THE STATE OF TUBERCULOSIS, NEW YORK CITY 2015

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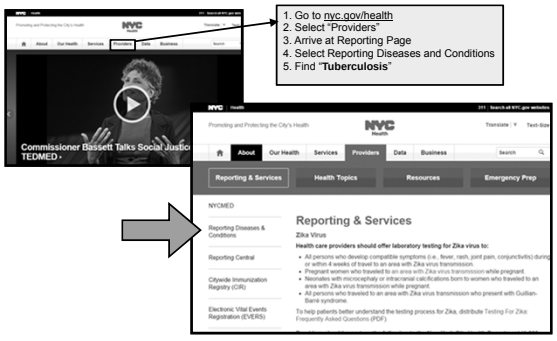
Bureau of Tuberculosis Control

Core TB Control Activities

- **Screen** for**, diagnose** & **treat** TB in our Chest Centers
- Ensure patients receive the best possible care and can complete treatment (**case management, medical consultation**)
- Prevent transmission and identify those who need treatment **(contact investigation, outbreak detection)**
- Maintain a **registry** of confirmed and suspected cases and contacts
- Conduct **analysis** and **evaluation** to inform best practices
- Collaborate with **community-based organizations** and other agencies

Reporting & Surveillance



Case Management Process

Health Department receives report of new or suspected TB diagnosis → Individual with suspected or confirmed TB is assigned a Case Manager

The Case Manager:

- Reviews chart
- Interviews & educates patient
- Identifies, interviews & tests contacts
- Offers Directly Observed Therapy (DOT)
- Follows patients and contacts through treatment completion

Directly Observed Therapy

Health Department Chest Centers

Expanded Contact Investigations

Medical Consultation & Provider Outreach

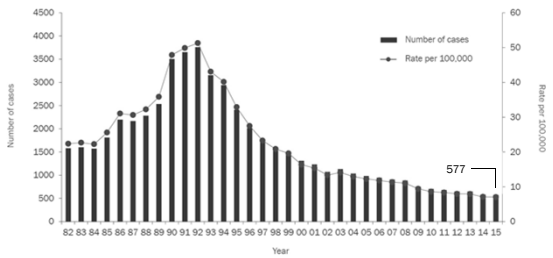
Community Collaboration

Training and Collaboration

HIGHLIGHTS FROM THE NYC TB ANNUAL SUMMARY

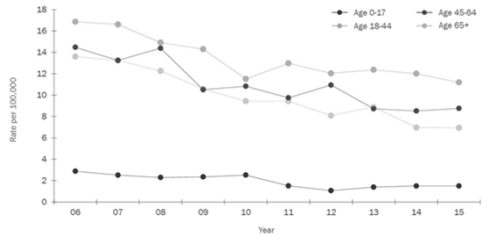
2015

Tuberculosis cases and rates, New York City, 1982-2015



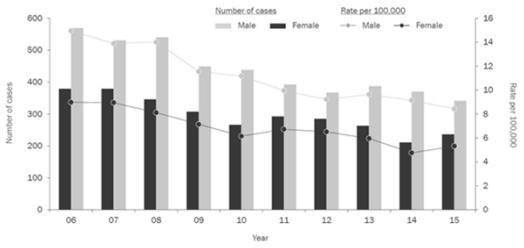
1. Rates are based on decennial Census data.

Tuberculosis rates by age in years, New York City, 2006-2015



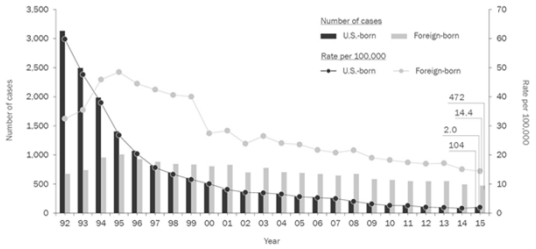
1. Rates are based on NYC Health Department population estimates, modified from U.S. Census Bureau interpolated intercensal population estimates, 2000-2014. Updated October 2015.

Tuberculosis cases and rates by sex, New York City, 2006-2015



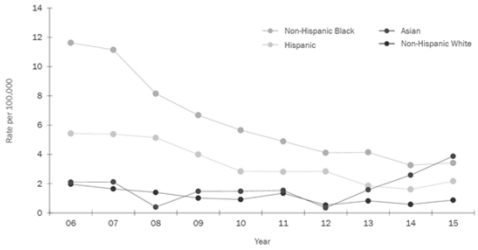
1. Rates are based on NYC Health Department population estimates, modified from U.S. Census Bureau interpolated intercensal population estimates, 2000-2014. Updated October 2015.

Tuberculosis cases and rates by birth in the United States (U.S.), New York City, 1992-2015



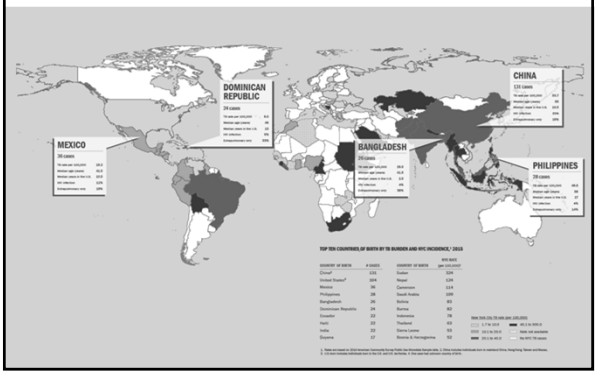
1. Rates prior to 2000 are based on 1990 U.S. Census data. Rates for 2000-2005 are based on 2000 U.S. Census data. Rates after 2005 are based on 1-year American Community Survey data for the given year or the most recent available data. 2. U.S.-born includes individuals born in the U.S. and U.S. territories.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

Tuberculosis rates among persons born in the United States by race/ethnicity, New York City, 2006-2015



1. Rates are based on 1-year American Community Survey Public Use Microdata Sample data for the given year or the most recent available data.
2. U.S.-born includes individuals born in the U.S. and U.S. territories.

TB among the foreign-born in New York City



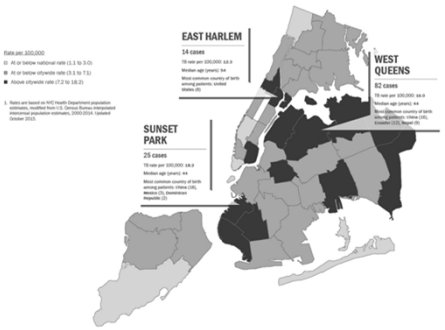
Top ten countries of birth by TB burden and NYC incidence, 2015

COUNTRY OF BIRTH	# CASES
China[2]	131
United States[3]	104
Mexico	36
Philippines	28
Bangladesh	26
Dominican Republic	24
Ecuador	22
Haiti	22
India	22
Guyana	17

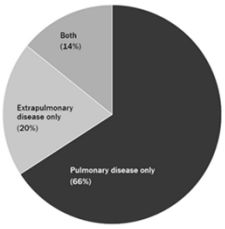
COUNTRY OF BIRTH	NYC RATE (per 100,000)[1]
Sudan	324
Nepal	124
Cameroon	114
Saudi Arabia	109
Bolivia	83
Burma	82
Indonesia	78
Thailand	63
Sierra Leone	53
Bosnia & Herzegovina	52

1. Rates are based on 2014 American Community Survey Public Use Microdata Sample data. 2. China includes individuals born in mainland China, Hong Kong, Taiwan and Macau. 3. U.S.-born includes individuals born in the U.S. and U.S. territories. 4. One case had unknown country of birth.

Tuberculosis rates by United Hospital Fund (UHF) neighborhood, New York City, 2015



Tuberculosis cases by disease site, New York City, 2015 (n=577)

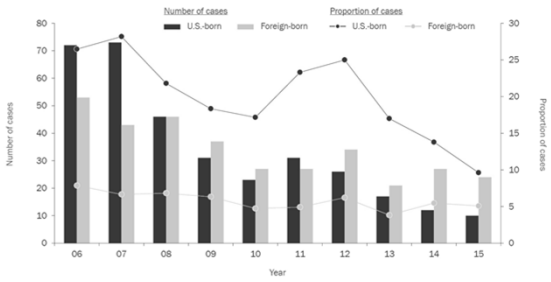


Disease site[1] among tuberculosis cases with any extrapulmonary disease, New York City, 2015 (n=197)

Disease site	Number	Percent
Any extrapulmonary	197	-
Lymphatic	82	42
Pleural	60	30
Bone/joint	24	12
Meningeal	11	6
Genitourinary	8	4
Peritoneal	12	6
Laryngeal	2	1
Other	30	15

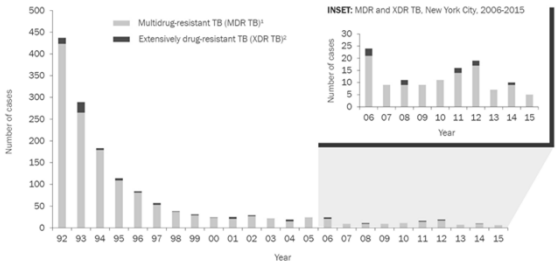
1. Categories are not mutually exclusive.

HIV infection among tuberculosis cases by birth in the United States, New York City, 2006-2015



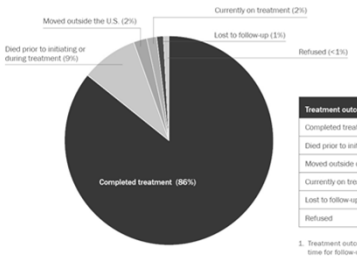
1. U.S.-born includes individuals born in the U.S. and U.S. territories. 2. Excludes cases with unknown country of birth.

Multidrug resistance among tuberculosis cases, New York City, 1992-2015



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.

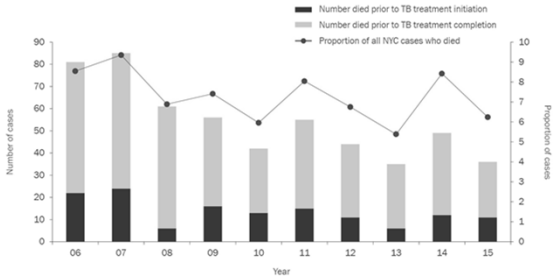
Treatment outcomes for tuberculosis cases counted in 2014, New York City (n=582)



Treatment outcome[1]	Number	Percent
Completed treatment	499	86
Died prior to initiating or during treatment	51	9
Moved outside of the U.S.	12	2
Currently on treatment	9	2
Lost to follow-up	6	1
Refused	5	<1

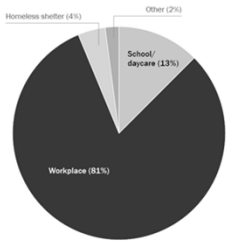
1. Treatment outcomes are not reported for the current year to allow sufficient time for follow-up.

Number and proportion of tuberculosis cases who died before or during treatment, New York City, 2006-2015



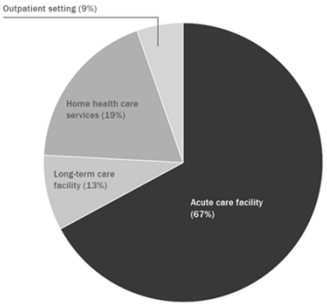
1. A death is defined as any patient who died prior to or during TB treatment, regardless of the cause of death. This excludes any patient who died after the completion of TB treatment.

Epidemiologic investigations in non-household settings by site type, number of exposed contacts, and transmission assessment, New York City, 2015 (n=48)



	≥15 exposed contacts	<15 exposed contacts	Total
Number of sites	18	30	48
Transmission likely[2]	4 (24%)	5 (19%)	9 (21%)
Number of contacts	1,133	204	1,337
Eligible for testing[3]	1,091 (96%)	192 (94%)	1,283 (96%)
Tested	847 (78%)	173 (90%)	1,020 (80%)
Positive	42 (5%)	22 (13%)	64 (6%)

TB exposures in health care settings, 2015 (n=149)



2015 TB Annual Summary will be available on World TB Day at www.nyc.gov search "TB annual report."

For a hardcopy report, please email tbepi@health.nyc.gov

For Additional data: Epi QUERY

- An interactive, user-friendly system designed to guide users through basic data analyses
- Data are available on NYC TB cases from 2001-2014
  - Demographic & geographic characteristics
- To access TB EpiQuery, go to: http://nyc.gov/health/epiquery

2015 PUBLICATIONS

Highlights

Bureau of TB Control published 11 papers in 2015

Treatment outcomes

- **Enhanced TB Infection Treatment Outcomes after Implementation of QFT Testing**. Crossa A, et al. PLoS One 2015
- **Treatment for TB infection with 3 months of rifapentine and isoniazid in NYC Health Department clinics.** Stennis NL, et al. CID 2015
- **Characteristics and TB treatment outcomes in TB patients with viral hepatitis, New York City, 2000-2010.** Bushnell G, et al. Epidemiol Infect. 2015
- **Moxifloxacin Prophylaxis against MDR-TB, NYC**. Trieu L, et al. EID 2015

Contact investigations/transmission

- **High TB Strain Diversity among NYC Public Housing Residents**. Dawson P, et al. AJPH 2015
- **Contact Investigations around M.tb Patients without Positive Respiratory Culture.** Cates J, et al. JPHMP 2015
- **Confirming *M.tb* transmission from a cadaver to an embalmer using molecular epidemiology.** Anderson JA, et al. Am J Infect Control 2015
- **Increasing the Efficiency and Yield of a TB Contact Investigation through Electronic Data Systems Matching.** Sanderson JM, et al. J Am Med Inform Assoc. 2015
- **Risk for TB Disease among Contacts with Prior Positive TST: A Retrospective Cohort Study, NYC.** Gounder, et al. J Gen Intern Med. 2015

Academic collaborations

- **Bridging the gap between evidence and policy for infectious diseases: How models can aid public health decision-making.** Knight GM, et al. Int J Infect Dis. 2015
- **Epidemiologic correlates of pyrazinamide-resistant *M. tb* in NYC**. Verdugo D, et al. Antimicrob Agents Chemother. 2015

Risk for TB Disease Among Contacts with Prior Positive Tuberculin Skin Test

Risk factors for TB disease among contacts that tested prior positive	Adjusted PR
Contact under 5 years old at TB exposure	19.48 (7.15–53.09)
Household contact	2.60 (1.30–5.21)
Received ≥ 1 month of treatment for TB infection	0.27 (0.08–0.93)
US born index patient	4.04 (1.95–8.38)
Infectious index patient (smear + or cavities on CXR)	1.93 (1.01–3.71)

- Among contacts with prior positive TST results, just 1.3% developed active TB disease ≤ 4 years after exposure
- Genotype results were concordant with the index patients among 14 of 15 contacts who developed active TB disease and had genotyping results available
- **Healthcare providers should consider prophylaxis for contacts with prior TB infection, especially young children and close contacts of TB patients (e.g., those with household exposure).**

Gounder et al. J Gen Intern Med. 2015

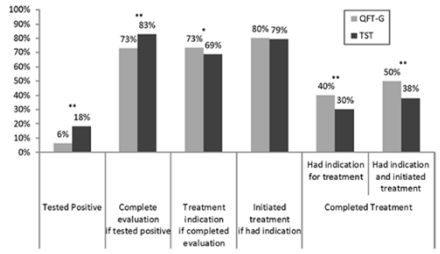
Treatment for TB infection with three months of rifapentine and isoniazid

	Treatment Choice, n (%)		
Characteristic	3HP	Other[1]	P-value[2]
Total	302	92	-
Completed treatment	196 (65)	42 (46)	<0.01
Lost	31 (10)	23 (25)	<0.01
Refused	26 (9)	22 (24)	<0.01
Switched treatment	18 (6)	0 (0)	0.01
Discontinued due to side effects	13 (4)	0 (0)	0.04
Other	18 (6)	4 (4)	0.80
Unknown	0 (0)	1 (1)	0.23

- Implementation of 3HP increased treatment completion by 31%, but did not increase treatment acceptance
- In-clinic DOT requirement was a major barrier to acceptance
- Side effects were generally mild; 13 patients (4%) permanently discontinued 3HP due to side effects

Stennis NL et al. Clin Infect Dis. 2015

Enhanced TB Infection Treatment Outcomes after Implementation of QFT-Gold Testing



QFT-G implementation did not influence treatment initiation, but did increase the proportion of patients completing LTBI treatment

Crossa A, et al. PLoS One. 2015

WORKING TOGETHER TO STOP TB

Free Tuberculosis-Related Services

Any New Yorker who has active TB or a positive test for TB infection can be referred for these free services:

- Chest Center Services, including
  - Evaluation & Treatment for Active TB
  - Treatment for LTBI
- Case Management Services, including:
  - Directly Observed Therapy (video/in-person)
  - Shorter regimens for LTBI (3HP & 4R)

Contacts may also be referred for QFT testing

Resources for Providers

nyc.gov/health	• Report confirmed or suspected TB via NYCMED (Health Department portal) • Sign up for *Health Alert Network* emails
347-396-7400 (TB Hotline)	• Contact Doctor on Call for medical consultation or to review discharge plans • Connect patients with DOT and other services
nyc.gov/health /tb	• Access educational resources • Sign up for *TB Action News* emails

QUESTIONS?