



Annual Tuberculosis Surveillance Report 2012



**Cook County Department
of Public Health**

Promoting health. Preventing disease.
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COOK COUNTY DEPARTMENT OF PUBLIC HEALTH

Terry Mason, MD, FACS

Chief Operating Officer,

Cook County Department of Public Health

Demian Christiansen, DSc, MPH

*Assistant Director & Tuberculosis Program Manager,
Communicable Disease Control Unit*

Michael O. Vernon, DrPH

Director, Communicable Disease Control Unit

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Cook County Department of Public Health

Protecting the Health and Environment of Suburban Cook County

Affiliate, Cook County Health and Hospitals System

Ram Raju, MD, MBA, FACS, FACHE, 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

15900 S. Cicero Bldg. E - 3rd Floor

Oak Forest, IL 60452

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ACRONYMS, ABBREVIATIONS & DEFINITIONS

Active TB: (see TB Disease)

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.

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).

I-NEDSS: I-NEDSS stands for 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. All TB cases in suburban Cook County are reported to the Illinois Department of Public Health using I-NEDSS.

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, the two most important first line anti-tuberculosis medications.

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. In contrast to the TST (see below), QFT-G can distinguish persons with either LTBI or TB disease from persons who may have received BCG vaccination. QFT-G has greater specificity than TST.

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

- Eighty nine (89) new cases of TB were reported in suburban Cook County in 2012. This represents a rate of 3.6 cases per 100,000 population, a 20% increase in cases reported in 2011 (Table 1).
- The North District had the highest TB rate (5.9 per 100,000 population) of any of the four public health districts in suburban Cook County (Table 7).
- Municipalities with the highest numbers of cases included Des Plaines (n=10) and Skokie (n=8; Table 7). Each of the following municipalities had four (4) TB cases: Alsip, Glenview, Harvey, Morton Grove and Niles (Table 7).

TB Burden in Foreign-born Persons

- The proportion of TB cases in foreign-born persons was 71% in 2012 (Figure 2).
- Three countries accounted for 62% of all foreign-born cases: India (n=17; 27%), the Philippines (n=12; 19%) and Mexico (n=10, 16%) (Table 3).
- Among foreign-born persons diagnosed with TB, 71% arrived 5 or more years prior to receiving a diagnosis of TB disease (Figure 4).

Drug Resistance

- In 2012, no case of MDR-TB was identified (Table 5).

Coinfection with HIV

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

Directly Observed Therapy

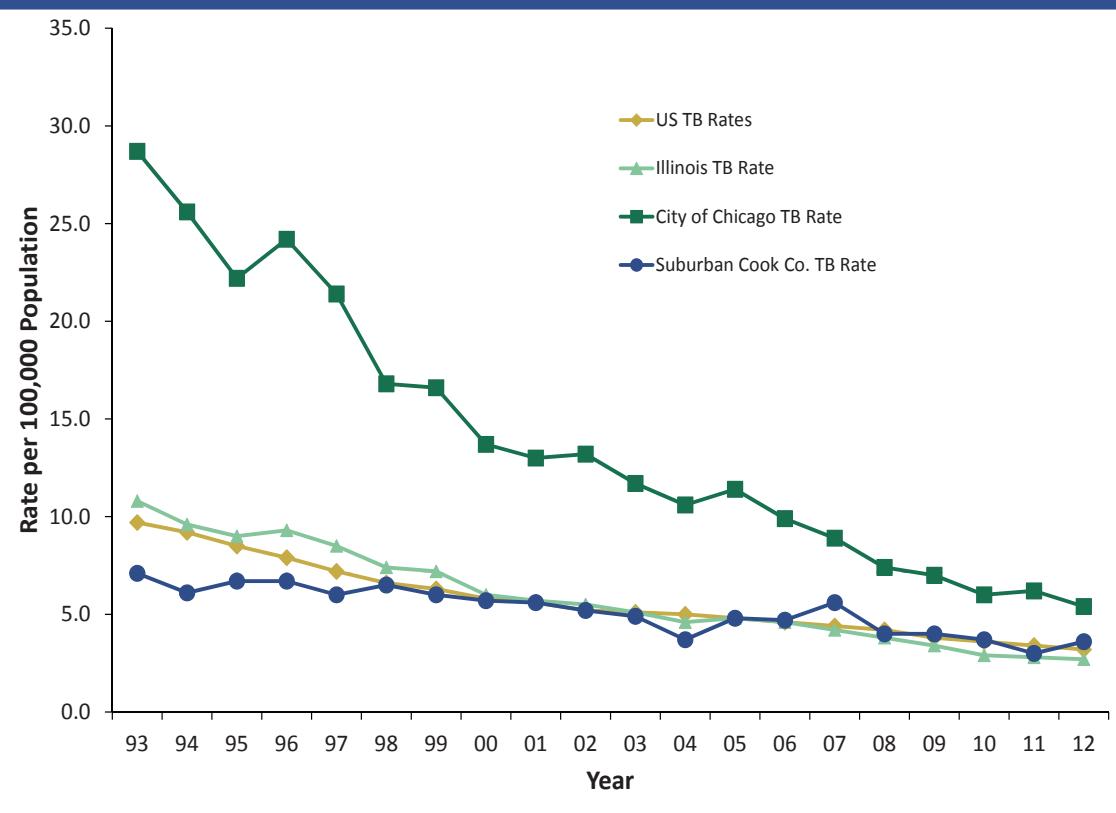
- In 2012, 98% of patients with pulmonary TB received DOT (Figure 5).

Completion of Therapy

- For TB cases diagnosed in 2010, the most recent year for which data on completion of tuberculosis therapy are available, 93% of persons with TB disease who were eligible* completed treatment.
- Among persons diagnosed in 2010 who were eligible* to complete TB treatment in 12 months*, 83% of cases did so. This is below 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, 1993-2012



◀ **Figure 1.** TB rates declined from 7.1 per 100,000 population in 1993 to 3.0 per 100,000 population in 2011. In 2012, the rate increased in suburban Cook County to 3.6 per 100,000. TB rates in Chicago and in Illinois declined to 5.4 and 2.7 per 100,000 population, respectively, in 2012.

Table 1. Number and Rate (per 100,000 population) of Reported Tuberculosis Cases by Selected Public Health Jurisdictions, 1993-2012

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

* 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.

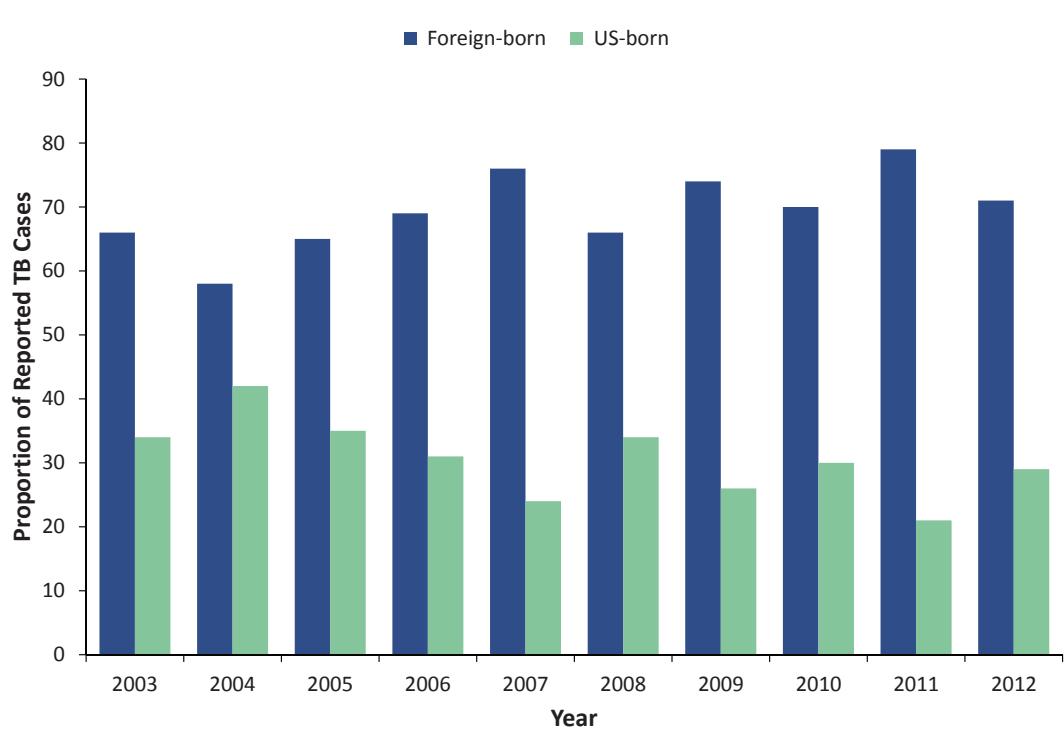
† US rates calculated using intercensal estimates from the US Census Bureau.

Table 2. Number and Percentage of Reported Tuberculosis Cases by Selected Characteristics, Suburban Cook County, 2003-2012

Characteristic	Year																			
	2003		2004		2005		2006		2007		2008		2009		2010		2011		2012	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Sex																				
Male	70	(57)	53	(58)	57	(48)	64	(55)	73	(52)	58	(58)	47	(47)	51	(55)	41	(55)	50	(56)
Female	52	(43)	38	(42)	63	(53)	52	(45)	67	(48)	42	(42)	53	(53)	42	(45)	34	(45)	39	(44)
Age Groups (Y)																				
<5	1	(1)	1	(1)	3	(3)	4	(3)	3	(2)	2	(2)	2	(2)	1	(1)	4	(4)		
5-14	1	(1)	0	(0)	3	(3)	4	(3)	2	(1)	1	(1)	0	(0)	0	(0)	2	(3)	0	(0)
15-24	17	(14)	5	(5)	15	(13)	7	(6)	14	(10)	4	(4)	13	(13)	9	(10)	6	(8)	10	(11)
25-44	38	(31)	31	(34)	43	(36)	36	(31)	32	(23)	40	(40)	40	(40)	24	(26)	24	(32)	18	(20)
45-64	44	(36)	33	(36)	31	(26)	35	(30)	58	(41)	30	(30)	22	(22)	29	(31)	21	(28)	34	(38)
65+	21	(17)	21	(23)	25	(21)	30	(26)	31	(22)	23	(23)	23	(23)	29	(31)	21	(28)	23	(26)
Race/Ethnicity																				
White, not Hispanic	28	(23)	23	(25)	21	(18)	19	(16)	27	(19)	21	(21)	14	(14)	14	(15)	10	(13)	22	(25)
Black, not Hispanic	30	(25)	19	(21)	30	(25)	19	(16)	16	(11)	24	(24)	10	(10)	11	(12)	13	(17)	13	(15)
Hispanic	19	(16)	21	(23)	24	(20)	25	(22)	28	(20)	17	(17)	24	(24)	31	(33)	20	(27)	15	(17)
Asian/Pacific Islander	45	(37)	28	(31)	45	(38)	53	(46)	69	(49)	38	(38)	45	(45)	37	(40)	32	(43)	39	(44)
Other	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	7	(7)	0	(0)	0	(0)	0	(0)
TOTAL	122	(100)	91	(100)	120	(100)	116	(100)	140	(100)	100	(100)	100	(100)	93	(100)	75	(100)	89	(100)

▲ **Table 2.** In 2012, 56% of TB cases were male; 83% were aged 25 years or older; 44% were Asian/Pacific Islanders. In 2012, there were 4 pediatric cases (i.e. cases <15 years of age) diagnosed in suburban Cook County.

Figure 2. Proportion of Reported Tuberculosis Cases by Birthplace, Suburban Cook County, 2003-2012



◀ **Figure 2.** The proportion of TB cases in foreign-born persons was 71% in 2012.

Figure 3. Reported TB Cases by Birthplace and Race/Ethnicity, Suburban Cook County, 2012

► **Figure 3.** Important race/ethnicity differences exist in the distribution of cases by birthplace. Among foreign-born persons, Asian/Pacific Islanders accounted for the majority (60%) of cases. By comparison, non-Hispanic Whites accounted for the highest proportion of cases (50%) among U.S.-born TB cases.

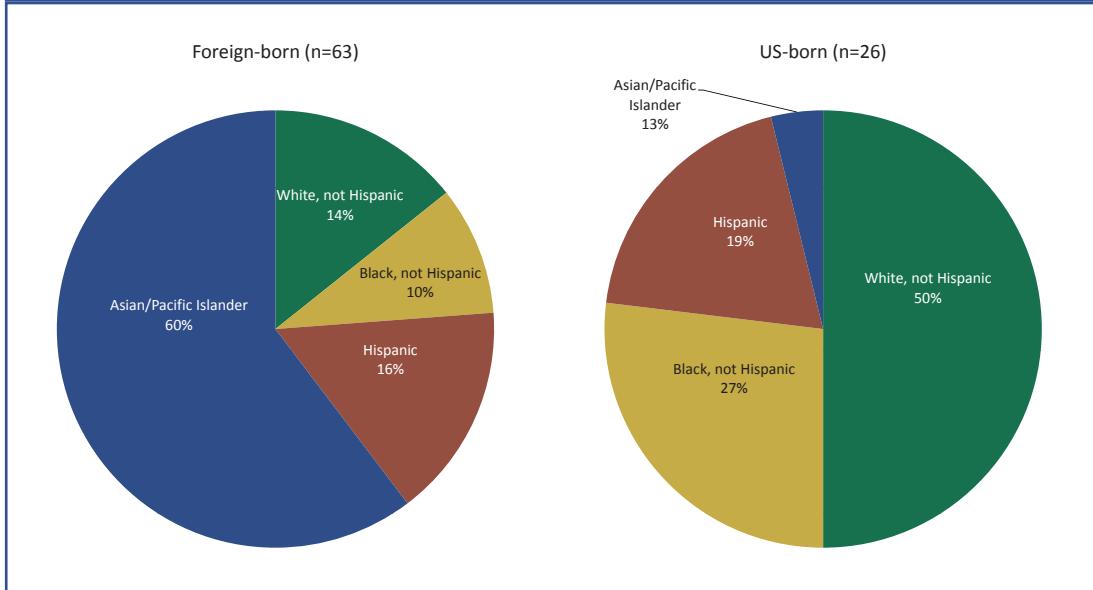


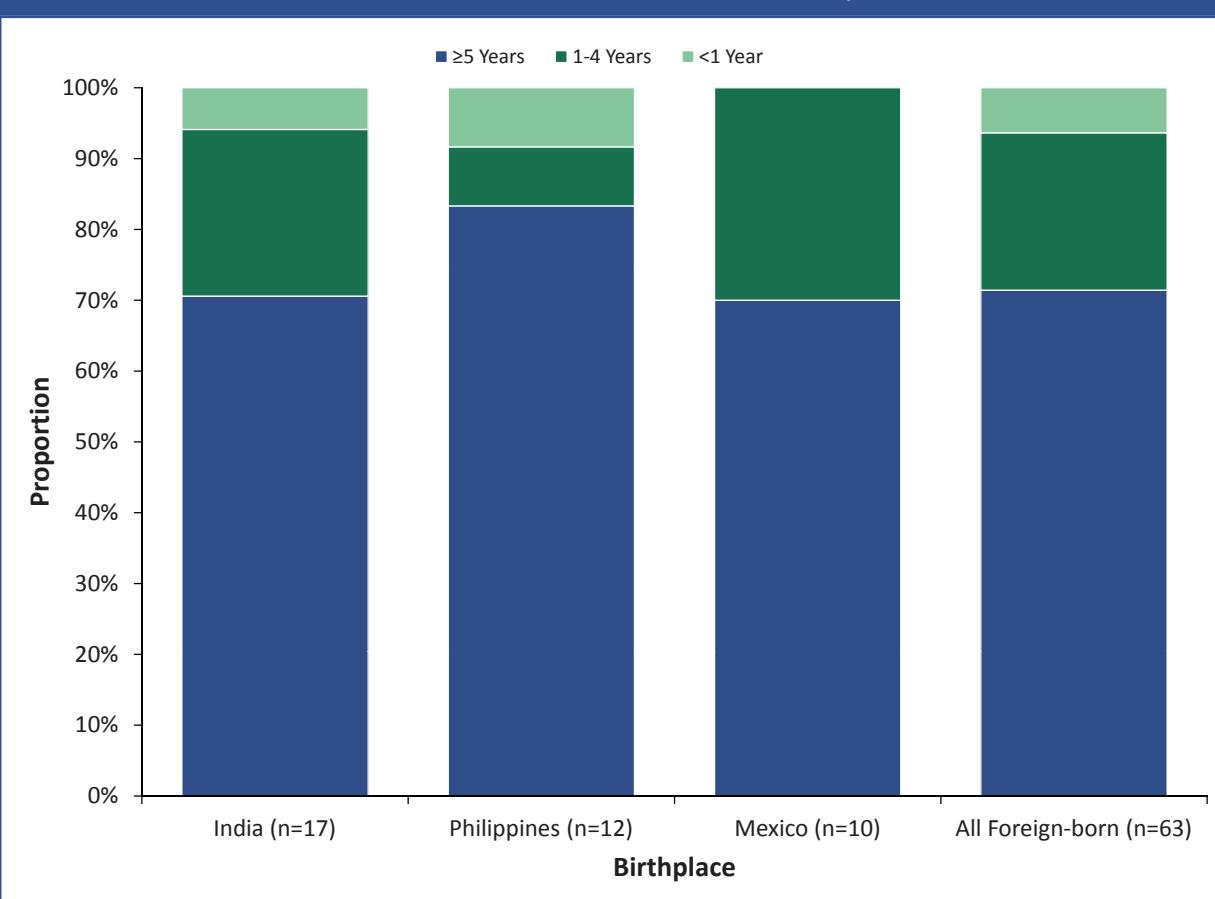
Table 3. Tuberculosis Cases by Most Frequently Reported Countries of Origin, Suburban Cook County, 2003 - 2012

Birthplace	Year									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
India	16	13	24	23	30	10	18	20	18	17
Mexico	14	13	19	18	18	11	17	21	17	10
Philippines	13	10	12	16	21	17	11	8	5	12
Poland	3	3	3	1	4	2	2	1	6	6
Korea South	2	2	4	2	5	1	2	2	1	0
Pakistan	2	1	1	1	5	1	3	0	0	2
China	3	1	0	4	1	4	2	2	0	2
Vietnam	3	0	1	2	1	2	6	1	2	1
Nigeria	4	0	1	0	0	1	1	0	3	0
Haiti	3	0	1	0	1	0	2	0	0	2
Romania	0	1	1	2	0	1	0	0	1	1
Russia	1	0	1	0	1	2	0	1	1	0
Thailand	1	0	0	1	1	0	2	0	0	0
Guatemala	1	1	0	0	2	0	0	0	0	0
Mongolia	0	0	1	2	0	0	0	0	0	3
Myanmar (formerly Burma)	1	0	0	0	1	1	0	0	0	0
Peru	1	1	1	0	2	0	0	1	0	0
Ukraine	1	1	0	0	2	0	0	0	0	0

*Cases were also counted in persons born in Algeria, Bulgaria, Central African Republic, Ethiopia, Germany, Ghana and Indonesia.

◀ **Table 3.** In 2012, 63 foreign-born persons with active TB came from 17 different countries. Three countries of origin accounted for 62% of all foreign born cases: India (n=19; 27%), the Philippines (n=12; 19%) and Mexico (n=10; 16%).

Figure 4. Number of Years Living in the United States Prior to Receiving a Diagnosis of Active Tuberculosis, Suburban Cook County, 2012



◀ **Figure 4.** Among all foreign-born TB cases reported in 2012, 71% 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, 2012

Site of Disease	Total Cases	Sputum Smear Positive		Culture positive	
	No.	No.	(%)	No.	(%)
Pulmonary Only	55	19	(35)	29	(53)
Extrapulmonary Only	25	0	(0)	0	(0)
Both	9	2	(0)	4	(44)
Total	89	21	(24)	33	(37)

◀ **Table 4.** Fifty five (55) reported TB cases in 2012 had pulmonary only TB; 25 cases had extrapulmonary only TB (no pulmonary involvement). Fifty three percent (53%) of pulmonary only TB cases were culture positive.

Table 5. Tuberculosis Susceptibility Results by Birthplace, Suburban Cook County, 2012

► **Table 5.** Fifty nine (59) cases in 2012 had susceptibility testing performed. There were no cases of MDR-TB or XDR-TB in suburban Cook County in 2012.

Birthplace	Cases with Susceptibility Results		Any Drug Resistance	INH-Resistant	MDR-TB
	No.	(%)			
Foreign-born	44	4 (9)	2 (5)	0 (0)	
US-born	15	1 (7)	1 (7)	0 (0)	
Total	59	11 (19)	4 (7)	0 (0)	

► **Table 6.** Testing for HIV among reported cases of TB increased from 73% in 2003 to 88% in 2012. Five (5) cases were coinfect ed in 2012. Persons with TB and HIV coinfection are classified, by AIDS surveillance case definition, as having AIDS.

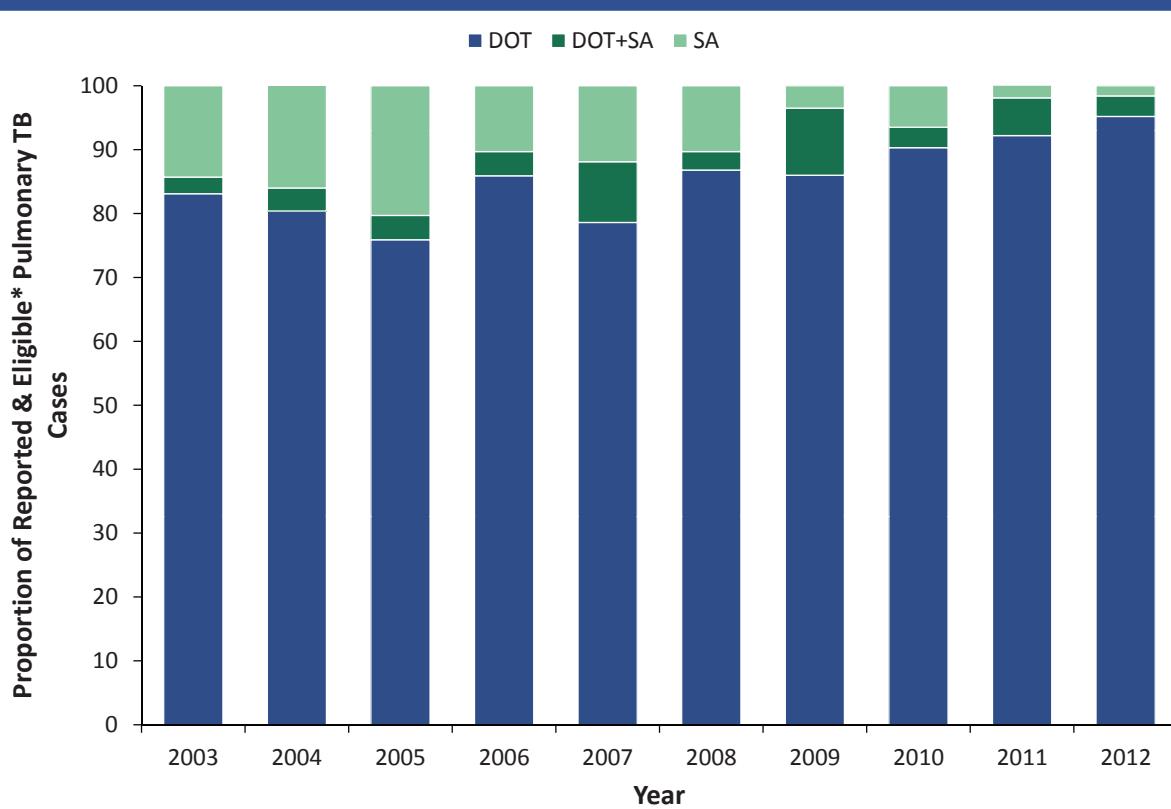
Table 6. Trends in the Number of Reported Tuberculosis Cases, HIV Testing and Coinfection with HIV, Suburban Cook County, 2003-2012

Year	TB Cases		Tested for HIV		Coinfected with HIV*	
	No.	No.	(%)	No.	(%)	
2003	122	89	(73)	7	(8)	
2004	91	75	(82)	†	†	
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)	

* Persons with HIV who receive a TB diagnosis are defined as having AIDS.

† Cells with small counts (1-4) have been suppressed.

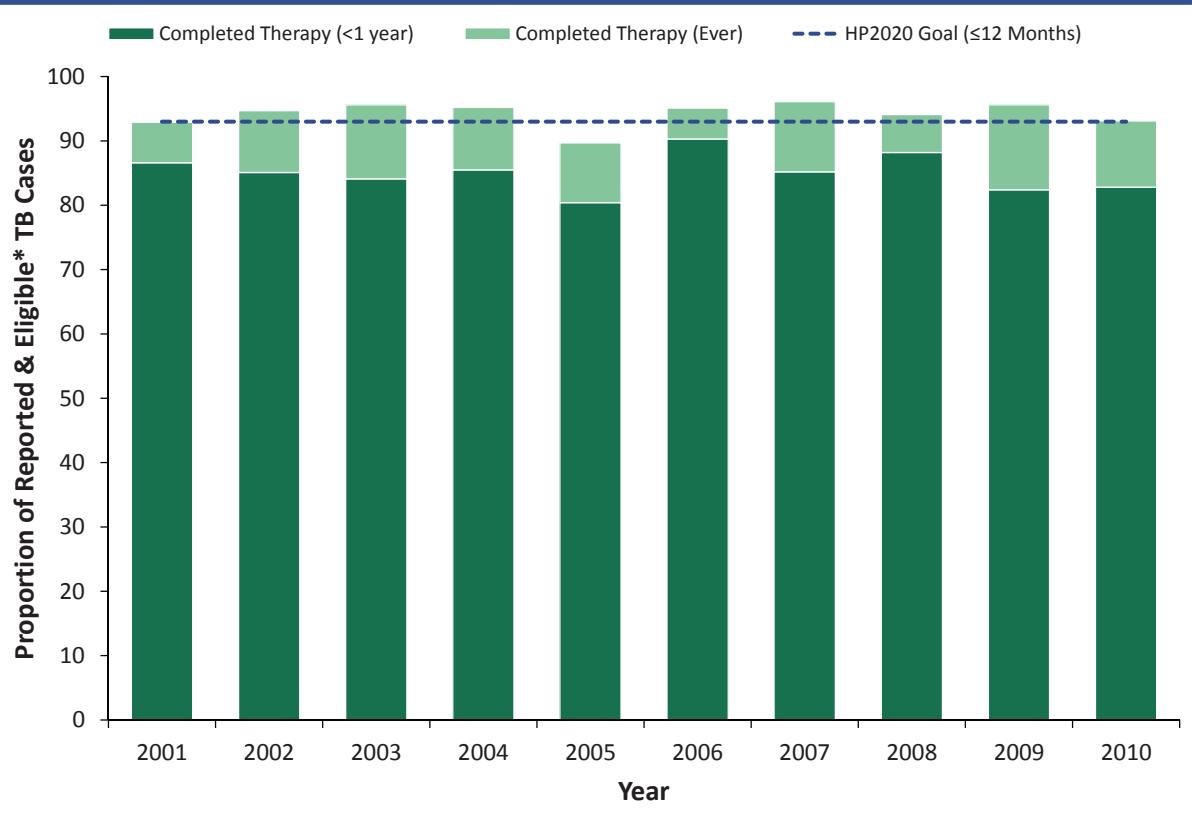
Figure 5. Mode of Treatment Administration in Reported Pulmonary Tuberculosis Cases, Suburban Cook County, 2003-2012



◀ **Figure 5.** The proportion of TB cases receiving directly observed therapy (DOT), whether DOT only or DOT with some self-administered (SA) therapy has increased over time. The proportion of pulmonary TB cases receiving directly observed therapy (DOT only or DOT+SA) increased from 86% in 2003 to 98% in 2012.

* Percentage includes cases alive at diagnosis, who did not die during therapy with one or more anti-tuberculosis drugs prescribed and excludes persons with missing or unknown information regarding mode of treatment administration.

Figure 6. Completion of Tuberculosis Therapy, Suburban Cook County, 2001-2010



► **Figure 6.** In 2010, the most recent year for which data on completion of tuberculosis therapy are available, 93% of reported TB cases who were eligible* completed treatment.

In 2010, 83% of eligible* persons completed treatment in less than one year. This is below 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 Case Rates (per 100,000 population) by Municipality and District,
Suburban Cook County, 2012**

NORTH			WEST			SOUTH			SOUTHWEST		
City	No.	Rate	City	No.	Rate	City	No.	Rate	City	No.	Rate
Arlington Heights	1	1.3	Bellwood	0	0.0	Burnham	0	0.0	Alsip	4	20.8
Barrington	1	17.8	Bensenville	0	0.0	Calumet City	2	5.4	Bedford Park	0	0.0
Barrington Hills	0	0.0	Berkeley	1	39.9	Chicago Heights	1	3.3	Blue Island	0	0.0
Bartlett	0	0.0	Berwyn	1	1.8	Country Club Hills	0	0.0	Bridgeview	0	0.0
Buffalo Grove	1	7.3	Broadview	0	0.0	Dixmoor	0	0.0	Burbank	0	0.0
Des Plaines	10	17.1	Brookfield	0	0.0	Dolton	1	4.3	Calumet Park	0	0.0
Elgin	0	0.0	Burr Ridge	0	0.0	East Hazel Crest	0	0.0	Chicago Ridge	0	0.0
Elk Grove Village	1	3.0	Cicero	3	3.6	Flossmoor	0	0.0	Crestwood	0	0.0
Evanston	3	4.0	Countryside	0	0.0	Ford Heights	0	0.0	Evergreen Park	0	0.0
Glencoe	0	0.0	Elmwood Park	0	0.0	Glenwood	0	0.0	Forest View	0	0.0
Glenview	4	9.0	Forest Park	0	0.0	Harvey	4	15.8	Hickory Hills	0	0.0
Golf	0	0.0	Franklin Park	2	10.9	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	0	0.0	Lansing	0	0.0	Lemont	1	6.3
Inverness	0	0.0	Hinsdale	0	0.0	Lynwood	0	0.0	Merrionette Park	0	0.0
Kenilworth	0	0.0	Hodgkins	0	0.0	Markham	1	8.0	Oak Lawn	0	0.0
Lincolnwood	1	7.9	Indian Head Park	0	0.0	Mattheson	0	0.0	Orland Hills	0	0.0
Morton Grove	4	17.2	La Grange	0	0.0	Midlothian	0	0.0	Orland Park	3	5.3
Mount Prospect	3	5.5	La Grange Park	0	0.0	Oak Forest	2	7.2	Palos Heights	0	0.0
Niles	4	13.4	Lyons	0	0.0	Olympia Fields	0	0.0	Palos Hills	2	11.4
Northbrook	1	3.0	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	0	0.0	Melrose Park	0	0.0	Posen	0	0.0	Summit	0	0.0
Park Ridge	1	2.7	Norridge	0	0.0	Richton Park	0	0.0	Willow Springs	0	0.0
Prospect Heights	0	0.0	North Riverside	0	0.0	Riverdale	1	7.4	Worth	0	0.0
Rolling Meadows	2	8.3	Northlake	1	8.1	Robbins	0	0.0			
Roselle	0	0.0	Oak Park	0	0.0	Sauk Village	0	0.0			
Schaumburg	2	2.7	River Forest	0	0.0	So. Chicago Hts	0	0.0			
Skokie	8	12.3	River Grove	0	0.0	South Holland	1	4.5			
South Barrington	0	0.0	Riverside	0	0.0	Steger	0	0.0			
Streamwood	2	5.0	Rosemont	0	0.0	Thornton	0	0.0			
Wheeling	2	5.3	Schiller Park	0	0.0	Tinley Park	2	4.1			
Wilmette	1	3.7	Stone Park	0	0.0	University Park	0	0.0			
Winnetka	0	0.0	Westchester	1	6.0						
			Western Springs	0	0						
Total	55	5.9	Total	9	1.8	Total	15	3.2	Total	10	2.7

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.