



Philadelphia TB Newsletter

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WORLD TB DAY EDITION

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Tuberculosis Control Program
500 S. Broad Street, 2nd Floor
Philadelphia, PA 19146

Michael Nutter
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TB Program Director

The Philadelphia TB Newsletter is a publication that is intended to be a resource for clinicians, infection control personnel, and laboratories who diagnose, treat, and/or report tuberculosis (TB) in Philadelphia. It provides treatment updates and recommendations, reviews local and national TB epidemiology, and presents case studies.

Contributing to this issue:

Destani Bizune
CDC Public Health Associate
Program Fellow

Christina Dogbey-Smith, MPH
TB Epidemiologist
Editor

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World TB Day 2015

Christina Dogbey-Smith, MPH
Epidemiologist, Tuberculosis Control Program

World TB Day is observed annually on March 24th in order to raise awareness about the threat of TB and the steps needed to control the disease. World TB Day also commemorates the discovery of the TB bacillus by Dr. Robert Koch in March 1882. At that time, TB killed one in seven people in the United States and Europe. Although this disease can be cured and controlled, TB still remains the second leading cause of death among infectious diseases in the world.

Tuberculosis continues to be one of the world's deadliest infectious diseases. According to the World Health Organization (WHO), in 2013, there were an estimated 9 million incident cases of TB, 1.1 million of those cases being among persons infected with HIV and 1.5 million deaths from TB worldwide. (WHO, 2015). However, the WHO estimates that 37 million lives were saved between 2000 and 2013 through improvements in diagnosis and treatment of TB.

As more progress is made with the surveillance of drug resistant TB, the global health community is developing a clearer picture of the challenges presented by drug resistance. Globally, 3.5% of new and 20.5% of previously treated cases are identified as multi-drug resistant TB

(MDR-TB) with 9% of those patients having extensively drug resistant TB (XDR-TB). Five priority actions have been identified to address and curtail the

spread of drug resistant TB. These priorities include high quality treatment of drug susceptible TB and the expansion of rapid testing and detection of MDR-TB (WHO, 2015).

This year, the Centers for Disease Control and Prevention selected the theme **"Find TB. Treat TB. Working together to eliminate TB."** The focus for World TB Day 2015 is to highlight that despite the declining rate of TB in the U.S., anyone can get TB. Therefore, finding and treating persons with latent TB infection is key to stopping tuberculosis. This is part of the WHO's **"The 'missed' 3 million"** campaign which is working to focus on vulnerable populations who are infected with TB but "missed" by the health care systems around the world.



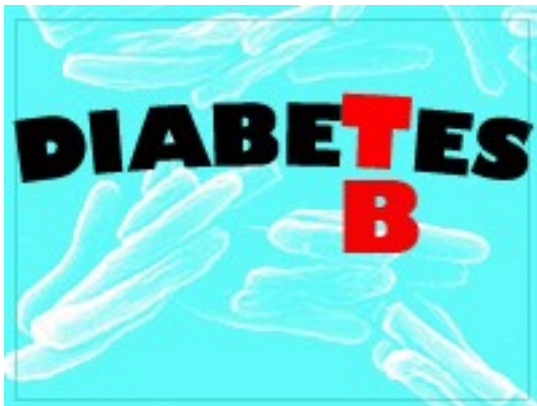
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TB in Popular Culture

- Characters with tuberculosis frequently appeared in Fyodor Dostoevsky's novels. Indeed Dostoevsky himself was a TB patient
- The novel *The Constant Gardener* by John LeCarre is about TB drugs being tested on unwitting patients in Africa and the dangers of a global pandemic of drug resistant TB
- In the 2014 film *Winter's Tale*, the protagonist falls for a girl suffering from TB
- In his autobiography *Angela's Ashes* Frank McCourt describes the prevalence of consumption (TB) in his native Ireland
- Mimi, the heroine of *La Boheme* has tuberculosis.

Dangerous Synergy: Addressing the TB-Diabetes Co-epidemic

Destani Bizune
CDC PHAP Fellow



The relationship between tuberculosis (TB) and diabetes has been noted since ancient times, with some of the first reports of co-infection appearing as early as 600 A.D.². In 1952, Dr. K.R. Boucot and colleagues published The Philadelphia Survey, which found that TB was twice as prevalent in diabetics as in non-diabetics¹, with 8.4% of the diabetic participants (n=3,106) and only 4.3% of the non-diabetic participants having a diagnosis of pulmonary TB². It also revealed that diabetics with more severe disease were twice as likely to develop tuberculosis as those with less severe disease. Since then the confluence of these two diseases has been understudied and overshadowed by other epidemics, primarily by the HIV/AIDS epidemic of the 1980s and 1990s. Only recently has the growing threat of the TB-diabetes co-epidemic has been thrust back into the spotlight.

In 2013, diabetes affected an estimated 382 million people globally, with 25.5 million of these people residing in the United States⁴. While the specific cellular or molecular mechanisms that cause diabetes to predis-

pose a person to developing TB remain unclear, we do know that diabetes is a chronic, noncommunicable disease that impairs the immune system, much like HIV/AIDS. The negative synergistic relationship between diabetes and TB has been well documented. Current research documents that people with diabetes are three times more likely to develop active TB⁴, while diabetics being treated for TB have been shown to remain contagious for longer and certain studies have suggested that these patients also have higher rates of MDR TB¹. In addition, there is growing concern that TB can make diabetes more difficult to control by exacerbating hyperglycemia and potentially predisposing patients to diabetes by causing glucose intolerance¹. Moreover, certain TB drugs, such as rifampicin, may interact poorly with oral diabetes medications, while patients with TB-diabetes using isoniazid are at an increased risk of complications like peripheral neuropathy^{1,4}. Regional studies of newly diagnosed TB patients in the United States have reported the prevalence of diabetes mellitus to be between 14% and 28%². These numbers, combined with the constant influx of immigrants prove that a swift, coordinated effort is needed to address the TB-diabetes co-epidemic.

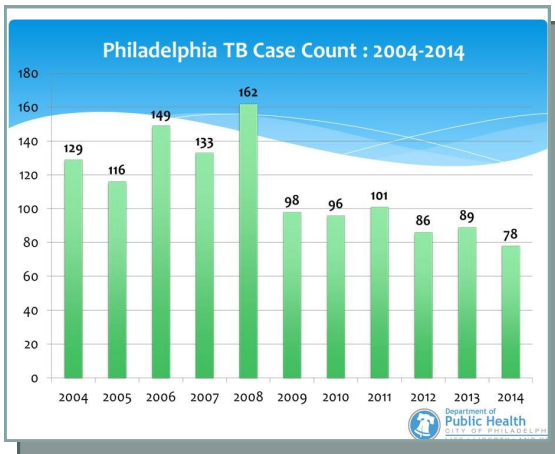
In 2011, WHO and The International Union Against Tuberculosis and Lung Disease (The Union) released a framework recom-

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Tuberculosis Surveillance Update: 2014

Christina Dogbey-Smith, MPH
TB Program Epidemiologist

In 2014, the Philadelphia TB Control Program reported 78 confirmed cases of TB. This represents a 12% decrease from the prior year when 89 new cases of TB were reported. This continues a stable trend in the number of TB Cases over the last five years during which there were generally fewer than 100



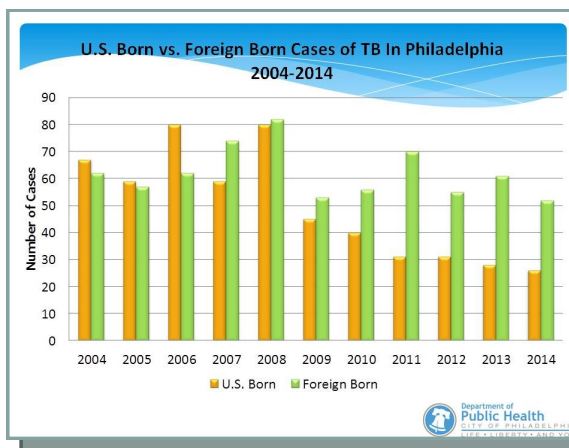
cases per year and is well below the period from 2002 to 2008 during which cases fluctuated between approximately 120 and 160 cases per year. Philadelphia TB cases represent 55% (down from 66% in 2013) of the TB cases reported in the Southeast Pennsylvania Health District and 37% of the cases in the Commonwealth of Pennsylvania for the period. The majority of cases were male (62%) and 42% were between the ages of 45-65 years. There were 2 cases among children aged 5 years or less, doubling the number of cases among very young children in 2013. Tuberculosis cases among those 65 years of age and older increased from 7% in 2013 to 24% in 2014.

Both Black or African Americans and Asian Pacific Islanders continue to be disproportionately affected by TB, with each group representing 44% of the TB cases in 2014 and 88% of the total 78 reported cases (n=68). However, 100% of the 34 Asian Pacific Islanders were born outside of the United States compared with only 35% (n=12) of Black patients, highlighting that there is still a disproportionate burden of TB among African Americans. The percentage of TB cases among white pa-

tients decreased from 20% in 2013 to 11.5% this in 2014.

TB cases among the foreign-born decreased by 9% from 57 cases last year to 52 cases in 2014, but still accounting for more than half of TB cases for the eight year in a row. During 2014, over 66% (52/78) of cases were identified among foreign-born persons. This continues to reflect the national trend of U.S. born cases steadily declining while foreign born cases remain constant, but continue to consistently exceed the number of U.S. born cases. The fifty-two foreign-born TB cases reported in 2014 originated from 16 different countries and all 6 World Health Organization (WHO) regions. The Western Pacific Region accounted for over half of the foreign-born cases since in 2014. with the greatest number coming from Vietnam.

Nearly eleven percent of confirmed cases were resistant to at least one anti-tuberculosis agent, including



one case that was multi-drug resistant (resistance to both Isoniazid and Rifampin). The World Health Organization has identified increasing drug resistance as a dis-

turbing global trend in managing and treating TB patients and continues to advocate measure to prevent drug resistance from occurring through adequate treatment of pan-susceptible TB and preventing transmission of drug resistant TB. Drug resistance emphasizes the need for timely reporting of cases and suspects, effective case management, treatment of latent TB infection and innovation for the development of new tuberculosis drugs in the near future.



Philadelphia Department of Public Health

Tuberculosis Control Program

500 S. Broad Street

Philadelphia, PA 19146

Phone: 215-685-6873 or 215-685-6744

Fax: 215-685-6477

Reporting

All TB cases and suspected cases must be reported to the TB Control Program within 24 hours of identification. To report a case or suspect, call 215-685-6873. Reports can also be faxed to 215-685-6477 or submitted through the Pennsylvania National Electronic Disease Surveillance System (PA-NEDSS). Reporting information is available on the TB Control website at www.phila.gov/health, the Health Information Portal (<https://hip.phila.gov/xv/>) or can be obtained by calling 215-685-6873.

World TB Day (cont'd)

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To commemorate World TB Day 2015, the Tuberculosis Control Program is issuing the annual World TB Day edition of the Philadelphia TB Control Newsletter. Included in this issue are surveillance updates on TB in Philadelphia, information about requirements for reporting suspected and confirmed TB cases, and more. For more information about World TB Day, please visit the World Health

Organization at: www.worldtbd.org

Did you know.....



TB and Diabetes (cont'd)

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mending that public health practitioners develop collaborative activities that respond to TB and diabetes at all levels of the health system, from creating policies, to managing disease control programs, to delivering services to individual patients. It also advocates bi-directional screening. Pilot studies in India and China have shown that bi-directional screening is feasible and can lead to earlier detection of both diseases, as well as improved outcomes for TB treatment and diabetes care⁴. Using lessons learned from the TB-HIV epidemic, we can prevent history from repeating itself again.

1. Dooley, K., & Chaisson, R. (2009). Tuberculosis and diabetes mellitus: Convergence of two epidemics. *The Lancet Infectious Diseases*, 9(12), 737-746.
2. Guptan, A., & Shah, A. (2000). Tuberculosis and Diabetes: An Appraisal. *Indian Journal of Tuberculosis*, 47(3).
3. Kapur, A., & Harries, A. (2013). The double burden of diabetes and tuberculosis - Public health implications. *Diabetes Research and Clinical Practice*, 101(1), 10-19.
4. Magee, M., et al. (2014). Diabetes mellitus and risk of all-cause mortality among patients with tuberculosis in the state of Georgia, 2009-2012. *Annals of Epidemiology*, 24(5), 369-375.
4. The Looming Co-Epidemic of TB-Diabetes: A Call to Action. (2014, October 1). Retrieved March 1, 2015, from <http://www.theunion.org/what-we-do/publications/technical/english/EMBARGOED-DMTB-REPORT-Oct-22.pdf>

Source: Doctors Without Borders Access Campaign. For more infographics about drug resistant TB visit :

<https://msfaccess.org/content/infographics-drug-resistant-tuberculosis>