRST STEP TOWARD A TB CURE....

- Dr. Herman Brehmer
 - Developed TB, was told to find a healthier climate, so he traveled to the Himalayan mountains, where he became cured of TB
 - 1854- submitted his doctoral dissertation- “Tuberculosis is a Curable Disease”
 - Codified the concept of the “Sanatoria” in 1863
 - Exposed to “continuous fresh air” and “good nutrition”

AND THE BALL SLOWLY STARTED ROLLING....

- 1865-French Military doctor (Jean-Antoine Villemin) found that consumption could be passed from humans to cattle and from cattle to rabbits.....
- Previous to this, it was believed that consumption arose *spontaneously* in each affected organism
- 1882- Robert Koch- stained M. Tuberculosis

HOWEVER,

- Treatment still centered around the sanatoria, where rest and proper nutrition was the main tool used to combat the infection
 - Isolated the sick
- Circa 1800- early 1900s, other cures included lung collapsing, artificial pneumothorax, surgical limiting of the lung, and radiation

1940-60S- STREPTOMYCIN, AND OTHER DRUGS

- Previously, other drugs had been available, but were too toxic to use on animals or humans
- Streptomycin became THE front line drug in the fight against TB
- Quickly, TB became streptomycin resistant, but it was found that two or more drugs would overcome this problem

GLOBAL THREAT

Although TB is preventable and treatable, it is not just a disease of the past. It is still one of the world's deadliest diseases.

An estimated **2 billion people**, or one third of the world's population, are infected with *M. tuberculosis*.

- Each year, approximately
 - 9 million people develop TB disease
 - 1.4 million people die of TB disease

GLOBAL RESURGENCE

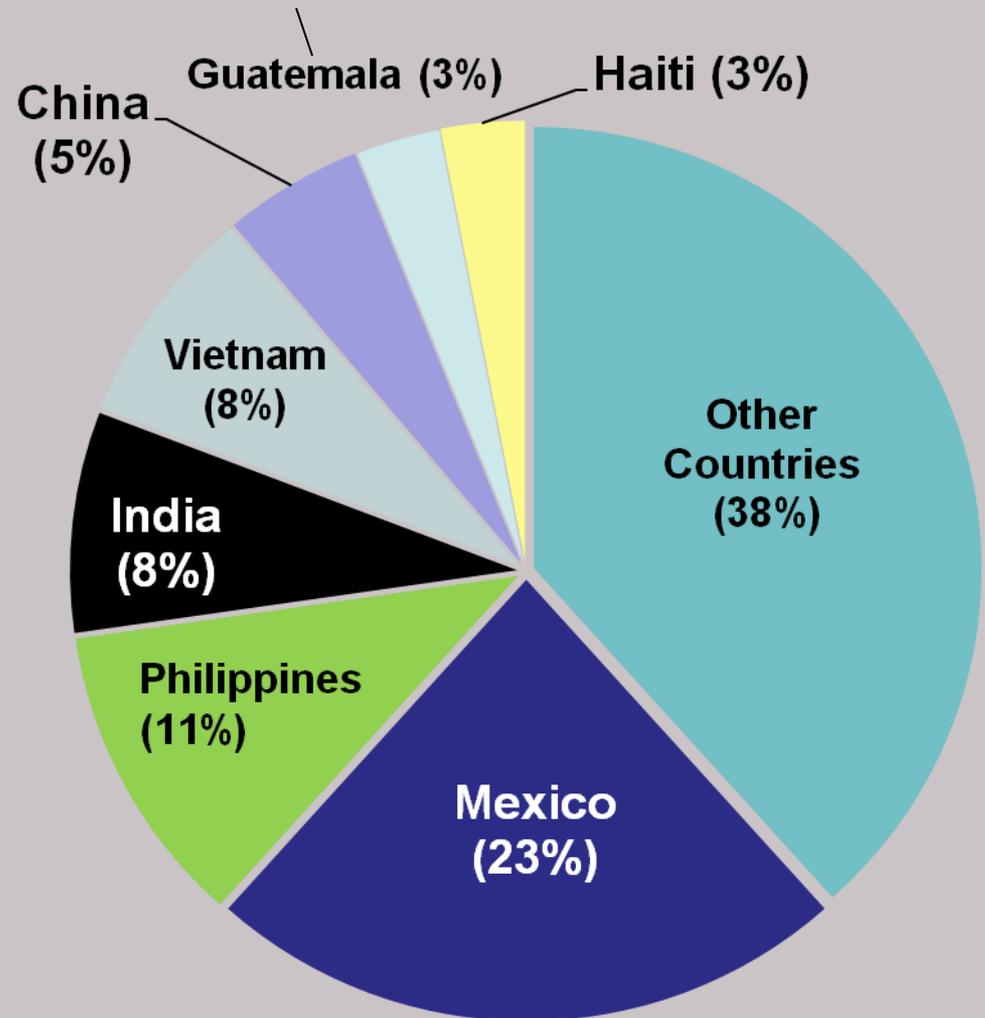
Contributing factors:

- Inadequate funding for TB control programs
HIV epidemic
- Increased immigration from countries where TB is common
- Spread in homeless shelters and correctional facilities
- Increase and spread of multidrug-resistant TB

HIGH-RISK GROUPS FOR TB INFECTION FOREIGN-BORN/IMMIGRANTS

In the U.S., LTBI and TB disease often occur among people born in areas of the world where TB is common:

- Asia
- Africa
- Russia
- Eastern Europe
- Latin America

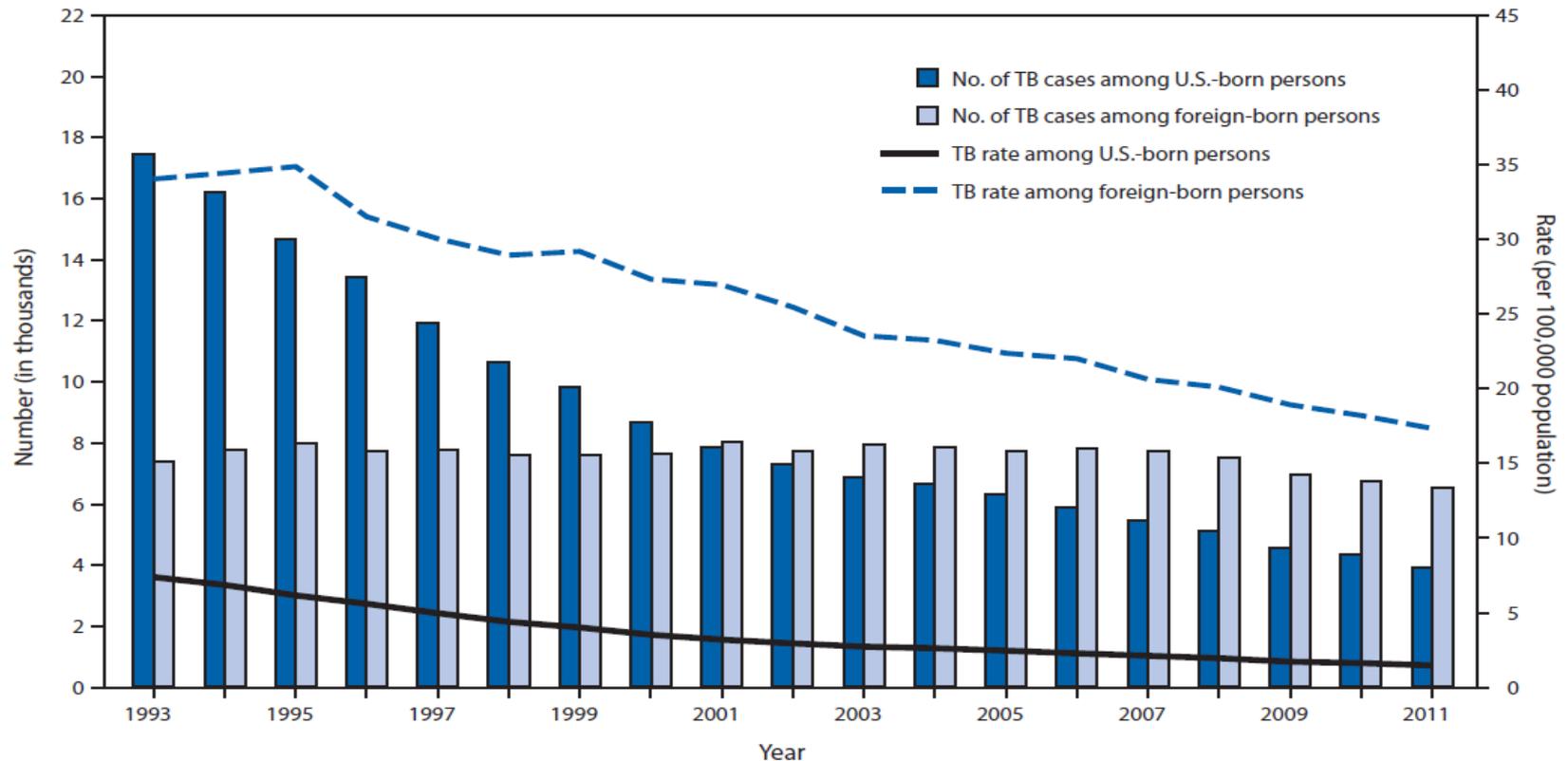


UNITED STATES

- TB disease was once the leading cause of death in the United States. After the discovery of drugs that could treat TB in the 1950s, death rates began to drop dramatically.
- TB is still a problem in the United States
 - Approximately **9 to 14 million** people are infected with *M. tuberculosis*
 - In 2010, over 11,000 people developed TB disease

TB REPORTING IN U.S.

FIGURE 2. Number and rate of tuberculosis (TB) cases among U.S.-born and foreign-born persons, by year reported — United States, 1993–2011*



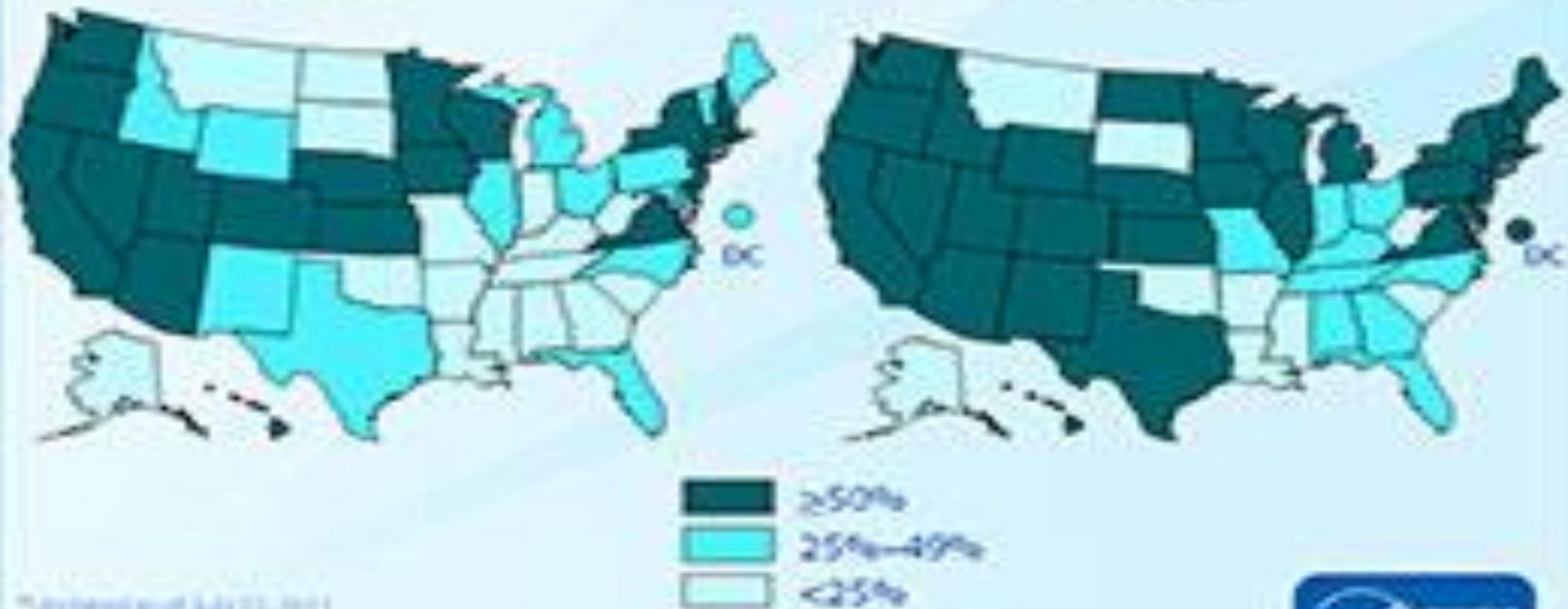
Source: National Tuberculosis Surveillance System.

* Data are updated as of February 22, 2012. Data for 2011 are provisional.

Percentage of TB Cases Among Foreign-born Persons, United States*

2000

2010



*Excludes Alaska and Hawaii



TEXAS

In Texas:

- 51.3 percent of reported TB cases in 2010 were among Hispanics
- 18.4 percent were among African Americans,
- 14.8 percent were among Whites, 14.8 percent were among Asians
- 0.7 percent were among persons of unknown ethnicity

TB rates are higher along the Texas-Mexico border.

TEXAS COUNTIES

County	2007 Cases	2008 Cases	2009 Cases	2010 Cases	2011 Cases
Bexar	72	81	93	87	97
Cameron	74	55	48	50	37
Collingsworth	0	0	0	0	1
Dallas	218	220	195	188	206
Deaf Smith	1	0	1	1	0
El Paso	40	68	57	48	37
Garza	0	0	1	0	0
Harris	394	398	396	340	318
Lubbock	5	8	4	7	2
Tarrant	105	89	109	114	75
Terry	0	0	0	2	2
Travis	55	44	61	67	52

RISK FACTORS* AMONG TB CASES AGES 18+, TEXAS 2010

Risk Factor	State
Foreign born	58%
Excess alcohol use	21%
Diabetes	16%
Prison/Jail Inmate	11%
Non-injection drug use	9%
HIV positive	9%
Homeless	6%
Health Care Worker	3%
Injection drug use	2%
Migrant Farm Worker	<1%

*Note: Individuals can have more than one risk factor.

TARGETED TESTING

- Used to identify and treat persons who are at high risk of developing TB, once infected with *M. Tuberculosis*
 - HIV/AIDS
 - Persons recently infected with *M. Tuberculosis*
 - Cigarette smokers
 - ETOH/Drug abusers

MEDICAL EVALUATION FOR TB

Medical History

Symptoms of pulmonary TB:

- Prolonged cough (3 weeks or longer), hemoptysis
- Chest pain
- Loss of appetite, unexplained weight loss
- Night sweats, fever
- Fatigue

MEDICAL EVALUATION

- Done anytime a pt. has a (+) Mantoux or IGRA test
 - Consists of five parts
 - Medical history
 - Physical exam
 - HIV test/counseling
 - Test for TB infection (TST or IGRA)
 - CXR
 - Bacteriological exam
 - NAA test

BACTERIOLOGICAL EXAM, CONT.

- AKA- how do we kill this thing?
 - Mono- resistant
 - Resistant to one TB treatment drug
 - Poly-resistant
 - Resistant to at least two TB treatment drugs (but not both isoniazid and rifampin)
 - MDRTB
 - Resistant to both isoniazid and rifampin
 - XDR-TB
 - Resistant to both of the above, plus any fluoroquinolone and at least one of three injectable second line drugs

TB S/S

- Fatigue
- Malaise
- Weight loss/loss of appetite
- Coughing
- Enlarged lymph nodes
- Night Sweats

MEDICAL EVALUATION FOR TB

Test for *M. tuberculosis* Infection

Two methods for detecting *M. tb* infection:

- TST and IGRAs
- TST and IGRAs help differentiate persons with *M. tb* infection from those not infected
- Negative reaction to either does not exclude diagnosis of TB or LTBI



IGRA

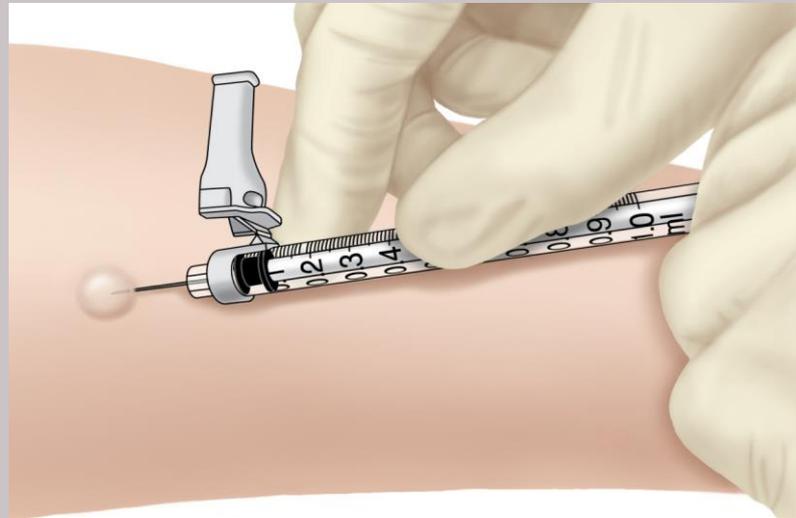
- Interferon-gamma release assays
 - QuantiFERON-TB Gold in Tube (QFT-GIT)
 - T-SPOT
 - Obtain a blood sample, send to lab
 - If pt. is infected with M Tuberculosis, the blood cells will release interferon-gamma in response to the test

CHEST X-RAY

- With active TB, classic cloudy CXR
 - Not conclusive, due to other disease processes that damage the lungs
 - If immunocompromised, CXR may appear normal

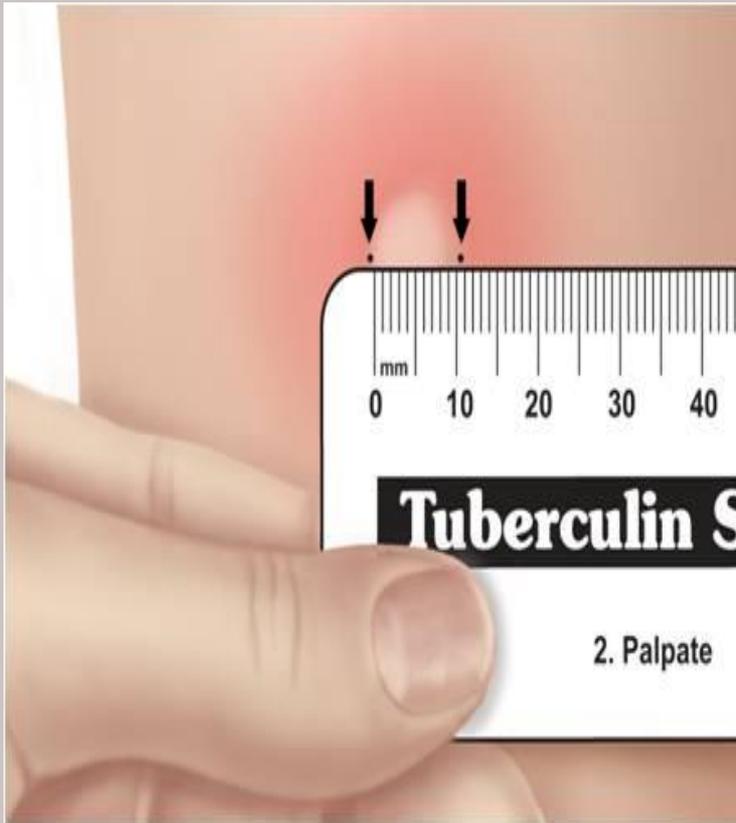
ADMINISTERING THE TST

- Inject 0.1 ml of PPD (5 tuberculin units) into forearm between skin layers



- Produce wheal (raised area) 6–10 mm in diameter
- Follow universal precautions for infection control

READING THE TST



- Trained health care worker assesses reaction 48–72 hours after injection
- Palpate (feel) injection site to find raised area
- Measure diameter of induration across forearm; only measure induration, not redness
- Record size of induration in millimeters; record “0” if no induration found

MANTOUX SKIN TEST

- Given SQ, between skin layers
 - Wait 24 hours, observe reaction (if any)
 - DO NOT care about or measure the red area
 - DO care about the swelling (Induration)
 - DO measure the induration (and the induration ONLY, not the red area)

Did the non-compliant patient miss the reading?

-Must repeat the test

NOT effective with those who have taken the BCG vaccine-gives false positives.

WHAT CONSTITUTES A POSITIVE MANTOUX SKIN TEST? THAT DEPENDS.....

- CDC classification of tuberculin reaction : An induration (palpable raised hardened area of skin) of more than 5–15 mm (depending upon the person's risk factors) to 10 Mantoux units is considered a positive result, indicating TB infection.

- 5 mm or more is positive in
 - HIV-positive person
 - Recent contacts of TB case
 - Persons with nodular or fibrotic changes on CXR consistent with old healed TB
 - Patients with organ transplants and other immunosuppressed patients

-A tuberculin test conversion is defined as an increase of 10 mm or more within a 2-year period, regardless of age.

WHAT CONSTITUTES A POSITIVE MANTOUX SKIN TEST? THAT DEPENDS.....

10 mm or more is considered positive for:

- People who have come into the US within the last 5 years from areas of the world where TB is common
- Injection drug users
- Residents and employees of high risk congregate settings
- Mycobacteria laboratory personnel
- Persons with conditions that increase risk for progressing to TB disease
- Infants, children and adolescents to adults in high-risk categories

WHAT CONSTITUTES A POSITIVE MANTOUX SKIN TEST? THAT DEPENDS.....

15 mm or more is considered positive in anyone,
including persons with no risk factors

LTBI VS. TB DISEASE

Person with LTBI (Infected)	Person with TB Disease (Infectious)
Has a small amount of TB bacteria in his/her body that are alive, but inactive	Has a large amount of active TB bacteria in his/her body
Cannot spread TB bacteria to others	May spread TB bacteria to others
Does not feel sick, but may become sick if the bacteria become active in his/her body	May feel sick and may have symptoms such as a cough, fever, and/or weight loss
Usually has a TB skin test or TB blood test reaction indicating TB infection	Usually has a TB skin test or TB blood test reaction indicating TB infection
Radiograph is typically normal	Radiograph may be abnormal
Sputum smears and cultures are negative	Sputum smears and cultures may be positive
Should consider treatment for LTBI to prevent TB disease	Needs treatment for TB disease
Does not require respiratory isolation	May require respiratory isolation
Not a TB case	A TB case

LATENT TB INFECTION (LTBI)

- Granulomas may persist (LTBI), or may break down to produce TB disease
- 2 to 8 weeks after infection, LTBI can be detected via TST or interferon-gamma release assay (IGRA)
- The immune system is usually able to stop the multiplication of bacilli
- Persons with LTBI are not infectious and do not spread organisms to others

LTBI TREATMENT REGIMENS

Isoniazid (INH)

- 9-month daily regimen is preferred: 270 doses within 12 months
- Effective for HIV-infected as well as HIV-uninfected persons
- Can be given twice weekly via DOT: 76 doses within 12 months
- Children should always receive 9 months of therapy

LTBI TREATMENT REGIMENS

Isoniazid (INH) (cont.)

- 6-month regimen also generally acceptable: 180 doses within 9 months
- Can be given twice weekly via DOT: 52 doses within 9 months
- Not recommended for children, HIV infected, persons whose x-rays suggest previous TB

TB DISEASE

- In some, the granulomas break down, bacilli escape and multiply, resulting in TB disease
- Can occur soon after infection, or years later
- Persons with TB disease are usually infectious and can spread bacteria to others
- Positive *M. tb* culture confirms TB diagnosis

HIGH-RISK GROUPS FOR TB INFECTION

CLOSE CONTACTS

- Close contacts are people who spend time with someone who has infectious TB disease
- May include:
 - Family members
 - Coworkers
 - Friends
- On average, 20 – 30% of close contacts become infected with TB



PUBLIC HEALTH

According to CDC, “The responsibility for successful TB treatment is clearly assigned to the public health program or the private provider, not to the patient”



CARE

- To develop treatment plan where patient is assessed, interviewed and treated
- Implement appropriate and continuous therapy

MAJOR GOALS OF TB TREATMENT

- Cure patient, minimize risk of death/disability, prevent transmission to others
- Provide safest, most effective therapy in shortest time
- Prescribe multiple drugs to which the organisms are susceptible
- Never treat with a single drug or add single drug to failing regimen
- Ensure adherence and completion of therapy

DEVELOP TREATMENT AND MONITORING PLAN

- Plan should include
- Description of treatment regimen
- Methods for assessing/ensuring adherence
- Monitoring methods for treatment response and adverse events

ADHERENCE

- Nonadherence results in inadequate treatment
- Can lead to treatment failure, relapse, ongoing transmission, and drug resistance
- Clinician responsible for completion of therapy
- To ensure adherence, provide education, case management, DOT, incentives and enablers, and combination pills
- If these fail, take more restrictive action

CASE MANAGEMENT

- Strategy to ensure patients complete treatment; includes
- Assigning responsibility to case manager
- Conducting regular systematic review
- Developing plans to address barriers to adherence
- Case managers must ensure patients are educated about TB, therapy is continuous, and contacts are evaluated properly

DIRECTLY OBSERVED THERAPY (DOT)

- Health care worker watches patient swallow each dose
- DOT is preferred management strategy for all patients
- Can reduce acquired drug resistance, treatment failure, and relapse
- Nearly all regimens can be intermittent if given as DOT
- DOT reduces total number of doses and encounters
- For drug-resistant TB, use daily regimen and DOT



CURRENT ANTI-TB DRUGS

10 drugs FDA-approved for treatment of TB

- Isoniazid (INH)
- Rifampin (RIF)
- Pyrazinamide (PZA)
- Ethambutol (EMB)
- Rifapentine (RPT)
- Streptomycin (SM)
- Cycloserine
- Capreomycin
- ρ -Aminosalicylic acid
- Ethionamide

CURRENT ANTI-TB DRUGS (CONT.)

Four first-line drugs considered standard treatment:

- Isoniazid (INH)
- Rifampin (RIF)
- Pyrazinamide (PZA)
- Ethambutol (EMB)



Rifabutin and rifapentine also considered first-line drugs in some circumstances

Streptomycin (SM) formerly first-line drug, but now less useful owing to increased SM resistance

WHY ARE WE HERE



- Monitor response to treatment
- Educate each patient about TB, treatment and infection control.
- Evaluate each contact

PROVIDE TRAINING AND EDUCATION

- Staff
- Health-Care Providers and Members
 - Medical/nursing schools
 - Community-based organizations
 - Professional societies
 - Minority advocacy groups

PROVIDE TRAINING AND EDUCATION CONT.

- Infection Control
- Environmental Control
- Administrative Control



Regular intervals for up-to-date and accurate knowledge

ACKNOWLEDGMENT

- Centers for Disease Control and Prevention
- www.cdc.gov/tb
- www.dshs.state.tx.us

TUBERCULOSIS TODAY

HEALTH SERVICE REGION 1

Rick Tull, Program Specialist
PHEP/HSR1

REQUEST FOR RESPONSE



TB RESPONSE

Health Service Region 1 --PHEP

Based on the ICS Structure

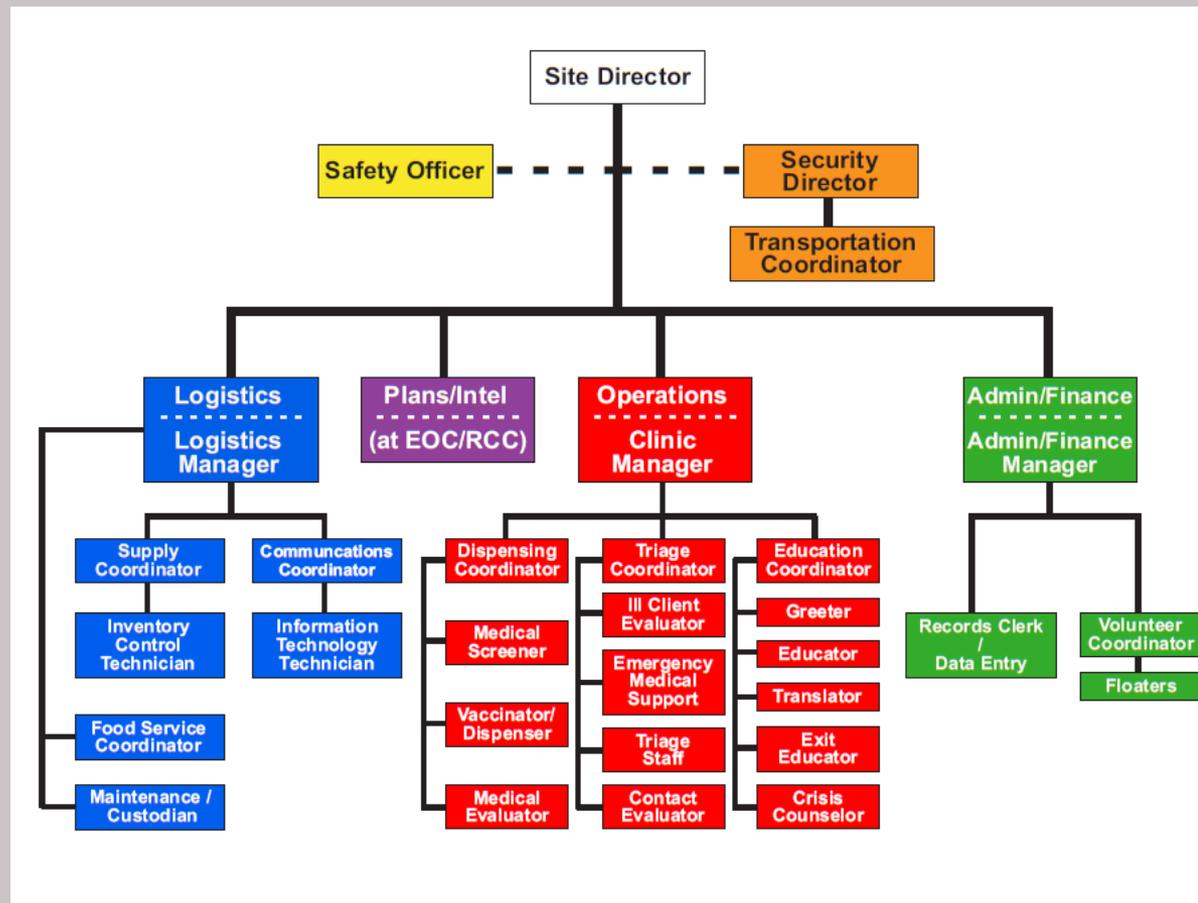
- The primary goal is to decrease the number of individuals who may become ill.
- The role of Public Health is to provide the vaccine and/or medication

THE ROLE OF PUBLIC HEALTH

- Public Health will provide the vaccine and/or medication resources.



INCIDENT COMMAND STRUCTURE



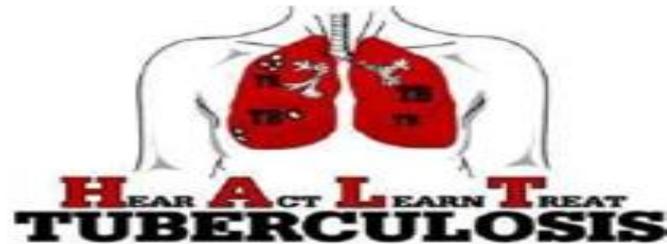
INCIDENT ACTION PLAN

Incident Action Plan
for

TB Clinic

Operational Period

Date From:	6/12/12	Date To:	6/12/12
Time From:	07:00a	Time To:	18:00p



INCIDENT OBJECTIVES

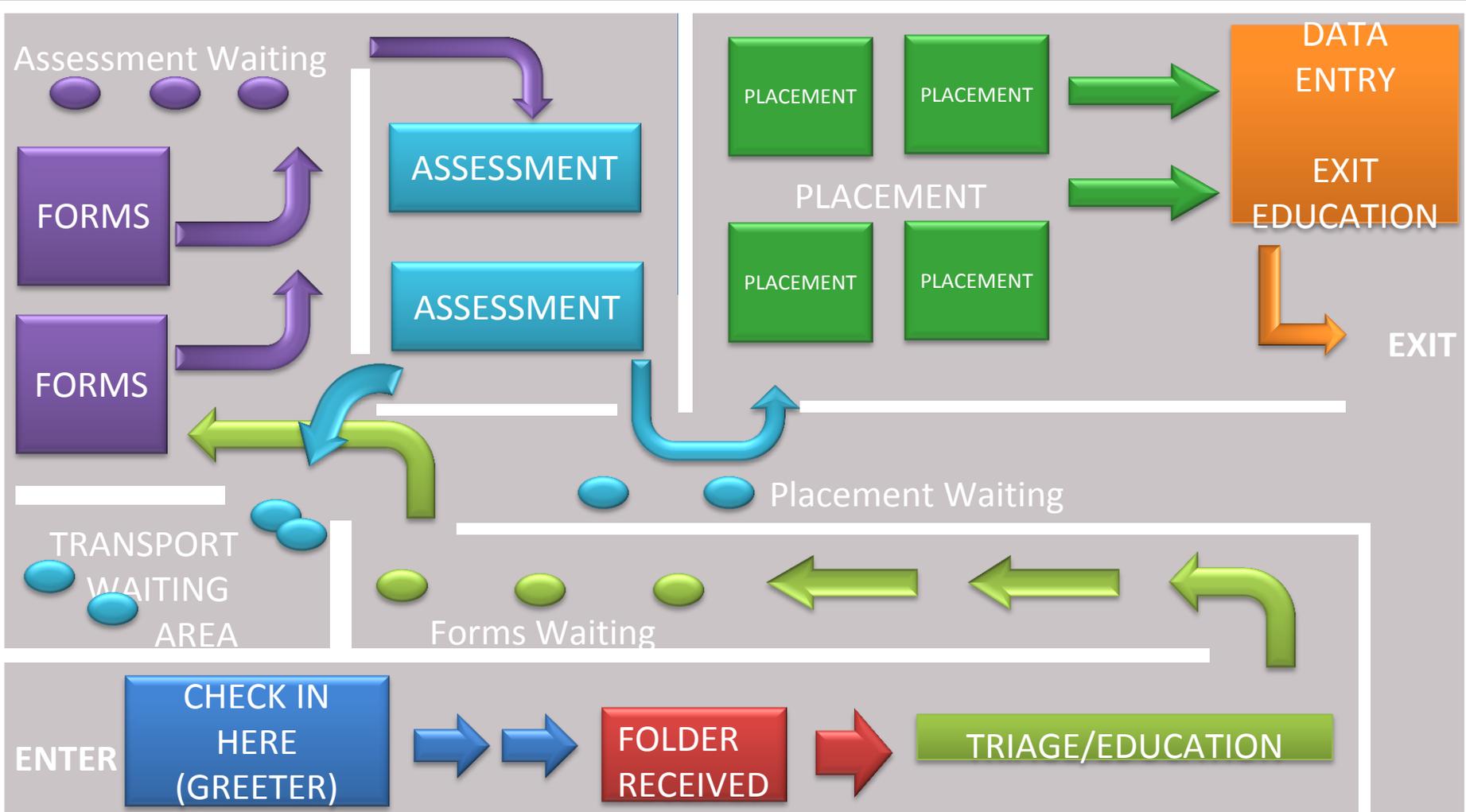
INCIDENT OBJECTIVES (ICS 202)

1. Incident Name: TB	2. Operational Period: Date From: 3/21/12 Date To: 3/21/12 Time From: 9:00a Time To: 15:30p
3. Objective(s): <i>1. Ensure the safety of staff and clients through the use of universal precautions as well as appropriate precautions against the transmission of TB following recommendations of TB clinical staff and CDC guidelines.</i> <i>2. Decrease the number of persons infected with TB via the use of the TB screening tools provided by the DSHS TB program staff and the placement of Tuberculin Skin Tests, referral for chest xrays, as well as the use of acute triage.</i> <i>3. The TB clinic will consist of the placement of Tuberculin Skin Tests to all persons identified as potentially exposed to TB as well as immediate referral for chest xray of any individuals found to be symptomatic for TB infection.</i> <i>4. The clinic will be completed in compliance with NIMS protocols and use of the Incident Command System.</i> <i>5. DSHS Region 1 will work with available DSHS staff, local health department and other local government staff, as well as local schools of nursing to insure appropriate and adequate quantity and qualifications to meet staffing requirements.</i>	
4. Operational Period Command Emphasis: <i>TB Clinic has been requested with the emphasis on skin testing for TB, reading the tests and identifying individuals exposed to TB and properly assist them.</i>	

TB Clinic
8/21-8/24/2012

Item	Requested	Have	Need	Location	Loaded
Lysol Wipes	6	6	0	Case 1	
Hand Sanitizer	16	16	0	"	
Alcohol Pads	6 bxs	6 bxs	0	"	
Cotton balls	1 bag	1 bag	0	"	
Kleenex	6 bxs	6 bxs	0	"	
Gloves	1L/6M	1L/6M	0	Case 2	
Syringes	800	800	0	"	
Calipers	16	16	0	"	
Masks Ear loop	6 bxs	6 bxs	0	Case 3	
Masks N95	6 bxs	6 bxs	0	"	
Biohazard Bags	1 bag	1 bag	0	"	
Trash bags	1 box	1 box	0	"	
Folders	100	100	0	Case 4	
Forms - Triage	1000	1000	0	"	
- Education	500 set	500 set	0	"	
- Declination	100	100	0	"	
- X-Ray	100	100	0	"	
Trash Cans	6	6	0	"	
Tape - wide/dispense	2	2	0	PHP Case	
Stapler/staples	1	1	0	"	
Dry Erase Markers	2	2	0	"	
Pens	26	26	0	"	
Post-it-notes	6	6	0	"	
Notepads	5	5	0	"	
Highlighters	12	12	0	"	
Extension Cords	4	4	0	"	
Room Dividers	10	10	0	off site	
Arrow signs	1	1	0	off site	
Easel	1	1	0	off site	
Stancions	4	4	0	off site	
Sharps Containers	5L/7M	5L/7M	0	loose	
Coolers	6	6	6	loose	
Fans	6	6	0	loose	
Dollie	1	1	0	loose	
File Containers	3/3	3-Mar	0	loose	
Air Scrubbers	3	3	0	loose	
Auto Filter	2	2	0	loose	
Neg.Pressure Units	2	2	0	loose	
Dry Ice/cooler	1	1	0	Tammy	
PPD	800	800	0	Pharmacy	

CLINIC FLOW



CLINIC ENTRANCE

- Due to the potential risk of exposure to others, no one is allowed into the POD until they have either been cleared through initial screening or the Triage Station.

Healthy



Entrance



TRIAGE

- The Triage staff will ask questions and gather information from incoming clients to determine whether they have been exposed and could present a risk to others.



POD Entrance



TRIAGE FORM



Texas Department of State Health Services Symptom Screening

Facility Name: _____

Name: _____ Employee _____

Person completing form: _____ Title _____ Date _____
Print Name

- | | | | |
|--|----|-----|------------|
| 1. Productive cough for 2 weeks or more. | No | Yes | Date _____ |
| 2. Persistent weight loss without dieting. | No | Yes | Date _____ |
| 3. Persistent fever above 100 degrees F. | No | Yes | Date _____ |
| 4. Night sweats. | No | Yes | Date _____ |

CLIENT EDUCATION

TB Elimination Tuberculosis: General Information

What is TB?

Tuberculosis (TB) is a disease caused by germs that are spread from person to person through the air. TB usually affects the lungs, but it can also affect other parts of the body, such as the brain, the kidneys, or the spine. A person with TB can die if they do not get treatment.

What are the Symptoms of TB?

The general symptoms of TB disease include feelings of sickness or weakness, weight loss, fever, and night sweats. The symptoms of TB disease of the lungs also include coughing, chest pain, and the coughing up of blood. Symptoms of TB disease in other parts of the body depend on the area affected.

How is TB Spread?

TB germs are put into the air when a person with TB disease of the lungs or throat coughs, sneezes, speaks, or sings. These germs can stay in the air for several hours, depending on the environment. Persons who breathe in the air containing these TB germs can become infected; this is called latent TB infection.

What is the Difference Between Latent TB Infection and TB Disease?

People with latent TB infection have TB germs in their bodies, but they are not sick because the germs are not active. These people do not have symptoms of TB disease, and they cannot spread the germs to others. However, they may develop TB disease in the future. They are often prescribed treatment to prevent them from developing TB disease.

People with TB disease are sick from TB germs that are active, meaning that they are multiplying and destroying tissue in their body. They usually have

symptoms of TB disease. People with TB disease of the lungs or throat are capable of spreading germs to others. They are prescribed drugs that can treat TB disease.

What Should I Do if I Have Spent Time with Someone with Latent TB Infection?

A person with latent TB infection cannot spread germs to other people. You do not need to be tested if you have spent time with someone with latent TB infection. However, if you have spent time with someone with TB disease or someone with symptoms of TB, you should be tested.

What Should I Do if I Have Been Exposed to Someone with TB Disease?

People with TB disease are most likely to spread the germs to people they spend time with every day, such as family members or coworkers. If you have been around someone who has TB disease, you should go to your doctor or your local health department for tests.

How Do You Get Tested for TB?

There are tests that can be used to help detect TB infection: a skin test or TB blood tests. 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. A person given the tuberculin skin test must return within 48 to 72 hours to have a trained health care worker look for a reaction on the arm. The TB blood tests measure how the patient's immune system reacts to the germs that cause TB.

What Does a Positive Test for TB Infection Mean?

A positive test for TB infection only tells that a person has been infected with TB germs. It does not tell whether or not the person has progressed to TB disease. Other tests, such as a chest x-ray and a sample of sputum, are needed to see whether the person has TB disease.

What is Bacille Calmette–Guèrin (BCG)?

BCG is a vaccine for TB disease. BCG is used in many countries, but it is not generally recommended in the United States. BCG vaccination does not completely prevent people from getting TB. It may also cause a false positive tuberculin skin test. However, persons who have been vaccinated with BCG can be given a tuberculin skin test or TB blood test.

Why is Latent TB Infection Treated?

If you have latent TB infection but not TB disease, your doctor may want you to take a drug to kill the TB germs and prevent you from developing TB disease. The decision about taking treatment for latent infection will be based on your chances of developing TB disease. Some people are more likely than others to develop TB disease once they have TB infection. This includes people with HIV infection, people who were recently exposed to someone with TB disease, and people with certain medical conditions.

How is TB Disease Treated?

TB disease can be treated by taking several drugs for 6 to 12 months. It is very important that people who have TB disease finish the medicine, and take the drugs exactly as prescribed. If they stop taking the drugs too soon, they can become sick again; if they do not take the drugs correctly, the germs that are still alive may become resistant to those drugs. TB that is resistant to drugs is harder and more expensive to treat. In some situations, staff of the local health department meet regularly with patients who have TB to watch them take their medications. This is called directly observed therapy (DOT). DOT helps the patient complete treatment in the least amount of time.

Additional Information

CDC. Questions and Answers About TB
<http://www.cdc.gov/tb/publications/faqs/default.htm>

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

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National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Division of Tuberculosis Elimination



CS227949_A

October 2011

CLIENT EDUCATION

Tuberculosis Facts – TB Can Be Treated

What is TB?



“TB” is short for a disease called tuberculosis. TB is spread through the air from one person to another. TB germs are passed through the air when someone who is sick with TB disease of the lungs or throat coughs, speaks, laughs, sings, or sneezes. Anyone near the sick person can breathe TB germs into their lungs.

TB germs can live in your body without making you sick. This is called **latent TB infection**. This means you have only inactive (sleeping) TB germs in your body. The inactive germs cannot be passed on to anyone else. However, if these germs wake up or become active in your body and multiply, you will get sick with TB disease.

When TB germs are active (multiplying in your body), this is called **TB disease**. These germs usually attack the lungs. They can also attack other parts of the body, such as, the kidneys, brain, or spine. TB disease will make you sick. People with TB disease may spread the germs to people they spend time with every day.

If the **TB disease** is in your lungs, you may:

- cough a lot,
- cough up mucus or phlegm (“flem”),
- cough up blood, or
- have chest pain when you cough.

You should always cover your mouth when you cough!

If you have **TB disease**, you may also:

- feel weak,
- lose your appetite,
- lose weight,
- have a fever, or
- sweat a lot at night.

These are symptoms of **TB disease**. These symptoms may last for several weeks. Without treatment, they usually get worse.

If you get **TB disease** in another part of the body, the symptoms will be different. Only a doctor can tell you if you have **TB disease**.

How do I know if I have latent TB infection or TB disease?

If you have been around someone who has **TB disease**, you should go to your doctor or your local health department for tests.



There are two tests that can be used to help detect latent TB infection: a skin test or a special TB blood test. The skin test is used most often. A small needle is used to put some testing material, called tuberculin, under the skin. In 2-3 days, you return to the health care worker who will check to see if there is a reaction to the test. In some cases, a special TB blood test is given to test for TB infection. This blood test measures how a person’s immune system reacts to the germs that cause TB.

Other tests are needed to show if you have **TB disease**. An x-ray of your chest can tell if there is damage to your lungs from TB. TB disease may be deep inside your lungs. Phlegm (“flem”) you cough up will be tested in a laboratory to see if the TB germs are in your lungs.

If TB disease is in your lungs or throat, you can give TB germs to your family and friends. They can get sick with TB disease. You may have to be separated from other people until you can’t spread TB germs. This probably won’t be for very long, if you take your medicine as your health care provider instructs.

Can TB be treated?

If you have **TB infection**, you may need medicine to prevent getting TB disease later. This is called “preventive” treatment.

TB disease can also be treated by taking medicine. It is very important that people who have **TB disease** finish the medicine, and take the drugs exactly as they are told. If they stop taking the drugs too soon, they can become sick again. If they do not take the drugs correctly, the germs that are still alive may become difficult to treat with those drugs.



It is very important that you take your medicine as your doctor recommends. It takes at least six months to one year to kill all the TB germs.

Protect your family and friends from TB — take all your TB drugs!



DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
Division of Tuberculosis Elimination
www.cdc.gov/tb
October 2008



SYMPTOMATIC

- If at any point the client is notably symptomatic, they are masked and are immediately escorted to the “acute” room.
- Further assessment/screening are completed along with a TST and Chest X-ray referral.
- HIV and STD testing is also offered

3 TYPES OF CLIENTS

- There are three (3) types of clients that could be present at a Clinic



Healthy



Sick



Pre-existing

SCREENING/ASSESSMENT

- Clients who have drug allergies, or pre-existing health conditions are directed to the Medical Screening Station for the assessment of the appropriate drug/dosage.



Counseling



Screening



SCREENING/ASSESSMENT

- The client discusses a symptom review and medical history with health care provider.



TESTING/PLACEMENT

- Clients leave Forms Review or Medical Screening/Assessment (if appropriate) and are directed to Testing/Placement. The Testing/Placement Station is where the client receives their TST skin test

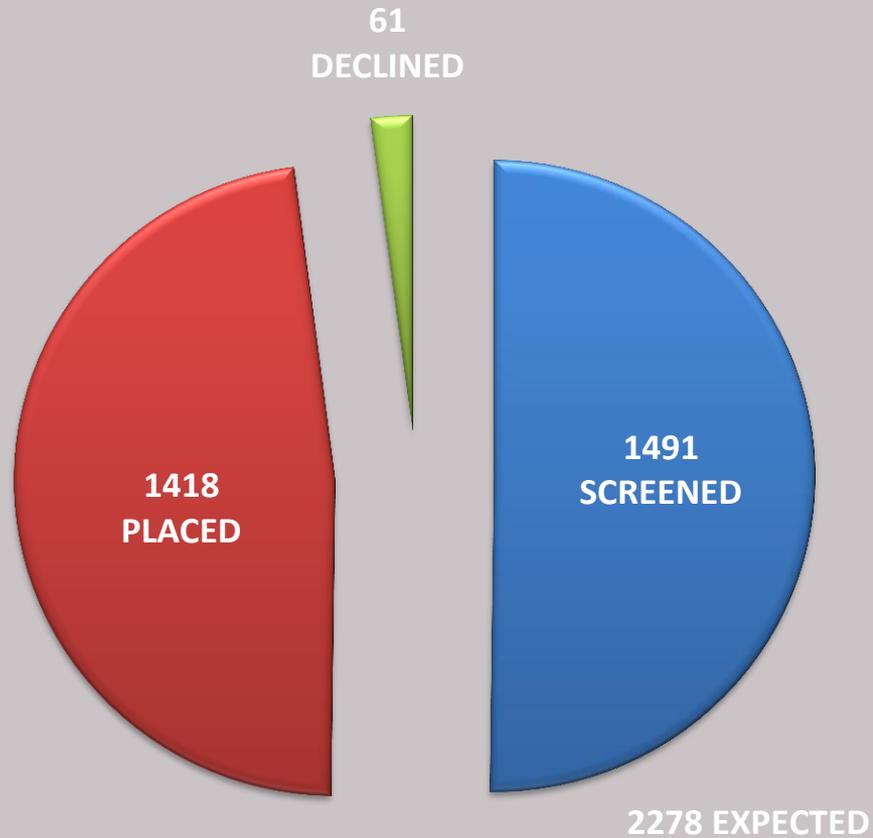


EXIT EDUCATION

- Exit Education and Form Collection is where the client is provided additional information in regard to the vaccine or medication that they have just received. This will include directions on taking any medication and other relevant information.

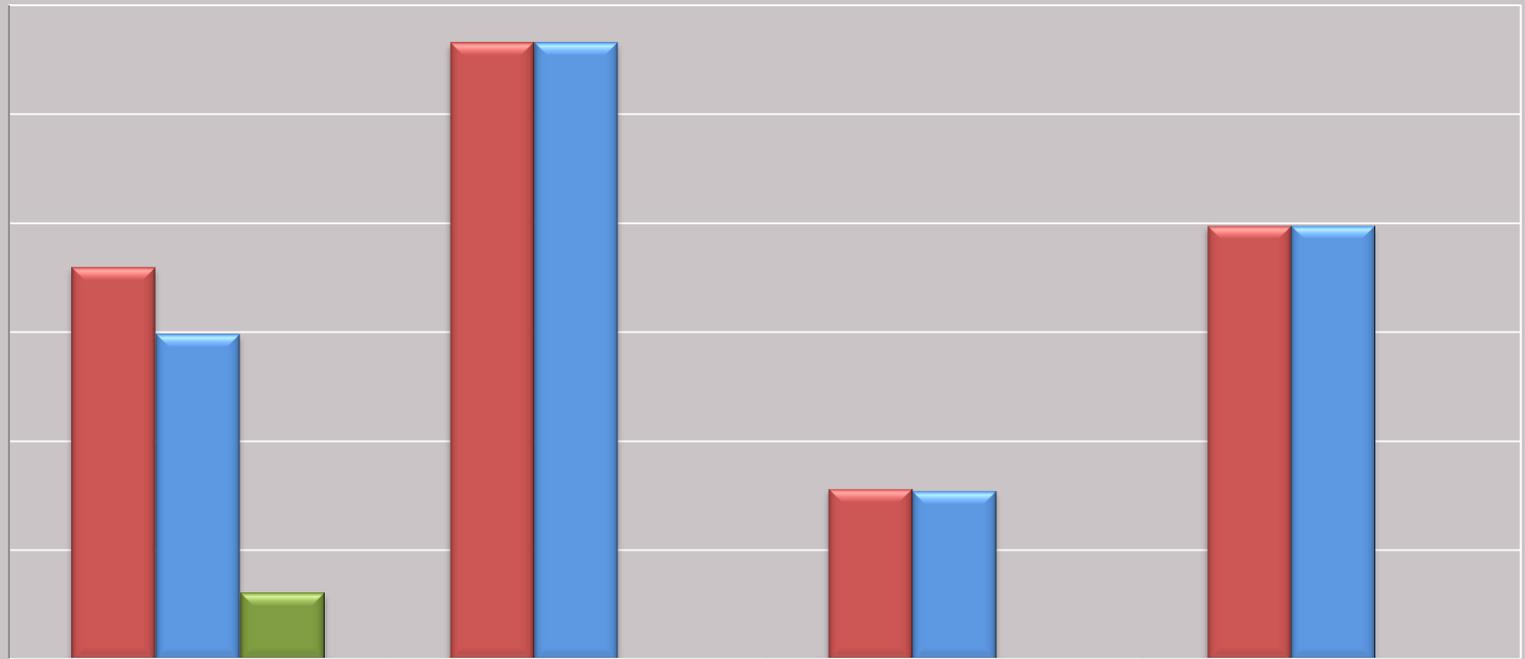


HSR1 CLINIC RESULTS EXAMPLE



HSR1 CLINIC EXAMPLES

Total TB Clinic Numbers



	CLINIC 1	CLINIC 2	CLINIC 3	CLINIC 4
SCREENED	360	566	157	398
PLACED	299	566	155	398
DECLINED	61	0	0	0

READING RESULTS

- 48 to 72 hours after testing results need to be read. Ideally 48 hours
- If not read within the 48-72 hour window, their TST will need to be retested