



Cook County DEPT.
of
Public Health

Promoting health. Preventing disease. *Protecting you.*

Annual
Tuberculosis
Surveillance
Report
2014

COOK COUNTY DEPARTMENT OF PUBLIC HEALTH

Terry Mason, MD, FACS

Chief Operating Officer, Cook County Department of Public Health

Demian Christiansen, DSc, MPH

Interim Director

Communicable Disease Control Unit

Copyright Information

All materials contained in this report are in the public domain and may be used and reprinted without special permission; citation as to source, however, is appreciated.

Suggested Citation

Cook County Department of Public Health. *Annual Tuberculosis Surveillance Report, 2014*. Oak Forest, IL, 2015.

Cook County Department of Public Health
Protecting the Health and Environment of Suburban Cook County
Affiliate, Cook County Health and Hospitals System

John Jay Shannon, MD
CEO, Cook County Health and Hospitals System

Honorable Toni Preckwinkle
President, Cook County Board of Commissioners
President, Cook County Board of Health

Communicable Disease Control Unit
Cook County Department of Public Health
7665 W. Jackson Blvd.
Forest Park, IL 60130

CONTENTS

ACRONYMS, ABBREVIATIONS & DEFINITIONS	5
---	---

OVERVIEW	6
----------------	---

LIST OF TABLES

Table 1. Number and Rate (per 100,000 population) of Reported Tuberculosis Cases by Selected Public Health Jurisdictions, 1993-2014	7
Table 2. Number and Percentage of Reported Tuberculosis Cases by Selected Characteristics, Suburban Cook County, 2005-2014	8
Table 3. Tuberculosis Cases by Most Frequently Reported Countries of Origin, Suburban Cook County, 2005-2014	9
Table 4. Number and Proportion of Reported Tuberculosis Cases by Site of Disease and Laboratory Results, Suburban Cook County, 2014	10
Table 5. Tuberculosis Susceptibility Results by Birthplace, Suburban Cook County, 2014	10
Table 6. Trends in the Number of Reported Tuberculosis Cases, HIV Testing and Coinfection with HIV, Suburban Cook County, 2005-2014	11
Table 7. Reported Tuberculosis Cases and Rates (per 100,000 population) by Municipality, Suburban Cook County, 2014	13

LIST OF FIGURES

Figure 1. Rates of Reported Tuberculosis Cases by Selected Jurisdictions, 1993-2014	7
Figure 2. Proportion of Reported Tuberculosis Cases by Birthplace, Suburban Cook County, 2005-2014	8
Figure 3. Reported TB Cases by Birthplace and Race/Ethnicity, Suburban Cook County, 2014	9
Figure 4. Number of Years Living in the United States Prior to Receiving a Diagnosis of Tuberculosis Disease, Suburban Cook County, 2014	10
Figure 5. Mode of Treatment Administration in Reported Tuberculosis Cases, Suburban Cook County, 2005-2014	11
Figure 6. Completion of Tuberculosis Therapy, Suburban Cook County, 2003-2012.....	12
TECHNICAL NOTES	14

ACRONYMS, ABBREVIATIONS & DEFINITIONS

Active TB: (see TB Disease)

AIDS: Acquired immunodeficiency syndrome.

BCG: Bacille Calmette Guérin, a vaccination given to persons, usually infants, in countries where TB is common. BCG is NOT used in the United States.

DOT: Directly Observed Therapy. Health department staff watch patients take anti-TB medications.

Extrapulmonary TB: A person with *Mycobacterium tuberculosis* infection outside of the lungs, the pleural space, and the larynx (voice box). A person with extrapulmonary disease can also have pulmonary TB (see below).

HIV: Human immunodeficiency virus.

I-NEDSS: Illinois-National Electronic Disease Surveillance System. I-NEDSS is a web-based application that establishes a secure and real-time communication link between hospitals, laboratories and other health care providers with state and local health department staff for the purposes of reporting and managing communicable disease information.

LTBI: Latent Tuberculosis Infection; a person with TB infection who is not contagious.

MDR-TB: Multi-drug resistant TB. MDR-TB is defined as TB resistant to isoniazid and rifampin.

Pulmonary TB: A person with *Mycobacterium tuberculosis* infection of the lungs, pleural space or the larynx (voice box). A person with pulmonary TB can also have extrapulmonary TB.

QFT-G: QuantiFERON-TB Gold Test, a blood test used to detect *Mycobacterium tuberculosis*. This test cannot distinguish persons with LTBI from persons with TB disease. QFT-G can, however, differentiate between persons with TB infection or disease and those who received BCG vaccine.

SA: Self-administered anti-TB therapy. Patients are not observed taking their medications.

TB: Tuberculosis.

TB Disease: A person with TB infection who is contagious to others; a person with TB disease can have pulmonary TB, extrapulmonary TB, or both.

TST: Tuberculin Skin Test, a test whereby purified protein derivative (PPD) is injected under the skin in the forearm. Persons with TB infection react to the PPD which results in a bump (induration) where the PPD was injected. Qualified healthcare personnel can measure the size of the bump and determine whether the test is positive or negative. A positive TST can indicate active TB infection, LTBI, or prior BCG vaccination. However, the TST is not able to distinguish between these three possibilities.

XDR-TB: Extensively drug resistant TB. XDR-TB is defined as MDR-TB plus TB that is resistant to any fluoroquinolone plus resistance to one of the three injectable drugs (i.e., amikacin, kanamycin, or capreomycin).

OVERVIEW

Epidemiologic Summary

- Sixty four (64) new cases of TB were reported in suburban Cook County in 2014. This represents a rate of 2.6 cases per 100,000 population and is an 18% decrease in cases reported since 2013 (Table 1).
- The West District had the highest TB rate (4.0 per 100,000 population) of any of the four public health districts in suburban Cook County (Table 7). The North District had the second highest TB rate (3.4 per 100,000 population; Table 7).

TB Burden in Foreign-born Persons

- The proportion of TB cases in foreign-born persons was 73% in 2014 (Figure 2).
- Three countries accounted for 68% of all foreign-born cases: Mexico (34%), the Philippines (19%) and India (15%; Table 3 and Figure 4).
- Among foreign-born persons diagnosed with TB, 74% arrived 5 or more years prior to receiving a diagnosis of TB disease (Figure 4).

Drug Resistance

- In 2014, no case of MDR-TB was identified (Table 5).

Coinfection with HIV

- Five (5) cases with TB were coinfecting with HIV (Table 6); these persons are defined, per AIDS case definition, as having AIDS.

Directly Observed Therapy

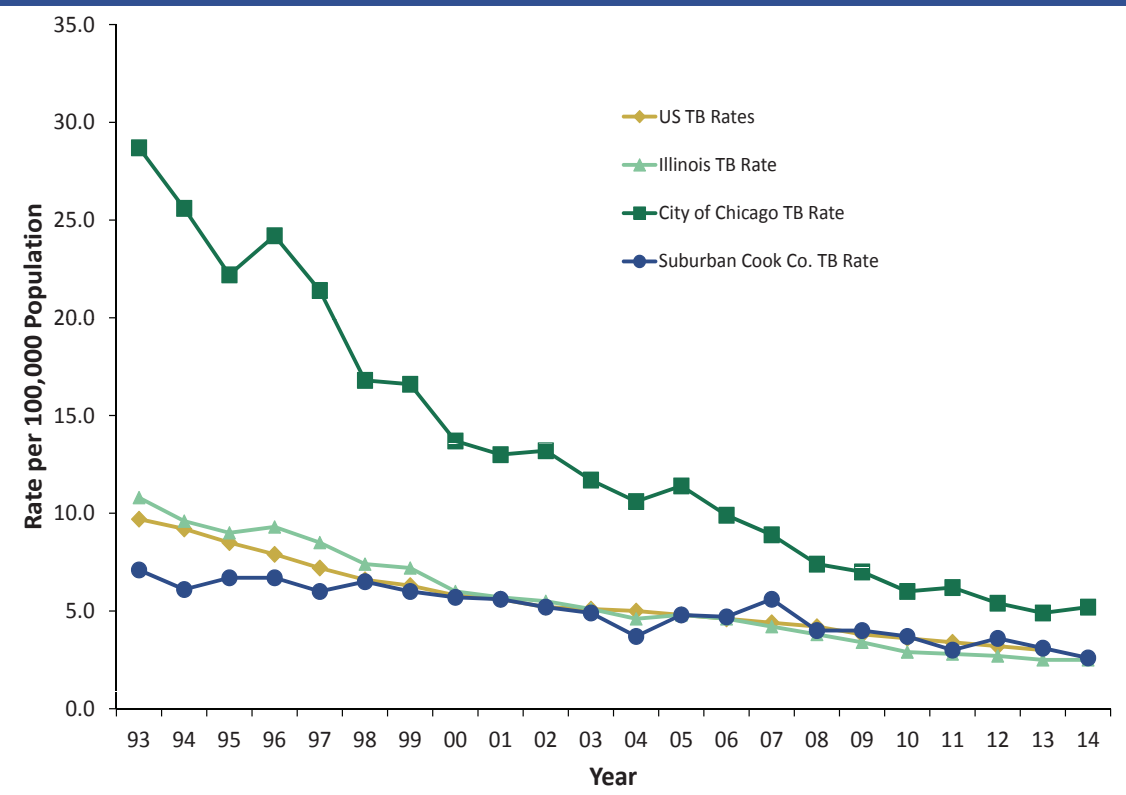
- In 2014, 92.5% of patients with pulmonary TB received DOT (Figure 5).

Completion of Therapy

- For TB cases diagnosed in 2012, the most recent year for which data on completion of tuberculosis therapy are available, 97.5% of persons with TB disease who were eligible* completed treatment.
- Among persons diagnosed in 2012 and who were eligible* to complete TB treatment in 12 months*, 94.3% of cases did so. This is above the Healthy People 2020 goal of 93% (Figure 6).

* Eligible cases are persons who were alive at the time of TB diagnosis and did not die during therapy, and excludes persons with TB resistant to rifampin and pediatric cases (<15 years) with a diagnosis of meningeal, bone/joint, or miliary TB.

Figure 1. Rates of Reported Tuberculosis Cases by Selected Jurisdictions, 1993-2014



◀ **Figure 1.** TB counts and TB rates declined in all jurisdictions. In Suburban Cook County, TB rates declined from 7.1 per 100,000 population in 1993 to 2.6 per 100,000 population in 2014. TB rates in Chicago declined from 28.7 per 100,000 population in 1993 to 5.2 per 100,000 in 2014.

Table 1. Number and Rate (per 100,000 population) of Reported Tuberculosis Cases by Selected Public Health Jurisdictions, 1993-2014

Year	Suburban Cook County		City of Chicago		Illinois		USA	
	No.	Rate*	No.	Rate*	No.	Rate*	No.	Rate†
1993	165	7.1	798	28.7	1,235	10.8	25,107	9.7
1994	142	6.1	714	25.6	1,101	9.6	24,205	9.2
1995	155	6.7	619	22.2	1,024	9.0	22,728	8.5
1996	155	6.7	674	24.2	1,060	9.3	21,210	7.9
1997	140	6.0	597	21.4	974	8.5	19,751	7.2
1998	150	6.5	469	16.8	850	7.4	18,287	6.6
1999	140	6.0	463	16.6	825	7.2	17,501	6.3
2000	141	5.7	398	13.7	743	6.0	16,310	5.8
2001	139	5.6	377	13.0	707	5.7	15,945	5.6
2002	130	5.2	382	13.2	680	5.5	15,056	5.2
2003	122	4.9	339	11.7	633	5.1	14,836	5.1
2004	91	3.7	308	10.6	569	4.6	14,500	5.0
2005	120	4.8	329	11.4	596	4.8	14,067	4.8
2006	116	4.7	287	9.9	569	4.6	13,727	4.6
2007	139	5.6	258	8.9	521	4.2	13,288	4.4
2008	100	4.0	214	7.4	469	3.8	12,904	4.2
2009	100	4.0	202	7.0	418	3.4	11,540	3.8
2010	93	3.7	161	6.0	372	2.9	11,181	3.6
2011	75	3.0	166	6.2	359	2.8	10,521	3.4
2012	89	3.6	146	5.4	347	2.7	9,951	3.2
2013	78	3.1	131	4.9	319	2.5	9,588	3.0
2014	64	2.6	141	5.2	320	2.5	9,412	3.0

* Rates (per 100,000 population) for years 1993-1999 calculated using 1990 US census data; rates for 2000 - 2009 calculated using 2000 US census data. Rates for 2010-2012 calculated using 2010 US census data.

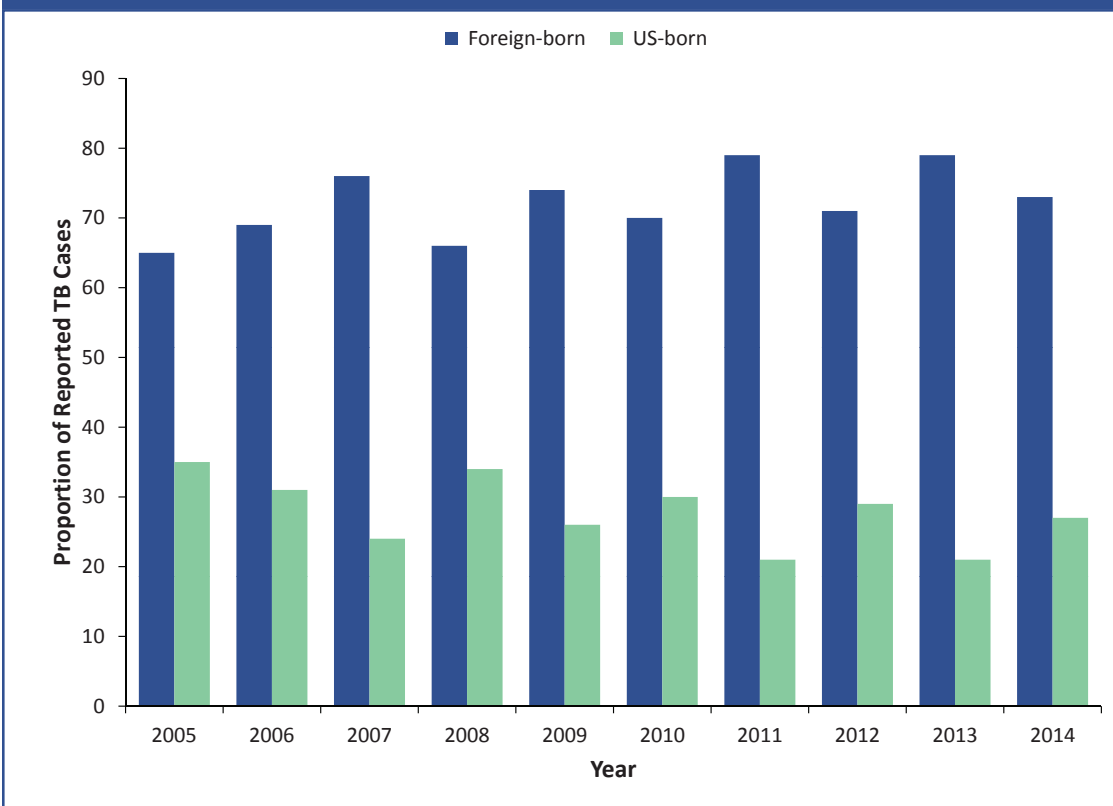
† US rates calculated using intercensal estimates from the US Census Bureau.

Table 2. Number and Percentage of Reported Tuberculosis Cases by Selected Characteristics, Suburban Cook County, 2005-2014

Characteristic	Year																			
	2005		2006		2007		2008		2009		2010		2011		2012		2013		2014	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Sex																				
Male	57	(48)	64	(55)	73	(52)	58	(58)	47	(47)	51	(55)	41	(55)	50	(56)	45	(58)	36	(56)
Female	63	(53)	52	(45)	67	(48)	42	(42)	53	(53)	42	(45)	34	(45)	39	(44)	33	(42)	28	(44)
Age Groups (Y)																				
<5	3	(3)	4	(3)	3	(2)	2	(2)	2	(2)	2	(2)	1	(1)	4	(4)	0	(0)	3	(5)
5-14	3	(3)	4	(3)	2	(1)	1	(1)	0	(0)	0	(0)	2	(3)	0	(0)	0	(0)	1	(2)
15-24	15	(13)	7	(6)	14	(10)	4	(4)	13	(13)	9	(10)	6	(8)	10	(11)	10	(13)	8	(13)
25-44	43	(36)	36	(31)	32	(23)	40	(40)	40	(40)	24	(26)	24	(32)	18	(20)	27	(35)	17	(27)
45-64	31	(26)	35	(30)	58	(41)	30	(30)	22	(22)	29	(31)	21	(28)	34	(38)	23	(29)	21	(33)
65+	25	(21)	30	(26)	31	(22)	23	(23)	23	(23)	29	(31)	21	(28)	23	(26)	23	(29)	14	(22)
Race/Ethnicity																				
White, not Hispanic	21	(18)	19	(16)	27	(19)	21	(21)	14	(14)	14	(15)	10	(13)	22	(25)	7	(9)	13	(20)
Black, not Hispanic	30	(25)	19	(16)	16	(11)	24	(24)	10	(10)	11	(12)	13	(17)	13	(15)	16	(21)	8	(13)
Hispanic	24	(20)	25	(22)	28	(20)	17	(17)	24	(24)	31	(33)	20	(27)	15	(17)	16	(21)	21	(33)
Asian/Pacific Islander	45	(38)	53	(46)	69	(49)	38	(38)	45	(45)	37	(40)	32	(43)	39	(44)	39	(50)	22	(34)
Other	0	(0)	0	(0)	0	(0)	0	(0)	7	(7)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
TOTAL	120	(100)	116	(100)	140	(100)	100	(100)	100	(100)	93	(100)	75	(100)	89	(100)	78	(100)	64	(100)

▲ Table 2. In 2014, 56% of TB cases were male; 82% were aged 25 years or older; 34% were Asian/Pacific Islanders and 33% were Hispanic/Latino. There were 4 pediatric cases (i.e. cases <15 years of age) representing 7% of all cases diagnosed in 2014 in suburban Cook County.

Figure 2. Proportion of Reported Tuberculosis Cases by Birthplace, Suburban Cook County, 2005-2014



◀ Figure 2. The proportion of TB cases in foreign-born persons was 73% in 2014.

► **Figure 3.** Important race/ethnicity differences exist in the distribution of cases by birthplace. Among foreign-born persons, Asian/Pacific Islanders accounted for a plurality (45%) of cases. By comparison, non-Hispanic Whites accounted for the highest proportion of cases (41%) among U.S.-born TB cases.

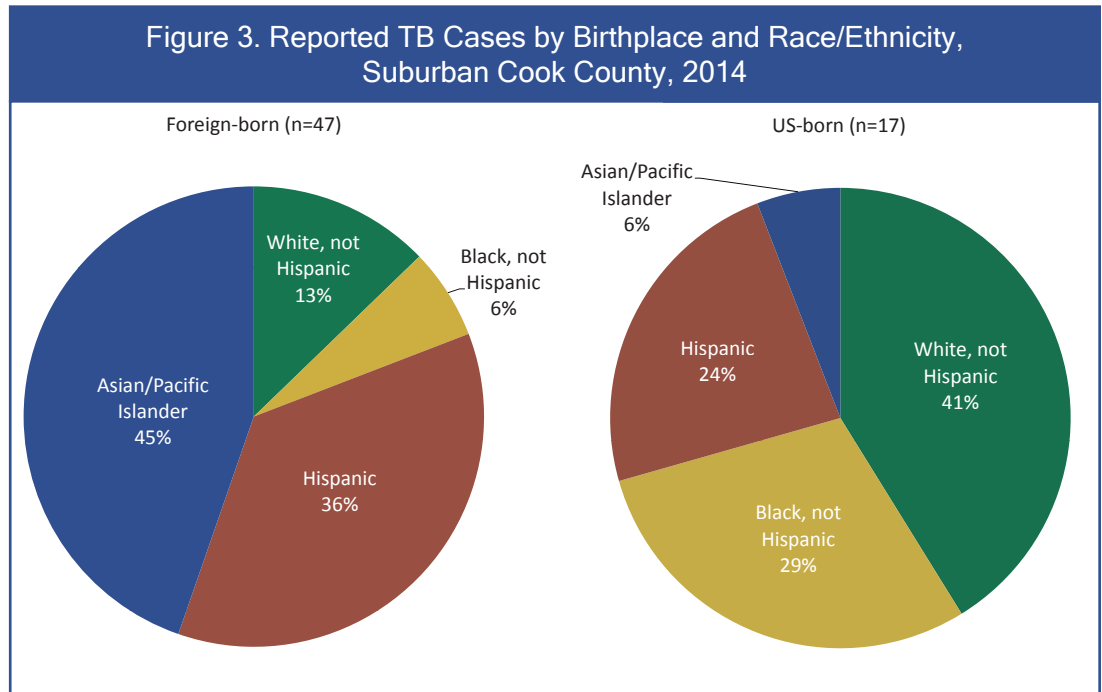


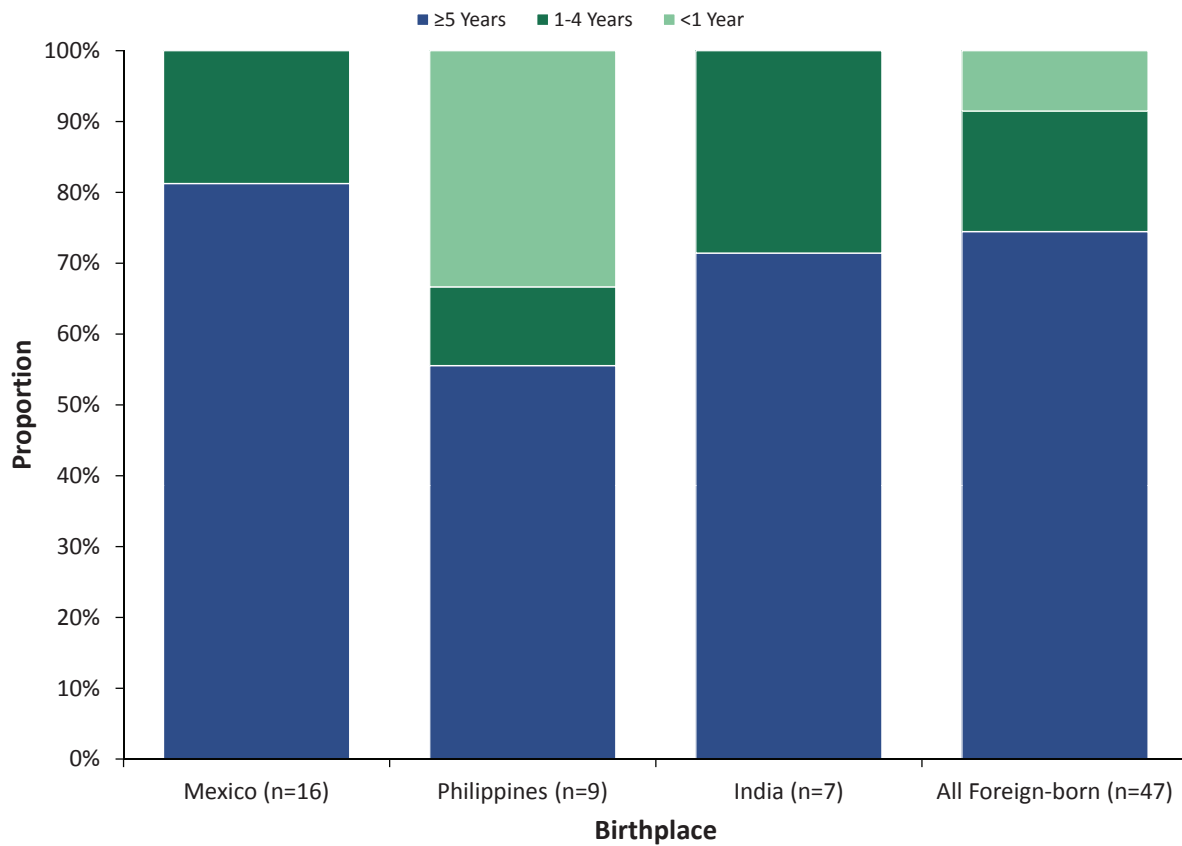
Table 3. Tuberculosis Cases by Most Frequently Reported Countries of Origin, Suburban Cook County, 2005 - 2014

Birthplace	Year									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014*
Mexico	19	18	18	11	17	21	17	10	11	16
Philippines	12	16	21	17	11	8	5	12	7	9
India	24	23	30	10	18	20	18	17	17	7
China	0	4	1	4	2	2	0	2	6	1
Poland	3	1	4	2	2	1	6	6	6	1
Ukraine	0	0	2	0	0	0	0	0	3	1
Mongolia	1	2	0	0	0	0	0	3	2	1
Nigeria	1	0	0	1	1	0	3	0	2	1
Korea [South]	4	2	5	1	2	2	1	0	1	1
Pakistan	1	1	5	1	3	0	0	2	2	0
Haiti	1	0	1	0	2	0	0	2	1	0
Romania	1	2	0	1	0	0	1	1	1	0
Russia	1	0	1	2	0	1	1	0	1	0
Vietnam	1	2	1	2	6	1	2	1	1	0

*Cases were also counted in persons born in Australia, Bosnia and Herzegovina, Bulgaria, Cambodia, Guatemala, Serbia, South Africa, and Tanzania.

◀ **Table 3.** In 2014, 47 foreign-born persons with active TB came from 17 different countries. Three countries accounted for 68% of all foreign born cases: Mexico (n=16; 34%); the Philippines (n=9; 19%); and India (n=7; 15%).

Figure 4. Number of Years Living in the United States Prior to Receiving a Diagnosis of Tuberculosis Disease, Suburban Cook County, 2014



◀ **Figure 4.** Among all foreign-born TB cases reported in 2014, 74% arrived in the U.S. 5 or more years prior to receiving a diagnosis of TB disease.

Table 4. Number and Proportion of Reported Tuberculosis Cases by Site of Disease and Laboratory Results, Suburban Cook County, 2014

Site of Disease	Total Cases	Sputum Smear Positive		Culture positive	
	No.	No.	(%)	No.	(%)
Pulmonary Only	39	13	(33)	28	(72)
Extrapulmonary Only	22	0	(0)	0	(0)
Both	3	1	(0)	1	(33)
Total	64	14	(22)	29	(45)

◀ **Table 4.** Thirty nine (39) reported TB cases in 2014 had pulmonary only TB; 22 cases had extrapulmonary only TB (no pulmonary involvement). Seventy two percent (72%) of pulmonary only TB cases were culture positive.

▶ **Table 5.** Forty seven (47) cases in 2014 had susceptibility testing performed. There were no cases of MDR-TB or XDR-TB in suburban Cook County in 2014.

Table 5. Tuberculosis Susceptibility Results by Birthplace, Suburban Cook County, 2014

Birthplace	Cases with Susceptibility Results	Any Drug Resistance		INH-Resistant		MDR-TB	
	No.	No.	(%)	No.	(%)	No.	(%)
Foreign-born	35	6	(17)	4	(11)	0	(0)
US-born	12	0	(0)	0	(0)	0	(0)
Total	47	6	(13)	4	(9)	0	(0)

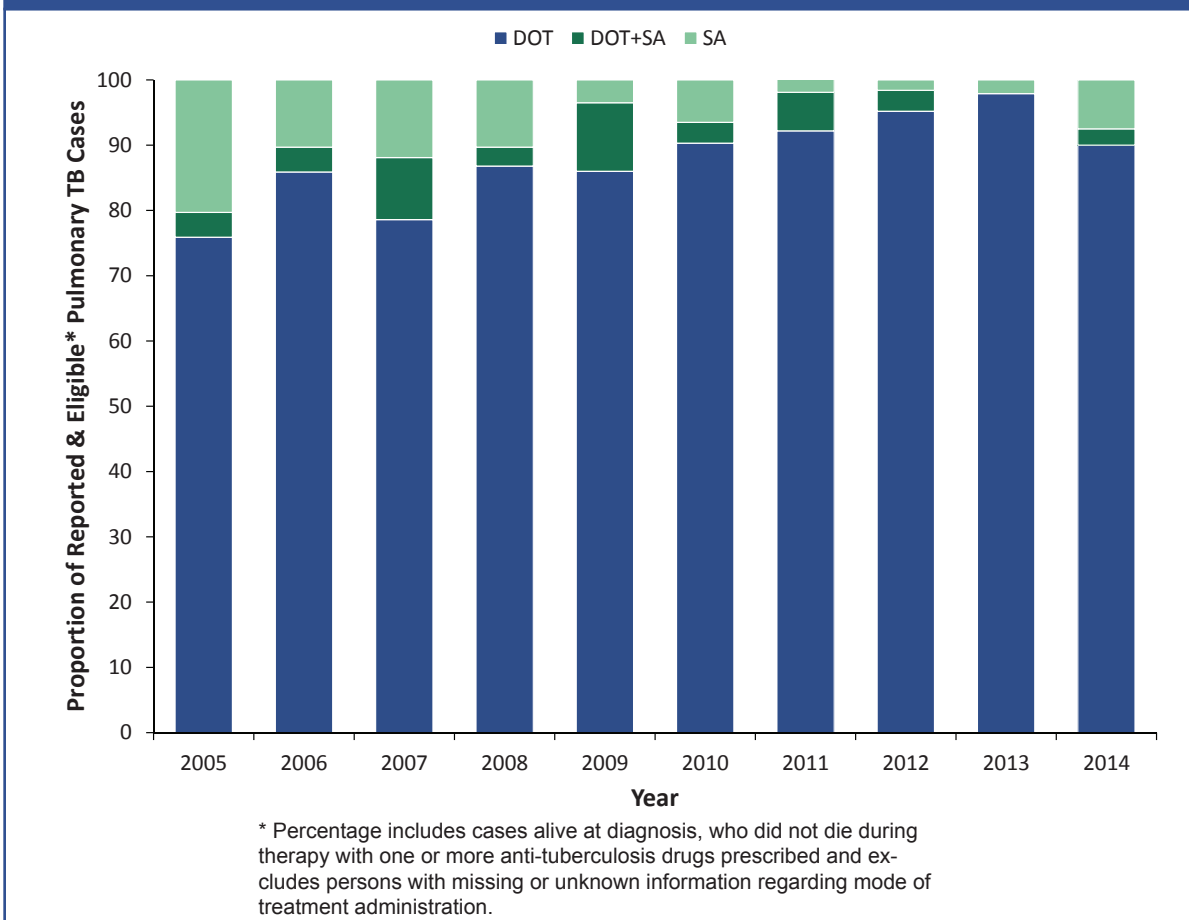
Table 6. Trends in the Number of Reported Tuberculosis Cases, HIV Testing and Coinfection with HIV, Suburban Cook County, 2005-2014

► **Table 6.** Testing for HIV among reported cases of TB increased from 78% in 2005 to 100% in 2014. Five (5) cases were coinfecting in 2014. Persons with TB and HIV coinfection are classified, by AIDS surveillance case definition, as having AIDS.

Year	TB Cases		Tested for HIV		Coinfected with HIV*	
	No.	No.	(%)	No.	(%)	
2005	120	94	(78)	6	(6)	
2006	116	85	(73)	†	†	
2007	139	109	(78)	6	(6)	
2008	100	87	(87)	9	(10)	
2009	100	77	(77)	5	(6)	
2010	93	72	(77)	0	(0)	
2011	75	67	(89)	†	†	
2012	89	78	(88)	5	(6)	
2013	78	76	(88)	†	†	
2014	64	64	(100)	5	(8)	

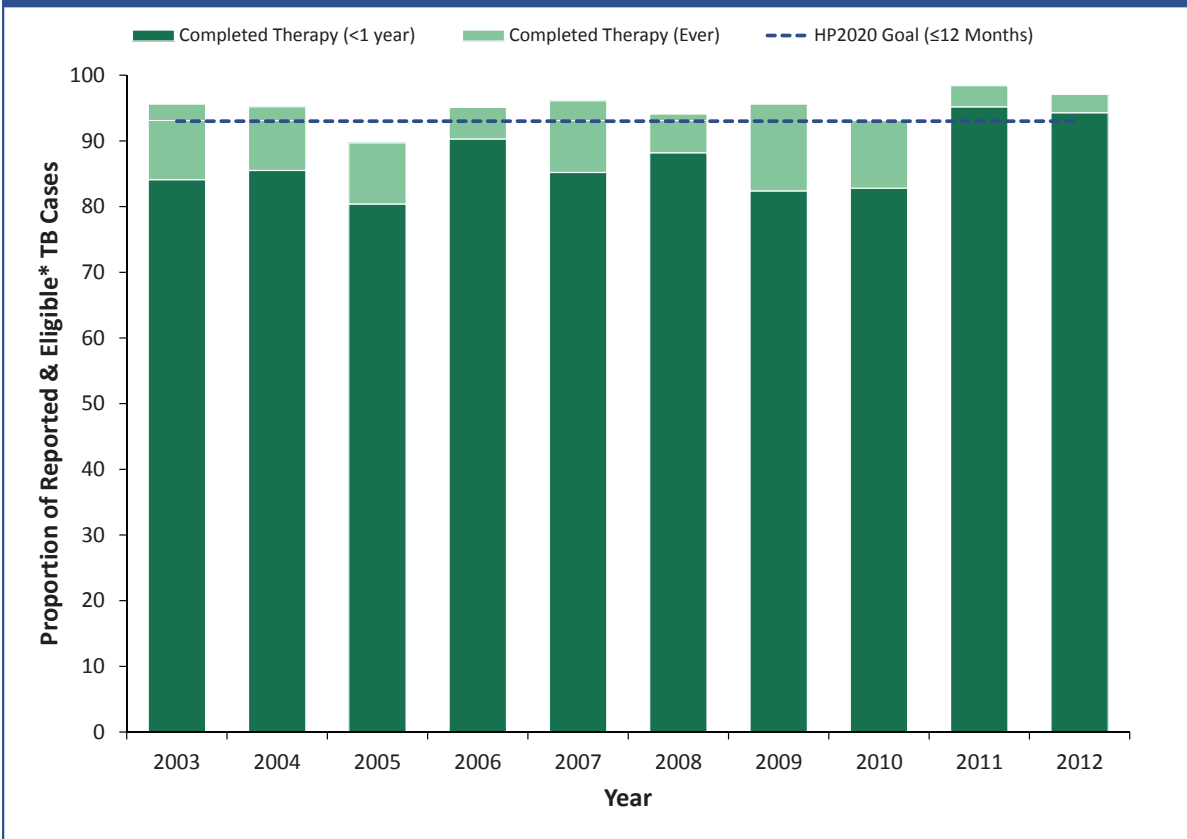
* Persons with HIV who receive a TB diagnosis are defined as having AIDS.
 † Cells with small counts (1-4) have been suppressed.

Figure 5. Mode of Treatment Administration in Reported Pulmonary Tuberculosis Cases, Suburban Cook County, 2002-2011



◀ **Figure 5.** In 2014, 92.5% of pulmonary cases received directly observed therapy (DOT).

Figure 6. Completion of Tuberculosis Therapy, Suburban Cook County, 2003-2012



◀ **Figure 6.** In 2012, the most recent year for which data on completion of tuberculosis therapy are available, 97.5% of reported TB cases who were eligible* completed treatment.

In 2012, 94.3% of eligible* persons completed treatment in less than one year. This is above the Department of Health and Human Services Healthy People 2020 goal of 93%.

* Eligible cases are persons who were alive at the time of TB diagnosis and did not die during therapy, and excludes persons with TB resistant to rifampin and pediatric cases (<15 years) with a diagnosis of meningeal, bone/joint, or miliary TB.

Table 7. Reported Tuberculosis Cases and Rates (per 100,000 population) by Municipality
Suburban Cook County, 2014

NORTH			WEST			SOUTH			SOUTHWEST		
City	No.	Rate	City	No.	Rate	City	No.	Rate	City	No.	Rate
Arlington Heights	1	1.3	Bellwood	1	5.2	Burnham	0	0.0	Alsip	0	0.0
Barrington	0	0.0	Bensenville	0	0.0	Calumet City	0	0.0	Bedford Park	0	0.0
Barrington Hills	0	0.0	Berkeley	0	0.0	Chicago Heights	0	0.0	Blue Island	1	4.2
Bartlett	1	6.0	Berwyn	1	1.8	Country Club Hills	0	0.0	Bridgeview	0	0.0
Buffalo Grove	0	0.0	Broadview	0	0.0	Dixmoor	0	0.0	Burbank	1	3.5
Des Plaines	4	6.9	Brookfield	0	0.0	Dolton	0	0.0	Calumet Park	1	12.8
Elgin	1	4.2	Burr Ridge	0	0.0	East Hazel Crest	0	0.0	Chicago Ridge	0	0.0
Elk Grove Village	1	3.0	Cicero	5	6.0	Flossmoor	0	0.0	Crestwood	1	9.1
Evanston	1	1.3	Countryside	0	0.0	Ford Heights	0	0.0	Evergreen Park	0	0.0
Glencoe	0	0.0	Elmwood Park	1	4.0	Glenwood	0	0.0	Forest View	0	0.0
Glenview	4	9.0	Forest Park	0	0.0	Harvey	0	0.0	Hickory Hills	1	7.1
Golf	0	0.0	Franklin Park	1	5.5	Hazel Crest	0	0.0	Hometown	0	0.0
Hanover Park	1	4.8	Harwood Heights	0	0.0	Homewood	0	0.0	Justice	0	0.0
Hoffman Estates	2	3.9	Hillside	2	24.5	Lansing	1	3.5	Lemont	0	0.0
Inverness	1	13.5	Hinsdale	0	0.0	Lynwood	0	0.0	Merrionette Park	0	0.0
Kenilworth	0	0.0	Hodgkins	0	0.0	Markham	0	0.0	Oak Lawn	0	0.0
Lincolnwood	0	0.0	Indian Head Park	0	0.0	Matteson	1	5.3	Orland Hills	0	0.0
Morton Grove	2	8.6	La Grange	0	0.0	Midlothian	0	0.0	Orland Park	1	1.8
Mount Prospect	2	3.7	La Grange Park	0	0.0	Oak Forest	0	0.0	Palos Heights	0	0.0
Niles	3	10.1	Lyons	1	9.3	Olympia Fields	0	0.0	Palos Hills	1	5.7
Northbrook	0	0.0	Maywood	0	0.0	Park Forest	0	0.0	Palos Park	0	0.0
Northfield	0	0.0	McCook	0	0.0	Phoenix	0	0.0	Stickney	0	0.0
Palatine	3	4.4	Melrose Park	3	11.8	Posen	0	0.0	Summit	0	0.0
Park Ridge	0	0.0	Norridge	0	0.0	Richton Park	1	7.3	Willow Springs	0	0.0
Prospect Heights	0	0.0	North Riverside	1	15.0	Riverdale	0	0.0	Worth	0	0.0
Rolling Meadows	1	4.1	Northlake	0	0.0	Robbins	0	0.0			
Roselle	0	0.0	Oak Park	1	1.9	Sauk Village	0	0.0			
Schaumburg	1	1.3	River Forest	1	9.0	So. Chicago Hts	0	0.0			
Skokie	1	1.5	River Grove	0	0.0	South Holland	0	0.0			
South Barrington	0	0.0	Riverside	0	0.0	Steger	0	0.0			
Streamwood	0	0.0	Rosemont	0	0.0	Thornton	0	0.0			
Wheeling	2	5.3	Schiller Park	2	17.0	Tinley Park	2	4.1			
Wilmette	0	0.0	Stone Park	0	0.0	University Park	0	0.0			
Winnetka	0	0.0	Westchester	0	0.0						
			Western Springs	0	0.0						
Total	32	3.4	Total	20	4.0	Total	5	1.1	Total	7	1.9

Rates per 100,000 population per year. Rates calculated using 2010 Census data.

Use caution when interpreting rates where the count is < 20.

TECHNICAL NOTES

Surveillance Methodology

Healthcare providers and laboratories in suburban Cook County are required to report the following results within 24 hours: (1) sputum or tissue smears positive for acid-fast bacilli (AFBs); (2) cultures positive for *Mycobacterium tuberculosis*; (3) mycobacterial drug susceptibility results; (4) any other tests positive for *Mycobacterium tuberculosis*. In addition, confirmed TB cases must be reported to CCDPH within 7 days.

TB case reports are entered into I-NEDSS and provide the basis for the information presented in this report. This report includes all cases of tuberculosis reported during the year in which the case was confirmed. Confirmed TB cases who may have moved into suburban Cook County from another jurisdiction are not reflected in the data presented herein; such cases are counted in the jurisdiction that reported the case. Likewise, confirmed TB cases reported in suburban Cook County who may have moved out of suburban Cook County are included in the data presented herein.

Reported TB Case Rates

Suburban Cook County, Chicago and Illinois TB rates between 1993-1999 were calculated using 1990 census data. Suburban Cook County, Chicago and Illinois TB rates between 2000-2009 were calculated using 2000 census data. Suburban Cook County, Chicago and Illinois TB rates after 2009 were calculated using 2010 census data. National TB rates were calculated using national intercensal estimates.