2013

NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE

BUREAU OF TUBERCULOSIS CONTROL ANNUAL SUMMARY, 2013

MISSION: **The mission of the Bureau of Tuberculosis Control (BTBC) is to prevent the spread of tuberculosis (TB) and to eliminate it as a public health problem in New York City.**

GOALS:

- To identify all individuals with suspected and confirmed TB disease and ensure their appropriate treatment, ideally on directly observed therapy
- To ensure that individuals who are at high risk for progression from TB infection to active disease complete treatment for TB infection and do not develop disease

ACTIVITIES:

- Maintain a surveillance system of all TB cases and their contacts and all people suspected of having TB disease
- Ensure that providers and laboratories report suspected and confirmed TB cases to the BTBC
- Monitor and document the treatment status of all patients with active TB
- Conduct intensive case management to ensure that TB cases remain under medical supervision until treatment completion, with directly observed therapy as the standard of care
- Conduct contact investigation to identify individuals with TB disease or TB infection and ensure appropriate treatment
- Detect and manage outbreaks to prevent the spread of TB in New York City
- Set standards and guidelines and consult on all aspects of TB control, including prevention, diagnosis, and treatment of TB disease and TB infection
- Perform timely reviews of discharge and treatment plans submitted by hospitals and providers
- Operate state-of-the-art chest centers to screen for, diagnose and treat TB at no cost to the patient
- Ensure that positive TB cultures are sent to the Public Health Laboratory for drug susceptibility testing and genotyping analysis
- Use data to monitor trends, inform programmatic decision-making, and conduct research and evaluation
- Align funding allocations with program priorities
- Collaborate with community-based organizations and other agencies to improve TB prevention and control
- Ensure data confidentiality

ABOUT THIS REPORT:

This report covers calendar year 2013 and provides robust surveillance data, summaries of core program activities and highlights. The data reflect the most complete information available as of February 4, 2014. For additional details on the use of denominators and changes in this report, please see Technical Notes (page 30).

A PDF of this report and slides for select figures and tables are available at nyc.gov; search TB report

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March 24, 2014

Dear Colleagues,

This year's World TB Day theme, "One City. One World. Zero TB." reminds us that New York City's efforts to fight tuberculosis (TB) locally are intricately linked with global TB control.

In NYC, collaboration between the Health Department, community health care providers, hospitals and laboratories has led to an 83% reduction in TB cases since the peak of the epidemic in 1992. In 2013, NYC exceeded the national goal of 93% for treatment completion among TB cases, and the percentage of patients co-infected with human immunodeficiency virus (HIV) remained low at 6%. The number of patients with multidrug-resistant TB (MDR TB) was only 7, the lowest number since we started tracking MDR TB in 1991.

However, challenges remain. Last year we saw the first increase of reported TB cases in 10 years, from 651 confirmed cases in 2012 to 656 in 2013. In addition, the current NYC rate of 8.0 cases for every 100,000 people is 80 times greater than the target rate for elimination (1 case per 1 million people). It is clear that achieving "Zero TB" will require hard work and creative strategies to enhance TB detection, treatment and prevention.

Last year, TB continued to predominantly affect foreign-born New Yorkers, with 84% of NYC patients born outside the United States. This is a clear reminder that NYC's fight against TB must be viewed through a global lens. Furthermore, despite substantial progress over the past two decades, TB in U.S.-born people remains a concern, especially among disproportionately affected groups, including ethnic/racial minorities and the homeless. We must make every effort to close these gaps.

To improve efficiency and better meet our patients' needs, the Health Department's Bureau of Tuberculosis Control (BTBC) instituted several changes and initiatives in 2013. We transferred services from the Richmond Chest Center to the Health and Hospitals Corporation primary care clinic on Staten Island, and chest centers in the Bronx and Upper Manhattan reduced operating hours. We now offer video-based directly observed therapy, a more convenient alternative for our patients that also reduces our costs. We also completed a pilot study of a new treatment regimen for TB infection called "3HP," which reduces doses and shortens treatment length from nine months to three.

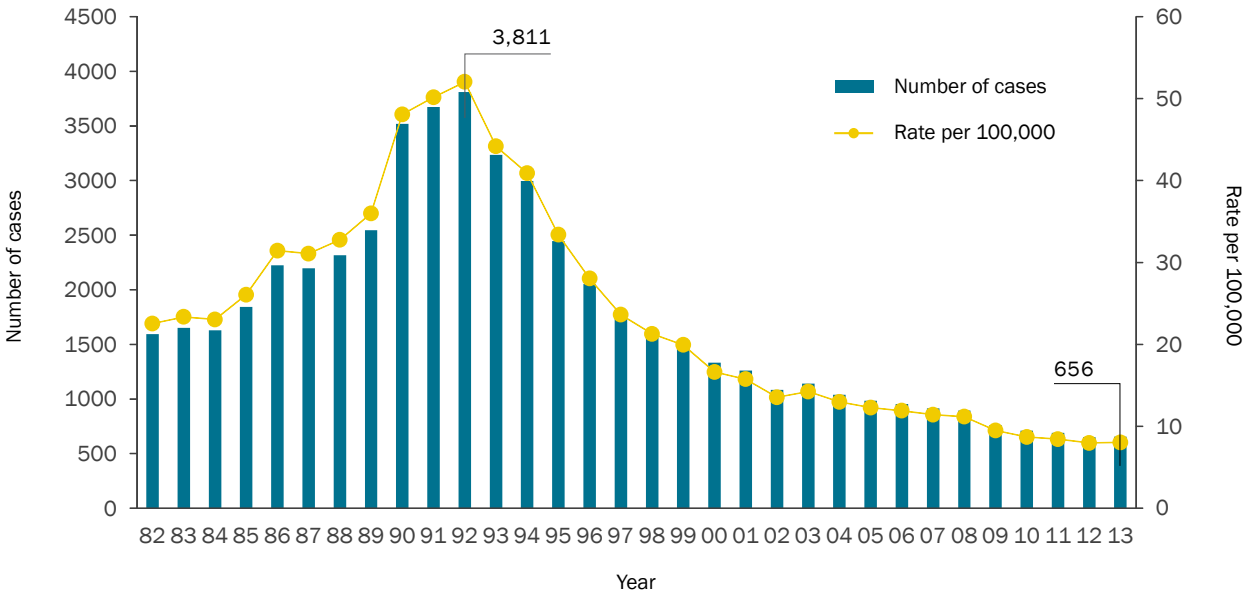
The information presented in this report reflects the hard work and dedication of providers throughout the city and the effectiveness of case management for all TB patients. I would like to extend my gratitude to the staff of the NYC Bureau of TB Control and to our many colleagues and community partners. I look forward to our continued collaboration as we work toward our mission to eliminate TB as a public health problem in NYC.

Sincerely,

Joseph N. Burzynski, MD, MPH
Assistant Commissioner, Bureau of Tuberculosis Control

In 2013, the number of confirmed tuberculosis cases in New York City was **656**, a 1% increase from 2012.

FIGURE 1: Tuberculosis cases and rates,[1] New York City, 1982-2013



1. Rates are based on decennial Census data.

EXECUTIVE SUMMARY

- The number of tuberculosis (TB) cases in New York City (NYC) increased by 1% between 2012 and 2013, from 651 to 656 cases. The rate remains unchanged at 8.0 per 100,000 but is more than twice the 2013 national rate of 3.0 per 100,000 (*provisional*).

- The majority of TB cases (48%) occurred among people 18-44 years of age, with the number of cases in this group increasing 11% from the previous year. People 65 years of age and older continued to have the highest rate of TB in 2013 at 12.9 per 100,000. The rate of TB among children under 5 was unchanged from 2012 at 0.9 per 100,000. TB rates declined by 18% in the 45-64 age group, from 11.0 to 9.0 per 100,000. This is the only group for which TB rates declined between 2012 and 2013.

- TB continues to disproportionately affect foreign-born people in NYC. In 2013, the proportion of TB cases among the foreign-born was 84%. China was the most common country of birth in 2013, exceeding the number of cases born in the United States (U.S.) (120 vs. 103, respectively). The number of cases among people born in Bangladesh increased 64% between 2012 and 2013 (from 25 to 41 cases), while the number of cases among people born in India declined by 31%, from 32 to 22 cases.

- More than half of U.S.-born TB cases occurred among non-Hispanic blacks, and the rate for this group (4.3 per 100,000) was more than five times the rate among U.S.-born non-Hispanic whites (0.8 per 100,000). U.S-.born Hispanics were the only group in which the number of cases declined in 2013 (from 2.8 to 1.9 per 100,000).

- Queens continued to have the highest burden of TB in 2013, with 243 cases (37% of all NYC cases) and a rate of 10.7 per 100,000. The United Hospital Fund (UHF) neighborhood with the highest rate of TB was Sunset Park in Brooklyn, with a rate of 19.7 per 100,000. Twelve (29%) UHF neighborhoods had TB rates that exceeded the overall rate for NYC, and 39 (93%) exceeded the national rate.

- In 2013, there were 7 cases with a multi-drug resistant (MDR) TB strain, a 63% reduction compared to 2012 (19). This is the lowest number of MDR TB cases since tracking of MDR TB began in 1991. None of these cases had extensively drug-resistant TB strains. All occurred among foreign-born patients.

- There were 39 TB cases with human immunodeficiency virus (HIV) co-infection in 2013, a 35% decrease from 2012 and a 77% decrease from 2004.

- Among NYC TB cases counted in 2012, 94% of eligible patients completed TB treatment within 12 months, exceeding the national target (93%) set by the Centers for Disease Control and Prevention. The proportion of acid-fast bacilli sputum smear-positive cases with contacts elicited remained high at 95%, with 80% of these contacts evaluated and 80% of those with TB infection initiating treatment.

- The BTBC launched several novel initiatives in 2013, including a pilot project of directly observed therapy offered via smartphone video conferencing for TB cases, and the introduction of a new short-course regimen for treatment of TB infection at two BTBC chest centers.

- The BTBC reorganized chest center operations in 2013 to meet the changing needs of NYC residents. In June, BTBC transferred services from the Richmond Chest Center to the Health and Hospitals Corporation primary care clinic on Staten Island and in December, operating hours at the Washington Heights and Morrisania Chest Centers were reduced due to decreased use.

- Between 2010 and 2013, BTBC genotyping activities led to the identification of a cluster of five U.S.-born patients with a new drug-susceptible strain of TB not reported previously in the U.S.

- In 2013, the BTBC responded to a TB exposure in the antepartum and postpartum units of a NYC hospital. The BTBC worked with hospital staff to identify 140 newborns and 145 mothers who were potentially exposed, to notify all mothers and their pediatricians about the exposure, and to recommend TB evaluation.

2013

CORE ACTIVITIES

SURVEILLANCE

The BTBC maintains a state-of-the-art registry and case management system (Maven) for confirmed and suspected NYC TB cases, contacts to TB cases and children younger than five years old who are reported with TB infection. Maven helps BTBC staff with case management for TB patients and their contacts, monitor TB trends, prepare surveillance reports, report data to national and state health authorities and identify data and reporting issues.

The BTBC reviews all reports submitted by providers and laboratories for timeliness and accuracy, determines whether patients are eligible for case management, and ensures that TB patients residing outside of NYC are reported to the appropriate state or local health department.

ELECTRONIC REPORTING: Health care providers in NYC are encouraged to report individuals electronically via the NYC Health Department's NYCMED portal. Laboratories are required to electronically report individuals with reportable conditions through New York State's Electronic Clinical Laboratory Reporting System (ECLRS). Electronic reporting enables more efficient processing and reduces the time to case management initiation. In 2013, the BTBC certified one laboratory for reporting via ECLRS, bringing the total number of certified laboratories to 32 (91% of all eligible).

More information on TB reporting requirements in NYC is available online, or call 311 and ask for the BTBC Surveillance Unit.

IN 2013:

- **656** TB cases, **3,040** TB suspects and **4,550** contacts were newly identified in NYC
- **394** individuals (cases, suspects and contacts) were referred by the BTBC to other jurisdictions for follow-up evaluation and treatment
- **146** individuals (cases, suspects and contacts) were referred to the BTBC by other jurisdictions

CHEST CENTERS

The BTBC operates four chest centers in NYC (in Manhattan, Queens, Brooklyn and the Bronx). Each chest center provides TB diagnostic testing, outpatient medical and nursing care, treatment for active TB disease and TB infection, social service referrals, human immunodeficiency virus (HIV) counseling and testing and directly observed therapy (DOT) at no cost to the patient. TB diagnostic testing includes sputum induction, chest radiographs and QuantiFERON®-TB Gold In-Tube (QFT) tests.

Chest centers also provide phlebotomy services for tests related to TB treatment, including baseline chemistry and liver function tests and hepatitis screening.

Testing for TB infection at BTBC chest centers is currently available to anyone exposed to a person with infectious TB disease. Anyone who has a positive tuberculin skin test (TST or QFT or has TB signs/symptoms is eligible for evaluation.

For a list of BTBC chest center locations, see page 30.

IN 2013:

- BTBC chest centers provided TB-related services during **44,818** patient visits
- BTBC chest center staff performed **4,658** tests for TB infection; **888** patients tested positive
- **1,430** patients started treatment for TB infection at BTBC chest centers (includes people tested elsewhere and referred to a BTBC chest center)

EVALUATION OF NEWLY-ARRIVED IMMIGRANTS: The BTBC conducts domestic follow-up evaluations for newly arrived immigrants with an overseas TB screening classification to rule out TB disease and infection and offer treatment as indicated. On average, more than 90% of individuals are evaluated.

HIV TESTING AND COUNSELING: The BTBC provides rapid HIV testing and counseling services in its chest centers. BTBC staff ensure that patients who receive an HIV diagnosis in a

chest center are linked to appropriate HIV care and referred to the DOHMH Bureau of HIV/AIDS Prevention and Control for partner services.

IN 2013:

- **590** immigrants and refugees with an overseas TB screening classification were reported to the BTBC
- The BTBC performed **4,343** HIV tests; the proportion of HIV-positive results among those tested was 0.2%. All patients who were newly diagnosed with HIV infection were linked to HIV care services

CHEST CENTER REORGANIZATION: In 2013, the BTBC reorganized its chest center operations to better use available resources and to meet the changing needs of NYC residents.

Due to reduced patient volume in recent years, clinic services were transferred in June from the part-time Richmond Chest Center to the Health and Hospitals Corporation (HHC) primary care clinic on Staten Island. The HHC clinic now manages TB testing and treatment of people diagnosed with TB infection on Staten Island. Staten Island residents who need TB services are encouraged to seek care from the remaining BTBC chest centers. All patients diagnosed with suspected or confirmed TB disease or TB infection on Staten Island continue to be case-managed by a team of BTBC staff, including physicians, nurses, public health advisors and epidemiologists.

In December, the BTBC reduced operating hours at the Washington Heights and Morrisania Chest Centers due to decreased use and financial constraints. Washington Heights and Morrisania Chest Centers now operate three days per week and continue to provide all TB-related services. Patients are encouraged to attend any other BTBC chest center when these clinics are closed.

FIELD SERVICES

The BTBC provides case management for all confirmed TB cases and for many people with suspected TB disease. Case management includes patient education on TB pathogenesis and transmission, comprehensive patient interviews, contact identification and evaluation (including TB testing in the field), DOT, monthly monitoring for adherence to medical evaluation and treatment and patient support to maintain or improve adherence to treatment. The BTBC also locates non-adherent patients and returns them to medical supervision, conducts physician case review, coordinates the transfer of patient care between NYC and other jurisdictions and collaborates with non-BTBC health care providers.

The BTBC provides case management to all TB cases throughout NYC. This includes hospitalized patients, those who receive care from outpatient clinics and private medical providers, patients incarcerated at Rikers Island (the largest correctional facility in NYC), TB patients detained at the Bellevue Hospital Center (who failed all other interventions) and anyone else with TB disease.

IN 2013:

- BTBC staff continued or initiated case management for **833** TB cases
- Approximately **1,230** new TB suspects were assigned for management
- **3,753** household and close contacts were identified around **378** TB cases eligible for contact investigation; **2,931** (78%) have been evaluated to date; and **559** (19%) had a positive TB test result

DIRECTLY OBSERVED THERAPY (DOT)

DOT is the standard of care for patients treated for suspected or confirmed TB disease in NYC. Community-based DOT is provided by a health care worker through the face-to-face observation of patients ingesting anti-TB medications. DOT is arranged so that it is flexible and convenient for patients. Although DOT is not legally enforceable for all patients, the law allows court-ordered DOT for patients who are unwilling to adhere to recommendations for treatment and may pose a public health threat.

In NYC, DOT is conducted by trained BTBC staff as well as staff at three NYC HHC hospitals. All four BTBC chest centers provide DOT services onsite, and BTBC field staff provide DOT in homes, worksites and other locations in the community. Sometimes, DOT may be provided before or after traditional working hours.

IN 2013:

- **455** confirmed TB cases were enrolled in DOT through the BTBC or a non-BTBC health care provider; **32** were enrolled in the video-based directly observed therapy (VDOT) program
- BTBC staff made approximately **20,300** home and field visits to perform DOT for **504** TB cases and suspects
- BTBC chest center and field staff provided approximately **34,750** DOT observations for **1,522** cases, suspects, and patients with TB infection

PILOTING VIDEO DOT: In September 2013, the BTBC began offering DOT by secure video conferencing (VDOT). With VDOT, BTBC staff observe patients taking their anti-TB medication with the aid of a smartphone and computer.

The BTBC is evaluating two approaches to VDOT. The first is live-streaming VDOT, in which a patient uses a smartphone pre-programmed with video chat software. At a scheduled time, patients take their medication while being observed by a DOT worker on a remote webcam-equipped computer.

The second VDOT option is available for patients who enroll in a study conducted in collaboration with the University of California at San Diego. In this study, patients record a video of themselves taking their medications, and the video is later reviewed by a BTBC DOT worker. This type of VDOT allows for greater flexibility and more convenience for the patient.

MEDICAL TREATMENT AND CONSULTATION

BTBC physicians provide medical evaluation and treatment for TB cases, for people suspected of having TB disease and for contacts with TB infection. They also conduct standardized reviews of confirmed and suspected TB cases and provide non-DOHMH providers with consultation on TB treatment and patient management. This includes consultation for cases with drug-resistant TB, review of treatment plans, and review of discharge plans for patients being released from NYC hospitals.

The BTBC collaborates with the CDC-sponsored Northeast Regional Training and Medical Consultation Consortium (RTMCC) at the New Jersey Medical School Global TB Institute (GTBI). During 2013, BTBC staff served as trainers, lecturers, and coordinators for courses on epidemiology, infection control, genotyping, cluster investigation and the medical management of TB. Additionally, BTBC staff continued to serve on the Northeast RTMCC medical advisory board and the board of the National TB Controllers Association.

BTBC physicians also participate in the TB Expert Network Conference, a joint project between the CDC, all RTMCCs and the National Jewish Medical Research Center. In 2013, BTBC staff provided subject matter expertise on clinical applications of laboratory testing for TB and advised on national guidelines for bedaquiline, a drug recently approved by the Food and Drug Administration for the treatment of MDR TB.

BTBC physicians also give medical grand rounds on TB topics at hospitals and outpatient facilities throughout the city and work with hospitals to coordinate presentation of TB cases at Citywide TB Rounds.

To request a medical lecture, grand rounds, or TST training, please email tb@health.nyc.gov

PROVIDER TB HOTLINE (347-396-7400): To obtain expert medical consultation regarding TB infection or disease, receive additional information about available TB services, report suspected and confirmed TB cases, obtain forms or refer patients for TB testing or treatment at a BTBC chest center, call the Provider TB Hotline.

IN 2013:

- BTBC physicians provided **29** medical lectures and grand rounds presentations at NYC hospitals and participated in several national conferences
- BTBC staff provided training for **76** healthcare providers
- The BTBC hosted TB control colleagues from **5** countries: Greece, England, Lesotho, South Africa and Sweden

A SHORT-COURSE REGIMEN FOR TB INFECTION:

In December 2011, the Centers for Disease Control and Prevention (CDC) released guidelines for the use of a new short-course regimen for the treatment of TB infection. Referred to as "3HP", this regimen consists of 12 once-weekly doses of isoniazid (INH) and rifapentine (RPT) and is an alternative to standard treatment with nine months of daily self-administered INH. The CDC guidelines were based on a drug trial that found 3HP to be as effective as nine months of INH and to have higher rates of completion. 3HP is a promising alternative in NYC, where treatment completion among patients with TB infection has historically been low.

In 2013, two BTBC chest centers initiated a pilot implementation of 3HP with clinic-based DOT. To date, over 300 patients have started treatment with 3HP, and preliminary findings suggest improved treatment completion. The BTBC intends to offer the 3HP regimen at all chest centers by December 2014. The BTBC is also currently participating in a study of self-administered 3HP.

FIELD EPIDEMIOLOGY AND GENOTYPING

When TB exposures occur, the BTBC uses multiple methods to identify and control TB transmission, including contact investigations at congregate settings (e.g. worksites, schools and healthcare-associated settings), active surveillance of genotyping data and genotype cluster investigation. The BTBC investigates TB exposures in congregate settings to identify and evaluate contacts, to determine if transmission has occurred and to assess whether further testing may be warranted.

The NYC Health Code mandates that a portion of the initial culture from all culture-positive TB patients be sent to the NYC Public Health Laboratory for genotyping. Genotype results identify whether TB strains are genetically related (i.e. clustered), which helps the BTBC identify false-positive culture results, detect outbreaks and determine where TB transmission may be occurring.

The BTBC routinely investigates clustered TB cases and performs prompt investigations of potential false-positive cultures to make sure that patients are not placed on anti-TB medications unnecessarily. False-positive culture investigations are initiated through BTBC review of patients with a single positive culture, prospective matching of genotype results and requests from BTBC staff, physicians, laboratories and other health departments.

IN 2013:

- The BTBC conducted **18** epidemiologic investigations in large congregate settings (defined as settings with more than 15 exposed people) and tested **592** contacts at these sites.
- Isolates were submitted to NYC and New York State public health laboratories for **419** culture-confirmed TB cases; complete genotype results were available for **409** (98%) cases
- Among TB cases with complete genotype results, **143** were clustered to another NYC TB case counted since 2001; clustered cases were in **113** different clusters; and cluster investigation was initiated for **67** cases
- **26** false-positive culture investigations were initiated; of these, **0** false-positive cultures were confirmed, **4** investigations had an inconclusive result, **13** investigations had an unlikely result and **9** investigations are pending

EDUCATION, TRAINING AND OUTREACH

The BTBC works to ensure that all TB patients receive the highest quality of care in line with current TB guidelines. The BTBC offers professional development and educational resources for health care providers and organizations that serve high-risk populations. A dedicated training team also ensures that BTBC staff are well-qualified to meet the day-to-day demands of TB control.

The 2013 Annual World TB Day Conference gave 175 health care providers from NYC and other jurisdictions the opportunity to learn about current standards in TB care. The conference was jointly sponsored by the BTBC, New Jersey Medical School Global Tuberculosis Institute and the University of Medicine and Dentistry of New Jersey's Center for Continuing and Outreach Education. The conference theme, "Towards Zero TB," was selected to highlight progress in the local and global fight against TB.

The BTBC also sought to increase community engagement around TB as a sponsor of the first annual New York City World TB Day Walk on March 23, 2013. Over 100 people participated in the walk, which was followed by a rally featuring TB experts, policymakers, and activists as well as three patient advocates who shared their stories. The event aimed to increase awareness of TB and encouraged participants to continue working towards zero TB.

The BTBC hosts an annual conference on genotyping for academic partners, laboratory partners and public health colleagues from other jurisdictions. Conference topics in 2013 included updates on NYC genotyping data and related investigations, the New York State laboratory's TB testing algorithm, the CDC's national TB genotyping system, research on epidemiologic correlates of *Mycobacterium tuberculosis* macrovariation in NYC, genotype concordance between index cases and secondary cases and the use of visual analytic tools to enhance TB surveillance and outbreak detection. The 2014 conference is tentatively scheduled for September 2014.

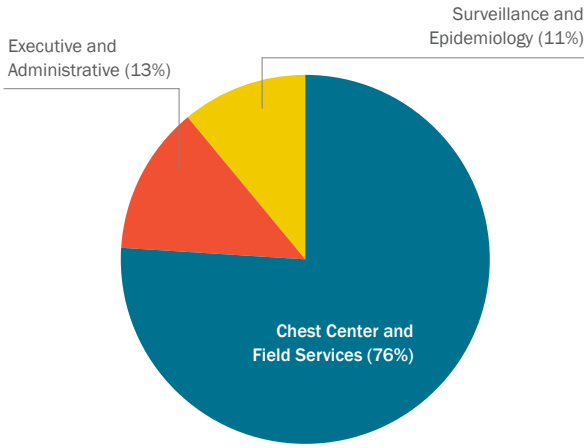
For more information about the upcoming genotyping meeting, please contact Jeanne Sullivan Meissner at: jsulliv2@health.nyc.gov

FUNDING AND BTBC ADMINISTRATION

The BTBC receives city, state and federal funding, and has non-financial agreements with two organizations that support laboratory services and DOT. Funds support BTBC activities, ranging from hiring staff to operating the TB chest centers.

During 2013, the BTBC increased its efficiency through new software applications to better track and monitor program expenses and enhance personnel management. In addition, the BTBC implemented a new fleet transportation system, which improves its management of vehicles used for field activities.

FIGURE 2: New York City Bureau of Tuberculosis Control staff by work function, 2013



IN 2013:

- The BTBC had an operational budget of approximately $16 million: **38%** from the federal government, **12%** from New York State, and **50%** from New York City
- The BTBC had **212** full-time employees and **38** part-time/volunteer staff

POLICY AND EVALUATION

The BTBC conducts ongoing evaluations of its practices and policies to ensure high-quality patient services and effective TB control activities. The BTBC sets performance goals based

on CDC targets and regularly conducts quality assurance activities to evaluate progress towards these goals. Some examples of these performance goals include increasing the proportion of cases who are treated with a standard four-drug TB regimen and ensuring that patients complete treatment within one year.

The results of these quality assurance activities help the BTBC identify performance gaps as well as opportunities for improvement. Quality assurance findings are shared with internal staff and external partners and are critical to ensuring that the BTBC meets performance targets.

Additionally, case management and treatment outcomes for all TB cases and their contacts are reviewed by the BTBC Assistant Commissioner in a series of quarterly cohort review meetings. During these meetings, successes and challenges in patient care and case management are discussed and used to inform policy development and identify training needs. Cohort review also provides an opportunity to assess data completeness and quality.

The BTBC routinely revises its policies based on available scientific evidence or changes in national, state and city policies. The BTBC thoroughly evaluates the impact of new or revised practices on TB control.

RESEARCH

The BTBC performs research on all aspects of TB control. This includes participation in clinical research through the CDC TB Trials Consortium (TBTC), which conducts national and international studies to develop new treatment regimens for TB infection and disease.

In 2013, BTBC staff presented NYC TB data at the following meetings and conferences:

The American Thoracic Society Annual Conference • Annual Tuberculosis Workshop • Council for State and Territorial Epidemiologists Annual Conference • International Union for Tuberculosis and Lung Disease–North American Regional Meeting • NYC Annual Genotyping Update • NYC Annual World TB Day Conference, and The Union World Conference

In 2013, the BTBC continued to host the NYC TB Research Consortium group, which brings together health department, academic, laboratory and other researchers to move toward eliminating TB as a public health problem in NYC. The group's activities include the following: pursuing studies that will guide TB control policies and practices, collaborating on epidemiologic, genotyping and clinical research projects to advance the TB research agenda, jointly pursuing funding opportunities and mentoring new researchers and students to develop research skills for future public health careers.

For more information or to join the consortium, please email Dr. Shama Ahuja: sahuja@health.nyc.gov.

BTBC STAFF PUBLICATIONS IN PEER-REVIEWED JOURNALS, 2013:

Centers for Disease Control and Prevention (CDC). Notes from the field: outbreak of tuberculosis associated with a newly identified Mycobacterium tuberculosis genotype--New York City, 2010-2013. *MMWR Morb Mortal Wkly Rep*. 2013 Nov 15;62(45):904.

Harris TG, Sullivan Meissner J, Proops D. Delay in diagnosis leading to nosocomial transmission of tuberculosis at a New York City health care facility. *Am J Infect Control*. 2013 Feb;41(2):155-60.

Klein PW, Harris TG, Leone PA, Pettifor AE. HIV Testing of Tuberculosis Patients by Public and Private Providers in New York City. *J Community Health.* 2013 Oct 31. [Epub ahead of print]

Moonan PK, Teeter LD, Salcedo K, Ghosh S, Ahuja SD, Flood J, Graviss EA. Transmission of multidrug-resistant tuberculosis in the USA: a cross-sectional study. *Lancet Infect Dis.* 2013 Sep;13(9):777-84.

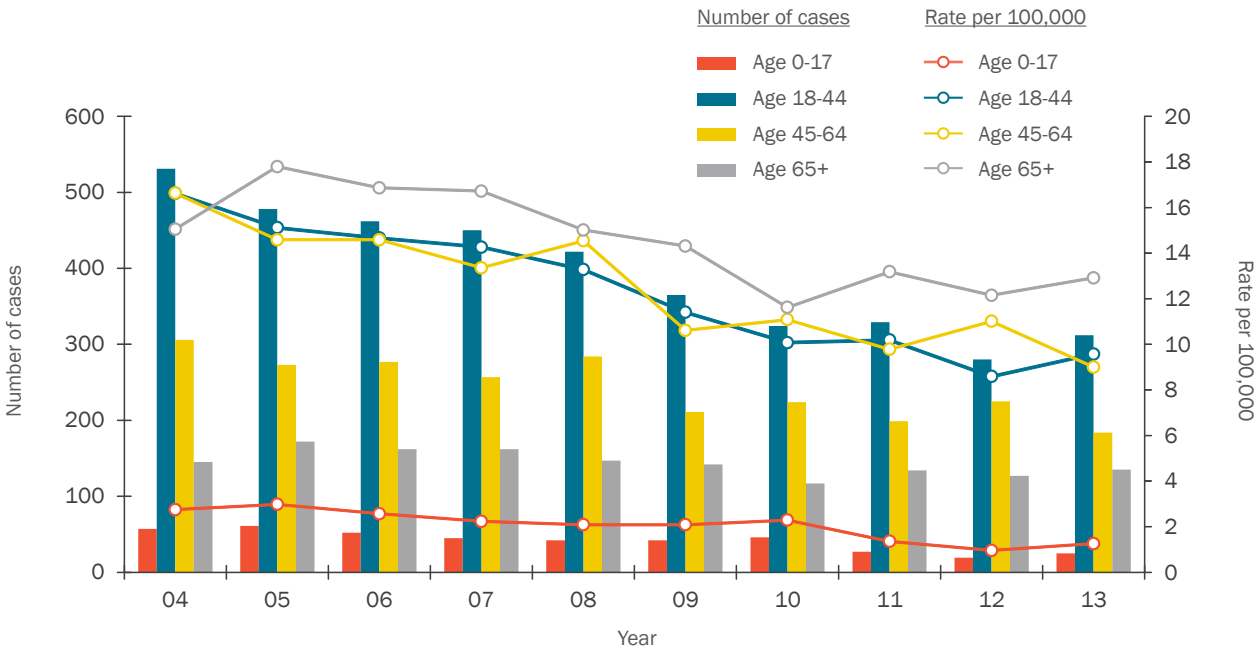
Trieu L, Proops DC, Ahuja SD. Using QuantiFERON-TB Gold In-Tube for field-based tuberculosis contact investigations in congregate settings. *J Public Health Manag Pract.* 2013 May-Jun;19(3):E11-3.

2013

PROFILE OF TB CASES

AGE

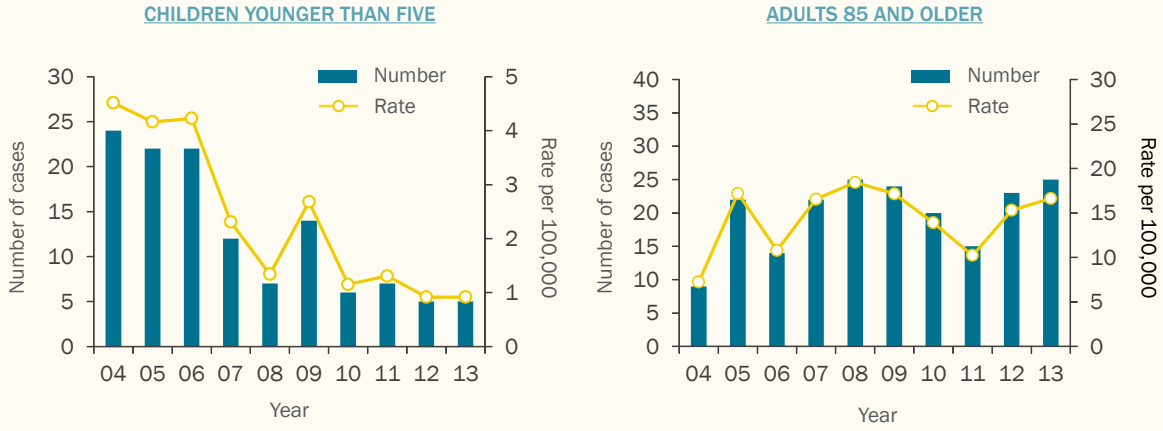
FIGURE 3: Tuberculosis cases and rates[1] by age in years, New York City, 2004-2013



1. Rates are based on NYC DOHMH population estimates, modified from U.S. Census Bureau interpolated intercensal population estimates, 2004-2012. Updated July 2013.

TB IN CHILDREN YOUNGER THAN 5 AND ADULTS 85 AND OLDER

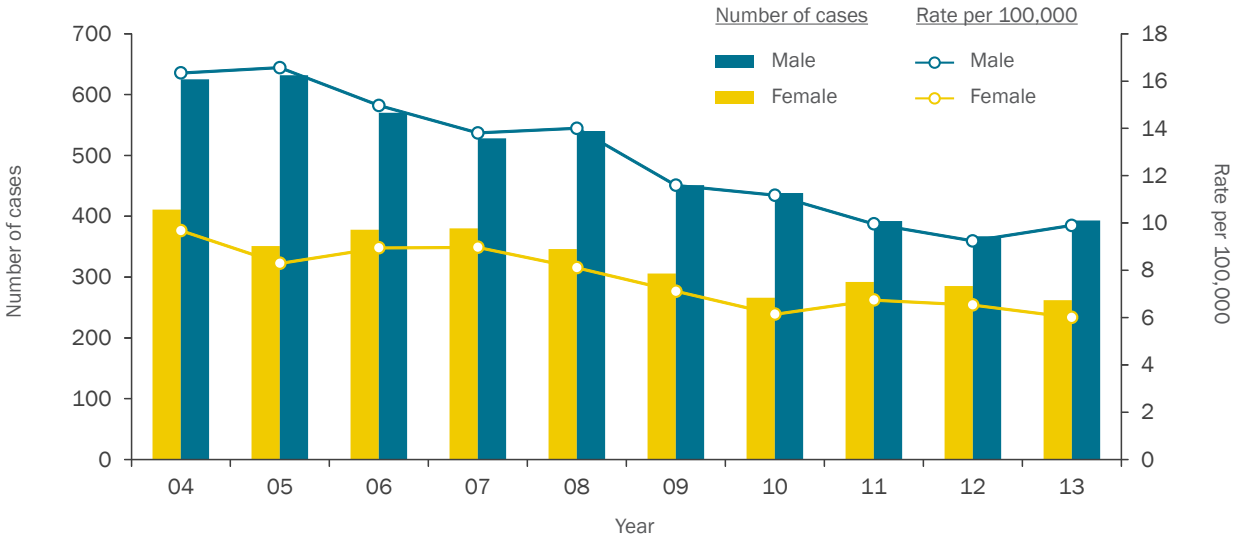
FIGURE 4: Tuberculosis cases and rates[1] among children younger than five and adults 85 and older, New York City, 2004-2013



1. Rates are based on NYC DOHMH population estimates, modified from U.S. Census Bureau interpolated intercensal population estimates, 2004-2012. Updated July 2013.

SEX

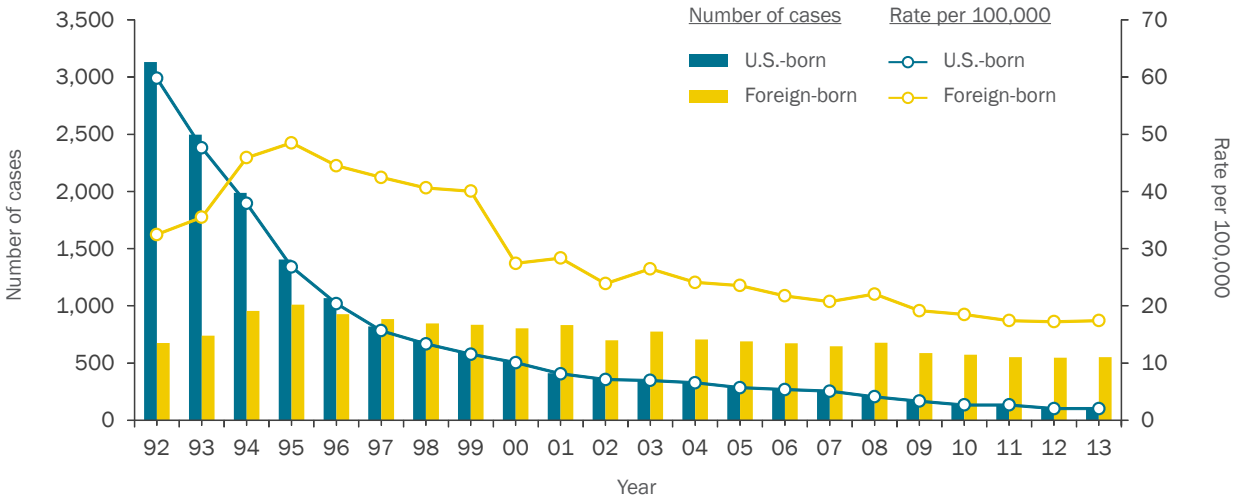
FIGURE 5: Tuberculosis cases and rates[1] by sex, New York City, 2004-2013



1. Rates are based on NYC DOHMH population estimates, modified from U.S. Census Bureau interpolated intercensal population estimates, 2004-2012. Updated July 2013.

COUNTRY OF BIRTH AND RACE/ETHNICITY

FIGURE 6: Tuberculosis cases and rates[1] by birth in the U.S.,[2] New York City, 1992-2013

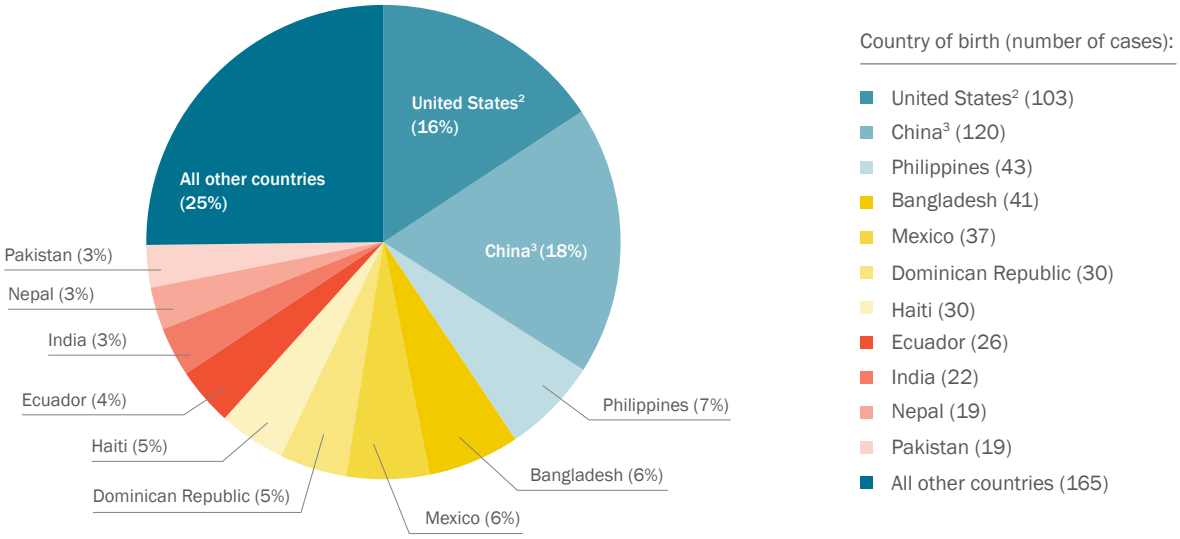


1. Rates prior to 2000 are based on 1990 U.S. Census data. Rates for 2000-2005 are based on 2000 U.S. Census data. Rates after 2005 are based on 3-year American Community Survey data centered on the given year or the most recent available data. 2. U.S.-born includes individuals born in the U.S. and U.S. territories. One case had unknown country of birth.

84% Proportion of NYC TB cases in 2013 that occurred among foreign-born patients

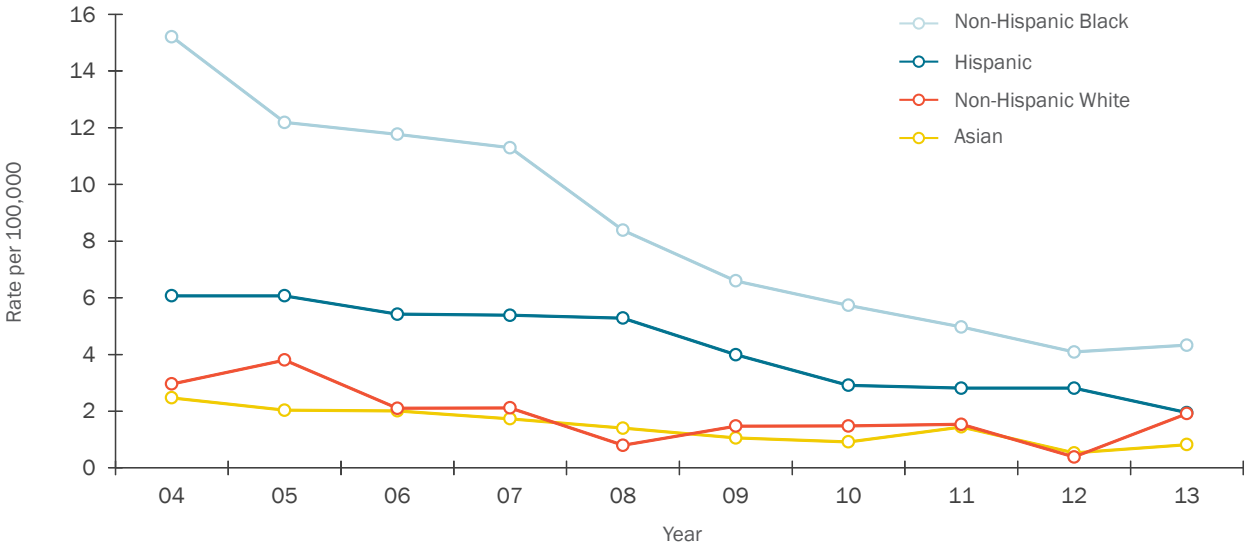
63% Proportion of foreign-born TB cases living in the U.S. for >5 years at diagnosis

FIGURE 7: Number and proportion of tuberculosis cases by country of birth,[1] New York City, 2013



1. One case had unknown country of birth. 2. United States includes individuals born in the U.S. and U.S. territories. 3. China includes individuals born in Hong Kong and Taiwan.

FIGURE 8: Tuberculosis rates[1] among persons born in the U.S. by race/ethnicity,[2] New York City, 2004-2013



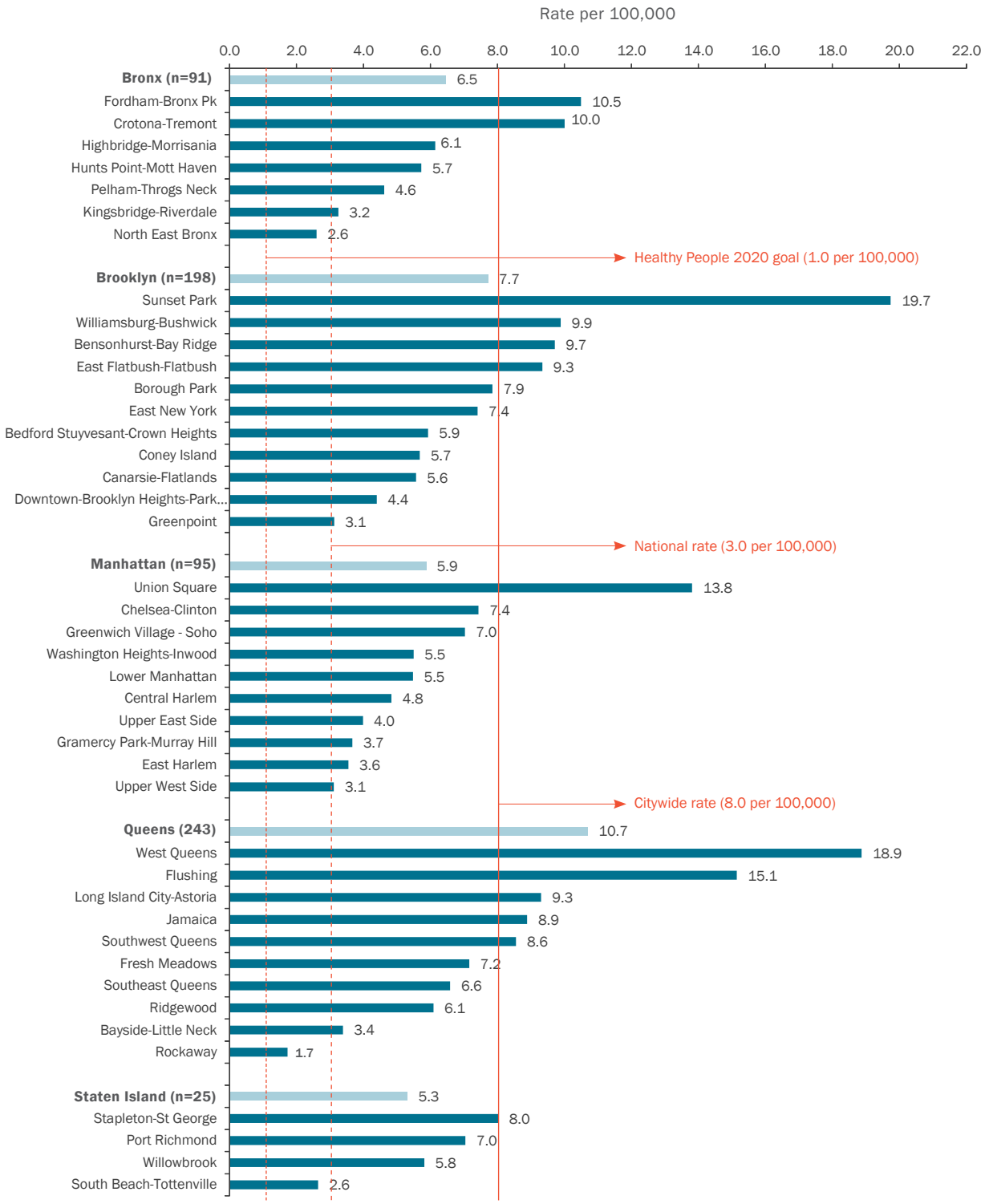
1. Rates are based on 3-year American Community Survey Public Use Microdata Sample data centered on the given year 2. U.S.-born includes individuals born in the U.S. and U.S. territories.

52% Proportion of all U.S.-born NYC TB cases in 2013 that were non-Hispanic black

69 Number of countries of birth identified among all NYC TB cases in 2013

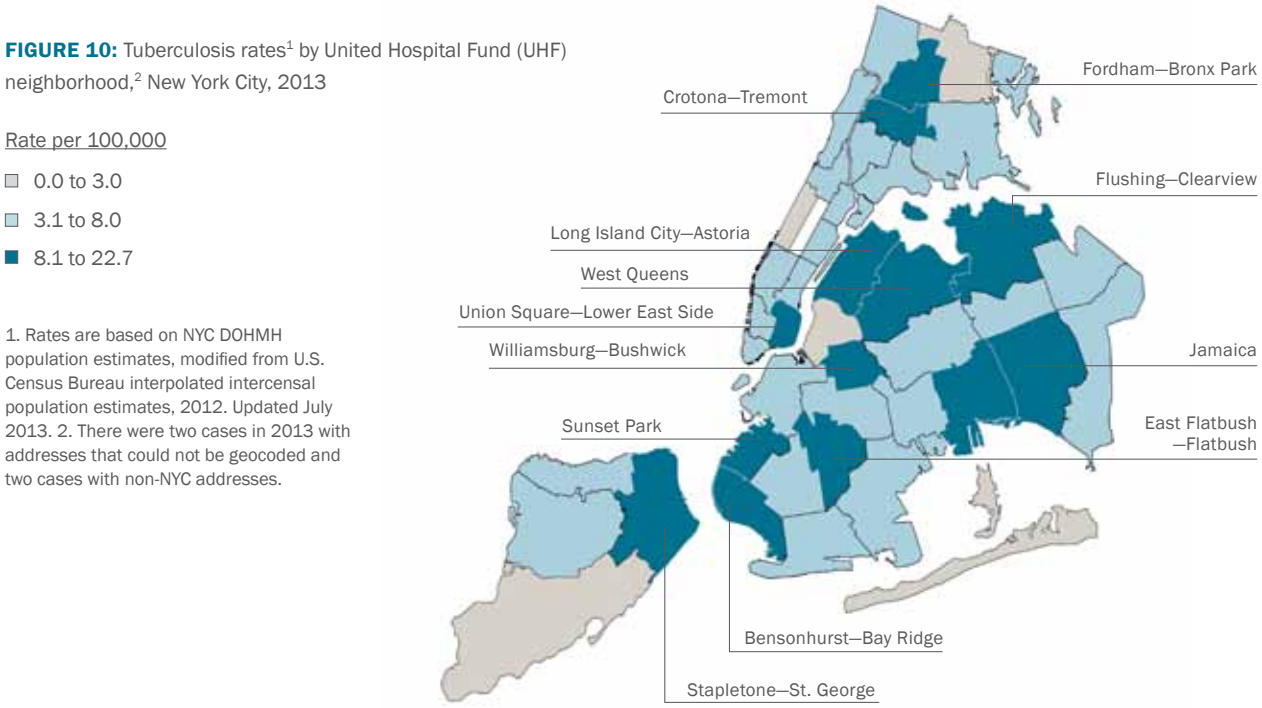
GEOGRAPHIC DISTRIBUTION

FIGURE 9: Tuberculosis rates[1] by borough and United Hospital Fund (UHF) neighborhood,[2] New York City, 2013



1. Rates are based on NYC DOHMH population estimates, modified from U.S. Census Bureau interpolated intercensal population estimates, 2012. Updated July 2013.
2. There were two cases in 2013 with addresses that could not be geocoded and two cases with non-NYC addresses.

FIGURE 10: Tuberculosis rates[1] by United Hospital Fund (UHF) neighborhood,[2] New York City, 2013

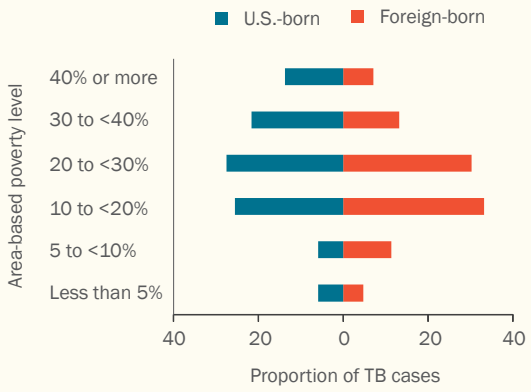


1. Rates are based on NYC DOHMH population estimates, modified from U.S. Census Bureau interpolated intercensal population estimates, 2012. Updated July 2013. 2. There were two cases in 2013 with addresses that could not be geocoded and two cases with non-NYC addresses.

AREA-BASED SOCIOECONOMIC STATUS: Individuals of low socioeconomic status (SES) tend to experience a disproportionate burden of TB compared to those of higher SES. The BTBC does not capture information about individual SES, but instead uses poverty level in neighborhoods where patients live to measure socioeconomic gaps in TB burden. In 2013, more than half of NYC TB cases lived in a census tract where at least 20% of residents had incomes below the federal poverty limit. The proportion of U.S.-born cases living in high-poverty neighborhoods was twice that of foreign-born cases living in high-poverty neighborhoods.

FIGURE 11: Tuberculosis cases by area-based poverty level[1,2,3] and birth in the U.S.,[4] New York City, 2013

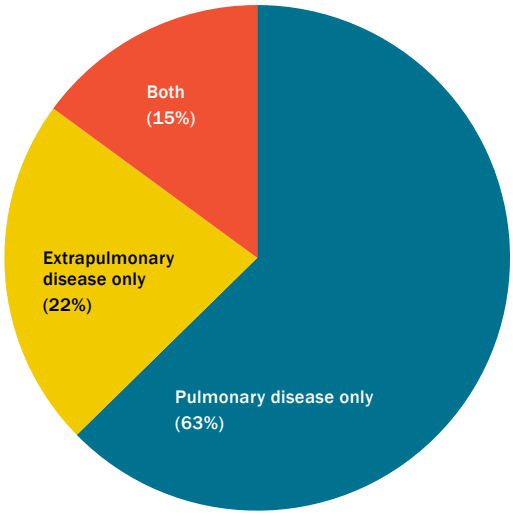
Area-based poverty level[1]	U.S.-born	Foreign-born	Total
	n (%)	n (%)	n (%)
40% or more	14 (14%)	39 (7%)	53 (8%)
30 to <40%	22 (22%)	72 (13%)	94 (15%)
20 to <30%	28 (27%)	165 (30%)	193 (30%)
10 to <20%	26 (25%)	181 (33%)	207 (32%)
5 to <10%	6 (6%)	62 (11%)	68 (11%)
Less than 5%	6 (6%)	26 (5%)	32 (5%)



1. Area-based poverty level is based on 2008-2012 American Community Survey data on the proportion of census tract residents living below the federal poverty limit. 2. Cases were assigned to a census tract based on their residence at TB diagnosis. 3. Nine cases with addresses that were outside of New York City, unable to be geocoded to a census tract or located in cesus tracts where poverty level could not be determined were excluded. 4. U.S.-born includes individuals born in the U.S. and U.S. territories. One case had unknown country of birth.

CLINICAL CHARACTERISTICS

FIGURE 12: Tuberculosis cases by disease site, New York City, 2013 (n=656)

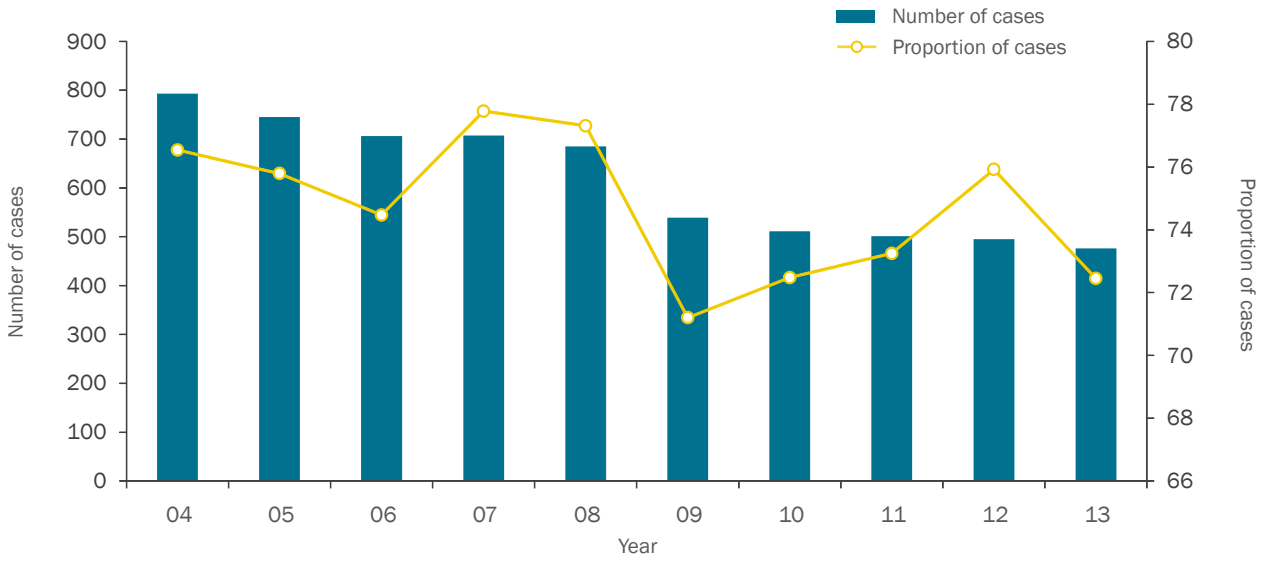


Disease site[1] among tuberculosis cases with extrapulmonary disease, New York City, 2013 (n=245)

Disease site:	n	(%)
Lymphatic	104	(42%)
Pleural	56	(23%)
Bone/joint	30	(12%)
Meningeal	15	(6%)
Genitourinary	15	(6%)
Peritoneal	11	(4%)
Laryngeal	2	(1%)
Other	43	(18%)

1. Categories are not mutually exclusive

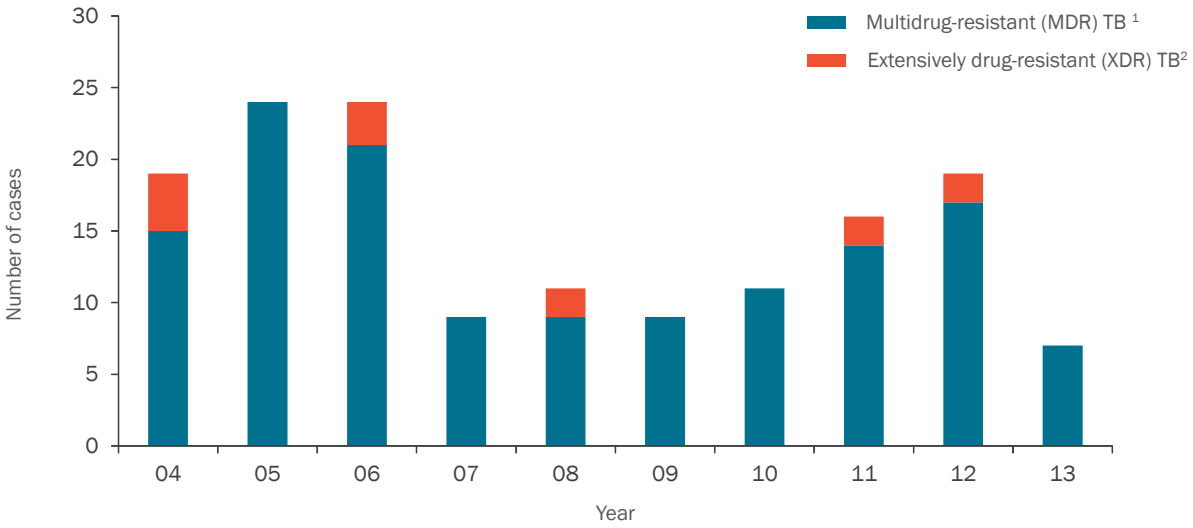
FIGURE 13: Number and proportion of culture-confirmed tuberculosis cases among all tuberculosis cases, New York City, 2004-2013



476 Number of NYC TB cases in 2013 that were culture positive for *M. tuberculosis*

54% Proportion of all NYC TB cases in 2013 with pulmonary involvement that had a respiratory smear positive for acid-fast bacili

FIGURE 14: Multidrug resistance among tuberculosis cases, New York City, 2004-2013

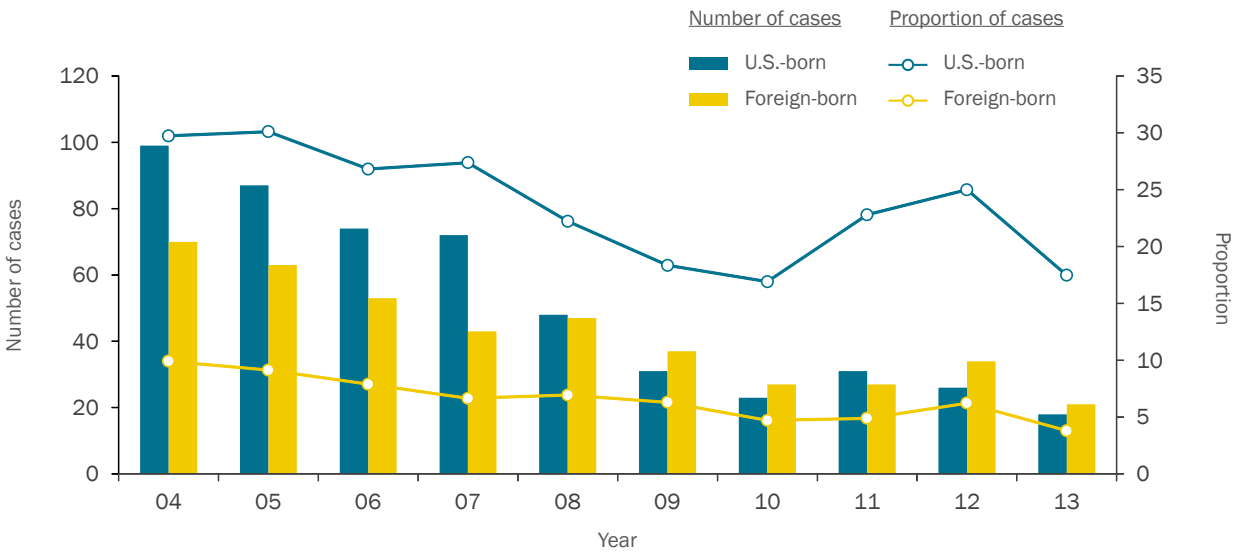


1. Multidrug-resistant (MDR) TB is defined as resistance to at least isoniazid and rifampin. 2. Extensively drug-resistant (XDR) TB is defined as resistance to at least isoniazid and rifampin plus a fluoroquinolone and a second-line injectable anti-TB medication.

92% Proportion of culture positive NYC TB cases for whom drug susceptibility testing for first-line drugs was done

7 Number of NYC TB cases with an MDR strain in 2013. This is the lowest number of MDR cases since the BTBC started tracking MDR TB in 1991

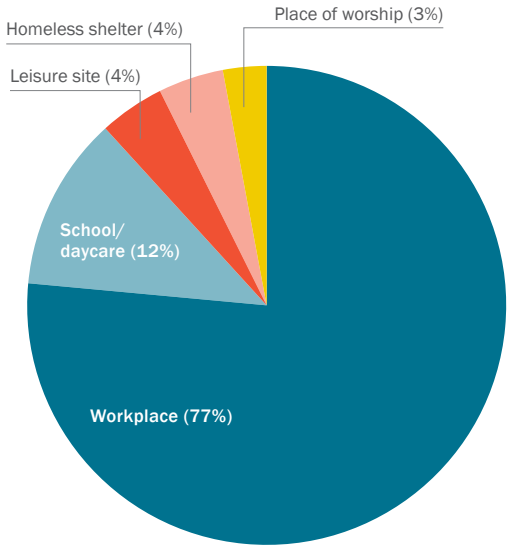
FIGURE 15: HIV co-infection among tuberculosis cases by birth in the United States (U.S.),[1] New York City, 2004-2013



1. U.S.-born includes individuals born in the U.S. and U.S. territories. One case had unknown country of birth.

CONTACT INVESTIGATION IN CONGREGATE SETTINGS

FIGURE 16: Epidemiologic investigations in congregate settings[1] by site type, number of exposed contacts, and transmission assessment, New York City, 2013 (n=68)



	≥15 exposed contacts		<15 exposed contacts		Total	
	n	%	n	%	n	%
Number of investigations	18	--	50	--	68	--
Likely transmission[2]	7	39%	14	30%	21	33%
Number of contacts	695	--	378		1,073	--
Eligible for testing	650	94%	350	93%	1,000	93%
Tested	592	91%	315	90%	907	91%
Positive result	80	14%	53	17%	133	15%

1. Excludes healthcare-associated investigations (n=142).
2. Proportion calculated among investigations where transmission could be assessed

Workplace (52) Leisure site (3) Place of worship (2)
School/daycare (8) Homeless shelter (3)

142 Number of healthcare-associated epidemiologic investigations initiated in 2013

84% Proportion of congregate setting exposures in which TB testing was conducted primarily using QuantiFERON®-TB Gold In-Tube

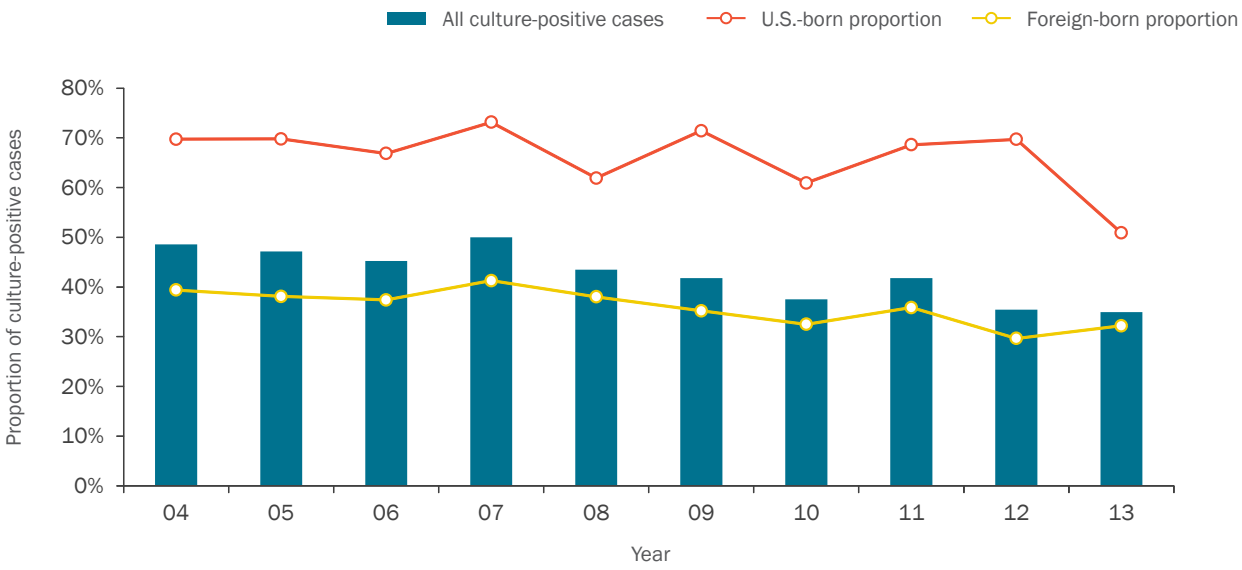
TB EXPOSURE AT A NEW YORK CITY HOSPITAL: In 2013, the BTBC responded to a TB exposure in the antepartum and postpartum units of a New York City hospital. The BTBC worked with hospital staff to identify 140 newborns and 145 mothers that were potentially exposed to TB.

Working collaboratively, the BTBC and the hospital successfully contacted every potentially-exposed mother and their pediatricians to notify them of the exposure. As of February 4, 2014, the BTBC received evaluation results from 82 (57%) mothers and 90 (64%) infants. Among these infants, 82 (91%) were prescribed isoniazid window prophylaxis.

Additional evaluation was recommended for infants at six months of age and the BTBC will contact all infants' mothers and pediatricians to remind them of this re-evaluation. To enhance the follow-up effort, updated contact information for infants and pediatricians was ascertained through the New York Citywide Immunization Registry. The BTBC continues to collect final evaluation results, conduct outreach to mothers and infants without evidence of evaluation and monitor results for any indication of TB transmission.

GENOTYPE CLUSTERING

FIGURE 17: Proportion clustered[1] among culture-positive tuberculosis cases by birth in the U.S.,[2] New York City, 2004-2013



1. Cases were defined as clustered if they had an exact-matching IS*6110* restriction length polymorphism analysis (RFLP) and spatial ogligonucleotide typing (spoligotype) result as at least one other tuberculosis case counted in NYC since January 1, 2001 Proportion is among cases with complete genotype results available. 2. U.S.-born includes individuals born in the U.S. and U.S. territories. One case had unknown country of birth.

51% | Proportion clustered among U.S.-born cases in 2013 with complete genotype results available

32% | Proportion clustered among foreign--born cases in 2013 with complete genotype results available

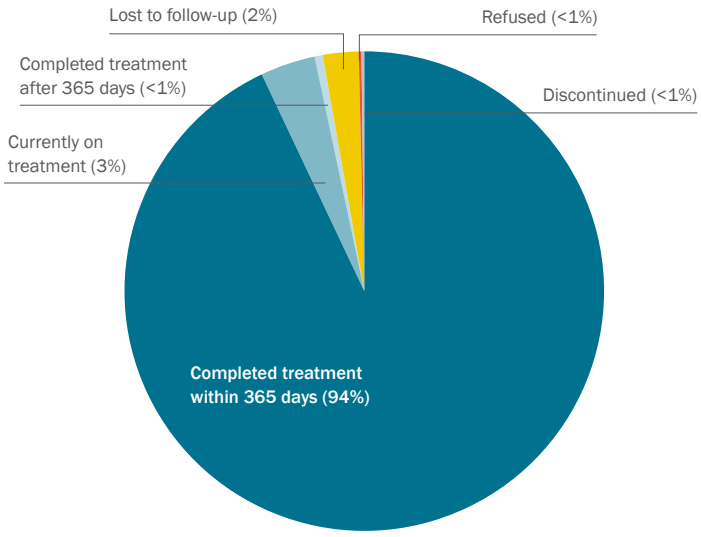
TRANSMISSION OF A NEWLY-IDENTIFIED TB STRAIN IN NEW YORK CITY, 2010-2013: The BTBC identified a new drug-susceptible strain of TB in 2010 that had not been seen previously in the U.S. From January 2010 to March 2013, five cases with this strain were identified in New York City. All five patients are U.S.-born males; four patients had a history of substance abuse and three had a history of street homelessness.

Although no patient named another patient as a contact, outbreak investigation revealed that four patients spent considerable time near the same New York City transportation hub, and three patients had multiple visits to the same hospital emergency department for care related to alcohol withdrawal and other health issues in the years around their TB diagnoses. In conjunction with this investigation, DOHMH is working with the New York City Department of Homeless Services, local hospitals and other organizations to identify mechanisms for enhancing TB diagnosis, treatment and patient care for homeless people who live on the street.

This outbreak is a reminder that transmission continues to occur among U.S.-born people and highlights the need for TB controllers, emergency department staff and other health care providers to remain vigilant for TB among people with a history of homelessness, substance abuse or other TB risk factors.

TREATMENT COMPLETION AND NATIONAL PERFORMANCE MEASURES

FIGURE 18: Treatment outcomes for tuberculosis cases counted in 2012[1] who were eligible to complete treatment within 365 days[2], New York City (n=539)



Treatment outcome:	n
Completed treatment within 365 days	504
Currently on treatment	16
Completed treatment after 365 days	4
Lost to follow-up	13
Refused	1
Discontinued due to adverse event	1

1. Treatment outcomes are not reported for the current year to allow sufficient time for follow-up. 2. Excludes patients who never started on anti-TB medications, those who died or moved outside of the U.S. within 365 days of treatment initiation, those with any rifampin resistance, those with meningeal TB, and children 14 or younger with disseminated TB.

NATIONAL PERFORMANCE MEASURES: The BTBC sets performance goals based on national targets (CDC) and continues to make progress towards meeting these goals. In addition to the measures below, the BTBC also monitors drug susceptibility testing results, HIV status, laboratory and provider reporting, as well as evaluation and treatment of newly-arrived immigrants and refugees with abnormal chest x-rays read overseas.

Select performance measures, national targets,[1] and New York City performance outcomes, 2008-2012[2]

Performance measure[3]	Target	2008	2009	2010	2011	2012
Complete treatment within 12 months[4]	93	89	92	93	92	94
Initiate TB treatment within 7 days of specimen collection[5]	increase	--	96	92	91	89
Started on recommended initial four-drug TB regimen[6]	93	95	93	93	96	96
Sputum culture conversion within 60 days of treatment initiation[7]	62	--	59	67	65	72
Proportion of eligible cases with contacts elicited[8]	100	94	96	96	96	95
Proportion of contacts evaluated[9]	93	81	86	81	82	80
Proportion of contacts who initiated treatment for TB infection[10]	88	74	79	80	76	80
Proportion of eligible contacts who completed treatment for TB infection[11]	79	65	67	68	66	--

1. As defined by the U.S. Centers for Disease Control and Prevention. For additional information, see: *cdc.gov/tb/programs/evaluation/indicators/default.htm* 2. Performance measures are not reported for the current year to allow sufficient time for follow-up. 3. All performance measures listed are reported as percentages. 4. Excludes patients who never started on anti-TB medications, those who died or moved outside of the U.S. within 365 days of treatment initiation, those with any rifampin resistance, those with meningeal TB, those who were not alive at time of diagnosis, and children aged 14 or younger with disseminated TB. For 2009 and later, patients who moved out of the U.S during treatment are also excluded. 5. Of TB patients with positive acid-fast bacilli (AFB) sputum-smear results who are alive at diagnosis. 6. Of TB patients having reported taking an initial drug regimen and alive at diagnosis. Initial drug regimen is the first regimen taken for at least two weeks of treatment. Recommended four-drug regimen includes isoniazid, rifampin, pyrazinamide, and ethambutol. 7. Of TB patients with positive sputum culture results who were alive at diagnosis and have initiated treatment. Excludes patients who died within 60 days of initiating treatment. 8. Of AFB sputum smear-positive TB cases. 9. Of contacts to AFB sputum smear-positive TB cases counted in the year of interest. 10. Of contacts to sputum AFB smear-positive TB cases who have newly diagnosed TB infection. 11. Of contacts to sputum AFB smear-positive TB cases with newly diagnosed TB infection who started treatment.

2013

TABLES

TABLE 1: Tuberculosis numbers and rates[1] by select characteristics, New York City, 1900-2013

Year	Number of TB cases	Rate per 100,000	Culture + cases	Sputum smear + cases	Sputum smear + rate per 100,000	Multidrug-resistant[2] cases	Deaths attributable to TB	Death rate per 100,000
1900	11,997	349.0					9,630	280.2
1910	32,065	672.7					10,074	211.3
1920	14,035	249.7					7,915	140.8
1930	11,821	170.6					4,574	66.0
1940	9,005	120.8					3,680	49.4
1950	7,717	97.8					2,173	27.5
1960	4,699	60.4					824	10.6
1970	2,590	32.8					432	5.5
1971	2,572	32.6					316	4.0
1972	2,275	28.8					335	4.2
1973	2,101	26.6					259	3.3
1974	2,022	25.6					215	2.7
1975	2,151	27.2					208	2.6
1976	2,151	27.2					187	2.4
1977	1,605	20.3					175	2.2
1978	1,307	16.6					188	2.4
1979	1,530	19.4					121	1.5
1980	1,514	21.4					143	2.0
1981	1,582	22.4					155	2.2
1982	1,594	22.5					168	2.4
1983	1,651	23.3					151	2.1
1984	1,629	23.0	1,527				168	2.4
1985	1,843	26.1	1,785				155	2.2
1986	2,223	31.4	2,181				186	2.6
1987	2,197	31.1	2,157				219	3.1
1988	2,317	32.8	2,241				246	3.5
1989	2,545	36.0	2,405				236	3.3
1990	3,520	48.1	3,372				256	3.5
1991	3,673	50.2	3,484	1,772	24.2	366	245	3.3
1992	3,811	52.0	3,442	1,856	25.3	441	200	2.7
1993	3,235	44.2	2,854	1,526	20.8	293	166	2.3
1994	2,995	40.9	2,479	1,265	17.3	192	133	1.8
1995	2,445	33.4	2,014	989	13.5	113	94	1.3
1996	2,053	28.0	1,721	837	11.4	84	67	0.9
1997	1,730	23.6	1,401	665	9.1	57	55	0.8
1998	1,558	21.3	1,255	558	7.6	38	52	0.7
1999	1,460	19.9	1,143	515	7.0	33	49	0.7
2000	1,332	16.6	1,066	467	5.8	24	44	0.5
2001	1,261	15.7	964	453	5.7	25	33	0.4
2002	1,084	13.5	823	429	5.4	29	30	0.4
2003	1,140	14.2	872	427	5.3	22	34	0.4
2004	1,039	13.0	798	395	4.9	19	30	0.4
2005	984	12.3	745	378	4.7	24	21	0.3
2006	953	11.9	708	355	4.4	24	17	0.2
2007	914	11.4	709	379	4.7	9	19	0.2
2008	895	11.2	688	339	4.2	11	18	0.2
2009	760	9.5	539	281	3.5	9	25	0.3
2010	711	8.7	512	265	3.2	11	26	0.3
2011	689	8.4	501	264	3.2	16	32	0.4
2012	651	8.0	495	270	3.3	19	17	0.2
2013	656	8.0	476	259	3.2	7	15	0.2

1. Rates are based on decennial Census data. 2. Multidrug resistant (MDR) TB is defined as resistance to at least isoniazid and rifampin.

TABLE 2: Select characteristics of tuberculosis cases by birth in the U.S.,[1] New York City, 2012-2013

Characteristics	2012						2013					
	U.S.-born[1]		Foreign-born		Total[2]		U.S.-born[1]		Foreign-born		Total[2]	
	n	%	n	%	n	%	n	%	n	%	n	%
DEMOGRAPHICS												
Age Group												
0-17	7	7%	12	2%	19	3%	13	13%	12	2%	25	4%
18-44	29	28%	250	46%	280	43%	31	30%	281	51%	312	48%
45-64	47	45%	178	33%	225	35%	42	41%	141	26%	184	28%
65+	21	20%	106	19%	127	20%	17	17%	118	21%	135	21%
Sex												
Female	44	42%	241	44%	285	44%	50	49%	213	39%	263	40%
Male	60	58%	305	56%	366	56%	53	51%	338	61%	392	60%
Race/ethnicity												
White Non-Hispanic	11	11%	33	6%	44	7%	17	17%	26	5%	43	7%
Black Non-Hispanic	51	49%	86	16%	137	21%	54	52%	81	15%	135	21%
Hispanic	39	38%	138	25%	178	27%	27	26%	137	25%	165	25%
Asian	1	1%	270	49%	271	42%	5	5%	299	54%	304	46%
Multiple/Other	2	2%	19	3%	21	3%	0	0%	9	2%	9	1%
Borough of residence[3]												
Manhattan	25	24%	68	12%	93	14%	22	21%	73	13%	95	14%
Bronx	33	32%	67	12%	101	16%	21	20%	70	13%	91	14%
Brooklyn	30	29%	159	29%	189	29%	45	44%	152	28%	198	30%
Queens	11	11%	231	42%	242	37%	14	14%	229	41%	243	37%
Staten Island	5	5%	19	3%	24	4%	1	1%	24	4%	25	4%
Time in the U.S.												
<1 year	n/a	n/a	71	13%	71	13%	n/a	n/a	85	15%	85	15%
1-5 years	n/a	n/a	133	24%	133	24%	n/a	n/a	119	22%	119	22%
> 5 years	n/a	n/a	340	62%	340	62%	n/a	n/a	348	63%	348	63%
Unknown	n/a	n/a	2	0%	2	0%	n/a	n/a	0	0%	0	0%
CLINICAL CHARACTERISTICS												
Ever respiratory AFB smear positive	44	42%	252	46%	296	45%	41	40%	233	42%	274	42%
Sputum AFB smear positive	37	84%	233	92%	270	91%	35	85%	224	96%	259	95%
NAA positive[4]	3	27%	7	30%	10	29%	0	0%	7	19%	7	17%
Culture positive	70	67%	425	78%	495	76%	68	66%	407	74%	476	73%
Pulmonary only site of disease	64	62%	350	64%	414	64%	68	66%	342	62%	411	63%
Extra-pulmonary only site of disease	26	25%	125	23%	151	23%	23	22%	124	22%	147	22%
Both pulmonary & extra-pulmonary	14	13%	73	13%	87	13%	12	12%	86	16%	98	15%
Cavitary chest x-ray ever[5]	19	24%	95	22%	114	23%	16	20%	117	27%	133	26%
Multidrug resistance[6]	3	4%	16	4%	19	4%	0	0%	7	2%	7	2%
Extensive drug resistance[7]	0	0%	2	2%	2	2%	0	0%	0	0%	0	0%
Non-MDR INH resistance[6]	3	4%	35	8%	38	8%	7	11%	34	9%	41	9%
Non-MDR RIF resistance[6]	0	0%	1	0%	1	0%	0	0%	1	0%	1	0%
History of TB disease	10	10%	33	6%	43	7%	4	4%	34	6%	38	6%
HIV Status												
Infected	26	25%	34	6%	60	9%	18	17%	21	4%	39	6%
Not Infected	52	50%	396	73%	449	69%	60	58%	431	78%	491	75%
Refused	23	22%	90	16%	113	17%	21	20%	74	13%	95	14%
Not offered/done or unknown	3	3%	26	5%	29	4%	3	3%	24	4%	28	4%
SOCIAL CHARACTERISTICS[8]												
Homeless	14	13%	5	1%	19	3%	6	6%	8	1%	15	2%
Employed[9]	19	20%	236	44%	255	40%	26	29%	231	43%	257	41%
Health care worker	6	32%	36	15%	42	16%	4	15%	31	13%	35	14%
Drug use	30	29%	14	3%	44	7%	14	14%	13	2%	27	4%
Excessive alcohol use	7	7%	11	2%	18	3%	4	4%	5	1%	9	1%
TOTAL	104	16%	546	84%	651	-	103	16%	552	84%	656	-

1. U.S.-born includes individuals born in the U.S. and U.S. territories. 2. One case in each year had unknown country of birth. As such, totals may not equal the sum of U.S.-born and Foreign-born. 3. There were two cases in 2013 with addresses that could not be geocoded and two cases with non-NYC addresses. There were two cases in 2012 with non-NYC addresses. 4. Among patients with negative culture and NAA performed. 5. Among patients with a pulmonary site of disease. 6. Multidrug-resistant (MDR) TB is defined as resistance to at least isoniazid and rifampin. Percent is among patients with a positive culture and susceptibility testing for isoniazid and rifampin performed. 7. Extensively drug-resistant (XDR) TB is defined as resistance to at least isoniazid and rifampin plus a fluoroquinolone and a second-line injectable anti-TB medication. Percent is among patients with a positive culture and susceptibility testing for isoniazid, rifampin, any fluoroquinolone, and any second-line injectable anti-TB medication performed. 8. In the 12 months before TB diagnosis. 9. Among patients 18 years of age and older.

TECHNICAL NOTES

1 Data for 2013 are preliminary and reflect the most complete information available as of February 4, 2014. Data for 2012 have been updated since the release of the 2012 report. Case count data for earlier years reflect the official numbers released for those years.

2 Tuberculosis (TB) became a reportable disease on January 19, 1897. From 1920-1940, only cases of pulmonary TB were reportable. Beginning in 1978 the TB case definition was amended to treat people who had verified disease 12 or more months before their current diagnosis as incident cases of TB disease.

3 Age groupings have been changed from previous reports; as such count data for earlier years may differ from previous reports.

4 Reported rates for earlier years may differ from previous reports due to corrected data and changes in the denominators used to calculate rates for New York City (NYC) overall as well as by birth in the United States (U.S.), by race/ethnicity, and by United Hospital Fund neighborhood.

5 Tuberculosis rates for NYC overall are based on decennial U.S. Census data.

6 Rates by age and neighborhood are based on U.S. Census Bureau interpolated intercensal population estimates modified by the NYC Department of Health and Mental Hygiene (DOHMH). Data are modified to account for population undercounts in northwest Queens and southern Brooklyn because of erroneously deleted housing units and housing units mislabeled as vacant. Population estimates are updated as new data become available, therefore, rates may differ from previously reported rates.

7 Rates by place of birth prior to 2005 are based on decennial U.S. Census data. After 2005, rates are based on American Community Survey 3-year sample data.

8 Rates by race/ethnicity are based on denominators calculated from American Community Survey 3-year Public Use Microdata Sample data.

9 U.S.-born refers to patients born in the 50 states, District of Columbia , or other U.S. territories and outlying areas including American Samoa, Baker Island, Guam, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Island, Navassa Island, Northern Mariana Islands, Palmyra Atoll, Puerto Rico, U.S. Minor Outlying Islands, U.S. Pacific Islands, Virgin Islands, and Wake Island. All others with a known country of birth are considered foreign-born.

10 Area-based poverty is defined using patients' census tract of residence at the time of TB diagnosis. Census-tract poverty is based on the most recent American Community Survey 5-year sample data on the proportion of census tract residents living below the federal poverty limit. Patients with addresses outside of NYC, unable to be geocoded to a census tract, or located in census tracts where poverty level could not be determined were not assigned to a poverty level.

11 The geographic distribution of cases is presented by the 42 United Hospital Fund neighborhoods. These neighborhoods consist of adjoining ZIP codes that approximate NYC Community Planning Districts and contain an average of 200,000 individuals.

12 Data presented on HIV status reflect information as collected by the Bureau of Tuberculosis Control. Misclassification of HIV status may occur if a patient refused to disclose known status and/or refused to be tested for HIV while under care for TB disease.

13 Data on TB deaths are obtained from the NYC Office of Vital Statistics. Deaths recorded in a given year may include cases diagnosed in a previous year.

14 Product names are provided for identification purposes only; their use does not imply endorsement by the NYC DOHMH.

BTBC CHEST CENTER LOCATIONS:

BRONX

Morrisania Chest Center
1309 Fulton Avenue, First Floor
Bronx, NY 10456

MANHATTAN

Washington Heights Chest Center
600 West 168th Street, Third Floor
New York, NY 10032

QUEENS

Corona Chest Center
34-33 Junction Boulevard, Second Floor
Queens, NY 11372

BROOKLYN

Fort Greene Chest Center
295 Flatbush Avenue Extension, Fourth Floor
Brooklyn, NY 11201

For hours of operation, call 311

EDUCATIONAL MATERIALS:

Culturally, technically, and linguistically appropriate TB education materials for patients, the general public, and health care providers are available at no cost through the BTBC. For more information and to request materials, visit: nyc.gov/health/tb.

PROVIDER REPORTING REQUIREMENTS AND RESOURCES ARE AVAILABLE ONLINE AT NYC.GOV:

Information about provider reporting requirements

Patient Services Form (TB 65)

Hospital Discharge Approval Request Form (TB 354)

Hospital Discharge Planning Checklist

To create a NYCMED account

To obtain a URF

NYC INTERACTIVE HEALTH DATA IS NOW AVAILABLE ONLINE:

EpiQuery is a web-based, user-friendly system designed to provide users with NYC health data from a variety of sources. TB data is available on the EpiQuery site: a816-healthpsi.nyc.gov/EpiQuery