

2012 Annual Tuberculosis Surveillance Report

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Office of Epidemiology

**Division of Disease Prevention
Tuberculosis Control**

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Contents

Epidemiology of Tuberculosis: 2012

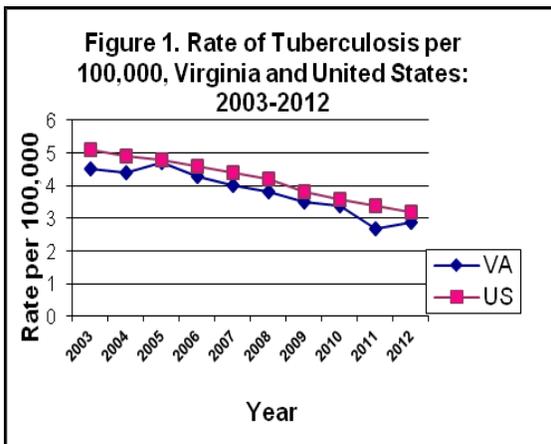
Introduction	1
Demographic Characteristics	1
Geographic Distribution	1
HIV Co-infection and Selected Risk Factors	2
Drug Resistance	2
Mortality	2
Treatment Outcomes	2
Contact Investigations	2

Summary Data

Table 1. Number and Rate per 100,000 of Tuberculosis Cases: Virginia and United States, 2000-2012	3
Table 2. Tuberculosis Cases and Rate per 100,000 by Health Region: Virginia, 2008-2012	3
Table 3. Tuberculosis Cases by Demographics and Location: Virginia, 2008-2012	4
Table 4. Tuberculosis Cases by Demographics and Region: Central, 2008-2012	5
Table 5. Tuberculosis Cases by Demographics and Region: Eastern, 2008-2012	5
Table 6. Tuberculosis Cases by Demographics and Region: Northern, 2008-2012	6
Table 7. Tuberculosis Cases by Demographics and Region: Northwest, 2008-2012	6
Table 8. Tuberculosis Cases by Demographics and Region: Southwest, 2008-2012	7
Table 9. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Virginia, 2008-2012	8
Table 10. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Central Region, 2008-2012	8
Table 11. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Eastern Region, 2008-2012	9
Table 12. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Northern Region, 2008-2012	9
Table 13. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Northwest Region, 2008-2012	10
Table 14. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Southwest Region, 2008-2012	10
Table 15. Tuberculosis Cases by Selected Risk Factors: Virginia, 2008-2012	11
Table 16. Tuberculosis Cases by Selected Risk Factors: Central Region, 2008-2012	11
Table 17. Tuberculosis Cases by Selected Risk Factors: Eastern Region, 2008-2012	12
Table 18. Tuberculosis Cases by Selected Risk Factors: Northern Region, 2008-2012	12
Table 19. Tuberculosis Cases by Selected Risk Factors: Northwest Region, 2008-2012	13
Table 20. Tuberculosis Cases by Selected Risk Factors: Southwest Region, 2008-2012	13
Table 21. Tuberculosis Cases with Drug Resistance: Virginia, 2008-2012	14
Table 22. Tuberculosis Mortality: Virginia, 2008-2012	14

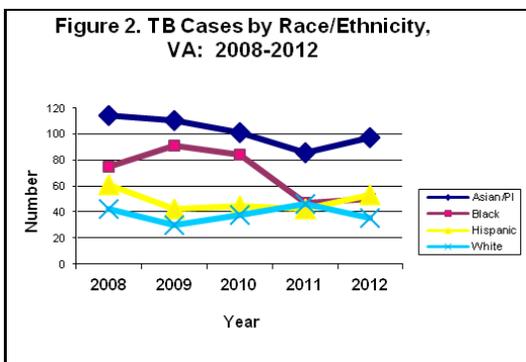
Technical Notes	15-16
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In 2012, Virginia reported 235 tuberculosis (TB) cases, an increase from the 221 cases reported in 2011. For the third year in a row, TB cases reported nationally reached the lowest number and the lowest rate since reporting of TB began in 1954. Virginia ranks 8th in the nation for the number of reported TB cases with a case rate of 2.9 per 100,000 compared to 3.2 per 100,000 for the United States. In this report, data on demographics and selected risk factors are provided at the state and health region level for 2008-2012.



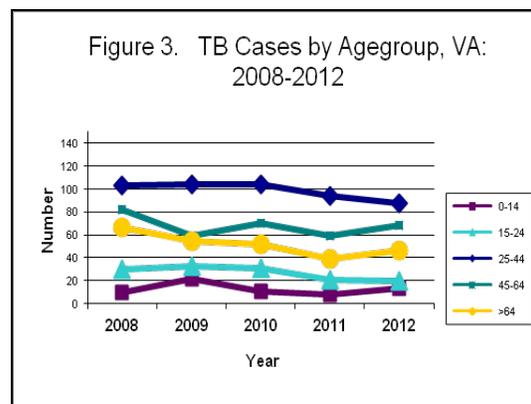
Sex and Race

In 2012, 45% of TB cases were female and 55% were male. Among racial and ethnic groups, increased cases occurred among Asian/Pacific Islanders, Blacks and Hispanics when compared to 2011. A decrease was observed among Whites in the same period (Figure 2).



Age

Thirteen pediatric cases, aged 0 to 14 were reported in 2012 as compared to 8 cases in 2011. Among the 15-24 year old age group, 20 cases were reported compared to 21 cases in 2011. For the second year in a row, the 25-44 year old age group had a decrease compared to the previous year, from 94 cases in 2011 to 88 cases in 2012. Among those aged 45-64, 68 cases were reported in 2012 compared to 59 in 2011. Those aged 65 and older increased from 39 in 2011 to 46 in 2012 (Figure 3).



Place of Origin

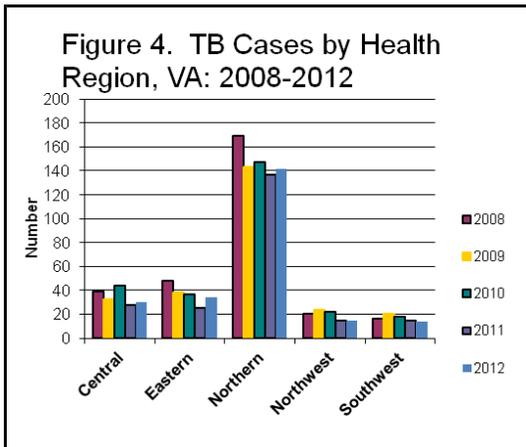
In 2012, 183 or 78% of Virginia's TB cases were reported among foreign-born persons. The increase in foreign-born cases in 2012 may indicate that the downward trend in TB cases that occurred as a result of the economic crisis of 2007 has slowed. The downward trend in US-born cases, from 61 in 2011 to 52 in 2012, mirrors the decrease seen in the last decade in Virginia as well as the decrease seen nationally.

The diversity of cultures and countries of origin among Virginia's TB cases is remarkable. These cases represent 42 countries of origin. The top five countries of origin include India, Mexico, the Philippines, South Korea and Viet Nam.

Geographic Distribution

In 2012, the Eastern, Central and Northern Health Regions all had slight increases in

the number of cases. The Northwest and Southwest regions were flat in 2012 compared to 2011. The Northern Region, with a caseload that is overwhelmingly comprised of foreign-born people, reported 60.4% (137 cases) of the total cases for Virginia. Eastern Health Region reported 34 cases for 14.5%, Central Region reported 30 cases for 12.8%, Northwest Region reported 15 cases for 6.4% and Southwest Region reported 14 cases for 6% of the total (Figure 4).



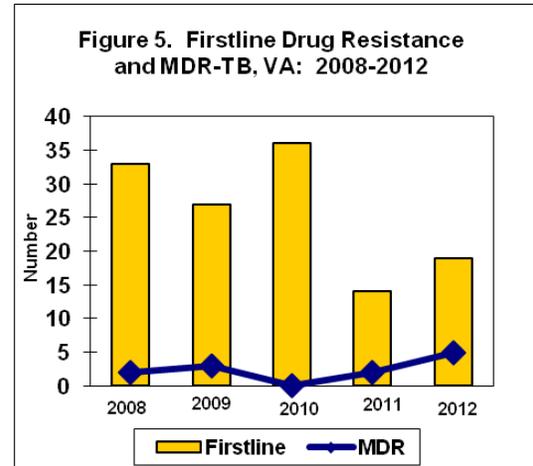
HIV Co-Infection and Selected Risk Factors

Several risk factors are associated with TB including occupational risk, congregate living, co-infection with HIV, homelessness, substance use and diabetes. Diabetes was the most frequent risk observed with 27 cases (11.5%) reported in 2012. In 2012, 8 health care workers were reported with TB. TB was reported in 2 residents of long-term care facilities, 6 incarcerated persons and 10 homeless persons. Overall, 12 (5.1%) of Virginia's cases were reported with HIV infection as compared to 9 (4.1%) cases in 2011. In 2012, 21 cases (8.9%) reported excessive alcohol use and 17 cases (7.3%) reported drug use.

Drug Resistance

Drug susceptibility tests were performed for 172 culture positive cases. Drug resistance was found in 24 cases to one or more first-line drugs, most frequently isoniazid. Five

cases of multidrug resistant TB (MDR-TB) were reported in 2012. (By definition MDR-TB is resistant to both isoniazid and rifampin). No cases meeting the definition of extensively drug-resistant (XDR) TB were reported in 2012 (Figure 5).



Mortality

In 2012 15 (6.4%) TB cases died during treatment and six (2.6%) cases were diagnosed at the time of death or post-mortem. The mean age of those who died was 69 years with a range of 32-93.

Treatment Outcomes

For 2011, the year with the most complete data available, 89.2% of the drug-susceptible cases completed therapy within 12 months.

Contact Investigations

In 2011, 2,462 contacts to acid-fast bacilli (AFB) sputum smear positive or sputum culture positive cases were identified. Of those, 86.8% were evaluated for infection and disease. Among the 329 people identified with latent TB infection (LTBI), 201 (61.1%) were started on treatment and 133 (66.2%) completed treatment for latent TB infection.

Table 1. Number and Rate of Tuberculosis Cases: Virginia and United States, 2003-2012

Year	Virginia		United States	
	No.	Rate	No.	Rate
2003	332	4.5	14,836	5.1
2004	329	4.4	14,500	4.9
2005	355	4.7	14,067	4.8
2006	332	4.3	13,727	4.6
2007	309	4.0	13,288	4.4
2008	292	3.8	12,904	4.2
2009	273	3.5	11,540	3.8
2010	268	3.4	11,181	3.6
2011	221	2.7	10,521	3.4
2012	235	2.9	9,951	3.2

Historical US data from : CDC. Reported Tuberculosis in the United States, 2011. Atlanta, GA: US DHHS, CDC, October 2012.

2012 US data from the Centers for Disease Control and Prevention. Trends in Tuberculosis --- United States, 2012. MMWR 2013; 62: 201-205.

Table 2. Tuberculosis Cases and Rate per 100,000 by Health Region: Virginia, 2008-2012

Region	2008			2009			2010			2011			2012		
	No.	%	Rate												
Total	292	100	3.8	273	100	3.5	268	100	3.4	221	100	2.7	235	100	2.9
Central	39	13.4	2.9	33	12.1	2.5	44	16.4	3.3	28	12.7	2.0	30	12.8	2.2
Eastern	48	16.4	2.7	38	13.9	2.1	37	13.8	2.0	26	11.8	1.4	34	14.5	1.8
Northern	169	57.9	8.0	158	57.9	7.3	147	54.9	6.6	137	62.0	6.0	142	60.4	6.1
Northwest	20	6.8	1.7	24	8.8	2.0	22	8.2	1.8	15	6.8	1.2	15	6.4	1.2
Southwest	16	5.5	1.2	20	7.3	1.5	18	6.7	1.3	15	6.8	1.1	14	6.0	1.0

**Table 3. Tuberculosis Cases by Demographics and Location:
Virginia, 2008-2012**

	2008		2009		2010		2011		2012	
	292		273		268		221		235	
Total Cases	No	%								
Sex										
Female	123	42.1	121	44.3	105	39.2	95	43.0	106	45.1
Male	169	57.9	152	55.7	163	60.8	126	57.0	129	54.9
Race/Ethnicity										
Asian/Pacific Islander	114	39.0	110	40.3	101	37.7	86	38.9	97	41.3
Black, Not Hispanic	75	25.7	91	33.3	84	31.3	47	21.3	50	21.3
Hispanic	61	20.9	42	15.4	45	16.8	42	19.0	53	22.6
White, Not Hispanic	42	14.4	30	11.0	38	14.2	46	20.8	35	14.9
Age										
0-14	10	3.4	22	8.1	11	4.1	8	3.6	13	5.5
15-24	30	10.3	33	12.1	31	11.6	21	9.5	20	8.5
25-44	103	35.3	104	38.1	104	38.8	94	42.5	88	37.4
45-64	82	28.1	59	21.6	70	26.1	59	26.7	68	28.9
>64	67	22.9	55	20.1	52	19.4	39	17.6	46	19.6
Place of Birth										
Foreign-born	212	72.6	190	69.6	173	64.6	160	72.4	183	77.9
US-born	80	27.4	83	30.4	95	35.4	61	27.6	52	22.1
Health Region										
Central	39	13.4	33	12.1	44	16.4	28	12.7	30	12.8
Eastern	48	16.4	38	13.9	37	13.8	26	11.8	34	14.5
Northern	169	57.9	158	57.9	147	54.9	137	62.0	142	60.4
Northwest	20	6.8	24	8.8	22	8.2	15	6.8	15	6.4
Southwest	16	5.5	20	7.3	18	6.7	15	6.8	14	6.0

Table 4. Tuberculosis Cases by Demographics and Region: Central, 2008-2012

	2008		2009		2010		2011		2012	
	No.	%								
Total Cases	39		33		44		28		30	
Sex										
Female	13	33.3	13	39.4	17	38.6	12	42.9	14	46.7
Male	26	66.7	20	60.6	27	61.4	16	57.1	16	53.3
Race/Ethnicity										
Asian/Pacific Islander	10	25.6	4	12.1	6	13.6	9	32.1	8	26.7
Black, Not Hispanic	17	43.6	23	69.7	27	61.4	6	21.4	10	33.3
Hispanic	7	17.9	2	6.1	3	6.8	4	14.3	5	16.7
White, Not Hispanic	5	12.8	4	12.1	8	18.2	9	32.1	7	23.3
Age										
0-14	2	5.1	5	15.2	6	13.6	1	3.6	3	10.0
15-24	8	20.5	3	9.1	4	9.1	2	7.1	5	16.7
25-44	14	35.9	12	36.4	14	31.8	11	39.3	6	20.0
45-64	7	17.9	5	15.2	13	29.5	7	25.0	9	30.0
>64	8	20.5	8	24.2	7	15.9	7	25.0	7	23.3
Place of Birth										
Foreign-born	16	41.0	8	24.2	11	25.0	15	53.6	16	53.3
US Born	23	59.0	25	75.8	33	75.0	13	46.4	14	46.7

Table 5. Tuberculosis Cases by Demographics and Region: Eastern, 2008-2012

	2007		2008		2009		2010		2012	
	No.	%								
Total Cases	46		48		38		37		34	
Sex										
Female	19	41.3	28	58.3	15	39.5	19	51.4	10	29.4
Male	27	58.7	20	41.7	23	60.5	18	48.6	24	70.6
Race/Ethnicity										
Asian/Pacific Islander	17	37.0	16	33.3	11	28.9	10	27.0	13	38.2
Black, Not Hispanic	19	41.3	16	33.3	17	44.7	13	35.1	11	32.4
Hispanic	4	8.7	5	10.4	4	10.5	3	8.1	6	17.6
White, Not Hispanic	6	13.0	11	22.9	6	15.8	11	29.7	4	11.8
Age										
0-14	1	2.2	2	4.2	5	13.2	1	2.7	2	5.9
15-24	1	2.2	4	8.3	1	2.6	5	13.5	6	17.6
25-44	13	28.3	11	22.9	10	26.3	10	27.0	9	26.5
45-64	21	45.7	13	27.1	11	28.9	10	27.0	11	32.4
>64	10	21.7	18	37.5	11	28.9	11	29.7	6	17.6
Place of Birth										
Foreign-born	20	43.5	24	50.0	14	36.8	15	40.5	22	64.7
US-born	26	56.5	24	50.0	24	63.2	22	59.5	12	35.3

Table 6. Tuberculosis Cases by Demographics and Region: Northern, 2008-2012

	2008		2009		2010		2011		2012	
	169		158		147		137		142	
Total Cases	No.	%								
Sex										
Female	74	43.8	76	48.1	56	38.1	56	40.9	67	47.2
Male	95	56.2	82	51.9	91	61.9	81	59.1	75	52.8
Race/Ethnicity										
Asian/Pacific Islander	79	46.7	86	54.4	77	52.4	63	46.0	68	47.9
Black, Not Hispanic	35	20.7	36	22.8	32	21.8	24	17.5	27	19.0
Hispanic	40	23.7	27	17.1	31	21.1	36	26.3	35	24.6
White, Not Hispanic	15	8.9	9	5.7	7	4.8	14	10.2	12	8.5
Age										
0-14	4	2.4	7	4.4	4	2.7	3	2.2	6	4.2
15-24	15	8.9	20	12.7	20	13.6	14	10.2	7	4.9
25-44	65	38.5	69	43.7	65	44.2	65	47.4	62	43.7
45-64	51	30.2	35	22.2	38	25.9	39	28.5	39	27.5
>64	34	20.1	27	17.1	20	13.6	16	11.7	28	19.7
Place of Birth										
Foreign-born	153	90.5	143	90.5	130	88.4	123	96.9	128	90.1
US-born	16	9.5	15	9.5	17	11.6	4	3.1	14	9.9

Table 7. Tuberculosis Cases by Demographics and Region: Northwest, 2008-2012

	2008		2009		2010		2011		2012	
	20		24		22		15		15	
Total Cases	No.	%								
Sex										
Female	5	25.0	6	25.0	5	22.7	8	53.3	8	53.3
Male	15	75.0	18	75.0	17	77.3	7	46.7	7	46.7
Race/Ethnicity										
Asian/Pacific Islander	5	25.0	6	25.0	4	18.2	8	53.3	4	26.7
Black, Not Hispanic	4	20.0	6	25.0	10	45.5	0	0.0	2	13.3
Hispanic	7	35.0	7	29.2	5	22.7	1	6.7	6	40.0
White, Not Hispanic	4	20.0	5	20.8	3	13.6	6	40.0	3	20.0
Age										
0-14	2	10.0	1	4.2	0	0.0	0	0.0	1	6.7
15-24	3	15.0	6	25.0	1	4.5	1	6.7	1	6.7
25-44	7	35.0	10	41.7	6	27.3	9	60.0	7	46.7
45-64	7	35.0	6	25.0	7	31.8	2	13.3	4	26.7
>64	1	5.0	1	4.2	8	36.4	3	20.0	2	13.3
Place of Birth										
Foreign-born	12	60.0	18	75.0	10	45.5	11	73.3	4	26.7
US-born	8	40.0	6	25.0	12	54.5	4	26.7	11	73.3

Table 8. Tuberculosis Cases by Demographics and Region: Southwest, 2008-2012

	2008		2009		2010		2011		2012	
	16		20		18		15		14	
Total Cases	No.	%								
Sex										
Female	3	18.8	11	55.0	8	44.4	5	33.3	7	50.0
Male	13	81.3	9	45.0	10	55.6	10	66.7	7	50.0
Race/Ethnicity										
Asian/Pacific Islander	4	25.0	3	15.0	4	22.2	3	20.0	4	28.6
Black, Not Hispanic	3	18.8	9	45.0	2	11.1	3	20.0	0	0.0
Hispanic	2	12.5	3	15.0	3	16.7	0	0.0	1	7.1
White, Not Hispanic	7	43.8	5	25.0	9	50.0	9	60.0	9	64.3
Age										
0-14	0	0.0	4	20.0	0	0.0	0	0.0	1	7.1
15-24	0	0.0	3	15.0	1	5.6	1	6.7	1	7.1
25-44	7	43.8	3	15.0	9	50.0	3	20.0	4	28.6
45-64	3	18.8	2	10.0	2	11.1	5	33.3	5	35.7
>64	6	37.5	8	40.0	6	33.3	6	40.0	3	21.4
Place of Birth										
Foreign-born	7	43.8	7	35.0	7	38.9	5	33.3	6	42.9
US-born	9	56.3	13	65.0	11	61.1	10	66.7	8	57.1

Table 9. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Virginia, 2008-2012

Race/Ethnicity	2008		2009		2010		2011		2012	
	US-born	Foreign-born								
Total	80	212	83	190	95	173	61	160	52	183
Asian/Pacific Islander	3	111	7	103	1	100	3	83	3	94
Black, Not Hispanic	37	38	48	43	52	32	25	22	22	28
Hispanic	3	58	3	40	7	38	2	40	4	49
White, Not Hispanic	37	5	25	4	35	3	31	15	23	12

Table 10. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Central Region, 2008-2012

Race/Ethnicity	2008		2009		2010		2011		2012	
	US-born	Foreign-born								
Total	23	16	25	8	33	11	14	15	14	16
Asian/Pacific Islander	1	9	0	4	0	6	0	9	1	7
Black, Not Hispanic	17	0	21	2	26	1	7	0	9	1
Hispanic	0	7	0	2	0	3	0	4	0	5
White, Not Hispanic	5	0	4	0	7	1	7	2	4	3

Table 11. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Eastern Region, 2008-2012

Race/Ethnicity	2008		2009		2010		2011		2012	
	US-born	Foreign-born								
Total	24	24	24	14	22	15	19	6	12	22
Asian/Pacific Islander	0	16	1	10	0	10	1	2	0	13
Black, Not Hispanic	13	3	16	1	13	0	12	1	8	3
Hispanic	1	4	1	3	0	3	0	0	1	5
White, Not Hispanic	10	1	6	0	9	2	6	3	3	1

Table 12. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Northern Region, 2008-2012

Race/Ethnicity	2008		2009		2010		2011		2012	
	US-born	Foreign-born								
Total	16	153	15	143	17	130	14	123	14	128
Asian/Pacific Islander	2	77	5	81	1	76	2	61	2	66
Black, Not Hispanic	2	33	2	34	3	29	3	21	4	23
Hispanic	1	39	1	26	6	25	2	34	2	33
White, Not Hispanic	11	4	7	2	7	0	7	7	6	6

Table 13. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Northwest Region, 2008-2012

Race/Ethnicity	2008		2009		2010		2011		2012	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	8	12	6	18	12	10	4	11	4	11
Asian/Pacific Islander	0	5	0	6	0	4	0	8	0	4
Black, Not Hispanic	3	1	3	3	8	2	0	0	1	1
Hispanic	1	6	0	7	1	4	0	2	1	5
White, Not Hispanic	4	0	3	2	3	0	4	1	2	1

Table 14. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Southwest Region, 2008-2012

Race/Ethnicity	2008		2009		2010		2011		2012	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	9	7	13	7	11	7	10	5	8	6
Asian/Pacific Islander	0	4	1	2	0	4	0	3	0	4
Black, Not Hispanic	2	1	6	3	2	0	3	0	0	0
Hispanic	0	2	1	2	0	3	0	0	0	1
White, Not Hispanic	7	0	5	0	9	0	7	2	8	1

Table 15. Tuberculosis Cases by Selected Risk Factors: Virginia, 2008-2012

Total Cases	2008		2009		2010		2011		2012	
	292		273		268		221		235	
	No.	%								
Occupation										
Health Care	6	2.1	11	4.0	12	4.5	7	3.2	8	3.4
Migrant	0	0.0	0	0.0	0	0.0	0	0.0	1	0.4
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	5	1.7	3	1.1	8	3.0	5	2.3	2	0.9
Prison/Jail	5	1.7	4	1.5	8	3.0	8	3.6	6	2.6
Homeless	4	1.4	9	3.3	12	4.5	1	0.5	10	4.3
Co-Morbidity										
Diabetes	40	13.7	37	13.6	37	13.8	31	14.0	27	11.5
HIV	9	3.1	18	6.6	8	3.0	9	4.1	12	5.1
Substance Use										
Alcohol	19	6.5	21	7.7	23	8.6	17	7.7	21	8.9
IDU	0	0.0	6	2.2	1	0.4	0	0.0	2	0.9
Non-IDU	6	2.1	6	2.2	4	1.5	13	5.9	15	6.4

Table 16. Tuberculosis Cases by Selected Risk Factors: Central Region, 2008-2012

Total Cases	2008		2009		2010		2011		2012	
	39		39		44		28		30	
	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	0	0.0	1	2.6	2	4.5	0	0.0	3	10.0
Migrant	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	1	2.6	0	0.0	2	4.5	0	0.0	0	0.0
Prison/Jail	1	2.6	1	2.6	4	9.1	2	7.1	4	13.3
Homeless	0	0.0	2	5.1	2	4.5	0	0.0	1	3.3
Co-Morbidity										
Diabetes	3	7.7	6	15.4	7	15.9	2	7.1	4	13.3
HIV	1	2.6	1	2.6	1	2.3	3	10.7	1	3.3
Substance Use										
Alcohol	3	7.7	7	17.9	8	18.2	5	17.9	3	10.0
IDU	0	0.0	2	5.1	0	0.0	0	0.0	0	0.0
Non-IDU	2	5.1	1	2.6	0	0.0	3	10.7	4	13.3

Table 17. Tuberculosis Cases by Selected Risk Factors: Eastern Region, 2008-2012

Total Cases	2008		2009		2010		2011		2012	
	48		38		37		25		25	
	No.	%								
Occupation										
Health Care	0	0.0	0	0.0	3	8.1	0	0.0	1	4.0
Migrant	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	0	0.0	0	0.0	1	2.7	0	0.0	0	0.0
Prison/Jail	1	2.1	0	0.0	0	0.0	0	0.0	0	0.0
Homeless	0	0.0	1	2.6	4	10.8	0	0.0	1	4.0
Co-Morbidity										
Diabetes	9	18.8	7	18.4	6	16.2	3	12.0	5	20.0
HIV	1	2.1	2	5.3	1	2.7	1	4.0	0	0.0
Substance Use										
Alcohol	6	12.5	3	7.9	5	13.5	1	4.0	4	16.0
IDU	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Non-IDU	2	4.2	1	2.6	2	5.4	2	8.0	3	12.0

Table 18. Tuberculosis Cases by Selected Risk Factors: Northern Region, 2008-2012

Total Cases	2008		2009		2010		2011		2012	
	169		158		147		137		142	
	No.	%								
Occupation										
Health Care	5	3.0	8	5.1	4	2.7	6	4.4	3	2.1
Migrant	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	4	2.4	3	1.9	6	4.1	3	2.2	1	0.7
Prison/Jail	2	1.2	0	0.0	4	2.7	3	2.2	1	0.7
Homeless	3	1.8	4	2.5	5	3.4	1	0.7	5	3.5
Co-Morbidity										
Diabetes	25	14.8	21	13.3	18	12.2	24	17.5	15	10.6
HIV	4	2.4	7	4.4	4	2.7	3	2.2	8	5.6
Substance Use										
Alcohol	7	4.1	7	4.4	6	4.1	9	6.6	7	4.9
IDU	0	0.0	1	0.6	0	0.0	0	0.0	1	0.7
Non-IDU	1	0.6	1	0.6	1	0.7	6	4.4	6	4.2

Table 19. Tuberculosis Cases by Selected Risk Factors: Northwest Region, 2008-2012

Total Cases	2008		2009		2010		2011		2012	
	20		24		22		15		15	
	No.	%								
Occupation										
Health Care	1	5.0	2	8.3	3	13.6	0	0.0	1	6.7
Migrant	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	0	0.0	0	0.0	0	0.0	2	13.3	0	0.0
Prison/Jail	1	5.0	4	16.7	0	0.0	1	6.7	0	0.0
Homeless	0	0.0	2	8.3	0	0.0	0	0.0	1	6.7
Co-Morbidity										
Diabetes	1	5.0	0	0.0	4	0.0	0	0.0	2	13.3
HIV	2	10.0	5	20.8	1	4.5	0	0.0	1	6.7
Substance Use										
Alcohol	2	10.0	3	12.5	3	13.6	1	6.7	3	20.0
IDU	0	0.0	2	0.0	0	0.0	0	0.0	0	0.0
Non-IDU	1	5.0	1	4.2	0	0.0	1	6.7	1	6.7

Table 20. Tuberculosis Cases by Selected Risk Factors: Southwest Region, 2008-2012

Total Cases	2008		2009		2010		2011		2012	
	16		20		18		15		14	
	No.	%								
Occupation										
Health Care	0	0.0	0	0.0	0	0.0	1	6.7	0	0.0
Migrant	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	0	0.0	0	0.0	1	5.6	0	0.0	0	0.0
Prison/Jail	0	0.0	0	0.0	0	0.0	2	13.3	1	7.1
Homeless	1	0.0	0	0.0	1	0.0	0	0.0	2	14.3
Co-Morbidity										
Diabetes	2	12.5	3	15.0	2	11.1	1	6.7	1	7.1
HIV	1	6.3	3	15.0	1	5.6	2	13.3	2	14.3
Substance Use										
Alcohol	1	6.3	1	5.0	1	5.6	1	6.7	4	28.6
IDU	0	0.0	1	4.2	1	4.5	0	0.0	1	6.7
Non-IDU	0	0.0	2	10.0	2	11.1	1	6.7	1	7.1

Table 21. Culture Positive Tuberculosis Cases with Drug Resistance: Virginia, 2008-2012

Initial Susceptibilities	2008		2009		2010		2011		2012	
	219		204		215		174		172	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total Drug Resistance	35	16.0	30	14.7	36	16.7	14	8.0	24	14.0
Any firstline drug	33	15.1	27	13.2	36	16.7	12	6.9	19	11.0
Multidrug**	2	0.9	3	1.5	0	0.0	2	1.1	5	2.9

**Multidrug resistance or MDR is by definition resistance to isoniazid and rifampin.

Table 22. Tuberculosis Mortality: Virginia, 2008-2012*

Total Cases	2008		2009		2010		2011		2012	
	292		273		268		221		235	
	No.	%								
Total Deaths	20	6.8	13	4.8	16	6.0	15	6.8	21	8.9
Dead at Time Diagnosis	3	1.0	2	0.7	7	2.6	4	1.8	6	2.6
Died During Treatment	17	5.8	11	4.0	8	3.0	11	5.0	15	6.4

*If a person is diagnosed with TB post-mortem or diagnosed with TB at the time of death they are coded as dead at the time of diagnosis. If they died during TB treatment, they are coded as died during treatment. There may be people in either of these categories whose underlying cause of death is not TB.

Technical Notes

TB disease is a reportable condition as defined in the *Regulations for Disease Reporting and Control*. In addition, TB infection in children under age 4 is also a reportable condition. The Division of Disease Prevention, TB Control conducts surveillance for TB disease in the entire population and for TB infection among children. It collects, analyzes, and disseminates data as an integral part of TB control.

Rates per 100,000

In Tables 1 and 2, rates for 2001-2010 were calculated using 2000 Census data released by the United States Bureau of the Census, Population Estimates Program. Annual Estimates of the Population for Counties of Virginia: April 1, 2000 to July 1, 2010 (CO-EST2006-01-51). For 2011 and 2012 rates were calculated using estimates compiled by the Weldon Cooper Center for Public Service, accessed 2/20/2013 <http://www.coopercenter.org/demographics/virginia-population-estimates#popestimates>

Tuberculosis (TB) (*Mycobacterium tuberculosis*)

2009 Case Definition

CSTE Position Statement(s)

- 09-ID-65

Clinical Description

A chronic bacterial infection caused by *Mycobacterium tuberculosis*, usually characterized pathologically by the formation of granulomas. The most common site of infection is the lung, but other organs may be involved.

Clinical Criteria

A case that meets all the following criteria:

- A positive tuberculin skin test or positive interferon gamma release assay for *M. tuberculosis*
- Other signs and symptoms compatible with tuberculosis (TB) (e.g., abnormal chest radiograph, abnormal chest computerized tomography scan or other chest imaging study, or clinical evidence of current disease)
- Treatment with two or more anti-TB medications
- A completed diagnostic evaluation

Laboratory Criteria for Diagnosis

- Isolation of *M. tuberculosis* from a clinical specimen,* OR
- Demonstration of *M. tuberculosis* complex from a clinical specimen by nucleic acid amplification test,** OR
- Demonstration of acid-fast bacilli in a clinical specimen when a culture has not been or cannot be obtained or is falsely negative or contaminated.

Case Classification

Confirmed

A case that meets the clinical case definition or is laboratory confirmed

Comment(s)

A case should not be counted twice within any consecutive 12-month period. However, a case occurring in a patient who had previously had verified TB disease should be reported and counted again if more than 12 months have elapsed since the patient completed therapy. A case should also be reported and counted again if the patient was lost to supervision for greater than 12 months and TB disease can be verified again. Mycobacterial diseases other than those caused by *M. tuberculosis* complex should not be counted in tuberculosis morbidity statistics unless there is concurrent tuberculosis.

*Use of rapid identification techniques for *M. tuberculosis* (e.g., DNA probes and mycolic acid high-pressure liquid chromatography performed on a culture from a clinical specimen) are acceptable under this criterion.

** Nucleic acid amplification (NAA) tests must be accompanied by culture for mycobacteria species for clinical purposes. A culture isolate of *M. tuberculosis* complex is required for complete drug susceptibility testing and also genotyping. However, for surveillance purposes, CDC will accept results obtained from NAA tests approved by the Food and Drug Administration (FDA) and used according to the approved product labeling on the package insert, or a test produced and validated in accordance with applicable FDA and Clinical Laboratory Improvement Amendments (CLIA) regulations.

<http://wwwn.cdc.gov/nndss/script/casedef.aspx?condyrid=876&datepub=1/1/2009%2012:00:00%20am>