Annual Tuberculosis (TB) Education

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VDH VIRGINIA DEPARTMENT OF HEALTH
To protect the health and promote the well-being of all people in Virginia.

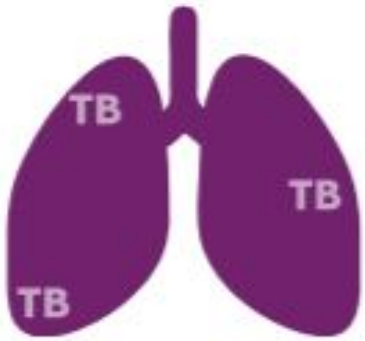
Overview

- Tuberculosis Disease vs. Latent Tuberculosis Infection
- Risk Assessment, Screening and Testing
- TB Transmission
- Infection Control
- TB Symptoms
- TB Testing
- LTBI Treatment

Tuberculosis

- Tuberculosis (TB) is caused by a bacterium called *Mycobacterium tuberculosis*.
- The bacteria usually attack the lungs, but TB bacteria can attack any part of the body.
- Not everyone infected with TB bacteria becomes sick.
  - Latent TB infection (LTBI)
  - TB disease

LTBI vs. TB Disease



Latent TB Infection

Latent TB infection means TB germs are in the body, but not enough to cause sickness or spread germs to others.

TB Disease

If TB germs become active & multiply, latent TB infection can turn into TB disease.

TB Screening, Testing and Treatment of U.S. Healthcare Personnel

Updated guidance released in May of 2019 to supplement the 2005 guidelines for preventing the transmission of *Mycobacterium tuberculosis* in healthcare settings

Morbidity and Mortality Weekly Report

Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019

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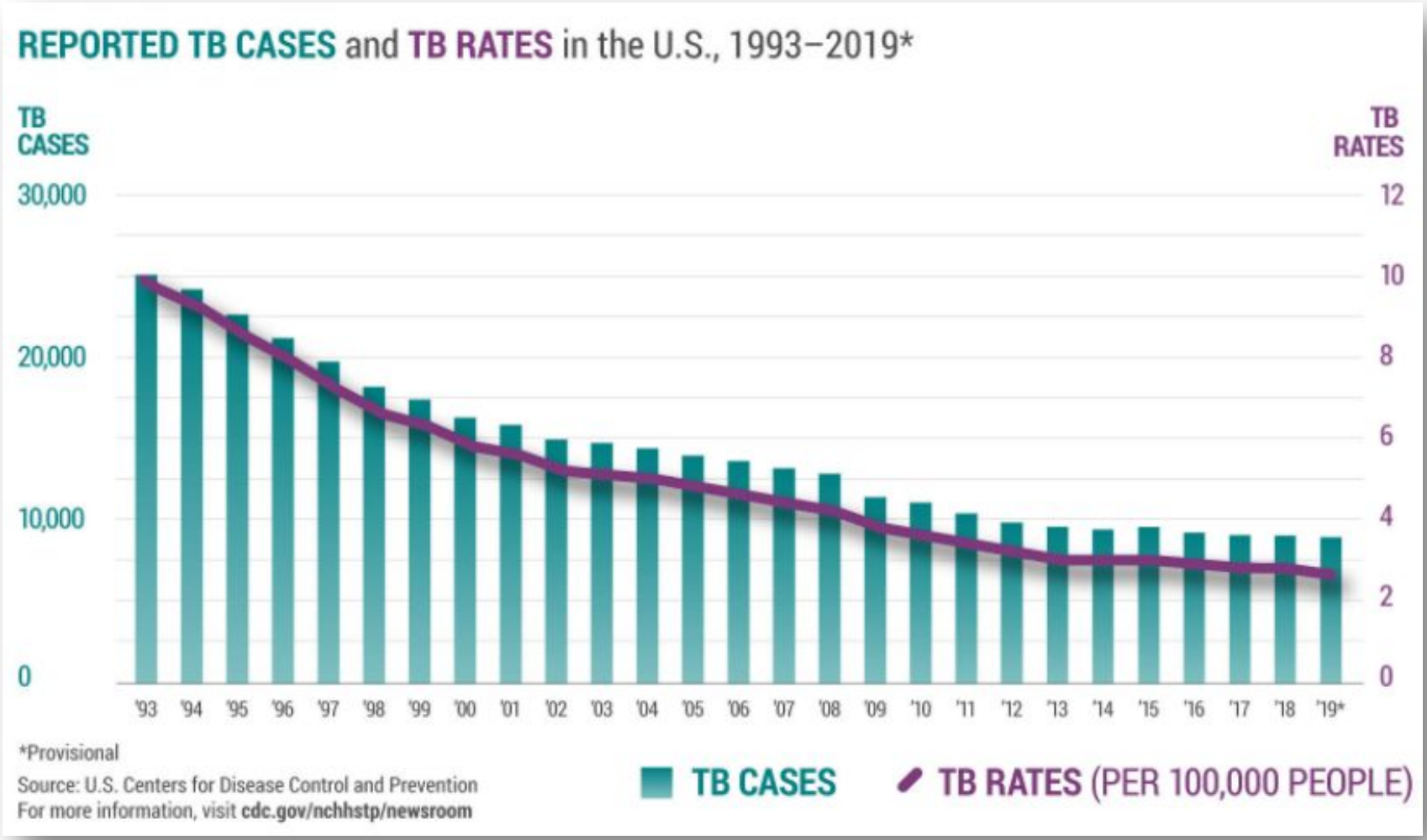
TB in the United States



TB Screening, Testing and Treatment of U.S. Healthcare Personnel

Baseline Preplacement Screening and Testing

Health Care Personnel (HCP)
Baseline Individual TB Risk Assessment

HCP should be considered at increased risk for TB if any of the following statements are marked "Yes":

Temporary or permanent residence of ≥1 month in a country with a high TB rate
Any country other than the United States, Canada, Australia, New Zealand, and those in Northern Europe or Western Europe
YES ☐ NO ☐

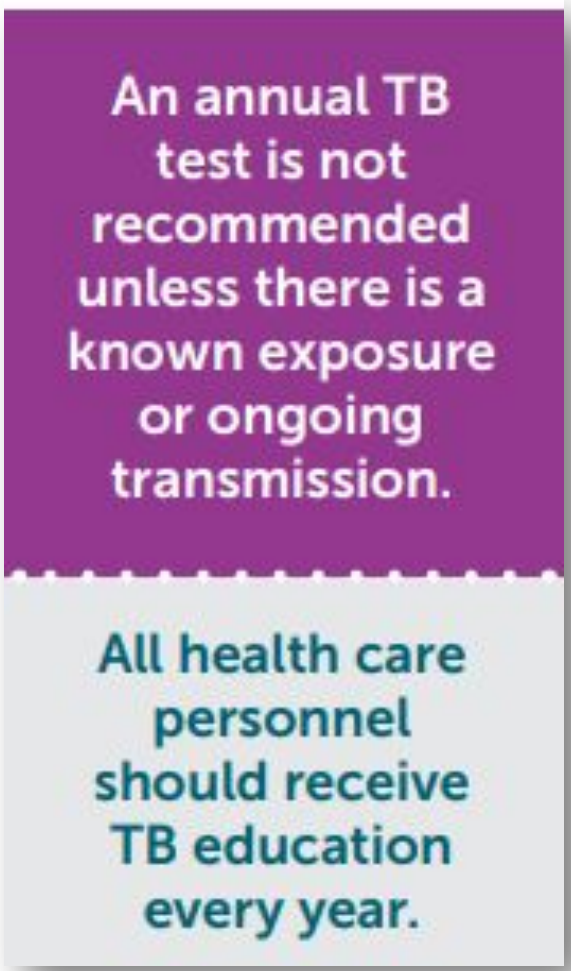
OR

Current or planned immunosuppression,
including human immunodeficiency virus (HIV) infection, organ transplant recipient, treatment with a TNF-alpha antagonist (e.g., infliximab, etanercept, or other), chronic steroids (equivalent of prednisone ≥15 mg/day for ≥1 month) or other immunosuppressive medication
YES ☐ NO ☐

OR

Close contact with someone who has had infectious TB disease since the last TB test
YES ☐ NO ☐

Annual TB Testing

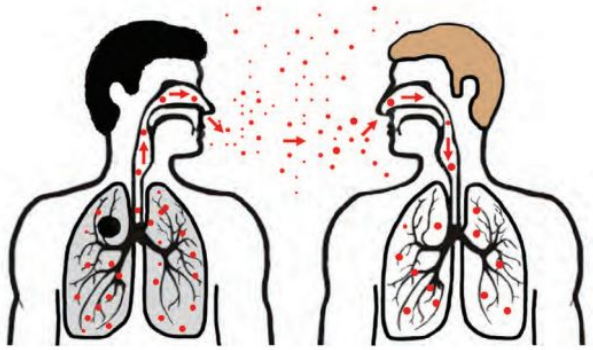


- Certain groups of HCP at high risk of TB exposure at work may still be tested annually (e.g., clinicians working in a TB clinic).
- You will be notified if you are in one of these groups.

TB Screening/Testing after Exposure

- HCP who have an exposure to TB at work will be tested immediately after the exposure and again 8-10 weeks after the exposure.
- HCP who have an exposure outside of work should report potential exposure to occupational health and should be tested.
- Exposures outside of work could include:
  - Spending more than 30 days in a country where TB is common
  - Having close contact with someone with active TB
  - Working in a healthcare setting in a country where TB is common

TB Transmission/Exposure



Airborne

- *M. tuberculosis* is carried in airborne particles
- When a person who has TB in the lungs or throat coughs, sneezes, shouts or sings, particles are released into the air.
- Depending on the environment, TB can remain suspended in the air for several hours.
- Transmission/exposure occurs when a person breathes in the bacteria from the air. The bacteria can move from the lungs through the blood to other parts of the body.
  - TB not in the lungs or throat is not considered infectious.

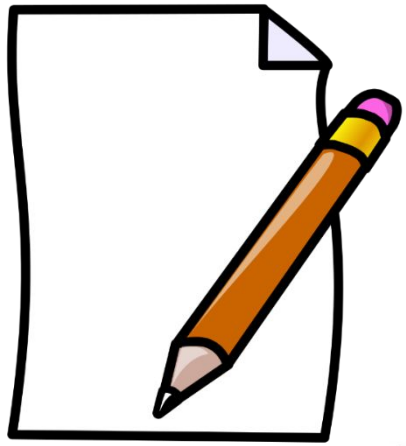
TB – Probability of Transmission

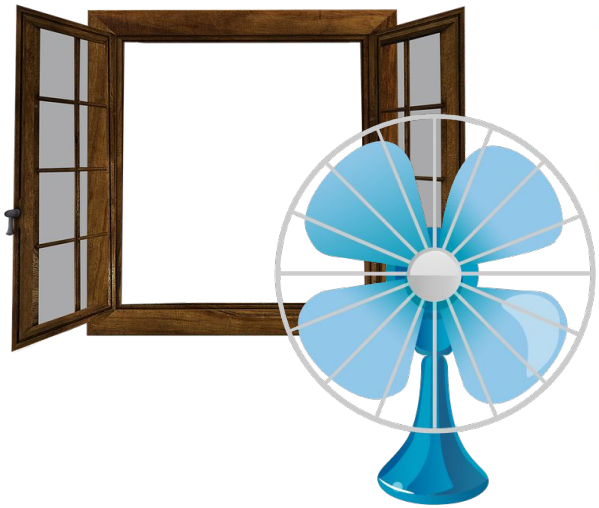
Many factors impact the probability of transmission of *M. tuberculosis:*

- Susceptibility of the person exposed
- Infectiousness of the person with active TB
- Environment
  - Space
  - Ventilation
  - Air circulation
  - Specimen handling
  - Air pressure
  - Concentration of infectious droplet nuclei
- Exposure
  - Use of personal protective equipment (PPE)
  - Proximity
  - Length

Infection Control

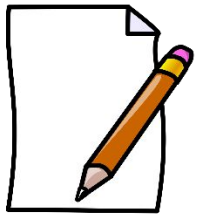
- Administrative Controls
- Environmental Controls
- Respiratory Protection





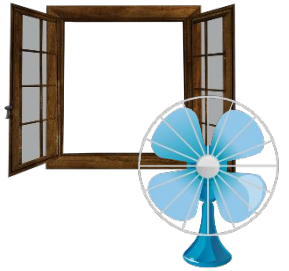
Administrative Controls

- Implement effective work practices to manage patients who may have TB disease
- Test and evaluate HCP at risk for TB exposure
- Education and training
  - This annual education!
  - Posters/signs about cough etiquette & respiratory hygiene



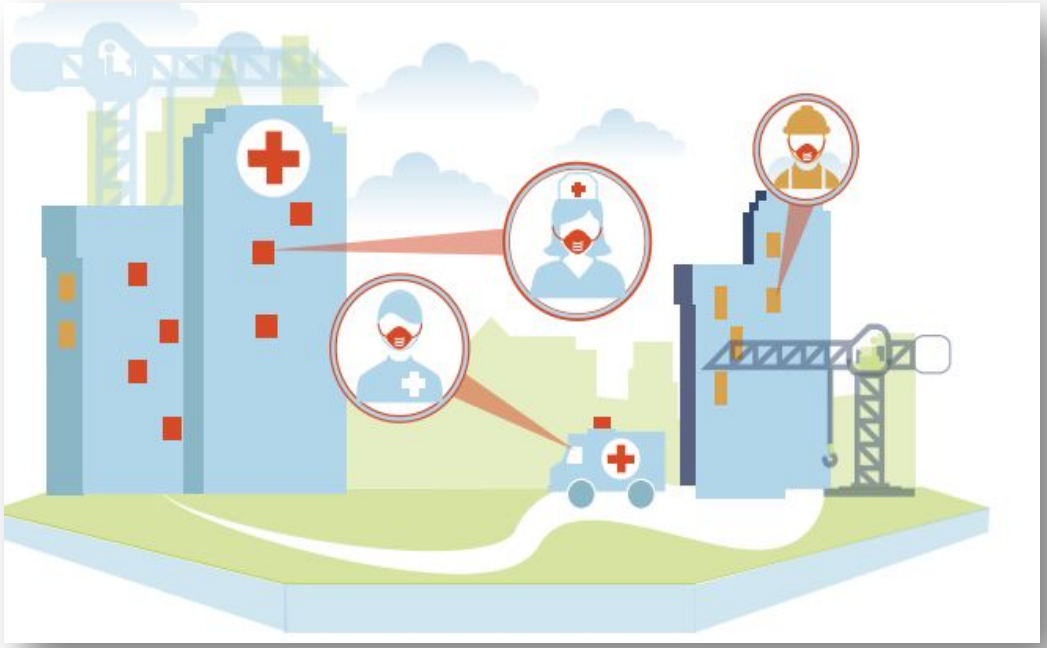
Environmental Controls

- Ventilation
  - Natural (windows, doors)
  - Mechanical
    - Equipment to circulate & move air
    - Dilution and removal of contaminated air
  - Airborne isolation rooms (negative pressure)
- Cleaning
  - High efficiency particulate air (HEPA) filters
  - Ultraviolet germicidal irradiation (UVGI)



Respiratory Protection

- Use of Personal Protective Equipment (PPE)
- If you work with TB patients, you will be enrolled in the respiratory protection program and will be medically evaluated and fit-tested annually for an appropriate respirator.



TB Incubation Period

- Weeks
- Years
- Lifetime

TB Symptoms

- Pulmonary TB Disease
  - Cough
  - Hemoptysis (blood in cough or sputum)
  - Unexplained weight loss/loss of appetite
  - Night sweats
  - Fever
  - Fatigue
- Extrapulmonary TB Disease
  - Related to body part affected by the disease
  - Could also include weight loss, night sweats, fever, fatigue etc.

TB Testing and Diagnosis

- Two methods for detection of TB infection:
  - Mantoux tuberculin skin test (TST)
  - Interferon-gamma release assays (IGRAs)
    - QuantiFERON-TB Gold Plus (QFT-Plus)
    - T-SPOT.*TB* test
- Medical history
- Physical examination
- Chest x-ray
- Bacteriologic examination of clinical specimens

TB Testing and Diagnosis

- At hire or after an exposure, if you have a positive test for LTBI, you will have a chest x-ray performed to rule out active disease. If your x-ray is normal, LTBI treatment will be offered.
- Completing treatment for LTBI means that your infection will not progress to active disease so you will not become sick or make others sick at work or at home.
- If you refuse treatment, you will receive an annual symptom review and encouragement to start treatment

LTBI Treatment

	DRUG	DURATION	FREQUENCY	TOTAL DOSES	DOSE AND AGE GROUP
Preferred	ISONIAZID† AND RIFAPENTINE†† (3HP) 	3 months	Once weekly	12	**Adults and children aged ≥12 yrs** INH: 15 mg/kg rounded up to the nearest 50 or 100 mg; 900 mg maximum RPT: 10–14.0 kg; 300 mg 14.1–25.0 kg; 450 mg 25.1–32.0 kg; 600 mg 32.1–49.9 kg; 750 mg ≥50.0 kg; 900 mg maximum
					Children aged 2–11 yrs INH†: 25 mg/kg; 900 mg maximum RPT††: See above
	RIFAMPIN§ (4R) 	4 months	Daily	120	**Adults:** 10 mg/kg; 600 mg maximum
					Children: 15–20 mg/kg; 600 mg maximum
	ISONIAZID† AND RIFAMPIN§ (3HR) 	3 months	Daily	90	**Adults** INH†: 5 mg/kg; 300 mg maximum RIF§: 10 mg/kg; 600 mg maximum
					Children INH†: 10-20 mg/kg#; 300 mg maximum RIF§: 15-20 mg/kg; 600 mg maximum
Alternative	ISONIAZID† (6H/9H)	6 months	Daily	180	**Adults** Daily: 5 mg/kg; 300 mg maximum Twice weekly: 15 mg/kg; 900 mg maximum
			Twice weekly¶	52	
		9 months	Daily	270	**Children** Daily: 10-20 mg/kg#; 300 mg maximum Twice weekly: 20–40 mg/kg#; 900 mg maximum
			Twice weekly¶	76	

Source: www.cdc.gov/tb/topic/treatment/pdf/LTBITreatmentRegimens.pdf

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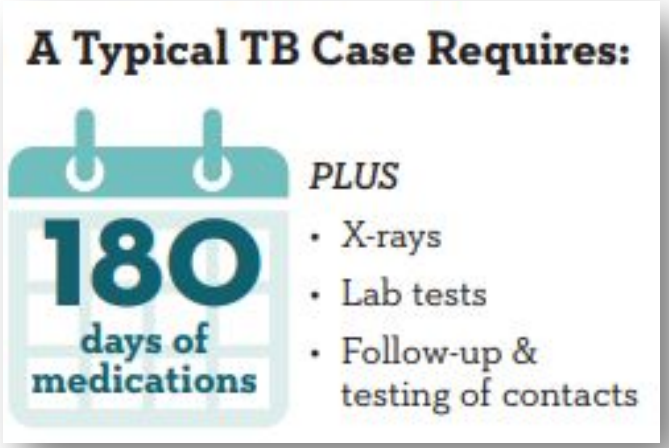
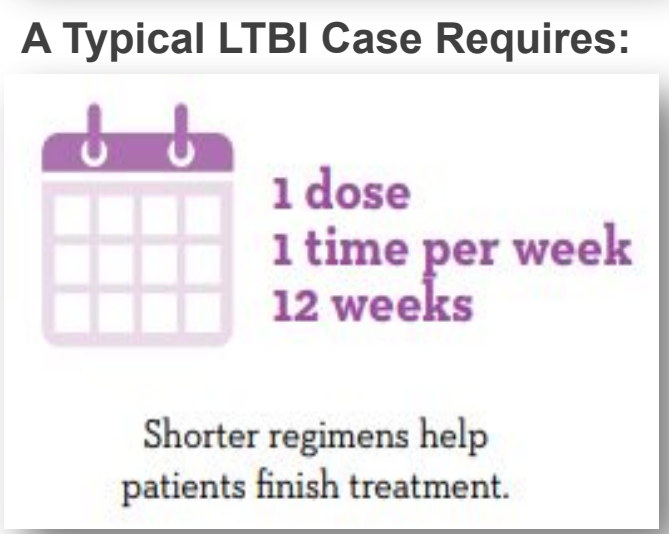
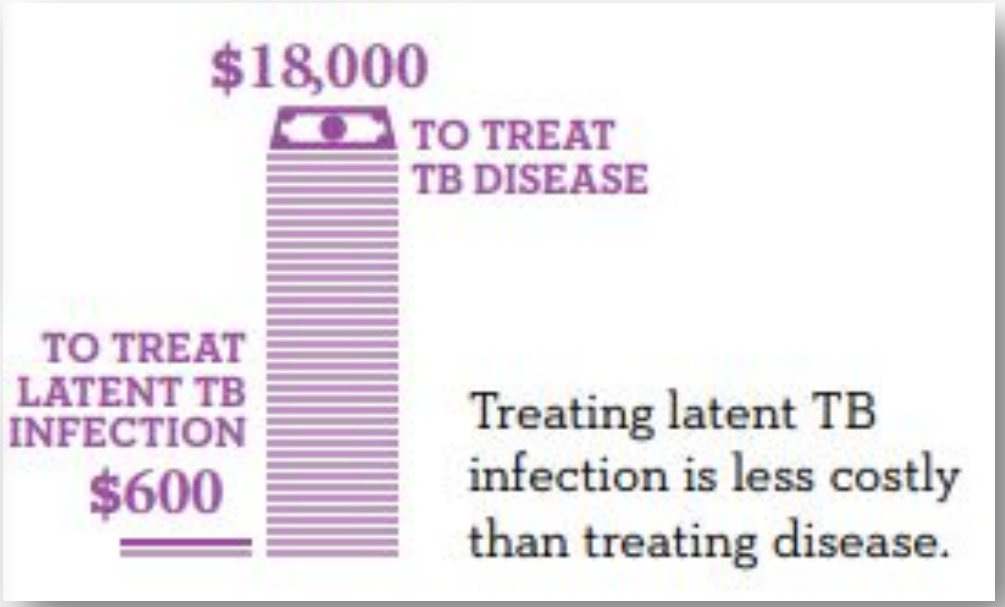
Financial and Personal Cost of LTBI vs. TB





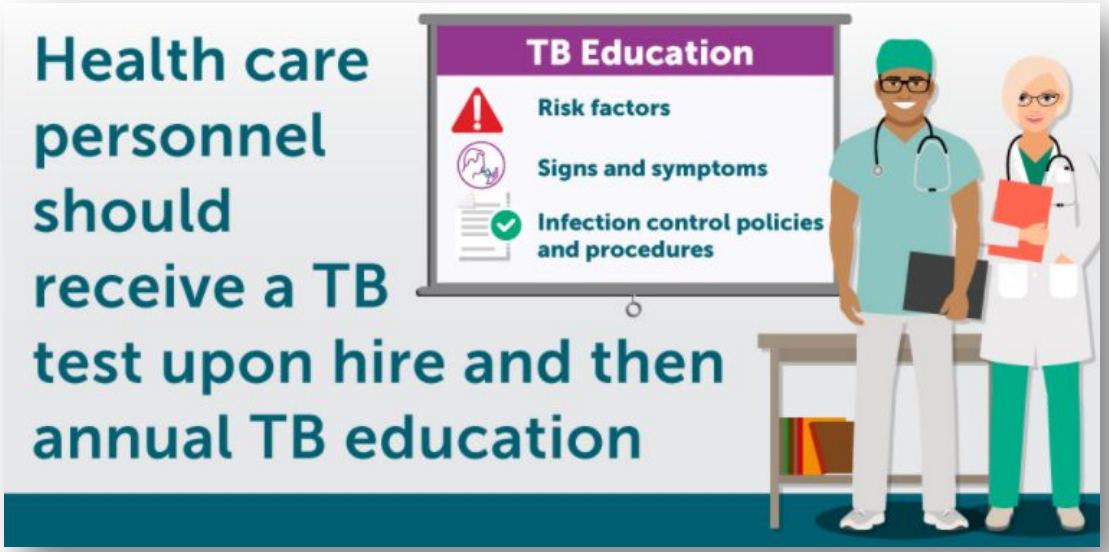


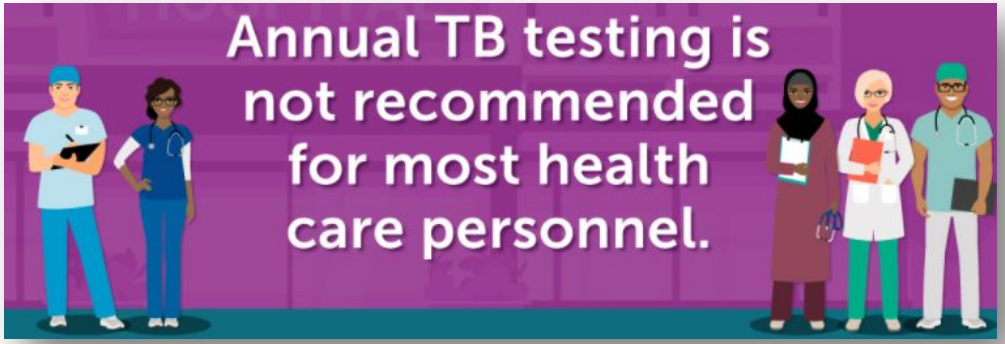
Risk Factors

Certain medical conditions and risk factors make it more likely that an individual will progress from LTBI to TB disease:

- HIV infection
- Substance abuse
- Silicosis
- Diabetes mellitus
- Severe kidney disease
- Low body weight
- Organ transplants
- Head and neck cancer
- Medical treatments such as corticosteroids or organ transplant
- Specialized treatment for rheumatoid arthritis or Crohn's disease

Key Points


Health care personnel should receive a TB test upon hire and then annual TB education
TB Education
Risk factors
Signs and symptoms
Infection control policies and procedures


Annual TB testing is not recommended for most health care personnel.


Treatment is strongly encouraged for health care personnel diagnosed with latent TB infection

Questions?