

2014 Annual Tuberculosis Surveillance Report

Virginia Department of Health

Office of Epidemiology

**Division of Disease Prevention
Tuberculosis Control**

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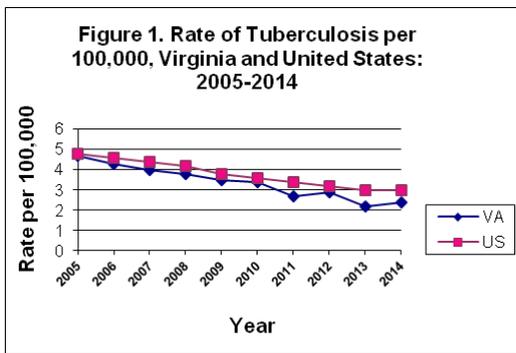
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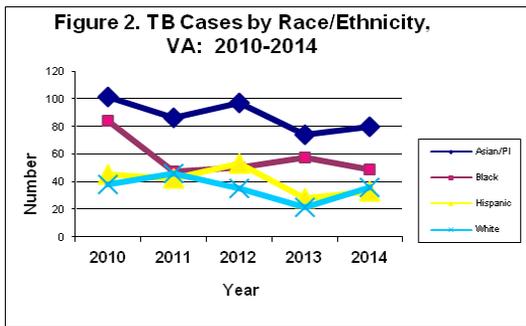
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In 2014, Virginia reported 198 tuberculosis (TB) cases, a 10% increase from the 180 cases reported in 2013. For the fourth year in a row, TB cases reported nationally reached the lowest number and the lowest rate since reporting began in 1954, but the percentage decrease was the smallest in ten years. Virginia ranked 11th in the nation for the number of reported TB cases with a case rate of 2.4 per 100,000 compared to 3.0 per 100,000 for the United States. In this report, data on demographics and selected risk factors are provided at the state level for 2010-2014.



Sex and Race

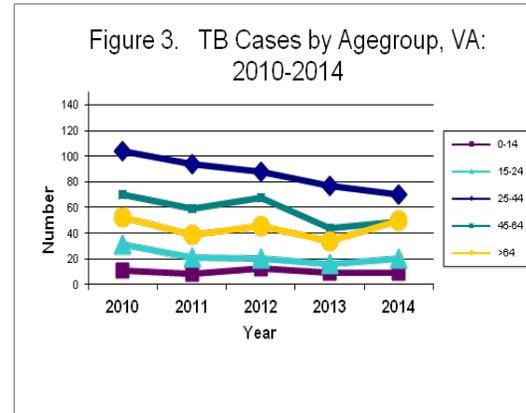
In 2014, 48% of TB cases were female and 52% were male. Among racial and ethnic groups, all groups except Blacks saw a slight increase over last year.



Age

Nine pediatric cases, aged 0 to 14 were reported in 2014. Among the 15-24 year old age group, 20 cases were reported compared to 16 cases in 2013. For the fourth year in a row, the 25-44 year old age

group had a decrease compared to the previous year, from 77 cases in 2013 to 70 cases in 2014. Among those aged 45-64, 49 cases were reported in 2013 compared to 44 in 2014. Those aged 65 and older increased from 34 in 2013 to 50 in 2014 (Figure 3).



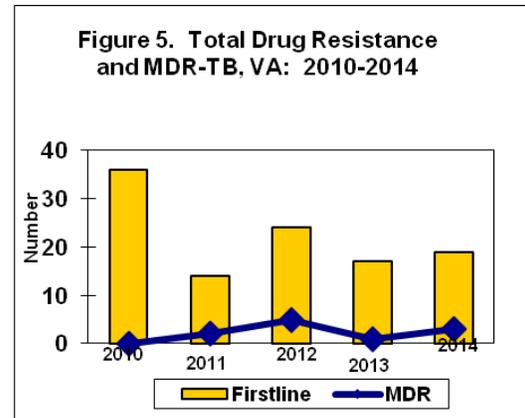
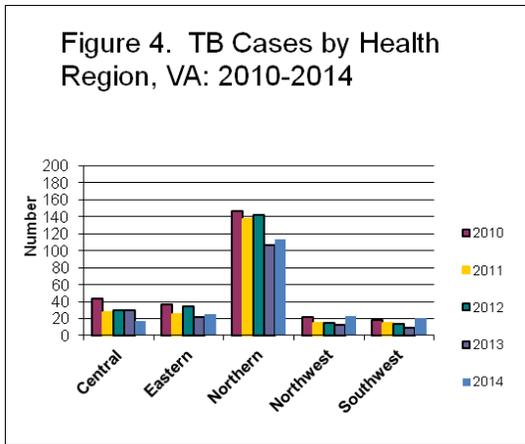
Place of Origin

In 2014, 147 or 74% of Virginia's TB cases were reported among foreign-born persons.

The diversity of cultures and countries of origin among Virginia's TB cases is remarkable. These cases represent 42 countries of origin other than the United States. The top five countries of origin in 2014 included India, Viet Nam, Ethiopia, Korea, with El Salvador and the Philippines tied for number five.

Geographic Distribution

In 2014, all the Health Regions, with the exception of Central had a slight increase in reported cases. The Northern Region, with a caseload that is overwhelmingly comprised of foreign-born people, reported 57% (113) of the total. Eastern Health Region reported 25 cases for 13%, Central Region reported 17 cases for 9%, Northwest Region reported 23 cases for 12% and Southwest Region reported 20 cases for 10% 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 is consistently the most frequently observed risk factor among TB cases in Virginia. In 2014, 33 cases (17%) were reported. In 2014, 5 health care workers were reported with TB and TB was reported among 5 residents of long-term care facilities. Overall, 10 (5%) of Virginia's cases were reported with HIV infection. In 2014, 7 cases (3.5%) reported excessive alcohol use and only one case reported drug use.

Drug Resistance

Drug susceptibility tests were performed for 151 culture positive cases. Drug resistance was found in 19 cases to one or more first-line drugs, most frequently isoniazid. Three cases of multidrug resistant TB (MDR-TB) were reported in 2014. (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 2014 (Figure 5).

Mortality

In 2014, 4 (2%) TB cases died during treatment and 5 (2.5%) cases were diagnosed at the time of death or post-mortem. The mean age of adults who died was 70 years old. One child died of TB in 2014.

Treatment Outcomes

For 2013, the year with the most complete data available, 93.9% of the drug-susceptible cases completed therapy within 12 months.

Contact Investigations

In 2013, 2,518 contacts to acid-fast bacilli (AFB) sputum smear positive or sputum culture positive cases were identified. Of those, 86.3% were evaluated for infection and disease. Among the 302 people identified with latent TB infection (LTBI), 148 (49%) were started on treatment and 130 (88%) completed treatment for latent TB infection.

Table 1. Number and Rate of Tuberculosis Cases: Virginia and United States, 2005-2014

Year	Virginia		United States	
	No.	Rate	No.	Rate
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
2013	180	2.2	9,588	3.0
2014	198	2.4	9,412	3.0

Historical US data from: CDC. Reported Tuberculosis in the United States, 2013. Atlanta, GA: US DHHS, CDC, October 2013. 2014 data from Centers for Disease Control and Prevention. Tuberculosis Trends–United States, 2014 MMWR 64(10); 265-269, 2015.

Table 2. Tuberculosis Cases and Rate per 100,000 by Health Region: Virginia, 2010-2015

Region	2010			2011			2012			2013			2014		
	No.	%	Rate												
Total	268	100	3.4	221	100	2.7	235	100	2.9	180	100	2.2	198	100	2.4
Central	44	16.4	3.3	28	12.7	2.0	30	12.8	2.0	29	16.1	2.1	17	8.6	1.2
Eastern	37	13.8	2.0	26	11.8	1.4	34	14.5	1.8	22	12.2	1.2	25	12.6	1.3
Northern	147	54.9	6.6	137	62.0	6.0	142	60.4	6.1	107	59.4	4.5	113	57.1	4.7
Northwest	22	8.2	1.8	15	6.8	1.2	15	6.4	1.2	12	6.7	0.9	23	11.6	1.8
Southwest	18	6.7	1.3	15	6.8	1.1	14	6.0	1.0	9	5.0	0.7	20	10.1	1.5

**Table 3. Tuberculosis Cases by Demographics and Location:
Virginia, 2010-2014**

	2010		2011		2012		2013		2014	
	268		221		235		180		198	
Total Cases	No	%								
Sex										
Female	105	39.2	95	43.0	106	45.1	72	40.0	94	47.5
Male	163	60.8	126	57.0	129	54.9	108	60.0	104	52.5
Race/Ethnicity										
Asian/Pacific Islander	101	37.7	86	38.9	97	41.3	74	41.1	80	40.4
Black, Not Hispanic	84	31.3	47	21.3	50	21.3	57	31.7	49	24.7
Hispanic	45	16.8	42	19.0	53	22.6	28	15.6	33	16.7
White, Not Hispanic	38	14.2	46	20.8	35	14.9	21	11.7	36	18.2
Age										
0-14	11	4.1	8	3.6	13	5.5	9	5.0	9	4.5
15-24	31	11.6	21	9.5	20	8.5	16	8.9	20	10.1
25-44	104	38.8	94	42.5	88	37.4	77	42.8	70	35.4
45-64	70	26.1	59	26.7	68	28.9	44	24.4	49	24.7
>64	52	19.4	39	17.6	46	19.6	34	18.9	50	25.3
Place of Birth										
Foreign-born	173	64.6	160	72.4	183	77.9	149	82.8	147	74.2
US-born	95	35.4	61	27.6	52	22.1	31	17.2	51	25.8
Health Region										
Central	44	16.4	28	12.7	30	12.8	30	16.7	17	8.6
Eastern	37	13.8	26	11.8	34	14.5	22	12.2	25	12.6
Northern	147	54.9	137	62.0	142	60.4	107	59.4	113	57.1
Northwest	22	8.2	15	6.8	15	6.4	12	6.7	23	11.6
Southwest	18	6.7	15	6.8	14	6.0	9	5.0	20	10.1

Table 4. Tuberculosis Cases by Demographics and Region: Central, 2010-2014

	2010		2011		2012		2013		2014	
	44		28		30		30		17	
Total Cases	No.	%								
Sex										
Female	17	38.6	12	42.9	14	46.7	12	40.0	9	52.9
Male	27	61.4	16	57.1	16	53.3	18	60.0	8	47.1
Race/Ethnicity										
Asian/Pacific Islander	6	13.6	9	32.1	8	26.7	13	43.3	7	41.2
Black, Not Hispanic	27	61.4	6	21.4	10	33.3	11	36.7	7	41.2
Hispanic	3	6.8	4	14.3	5	16.7	2	6.7	0	0.0
White, Not Hispanic	8	18.2	9	32.1	7	23.3	4	13.3	3	17.6
Age										
0-14	6	13.6	1	3.6	3	10.0	1	3.3	2	11.8
15-24	4	9.1	2	7.1	5	16.7	1	3.3	2	11.8
25-44	14	31.8	11	39.3	6	20.0	8	26.7	4	23.5
45-64	13	29.5	7	25.0	9	30.0	6	20.0	4	23.5
>64	7	15.9	7	25.0	7	23.3	14	46.7	5	29.4
Place of Birth										
Foreign-born	11	25.0	15	53.6	16	53.3	16	53.3	8	47.1
US Born	33	75.0	13	46.4	14	46.7	14	46.7	9	52.9

Table 5. Tuberculosis Cases by Demographics and Region: Eastern, 2010-2014

	2009		2010		2012		2013		2014	
	38		37		34		22		25	
Total Cases	No.	%								
Sex										
Female	15	39.5	19	51.4	10	29.4	9	40.9	10	40.0
Male	23	60.5	18	48.6	24	70.6	13	59.1	15	60.0
Race/Ethnicity										
Asian/Pacific Islander	11	28.9	10	27.0	13	38.2	12	54.5	12	48.0
Black, Not Hispanic	17	44.7	13	35.1	11	32.4	7	31.8	10	40.0
Hispanic	4	10.5	3	8.1	6	17.6	2	9.1	2	8.0
White, Not Hispanic	6	15.8	11	29.7	4	11.8	1	4.5	1	4.0
Age										
0-14	5	13.2	1	2.7	2	5.9	2	9.1	1	4.0
15-24	1	2.6	5	13.5	6	17.6	2	9.1	3	12.0
25-44	10	26.3	10	27.0	9	26.5	9	40.9	7	28.0
45-64	11	28.9	10	27.0	11	32.4	5	22.7	7	28.0
>64	11	28.9	11	29.7	6	17.6	4	18.2	7	28.0
Place of Birth										
Foreign-born	14	36.8	15	40.5	22	64.7	17	77.3	15	60.0
US-born	24	63.2	22	59.5	12	35.3	5	22.7	10	40.0

Table 6. Tuberculosis Cases by Demographics and Region: Northern, 2010-2014

	2010		2011		2012		2013		2014	
	147		137		142		107		113	
Total Cases	No.	%								
Sex										
Female	56	38.1	56	40.9	67	47.2	44	41.1	58	51.3
Male	91	61.9	81	59.1	75	52.8	63	58.9	55	48.7
Race/Ethnicity										
Asian/Pacific Islander	77	52.4	63	46.0	68	47.9	43	40.2	53	46.9
Black, Not Hispanic	32	21.8	24	17.5	27	19.0	36	33.6	27	23.9
Hispanic	31	21.1	36	26.3	35	24.6	21	19.6	23	20.4
White, Not Hispanic	7	4.8	14	10.2	12	8.5	7	6.5	10	8.8
Age										
0-14	4	2.7	3	2.2	6	4.2	5	4.7	3	2.7
15-24	20	13.6	14	10.2	7	4.9	12	11.2	12	10.6
25-44	65	44.2	65	47.4	62	43.7	50	46.7	42	37.2
45-64	38	25.9	39	28.5	39	27.5	29	27.1	31	27.4
>64	20	13.6	16	11.7	28	19.7	11	10.3	25	22.1
Place of Birth										
Foreign-born	130	88.4	123	96.9	128	90.1	104	97.2	103	91.2
US-born	17	11.6	4	3.1	14	9.9	3	2.8	10	8.8

Table 7. Tuberculosis Cases by Demographics and Region: Northwest, 2010-2014

	2010		2011		2012		2013		2014	
	22		15		15		12		23	
Total Cases	No.	%								
Sex										
Female	5	22.7	8	53.3	8	53.3	4	33.3	8	34.8
Male	17	77.3	7	46.7	7	46.7	8	66.7	15	65.2
Race/Ethnicity										
Asian/Pacific Islander	4	18.2	8	53.3	4	26.7	4	33.3	5	21.7
Black, Not Hispanic	10	45.5	0	0.0	2	13.3	3	25.0	2	8.7
Hispanic	5	22.7	1	6.7	6	40.0	0	0.0	7	30.4
White, Not Hispanic	3	13.6	6	40.0	3	20.0	5	41.7	9	39.1
Age										
0-14	0	0.0	0	0.0	1	6.7	0	0.0	2	8.7
15-24	1	4.5	1	6.7	1	6.7	0	0.0	3	13.0
25-44	6	27.3	9	60.0	7	46.7	6	50.0	8	34.8
45-64	7	31.8	2	13.3	4	26.7	2	16.7	5	21.7
>64	8	36.4	3	20.0	2	13.3	4	33.3	5	21.7
Place of Birth										
Foreign-born	10	45.5	11	73.3	4	26.7	7	58.3	15	65.2
US-born	12	54.5	4	26.7	11	73.3	5	41.7	8	34.8

Table 8. Tuberculosis Cases by Demographics and Region: Southwest, 2010-2014

	2010		2011		2012		2013		2014	
	18		15		14		9		20	
Total Cases	No.	%	No.	%	No.	%	No.	%	No.	%
Sex										
Female	8	44.4	5	33.3	7	50.0	3	33.3	9	45.0
Male	10	55.6	10	66.7	7	50.0	6	66.7	11	55.0
Race/Ethnicity										
Asian/Pacific Islander	4	22.2	3	20.0	4	28.6	2	22.2	3	15.0
Black, Not Hispanic	2	11.1	3	20.0	0	0.0	0	0.0	3	15.0
Hispanic	3	16.7	0	0.0	1	7.1	3	33.3	1	5.0
White, Not Hispanic	9	50.0	9	60.0	9	64.3	4	44.4	13	65.0
Age										
0-14	0	0.0	0	0.0	1	7.1	1	11.1	1	5.0
15-24	1	5.6	1	6.7	1	7.1	1	11.1	0	0.0
25-44	9	50.0	3	20.0	4	28.6	4	44.4	9	45.0
45-64	2	11.1	5	33.3	5	35.7	2	22.2	2	10.0
>64	6	33.3	6	40.0	3	21.4	1	11.1	8	40.0
Place of Birth										
Foreign-born	7	38.9	5	33.3	6	42.9	5	55.6	6	30.0
US-born	11	61.1	10	66.7	8	57.1	4	44.4	14	70.0

Table 9. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Virginia, 2010-2014

Race/Ethnicity	2010		2011		2012		2013		2014	
	US-born	Foreign-born								
Total	95	173	61	160	52	183	31	149	51	147
Asian/Pacific Islander	1	100	3	83	3	94	0	74	4	76
Black, Not Hispanic	52	32	25	22	22	28	16	41	21	28
Hispanic	7	38	2	40	4	49	0	28	3	30
White, Not Hispanic	35	3	31	15	23	12	15	6	23	13

Table 10. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Central Region, 2010-2014

Race/Ethnicity	2010		2011		2012		2013		2014	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	33	11	14	15	14	16	14	16	9	8
Asian/Pacific Islander	0	6	0	9	1	7	0	13	2	5
Black, Not Hispanic	26	1	7	0	9	1	10	1	5	2
Hispanic	0	3	0	4	0	5	0	2	0	0
White, Not Hispanic	7	1	7	2	4	3	4	0	2	1

Table 11. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Eastern Region, 2010-2014

Race/Ethnicity	2010		2011		2012		2013		2014	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	22	15	19	6	12	22	5	17	10	15
Asian/Pacific Islander	0	10	1	2	0	13	0	12	0	12
Black, Not Hispanic	13	0	12	1	8	3	4	3	9	1
Hispanic	0	3	0	0	1	5	0	2	0	2
White, Not Hispanic	9	2	6	3	3	1	1	0	1	0

Table 12. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Northern Region, 2010-2014

Race/Ethnicity	2010		2011		2012		2013		2014	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	17	130	14	123	14	128	3	104	10	103
Asian/Pacific Islander	1	76	2	61	2	66	0	43	2	51
Black, Not Hispanic	3	29	3	21	4	23	2	34	4	23
Hispanic	6	25	2	34	2	33	0	21	2	21
White, Not Hispanic	7	0	7	7	6	6	1	6	2	8

Table 13. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Northwest Region, 2010-2014

Race/Ethnicity	2010		2011		2012		2013		2014	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	12	10	4	11	4	11	5	7	8	15
Asian/Pacific Islander	0	4	0	8	0	4	0	4	0	5
Black, Not Hispanic	8	2	0	0	1	1	0	3	1	1
Hispanic	1	4	0	2	1	5	0	0	0	6
White, Not Hispanic	3	0	4	1	2	1	5	0	7	3

Table 14. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Southwest Region, 2010-2014

Race/Ethnicity	2010		2011		2012		2013		2014	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	11	7	10	5	8	6	4	5	14	6
Asian/Pacific Islander	0	4	0	3	0	4	0	2	0	3
Black, Not Hispanic	2	0	3	0	0	0	0	0	2	1
Hispanic	0	3	0	0	0	1	0	3	0	1
White, Not Hispanic	9	0	7	2	8	1	4	0	12	1

Table 15. Tuberculosis Cases by Selected Risk Factors: Virginia, 2010-2014

Total Cases	2010		2011		2012		2013		2014	
	268		221		235		180		198	
	No.	%								
Occupation										
Health Care	12	4.5	7	3.2	8	3.4	5	2.8	5	2.5
Migrant	0	0.0	0	0.0	1	0.4	0	0.0	1	0.5
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	8	3.0	5	2.3	2	0.9	4	2.2	5	2.5
Prison/Jail	8	3.0	8	3.6	6	2.6	0	0.0	0	0.0
Homeless	12	4.5	1	0.5	10	4.3	8	4.4	1	0.5
Co-Morbidity										
Diabetes	37	13.8	31	14.0	27	11.5	26	14.4	33	16.7
HIV	8	3.0	9	4.1	12	5.1	10	5.6	10	5.1
Substance Use										
Alcohol	23	8.6	17	7.7	21	8.9	13	7.2	7	3.5
IDU	1	0.4	0	0.0	2	0.9	2	1.1	0	0.0
Non-IDU	4	1.5	13	5.9	15	6.4	7	3.9	1	0.5

Table 16. Tuberculosis Cases by Selected Risk Factors: Central Region, 2010-2014

Total Cases	2010		2011		2012		2013		2014	
	44		28		30		30		17	
	No.	%								
Occupation										
Health Care	2	4.5	0	0.0	3	10.0	0	0.0	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	2	4.5	0	0.0	0	0.0	1	3.3	1	5.9
Prison/Jail	4	9.1	2	7.1	4	13.3	0	0.0	0	0.0
Homeless	2	4.5	0	0.0	1	3.3	3	10.0	0	0.0
Co-Morbidity										
Diabetes	7	15.9	2	7.1	4	13.3	7	23.3	3	17.6
HIV	1	2.3	3	10.7	1	3.3	0	0.0	2	11.8
Substance Use										
Alcohol	8	18.2	5	17.9	3	10.0	3	10.0	2	11.8
IDU	0	0.0	0	0.0	0	0.0	1	3.3	0	0.0
Non-IDU	0	0.0	3	10.7	4	13.3	4	13.3	0	0.0

Table 17. Tuberculosis Cases by Selected Risk Factors: Eastern Region, 2010-2014

Total Cases	2010		2011		2012		2013		2014	
	37		25		25		22		25	
	No.	%								
Occupation										
Health Care	3	8.1	0	0.0	1	4.0	0	0.0	1	4.0
Migrant	0	0.0	0	0.0	1	4.0	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	1	2.7	0	0.0	0	0.0	0	0.0	1	4.0
Prison/Jail	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Homeless	4	10.8	0	0.0	1	4.0	0	0.0	0	0.0
Co-Morbidity										
Diabetes	6	16.2	3	12.0	5	20.0	3	13.6	5	20.0
HIV	1	2.7	1	4.0	0	0.0	0	0.0	1	4.0
Substance Use										
Alcohol	5	13.5	1	4.0	4	16.0	1	4.5	2	8.0
IDU	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Non-IDU	2	5.4	2	8.0	3	12.0	1	4.5	1	4.0

Table 18. Tuberculosis Cases by Selected Risk Factors: Northern Region, 2010-2014

Total Cases	2010		2011		2012		2013		2014	
	147		137		142		107		113	
	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	4	2.7	6	4.4	3	2.1	5	4.7	3	2.7
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	6	4.1	3	2.2	1	0.7	1	0.9	3	2.7
Prison/Jail	4	2.7	3	2.2	1	0.7	0	0.0	0	0.0
Homeless	5	3.4	1	0.7	5	3.5	3	2.8	0	0.0
Co-Morbidity										
Diabetes	18	12.2	24	17.5	15	10.6	10	9.3	23	20.4
HIV	4	2.7	3	2.2	8	5.6	8	7.5	6	5.3
Substance Use										
Alcohol	6	4.1	9	6.6	7	4.9	5	4.7	2	1.8
IDU	0	0.0	0	0.0	1	0.7	0	0.0	0	0.0
Non-IDU	1	0.7	6	4.4	6	4.2	1	0.9	0	0.0

Table 19. Tuberculosis Cases by Selected Risk Factors: Northwest Region, 2010-2014

Total Cases	2010		2011		2012		2013		2014	
	22		15		15		12		23	
	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	3	13.6	0	0.0	1	6.7	0	0.0	1	4.3
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	2	13.3	0	0.0	1	8.3	0	0.0
Prison/Jail	0	0.0	1	6.7	0	0.0	0	0.0	0	0.0
Homeless	0	0.0	0	0.0	1	6.7	1	8.3	0	0.0
Co-Morbidity										
Diabetes	4	0.0	0	0.0	2	0.0	5	0.0	2	0.0
HIV	1	4.5	0	0.0	1	6.7	1	8.3	0	0.0
Substance Use										
Alcohol	3	13.6	1	6.7	3	20.0	2	16.7	0	0.0
IDU	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Non-IDU	0	0.0	1	6.7	1	6.7	0	0.0	0	0.0

Table 20. Tuberculosis Cases by Selected Risk Factors: Southwest Region, 2010-2014

Total Cases	2010		2011		2012		2013		2014	
	18		15		14		9		20	
	No.	%								
Occupation										
Health Care	0	0.0	1	6.7	0	0.0	0	0.0	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	1	5.6	0	0.0	0	0.0	1	11.1	0	0.0
Prison/Jail	0	0.0	2	13.3	1	7.1	0	0.0	0	0.0
Homeless	1	0.0	0	0.0	2	14.3	1	11.1	0	0.0
Co-Morbidity										
Diabetes	2	11.1	1	6.7	1	7.1	1	11.1	0	0.0
HIV	1	5.6	2	13.3	2	14.3	1	11.1	1	5.0
Substance Use										
Alcohol	1	5.6	1	6.7	4	28.6	2	22.2	2	10.0
IDU	1	4.5	0	0.0	1	6.7	1	11.1	0	0.0
Non-IDU	2	11.1	1	6.7	1	7.1	1	11.1	0	0.0

Table 21. Culture Positive Tuberculosis Cases with Drug Resistance: Virginia, 2010-2014

Initial Susceptibilities	2010		2011		2012		2013		2014	
	215		174		172		135		151	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total Drug Resistance	36	16.7	14	8.0	24	14.0	17	12.6	19	12.6
Any firstline drug	36	16.7	12	6.9	19	11.0	16	11.9	16	10.6
Multidrug**	0	0.0	2	1.1	5	2.9	1	0.7	3	2.0

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

Table 22. Tuberculosis Mortality: Virginia, 2010-2014*

Total Cases	2010		2011		2012		2013		2014	
	268		221		235		180		198	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total Deaths	16	6.0	15	6.8	21	8.9	15	8.3	9	6.6
Dead at Time Diagnosis	7	2.6	4	1.8	6	2.6	7	3.9	5	2.5
Died During Treatment	8	3.0	11	5.0	15	6.4	8	4.4	4	4.0

*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>