

Healthcare Happenings: IPC Highlight

Tuberculosis

WHAT IS IT?

- ✚ TB is caused by a slow-growing bacterium called *Mycobacterium tuberculosis* (*M. tuberculosis*).
- ✚ When bacteria enter the lungs, they are usually walled off into granulomas by the body's immune system, causing infection (**latent TB infection, LTBI or TBI**).
 - Granulomas may later re-activate weeks, months, or decades later causing **active TB disease (TBD)**.
- ✚ For immunocompromised persons, especially those living with HIV infection, the risk of developing TBD is much higher.
- ✚ When a TBD patient is reported, the Philadelphia Department of Public Health TB Control program investigates to identify contacts for testing. This process is referred to as **contact tracing**.

What you need to know

- TB bacteria usually cause infection in the lungs but **can infect any part of the body**.
- **5 to 10%** of persons with TBI who do not receive preventative treatment will develop TBD
- Risk for TBD is **higher** for person with weakened immune systems.
- TB bacteria are spread **through the air** from one person to another.

TRANSMISSION

TB bacteria are transmitted by inhalation of infectious aerosols (small droplets; airborne transmission) produced by persons with pulmonary or laryngeal TBD while coughing, laughing, shouting, singing or sneezing. Persons nearby may breathe in these bacteria and become infected. Transmission can also occur during any procedure in which an aerosol containing *M. tuberculosis* is generated, including sputum induction, treatment using a nebulizer, bronchoscopy, drainage of an open abscess, and autopsy.

DIAGNOSIS AND TESTING

All persons with either symptoms or a positive TB test result should be evaluated for possible TBD. If a person has [symptoms consistent with TBD](#), but has a negative screening TB test, they should still be further evaluated for TBD. TBD in the lungs may cause symptoms such a persistent cough that lasts 3 weeks or longer, chest pain, and coughing up blood (hemoptysis) or sputum (phlegm from deep inside the lungs).

Diagnosis of TBI

A diagnosis of TBI is made if a person has a **positive TB test result**, such as a tuberculin skin test (TST) or a gamma interferon release assay (IGRA), a **normal chest X-ray (CXR)**, is **asymptomatic**, and a **medical evaluation is within normal limits**. All persons with TBI should be offered chemoprophylaxis to reduce the likelihood of developing TBD later in life.

Diagnosis of TBD

The reporting of confirmed or suspected Tuberculosis by laboratories and clinical providers is **mandated** by both the State of Pennsylvania (**35 P.S. § 521.1 et seq., 28 Pa. Code § 27.81 et seq.**) and the City of Philadelphia (**Philadelphia Health Code § 6-104 et seq**) law. Reports must be received at the Health Department **within 24 hours** of diagnosis, specimen collection or start of anti-TB treatment. People suspected or confirmed of having TBD should also be referred for a complete medical evaluation. Medical evaluations should include the following:

- ✚ Medical History
- ✚ Physical Examination
- ✚ TST or IGRA
- ✚ CXR
- ✚ Diagnostic Microbiology

INFECTION PREVENTION AND CONTROL (IPC) RECOMMENDATIONS

What to do if you suspect a patient has TBD

- ✚ Admit the patient to a single room or private negative pressure room (airborne isolation), if possible and keep the door shut
- ✚ Cease communal activities or dining until a TBD diagnosis is ruled out
- ✚ Notify staff
- ✚ Use [airborne precautions](#)
- ✚ The patient should wear a surgical mask when not in private negative pressure room
- ✚ ***Note:** TBI is not contagious, TBI patients can do normal activities and be in a room with others

References:

[tuberculosis.pdf \(thoracic.org\)](#)

<https://www.cdc.gov/tb/topic/basics/default.htm>