



Disease Bulletin



Tuberculosis (TB) in the United States and Idaho: Ready for Elimination?

World TB Day is an annual event observed on March 24th of each year. This event commemorates the date in 1882 when Dr. Robert Koch announced his discovery of *Mycobacterium tuberculosis* as the cause of TB. The theme of World TB Day 2019 was “It’s Time!” This theme reflects the hope that TB might eventually be eliminated in the United States by emphasizing the detection and treatment of latent TB infection (LTBI).

How likely is TB elimination to occur in the near future? Not very. It is estimated that one-fourth of the world’s population is currently infected with *M. tuberculosis*,¹ and TB is now the leading infectious cause of death globally.² Although the burden of TB disproportionately affects developing countries, many people living in developed countries, including the United States, are diagnosed with LTBI or active TB disease each year. Active TB disease was reported among residents of all 50 states in 2017 with a total of 9,105 cases.³ In 2016, the most recent year for which mortality data are available, there were 528 deaths attributed to TB in the United States.³

The good news is that the incidence of active TB disease in the United States has declined over time, and has been stable in Idaho since the mid-1990s. The annual incidence rate of active TB disease in Idaho has been below the national average for over thirty years; in 2017, it was one-fifth of the national average (0.6 cases per 100,000 population in Idaho compared with 2.8 cases per 100,000 persons nationally) (Figure 1).⁴

In Idaho, active TB disease must be reported to public health authorities in accordance with IDAPA 16.02.10⁵; however, LTBI is not reportable. From 1996 through 2018 (*2018 data are provisional)

between 9 and 23 cases of active TB disease have been reported in Idaho each year (Figure 2). Similar to national trends seen from 2013 through 2018, 70% of reports of active TB disease in Idaho were in persons born outside of the United States, and Mexico was the most frequent country of origin.¹

Although most cases reported in Idaho are classified as pulmonary TB, extrapulmonary disease is also reported. Recent extrapulmonary cases have included infections of large joints (hip and knee), cervical lymph nodes (“scrofula”), spine, kidney, pleura, and central nervous system. Unfortunately, particularly with extrapulmonary sites, TB is sometimes not suspected until granulomas are seen on pathology specimens. Thus, it is important to keep TB in the differential diagnosis for both pulmonary and non-pulmonary infections and to carefully consider the epidemiologic risk factors that might make TB likely in a particular patient.

Who is at risk for TB infection?

The risk factors (discussed below) that should prompt a clinician to consider TB in a patient with an active infection are the same as those that should prompt consideration of testing for LTBI. Targeted testing and treatment of LTBI is an important TB prevention and control strategy in reducing the burden of TB globally and in Idaho. Individuals with LTBI have an estimated 5%–10% lifetime risk of developing active TB disease, but adequate treatment of LTBI can reduce this risk by at least 60%.⁶ More than 80% of U.S. TB cases are associated with reactivation of LTBI; therefore, many of these cases may have been preventable if LTBI had been diagnosed and adequately treated.⁷

BUREAU OF COMMUNICABLE DISEASE PREVENTION

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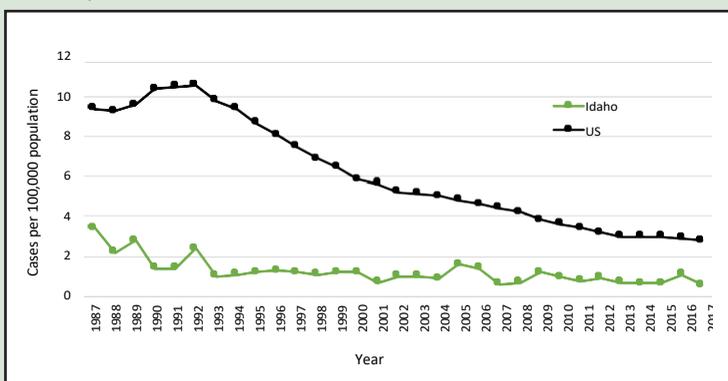
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Testing for LTBI should be targeted to persons at risk for developing active TB disease, including those who have an increased likelihood of exposure to persons with active TB disease and those with clinical conditions or other factors associated with an increased risk of progression from LTBI to active TB disease.^{8,9} These groups include:

- Known close contacts of a person with infectious TB disease;
- People born in or who frequently travel to countries where TB disease is common including Mexico, the Philippines, Vietnam, India, China, Haiti, and Guatemala. (For more information and a complete list of high burden countries, see: <http://www.stoptb.org/countries/tbdata.asp>);
- People who work or reside in facilities or institutions with people who are at high risk for TB, such as hospitals that care for TB patients, homeless shelters, correctional

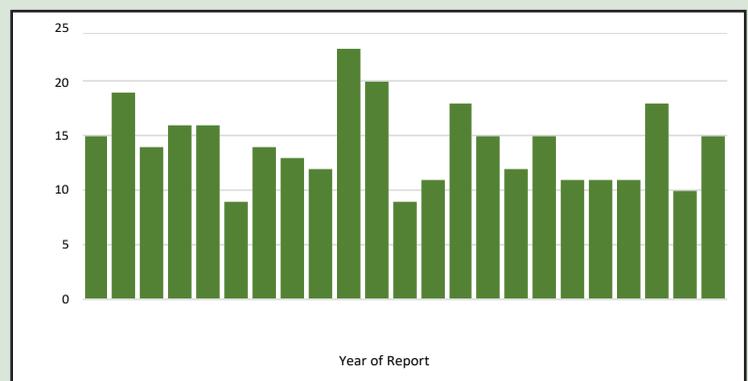
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Figure 1. Tuberculosis incidence rate per 100,000 population—Idaho and US, 1987–2017*



*Rates were calculated using July 1, 2017 population estimates retrieved from <https://www.census.gov/data/tables/2017/demo/popest/nation-total.html>

Figure 2. Tuberculosis cases reported—Idaho, 1996–2018*



*2018 data are provisional and subject to change



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An electronic version of the Idaho Reportable Diseases Rules may be found at <http://adminrules.idaho.gov/rules/current/16/0210.pdf>.

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- facilities, nursing homes, and residential homes for those with HIV; and,
- People with certain medical conditions or other factors associated with increased risk of progression from LTBI to active TB disease, including HIV infection, substance abuse, radiographic evidence of prior healed TB, low body weight (>10% below ideal body weight), and other immunocompromising medical conditions.⁸

LTBI Testing Options

Currently, there are two acceptable testing methods for detection of LTBI: the Mantoux tuberculin skin test (TST) and interferon-gamma release assays (IGRAs). The TST is the traditional method of LTBI testing. Two significant downsides of the TST are the need for two separate clinic visits and the potential for a false-positive reaction in individuals who have received the BCG vaccine. Nevertheless, the TST is still the preferred test in children <5 years of age,¹⁰ although some experts will use IGRAs in children as young as 2 years.¹¹ IGRAs are an alternative to the TST. Currently available IGRAs include the QuantiFERON®-TB Gold-in-Tube test (QFT-GIT) and the T-SPOT® TB test. These blood tests measure the immune response to TB proteins in whole blood and require only a single visit by the patient. They are the preferred method of TB testing in individuals ≥5 years who have a history of BCG vaccination (which

includes many foreign-born patients) and in groups of people who have poor rates of return for TST reading and interpretation (e.g., homeless persons). IGRAs are also acceptable methods of testing in other groups except very young children.⁸

Treatment of LTBI

Treatment of LTBI is a cornerstone of the goal of TB elimination in the United States and should be considered in individuals who have been diagnosed with LTBI. However, it is imperative to rule out active TB disease with full symptom review, physical exam, and chest x-ray prior to initiating LTBI treatment. Once the decision to treat for LTBI is made, the treating provider may consider four different CDC-recommended regimens that use isoniazid (INH), rifapentine (RPT), and/or rifampin (RIF). If possible, a shorter regimen should be prescribed as patients are more likely to complete treatment. The shortest LTBI regimen consists of 12 once-weekly doses of INH and RPT, often referred to as “3HP.” Initially approved only for directly-observed therapy, in June 2018 CDC expanded its guidance to include the option of self-administered therapy for certain highly-motivated patients. The National Tuberculosis Controllers Association produced helpful provider guidance on the use of the 3HP regimen found here: http://www.tbcontrollers.org/docs/resources/3hp/NTCA_Provider_Guidance_3HP_11918.pdf

Additional Resources

Staff in the Idaho Department of Health and Welfare’s Tuberculosis Program (including Scott Hutton, PhD, Christine Hahn, MD, and Marcia Witte, MD) work collaboratively with each of the 7 local public health districts (PHDs) to provide support to providers who have patients diagnosed with active TB disease or LTBI. (The following website shows PHD boundaries <https://healthandwelfare.idaho.gov/Health/HealthDistricts/tabid/97/Default.aspx>). Please feel free to contact the Idaho TB program (208-334-5939) or your local PHD with questions. Public health staff are available to answer any questions providers might have and, in some circumstances, assist logistically and financially with diagnostic testing and treatment.

Report patients diagnosed with active TB disease to the Idaho TB Program or the PHD where the patient resides; the case will be actively managed to ensure completion of treatment and an appropriate contact investigation will be undertaken. In most cases, treatment of active TB disease can be managed through clinics that collaborate with the PHDs, and all medication costs not paid for by insurance may be covered.

The theme for World TB Day 2019 was “It’s Time!” It’s time to end TB, and public health is here to help.

REFERENCES ARE AVAILABLE IN THE ELECTRONIC VERSION OF THIS BULLETIN.

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