Reportable Disease Surveillance in Virginia, 2014

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Introduction

The Virginia Department of Health, Office of Epidemiology is pleased to present its twenty-seventh annual report of disease surveillance activities. This report summarizes morbidity data reported by the Virginia Department of Health, Office of Epidemiology to the federal Centers for Disease Control and Prevention (CDC) during calendar year 2014.

The Office of Epidemiology, in conjunction with health departments in districts throughout Virginia, is responsible for the ongoing statewide surveillance of diseases according to the provisions of the *Regulations for Disease Reporting and Control.* Disease surveillance involves the collection of pertinent data, the tabulation and evaluation of the data, and the dissemination of the information. These data provide the foundation for public health activities to reduce morbidity.

Diseases must be diagnosed and reported to the health department before case investigations can occur and disease control activities can begin. Physicians, personnel in medical care facilities, laboratory directors, and other health care providers are therefore essential to the surveillance process. By reporting diseases, health care personnel aid the health department in identifying unusual disease patterns occurring in the community. The health department notifies physicians of these unusual disease patterns, which helps physicians provide a more rapid diagnosis and treatment of individuals who present with compatible symptoms.

This report summarizes those diseases and conditions that are listed as officially reportable in the *Regulations for Disease Reporting and Control*. The report is divided into four sections as described below.

Introduction and Data Summary: Tables summarizing 2014 morbidity are included in this introductory section. These tables include the list of reportable diseases; ten year trends for both the number of reported cases and the incidence rate of cases per 100,000 population for all reportable diseases; the number of reports and incidence rate per 100,000 population for selected diseases by age group, race, sex, and health planning region; and the number and percent of reports for selected diseases by quarter of onset.

Descriptive Epidemiology of Reportable Diseases: This section consists of narrative and graphics describing the populations reported with each disease or condition. The section includes information about the total number of cases reported; the ten year trend in number of reported cases and incidence rate; the demographics of cases in terms of age, race and sex; and the distribution of cases by date of onset and health planning region of the state. Select diseases include a map of Virginia depicting incidence rates by locality. Mortality, microbial species, and other attributes of diseases also are presented when applicable. Sources of information include the Virginia Electronic Disease Surveillance System (VEDSS) database, the CDC (http://www.cdc.gov/), *Red Book: 2015 Report of the Committee on Infectious Diseases* (American Academy of Pediatrics, Kimberlin, D., Brady, M., Jackson, M., Long, S., eds., 2015), and *Control of Communicable Diseases Manual* (Heymann, D., ed., 2015).

Population-based rates are often presented to provide a measure of disease frequency in the population and to allow for comparisons between groups. When calculating rates, population estimates for 2013 prepared by the United States Census Bureau for the state's cities and counties and total population were used.

Race is usually presented as black, white, or other. The "other" race category includes Asian/Pacific Islanders, American Indians, Alaskan Natives and multi-racial persons.

In describing the occurrence of disease throughout the year, date of onset is used whenever it is available. Onset is the time when symptoms first occurred. Some cases reported in 2014 experienced onset prior to the year of report. For surveillance purposes, these cases are counted with this report due to receipt of notification or confirmatory test results in 2014. In some situations information is only available on the date of report, or the date the report was first received by the health department, and these dates are used in place of date of onset. Date of specimen collection or date of diagnosis may also be used to estimate date of onset.

To the extent possible, rates by locality are calculated based on residence of the patient. When the address of the patient is neither reported by the health care provider nor ascertained by the health department, the location of the reporting source, such as the physician, hospital, or laboratory, is used.

Number of Cases and Rate by Locality: This section of the report presents the number of cases and incidence rate per 100,000 population for selected diseases by locality, district, and health planning region. In previous reports, cities and counties that shared one health department were combined and the data were presented as one jurisdiction. Beginning with the 2013 annual report, all independent cities and counties are listed as separate entities. Caution is urged in interpreting the data in this section as well as in the following section because localities with small populations may have large disease rates but only a few reported cases of disease. Both numbers of cases and incidence rates should be considered when using these tables to rank morbidity by city or county. Population data have been adjusted to represent the specific population under surveillance when data are restricted to certain age groups, including childhood elevated blood lead levels, Creutzfeldt-Jakob disease, and invasive *Streptococcus pneumoniae* infection.

Maps of Incidence Rates: Disease-specific maps are presented within several of the narratives to depict incidence rates by locality. For each disease-specific map, the rates have been divided into four categories using the following process:

Category 1 – Localities reporting zero cases of the disease.

Category 2 – Localities with an incidence rate greater than zero and up to the mean for the state.

Category 3 – Localities with an incidence rate greater than the mean and up to one standard deviation above the mean for the state.

Category 4 – Localities with an incidence rate greater than one standard deviation above the mean for the state.

The Office of Epidemiology hopes that the readers of this report will find it to be a valuable resource for understanding the epidemiology of reportable diseases in Virginia. Any questions or suggestions about this report may be directed to Lala Wilson at the Virginia Department of Health, Office of Epidemiology, Division of Surveillance & Investigation, P.O. Box 2448, 109 Governor St., 5th Floor, Richmond, Virginia 23218, or by telephone at 804-864-8141.

Table 1. Reportable Diseases in Virginia, 2014

Acquired immunodeficiency syndrome (AIDS)	Monkeypox
Amebiasis	Mumps
Anthrax	Mycobacterial Diseases (including AFB)
Arboviral infection (e.g., dengue, EEE, LAC, SLE, WNV)	Ophthalmia neonatorum
Botulism	Outbreaks, all (including foodborne, healthcare-associated, occupational, toxic substance-related, and waterborne)
Brucellosis	
Campylobacteriosis	Pertussis
Chancroid	Plague
Chickenpox (Varicella)	Poliovirus infection, including poliomyelitis
Chlamydia trachomatis infection	Psittacosis
Cholera	Q fever
Creutzfeldt-Jakob disease if <55 years of age	Rabies, human and animal
Cryptosporidiosis	Rabies treatment, post-exposure
Cyclosporiasis	Rubella, including congenital rubella syndrome
Diphtheria	Salmonellosis
Disease caused by an agent that may have been used as a weapon	Severe acute respiratory syndrome (SARS)
Ehrlichiosis/Anaplasmosis	Shigellosis
Escherichia coli infection, Shiga toxin-producing	Smallpox (variola)
Giardiasis	Spotted fever rickettsiosis, including RMSF
Gonorrhea	*Staphylococcus aureus* infection, invasive, methicillin-resistant (MRSA) and vancomycin-intermediate or vancomycin-resistant
Granuloma inguinale	
Haemophilus influenzae infection, invasive	Streptococcal disease, Group A, invasive or toxic shock
Hantavirus pulmonary syndrome	*Streptococcus pneumoniae* infection, invasive, in children <5 years of age
Hemolytic uremic syndrome (HUS)	Syphilis
Hepatitis A	Tetanus
Hepatitis B (acute and chronic)	Toxic substance-related illness
Hepatitis C (acute and chronic)	Trichinosis (Trichinellosis)
Hepatitis, other acute viral	Tuberculosis (TB), active disease
Human immunodeficiency virus (HIV) infection	Tuberculosis infection in children <4 years of age
Legionellosis	Tularemia
Leprosy (Hansen disease)	Typhoid/paratyphoid fever
Listeriosis	Unusual occurrence of disease of public health concern
Lyme disease	Vaccinia, disease or adverse event
Lymphogranuloma venereum	*Vibrio* infection
Malaria	Viral hemorrhagic fever
Measles (Rubeola)	Yellow fever
Meningococcal disease	Yersiniosis

Table 2a. Ten-Year Trend in Number of Reported Cases of Reportable Diseases in Virginia, 2005-2014

Disease	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	5-year Average
AIDS	626	589	599	638	*	*	*	*	*	*	*
Amebiasis	42	45	53	42	20	14	17	29	26	29	21.2
Anthrax	0	0	0	0	0	0	0	0	0	0	0.0
Arboviral infection	5	5	5	3	8	20	20	51	34	84	26.6
Botulism, foodborne	0	0	1	0	0	0	0	0	0	0	0.0
Botulism, non-foodborne	1	0	0	3	4	1	2	2	3	1	2.4
Brucellosis	1	0	0	0	5	0	0	0	3	1	1.6
Campylobacteriosis	618	669	665	669	770	778	805	764	709	744	765.2
Chancroid	0	1	0	0	0	0	0	1	0	0	0.2
Chickenpox (Varicella)	1,834	1,959	1,582	1,489	773	548	549	505	374	324	549.8
Chlamydia trachomatis infection	22,668	24,081	24,528	31,205	30,904	30,799	36,317	35,016	33,561	35,725	33,319.4
Cholera	0	0	0	0	0	1	1	0	0	0	0.4
Creutzfeldt-Jakob disease (CJD)^	0	1	1	0	0	0	0	0	0	2	0.0
Cryptosporidiosis	77	71	90	81	86	109	140	144	144	152	124.6
Cyclosporiasis	3	0	2	2	1	1	2	1	4	4	1.8
Diphtheria	0	0	0	0	0	0	0	0	0	0	0.0
Ehrlichiosis/Anaplasmosis	13	8	39	65	72	93	131	148	143	137	117.4
E. coli infection, Shiga toxin-producing	111	168	165	241	156	149	123	81	109	121	123.6
Giardiasis	602	514	582	432	503	512	290	272	278	256	371.0
Gonorrhea	8,346	6,474	6,267	10,336	7,791	7,401	6,521	6,894	6,992	8,196	7,119.8
Granuloma inguinale	0	0	0	0	0	0	0	0	0	0	0.0
Haemophilus influenzae infection, invasive	61	69	80	92	88	85	108	101	98	88	96.0
Hantavirus pulmonary syndrome	0	0	0	0	0	0	0	0	0	0	0.0
Hemolytic uremic syndrome	1	2	1	2	2	2	3	3	6	6	3.2
Hepatitis A	93	64	89	51	42	52	30	49	36	27	41.8
Hepatitis B, acute	146	78	144	130	110	97	84	84	72	61	89.4
Hepatitis C, acute	13	9	8	8	10	13	25	76	41	53	33.0
HIV disease*****	833	914	836	844	1429*	1,194	1,085	1,105	1,151	1,090	907.0
Influenza	15,942	16,107	8,416	24,580	40,614	2,467	18,153	19,146	27,564	36,663	21,588.8
Influenza-associated deaths in children~	2	3	3	3	8	0	5	1	2	7	3.2
Kawasaki syndrome	19	6	2	3	3	2	–	–	–	–	1.0
Lead - elevated blood levels in children******	527	515	394	307	389	350	274	201	164	264	275.6
Legionellosis	55	68	61	66	67	79	93	76	123	129	87.6
Leprosy (Hansen disease)	0	1	1	0	0	1	1	0	0	1	0.4
Listeriosis	17	20	16	17	16	13	15	18	29	25	18.2
Lyme disease	274	357	959	933	908	1,245	1,023	1,110	1,307	1,346	1,118.6
Lymphogranuloma venereum	2	0	0	0	0	0	0	0	0	0	0.0
Malaria	44	55	65	49	61	67	78	65	75	77	69.2
Measles	0	0	0	1	1	3	7	0	0	2	2.2

Table 2a. Ten-Year Trend in Number of Reported Cases of Reportable Diseases in Virginia, 2005-2014 (continued)

Disease	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	5-year Average
Meningococcal disease	35	22	23	24	18	21	18	5	7	10	13.8
Monkeypox	0	0	0	0	0	0	0	0	0	0	0.0
Mumps	2	117	27	9	9	13	13	7	109	20	30.2
Ophthalmia neonatorum	18	11	5	10	7	7	8	11	4	6	7.4
Pertussis	363	221	128	198	222	384	399	625	418	505	409.6
Plague	0	0	0	0	0	0	0	0	0	0	0.0
Poliovirus infection, including poliomyelitis	0	0	0	0	0	0	0	0	0	0	0.0
Psittacosis	0	0	0	0	0	0	0	0	0	0	0.0
Q fever	2	4	4	2	1	2	3	0	3	4	1.8
Rabies in animals	495	637	730	620	564	573	618	562	488	519	561.0
Rabies in humans	0	0	0	0	1	0	0	0	0	0	0.2
Rubella, including congenital rubella syndrome	0	0	0	0	0	2	0	0	0	0	0.4
Salmonellosis	1,172	1,089	1,249	1,165	1,095	1,210	1,208	1,144	1,048	1,150	1,141.0
Severe acute respiratory syndrome (SARS)	0	0	0	0	0	0	0	0	0	0	0.0
Shigellosis	134	120	200	310	198	145	107	91	115	214	131.2
Smallpox	0	0	0	0	0	0	0	0	0	0	0.0
Spotted fever rickettsiosis, including RMSF	121	114	123	155	53	145	231	461	350	373	248.0
Staphylococcus aureus infection, invasive (MRSA)	-	-	253	1,524	1,124	1,201	1,304	1,294	1,247	1,134	1,234.0
Staphylococcus aureus infection, VISA or VRSA	0	0	1	0	0	1	2	2	3	3	1.6
Streptococcal disease, Group A, invasive or TSS	110	132	162	150	174	191	192	168	190	210	183.0
Streptococcus pneumoniae infection, invasive***	37	50	52	52	47	59	33	36	37	19	42.4
Syphilis, early	291	351	407	500	529	553	502	593	676	556	570.6
Tetanus	1	0	0	0	0	0	0	1	2	0	0.6
Toxic shock syndrome (Staphylococcal)	1	0	1	0	0	2	–	–	–	–	0.4
Toxic substance-related illness	324	415	434	356	342	298	273	317	304	357	306.8
Trichinosis (Trichinellosis)	1	0	0	1	0	0	2	2	2	1	1.2
Tuberculosis	355	332	309	292	273	268	221	235	180	198	235.4
Tularemia	0	0	3	1	0	1	6	2	2	0	2.2
Typhoid fever	20	20	21	19	12	11	9	10	10	9	10.4
Vaccinia, disease or adverse event	0	0	0	1	0	0	0	0	1	0	0.2
Vibrio infection	25	32	33	29	29	40	30	41	42	59	36.4
Viral hemorrhagic fever	0	0	0	0	0	0	0	0	0	0	0.0
Yellow fever	0	0	0	0	0	0	0	0	0	0	0.0
Yersiniosis	18	10	10	14	11	13	10	8	11	21	10.6

^ Condition is reportable only in individuals < 55 years of age.

\- Not a reportable disease at this time.

***** Beginning in 2009, HIV infection and AIDS data, formerly presented separately, are presented together as HIV disease. This category encompasses persons newly reported to VDH with HIV infection regardless of disease progression, including those with an AIDS-defining condition at first report.

~ Condition is reportable only in children < 18 years of age.

****** Condition is reportable only in children < 16 years of age.

******* Condition is reportable only in children < 5 years of age.

Table 2b. Ten-Year Trend in Incidence Rate per 100,000 Population for Reportable Diseases, Virginia, 2005-2014

Disease	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	5-year Annual Rate
AIDS	8.4	7.8	7.8	8.3	*	*	*	*	*	*	*
Amebiasis	0.6	0.6	0.7	0.5	0.3	0.2	0.2	0.4	0.3	0.4	0.3
Anthrax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arboviral infection	0.1	0.1	0.1	0.0	0.1	0.3	0.2	0.6	0.4	1.0	0.3
Botulism, foodborne	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Botulism, non-foodborne	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Brucellosis	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Campylobacteriosis	8.3	8.8	8.7	8.7	9.9	9.9	10.1	9.4	8.7	9.0	9.7
Chancroid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chickenpox (Varicella)	24.6	25.9	20.7	19.3	9.9	7.0	6.9	6.2	4.6	3.9	7.0
Chlamydia trachomatis infection	303.9	318.2	320.9	404.6	397.8	390.7	453.9	432.5	410.0	432.5	422.2
Cholera	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Creutzfeldt-Jakob disease (CJD)^	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cryptosporidiosis	1.0	0.9	1.2	1.1	1.1	1.4	1.7	1.8	1.8	1.8	1.6
Cyclosporiasis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Diphtheria	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ehrlichiosis/Anaplasmosis	0.2	0.1	0.5	0.8	0.9	1.2	1.6	1.8	1.7	1.7	1.5
E. coli infection, Shiga toxin-producing	1.5	2.2	2.2	3.1	2.0	1.9	1.5	1.0	1.3	1.5	1.6
Giardiasis	8.1	6.8	7.6	5.6	6.5	6.5	3.6	3.4	3.4	3.1	4.7
Gonorrhea	111.9	85.6	82.0	134.0	100.3	93.9	81.5	85.1	85.4	99.2	90.2
Granuloma inguinale	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haemophilus influenzae infection, invasive	0.8	0.9	1.0	1.2	1.1	1.1	1.3	1.2	1.2	1.1	1.2
Hantavirus pulmonary syndrome	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hemolytic uremic syndrome	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Hepatitis A	1.2	0.8	1.2	0.7	0.5	0.7	0.4	0.6	0.4	0.3	0.5
Hepatitis B, acute	2.0	1.0	1.9	1.7	1.4	1.2	1.0	1.0	0.9	0.7	1.1
Hepatitis C, acute	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.9	0.5	0.6	0.4
HIV disease*****	11.2	12.1	10.9	10.9	18.4	15.1	13.6	13.6	14.1	13.2	11.5
Influenza	213.7	212.8	110.1	318.7	522.8	31.3	226.9	236.5	336.7	443.8	273.5
Influenza-associated deaths in children~	0.1	0.2	0.2	0.2	0.4	0.0	0.3	0.1	0.1	0.4	0.2
Kawasaki syndrome	0.3	0.1	0.0	0.0	0.0	0.0	–	–	–	–	0.0
Lead - elevated blood levels in children******	35.2	31.9	24.7	19.0	24.0	21.3	16.7	12.2	10.0	15.9	16.8
Legionellosis	0.7	0.9	0.8	0.9	0.9	1.0	1.2	0.9	1.5	1.6	1.1
Leprosy (Hansen disease)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Listeriosis	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.2
Lyme disease	3.7	4.7	12.5	12.1	11.7	15.8	12.8	13.7	16.0	16.3	14.2
Lymphogranuloma venereum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malaria	0.6	0.7	0.9	0.6	0.8	0.8	1.0	0.8	0.9	0.9	0.9
Measles	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0

Table 2b. Ten-Year Trend in Incidence Rate per 100,000 Population for Reportable Diseases, Virginia, 2005-2014 (continued)

Disease	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	5-year Annual Rate
Meningococcal disease	0.5	0.3	0.3	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.2
Monkeypox	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mumps	0.0	1.5	0.4	0.1	0.1	0.2	0.2	0.1	1.3	0.2	0.4
Ophthalmia neonatorum	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Pertussis	4.9	2.9	1.7	2.6	2.9	4.9	5.0	7.7	5.1	6.1	5.2
Plague	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Poliovirus infection, including poliomyelitis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Psittacosis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Q fever	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rabies in humans	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rubella, including congenital rubella syndrome	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Salmonellosis	15.7	14.4	16.3	15.1	14.1	15.4	15.1	14.1	12.8	13.9	14.5
Severe acute respiratory syndrome (SARS)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shigellosis	1.8	1.6	2.6	4.0	2.5	1.8	1.3	1.1	1.4	2.6	1.7
Smallpox	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spotted fever rickettsiosis, including RMSF	1.6	1.5	1.6	2.0	0.7	1.8	2.9	5.7	4.3	4.5	3.1
Staphylococcus aureus infection, invasive (MRSA)	–	–	3.3	19.8	14.5	15.2	16.3	16.0	15.2	13.7	15.6
Staphylococcus aureus infection, VISA or VRSA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Streptococcal disease, Group A, invasive or TSS	1.5	1.7	2.1	1.9	2.2	2.4	2.4	2.1	2.3	2.5	2.3
Streptococcus pneumoniae infection, invasive***	7.4	9.7	10.2	10.0	9.0	11.1	6.5	7.1	7.3	3.7	8.2
Syphilis, early	3.9	4.6	5.3	6.5	6.8	7.0	6.3	7.3	8.3	6.7	7.2
Tetanus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Toxic shock syndrome (Staphylococcal)	0.0	0.0	0.0	0.0	0.0	0.0	–	–	–	–	0.0
Toxic substance-related illness	4.3	5.5	5.7	4.6	4.4	3.8	3.4	3.9	3.7	4.3	3.9
Trichinosis (Trichinellosis)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuberculosis	4.8	4.4	4.0	3.8	3.5	3.4	2.8	2.9	2.2	2.4	3.0
Tularemia	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Typhoid fever	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Vaccinia, disease or adverse event	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vibrio infection	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.7	0.5
Viral hemorrhagic fever	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow fever	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yersiniosis	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.3	0.1

^ Condition is reportable only in individuals < 55 years of age.

\- Not a reportable disease at this time.

***** Beginning in 2009, HIV infection and AIDS data, formerly presented separately, are presented together as HIV disease. This category encompasses persons newly reported to VDH with HIV infection regardless of disease progression, including those with an AIDS-defining condition at first report.

~ Condition is reportable only in children < 18 years of age.

****** Condition is reportable only in children < 16 years of age.

******* Condition is reportable only in children < 5 years of age.

Table 3. Number of Reported Cases of Selected Diseases and Rate per 100,000 by Age Group, Virginia, 2014

Disease	<1 year		1-9 years		10-19 years		20-29 years		30-39 years		40-49 years		50-59 years		60+ years		Unk.
Population:	102,792		932,216		1,057,209		1,186,594		1,101,200		1,144,883		1,163,054		1,572,457		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	
Amebiasis	0	0.0	2	0.2	3	0.3	6	0.5	4	0.4	6	0.5	5	0.4	3	0.2	0
Arboviral infection	0	0.0	6	0.6	7	0.7	10	0.8	15	1.4	13	1.1	19	1.6	14	0.9	0
Campylobacteriosis	16	15.6	93	10.0	58	5.5	106	8.9	101	9.2	112	9.8	108	9.3	148	9.4	2
Chickenpox (Varicella)	20	19.5	163	17.5	76	7.2	21	1.8	20	1.8	14	1.2	7	0.6	3	0.2	0
Chlamydia trachomatis infection	0	0.0	14	1.5	9,278	877.6	21,346	1,798.9	3,818	346.7	897	78.3	280	24.1	65	4.1	27
Cryptosporidiosis	1	1.0	20	2.1	13	1.2	28	2.4	26	2.4	17	1.5	15	1.3	32	2.0	0
Ehrlichiosis/Anaplasmosis	0	0.0	1	0.1	8	0.8	7	0.6	12	1.1	19	1.7	24	2.1	66	4.2	0
E. coli infection, Shiga toxin-producing	4	3.9	47	5.0	18	1.7	11	0.9	9	0.8	6	0.5	8	0.7	17	1.1	1
Giardiasis	1	1.0	41	4.4	16	1.5	43	3.6	42	3.8	38	3.3	39	3.4	36	2.3	0
Gonorrhea	0	0.0	3	0.3	1,753	165.8	4,696	395.8	1,171	106.3	378	33.0	165	14.2	29	1.8	1
Haemophilus influenzae infection, invasive	5	4.9	8	0.9	3	0.3	3	0.3	4	0.4	5	0.4	7	0.6	53	3.4	0
Hemolytic uremic syndrome	0	0.0	4	0.4	1	0.1	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0
Hepatitis A	0	0.0	2	0.2	6	0.6	3	0.3	4	0.4	4	0.3	4	0.3	4	0.3	0
Hepatitis B, acute	0	0.0	0	0.0	0	0.0	2	0.2	21	1.9	19	1.7	12	1.0	7	0.4	0
Hepatitis C, acute	0	0.0	0	0.0	2	0.2	20	1.7	14	1.3	10	0.9	3	0.3	3	0.2	1
HIV disease*	4	3.9	8	0.9	52	4.9	411	34.6	240	21.8	199	17.4	129	11.1	47	3.0	0
Lead - elevated blood levels in children**	25	24.3	232	24.9	7	1.1	-	-	-	-	-	-	-	-	-	-	0
Legionellosis	0	0.0	0	0.0	0	0.0	2	0.2	10	0.9	13	1.1	29	2.5	75	4.8	0
Listeriosis	2	1.9	0	0.0	0	0.0	2	0.2	0	0.0	0	0.0	2	0.2	19	1.2	0
Lyme disease	0	0.0	205	22.0	220	20.8	135	11.4	138	12.5	147	12.8	193	16.6	308	19.6	0
Malaria	0	0.0	4	0.4	9	0.9	17	1.4	13	1.2	10	0.9	12	1.0	12	0.8	0
Measles	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0
Meningococcal disease	0	0.0	1	0.1	2	0.2	2	0.2	0	0.0	1	0.1	0	0.0	4	0.3	0
Mumps	0	0.0	1	0.1	3	0.3	11	0.9	0	0.0	3	0.3	0	0.0	2	0.1	0
Pertussis	78	75.9	118	12.7	168	15.9	15	1.3	29	2.6	39	3.4	24	2.1	33	2.1	1
Q fever	0	0.0	0	0.0	0	0.0	2	0.2	0	0.0	0	0.0	1	0.1	1	0.1	0
Salmonellosis	60	58.4	245	26.3	128	12.1	122	10.3	121	11.0	120	10.5	125	10.7	228	14.5	1
Shigellosis	4	3.9	72	7.7	18	1.7	35	2.9	34	3.1	15	1.3	25	2.1	11	0.7	0
Spotted fever rickettsiosis, including RMSF	0	0.0	14	1.5	21	2.0	40	3.4	43	3.9	48	4.2	82	7.1	125	7.9	0
Staphylococcus aureus infection, invasive (MRSA)	13	12.6	3	0.3	11	1.0	50	4.2	81	7.4	113	9.9	180	15.5	681	43.3	2
Streptococcal disease, Group A, invasive or TSS	2	1.9	14	1.5	6	0.6	15	1.3	20	1.8	23	2.0	38	3.3	92	5.9	0
Streptococcus pneumoniae, invasive***	6	5.8	13	3.2	-	-	-	-	-	-	-	-	-	-	-	-	0
Syphilis, early	0	0.0	0	0.0	18	1.7	240	20.2	130	11.8	98	8.6	50	4.3	20	1.3	0
Tuberculosis	0	0.0	5	0.5	8	0.8	43	3.6	29	2.6	25	2.2	29	2.5	59	3.8	0
Typhoid fever	0	0.0	4	0.4	1	0.1	2	0.2	0	0.0	2	0.2	0	0.0	0	0.0	0
Vibrio infection	0	0.0	4	0.4	9	0.9	4	0.3	4	0.4	6	0.5	10	0.9	22	1.4	0

- Not reportable at this age.

***** Beginning in 2009, HIV infection and AIDS data, formerly presented separately, are presented together as HIV disease. This category encompasses persons newly reported to VDH with HIV infection regardless of disease progression, including those with an AIDS-defining condition at first report.

****** Condition is reportable only in children < 16 years of age. Rates are based on 0-15 year old population.

******* Condition is reportable only in children < 5 years of age. Rates are based on 0-4 year old population.

Table 4. Number of Reported Cases of Selected Diseases and Rate per 100,000 by Race, Virginia, 2014

Disease	Total	Black		White		Other		Unk.
Population:	8,260,405	1,695,095		5,961,061		604,249		
		N	Rate	N	Rate	N	Rate	N
Amebiasis	29	5	0.3	7	0.1	2	0.3	15
Arboviral infection	84	7	0.4	30	0.5	2	0.3	45
Campylobacteriosis	744	28	1.7	326	5.5	14	2.3	376
Chickenpox (Varicella)	324	34	2.0	168	2.8	27	4.5	95
Chlamydia trachomatis infection	35,725	15,469	912.6	8,291	139.1	1,492	246.9	10,473
Cryptosporidiosis	152	29	1.7	85	1.4	2	0.3	36
Ehrlichiosis/Anaplasmosis	137	3	0.2	54	0.9	3	0.5	77
E. coli infection, Shiga toxin-producing	121	9	0.5	81	1.4	3	0.5	28
Giardiasis	256	18	1.1	93	1.6	14	2.3	131
Gonorrhea	8,196	5,133	302.8	1,355	22.7	208	34.4	1,500
Haemophilus influenzae infection, invasive	88	11	0.6	57	1.0	2	0.3	18
Hemolytic uremic syndrome	6	0	0.0	4	0.1	0	0.0	2
Hepatitis A	27	1	0.1	14	0.2	3	0.5	9
Hepatitis B, acute	61	8	0.5	22	0.4	1	0.2	30
Hepatitis C, acute	53	0	0.0	34	0.6	0	0.0	19
HIV disease*	1,090	631	37.2	329	5.5	107	17.7	23
Lead - elevated blood levels in children**	264	53	13.5	49	4.3	32	23.6	130
Legionellosis	129	23	1.4	55	0.9	1	0.2	50
Listeriosis	25	3	0.2	17	0.3	2	0.3	3
Lyme disease	1,346	23	1.4	696	11.7	33	5.5	594
Malaria	77	42	2.5	10	0.2	3	0.5	22
Measles	2	0	0.0	0	0.0	2	0.3	0
Meningococcal disease	10	3	0.2	7	0.1	0	0.0	0
Mumps	20	3	0.2	9	0.2	3	0.5	5
Pertussis	505	28	1.7	249	4.2	8	1.3	220
Q fever	4	0	0.0	2	0.0	0	0.0	2
Salmonellosis	1,150	113	6.7	525	8.8	29	4.8	483
Shigellosis	214	67	4.0	51	0.9	5	0.8	91
Spotted fever rickettsiosis, including RMSF	373	7	0.4	152	2.5	3	0.5	211
Staphylococcus aureus infection, invasive (MRSA)	1,134	159	9.4	524	8.8	18	3.0	433
Streptococcal disease, Group A, invasive or TSS	210	27	1.6	119	2.0	2	0.3	62
Streptococcus pneumoniae, invasive***	19	5	4.1	7	2.0	2	4.7	5
Syphilis, early	556	293	17.3	233	3.9	30	5.0	0
Tuberculosis	198	49	2.9	69	1.2	80	13.2	0
Typhoid fever	9	1	0.1	2	0.0	2	0.3	4
Vibrio infection	59	5	0.3	43	0.7	2	0.3	9

* Beginning in 2009, HIV infection and AIDS data, formerly presented separately, are presented together as HIV disease. This category encompasses persons newly reported to VDH with HIV infection regardless of disease progression, including those with an AIDS-defining condition at first report.

** Condition is reportable only in children < 16 years of age. Rates are based on 0-15 year old population.

*** Condition is reportable only in children < 5 years of age. Rates are based on 0-4 year old population.

Table 5. Number of Reported Cases of Selected Diseases and Rate per 100,000 by Sex, Virginia, 2014

Disease	Total	Female		Male		Unk.
Population:	8,260,405	4,198,203		4,062,202		
		N	Rate	N	Rate	N
Amebiasis	29	7	0.2	22	0.5	0
Arboviral infection	84	50	1.2	34	0.8	0
Campylobacteriosis	744	306	7.3	435	10.7	3
Chickenpox (Varicella)	324	153	3.6	169	4.2	2
Chlamydia trachomatis infection	35,725	24,534	584.4	11,142	274.3	49
Cryptosporidiosis	152	77	1.8	75	1.8	0
Ehrlichiosis/Anaplasmosis	137	57	1.4	80	2.0	0
E. coli infection, Shiga toxin-producing	121	67	1.6	54	1.3	0
Giardiasis	256	89	2.1	165	4.1	2
Gonorrhea	8,196	4,328	103.1	3,858	95.0	10
Haemophilus influenzae infection, invasive	88	50	1.2	38	0.9	0
Hemolytic uremic syndrome	6	2	0.0	4	0.1	0
Hepatitis A	27	15	0.4	12	0.3	0
Hepatitis B, acute	61	15	0.4	46	1.1	0
Hepatitis C, acute	53	34	0.8	19	0.5	0
HIV disease*	1,090	216	5.1	874	21.5	0
Lead - elevated blood levels in children**	264	126	15.5	135	16.0	3
Legionellosis	129	47	1.1	82	2.0	0
Listeriosis	25	13	0.3	12	0.3	0
Lyme disease	1,346	619	14.7	722	17.8	5
Malaria	77	27	0.6	50	1.2	0
Measles	2	1	0.0	1	0.0	0
Meningococcal disease	10	6	0.1	4	0.1	0
Mumps	20	9	0.2	11	0.3	0
Pertussis	505	272	6.5	233	5.7	0
Q fever	4	2	0.0	2	0.0	0
Salmonellosis	1,150	621	14.8	529	13.0	0
Shigellosis	214	97	2.3	117	2.9	0
Spotted fever rickettsiosis, including RMSF	373	112	2.7	261	6.4	0
Staphylococcus aureus infection, invasive (MRSA)	1,134	503	12.0	630	15.5	1
Streptococcal disease, Group A, invasive or TSS	210	100	2.4	110	2.7	0
Streptococcus pneumoniae, invasive***	19	7	2.8	12	4.6	0
Syphilis, early	556	59	1.4	497	12.2	0
Tuberculosis	198	94	2.2	104	2.6	0
Typhoid fever	9	4	0.1	5	0.1	0
Vibrio infection	59	13	0.3	46	1.1	0

* Beginning in 2009, HIV infection and AIDS data, formerly presented separately, are presented together as HIV disease. This category encompasses persons newly reported to VDH with HIV infection regardless of disease progression, including those with an AIDS-defining condition at first report.

** Condition is reportable only in children < 16 years of age. Rates are based on 0-15 year old population.

*** Condition is reportable only in children < 5 years of age. Rates are based on 0-4 year old population.

Table 6. Number of Reported Cases of Selected Diseases and Rate per 100,000 by Health Planning Region, Virginia, 2014

Disease	Total		Northwest Region		Northern Region		Southwest Region		Central Region		Eastern Region	
Population:	8,260,405		1,278,172		2,388,316		1,356,632		1,398,792		1,838,493	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Amebiasis	29	0.4	3	0.2	14	0.6	2	0.1	5	0.4	5	0.3
Arboviral infection	84	1.0	9	0.7	44	1.8	10	0.7	8	0.6	13	0.7
Campylobacteriosis	744	9.0	122	9.5	275	11.5	97	7.2	146	10.4	104	5.7
Chickenpox (Varicella)	324	3.9	71	5.6	115	4.8	44	3.2	51	3.6	43	2.3
Chlamydia trachomatis infection	35,725	432.5	3,643	285.0	6,120	256.2	4,504	332.0	8,643	617.9	12,815	697.0
Cryptosporidiosis	152	1.8	14	1.1	64	2.7	22	1.6	9	0.6	43	2.3
Ehrlichiosis/Anaplasmosis	137	1.7	40	3.1	11	0.5	34	2.5	29	2.1	23	1.3
E. coli infection, Shiga toxin-producing	121	1.5	36	2.8	36	1.5	25	1.8	7	0.5	17	0.9
Giardiasis	256	3.1	44	3.4	132	5.5	25	1.8	29	2.1	26	1.4
Gonorrhea	8,196	99.2	579	45.3	821	34.4	1,156	85.2	2,338	167.1	3,302	179.6
Haemophilus influenzae infection, invasive	88	1.1	18	1.4	12	0.5	27	2.0	14	1.0	17	0.9
Hemolytic uremic syndrome	6	0.1	1	0.1	2	0.1	2	0.1	1	0.1	0	0.0
Hepatitis A	27	0.3	4	0.3	12	0.5	4	0.3	5	0.4	2	0.1
Hepatitis B, acute	61	0.7	4	0.3	2	0.1	25	1.8	13	0.9	17	0.9
Hepatitis C, acute	53	0.6	19	1.5	3	0.1	26	1.9	5	0.4	0	0.0
HIV disease*	1,090	13.2	72	5.6	314	13.1	96	7.1	238	17.0	370	20.1
Influenza	36,663	443.8	6,785	530.8	10,532	441.0	9,055	667.5	4,908	350.9	5,383	292.8
Lead - elevated blood levels in children**	264	15.9	36	14.2	62	11.8	40	16.8	77	28.4	49	13.4
Legionellosis	129	1.6	16	1.3	16	0.7	33	2.4	36	2.6	28	1.5
Listeriosis	25	0.3	4	0.3	7	0.3	9	0.7	1	0.1	4	0.2
Lyme disease	1,346	16.3	348	27.2	581	24.3	319	23.5	60	4.3	38	2.1
Malaria	77	0.9	9	0.7	57	2.4	3	0.2	4	0.3	4	0.2
Measles	2	0.0	0	0.0	2	0.1	0	0.0	0	0.0	0	0.0
Meningococcal disease	10	0.1	3	0.2	2	0.1	2	0.1	1	0.1	2	0.1
Mumps	20	0.2	9	0.7	4	0.2	2	0.1	2	0.1	3	0.2
Pertussis	505	6.1	139	10.9	128	5.4	100	7.4	58	4.1	80	4.4
Q fever	4	0.0	1	0.1	2	0.1	0	0.0	1	0.1	0	0.0
Rabies in animals ~	519	-	138	-	85	-	124	-	82	-	90	-
Salmonellosis	1,150	13.9	207	16.2	295	12.4	169	12.5	211	15.1	268	14.6
Shigellosis	214	2.6	52	4.1	106	4.4	8	0.6	27	1.9	21	1.1
Spotted fever rickettsiosis, including RMSF	373	4.5	79	6.2	38	1.6	100	7.4	100	7.1	56	3.0
Staphylococcus aureus infection, invasive (MRSA)	1,134	13.7	185	14.5	145	6.1	329	24.3	267	19.1	208	11.3

Table 6. Number of Reported Cases of Selected Diseases and Rate per 100,000 by Health Planning Region, Virginia, 2014 (continued)

Disease	Total		Northwest Region		Northern Region		Southwest Region		Central Region		Eastern Region	
Population:	8,260,405		1,278,172		2,388,316		1,356,632		1,398,792		1,838,493	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Streptococcal disease, Group A, invasive or TSS	210	2.5	54	4.2	50	2.1	45	3.3	34	2.4	27	1.5
Streptococcus pneumoniae, invasive***	19	3.7	1	1.4	7	4.1	2	2.9	5	6.2	4	3.4
Syphilis, early	556	6.7	35	2.7	126	5.3	79	5.8	141	10.1	175	9.5
Tuberculosis	198	2.4	23	1.8	113	4.7	20	1.5	17	1.2	25	1.4
Typhoid fever	9	0.1	0	0.0	7	0.3	0	0.0	2	0.1	0	0.0
Vibrio infection	59	0.7	9	0.7	15	0.6	1	0.1	5	0.4	29	1.6

* Beginning in 2009, HIV infection and AIDS data, formerly presented separately, are presented together as HIV disease. This category encompasses persons newly reported to VDH with HIV infection regardless of disease progression, including those with an AIDS-defining condition at first report.

** Condition is reportable only in children < 16 years of age. Rates are based on 0-15 year old population.

~ Population rate is not applicable for rabies in animals

*** Condition is reportable only in children < 5 years of age. Rates are based on 0-4 year old population.

Table 7. Number of Reported Cases of Selected Diseases by Quarter of Onset, Virginia, 2014

Disease	Total	Prior to 2014		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
		N	%	N	%	N	%	N	%	N	%
Amebiasis	29	2	6.9	6	20.7	5	17.2	8	27.6	8	27.6
Arboviral infection	84	2	2.4	7	8.3	12	14.3	40	47.6	23	27.4
Campylobacteriosis	744	6	0.8	134	18.0	206	27.7	247	33.2	151	20.3
Chickenpox (Varicella)	324	3	0.9	63	19.4	91	28.1	101	31.2	66	20.4
Chlamydia trachomatis infection	35,725	0	0.0	8,459	23.7	9,618	26.9	8,881	24.9	8,767	24.5
Cryptosporidiosis	152	2	1.3	41	27.0	27	17.8	52	34.2	30	19.7
Ehrlichiosis/Anaplasmosis	137	2	1.5	0	0.0	71	51.8	58	42.3	6	4.4
E. coli infection, Shiga toxin-producing	121	3	2.5	11	9.1	37	30.6	45	37.2	25	20.7
Giardiasis	256	7	2.7	60	23.4	48	18.8	91	35.5	50	19.5
Gonorrhea	8,196	0	0.0	1,766	21.5	2,223	27.1	2,111	25.8	2,096	25.6
Haemophilus influenzae infection, invasive	88	3	3.4	21	23.9	16	18.2	25	28.4	23	26.1
Hemolytic uremic syndrome	6	0	0.0	0	0.0	3	50.0	3	50.0	0	0.0
Hepatitis A	27	1	3.7	8	29.6	6	22.2	6	22.2	6	22.2
Hepatitis B, acute	61	1	1.6	18	29.5	13	21.3	17	27.9	12	19.7
Hepatitis C, acute	53	0	0.0	17	32.1	18	34.0	10	18.9	8	15.1
HIV disease*	1,090	0	0.0	239	21.9	264	24.2	286	26.2	301	27.6
Influenza	36,663	0	0.0	18,151	49.5	1,471	4.0	419	1.1	16,622	45.3
Legionellosis	129	0	0.0	19	14.7	26	20.2	53	41.1	31	24.0
Listeriosis	25	0	0.0	1	4.0	7	28.0	12	48.0	5	20.0
Lyme disease	1,346	70	5.2	95	7.1	473	35.1	550	40.9	158	11.7
Malaria	77	1	1.3	14	18.2	31	40.3	22	28.6	9	11.7
Measles	2	0	0.0	0	0.0	2	100.0	0	0.0	0	0.0
Meningococcal disease	10	1	10.0	1	10.0	3	30.0	1	10.0	4	40.0
Mumps	20	0	0.0	9	45.0	4	20.0	4	20.0	3	15.0
Pertussis	505	13	2.6	99	19.6	152	30.1	135	26.7	106	21.0
Q fever	4	1	25.0	0	0.0	3	75.0	0	0.0	0	0.0
Salmonellosis	1,150	6	0.5	142	12.3	290	25.2	509	44.3	203	17.7
Shigellosis	214	1	0.5	31	14.5	48	22.4	82	38.3	52	24.3
Spotted fever rickettsiosis, including RMSF	373	3	0.8	17	4.6	181	48.5	152	40.8	20	5.4
Staphylococcus aureus infection, invasive (MRSA)	1,134	18	1.6	311	27.4	281	24.8	269	23.7	255	22.5
Streptococcal disease, Group A, invasive or TSS	210	1	0.5	63	30.0	65	31.0	34	16.2	47	22.4
Streptococcus pneumoniae, invasive**	19	1	5.3	8	42.1	5	26.3	1	5.3	4	21.1
Syphilis, early	556	0	0.0	135	24.3	162	29.1	135	24.3	124	22.3
Typhoid fever	9	0	0.0	4	44.4	1	11.1	3	33.3	1	11.1
Vibrio infection	59	0	0.0	5	8.5	14	23.7	31	52.5	9	15.3

* Beginning in 2009, HIV infection and AIDS data, formerly presented separately, are presented together as HIV disease. This category encompasses persons newly reported to VDH with HIV infection regardless of disease progression, including those with an AIDS-defining condition at first report.

** Condition is reportable only in children < 5 years of age.

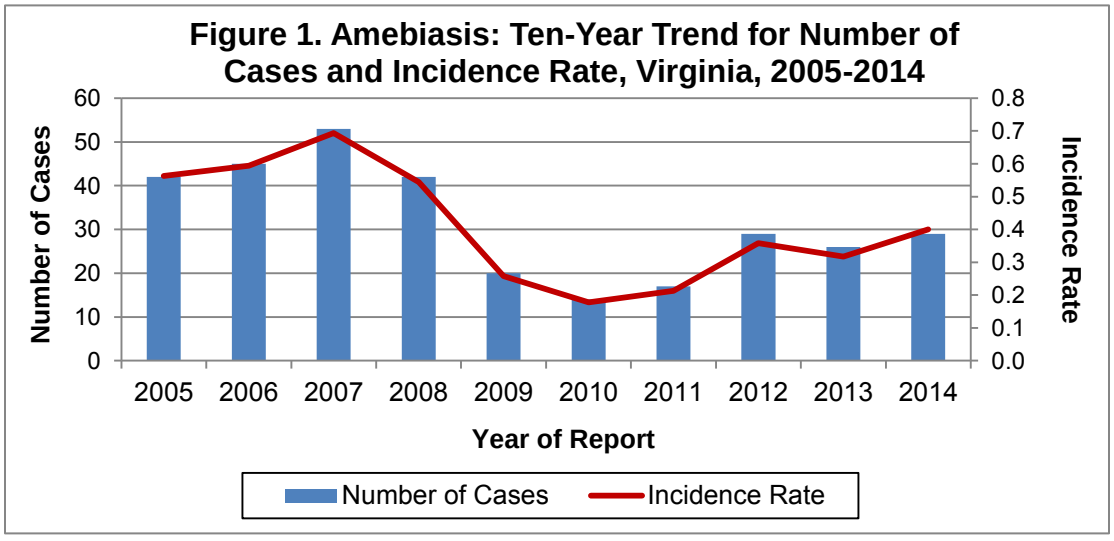
DESCRIPTIVE EPIDEMIOLOGY OF REPORTABLE DISEASES

Amebiasis

Agent: *Entamoeba histolytica* (parasite)
Mode of Transmission: Ingestion of food or water contaminated with amebic cysts, by fecal-oral contact with an infected person, or by swallowing cysts picked up from contaminated surfaces or fingers.
Signs/Symptoms: Most infections are asymptomatic. Symptomatic infections are often mild and can include diarrhea, stomach pain, and stomach cramping. Amebic dysentery is a severe form of amebiasis associated with diarrhea (which may be bloody or contain mucus), abdominal pain, and fever. In a small number of cases, the parasite invades other body sites, such as the liver, lung, brain, or skin.
Prevention: Hands should be washed carefully after using the bathroom, after changing diapers or cleaning a child who has used the bathroom, and before preparing and eating food. When traveling to a country with poor sanitary conditions, do not eat or drink: fountain drinks or any drinks with ice cubes; fresh fruit or vegetables that you did not peel yourself; milk, cheese, or dairy products that may not have been pasteurized; anything sold by street vendors; or water unless it is bottled or has been boiled for 1 minute or made safe by filtering it through an "absolute 1 micron or less" filter and dissolving chlorine, chlorine dioxide, or iodine tablets in the filtered water.
Other Important Information: Amebiasis can affect anyone, but it is most common in people who live in tropical areas with poor sanitary conditions. In the United States, it is mainly seen in people who travel to or emigrate from these tropical areas, people living in institutions with poor sanitary conditions, and in men who have sex with men.

Amebiasis: 2014 Data Summary	
Number of Cases:	29
5-Year Average Number of Cases:	21.2
% Change from 5-Year Average:	+37%
Incidence Rate per 100,000:	0.4

Twenty-nine cases of amebiasis were reported in Virginia during 2014, which surpassed the five-year average of 21.2 cases per year (Figure 1). The number of cases of amebiasis has decreased since a peak in 2007, in part due to a change in the national surveillance case

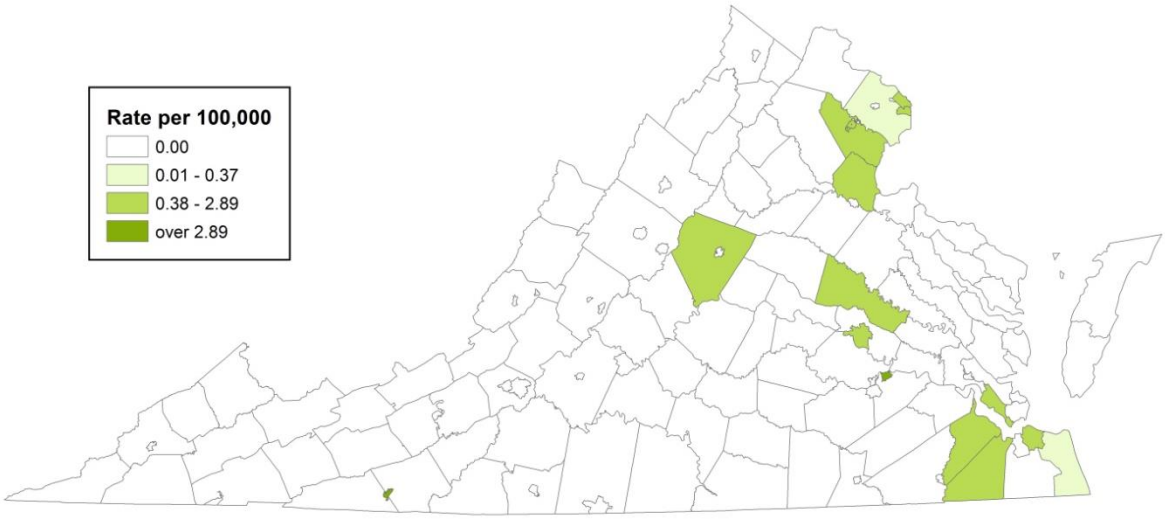


definition in 2008. This change required that individuals with laboratory-confirmed infection also be symptomatic to be counted for surveillance purposes. Since 2012, the number of reported cases has been more consistent.

Among cases reported in 2014, the highest incidence rate occurred in the 20-29 and 40-49 year age groups (0.5 per 100,000 each), followed closely by the 30-39 and 50-59 year age groups (0.4 per 100,000 each). Race was reported for less than 50% of cases, and therefore, no conclusions can be drawn about the distribution of amebiasis by race. Incidence was higher in males (0.5 per 100,000) than females (0.2 per 100,000).

The highest incidence rate occurred in the northern health planning region (0.6 per 100,000), followed by the central region (0.4 per 100,000) and the eastern region (0.3 per 100,000 (see map below). Cases occurred throughout the year, with one to four cases being reported each month. No outbreaks or deaths attributed to amebiasis were reported in Virginia in 2014.

Amebiasis Incidence Rate by Locality
Virginia, 2014



Anthrax

Agent: *Bacillus anthracis* (spore-forming bacteria)
Mode of Transmission: By direct contact with contaminated animal products; ingestion of contaminated, undercooked meat; and inhalation of spores during risky industrial practices (e.g., processing wool or hides) or through an intentional bioterrorism release.
Signs/Symptoms: There are three recognized forms of anthrax. The form that develops depends on the route of exposure. Cutaneous anthrax occurs when the bacteria enter a cut or abrasion on the skin and presents as a skin lesion that often develops a black scab. Intestinal anthrax occurs after the ingestion of contaminated meat and presents as abdominal distress (e.g., nausea, vomiting, diarrhea, fever). Inhalation anthrax occurs when the bacteria are inhaled; the symptoms are initially nonspecific, (e.g., fever, cough, chest pain), but progress to respiratory distress and death if untreated.
Prevention: Contact with infected animals and animal products should be minimal. A vaccine is available to immunize high-risk individuals, such as laboratorians who work with *B. anthracis* or military personnel.
Other Important Information: Person-to-person transmission is very rare. The incubation period, or time from exposure to onset of symptoms, ranges from 1 to 60 days. Anthrax is classified as a potential bioweapon because it can cause serious public health problems, be spread across a large area, and require extensive planning to protect the public's health.

No cases of anthrax have been reported in Virginia since 2001. In 2001, two Virginia residents were reported with inhalation anthrax from an intentional release of *Bacillus anthracis* spores through a letter received by the U.S. Postal Service. Both individuals were exposed at their workplace and both survived. Those were the first reported cases of anthrax in Virginia since 1970.

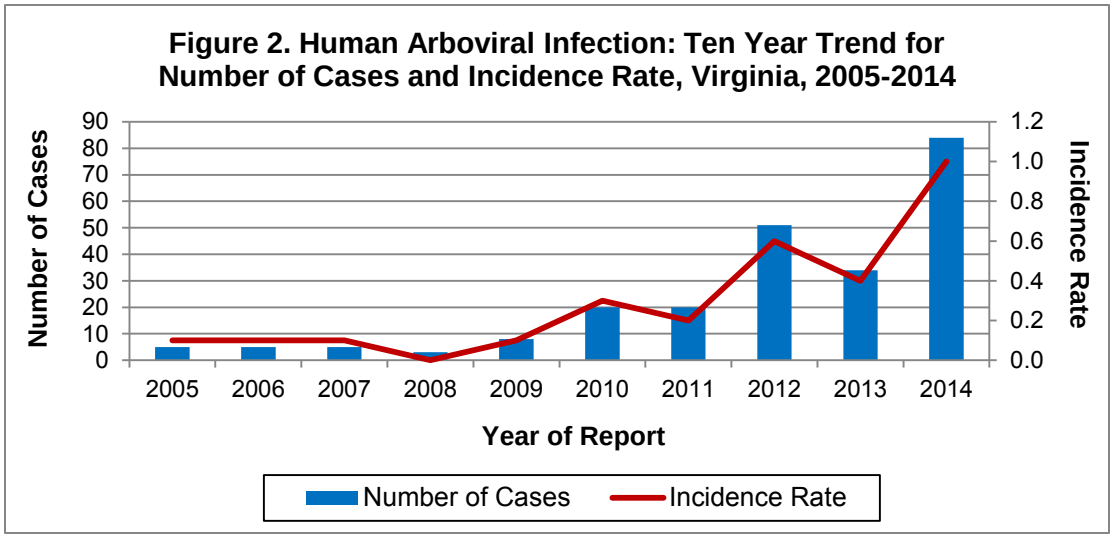
Arboviral Infection

Agent(s): In Virginia, the agents of arboviral infection, from most to least common, are the mosquito-borne West Nile virus (WNV), La Crosse encephalitis (LAC) virus, St. Louis encephalitis (SLE) virus and Eastern equine encephalitis (EEE) virus. Other arboviral agents causing illness in Virginians include the imported dengue virus and chikungunya virus, which typically infect travelers to endemic regions of the tropics and subtropics, but have not become established in Virginia. Powassan (POW) virus, which is a tick-borne encephalitis virus, was recently discovered in Virginia.
Mode of Transmission: Most commonly through the bite of an infected mosquito. WNV may also be transmitted by blood products via transfusion or transplanted organs from infected donors, and more rarely by cuts or punctures with contaminated scalpels or needles in a laboratory.
Signs/Symptoms: Severity of symptoms differs depending on the particular virus and characteristics of the infected person. Most infections are asymptomatic. Mild cases may appear as fever with headache. More severe disease can cause encephalitis (i.e., inflammation of the brain) or meningitis (i.e., inflammation of the lining of the brain and spinal cord) and may lead to permanent neurological impairment or death.
Prevention: Minimize bites by avoiding areas infested by mosquitoes or ticks, and, when in those areas, use mosquito or tick repellents and wear long-sleeved, light-colored clothing with pants legs tucked into socks. Additional mosquito control measures include maintaining screens on all open windows and doors and eliminating or regularly dumping all containers that could hold water and breed mosquitoes, including buckets, birdbaths and discarded tires. After visiting tick habitats, a person should thoroughly check all body surfaces for ticks and, if found, carefully remove attached ticks as soon as possible.
Other Important Information: WNV and SLE infections are more likely to cause severe disease in persons over the age of 50, but the majority of infections are asymptomatic. LAC is seen primarily in individuals less than 16 years of age. EEE has a high fatality rate and is more likely to affect children under the age of 15 and adults over the age of 50. The chikungunya virus was first seen in the Americas on the islands in the Caribbean in late 2013. The virus may be imported to new areas by infected travelers.

Arboviral Infection: 2014 Data Summary	
Number of Cases:	84
5-Year Average Number of Cases:	26.6
% Change from 5-Year Average:	+216%
Incidence Rate per 100,000:	1.0

Human

In 2014, 84 cases of arboviral infection were reported in Virginia, which is significantly higher than the 5-year average of 26.6 cases per year and the 34 cases reported in 2013. Notably, the majority of the cases were acquired out-of-country with 75 (89%) of 84



cases being imported. Chikungunya accounted for 58 of the imported cases and dengue accounted for 17 of the imported cases. Nine infections were acquired in the U.S., including seven attributed to West Nile virus and two attributed to La Crosse encephalitis virus. Similar to 2013, no cases of Eastern equine encephalitis or Powassan virus were reported.

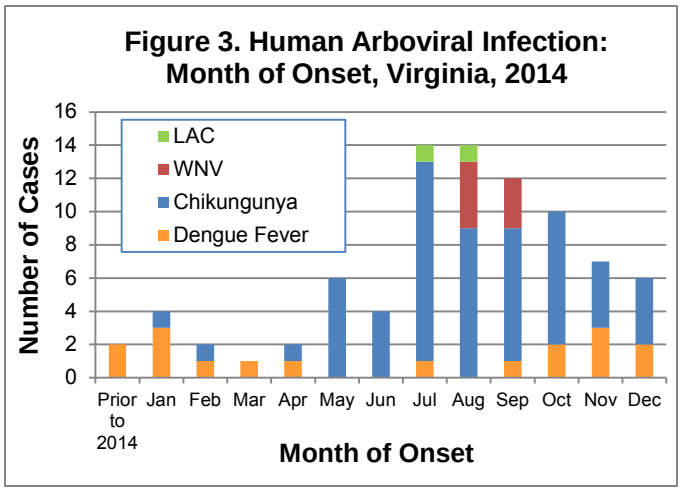
The sharp increase in arboviral cases in 2014 can be linked to the high number of imported chikungunya infections. The 58 cases were reported across all age groups except infants, with most cases (13) reported among the 30-39 year age group. More cases occurred among females (38 cases) than males (20 cases). One case was reported in a traveler from Asia (Indonesia) but all other cases were associated with travel to the Caribbean and Central and South America. The chikungunya cases associated with travel to the Americas resulted from the introduction and spread of the chikungunya virus beginning in 2013.

All 17 dengue cases were acquired by travelers returning from dengue endemic countries in the American tropics (Central America and Mexico) and south Asia. Dengue cases ranged in age from 16-66 years. Eight of 15 cases were female. There were no reported cases of dengue hemorrhagic fever.

In 2014, WNV activity was similar to the preceding year. Seven cases were reported in 2014 compared to six cases in 2013. The cases ranged in age from 28-63 years. Cases occurred in three regions of the state, with three cases each reported from the northern and eastern regions and one reported from the central region. All cases occurred among residents of urban areas. One fatality was attributed to WNV in 2014. This individual was also infected with La Crosse virus and the illnesses were counted in both the WNV and LAC categories (see below).

Two cases of La Crosse were reported in 2014. One case occurred in a school-aged child from the northwest region and the other case occurred in an elderly person from the

northern region. This person was co-infected with West Nile Virus and died as a result of the infections.



Cases of arboviral infection occurred throughout the year, but locally acquired arboviral infections (LAC and WNV) occurred only in July, August, and September. The two cases of LAC had onset in July and August, which is typical for this condition, while WNV was seen in August and September, the normal peak time of WNV transmission for Virginia. Onset dates for the imported cases of chikungunya were reported in every month except March, with most cases occurring from July through October. Cases of imported dengue were reported nearly year round, except May, June, and August. As these infections were acquired out of the country, any seasonality would be based on travel patterns and seasonality of the illness in the endemic countries of origin.

Animal

Zoonotic surveillance for WNV and EEE is conducted each year by a limited number of jurisdictions in northern Virginia, the Richmond metropolitan area, and Hampton Roads. These surveillance programs test for the presence of arboviruses in mosquitoes and sentinel chickens. Sentinel chicken flocks are maintained only by surveillance programs in the Hampton Roads area. Veterinary records are also reviewed for cases of arboviral infection in equines and other animals statewide. No mosquito or zoonotic surveillance and testing programs are in place for LAC or SLE viruses.

In 2014, 446,969 mosquitoes were tested for WNV and 227,781 were tested for EEE. All mosquitoes were tested as "pools" (i.e., batches of approximately 50 mosquitoes). Of the 13,719 pools tested for WNV, 481 (4%) were positive, and of the 5,725 pools tested for EEE, 212 (4%) were positive. Among the positive pools, each was likely to have only contained one positive mosquito. Of the 481 WNV positive pools, 354 were collected in northern Virginia, 116 were collected in eastern Virginia, and 11 in central Virginia. All EEE positive pools were collected in eastern Virginia.

In 2014, three cases of WNV-infected horses were reported in the northern region and one EEE-infected horse in the eastern region. EEE infections were also reported in three cassowary birds held in captivity at a zoo in the eastern region. Testing of sentinel chickens revealed 31 WNV-positive chickens in the Chesapeake, Norfolk, and Suffolk area, and 40 EEE-positive chickens in the Chesapeake, Norfolk, Suffolk, and Virginia Beach area.

Botulism

Agent: Neurotoxin produced by *Clostridium botulinum* (spore-forming, anaerobic bacteria)
Mode of Transmission: For foodborne botulism, ingestion of food that contains toxin and has not been sufficiently heated to inactivate the toxin. For non-foodborne botulism, ingestion of food contaminated with spores that then germinate, multiply, and produce toxin in the intestine (also known as infant botulism or adult intestinal botulism, depending on the age of the patient); or contamination of wounds or open fractures with soil or gravel that contain *C. botulinum* spores (also known as wound botulism). *C. botulinum* is not transmitted from person to person.
Signs/Symptoms: Both foodborne and non-foodborne botulism can result in descending, flaccid paralysis which can lead to cessation of breathing and death unless respiration is aided. Additional distinguishing symptoms of foodborne botulism, which usually begin 12-36 hours after the toxin is ingested, but might be delayed for up to several days after exposure, include fatigue, weakness, vertigo, and sometimes diarrhea and vomiting. Infant botulism is characterized by constipation, weakness, loss of appetite, poor feeding or sucking, an altered cry and loss of head control. Symptoms of wound botulism are similar to those associated with foodborne botulism.
Prevention: For prevention of foodborne botulism, all canned and preserved food should be properly processed and prepared. Boiling food for 10 minutes will destroy the toxin. To prevent non-foodborne botulism, honey and corn syrup should not be given to children younger than 12 months of age because *C. botulinum* spores have been identified in these foods. Also, all wounds should be maintained properly and medical attention should be sought when wounds become infected.
Other Important Information: Botulism is a condition that requires rapid reporting to the local health department. Botulism antitoxin, released by public health authorities, is effective in reducing the severity of symptoms if administered early. Botulism is listed by CDC as a potential bioweapon because an aerosolized or foodborne botulinum-toxin weapon could cause widespread, severe disease and would require rapid public health response to control.

Foodborne

No cases of foodborne botulism were reported in Virginia during 2014. The last reported case in Virginia occurred in 2007 in an adult female. The five-year average for foodborne botulism cases in Virginia is less than one case per year.

Non-Foodborne (including infant, intestinal and wound botulism)

One case of non-foodborne botulism was reported in Virginia during 2014. This was a case of infant botulism in the northern health planning region caused by type B neurotoxin. The infant survived and no risk factors were identified. The five-year average for non-foodborne botulism in Virginia is 2.4 cases per year.

Brucellosis

Agent: *Brucella* species (bacteria)
Mode of Transmission: Most commonly through ingestion of unpasteurized milk or milk products from infected animals, but also may be transmitted by contamination of skin wounds with infected animal tissue or body fluids and by inhalation of the organism.
Signs/Symptoms: Intermittent or irregular fever, headache, chills, sweating, and muscle pain.
Prevention: Unpasteurized dairy products, especially milk, cheese, or ice cream, should not be consumed. Barrier precautions, such as wearing rubber gloves, should be used when handling animal tissue. Laboratory workers should take proper infection control precautions when handling samples known to contain or suspected of containing *Brucella*.
Other Important Information: Considered an occupational disease of those working with infected animals, especially farm workers, veterinarians, and abattoir workers. Hunters of certain game animals such as elk, moose and feral swine may also be at increased risk of exposure. *Brucella* is listed by the CDC as a potential bioterrorism agent because the organism may be relatively easily disseminated, may cause moderate injury or death, and may need enhanced surveillance for detection.

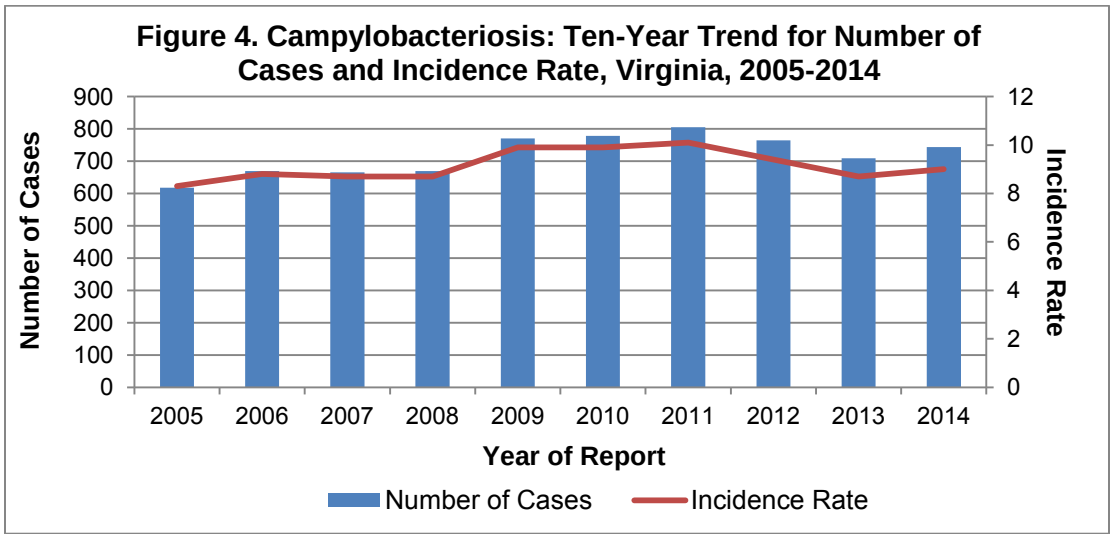
In 2014, one case of brucellosis was reported in Virginia. The case occurred in an adult male from the northwest region. A definitive exposure could not be determined for this case. The five-year average number of cases of brucellosis in Virginia is 1.6 cases per year.

Campylobacteriosis

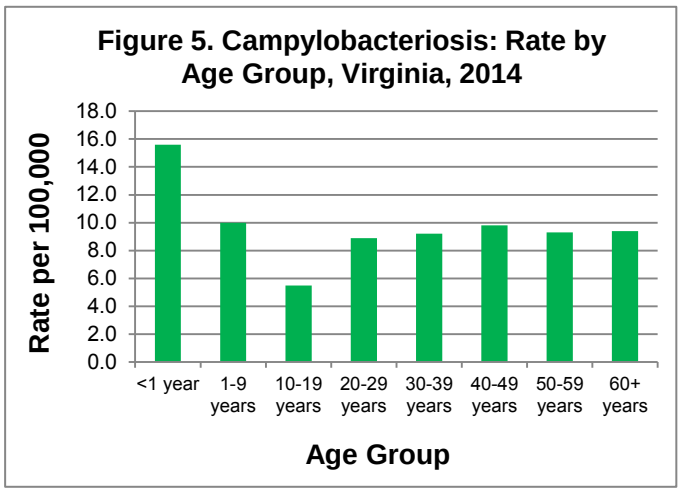
Agent: *Campylobacter* species (bacteria)
Mode of Transmission: Ingestion of undercooked meat, particularly poultry; ingestion of contaminated food, water, or raw milk; and direct contact with fecal material from infected animals or people.
Signs/Symptoms: Include diarrhea (frequently with bloody stools), abdominal pain, malaise, fever, nausea, or vomiting. In neonates and young infants, bloody diarrhea without fever may be the only manifestation of illness. Many infections are asymptomatic. Rarely, complications can develop, including reactive arthritis, febrile convulsions, or Guillain-Barré Syndrome; bacteremia can occur in children.
Prevention: Hands should be washed carefully after using the bathroom, after changing diapers or cleaning a child who has used the bathroom, after handling animals or their feces, and before preparing and eating food. Pasteurization of milk and chlorination of water supplies are also important. All foods containing eggs and meats, particularly poultry, should be cooked thoroughly.
Other important information: In 2012, a change was implemented to the case definition for campylobacteriosis, requiring a positive lab culture for case confirmation. The use of non-culture based testing methods is increasing and may contribute to a future decline in confirmed campylobacteriosis cases.

Campylobacteriosis: 2014 Data Summary	
Number of Cases:	744
5-Year Average Number of Cases:	765.2
% Change from 5-Year Average:	-3%
Incidence Rate per 100,000:	9.0

In 2014, 744 cases of campylobacteriosis were reported in Virginia. This represents a 5% increase from the 709 cases reported in 2013, and a 3% decrease from the five-year average of 765.2 cases per year (Figure 4).



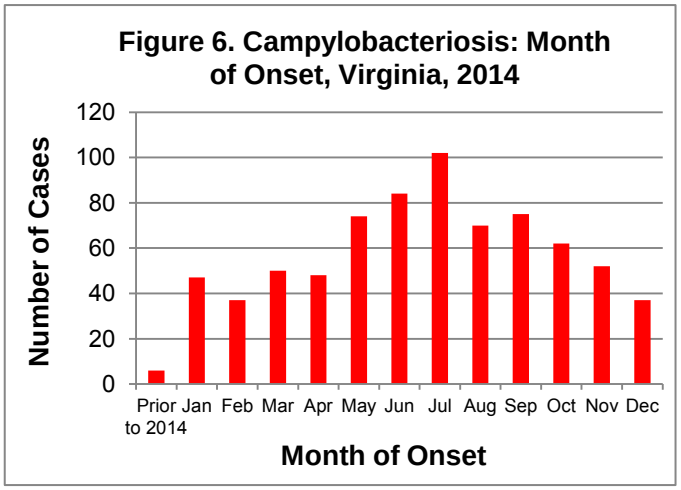
In Virginia, the highest incidence rates of *Campylobacter* infection are typically seen in children less than one year of age. In 2014, incidence was again highest among this age group (15.6 per 100,000), while rates among other age groups ranged from 5.5 per 100,000 (10-19 years) to 10.0 per 100,000 (1-9 years) (Figure 5).



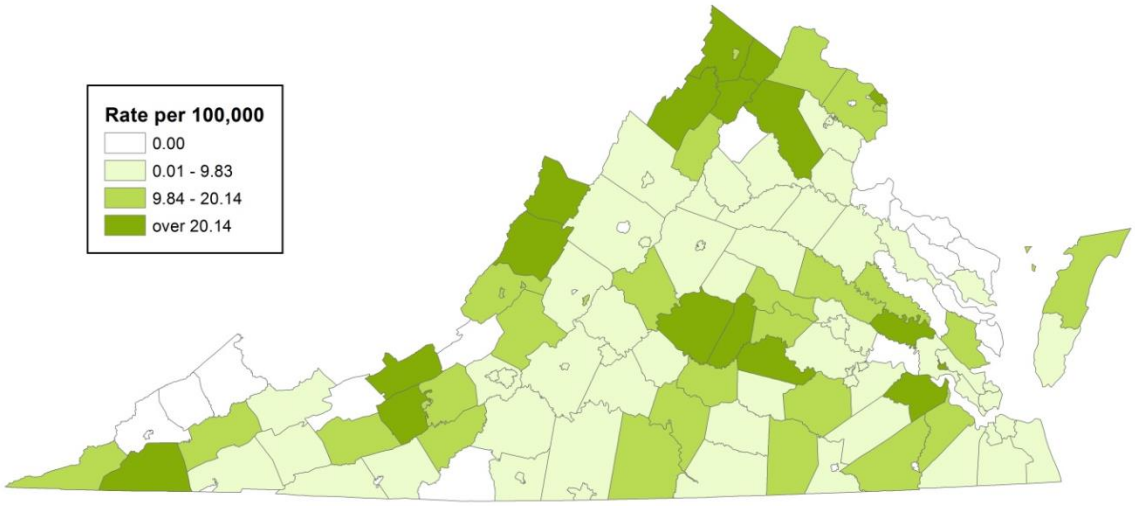
Race information was not reported for 51% of cases. For cases with a known race, incidence was highest among the white population (5.5 per 100,000), followed by the "other" race population (2.3 per 100,000), and the black population (1.7 per 100,000). Historically in Virginia, incidence is higher in males; this remained unchanged in 2014, with a rate of 10.7 per 100,000 among males and 7.3 per 100,000 among females.

Regionally, the highest incidence rate occurred in the northern region (11.5 per 100,000) and the lowest rate occurred in the eastern region (5.7 per 100,000). Rates in the remaining regions ranged from 10.4 to 7.2 per 100,000. The occurrence of campylobacteriosis varied widely by locality with the highest rates tending to be reported from adjacent localities (see map below).

While cases were reported in every month of the year, more cases were seen during the warmer months, peaking in July with 102 cases (Figure 6). One outbreak of *Campylobacter* infection was reported during 2014. This outbreak occurred in the central region among three school classmates. Exposure to cattle and raw milk were reported as possible risk factors. No deaths attributed to campylobacteriosis were reported among Virginia residents in 2014.



Campylobacteriosis Incidence Rate by Locality
Virginia, 2014

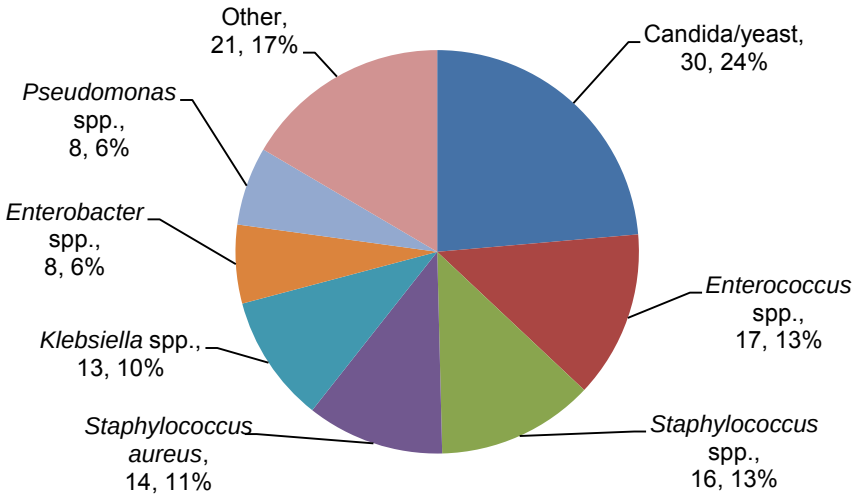


Central Line-Associated Bloodstream Infection (CLABSI)

Agent: Bacteria, virus, or fungus
Mode of transmission: A CLABSI is a central line-associated bloodstream infection. A central line is a flexible tube that is inserted near the patient's heart or into one of the large veins or arteries that can be used to give fluids or medications or measure the amount of fluid in the body. Because a central line is located in a blood vessel, any introduction of an infectious agent during central line insertion, maintenance, or removal may lead to a bloodstream infection.
Signs/symptoms: A positive blood culture and fever, chills, low blood pressure, and/or redness or tenderness at the central line insertion site. For patients less than one year of age, symptoms may also include fever, hypothermia, apnea (suspension of breathing), and/or bradycardia (slow heart rate).
Prevention: To prevent CLABSIs, healthcare providers should follow CDC infection prevention guidelines, including removal of unnecessary central lines and compliance with recommended practices for hand hygiene, central line insertion, and central line maintenance.
Other important information: Hospitals are required to provide information on CLABSIs occurring in adult intensive care units to the Virginia Department of Health (VDH) via the Centers for Disease Control and Prevention's online surveillance system, the National Healthcare Safety Network (NHSN). Hospitals have reported these data since July 2008. In 2014, 78 hospitals reported CLABSI data to VDH. Reports of hospital-specific CLABSI data are available from the VDH Healthcare-Associated Infections Program upon request.

In 2014, 127 central line-associated bloodstream infections occurred among 195,716 central line days in Virginia hospital adult intensive care units (ICUs), yielding a standardized infection ratio (SIR) of 0.34. When compared with the U.S. reference value of 1, the SIR value of 0.34 indicates that 66% fewer CLABSIs were observed in Virginia adult ICUs than were predicted based on the experience of adult ICUs in United States hospitals during the baseline period (2006-2008). The 2014 SIR value of 0.34 in 2014 is less than the 0.52 SIR value observed in 2013, in which there were 183 CLABSIs among 187,156 central line days. Unlike past years, where nearly one-third of persons with CLABSI died, during 2014, approximately one in four persons with CLABSI died (27%, 34 fatalities), and the infection was noted as contributing to the death in 11 (32%) of the fatalities.

Figure 7. Proportion of Central Line-Associated Bloodstream Infections by Primary Pathogen Identified, Virginia, 2014



The mean age of persons with CLABSI in 2014 was 61 years (range: 24-91 years) and 53% of CLABSI cases occurred in males. The largest proportion of CLABSIs occurred in medical/surgical intensive care units (24%), followed by cardiothoracic intensive care units (18%), cardiac and medical intensive care units (15% each), and surgical intensive care units (14%). Multiple pathogens can be present in a CLABSI. However, the pathogen of greatest interest is the primary pathogen, the one noted as being the most responsible for causing the infection. In 2014, seven primary pathogens were responsible for 83% of all CLABSIs. They included Candida/yeast, *Enterococcus* species, *Staphylococcus* species (excluding *S. aureus), Staphylococcus aureus*, *Klebsiella* species, *Enterobacter* species, and *Pseudomonas* species (Figure 7). Other primary pathogens that caused multiple CLABSIs included bacteria such as *E. coli* (7 cases), *Serratia* species (5 cases), and *Clostridium* species and *Stenotrophomonas* species (2 cases, respectively).

In 2014, 50% of *S. aureus* CLABSIs were methicillin-resistant (MRSA) and 29% of *Enterococcus* species CLABSIs were vancomycin-resistant (VRE). Compared to the prior year, the percentage of *S. aureus* CLABSIs in 2014 that were methicillin-resistant increased (32% in 2013) while the percentage of vancomycin-resistant *Enterococcus* CLABSIs decreased (54% in 2013). Of the 8 CLABSIs where the primary pathogen was identified as *Klebsiella pneumoniae*, one (13%) was carbapenem-resistant. A total of nine carbapenem-resistant *K. pneumoniae* CLABSIs and zero carbapenem-resistant *E. coli* CLABSIs have been reported to VDH through NHSN since CLABSI reporting began in July 2008.

Chancroid

Agent: *Haemophilus ducreyi* (bacteria)
Mode of Transmission: Sexual transmission through skin-to-skin contact with open sores. Transmission not related to sexual contact is rare. Auto-inoculation to non-genital sites from open sores may occur.
Signs/Symptoms: One or more sores or raised bumps on the genitals. Sores are surrounded by a narrow red border and become filled with purulent secretion, and eventually rupture, leaving a painful open lesion. The chancroid ulcer is soft to the touch. In 50% of untreated cases, the chancroid bacteria infect the lymph nodes in the groin.
Prevention: Preventive measures include adhering to safe sexual practices and abstaining from sexual relations with an infected partner until the infection is cleared.
Other Important Information: Chancroid is uncommon in the United States. Most cases are seen in tropical countries. This disease is a cofactor for HIV transmission; high rates of HIV infection among patients who have chancroid are seen worldwide.

No cases of chancroid were reported in Virginia in 2014. Only two cases have been reported in Virginia since 2005.

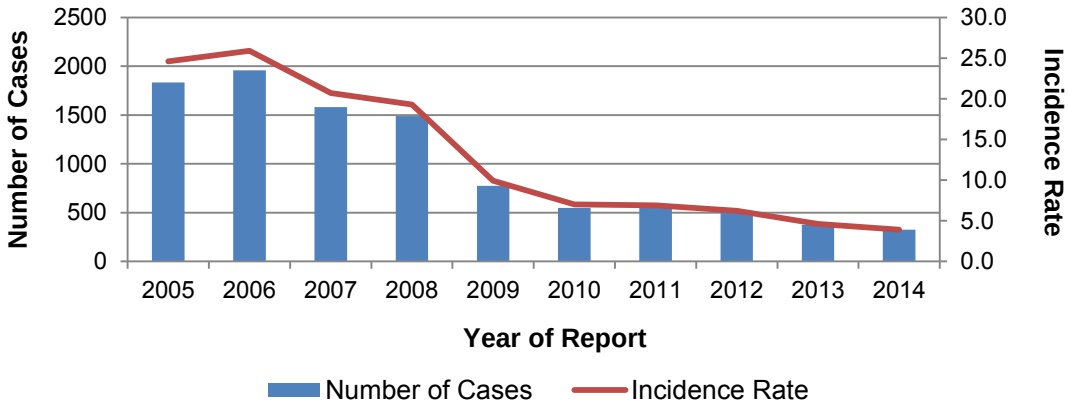
Chickenpox (Varicella)

Agent: Varicella-zoster virus (VZV)
Mode of Transmission: Person-to-person transmission by direct contact or through droplet or airborne spread of vesicular lesion fluids or respiratory secretions from an infected person.
Signs/Symptoms: Acute onset of fever and generalized, pruritic, vesicular rash typically consisting of 250-500 lesions. Successive crops of lesions appear first on the head and progress to the trunk and extremities. Lesions can appear on the scalp, armpit, and mucous membranes of the mouth, respiratory tract, and eye.
Prevention: Administration of vaccine should occur for children starting at age 12 months followed by a second dose at age 4-6 years.
Other Important Information: The disease is highly transmissible; susceptible household contacts have an 80-90% risk of becoming infected. In healthy children, acute varicella is generally mild and self-limited; however, severe complications may occur, especially in adults. Herpes zoster, or shingles, occurs when latent VZV reactivates and causes recurrent disease.

Chickenpox: 2014 Data Summary	
Number of Cases:	324
5-Year Average Number of Cases:	549.8
% Change from 5-Year Average:	-41%
Incidence Rate per 100,000:	3.9

In 2014, 324 cases of chickenpox were reported in Virginia. This represents a 15% decrease from the 374 cases reported in 2013 and a 41% decrease from the five-year average of 549.8 cases per year (Figure 8). Requirements for chickenpox vaccination among school and daycare attendees and updated vaccine dosages have most likely contributed to the steady decline in reported cases since 2006.

Figure 8. Chickenpox: Ten-Year Trend for Number of Cases and Incidence Rate, Virginia, 2005-2014

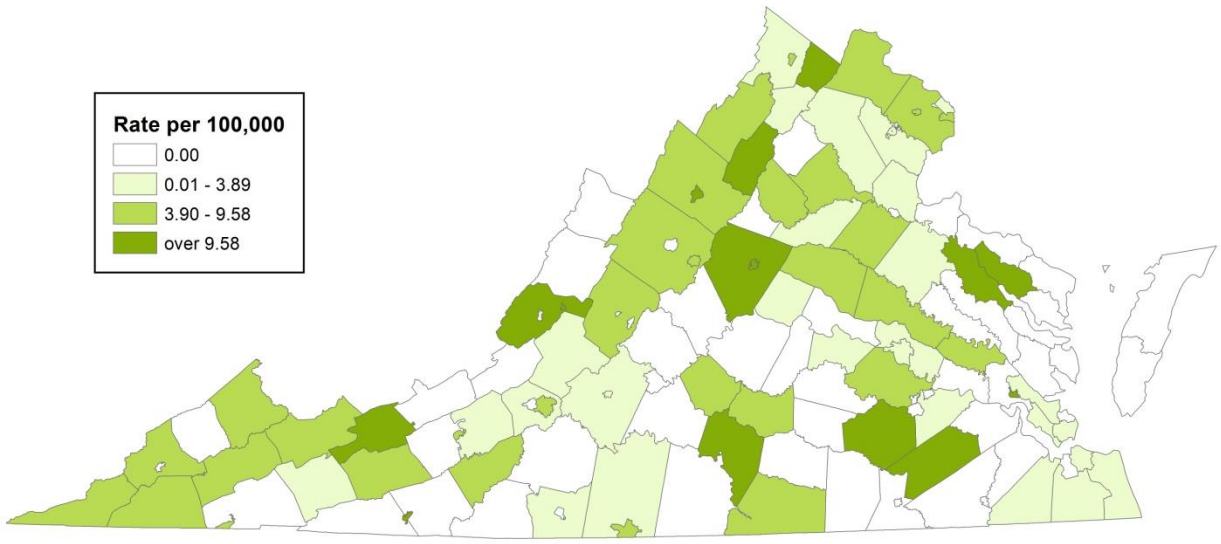


Varicella continues to be a childhood disease based on the fact that 80% of reported cases in 2014 occurred in young children and teenagers. Incidence rates for all age groups demonstrated a linear decline as age increased with 19.5 per 100,000 population for infants, followed by 17.9 per 100,000 among children 1-9 years of age, and 7.2 per 100,000 among children 10 -19 years of age. The rates continued to decline in the remaining age groups, ranging from 1.8 per 100,000 in the 20-29 year age group to 0.2 per 100,000 for those age 60 years and older. The incidence rate was higher in males (4.2 per 100,000) compared to females (3.6 per 100,000). Race was reported for 70% of cases. For cases with reported race information, the "other" race population had the highest incidence rate at 4.5 cases per 100,000, followed by the white population (2.8 per 100,000) and the black population (2.0 per 100,000).

As seen in the map below, incidence rates varied widely by locality. The northwest region had the highest incidence rate with 5.6 cases per 100,000, followed by the northern region with 4.8 cases per 100,000. The rates in other regions ranged from 2.3 to 3.6 cases per 100,000. The overall incidence across all regions was 3.9 cases per 100,000. Chickenpox continued to show a seasonal trend with most cases occurring in the second and third quarters (28% and 31%, respectively) of the year.

Chickenpox outbreaks have continued to decline when compared to previous years. One outbreak was reported in 2014 and was limited to an unvaccinated household. Implementation of self-isolation prevented further spread of this outbreak to susceptible individuals in the public. While chickenpox cases have occurred in vaccinated persons, these cases are typically mild with less than 50 skin lesions, low or no fever, and a short duration of illness. One death was attributed to chickenpox in Virginia during 2014. The death occurred in an adult female from the 40-49 year age group.

Chickenpox Incidence Rate by Locality
Virginia, 2014



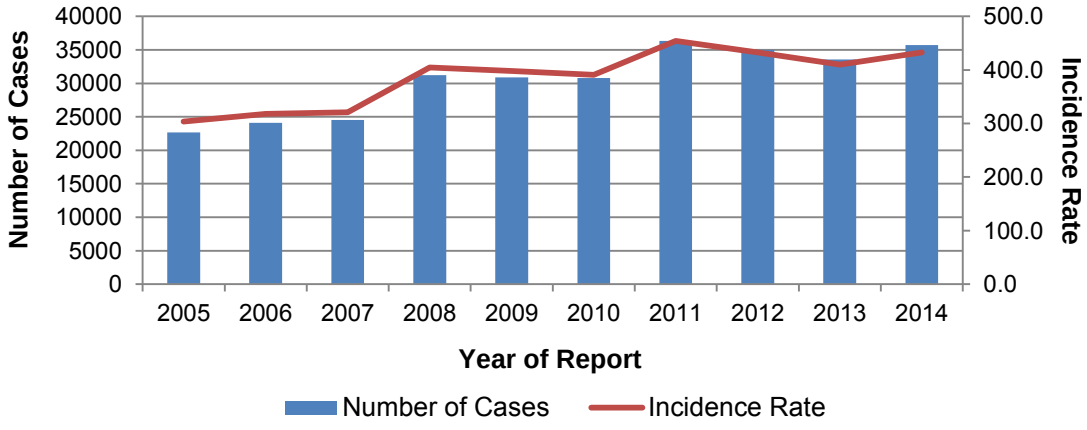
Chlamydia trachomatis Infection

Agent: *Chlamydia trachomatis* (bacteria)
Mode of Transmission: Person-to-person via sexual transmission, or from the genital tract of an infected mother to her infant during birth.
Signs/Symptoms: Men may experience urethritis with discharge, itching, and burning upon urination. Women may experience cervical inflammation, discharge, and vaginal bleeding, but are frequently asymptomatic. Untreated *Chlamydia* can lead to pelvic inflammatory disorder and infertility. Infants may become infected in the eyes or respiratory tract.
Prevention: Preventive measures include adhering to safe sexual practices, screening women less than 25 years of age, and presumptive treatment for *Chlamydia* infection among people who are exposed. Pregnant women who have recently been infected with *Chlamydia* should be retested during the third trimester to prevent postnatal infection in the infant.
Other Important Information: Many chlamydial infections go undiagnosed and unreported. Approximately 70% of infected women are asymptomatic, and patients are frequently not tested at extragenital (pharyngeal or rectal) sites.

***Chlamydia trachomatis* Infection: 2014 Data Summary**	
Number of Cases:	35,725
5-Year Average Number of Cases:	33,319.4
% Change from 5-Year Average:	+7%
Incidence Rate per 100,000:	432.5

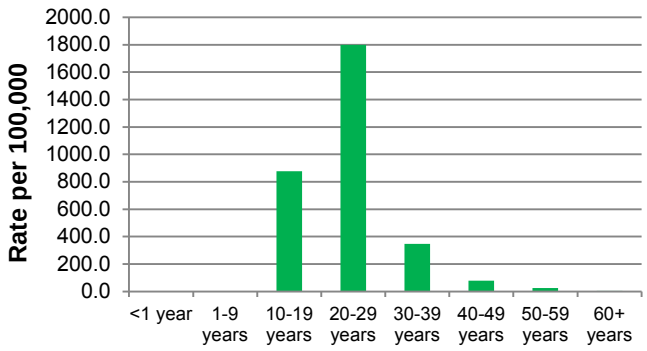
There were 35,725 cases of *C. trachomatis* infection reported in Virginia during 2014 with a statewide incidence rate of 432.5 cases per 100,000 population (Figure 9). This represents a 7% increase from the five-year average of 33,319 cases per year. Nationwide, *C. trachomatis* remains the most frequently reported bacterial sexually transmitted infection. Despite improvements in expanded screening, lab test sensitivity, and reporting, CDC estimates that *C. trachomatis* infection is significantly underreported. *C. trachomatis* is frequently asymptomatic, and screening programs are focused largely on sexually active women and male partners of infected women.

Figure 9. *Chlamydia trachomatis* Infection: Ten-Year Trend for Number of Cases and Incidence Rate, Virginia, 2005-2014



In 2014, the highest incidence rate occurred in the 20-29 year age group (1,798.9 per 100,000), followed by the 10-19 year age group (877.6 per 100,000) (Figure 10). Four cases of *C. trachomatis* ophthalmia neonatorum were reported in infants; however, ophthalmic (eye) infections due to perinatal exposure are counted as cases of Ophthalmia Neonatorum and not *C. trachomatis* infection. For information on these cases, please see the Ophthalmia Neonatorum section of this report.

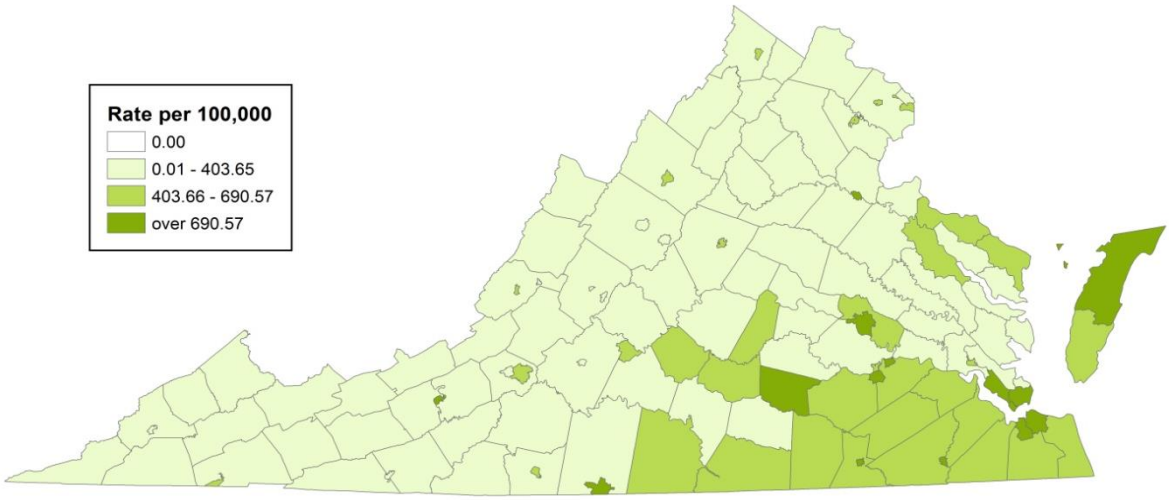
Figure 10. *Chlamydia trachomatis* Infection: Rate by Age Group, Virginia, 2014



Race information was not provided for nearly 30% of reported cases. However, among those with a known race, incidence of *C. trachomatis* infection was more than six times higher (912.6 per 100,000) in the black population when compared to the rate in the white population (139.1 per 100,000), and almost four times higher when compared to the rate in the "other" race population (246.9 per 100,000). Incidence of *C. trachomatis* infection in females (584.4 per 100,000) was more than two times the incidence rate in males (274.3 per 100,000), which may be largely explained by more frequent screening in women. While screening programs primarily target women, detection of disease among males is increasing as evidenced by the fact that the incidence rate among males in Virginia rose from 88.1 per 100,000 in 2001 to 274.3 per 100,000 in 2014.

Since 2001, the highest incidence rate of *C. trachomatis* has been noted in the eastern region (697.0 per 100,000). In 2014, the central region had the second highest (617.9 per 100,000), and the northern region had the lowest incidence (256.2 per 100,000). The map below displays incidence rates by locality.

Chlamydia trachomatis Infection Incidence Rate by Locality
Virginia, 2014



Cholera

Agent: *Vibrio cholerae* (serogroup O1 and O139)
Mode of Transmission: Epidemics and pandemics are strongly linked to the consumption of unsafe water and food, poor hygiene, inadequate water treatment, poor sanitation, and crowded living conditions. Conditions leading to epidemics exist in many developing countries where cholera is either endemic or a recurring problem in a large number of areas. The disease is not easily spread directly from one person to another.
Signs/Symptoms: Sudden onset of profuse, painless watery stools, often described as rice-water stool, provoked by a toxin that affects the small intestine. Nausea and profuse vomiting occur early in the course of illness. In untreated cases, rapid dehydration, dangerously high levels of acid or low levels of glucose in the blood, circulatory collapse, and renal failure can rapidly lead to death. In most cases infection is asymptomatic or causes mild diarrhea.
Prevention: Safe drinking water and proper sanitation are the keys to cholera prevention. When traveling in countries where cholera is present, only thoroughly cooked hot foods or fruits/vegetables that are peeled just before eating should be eaten, and only bottled beverages or water that has been boiled or treated with chlorine should be used for drinking, brushing teeth, or cleaning food preparation surfaces. Hands should be washed thoroughly with soap after using the bathroom and before preparing or eating food. Seafood should be cooked thoroughly before it is eaten. Existing oral cholera vaccines are not available in the U.S. and are not recommended for most travelers.
Other Important Information: In severely dehydrated cases, death may occur within a few hours and the case-fatality rate may exceed 50%. With proper and timely rehydration, this rate can be less than 1%.

No cases of cholera were reported in Virginia during 2014, marking the third consecutive year without a reported case. The last two reported travel-associated cholera cases occurred in 2010 and 2011. No cases of cholera were reported in Virginia from 1995 to 2009.

Creutzfeldt-Jakob Disease (CJD)

Agent: Believed to be caused by a prion protein
Mode of Transmission: The majority of CJD cases (80%-90%) are sporadic CJD, with no known source. A small percentage of cases (5%-15%) may be due to heredity (familial CJD) or exposure to organ tissue contaminated with the prion (iatrogenic CJD). Classic CJD includes sporadic CJD, familial CJD, and iatrogenic CJD. A form of the disease, variant Creutzfeldt-Jakob disease (vCJD), is thought to be transmitted through ingestion of beef from cattle with bovine spongiform encephalopathy (BSE, commonly referred to as mad cow disease).
Signs/Symptoms: Symptoms may begin with confusion, and they rapidly progress to a wide range of neurological signs and symptoms, including loss of coordination and dementia.
Prevention: Organ and tissue transplants from infected individuals should be avoided. For protection against vCJD, the federal government has regulations in place to prevent the spread of BSE in the United States.
Other Important Information: vCJD occurs in younger individuals, while classic CJD occurs more often in older individuals and has a slower progression. In Virginia, CJD is reportable when it occurs in persons under 55 years of age.

Two cases of Creutzfeldt-Jakob disease in persons less than 55 years of age were reported in Virginia during 2014. Both cases were diagnosed with classic CJD with no known exposures for either case. The two cases occurred in white females between the ages of 30 and 55 years. Prior to 2014, the last reported case occurred in 2007 in a white male in the 30-39 year age group, and the infection was determined to be classic CJD. Ten cases of classic CJD infection have been reported in Virginia residents less than 55 years of age since 1995.

The only case of vCJD ever diagnosed in a Virginia resident occurred in 2006. Based on the patient's history, it was determined that the infection most likely occurred from consumption of contaminated cattle products while living as a child in Saudi Arabia. This was one of four cases of vCJD reported in U.S. residents. The most recent vCJD case in the U.S. occurred in 2014 in a Texas resident, who is thought to have acquired the infection while residing overseas.

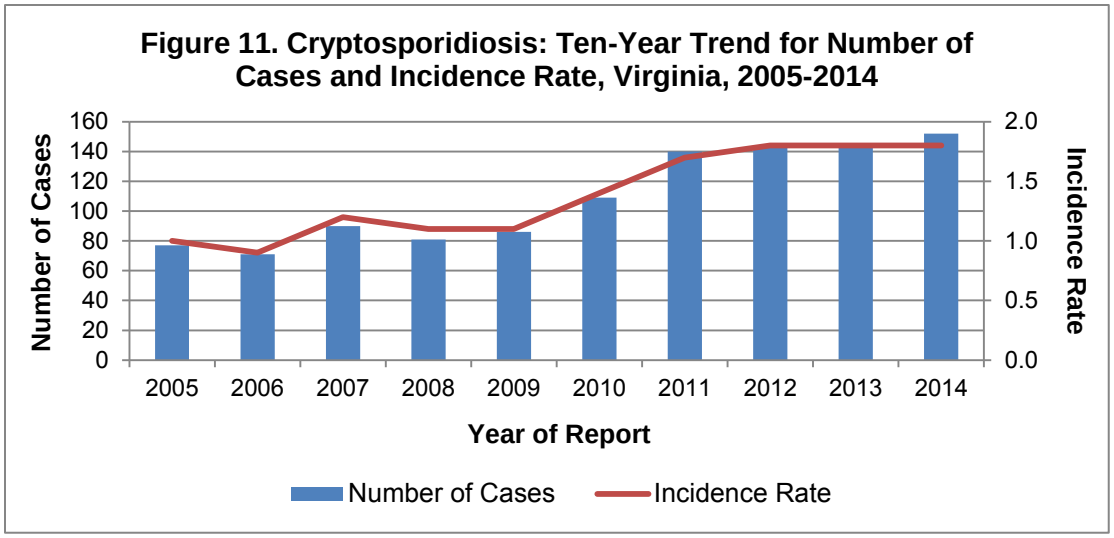
Cryptosporidiosis

Agent: *Cryptosporidium parvum* and *Cryptosporidium hominis* are the most common species that cause disease in humans (parasite)
Mode of Transmission: Occurs via the fecal-oral route and can include person-to-person, animal-to-person, foodborne, and waterborne transmission. Animals such as cattle, sheep, and goats have tested positive for the parasite and are an important reservoir, contributing to both direct transmission and contamination of water supplies; however, many other animals, including cats and dogs, can be infected and transmit disease. *Cryptosporidium* oocysts may be excreted from infected individuals for up to several months after diarrhea has resolved. Oocysts can remain infectious for 2-6 months after being excreted. The oocysts are very resistant to chemicals used to purify drinking water and disinfect recreational water (e.g., chlorine in pools).
Signs/Symptoms: Profuse watery diarrhea with nausea, cramping, and abdominal pain. The diarrhea may be preceded by anorexia and vomiting in children. Illness is typically self-limiting. Immunocompromised persons have a higher risk of severe disease, which can lead to poor outcomes, including death. Asymptomatic infections are common.
Prevention: Preventive measures include careful hand hygiene after using the bathroom, after changing diapers or cleaning a child who has used the bathroom, after handling animals or their feces, and before preparing and eating food. People with diarrhea should not enter public recreational water. Water purification methods, including boiling water or filtration, should be considered when drinking water from natural streams, lakes, springs, or any unknown source.

Cryptosporidiosis: 2014 Data Summary	
Number of Cases:	152
5-Year Average Number of Cases:	124.6
% Change from 5-Year Average:	+22%
Incidence Rate per 100,000:	1.8

In 2014, 152 cases of cryptosporidiosis were reported in Virginia. This represents a slight increase when compared to the 144 cases reported in 2013, and also represents a 22% increase from the five-year average of 124.6 cases per year (Figure 11). The statewide incidence rate of 1.8 cases per 100,000 population has remained the same in Virginia since 2012.

The incidence rate for cryptosporidiosis in Virginia continues to be lower than the U.S. rate. From 2005 to 2012 (the most recent year for which national data are available), the mean U.S. incidence rate (2.9 per 100,000) was more than twice the mean Virginia incidence rate (1.3 per 100,000). Also, during that time period, Virginia has generally experienced an upward trend in incidence, while the national rates have fluctuated.

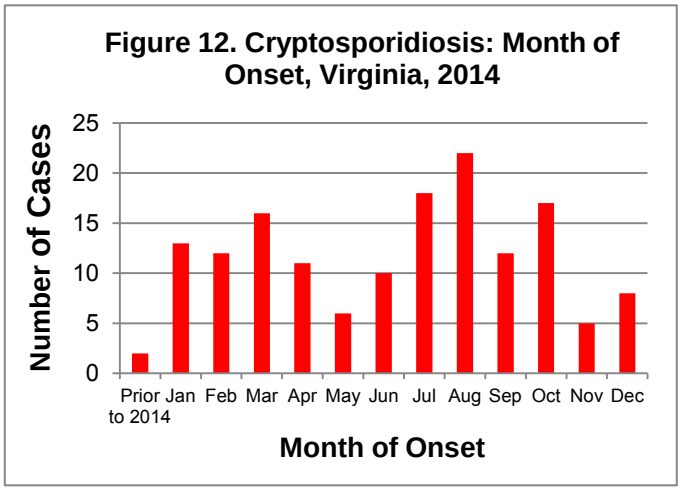


In 2014, the highest incidence rates were observed in the 20-29 and 30-39 year age groups (2.4 cases per 100,000 each). This represents a 41% increase in incidence among the 30-39 year age group, which had a rate of 1.7 cases per 100,000 in 2013. All other age groups had incidence rates ranging from 1.0 to 2.1 cases per 100,000 during 2014.

Race was not reported for 36 cases (24%) in 2014. Among cases with a known race, the incidence rate was highest among the black population (1.7 cases per 100,000), followed by the white population (1.4 cases per 100,000) and the "other" race population (0.3 cases per 100,000). During 2014, incidence was the same among males and females (1.8 cases per 100,000, respectively).

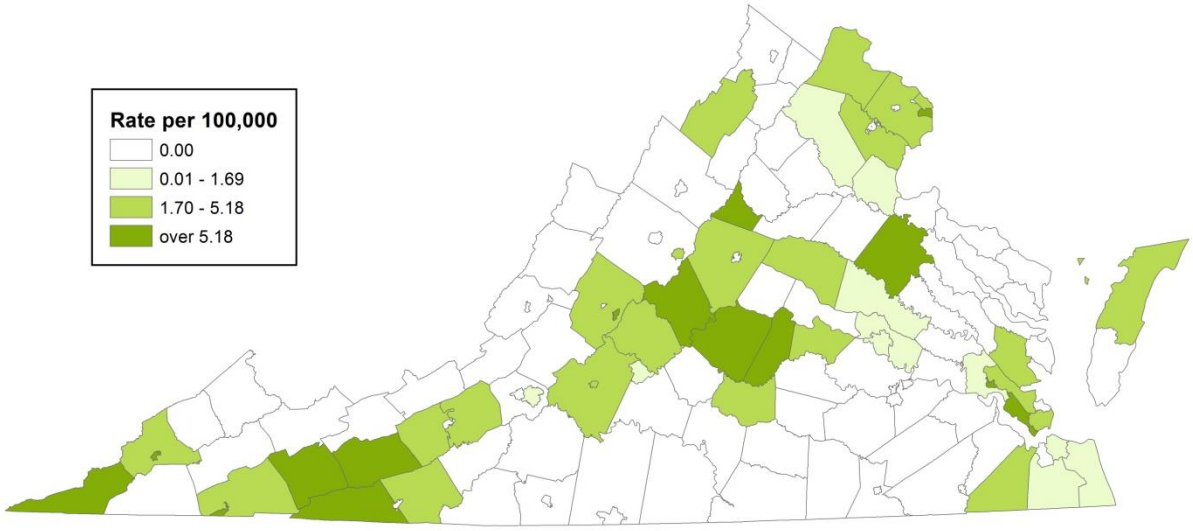
Geographically, the highest incidence rate was observed in the northern region (2.7 cases per 100,000). Rates ranged from 0.6 to 2.3 cases per 100,000 in other regions, with the lowest incidence occurring in the central region (see map below).

Nationally, a higher number of illnesses are typically seen during the summer and early fall months, which is consistent with increased recreational water exposure, including public pools. This seasonal pattern was observed in Virginia during 2014, where onset of cases peaked during July and August (Figure 12).



The most frequently reported risk factor among cases in 2014 was contact with animals (43 cases, 32%). Other reported risk factors included recreational water exposure (40 cases, 29%) and travel (40 cases, 29%). No outbreaks of cryptosporidiosis were reported in Virginia during 2014.

Cryptosporidiosis Incidence Rate by Locality
Virginia, 2014



Cyclosporiasis

Agent: *Cyclospora cayetanensis* (parasite)
Mode of Transmission: Can be foodborne or waterborne. *Cyclospora* are resistant to chlorine and iodine treatment and are unlikely to be killed by routine chemical disinfection or sanitizing methods. Direct person-to-person transmission has not been documented.
Signs/Symptoms: Profuse watery diarrhea commonly occurs, along with nausea, anorexia, substantial weight loss, abdominal bloating or cramping, increased gassiness and prolonged fatigue. Low-grade fever and vomiting are uncommon but can occur. Some infected persons are asymptomatic, particularly in settings where cyclosporiasis is endemic.
Prevention: Fresh produce should be washed thoroughly before it is consumed. No vaccine for cyclosporiasis is available.
Other Important Information: *C. cayetanensis* is known to be endemic in many resource-limited countries and has been reported as a cause of traveler's diarrhea. Most outbreaks reported in the U.S. have been associated with the consumption of imported fresh produce, including raspberries, basil, cilantro, snow peas and lettuce. No commercially frozen or canned produce has been implicated as the source of an outbreak.

Cyclosporiasis: 2014 Data Summary	
Number of Cases:	4
5-Year Average Number of Cases:	1.8
% Change from 5-Year Average:	+122%
Incidence Rate per 100,000:	0.0

In 2014, 4 cases of cyclosporiasis were reported in Virginia, which is the same number of cases that were reported in 2013. Between 2005 and 2012, from 0 to 3 cases were reported each year. The four cases reported in 2014 represent a 122% increase in cases compared to the five-year average of 1.8 cases per year. All four cases occurred among adults, three female and one male. Three cases were reported from the northern region and one case from the eastern region. All four individuals reported consuming produce prior to becoming ill. None reported international travel.

All four cases occurred during the second quarter of the year. Most cases and outbreaks of cyclosporiasis in the U.S. occur in spring and summer months, but not all cases identified during the same time of year are caused by the same exposure. CDC and other institutions are working to develop advanced molecular detection methods for *C. cayetanensis* that could distinguish among strains of this parasite. In the future, DNA fingerprinting methods could help public health investigators determine whether cases of cyclosporiasis are linked to each other and to particular food items or other sources of infection.

Diphtheria

Agent: Toxin secreted by strains of the bacterium *Corynebacterium diphtheriae*
Mode of Transmission: Person-to-person transmission via respiratory droplets. Rarely, transmission may occur from contact with skin lesions or articles soiled with discharges from the lesions of infected persons.
Signs/Symptoms: Sore throat, anorexia, nasal discharge, and formation of a bluish-white, grayish-green, or black adherent membrane in the throat. More severe cases can include swelling of the neck and airway passages.
Prevention: Diphtheria vaccine is available as part of the diphtheria/tetanus/pertussis (DTaP) vaccine for children and the combination tetanus/diphtheria/pertussis (Tdap) vaccine for adolescents and adults. One dose of Tdap should be given at 11 to 12 years of age with booster doses of tetanus/diphtheria (Td) every ten years thereafter.
Other Important Information: The overall case-fatality rate for diphtheria is 5%-10%, with higher death rates in young children and those over 40 years of age.

No cases of diphtheria have been reported in Virginia since 1989. Nationally, the most recent case of diphtheria was reported in 2012 and the preceding case occurred in 2003. Diphtheria is still endemic in certain areas of the world.

Ehrlichiosis/Anaplasmosis

Agent(s): Bacteria belonging to the family *Anaplasmataceae.* *Ehrlichia chaffeensis* infects monocytes (a type of white blood cell involved with immune function) and causes an illness called human monocytic ehrlichiosis (HME). *E. ewingii* infects granulocytes (a different category of white blood cells) and causes a disease referred to as an *E. ewingii* infection. *Anaplasma phagocytophilum* also infects granulocytes, causing an illness called human granulocytic anaplasmosis (HGA).

Mode of Transmission: Transmitted to humans through the bite of an infected tick. *E. chaffeensis* and *E. ewingii* may infect adult and nymph stage lone star ticks and be transmitted by them. *Anaplasma phagocytophilum* may infect nymph stage and adult blacklegged ticks (deer ticks) and is primarily transmitted by the nymph stage ticks. Transmission of these pathogens occurs when an infected tick bites a person and feeds on that person (i.e., remains attached) for more than 24 hours.

Signs/Symptoms: Illness symptoms commonly include the sudden onset of fever, accompanied by one or more of the following symptoms: headache, body aches, nausea, vomiting and rash. In cases of ehrlichiosis, a rash may occur in up to 30 % of adults and 60% of children; rashes are much less common in cases of anaplasmosis. Patients may exhibit signs of thrombocytopenia (low blood platelet count) and leucopenia (low white blood cell count) and elevated liver function tests. Severe forms of illness can result in meningitis/encephalitis, bleeding disorders, difficulty breathing, organ damage and death. Persons with weakened immune systems are prone to develop more severe disease. Persons who do not have a spleen have a high risk of death.

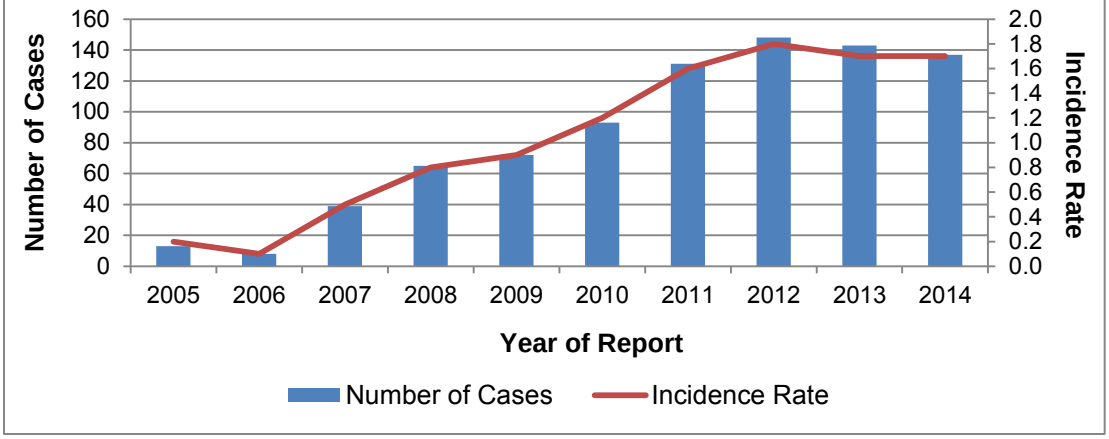
Prevention: Common practice should include minimizing tick bites by recognizing and avoiding the habitats of lone star ticks and blacklegged ticks. These habitats include humid forest environments with undergrowth or heavy leaf litter, and tall weeds and vegetative ground cover along shady forest margins, tree lines, forest trails and forest clearings. Repellents containing DEET, Picaridin, BioUD, IR3535, or oil of lemon eucalyptus are effective against ticks and should be applied to exposed areas of skin before entering tick habitats. When in tick-prone habitats, light-colored clothing should be worn with pants legs tucked into socks. Permethrin-based repellents should be applied to clothing, socks and shoes. After visiting tick habitats, a person should remove and wash clothing, thoroughly check all body surfaces for ticks and, if found, carefully remove attached ticks as soon as possible.

Other Important Information: Due to the many difficulties associated with diagnosis and testing of Rickettsial diseases, some cases of ehrlichiosis or anaplasmosis may be diagnosed as Rocky Mountain spotted fever (RMSF). Based on tick infection surveys, ehrlichiosis is thought to be much more common than RMSF in Virginia.

Ehrlichiosis/Anaplasmosis: 2014 Data Summary	
Number of Cases:	137
5-Year Average Number of Cases:	117.4
% Change from 5-Year Average:	+17%
Incidence Rate per 100,000:	1.7

In 2014, 137 cases of ehrlichiosis/anaplasmosis were reported in Virginia. This represents a slight decrease from the 143 cases seen in 2013, but also represents a 17% increase from the five-year average of 117.4 cases per year (Figure 13). The overall increase in reported cases over the past decade is due to numerous factors, including increased knowledge of these diseases among healthcare providers, improvements in laboratory diagnosis and reporting, and increased tick populations. Deer serve as a reservoir for *E. chaffeensis*. Adult lone star ticks and blacklegged ticks both feed primarily on deer blood for reproduction. The rise in tick populations results from increased deer populations, particularly in recently developed suburban areas where deer numbers are difficult to control through hunting. Among cases reported in 2014, 112 (82%) were specified as HME, 15 (11%) were specified as HGA, 8 (6%) were ehrlichiosis/anaplasmosis unspecified, and 2 (1%) were *E. ewingii* infections.

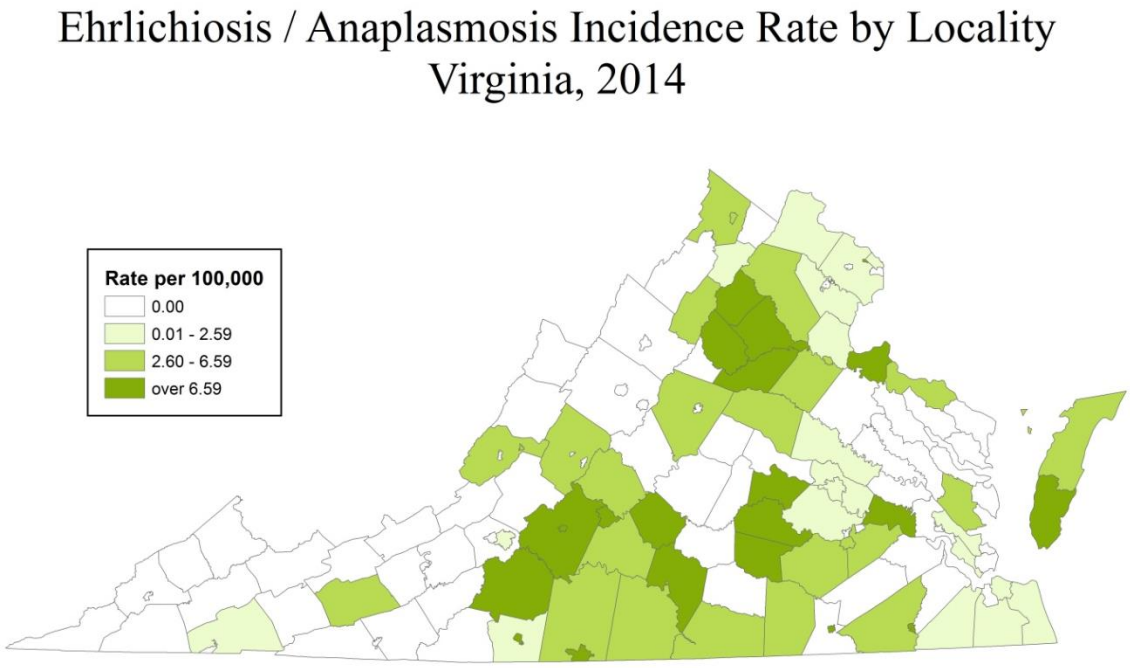
Figure 13. Ehrlichiosis/Anaplasmosis: Ten-Year Trend for Number of Cases and Incidence Rate, Virginia, 2005-2014



In 2014, ehrlichiosis/anaplasmosis incidence rates were highest in the 60 year and older age group, with 4.2 cases per 100,000, followed by the 50-59 year age group, with 2.1 cases per 100,000. Together, these two age groups accounted for 66% of all cases. Incidence decreased as age decreased. This pattern of age distribution, where infections occur predominantly among those over the age of 50 years, is typical of what is observed for ehrlichiosis and anaplasmosis in other endemic areas in the U.S. Race was not reported for 56% of cases. Among those with a known race, incidence in the white population (0.9 per 100,000) was more than four times the rate in the black population (0.2 per 100,000). Incidence among persons in the "other" race population was 0.5 per 100,000. Incidence was higher among males than females (2.0 and 1.4 per 100,000, respectively).

Cases were reported from all regions of the state. The highest incidence rate (3.1 per 100,000) was observed in the northwest region followed by the southwest region (2.5 per 100,000). Rates in the remaining three regions ranged from 0.5 to 2.1 per 100,000. While the incidence rate for the northwest region was highest among all regions, the map

below indicates that cases were reported from localities located along the eastern edge of the region, and not from localities located along the western edge. Likewise, for the southwest region, reported cases occurred mostly along the eastern border localities of that region, and far fewer cases were reported from the far southwest. In the eastern region of the state, the incidence rate was higher on the eastern shore than in any other locality in that region. The largest proportion of cases (52%) had symptom onset in the second quarter of the year, while 42% had symptom onset in the third quarter. The second and third quarters represent the spring and summer months, when ticks are most likely to feed.



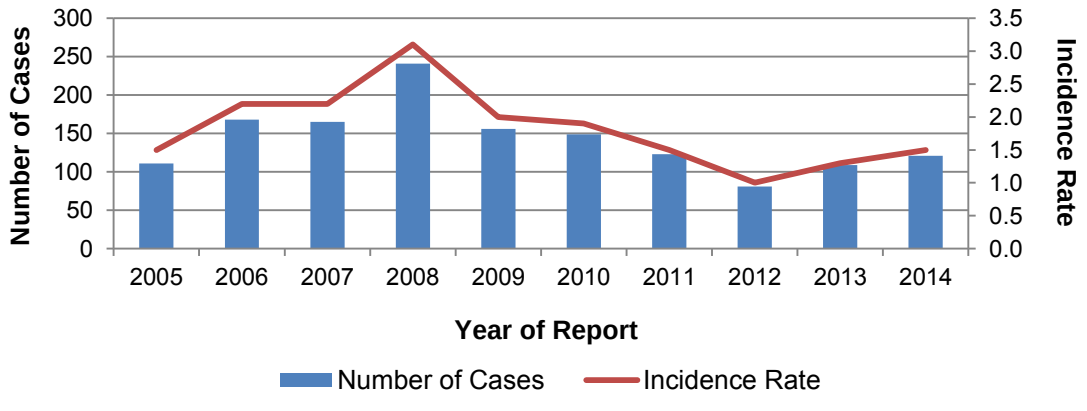
Escherichia coli Infection, Shiga Toxin-Producing

Agent: Shiga toxin-producing *Escherichia coli* (bacteria), also known as Verocytotoxin-producing *E. coli* (VTEC), enterohemorrhagic *E. coli* (EHEC) or STEC for short.
Mode of Transmission: Ingestion of food or water contaminated with human or animal feces, or direct transmission from infected persons or animals. Fomites and contaminated environments may also play a role in transmission.
Signs/Symptoms: Diarrhea, which may be bloody or non-bloody, and severe abdominal cramps with little or no fever. In some people, including children less than five years of age and older adults, the infection can cause a complication called hemolytic uremic syndrome (HUS), in which the red blood cells are destroyed and the kidneys fail.
Prevention: Hands should be washed carefully after using the bathroom, after changing diapers or cleaning a child who has used the bathroom, after handling animals or their feces, and before preparing and eating food. All ground beef should be cooked thoroughly to an internal temperature of at least 160°. All milk, other dairy products, and juices should be pasteurized before being consumed.
Other Important Information: The most virulent STEC is *E. coli* O157:H7. In the U.S., *E. coli* O157:H7 is the serotype most commonly associated with hemolytic uremic syndrome (HUS). See the section on Hemolytic Uremic Syndrome in this report for more information. Shiga toxin-producing *E. coli* infection has been a reportable condition in Virginia since 1999.

***Escherichia coli* Infection, Shiga Toxin-Producing: 2014 Data Summary**	
Number of Cases:	121
5-Year Average Number of Cases:	123.6
% Change from 5-Year Average:	-2%
Incidence Rate per 100,000:	1.5

In 2014, 121 cases of Shiga toxin-producing *Escherichia coli* (STEC) infection were reported in Virginia. This represents an 11% increase from the 109 cases reported in 2013, but a slight decrease from the five-year average of 123.6 cases per year (Figure 14).

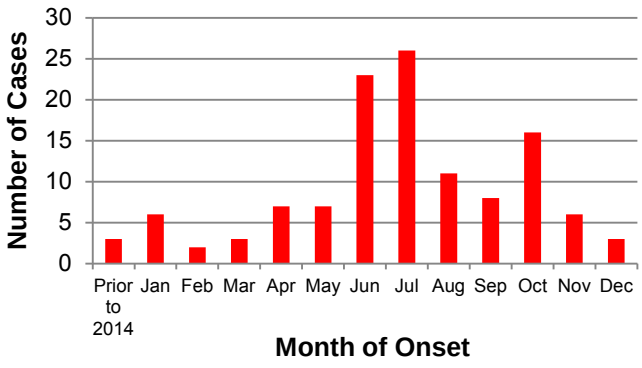
Figure 14. *Escherichia coli* Infection, Shiga Toxin-Producing: Ten-Year Trend for Number of Cases and Incidence Rate, Virginia, 2005-2014



STEC infection occurs among all age groups, but the majority of cases occur in children. Children and the elderly are also more likely to develop severe illness. The incidence rate was highest in the 1-9 year age group (5.0 per 100,000), followed by the less than one year age group (3.9 per 100,000). Other age groups had rates between 0.5 and 1.7 per 100,000. Race was reported for 77% of cases. Among those with a known race, incidence was highest in the white population (1.4 per 100,000) compared to the black and "other" race populations (0.5 per 100,000, each). Incidence was slightly higher among females than males (1.6 and 1.3 per 100,000, respectively).

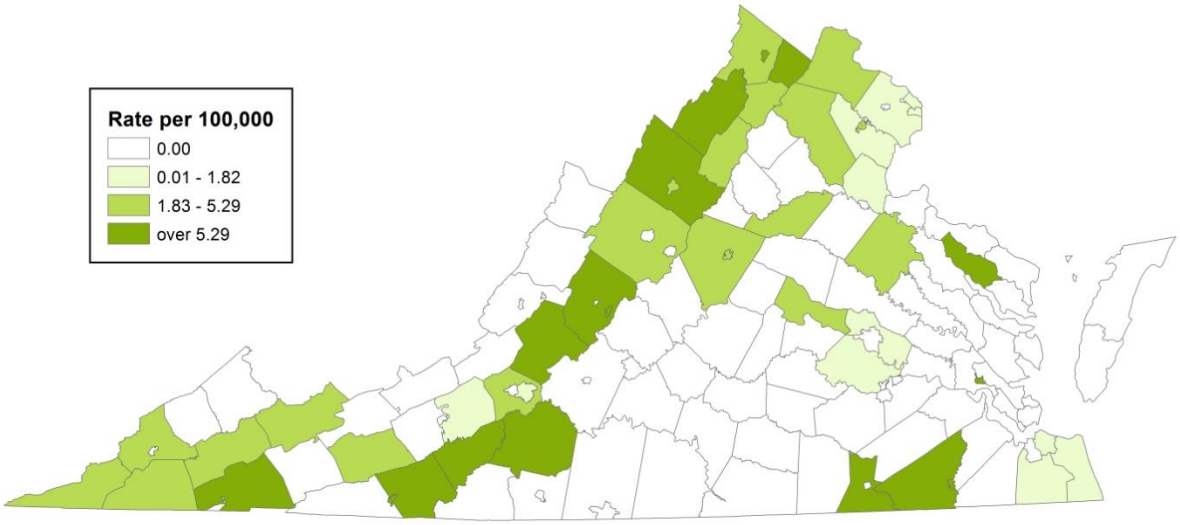
The northwest region experienced the highest incidence rate with 2.8 per 100,000, followed by the southwest region with 1.8 per 100,000. Incidence in the other regions was between 0.5 and 1.5 per 100,000. Incidence rates by locality can be seen in the map below.

Figure 15. *Escherichia coli* Infection, Shiga Toxin-Producing: Month of Onset, Virginia, 2014



While infections occurred throughout the year, reported cases peaked during the warmer months of June and July (Figure 15). One outbreak attributed to STEC infection was reported during 2014. The outbreak occurred in a daycare setting in the northern region. Six cases, including five children and one adult, were reported with this outbreak. The route of transmission could not be determined.

Escherichia coli Infection, Shiga Toxin-Producing Incidence Rate by Locality, Virginia, 2014

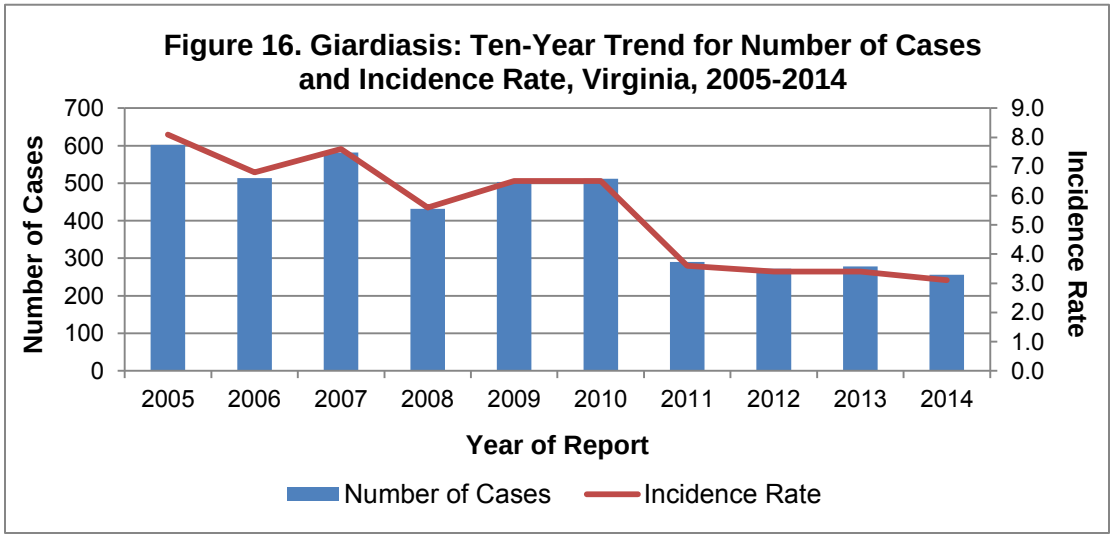


Giardiasis

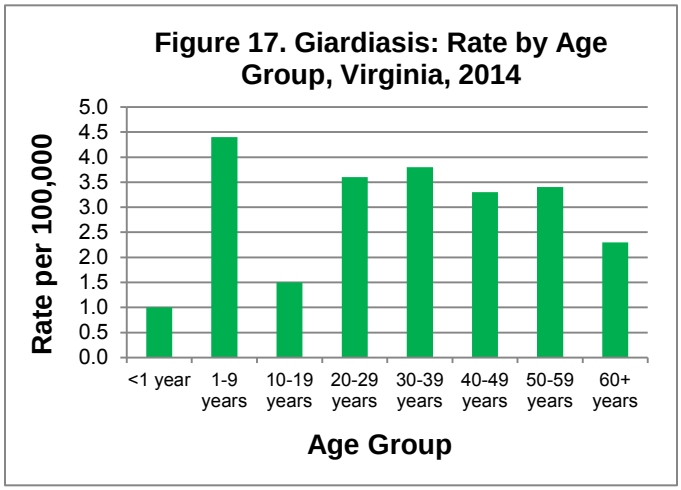
Agent: *Giardia intestinalis* (parasite)
Mode of Transmission: Person-to-person transmission by hand-to-mouth transfer of cysts from the feces of an infected person. Localized outbreaks are more often due to ingestion of cysts in fecally-contaminated drinking and recreational water (e.g., lakes, rivers, springs, ponds, and streams) than from fecally-contaminated food.
Signs/Symptoms: Symptoms may include diarrhea, abdominal pain, bloating, nausea and vomiting. A person may be asymptomatic or develop chronic illness.
Prevention: Hands should be washed carefully after using the bathroom, after changing diapers or cleaning a child who has used the bathroom, after handling animals or their feces, and before preparing and eating food. Recreational water or untreated water from shallow wells, lakes, rivers, springs, ponds or streams should not be consumed. Persons with diarrhea should not swim at recreational water venues.

Giardiasis: 2014 Data Summary	
Number of Cases:	256
5-Year Average Number of Cases:	371.0
% Change from 5-Year Average:	-31%
Incidence Rate per 100,000:	3.1

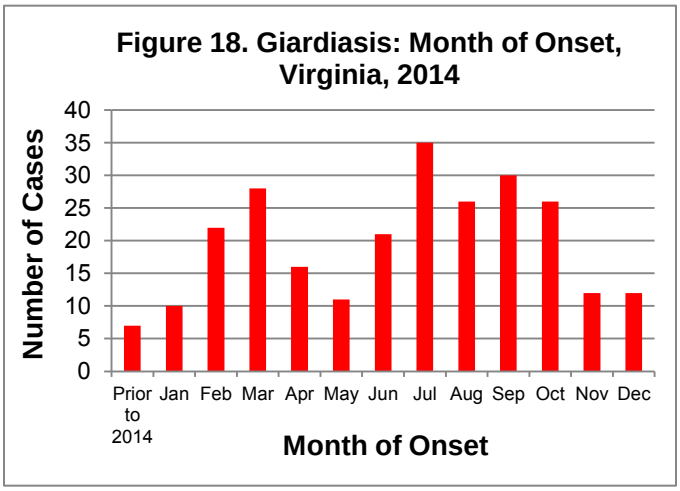
In 2014, 256 cases of giardiasis were reported in Virginia. This represents an 8% decrease from the 278 cases reported in 2013, and a 31% decrease from the 5-year average of 371.0 cases per year. Similar to national data, giardiasis cases have decreased over the last ten years with a dramatic decrease observed in 2011 (Figure 16). The lower number of reported cases from 2011-2014 can be attributed to a change in the surveillance case definition. Prior to 2011, a case could be counted based on a positive laboratory result for *Giardia* alone. Beginning in 2011, documentation of clinically compatible illness was required in addition to a positive laboratory result for a case to be counted for public health surveillance purposes.



By age, the highest incidence rate (4.4 per 100,000) occurred in the 1-9 year age group, which is consistent with national data (Figure 17). Incident rates were lowest among infants (1.0 per 100,000) and persons 10-19 years of age. The remaining age groups had similar incidence rates ranging from 2.3 to 3.8 per 100,000. Race was not reported for 51% of giardiasis cases in 2014. Among cases with a known race, incidence was higher in the "other" race population (2.3 per 100,000) compared to the white population (1.6 per 100,000) and black population (1.1 per 100,000). A higher incidence rate was seen among males (4.1 per 100,000) than females (2.1 per 100,000).

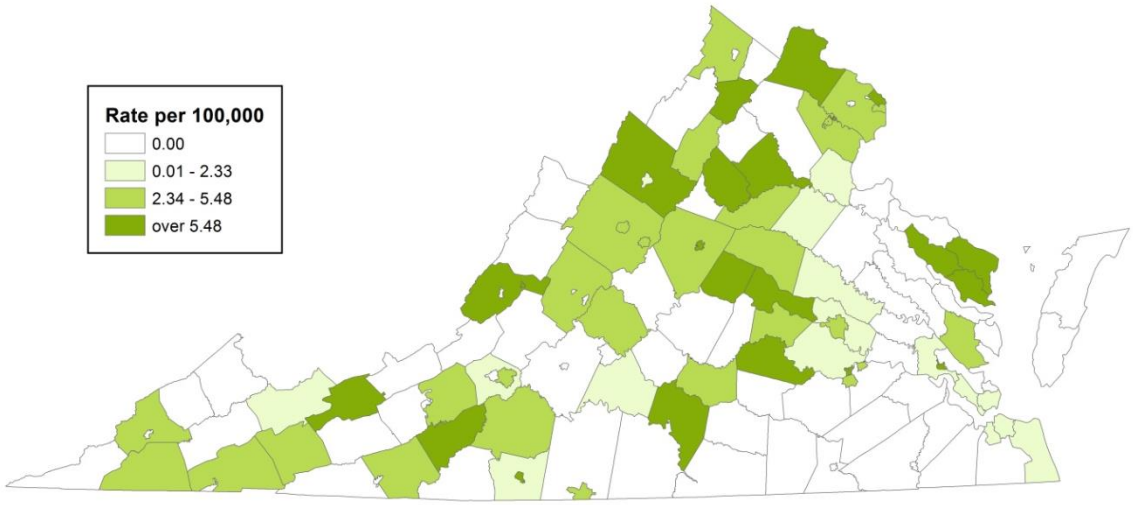


Like the previous year, the northern region experienced the largest number of cases (132 cases) and the highest incidence rate (5.5 per 100,000). Frequency of reports of giardiasis were similar for the remaining regions, with reported cases ranging from 25 to 44 per region, and incidence rates ranging from 1.4 per 100,000 in the eastern region to 3.4 per 100,000 in the northwest region. Rates by locality can be seen in the map below. Cases occurred throughout the year, with a higher proportion of cases reported during the warmer months of the third quarter (Figure 18). Similar to national data, the months of July, August, and September accounted for 36% of cases.



While the source of exposure for sporadic cases cannot usually be determined, 98 (38%) of the persons with giardiasis in 2014 reported travel prior to illness onset, 82 (32%) reported contact with an animal, 46 (18%) reported recreational water exposure, 32 (12%) knew of similarly ill persons, and 18 (7%) reported consuming untreated water.

Giardiasis Incidence Rate by Locality
Virginia, 2014

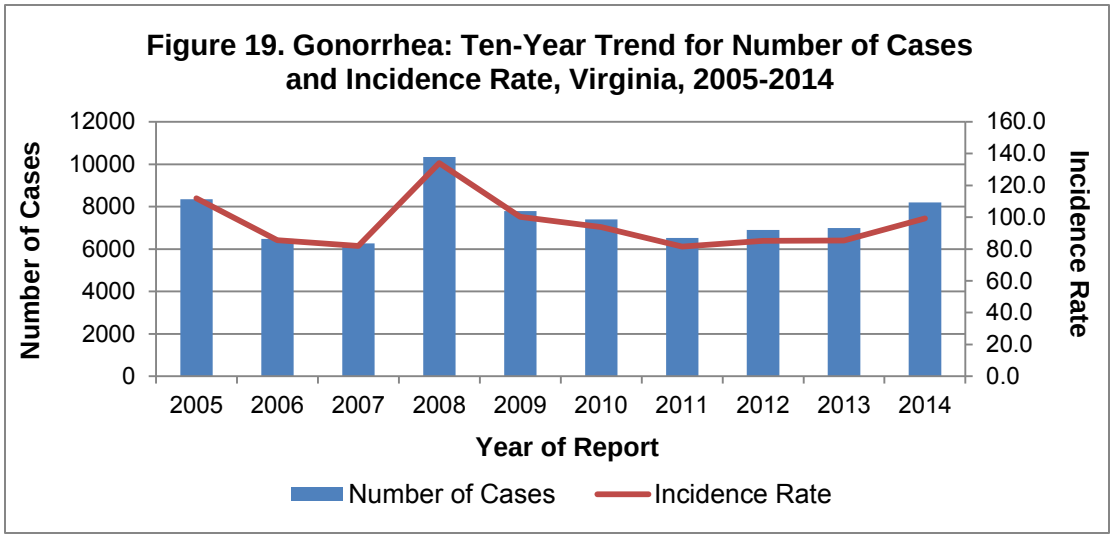


Gonorrhea

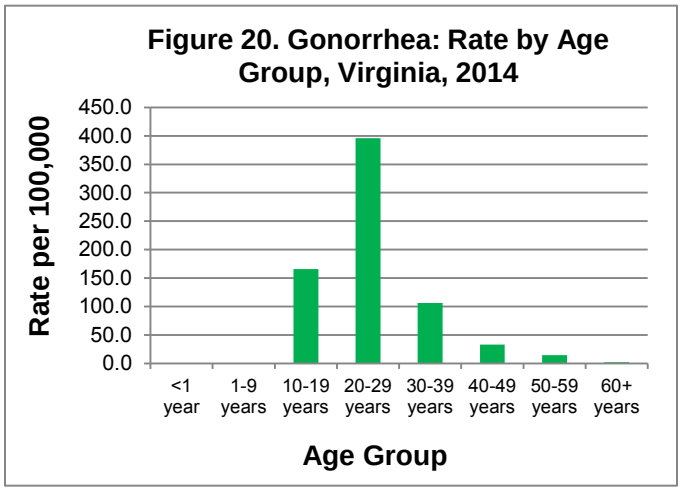
Agent: *Neisseria gonorrhoeae* (bacteria)
Mode of Transmission: Sexually transmitted through direct contact with secretions from an infected person.
Signs/Symptoms: Infected men may experience a burning sensation while urinating and a yellowish white discharge from the urethra. Infected women are usually asymptomatic, although vaginal discharge, burning while urinating, abdominal pain and/or bleeding after intercourse may occur. Symptoms usually appear within a week, but could take up to 30 days. Untreated gonorrhea among women can lead to pelvic inflammatory disease and infertility.
Prevention: Preventive measures include safe sexual practices and ensuring that infected sexual contacts are treated with antibiotics.
Other Important Information: The progressive development of antibiotic resistance continues to hinder gonorrhea prevention efforts. Antibiotic resistance undermines treatment success, heightens the risk of complications and facilitates transmission of infection. Drug resistant *N. gonorrhoeae* is one of only three organisms currently designated by CDC as an antimicrobial resistance "urgent threat." Since April 2007, CDC has advised against the use of fluoroquinolones for the treatment of gonorrhea, based on data indicating widespread drug resistance in the United States. As of August 2012, CDC no longer recommends cefixime (an oral cephalosporin) at any dose as a first-line regimen for treatment of gonococcal infections. The CDC now recommends combination therapy for gonorrhea with ceftriaxone administered intramuscularly and either azithromycin or doxycycline given orally for seven days.

Gonorrhea: 2014 Data Summary	
Number of Cases:	8,196
5-Year Average Number of Cases:	7,119.8
% Change from 5-Year Average:	+15%
Incidence Rate per 100,000:	99.2

CDC estimates that up to half of gonorrhea infections go undiagnosed and unreported. Virginia's gonorrhea incidence rate (99.2 cases per 100,000) continues to stay below the most recently reported national rate of 110.7 per 100,000 in 2014. However, the 8,196 cases reported in 2014 represent a 15% increase when compared to Virginia's five-year average of 7,119.8 cases per year. Over the last ten years, the annual number of gonorrhea cases in Virginia has fluctuated.

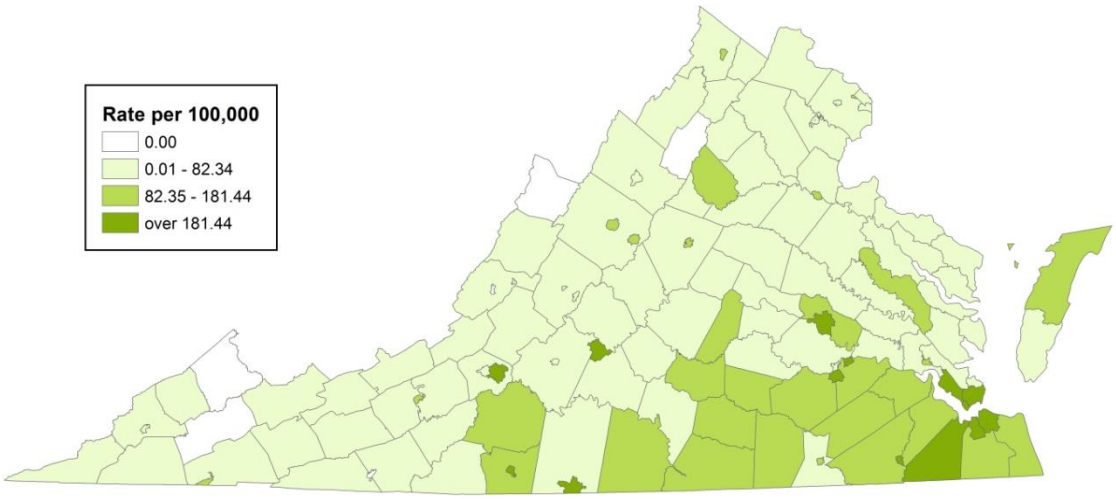


Gonorrhea incidence rates were highest in the 20-29 year age group (395.8 per 100,000), followed by the 10-19 year age group (165.8 per 100,000) (Figure 20). This age distribution is consistent with historical trends. Racial disparity in gonorrhea incidence is more pronounced than any other sexually transmitted infection with black individuals being disproportionately affected in Virginia and nationwide. In 2014, the incidence rate in Virginia among the black population was 302.8 per 100,000 which was more than 13 times higher than the rate seen in the white population (22.7 per 100,000), and nearly nine times higher than the rate observed in the "other" race population (34.4 per 100,000). Similar to national trends, Virginia gonorrhea incidence rates were slightly higher among females than males (103.1 and 95.0 per 100,000, respectively). Among teenagers and young adults, gonorrhea is more frequently diagnosed in females. In 2014, 68% of cases reported in 15-19 year olds occurred in females. However, beginning at age 25, infection was reported more frequently in males. Fifty-three percent of cases reported in 25-29 year olds occurred in males. In patients 30 years or older, 63% of reported infections occurred in males.



Since 2008, the eastern region has experienced the largest proportion of reported cases and the highest incidence rates of gonorrhea (see map below). In 2014, 3,302 cases were reported from the eastern region (40% of the statewide total), with an incidence rate of 179.6 per 100,000. The central region had the second highest incidence rate (167.1 per 100,000) with 2,338 cases and 29% of the statewide total. Among the other regions in Virginia, incidence rates ranged from 34.4 to 85.2 per 100,000.

Gonorrhea Incidence Rate by Locality
Virginia, 2014



Granuloma Inguinale

Agent: *Klebsiella granulomatis* (bacteria; formerly *Calymmatobacterium granulomatis*)
Mode of Transmission: Presumably by sexual activity; specifically, exposure to the bacteria from an open lesion in the genital area. Young children can become infected by contact with infectious secretions.
Signs/Symptoms: Painless, slowly progressive ulcerative lesions in the genital area, which may become open sores. If left untreated, the bacteria can lead to the destruction of genital organs and spread to other parts of the body through autoinoculation.
Prevention: Sexual partners should be examined, counseled to practice safe sex, and offered antimicrobial therapy, when needed.

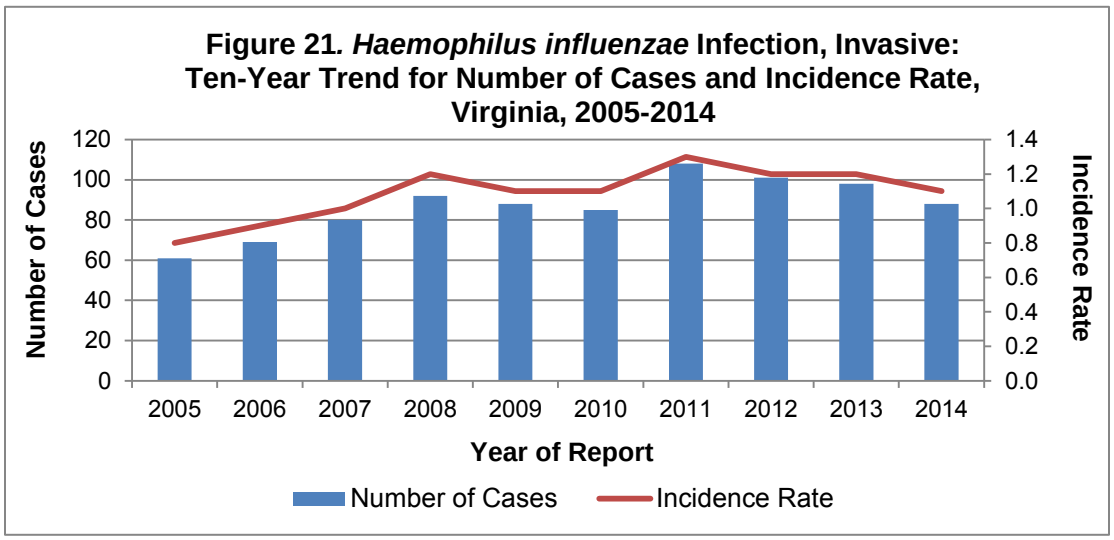
Although granuloma inguinale is endemic in certain developing tropical countries, it remains uncommon in the United States. In 2014, no cases of granuloma inguinale were reported in Virginia. The last reported case occurred in 2001.

***Haemophilus influenzae* Infection, Invasive**

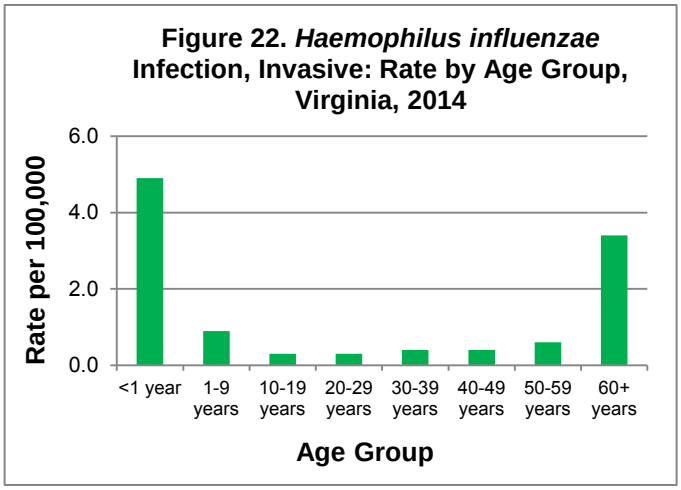
Agent: *Haemophilus influenzae* (bacteria)
Mode of Transmission: Person-to-person transmission by inhalation of respiratory droplets or direct contact with nose and throat secretions from an infected person or an asymptomatic carrier.
Signs/Symptoms: Inflammation of the lining of the brain and spinal cord (i.e., meningitis), inflammation of the epiglottis which may lead to blockage of upper airway and death, pneumonia, deep skin infection, arthritis, or bloodstream infection.
Prevention: Vaccination with a 3-4 dose series (depending on manufacturer) of conjugate *Haemophilus influenzae* type b (Hib) vaccine beginning at 2 months of age and concluding with a booster at 12 to 15 months of age. If vaccination is delayed, children 7 months of age and older may not require a full series of three or four doses. The total number of doses a child needs to complete the series depends on the child's age at the time the first dose is administered.
Other Important Information: *Haemophilus influenzae* is categorized into two major groupings: encapsulated and non-encapsulated. Encapsulated strains are more virulent and produce a polysaccharide capsule which is further characterized into six antigenically distinct serotypes (types a though f). Nontypable serotype results indicate a non-encapsulated strain. Vaccine is currently only available for one serotype, type b. In the pre-Hib vaccine era, type b organisms accounted for 95% of all strains that caused invasive disease. Since the licensure of conjugate Hib vaccine in the late 1980s, the incidence of invasive Hib disease in the U.S. has declined by more than 99% compared with the pre-vaccine era.

***Haemophilus influenzae* Infection, Invasive: 2014 Data Summary**	
Number of Cases:	88
5-Year Average Number of Cases:	96.0
% Change from 5-Year Average:	-8%
Incidence Rate per 100,000:	1.1

The 88 cases of invasive *H. influenzae* reported in 2014 represent a 10% decrease from the 98 cases reported in 2013, and an 8% decrease from the five-year average of 96.0 cases per year (Figure 21). The statewide incidence rate remained relatively stable from 1.2 in 2013 to 1.1 per 100,000 in 2014.



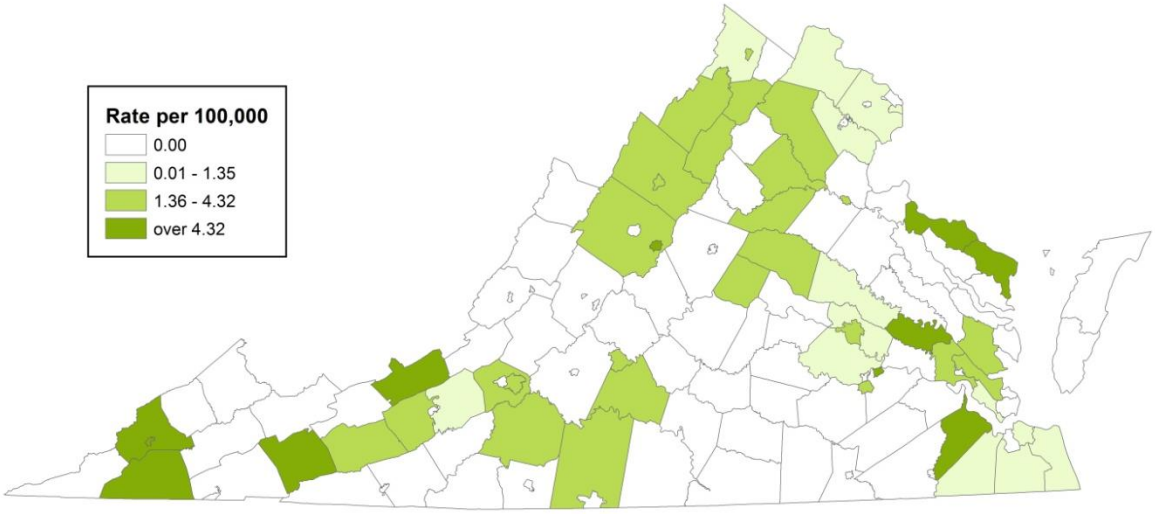
Among the various age groups, incidence rates were highest for the youngest and oldest ages (Figure 22). The less than one year age group had the highest incidence rate with 4.9 cases per 100,000, followed by the 60 year and older age group with 3.4 cases per 100,000. The remaining age groups had rates ranging from 0.3 to 0.9 cases per 100,000.



Race was provided for 80% of cases. Among cases with a known race, the white population had a slightly higher incidence rate (1.0 per 100,000) when compared to the incidence in the black population (0.6 per 100,000) and the "other" race population (0.3 per 100,000). Incidence rates were similar between females and males (1.2 and 0.9 per 100,000, respectively). Geographically, the incidence rate was highest in the southwest region (2.0 per 100,000), followed by the northwest region (1.4 per 100,000). The remaining regions had rates ranging from 0.5 to 1.0 per 100,000. Incidence rates by locality can be seen in the map below. Cases occurred throughout the year with little seasonal variability, and no outbreaks of *H. influenzae* were reported in 2014. Nine deaths attributed to invasive *H. influenzae* infections were reported during 2014. Sixty-seven percent of deaths occurred among those older than 60 years of age. One death occurred among the 10-19 year age group. This patient had received the Hib vaccine; however, the serotype was identified as nontypable.

Serotyping results were available for 82 (93%) of 88 cases. Non-encapsulated strains (60%) were the most commonly identified. Identified encapsulated strains included type f (26%), type e (11%), type b (2%), and type a (1%). The two reported type b cases occurred in the 10-19 and 60 year and older age groups, with the younger individual being age-appropriately vaccinated with Hib vaccine.

Haemophilus influenzae Infection, Invasive Incidence Rate by Locality, Virginia, 2014



Hantavirus Pulmonary Syndrome

Agent: Hantavirus family
Mode of Transmission: Several different types of hantaviruses that can cause hantavirus pulmonary syndrome (HPS) have been identified in the United States and each is associated with a different rodent species. Rodents infected with hantavirus do not become ill, but they can transmit the virus to humans when their urine, feces, or saliva are aerosolized and inhaled. While uncommon, other ways in which people may be exposed to the virus are rodent bites and direct contact between contaminated materials and a person's nose or mouth. Person-to-person transmission does not occur.
Signs/Symptoms: Early symptoms include fever and muscle pain, and may also include gastrointestinal complaints, headaches and dizziness. These symptoms may be accompanied by or followed by an abrupt onset of respiratory distress and decreased blood pressure. Respiratory failure and shock follow quickly.
Prevention: Rodents should be excluded from houses and other buildings. Protective measures include disinfecting rodent-contaminated areas with a spray disinfectant solution prior to cleaning. Contaminated areas should be cleaned with a wet mop and not be vacuumed or swept so as to decrease the likelihood of creating an aerosol containing the virus. While routine use of respirators by farmers and homeowners in rural areas is not recommended, respirator use is recommended when cleaning up very heavy rodent infestations or cleaning homes associated with known cases of HPS. Professional pest control companies may be best suited for the cleaning that would be needed in these situations.
Other Important Information: Although most common in the southwestern part of the U.S., hantavirus infections can occur anywhere. In the United States, the Sin Nombre virus is responsible for the majority of cases of HPS. The host of the Sin Nombre virus is the deer mouse (*Peromyscus maniculatus*), which is present throughout the western and central United States.

No cases of hantavirus pulmonary syndrome were reported in Virginia during 2014. The only HPS case reported in Virginia occurred in 1993. In 2004, a resident of southwest Virginia died from HPS following an exposure that occurred in West Virginia. For surveillance purposes, that case was attributed to West Virginia.

Hemolytic Uremic Syndrome (HUS)

Agent: Serious sequelae associated with infection from Shiga toxin-producing bacteria (*E. coli* or *Shigella). E. coli* O157:H7 is the bacterium most commonly associated with HUS.
Mode of Transmission: Ingestion of food or water contaminated with human or animal feces, or direct transmission from infected persons or animals. Fomites and contaminated environment may also play a role in transmission of Shiga toxin-producing bacteria.
Signs/Symptoms: Classic signs of hemolytic uremic syndrome include red blood cell destruction (hemolytic anemia), low number of platelets (thrombocytopenia), and acute kidney failure. Symptoms include decreased frequency of urination, fatigue, progression to kidney failure often requiring dialysis, as well as neurological impairment (e.g., stroke or seizures). HUS, if it occurs, develops on average seven days after the first symptoms of infection.
Prevention: Hands should be washed carefully after using the bathroom, after changing diapers or cleaning a child who has used the bathroom, after handling animals or their feces, and before preparing and eating food. All ground beef should be cooked thoroughly to an internal temperature of at least 160°. Raw milk, unpasteurized dairy products, and unpasteurized juices should not be consumed. Persons with diarrhea caused by *E. coli* O157:H7 should not use recreational waters for 2 weeks after symptoms have resolved. Outbreaks occurring in child care centers should immediately involve public health assistance to prevent further disease.
Other Important Information: Five to ten percent of persons diagnosed with Shiga toxin-producing *E. coli* infection develop HUS. The syndrome occurs in up to 15% of children with *E. coli* O157:H7 infection. For more information, see the section of this report on *E. coli* Infection, Shiga Toxin-Producing.

Hemolytic Uremic Syndrome (HUS): 2014 Data Summary	
Number of Cases:	6
5-Year Average Number of Cases:	3.2
% Change from 5-Year Average:	+88%
Incidence Rate per 100,000:	0.1

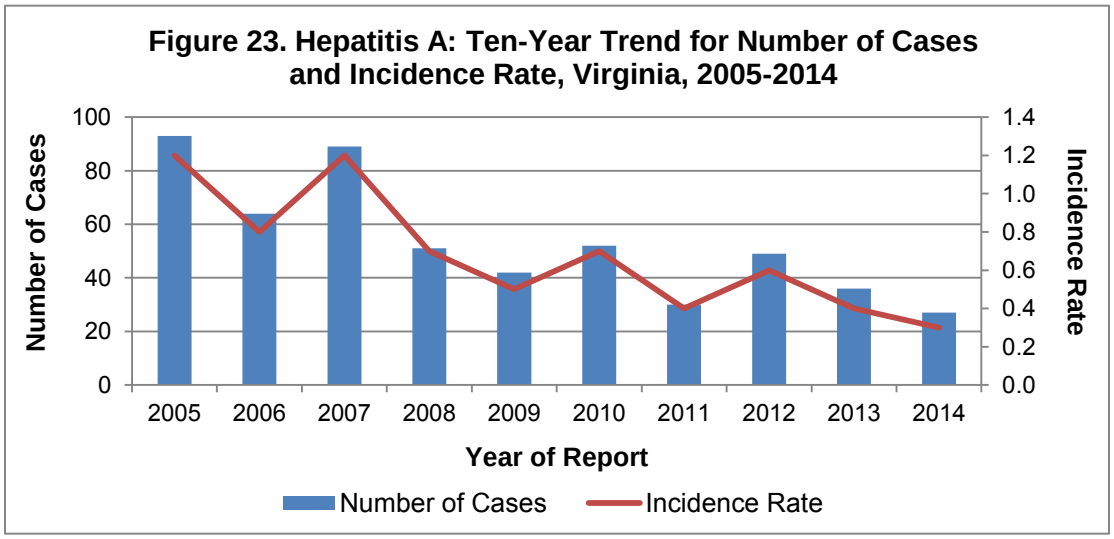
Six cases of HUS were reported in Virginia during 2014, matching the six cases reported in 2013. The six cases in 2014 represent an 88% increase from the five-year average of 3.2 cases per year. Two of the six cases occurred following infection with Shiga toxin-producing *E. coli* O157:H7. Among the four remaining cases, two were Shiga toxin positive, one was Shiga toxin negative, and one case did not have Shiga toxin testing performed. One case occurred in the 50-59 year age group, while the remaining five cases occurred in persons less than 20 years of age. Four cases were in males and two were in females. Two cases each were reported from the northern and southwest regions, and one case was reported from each of the northwest and central regions. All cases occurred between June and September. No deaths were reported in 2014 that were attributable to HUS.

Hepatitis A

Agent: Hepatitis A virus (HAV), a member of the Picornavirus family
Mode of Transmission: Ingestion of food or water contaminated by fecal matter or through close contact with an infected household member or sex partner.
Signs/Symptoms: Fever, malaise, nausea, abdominal discomfort, dark urine, joint pain, and jaundice. In older children and adults, symptoms usually occur for several weeks, though prolonged or relapsing liver disease can last up to six months. Younger children often exhibit no symptoms.
Prevention: Preventive measures include immunization, safe food preparation, and good personal hygiene (e.g., washing hands with soap after using the bathroom, after changing diapers, and before preparing and eating food). Administration of immune globulin (IG) after exposure to hepatitis A can protect against symptomatic infection.
Other Important Information: This is an acute illness only; chronic infection does not occur. A vaccine was first introduced in 1995 and is currently recommended for all children at the age of one year, persons who are at increased risk of infection (i.e., international travelers), and persons who are at increased risk for developing complications from hepatitis A.

Hepatitis A: 2014 Data Summary	
Number of Cases:	27
5-Year Average Number of Cases:	41.8
% Change from 5-Year Average:	-35%
Incidence Rate per 100,000:	0.3

In 2014, 27 cases of hepatitis A were reported in Virginia. This represents a 25% decrease from the 36 cases reported in 2013, and is 35% lower than the five-year average of 41.8 cases per year (Figure 23).



Cases ranged in age from five to 76 years. The incidence rate was highest in the 10-19 year age group (0.6 per 100,000). Rates among the other age groups ranged from 0.2 to 0.4 per 100,000 (Figure 24). Race information was provided for 67% of cases. Among cases with a known race, the incidence rate seen in the "other" race population was slightly higher (0.5 per 100,000) than the rates observed in the white and black race populations (0.2 and 0.1 per 100,000, respectively). Incidence among females (0.4 per 100,000) was comparable to the incidence observed in males (0.3 per 100,000).

By region, incidence was highest in the northern region (0.5 per 100,000) and lowest in the eastern region (0.1 per 100,000). Incidence by locality can be seen in the map below. Cases occurred throughout the year with four cases each having onset in January and August (Figure 25). Risk factors were identified for 33% of cases, all of whom reported travelling outside of the country prior to illness onset.

Figure 24. Hepatitis A: Rate by Age Group, Virginia, 2014

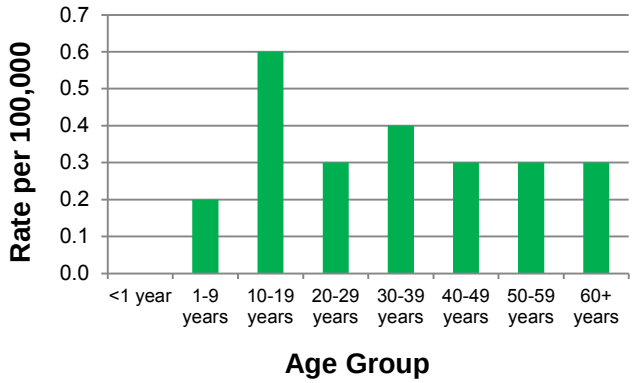
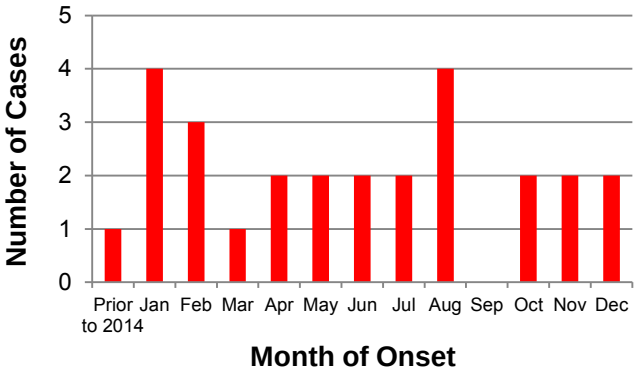
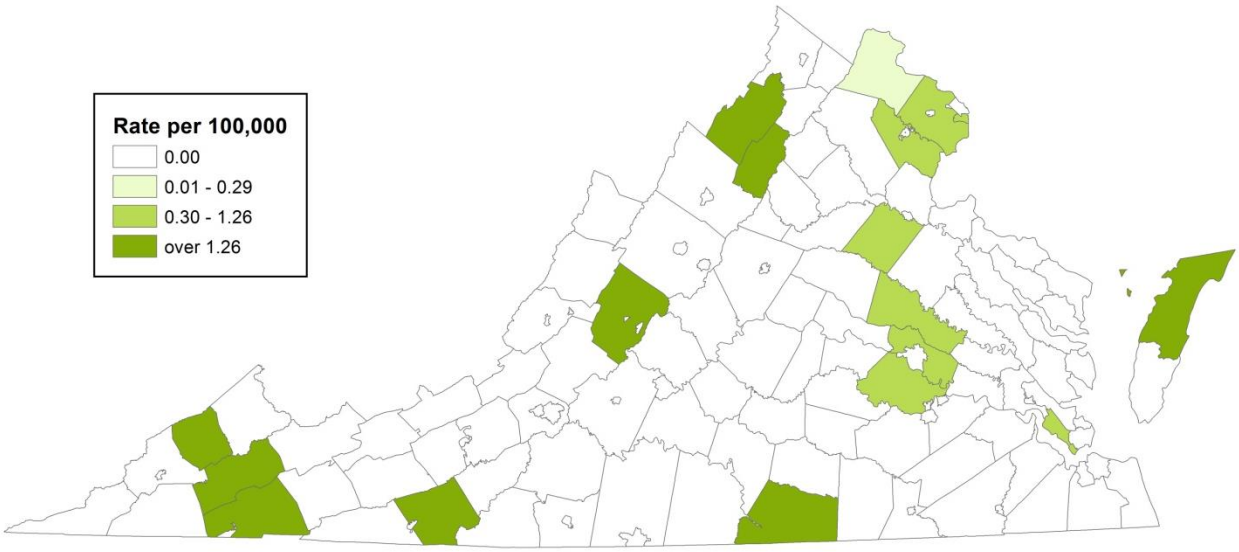


Figure 25. Hepatitis A: Month of Onset, Virginia, 2014



Hepatitis A Incidence Rate by Locality Virginia, 2014

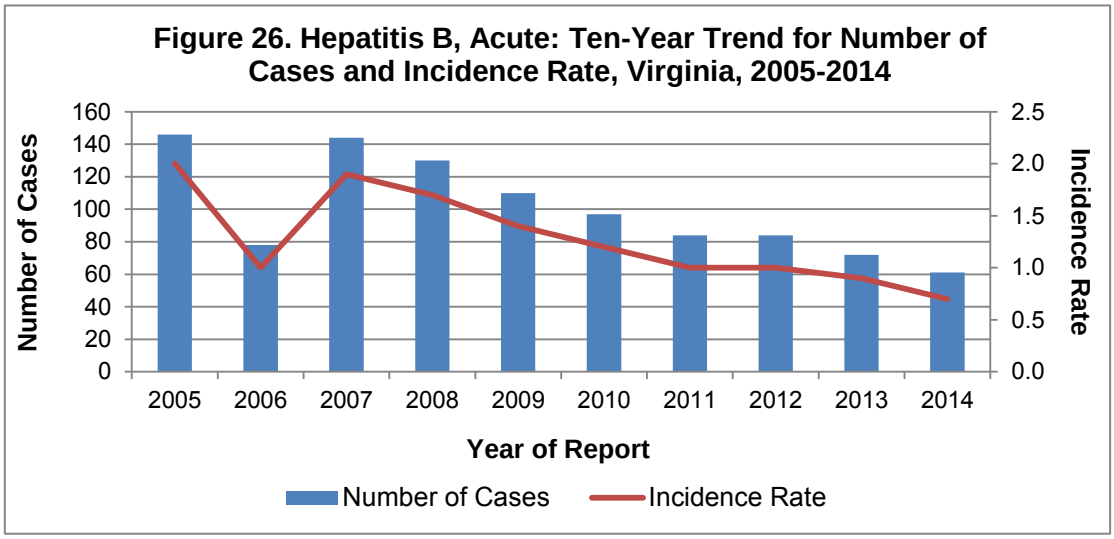


Hepatitis B, Acute

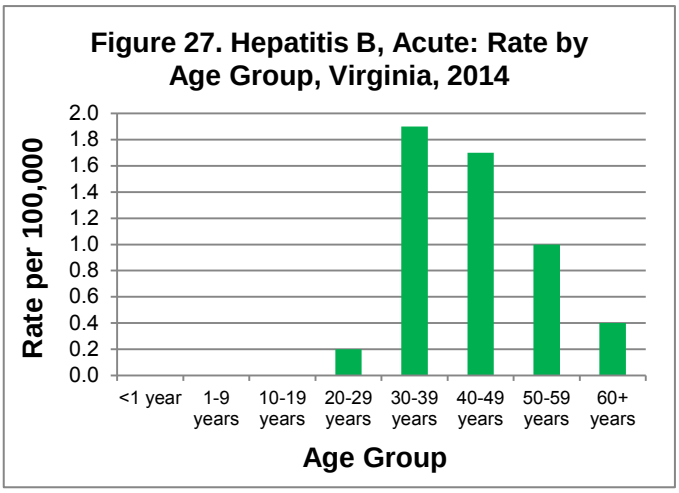
Agent: Hepatitis B virus (HBV), a hepadnavirus
Mode of Transmission: Person-to-person transmission through infected blood or body fluids (e.g., sexual, perinatal, or through the skin by nonsterilized needles or syringes).
Signs/Symptoms: Fever, fatigue, loss of appetite, nausea, abdominal pain, and jaundice. Infection can be asymptomatic. The likelihood of developing symptoms is age-dependent with adults and children over the age of five years being more likely to develop symptoms.
Prevention: Preventive strategies include immunization of people at increased risk of infection; screening of all pregnant women and treatment of children born to women who test positive; routine immunization of infants; routine immunization of adolescents who have not previously been immunized; and screening of donated blood and organs.
Other Important Information: Infection with hepatitis B virus can lead to chronic (i.e., long-term) infection. Persons who become infected at a younger age are more likely to develop chronic infection. Death from liver disease occurs in 15%-25% of those with chronic infection. A nationwide strategy to eliminate hepatitis B infection was initiated in 1991. It included vaccination of infants at birth, prevention of perinatal hepatitis B infections, vaccination of children and adolescents, and vaccination of adults at high risk of infection.

Hepatitis B, Acute: 2014 Data Summary	
Number of Cases:	61
5-Year Average Number of Cases:	89.4
% Change from 5-Year Average:	-32%
Incidence Rate per 100,000:	0.7

In 2014, 61 cases of acute hepatitis B infection were reported in Virginia, a decrease from the 72 cases reported in 2013. This also represents a 32% decrease from the five-year average of 89.4 cases per year (Figure 26), and continues the downward trend in the number of annual reported cases since 2007. The decrease in reported cases in Virginia reflects a national trend related to the availability of hepatitis B vaccine since 1981, and a strategy initiated in 1991 to eliminate hepatitis B transmission in the United States.

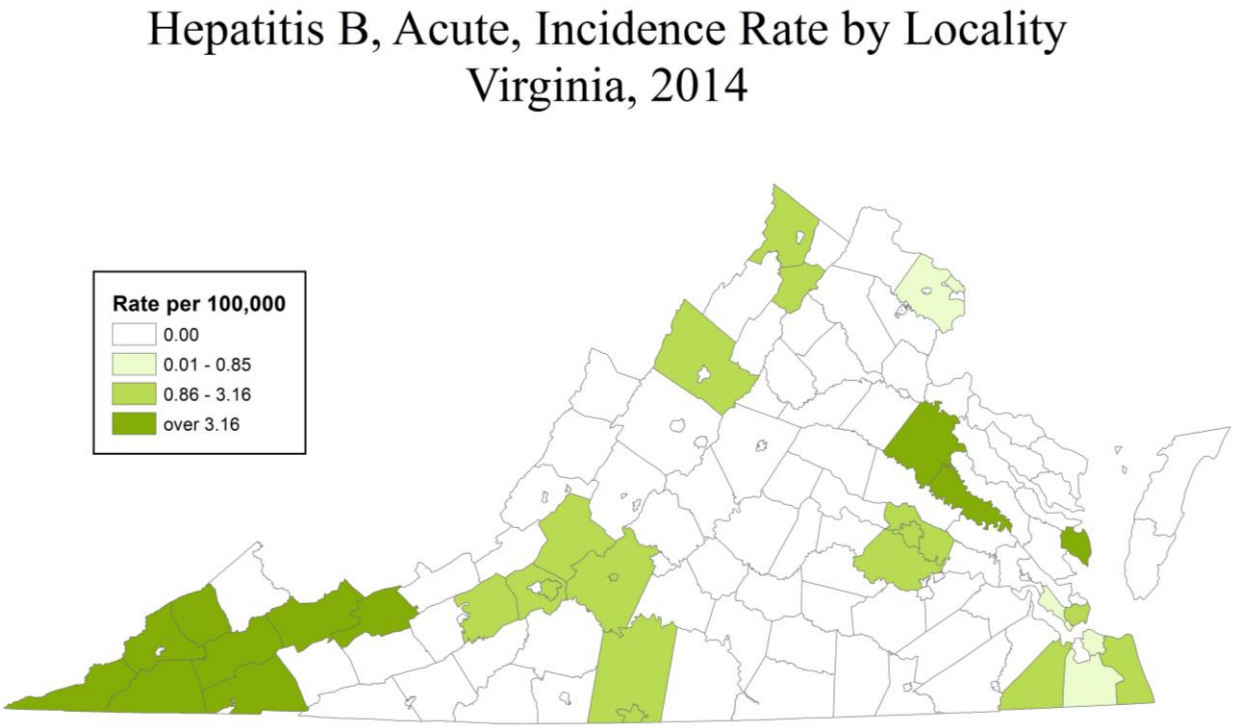


The highest incidence rate was observed in the 30-39 year age group (1.9 per 100,000), followed by the 40-49 year age group (1.7 per 100,000) (Figure 27). No cases were reported among individuals younger than 20 years of age. Race was not provided for 49% of cases. Among those with a known race, incidence was highest among the black population (0.5 per 100,000), followed closely by the white population (0.4 per 100,000), and those identified as "other" race population (0.2 per 100,000). The incidence rate among males was more than double the incidence observed in females (1.1 and 0.4 per 100,000, respectively).



The southwest region had a higher incidence rate for acute hepatitis B infections in 2014 (1.8 per 100,000) than any other region in Virginia (range 0.1 to 0.9 per 100,000). Notably, incidence rates in the far southwest area of that region were among the highest, with one locality observing incidence of 14.8 per 100,000 in 2014 (refer to map below). Disease onset occurred throughout the year. No acute hepatitis B outbreaks were reported in Virginia in 2014.

Risk factors were identified for 54% of hepatitis B cases, with multiple risk factors observed for some individuals. Of those with a known risk factor, recreational drug use was the most frequently reported risk behavior (42%). One death attributable to acute hepatitis B infection was reported in 2014. The death occurred in an adult male in the 40-49 year age group from the eastern region.

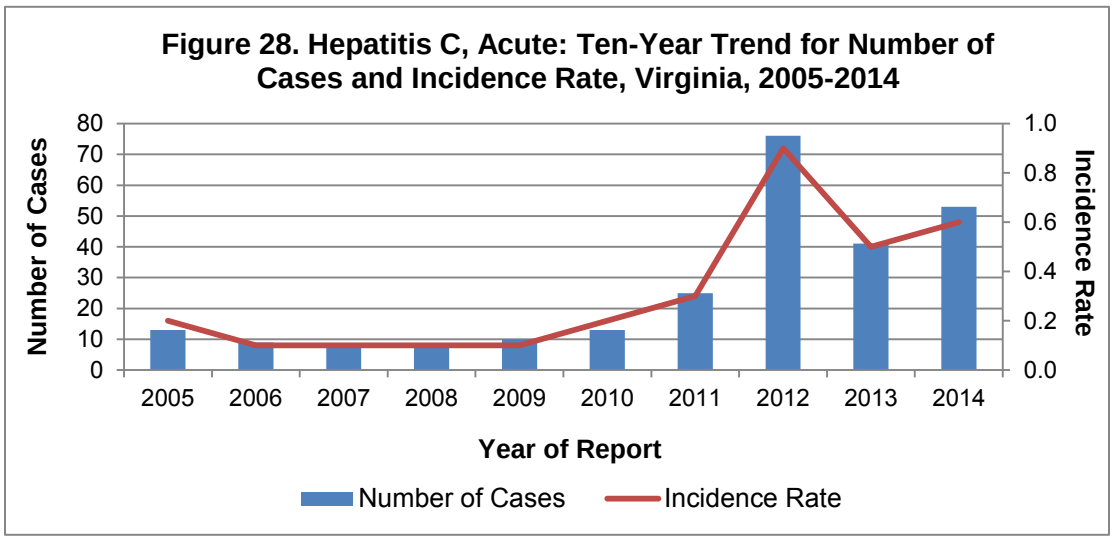


Hepatitis C, Acute

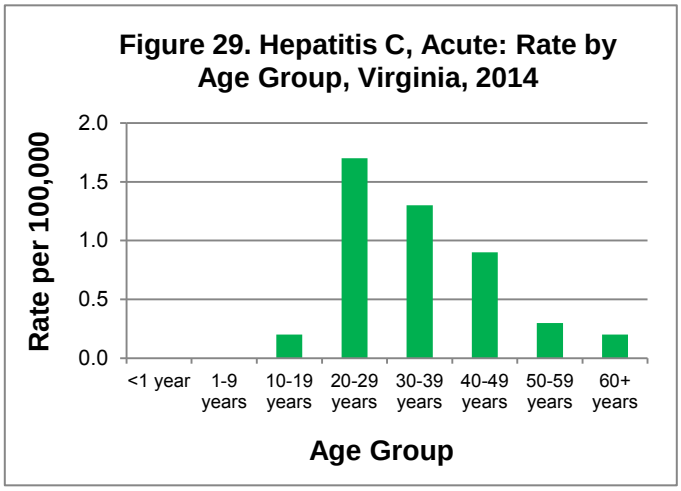
Agent: Hepatitis C virus (HCV), a member of the Flavivirus family
Mode of Transmission: Hepatitis C is primarily spread when blood from someone infected with HCV enters the body of someone not infected, usually by passing through the skin. The most common means of HCV infection in the U.S. is injection drug use, including the sharing of needles, syringes, or other equipment used to inject drugs. Infection can also occur from needlestick injuries in health care settings, or by being born to an HCV-infected mother. Infrequently, the virus can be spread by sharing personal items contaminated with infectious blood (razors or toothbrushes), or by having sexual contact with someone infected with HCV. Before 1992, when blood screening for HCV became available, receipt of donated blood, blood products, and organs was a common means of transmission. This is now a rare occurrence.
Signs/Symptoms: Often (70-80%) of the time, no symptoms occur. Fever, fatigue, loss of appetite, nausea, abdominal discomfort, and jaundice are common symptoms when they do occur.
Prevention: Preventive measures include avoiding behaviors that can spread the disease, including sharing needles or other equipment used to inject drugs. Standard precautions and infection control practices should be followed during all medical and dental procedures. Any body piercing or tattooing should take place in a licensed facility. Sharing of personal items potentially contaminated with blood, such as razors and toothbrushes, should be avoided. Safe sexual practices and not donating blood if infected with HCV are also recommended.
Other Important Information: HCV infections become chronic in 75-85% of cases. As people with chronic HCV infection age, they are at higher risk for developing chronic liver disease, such as cirrhosis and liver cancer. No vaccine is available to prevent HCV.

Hepatitis C, Acute: 2014 Data Summary	
Number of Cases:	53
5-Year Average Number of Cases:	33.0
% Change from 5-Year Average:	+61%
Incidence Rate per 100,000:	0.6

In 2014, 53 cases of acute hepatitis C infection were reported in Virginia, which represents a 29% increase from the 41 cases reported in 2013, and a 61% increase when compared to the 5-year average of 33.0 cases per year (Figure 28). The true incidence of this condition is likely to be increasing. However, incidence is difficult to assess because the data are also affected by changes that have been made in surveillance definitions, allowing cases to be counted based on laboratory criteria alone, leading to increased case counts while also acknowledging that cases are undercounted due to the large percentage of infections that go undetected because of the absence of symptoms.



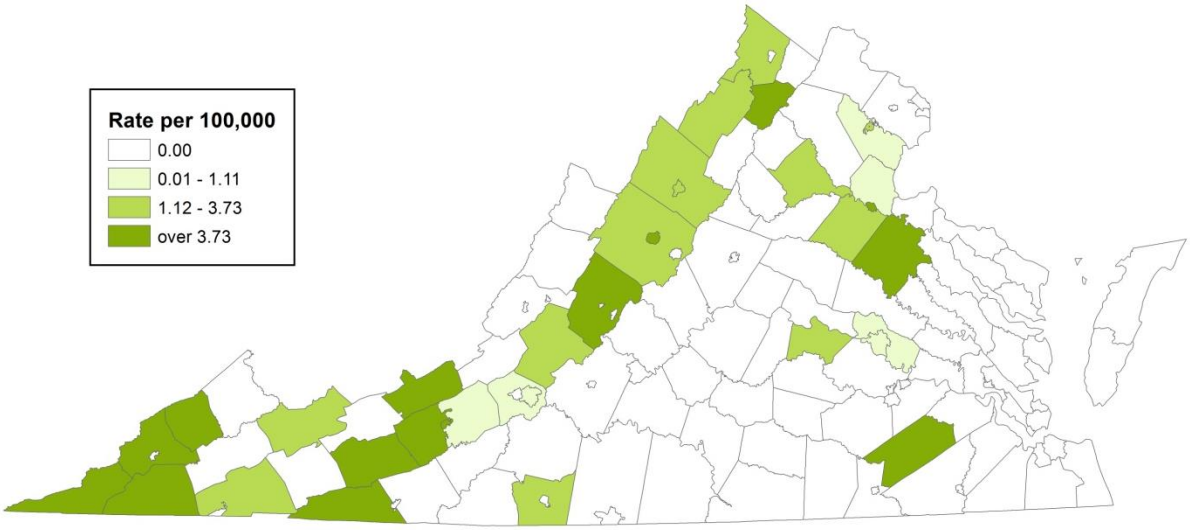
The highest incidence rate (1.7 per 100,000) occurred in the 20-29 age group, followed by the 30-39 year age group (1.3 per 100,000). No cases of acute hepatitis C infection were reported in persons less than 10 years of age (Figure 29). Race was available for 64% of cases. Among those with a known race, all were white (0.6 per 100,000). Incidence of acute hepatitis C infection among males was 0.8 per 100,000, while the incidence among females was 0.5 per 100,000.



Acute hepatitis C incidence rates were highest in the southwest region (1.9 per 100,000), followed by the northwest region (1.5 per 100,000), central region (0.4 per 100,000), and northern region (0.1 per 100,000). No cases of acute hepatitis C were reported in the eastern region. Incidence rates by locality can be seen in the map below. Disease onset occurred throughout the year with the majority of cases (66%) having onset in the first and second quarters of the year. No acute hepatitis C outbreaks were reported in Virginia in 2014.

Risk factor data were available for 49% of the cases, with some individuals reporting more than one risk factor. Among persons providing risk factor information, 62% reported intravenous drug abuse. No deaths reported in 2014 were attributable to acute hepatitis C infection.

Hepatitis C, Acute, Incidence Rate by Locality
Virginia, 2014



Human Immunodeficiency Virus (HIV) Disease and Acquired Immunodeficiency Syndrome (AIDS)

Agent: Human Immunodeficiency Virus (retrovirus)
Mode of transmission: Person-to-person via unprotected sexual intercourse, use of contaminated needles, blood transfusions and transplants with organs from infected donors, from mother-to-child before or during birth or through breastfeeding, or contact of cut or abraded skin with body secretions carrying the virus.
Signs/Symptoms: Initial infection with HIV can cause an acute illness or fever, muscle pain, enlarged lymph nodes, and/or a rash which occurs approximately 2-4 weeks post-exposure; however, a person can be asymptomatic for several years. When the immune system is affected, the infection develops into AIDS.
Prevention: Preventive measures include safe sexual practices; screening of blood and plasma; and among infected mothers, antiretroviral prophylaxis, cesarean delivery before labor, and avoidance of breastfeeding.
Other Important Information: Data analysis methods for HIV/AIDS were changed in 2009. Statistics are now presented for HIV disease rather than HIV and AIDS as separate conditions, as explained below. Additional information regarding the changes in analytical methods is available on the following web address: http://www.vdh.virginia.gov/epidemiology/DiseasePrevention/DAta/documents/Technical%20Notes%20and%20Glossary%20of%20Terms_Revised_04-2010.pdf. More detailed epidemiologic analyses of HIV/AIDS, as well as other sexually transmitted infections, is located at http://www.vdh.virginia.gov/epidemiology/DiseasePrevention/DAta/. Rapid tests (which provide results within 30 minutes) are becoming more widely available and are used at various testing sites in Virginia. For more information, call your local health department, or contact the Virginia Department of Health HIV/STD/Viral Hepatitis Hotline at 1-800-533-4148.

HIV Disease: 2014 Data Summary	
Number of Cases:	1,090
5-Year Average Number of Cases:	907.0
% Change from 5-Year Average:	+20%
Incidence Rate per 100,000:	13.2

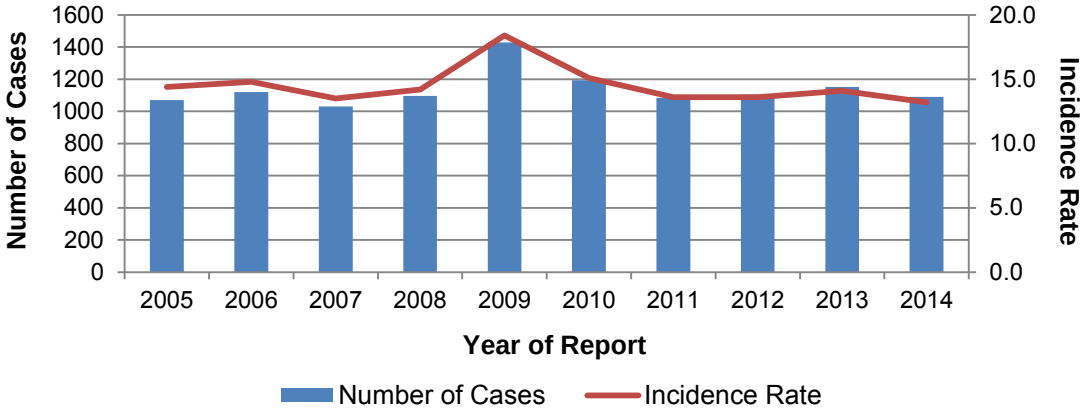
Change in Epidemiologic Analyses of HIV Disease

Beginning in 2009, VDH reassessed the way HIV and AIDS surveillance data were reported in order to better illustrate the epidemic in Virginia. Instead of approaching HIV and AIDS as two separate conditions of the same disease, it was found to be more helpful for epidemiologic and community planning purposes to evaluate all HIV and AIDS cases as one encompassing group: persons diagnosed or living with **HIV disease**. Before 2009, cases that were reported as having an AIDS-defining condition were excluded from the count of newly diagnosed HIV infections. Due to this change in methodology from previous years, those calculations pre-2009 are not comparable to calculations from 2009 and later, where HIV and AIDS are treated as one disease without considering disease

progression. Currently, any case that presents as having HIV or an AIDS-defining condition at the time of diagnosis is considered a newly diagnosed HIV disease case. It is not considered an incident case, however, as the person may have had HIV for a significant time prior to diagnosis. HIV incidence is measured through a separate surveillance process, which provides estimates for the state. The Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) method in combination with HIV testing and antiretroviral use history data are used to estimate HIV incidence. The STARHS method uses a laboratory test to classify newly diagnosed HIV cases as either recent (occurring approximately within the last five months) or long-standing HIV cases.

Figure 30 below displays the trend in new HIV diagnoses for the previous 10 years when the current methodology is applied to the entire 2005-2014 period. For a more thorough discussion of the changes in the analysis of HIV and AIDS surveillance data, please refer to the web site address listed in the "Other Important Information" section above.

Figure 30. HIV Disease: Ten-Year Trend for Number of Cases and Incidence Rate, Virginia, 2005-2014

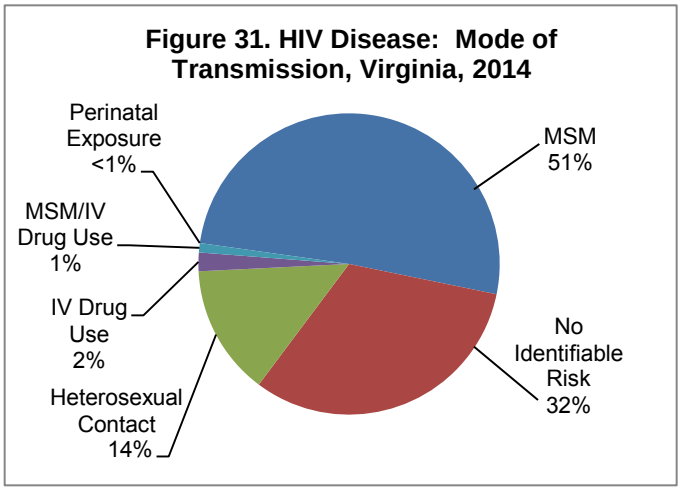


HIV Disease

In 2014, 1,090 cases of HIV disease were reported in Virginia, as illustrated in Figure 30. Although this represents a slight decrease (5%) from the 1,151 reported cases in 2013, the number of cases reflects the stability of new HIV disease diagnoses over the last several years. The statewide incidence rate of new HIV diagnoses was 13.2 per 100,000 in 2014.

The highest HIV incidence rates in 2014 occurred in the 20-29 year age group (34.6 per 100,000), followed by the 30-39 and 40-49 year age groups (21.8 and 17.4 per 100,000, respectively). The 20-29 year age group has consistently experienced the highest incidence rate of new diagnoses since 2007 and represented 38% of all new diagnoses in 2014. The HIV incidence among the black population was 37.2 per 100,000, almost seven times the rate of the white population (5.5 per 100,000) and twice the rate of those in the "other" race category (17.7 per 100,000). The "other" race category includes Asian/Hawaiian/Pacific Islanders, American Indian/Alaska Natives, and those cases categorized as multi-racial. Rates by race and ethnicity have remained relatively stable

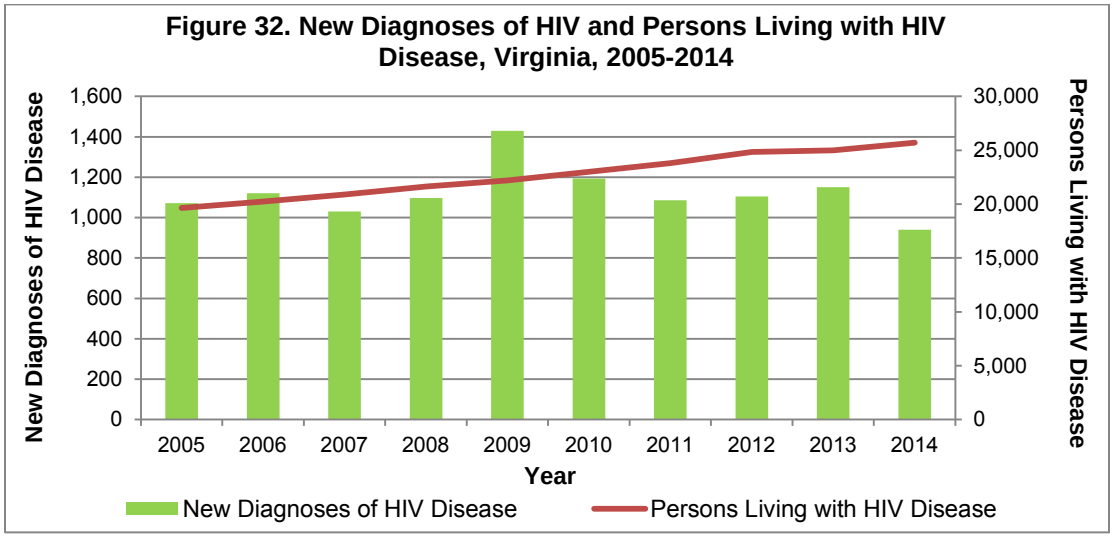
over the past few years. Males have consistently shown higher incidence rates of HIV disease compared to females across time, and were more than four times as likely as females to be diagnosed with HIV disease in 2014 (21.5 and 5.1 per 100,000, respectively). Among the five health regions in Virginia, the highest incidence rate of new HIV diagnosis was observed in the eastern region, with 20.1 per 100,000, followed by the central region, at 17.0 per 100,000. The lowest incidence among newly diagnosed cases in 2014 occurred in the northwest region (5.6 per 100,000). The localities that reported the five highest incidence rates in 2014 were all located within the eastern or central regions of the state, as displayed in the map below of HIV incidence rates by locality in Virginia.



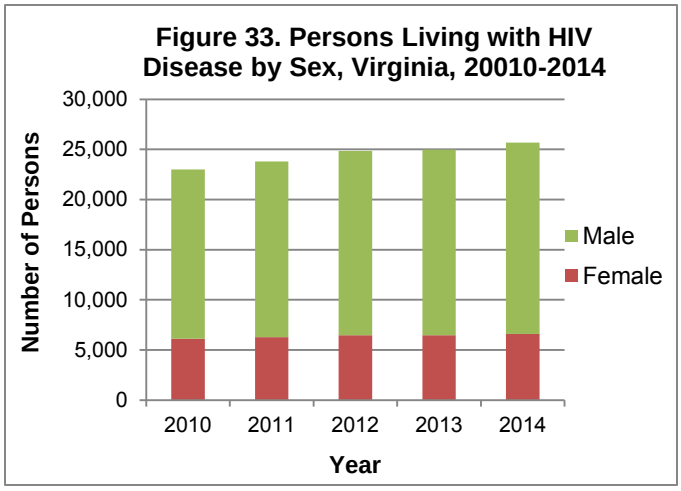
In 2014, the most frequently reported transmission category for HIV disease was men who have sex with men (MSM), which represented over half (51%) of the cases in Virginia (Figure 31). Among identified MSM cases, 50% were 20-29 years of age, a 3% increase from 2013, and 53% were black. Fourteen percent of the newly diagnosed cases for 2014 were attributed to heterosexual contact, and 2% to intravenous (IV) drug use. No specific risk factors for transmission were identified for 32% of new HIV disease diagnoses.

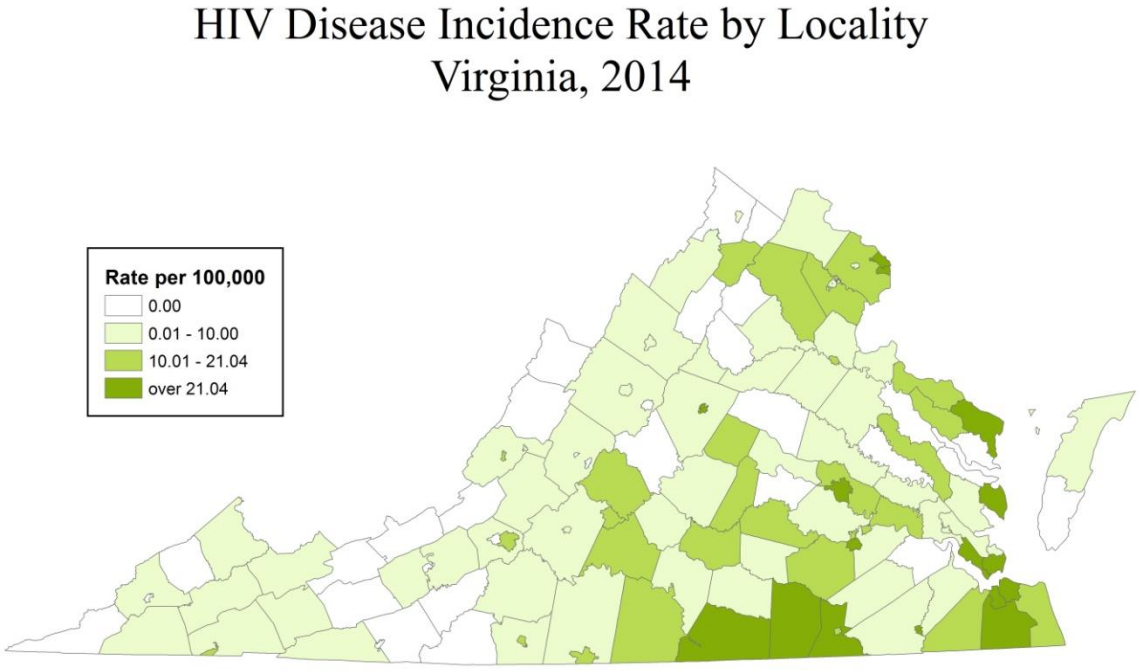
Persons Living with HIV Disease

Due to advances in medical therapies and care strategies, the number of persons living with HIV disease (PLWHA) has continued to increase. As of the end of 2014, persons known to be living with HIV disease in Virginia reached 25,690 (Figure 32).



Approximately three-quarters of PLWHA are male (Figure 33). In addition, 59% of persons living with HIV disease are between 40-59 years of age, 59% are black, 47% are attributed to male-to-male sexual contact, and approximately 60% of persons living with HIV disease are reported from the eastern and northern regions of the state. Approximately half of those living with HIV disease have also been diagnosed with an AIDS-defining condition.





Influenza

Agent: Influenza virus; Types A, B and (rarely) C cause human disease.
Mode of Transmission: Directly from person-to-person, primarily through inhalation of droplets released through coughing or sneezing. Less commonly, the influenza virus can be transmitted by contact with a contaminated object or surface and then touching one's mouth or nose.
Signs/Symptoms: Fever, headache, muscle pain, fatigue, sore throat and cough. Children may also have gastrointestinal symptoms, such as nausea, vomiting, or diarrhea. Complications of influenza can include lower respiratory tract involvement (e.g., bronchitis), viral or bacterial pneumonia, ear infections, sinus infections, dehydration, and worsening of chronic medical conditions, such as congestive heart failure, asthma, or diabetes.
Prevention: Annual vaccination is the primary prevention strategy; antiviral medications are supplemental to vaccine and may be used to prevent illness or lessen illness severity. Transmission may be reduced by washing hands frequently or using alcohol-based hand-sanitizers; avoiding touching the eyes, nose, and mouth with contaminated hands; and covering the nose and mouth with a tissue or the bend of the elbow when coughing or sneezing. Persons who are sick with influenza symptoms are encouraged to stay home to avoid spreading the disease to others.
Other Important Information: The influenza virus changes slightly from year to year (antigenic drift), making it necessary to prepare a new vaccine each year. Periodically, the virus will change to form a completely new subtype (antigenic shift), which can lead to pandemics.

Influenza Surveillance

In Virginia, influenza surveillance is conducted throughout the year. However, efforts are most intensively focused during the period of highest influenza activity, which normally begins in early October (week 40) and ends in late May (week 20). Surveillance efforts in Virginia do not count every individual case of influenza, but instead monitor indicators of illness within the community. For the 2014-2015 influenza season, data sources included visits for influenza-like illness to hospital emergency departments and urgent care centers, laboratory reports, evaluations of outbreak investigations, influenza-associated pediatric deaths, and school absenteeism. These data sources are used to determine weekly influenza levels, provide insight on the severity of illness, and characterize influenza virus subtypes circulating in the community.

National Overview of 2014-2015 Influenza Season

According to the Centers for Disease Control and Prevention (CDC), during the 2014-2015 influenza season, influenza A (H3N2) viruses predominated. Smaller numbers of B and A (2009 H1N1) influenza viruses were also identified. Although this season had lower rates of death for influenza-like illness compared to recent years, hospitalization rates among patients aged 65 years and older were higher.

Most of the influenza A (H3N2) circulating viruses were different from the strain contained in the 2014-2015 influenza vaccine. Nationally, of 1,324 influenza A (H3N2) viruses tested by the CDC, only 19% (246) were antigenically similar to the strain contained in the vaccine. On the

other hand, all of the influenza A (2009 H1N1) viruses, 98% of the influenza B (Yamagata lineage) viruses, and 98% of the influenza B (Victoria lineage) viruses tested by the CDC were antigenically similar to the 2014-2015 vaccine components.

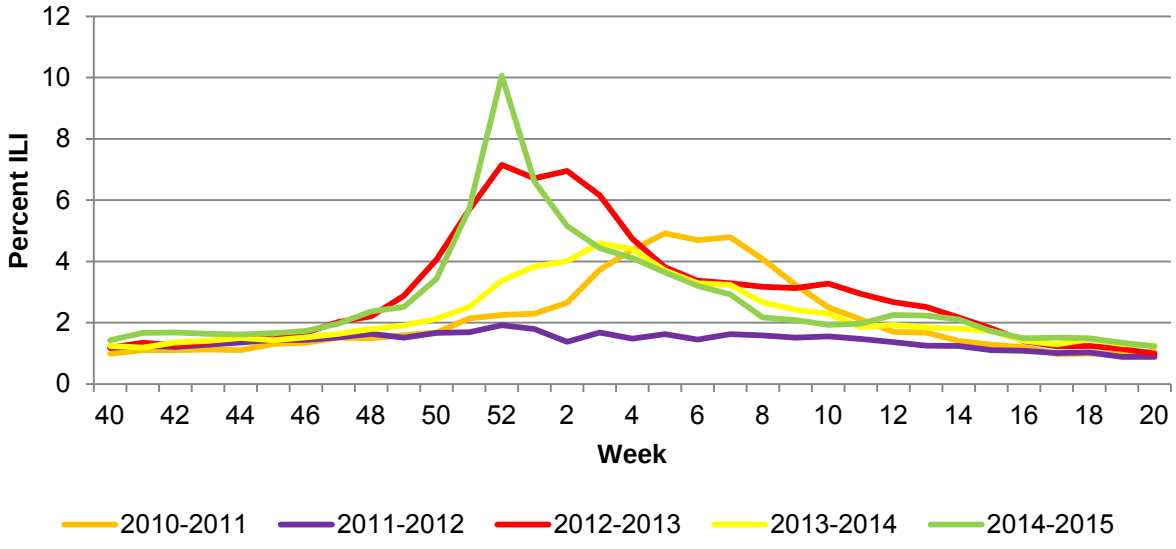
Since the vaccine was not as well-matched to circulating viruses as in previous seasons, the 2014-2015 influenza vaccine offered reduced protection against most circulating influenza strains. Based on data collected from November 10, 2014 through January 30, 2015, the CDC determined that the 2014-2015 influenza vaccine was 19% [95% confidence interval (CI) = 7%–29%] effective in preventing medical visits against all influenza across all age groups, and was 18% (CI = 6%–29%) and 45% (CI = 14%–65%) effective in preventing medical visits associated with influenza A (H3N2) and influenza B (Yamagata lineage), respectively.

Influenza-like Illness Surveillance

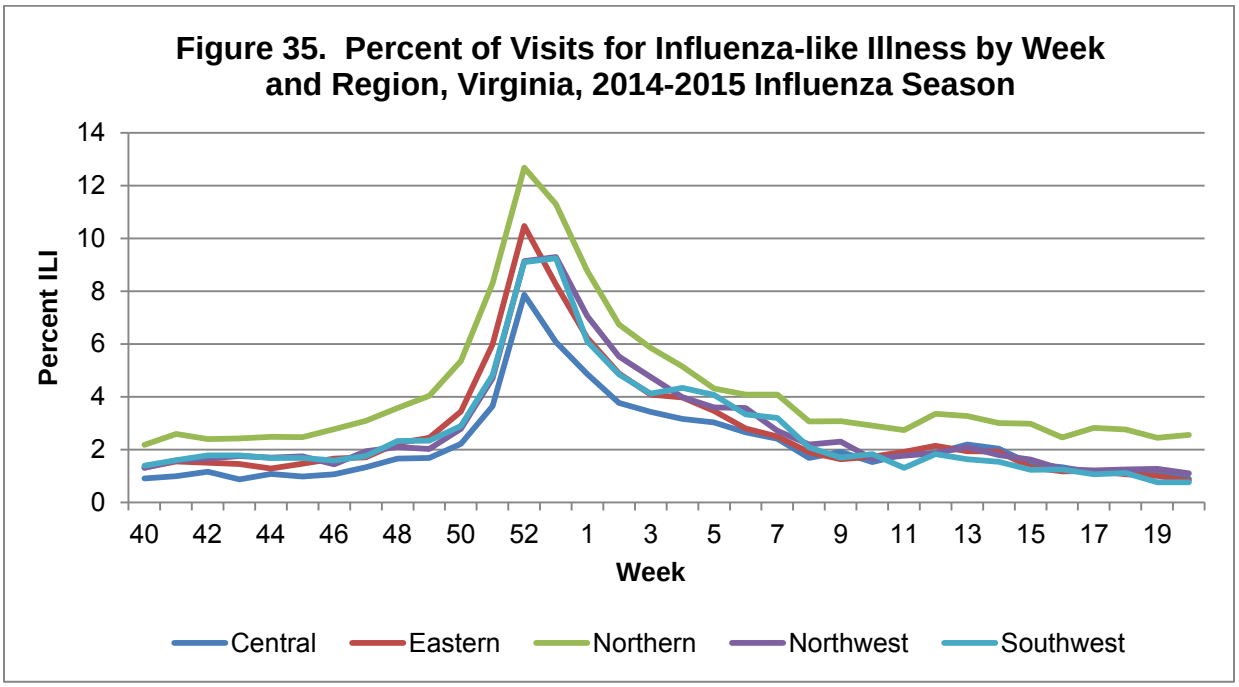
The Virginia Department of Health (VDH) receives information regarding patient visits to emergency departments and urgent care facilities for influenza-like illness (ILI) symptoms. ILI symptoms include a complaint of fever and cough, or fever and sore throat. Other illnesses may show similar symptoms, but the strategy has proven to be a reliable indicator of influenza activity during flu season. During the 2014-2015 influenza season, 133 emergency department and urgent care facilities provided data to VDH for surveillance monitoring.

Nationally, the weekly percentage of outpatient visits for ILI to healthcare providers participating in the Outpatient Influenza-Like Illness Surveillance Network (ILINet) was at or above the national baseline level of 2% for 20 consecutive weeks during the 2014-2015 influenza season. Across the U.S., the peak percentage of outpatient visits for ILI was 6%, and occurred in late December (week 52). In Virginia, the proportion of patient visits for ILI during the 2014-2015 season peaked at 10% during the week ending December 27, 2014 (week 52) (Figure 34).

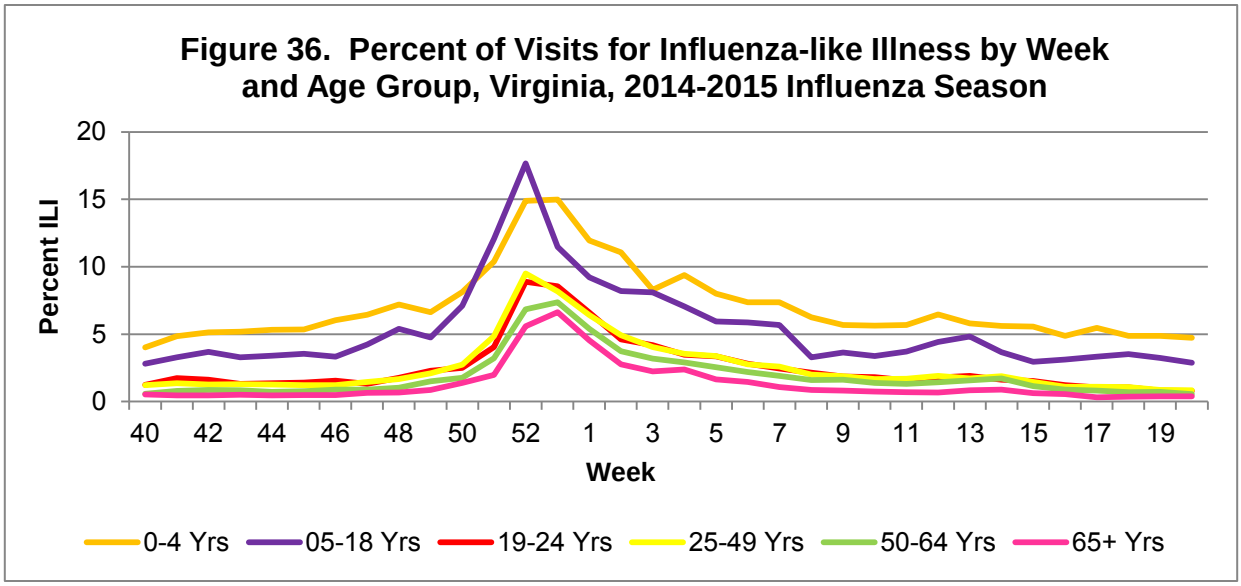
Figure 34. Percent of Visits for Influenza-like Illness by Week, Virginia, Comparison of Five Influenza Seasons



ILI activity in each of the health planning regions peaked in late December/early January (weeks 52 or 53), with the northern region experiencing the highest proportion of visits for ILI (12.7%) (Figure 35). The peak ILI proportions in the other regions were as follows: eastern, 10.5%; northwest, 9.3%; southwest, 9.2%; and central, 7.9%.



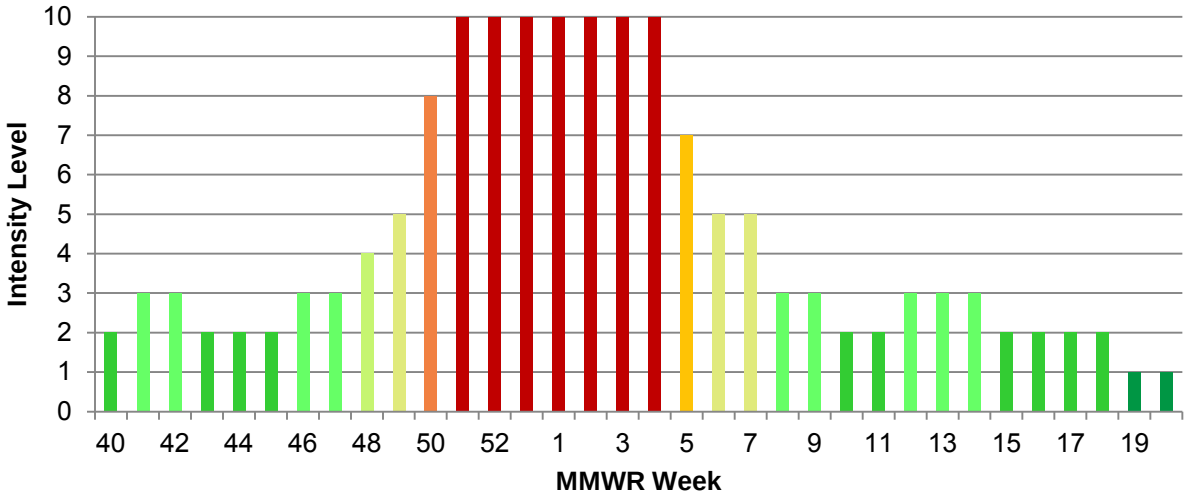
Analyzing ILI activity by age provides additional insight into disease patterns. While influenza vaccination efforts have historically often targeted the elderly due to concerns over complications of infection, the youngest age groups show the largest proportions of healthcare visits to emergency departments and urgent care facilities for ILI. Specifically, the largest proportion of visits due to ILI occurred in the 5-18 year age group during week 52 (17.7%). For all other weeks during the influenza season, the 0-4 year age group experienced the largest proportion of visits due to ILI. The smallest proportion of visits for ILI occurred in the 65 years and older age group (Figure 36).



Influenza Intensity Levels

CDC reported weekly influenza intensity levels (ranging from 1 to 10) by state. This measure, introduced during the 2010-2011 season, is calculated by comparing the percent of patient visits due to ILI for that week to the average proportion of ILI visits that occurred during a designated baseline period for which there is minimal or no influenza virus circulation. During the 2014-2015 season, influenza intensity in Virginia slowly increased during the fall and reached high intensity levels in mid to late December, with a notable increase from low to high between weeks 49 and 50. The level remained at high intensity for an eight week period, staying at 10 throughout the month of January. In early February, the intensity level decreased to moderate, and then reached low intensity by the middle of the month. During the previous 2013-2014 season, influenza activity also gradually increased during the fall and reached high intensity levels in late December. The level remained at 10 for a 2 week period that season, decreased to moderate in early February, and reached low levels during late February and early March. Influenza intensity levels for Virginia for the 2014-2015 season are presented by week in Figure 37.

Figure 37. ILINet Activity Indicator, Intensity Level by Week, Virginia, 2014-2015 Influenza Season

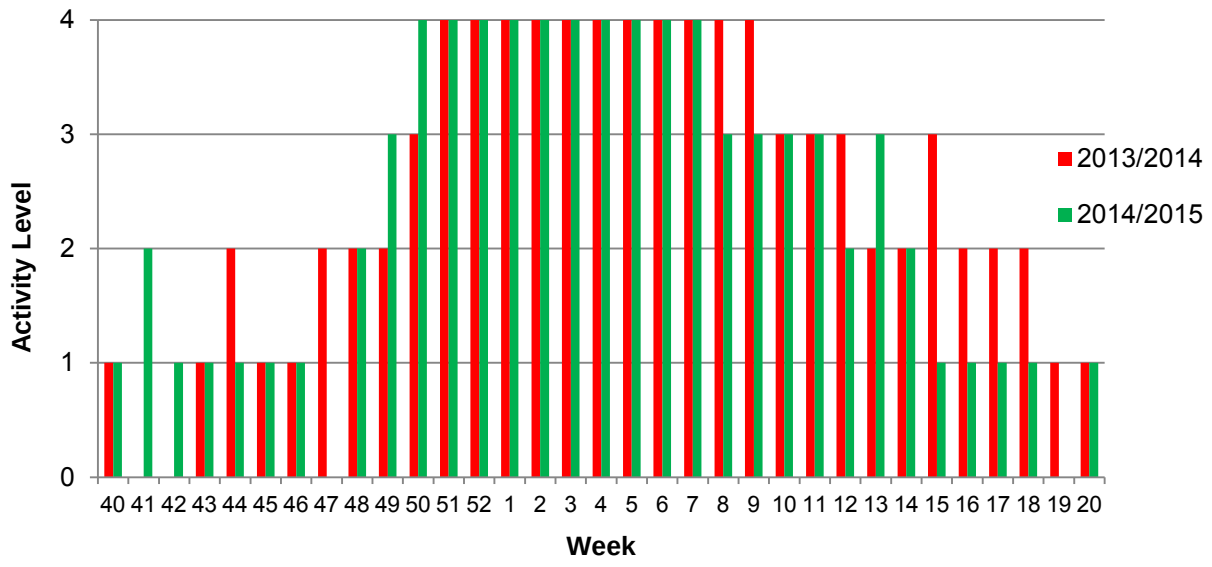


Influenza Activity Levels

Virginia follows CDC guidelines to describe the geographic distribution of influenza activity. The weekly activity level is based on ILI data, laboratory findings, and outbreak occurrences, and is classified into the following categories: no activity, sporadic, local, regional, or widespread. The levels are not indicators of the severity of influenza illness but instead serve as a gauge for the geographic distribution of influenza activity around the state. Six weeks of ILI data, collected during the summer months of July through September, are used to establish baseline thresholds for the five health planning regions. ILI activity is considered elevated when visits in a region exceed the regional threshold.

The 2014-2015 influenza season began with a level of sporadic influenza activity in early October and increased to local influenza activity during week 41. The influenza activity level returned to sporadic for five weeks (weeks 42-46), dropping to no activity during week 47. Virginia reached widespread activity in late December (week 50) and remained widespread for 11 weeks until late February (Figure 38). This is equal to the number of weeks of widespread activity reported during the 2013-2014 season and is similar to the average of the past five influenza seasons (10 weeks).

Figure 38: Comparison of Weekly Influenza Activity Levels in Virginia for the 2013-2014 and 2014-2015 Influenza Seasons



Data are presented by week, with the first Sunday to Saturday week in January as week 1

Activity Levels: 0=No Activity 1=Sporadic 2=Local 3=Regional 4=Widespread

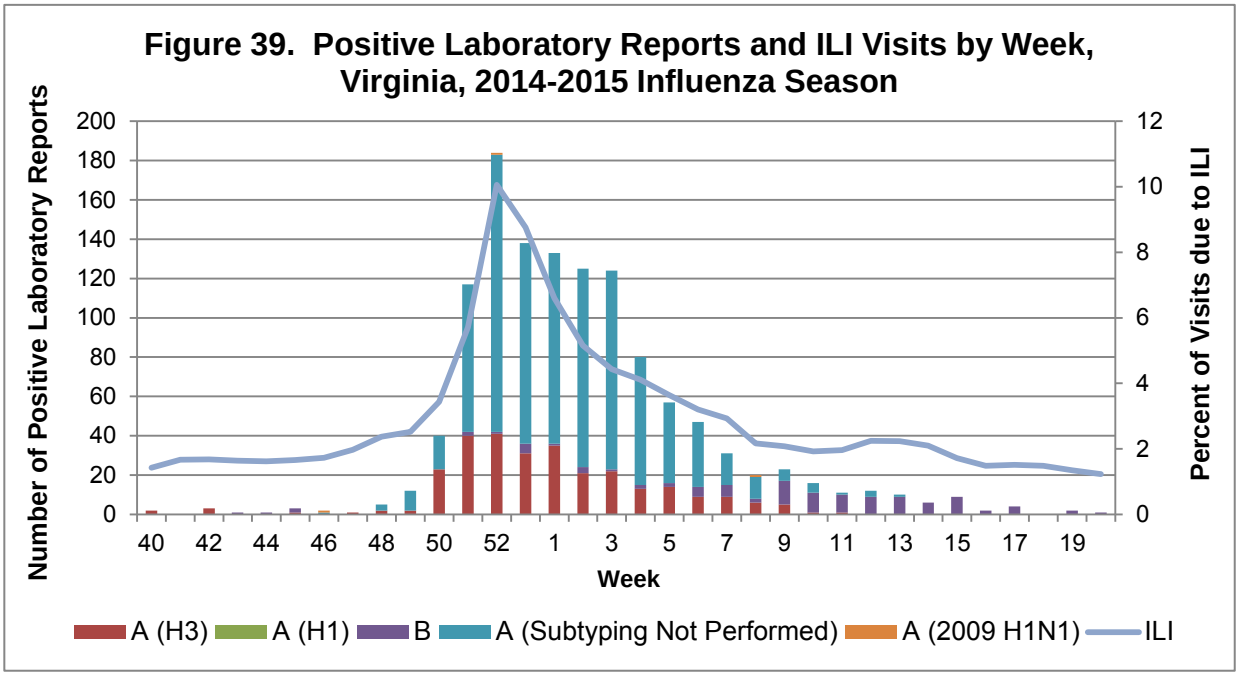
Laboratory Surveillance

Laboratory surveillance for influenza uses findings from three testing procedures: DFA (direct fluorescent antibody), PCR (polymerase chain reaction) and viral culture. Rapid antigen tests are not included. Information is obtained from specimens submitted by sentinel providers, specimens obtained during outbreaks, influenza reporting by private laboratories, and laboratory findings from Virginia facilities participating in the National Respiratory and Enteric Virus Surveillance System (NREVSS).

Sentinel providers include private physicians and medical facilities located throughout Virginia. Statewide representation is achieved through the efforts of health districts to enlist providers from their area. During the influenza season, sentinel providers submit specimens from patients with ILI to the Virginia Division of Consolidated Laboratory Services (DCLS) for analysis. Regular sentinel providers were asked to submit two specimens per week from patients exhibiting influenza-like illness.

During the season, influenza A (subtyping not performed), A (H3), A (2009 H1N1) and B were all circulating in the state, as shown in Figure 39. Influenza A (H3) viruses predominated during the 2014-2015 influenza season. Laboratory tests indicated that 91% of positive influenza findings were influenza A (all subtypes) and 9% were influenza B. This is similar to the 2013-2014 season where 92% of viruses were identified as influenza A (all subtypes) and 8% as influenza B. As more providers have gained access to quicker, more reliable testing methods such as PCR, the volume of confirmatory testing has increased substantially. During the 2014-

2015 season, Virginia received more than 1,200 unique confirmatory influenza laboratory reports. This is nearly three times the number of confirmatory reports received during the 2013-2014 season.



Influenza Outbreaks

During the 2014-2015 season, 152 influenza outbreaks were reported to VDH. In comparison, 30 outbreaks of influenza were reported during the 2013-2014 season, and 163 reported during the 2012-2013 season. Specimens from 120 influenza outbreaks tested positive for the influenza virus (by rapid test or confirmatory lab report), confirming 47 (39%) as influenza A (H3)-associated, 55 (43%) as influenza A-associated, 2 (2%) as influenza B-associated, and 16 (13%) as unspecified subtype. No outbreaks were attributed to influenza A (2009 H1N1). The first confirmed influenza outbreak was reported in early October and occurred in a nursing home in the northwest region. During the previous season, the first outbreak occurred much later in the season (mid-December). During the 2014-2015 season, outbreaks were reported from 43 assisted living facilities, 32 schools (K-12), 5 pre-school facilities, 2 independent living facilities, and 2 adult daycare programs. Nearly half of the reported influenza outbreaks (45%, 68 outbreaks) occurred in healthcare facilities (nursing homes or other medical facilities that are not related to long-term care). By region, the largest percentage of outbreaks (28%, 43 outbreaks) were reported from the northwest region, followed by the southwest and central regions (22% each, 34 and 33 outbreaks, respectively), northern region (15%, 23 outbreaks), and eastern region (13%, 19 outbreaks). An average of 26 cases was associated with each influenza outbreak, with a range of 2 to 215 cases per outbreak. A total of 228 hospitalizations were associated with these outbreaks.

Influenza-associated Deaths

Virginia disease reporting regulations require physicians and directors of medical care facilities to report suspected or confirmed influenza-associated deaths in children less than 18 years of age to allow monitoring of this severe outcome of influenza illness. Five pediatric influenza-associated deaths were reported during the 2014-2015 influenza season. The first and second deaths occurred in pre-school age children (0-4 years) from the eastern region. Both children tested positive for influenza A (H3). The third death occurred in a young school-age child (5-12 years) from the northern region due to influenza A (rapid test). The fourth death occurred in a teenage child (13-17 years) from the central region and was due to influenza A (rapid test). The fifth death occurred in a young school-age child (5-12 years) from the eastern region. Influenza A was identified by rapid test. During the 2013-2014 influenza season, four pediatric influenza-associated deaths were reported.

School Absenteeism

School absenteeism surveillance was added to influenza surveillance in Virginia during the 2009-2010 pandemic season, and continues because of the valuable insights it provides. Information on absenteeism is voluntarily submitted by school divisions daily and made available to health districts to identify emerging problems and monitor potential influenza activity in their communities. Centrally, it is evaluated by region and school level (elementary, middle, and high school) for unusual patterns. During the 2014-2015 season, school divisions provided absenteeism data for 307 schools. While school absenteeism provides a general, but not influenza-specific measure of illness, school absenteeism data are useful for monitoring illness activity and identifying schools with possible outbreaks during the influenza season.

Unique Presentations of Influenza-Like Illness

Influenza-Associated Parotitis

During the 2014-2015 season, the CDC was notified of an occurrence of parotitis (swelling of parotid gland or salivary glands) in persons with lab-confirmed influenza. This uncommon influenza complication, called influenza-associated parotitis, was diagnosed in patients who had lab-confirmed influenza, clinical diagnosis or clinical signs and symptoms of parotitis, and symptom onset on or after October 1, 2014.

In Virginia, 10 cases of influenza-associated parotitis were identified. Of these, seven were positive for influenza A (H3) by PCR, one was positive for influenza A by rapid testing, and two were positive for influenza by rapid testing (unspecified if A or B). Influenza-associated parotitis predominantly affected children and young adults (mean age = 16 years, median age = 18 years, range = 1-33 years). The majority of cases (80%) were male; two (20%) were female. Of the five health planning regions, three were affected, with six cases (60%) reported from the central region, three cases (30%) from the northwest region, and one case (10%) reported from the northern region. An additional case was identified in a Virginia hospital but was determined to be in a resident of West Virginia.

Influenza-Associated Rash

The 2014-2015 influenza season also saw an unusual manifestation of morbilliform (i.e., maculopapular) rash in individuals with laboratory-confirmed influenza in several states. VDH initiated enhanced surveillance to identify individuals with morbilliform rash who were negative for measles (by IgG, IgM antibody serology, or PCR test), had lab-confirmed influenza (by rapid diagnostic test, fluorescent antibody, enzyme immunoassay, PCR test, or viral culture) and had onset of rash and influenza-like illness on or after October 1, 2014.

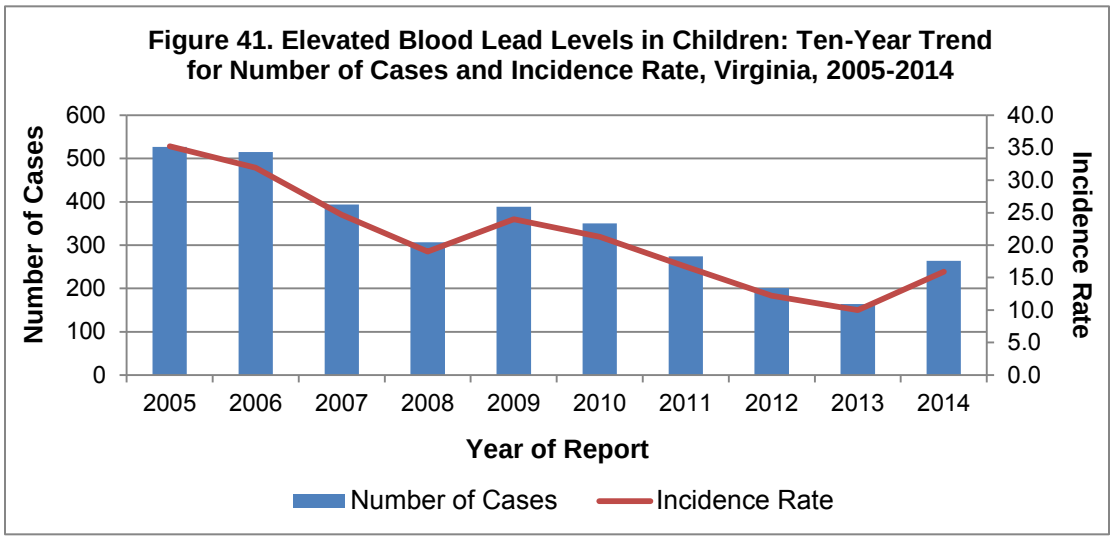
Three cases of morbilliform rash associated with influenza were identified in Virginia. One case occurred in a male school-age child (5-18 years) from the central region and two cases, one male and one female, were identified in older adults (50-64 years) from the northwest region.

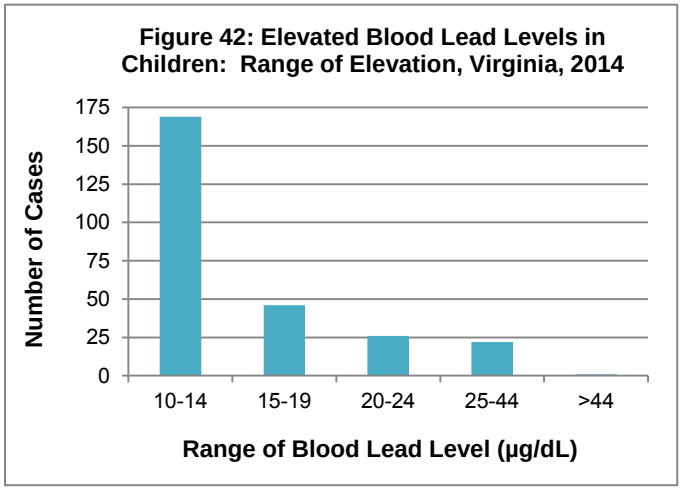
Lead - Elevated Blood Levels in Children

Agent: Lead (metal)
Mode of Transmission: Chewing objects painted with lead paint; ingesting contaminated soil, food, or water; inhaling contaminated air or dust; or using glassware, healthcare products or folk remedies containing lead.
Signs/Symptoms: Even at low levels, lead in children can cause nervous system damage, learning disabilities (decreases in intelligence quotient, attention deficit hyperactivity disorder), behavior problems (withdrawn behavior, issues with sociability), muscle weakness, decreased growth, delays in puberty, hearing damage, or anemia. Children who ingest large amounts of lead can develop kidney and brain damage. Furthermore, children can appear healthy despite having high levels of lead in their blood.
Prevention: Ingestion of lead-contaminated materials and use of lead-containing objects should be avoided. Education of healthcare professionals and parents is important in detecting and reducing lead exposure. Some recommendations for parents include refraining children from playing in bare soil and providing them with sandboxes; cleansing children's hands and faces often in order to eliminate lead dust and soil; and having children tested for lead as a general precaution. Parents who have an occupation or hobby that might involve lead should wear personal protective equipment, shower before leaving work, and avoid bringing lead contaminated clothes into the home.
Other Important Information: Children are more sensitive than adults to the toxic effects of lead. There is no proven safe level of lead in blood. Elevated blood lead levels at or above 10 micrograms per deciliter (μg/dL) are reportable in children aged 15 years or younger in Virginia. The primary source of lead for children is exposure to deteriorated paint in housing built before 1978. There is a need for increased awareness of additional sources of lead exposures, including improper renovation of older homes; imported toys manufactured with lead paints or components; candies popular among some ethnic groups; traditional Hispanic, Indian, and Middle Eastern folk remedies; and ceramics from foreign countries that use lead glazes.

Lead – Elevated Levels in Children: 2014 Data Summary	
Number of Cases:	264
5-Year Average Number of Cases:	275.6
% Change from 5-Year Average:	-4%
Incidence Rate per 100,000:	15.9

In 2014, there were 264 newly reported cases of elevated blood lead levels in children. This represents a 61% increase from the 164 cases reported in 2013, and a 4% decrease from the five-year average of 275.6 cases per year (Figure 41). Blood lead results on approximately 66,500 children were received by VDH in 2014. Continued improvement in reporting of specimen type (e.g., capillary or venous) by physicians and laboratories has enhanced interpretation of test findings, reduced ambiguity, and yielded more accurate information on the number of children with confirmed elevated blood lead levels.

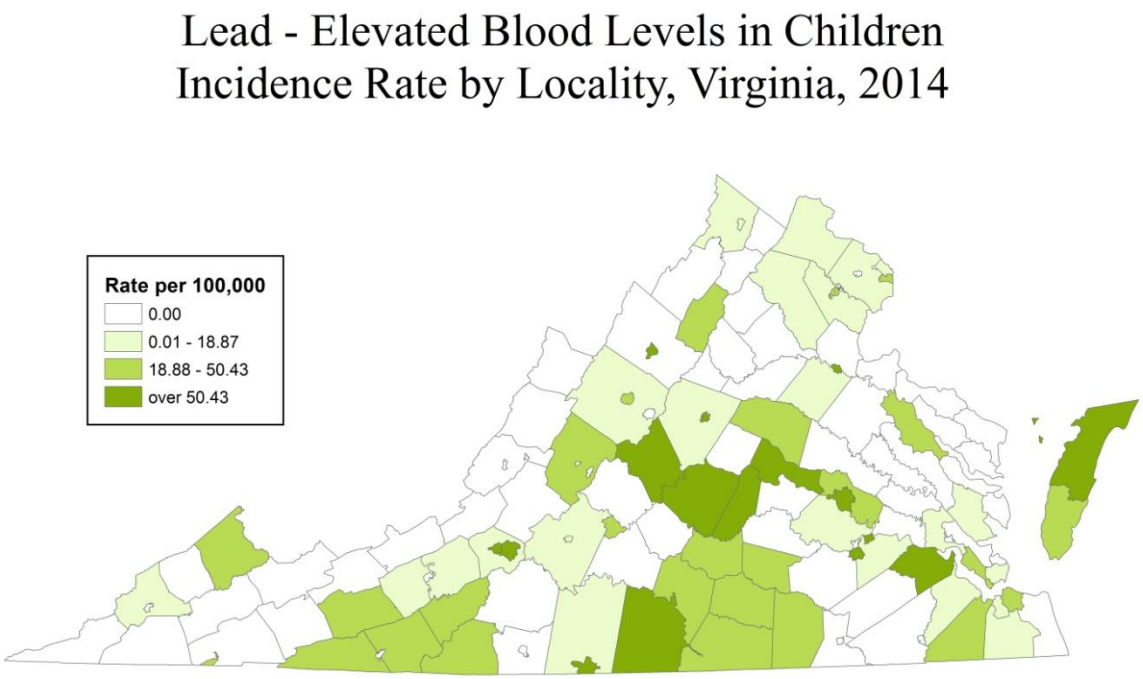




Based on guidance in place in 2014, blood lead levels in the 10-14 µg/dL range were considered above normal, but only required lead awareness education and follow-up monitoring. Blood lead levels in the 15-19 µg/dL range required nutritional and environmental education, as well as additional testing to ascertain if the blood lead level was increasing or persistently elevated. Blood lead levels greater than 20 µg/dL required greater degrees of case management, the initiation of an environmental investigation to identify and eliminate lead hazards, and the possibility of medical intervention. Among the 264 children reported with elevated blood lead levels in 2014, 169 (64%) had confirmed blood lead levels in the 10-14 µg/dL range, 46 (17%) had levels in the 15-19 µg/dL range, 26 (10%) had levels in the 20-24 µg/dL range, 22 (8%) had levels in the 25-44 µg/dL range, and 1 (<1%) had a level above 44 µg/dL (Figure 42).

By age, the majority (88%) of elevated blood lead levels and the highest incidence rate occurred in those aged 1-9 years (232 cases, 24.9 per 100,000), followed by infants (25 cases, 24.3 per 100,000). Rates were lower in 10-15 year olds (1.1 per 100,000). Race was not provided for 49% of cases. Among those with a known race, incidence among the "other" race population was nearly double that of the black population (23.6 versus 13.5 per 100,000, respectively), while the white population had an incidence rate of 4.3 per 100,000. Incidence rates among males and females were similar (16.0 and 15.5 per 100,000, respectively). Geographically, incidence rates ranged from a high of 28.4 per

100,000 in the central region to a low of 11.8 per 100,000 in the northern region, resulting in a statewide incidence rate of 15.9 per 100,000 for children less than sixteen years of age. Incidence rates by locality can be seen in the map below.

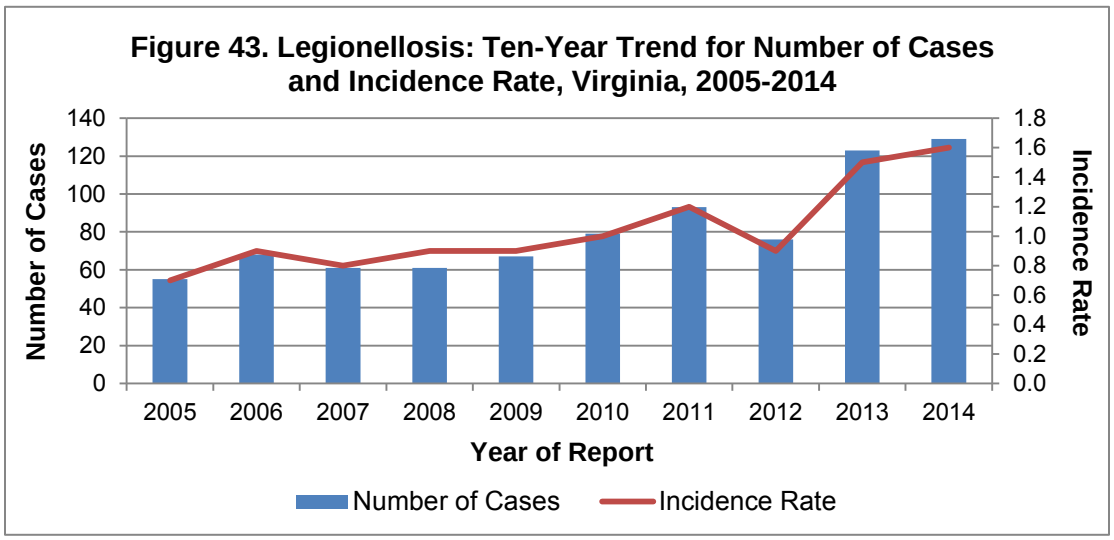


Legionellosis

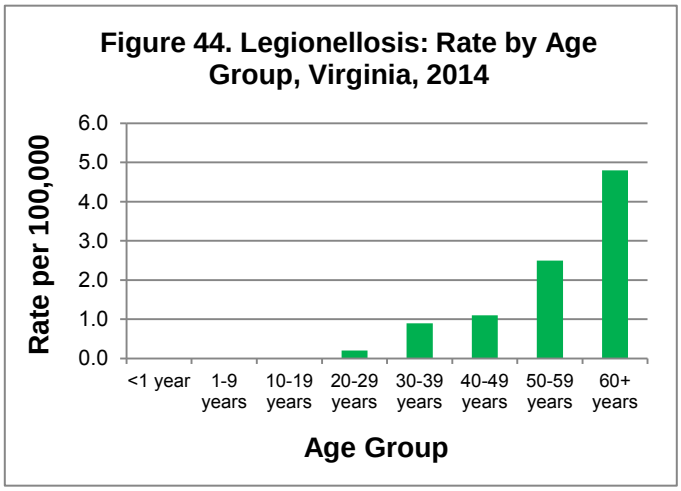
Agent: *Legionella* species (bacteria); most infections in the United States are caused by *Legionella pneumophila*
Mode of Transmission: Inhalation of contaminated aerosolized water (e.g., sprays, mists).
Signs/Symptoms: Infection with *L. pneumophila* causes two distinct illnesses: Legionnaires' disease, characterized by fever, muscle aches, headaches, malaise, cough, and pneumonia with progressive respiratory distress; and Pontiac fever, a milder influenza-like illness without pneumonia characterized by quick onset. Pontiac fever and Legionnaires' disease are referred to as "legionellosis", separately or together.
Prevention: For outbreaks, control measures include disinfection of contaminated water sources by chlorination or superheating of water from 160° to 170°F, and appropriate mechanical cleaning.
Other Important Information: Legionellosis is more common among people who are elderly, are immunocompromised, or have underlying lung disease. Virginia has experienced a pattern, also seen nationally, in which there was an increase in legionellosis cases in 2003, followed by a higher incidence in the post-2003 period than in the pre-2003 period. The cause of this increase is not clearly understood. Factors that may have contributed to the higher number of cases in 2003 and later include an increasing population of older persons and persons at high risk for infection, as well as improved diagnosis and reporting of the condition. Additional factors may include CDC's call for more active and timely surveillance of travel-associated legionellosis and changing weather patterns.

Legionellosis: 2014 Data Summary	
Number of Cases:	129
5-Year Average Number of Cases:	87.6
% Change from 5-Year Average:	+47%
Incidence Rate per 100,000:	1.6

In 2014, 129 cases of legionellosis were reported in Virginia, which is the highest number of cases reported in the state during a reporting year. This represents a 5% increase from the 123 cases reported in 2013, and 47% increase from the five-year average of 87.6 cases per year (Figure 43). National data from the CDC indicate that several other states in the U.S. have seen a similar increase in legionellosis cases, especially in the mid-Atlantic region. One reason for this rise in incidence could be the unusually warm and humid weather experienced during the summer by many states throughout the country, as there is some evidence that legionellosis incidence may be influenced by certain weather conditions.



Legionellosis incidence rates were closely associated with age. In 2014, the highest incidence occurred in the 60 year and older age group (4.8 per 100,000), followed by the 50-59 year age group (2.5 per 100,000) (Figure 44). Race was not reported for 39% of cases. Among those with a known race, incidence was higher in the black population compared to the white population (1.4 and 0.9 per 100,000, respectively). Additionally, incidence was higher among males than females (2.0 and 1.1 per 100,000, respectively).



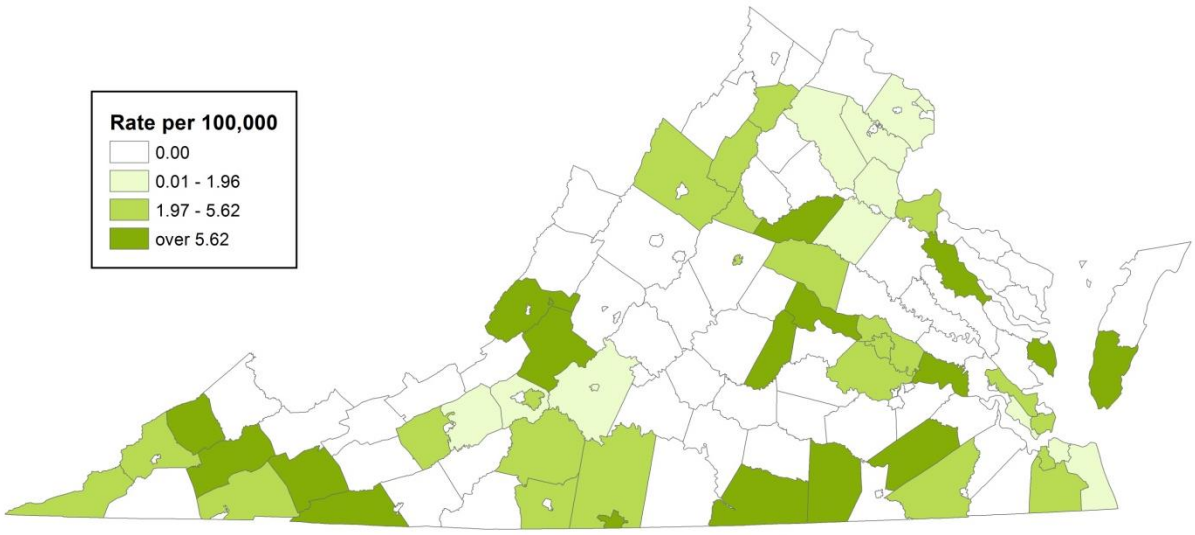
Incidence rates were highest in the central region (2.6 per 100,000), followed closely by the southwest region (2.4 per 100,000). Incidence ranged from 0.7 to 1.5 per 100,000 among the remaining regions. Geographically, cases were dispersed among localities throughout Virginia (refer to map below). While cases occurred throughout the year, a marked seasonality existed with 41% of cases occurring in the third quarter of the year.

Information on overnight travel was obtained for 103 (80%) cases reported in 2014. Of those, 28 (27%) reported spending at least one night away from home in the 10 days prior to symptom onset, including 16 staying in a hotel. Information on exposure to a healthcare setting was obtained for 101 (78%) cases. Of those, 22 (22%) reported spending time in a healthcare setting in the 10 days prior to symptom onset. Healthcare settings include hospitals, long-term care facilities, clinics, or other healthcare settings. Individuals with possible exposure include inpatients, outpatients, visitors, volunteers, or employees of a healthcare setting. Among those reporting a healthcare exposure, 19 (86%) were considered possible exposures, defined as healthcare exposure for only a portion of the 10 days prior to symptoms, and 3 (14%) were definite exposures, defined as being an inpatient (hospital or

long-term care facility) during the entire 10 days prior to symptom onset. All three definite healthcare exposure cases occurred in residents at three different long-term care facilities.

Eight deaths (6%) were attributed to legionellosis in 2014. All of the deaths occurred in males ranging from 29 to 82 years of age. One outbreak was attributed to *Legionella pneumophila* during 2014. The outbreak involved two persons in a private home setting and resulted from inhalational exposure to a treated recreational water source.

Legionellosis Incidence Rate by Locality
Virginia, 2014



Leprosy (Hansen Disease)

Agent: *Mycobacterium leprae* (bacteria)
Mode of Transmission: Person-to-person transmission, probably through inhaling respiratory droplets that are released when a person with the disease coughs or sneezes.
Signs/Symptoms: A chronic disease with varying symptoms, including skin lesions (tuberculoid leprosy); discolored, flat spots on the skin (lepromatous leprosy); nasal congestion; nosebleeds; and nerve damage. The bacteria that cause this condition grow very slowly and signs and symptoms may take 2-10 years to appear.
Prevention: Early diagnosis and treatment is important. Hand washing when in contact with patients with lepromatous leprosy and disinfection of surfaces contaminated with infectious nasal secretions should be performed until treatment is established.

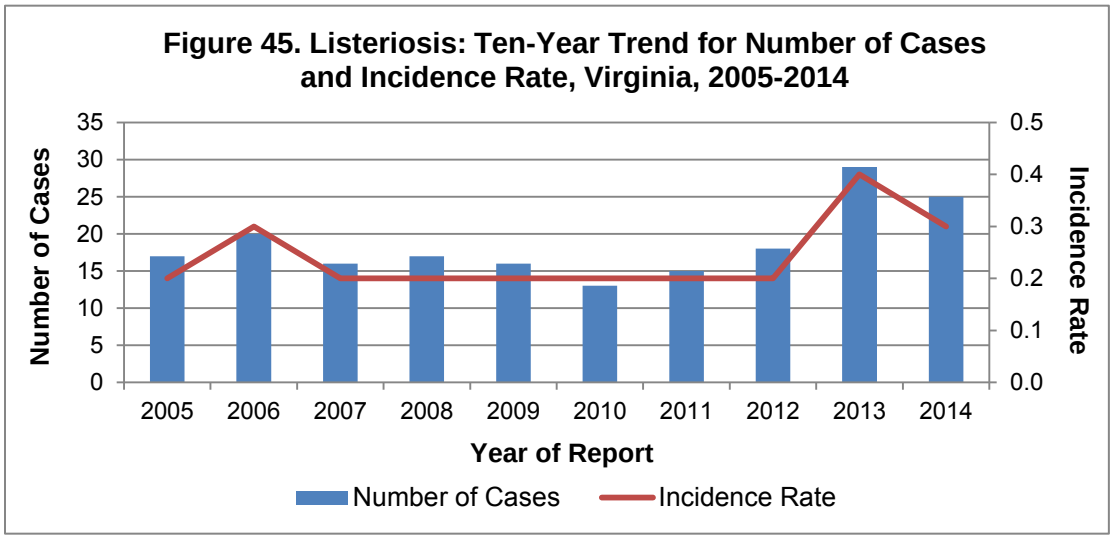
One case of leprosy was reported in Virginia during 2014. The patient was an adult male from the northern region. The condition was acquired while the patient resided in a Pacific Island. Previously, one case was diagnosed in 2011 in a young adult female who had initially developed symptoms years earlier while she lived in Asia. Since 2000, six cases of leprosy have been diagnosed in Virginia, averaging less than one case per year for the last five years.

Listeriosis

Agent: *Listeria monocytogenes* (bacteria)
Mode of Transmission: Ingestion of contaminated foods or beverages (e.g., soft cheese, unpasteurized milk). Transmission can also occur from mother to fetus if the mother consumes a contaminated food item/beverage during pregnancy.
Signs/Symptoms: Typically, fever, headache, muscle aches, and sometimes gastrointestinal symptoms, such as nausea, diarrhea, and vomiting. Infection can lead to serious disease, including shock and inflammation of the brain and the fluid surrounding the brain and spinal cord (i.e., meningitis). Among infected pregnant women, miscarriage, stillbirth, premature delivery, or neonatal infection may occur.
Prevention: Preventive measures include safe food preparation (e.g., thoroughly cooking or reheating food from animal sources and washing raw vegetables) and avoiding raw (unpasteurized) milk and milk products. Persons at higher risk for disease should avoid soft cheeses (unless labeled as made with pasteurized milk), refrigerated smoked seafood (unless contained in a cooked dish), and hot dogs and other deli/luncheon meats (unless heated until steaming hot just before serving).
Other Important Information: Persons at higher risk include pregnant women and their unborn babies and newborns, older adults, and persons with weakened immune systems.

Listeriosis: 2014 Data Summary	
Number of Cases:	25
5-Year Average Number of Cases:	18.2
% Change from 5-Year Average:	+37%
Incidence Rate per 100,000:	0.3

Twenty-five cases of listeriosis were reported in Virginia during 2014. This is slightly fewer than the 29 cases reported in 2013, but higher than the 5-year average of 18.2 cases per year. The statewide incidence rate was 0.3 cases per 100,000, which was lower than the 2013 rate of 0.4 cases per 100,000 (Figure 45). These incidence rates are similar to the average annual incidence of listeriosis in the U.S. of 0.3 cases per 100,000 reported by CDC in 2013.

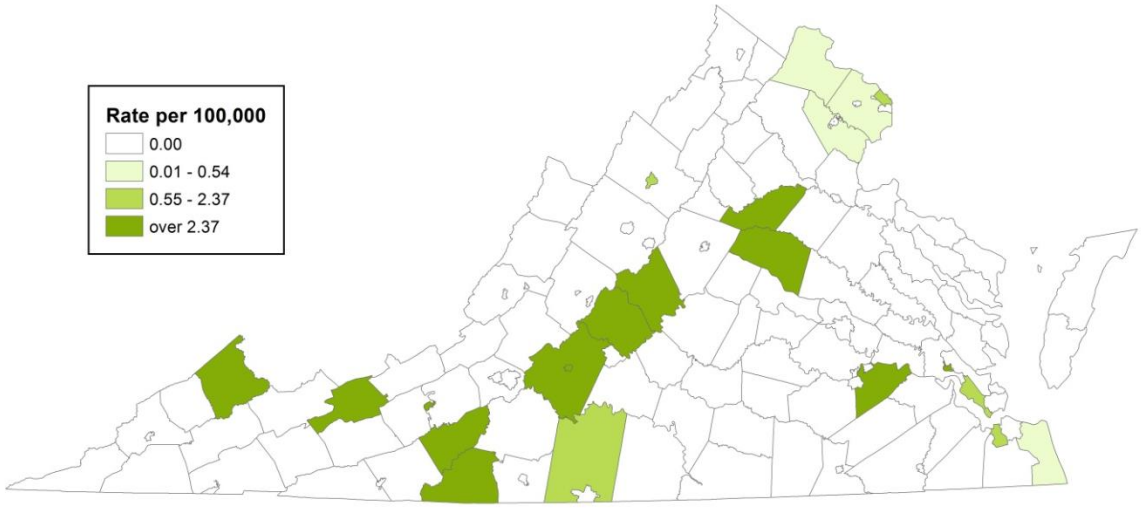


The 60 year and older age group had the most listeriosis cases in 2014, with 19 cases and an incidence rate of 1.2 per 100,000. However, the highest incidence rate reported among all age groups occurred with infants (2 cases, 1.9 per 100,000). Two cases each were reported in the 20-29 and 50-59 year age groups; no cases were reported in any other age group.

Incidence rates were similar across all race populations, with 0.3 per 100,000 in the white and "other" race populations, and 0.2 per 100,000 in the black population. No difference was reported in incidence between females and males (0.3 per 100,000, each). The highest incidence rate occurred in the southwest region at 0.7 per 100,000. The remaining regions had similar rates ranging from 0.1 to 0.3 per 100,000. Incidence rates by locality can be viewed in the map below. Although cases occurred throughout the year, 12 (48%) cases occurred between July and September.

During 2014, all 25 listeriosis cases resulted in hospitalization. Seven cases were associated with death after testing positive for listeriosis, including one female neonate and six adults age 50 years or older. Two infant cases of listeriosis were associated with pregnancy in 2014.[i]

Listeriosis Incidence Rate by Locality
Virginia, 2014



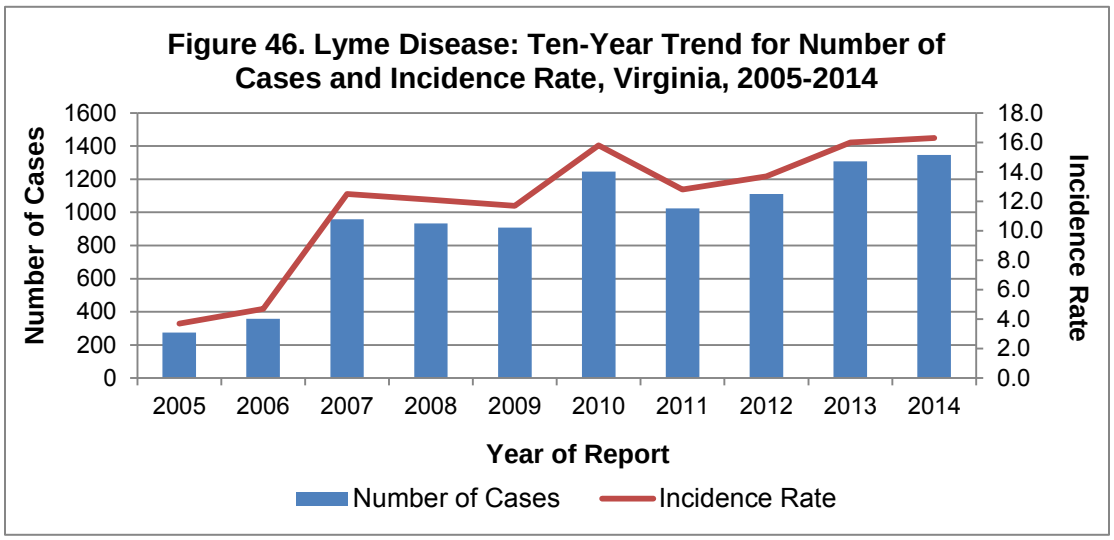
[i] Per case definitions established by the Council of State and Territorial Epidemiologists, confirmed listeriosis cases must be positive for *Listeria monocytogenes* by laboratory testing. For each mother-infant pair reported in Virginia during 2014, the illness in the infant was counted as a listeriosis case, as lab specimens from each infant were positive for *Listeria monocytogenes*. Presumably the infection in each infant resulted from a contaminated food or beverage item the mother consumed; however, specimens were not collected from either mother and the mothers' illnesses were not counted as cases. Conversely, the Centers for Disease Control and Prevention *Listeria* Initiative Program counts the mother's illness as the case for mother-infant pairs, in recognition that the exposure likely occurred in the mother.

Lyme Disease

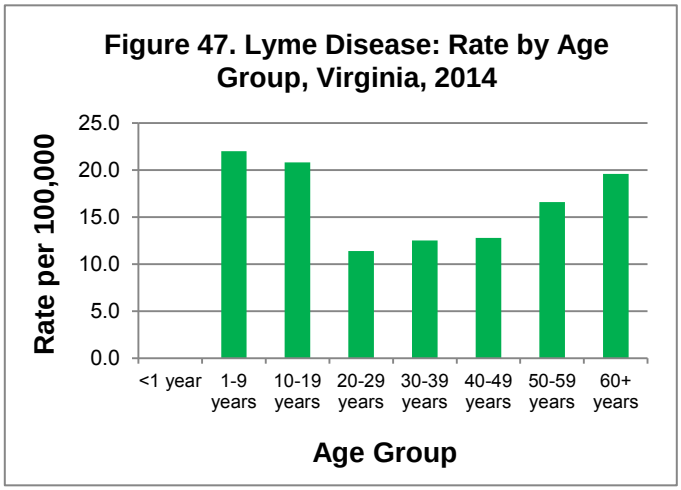
Agent: *Borrelia burgdorferi* (spirochete bacteria)
Mode of Transmission: Transmitted to humans through the bite of infected nymph or adult blacklegged ticks (formerly known as deer ticks). No other tick species plays a role in Lyme disease transmission in the eastern United States. Infected ticks must bite a person and remain attached for a minimum of 36 hours to be able to transmit the bacteria.
Signs/Symptoms: Initial symptoms include fever, headache, fatigue, joint pains, chills and a characteristic "bulls-eye" skin rash called erythema migrans, or EM rash. If untreated, infection can affect a person's joints, heart or nervous system.
Prevention: Minimize tick bites by avoiding tick habitats such as humid forest environments with dense undergrowth or heavy forest leaf litter, as well as low vegetative ground cover along forest margins, tree lines, forest trails and forest clearings. Repellents containing DEET, Picaridin, BioUD, IR3535, or oil of lemon eucalyptus as active ingredients are effective against ticks and should be applied to exposed areas of skin before entering tick habitats. When in tick-prone habitats, light-colored clothing should be worn with pants legs tucked into socks, and permethrin-based repellants should be applied to clothing, socks and shoes. After visiting tick-prone habitats, a person should thoroughly check all body surfaces for ticks and, if found, attached ticks should be removed carefully as soon as possible. Pets should also be examined for ticks; pets can bring ticks into the home and are also susceptible to disease.
Other Important Information: Lyme disease is diagnosed based on symptoms, physical findings (e.g., rash), and laboratory evidence of infection. The EM rash is the only physical manifestation/symptom that is distinctive enough to allow a diagnosis in the absence of laboratory testing. The EM rash causes little or no sensation, and may be missed or overlooked in up to 30% of persons with Lyme disease.

Lyme Disease: 2014 Data Summary	
Number of Cases:	1,346
5-Year Average Number of Cases:	1,118.6
% Change from 5-Year Average:	+20%
Incidence Rate per 100,000:	16.3

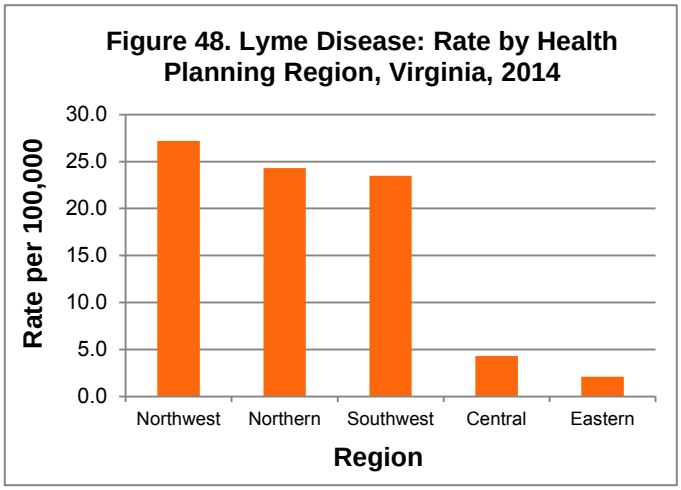
During 2014 in Virginia, 1,346 cases of Lyme disease were reported, which represented a 3% increase from the 1,307 cases reported in 2013, and a 20% increase from the five-year average of 1,118.6 cases per year (Figure 46). The dramatic increase in the number of reported Lyme disease cases since 2006 is attributable to an increase in Lyme disease occurrence, increased case follow-up by local health departments, and a change from voluntary to mandatory reporting of Lyme-positive findings by laboratories. The increase in incidence beginning in 2007 appears to be linked mainly to suburbanized areas around towns and cities. Suburbanization can enhance the environment for white-tailed deer, which are crucial for tick reproduction, and suburban forests appear to favor populations of white-footed mice, which play an important role in transmission of the Lyme disease agent to ticks. As land becomes suburbanized, deer hunting activities decrease and deer populations increase. Suburban developments may also bring the human population into more frequent contact with forested tick habitats.



In 2014, there was a bimodal distribution of cases by age group, with the highest incidence rate in the 1-9 and 10-19 age groups (22.0 and 20.8 per 100,000, respectively), followed by the 60 year and older age group (19.6 per 100,000) (Figure 47). This bimodal age distribution for Lyme disease is typical of what has been observed in other Lyme-endemic regions of the United States.

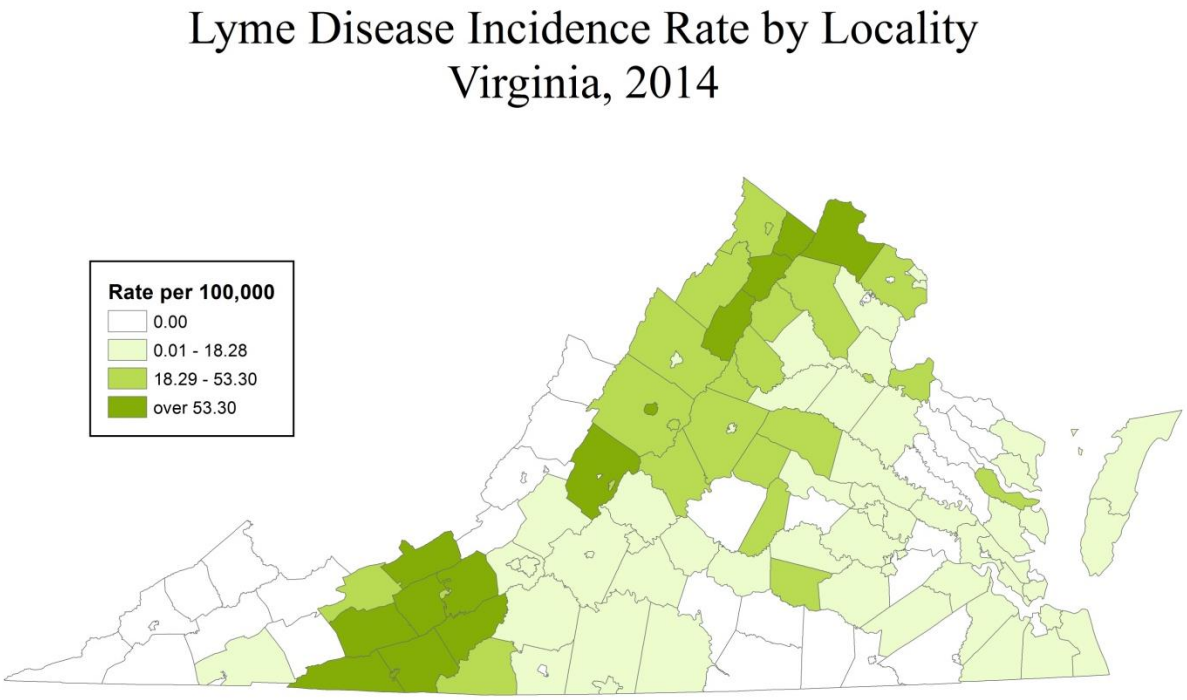


Race was provided for 56% of cases. Among those with a known race, the white population had the highest incidence rate (11.7 cases per 100,000), followed by the "other" race population (5.5 per 100,000), and the black population (1.4 per 100,000). Racial differences may be related in part to differences in access to healthcare for diagnosis, variation in exposure to suburban and rural tick habitats, and potentially easier detection of the EM rash in individuals with lighter skin pigmentation. Incidence was higher in males than females (17.8 and 14.7 per 100,000, respectively).



Cases were reported from all regions of the state; however, the highest incidence rate occurred in the northwest region (27.2 per 100,000), followed by the northern region (24.3 per 100,000) and the southwest region (23.5 per 100,000) (Figure 48). Incidence rates in the eastern and central regions were much lower with the eastern region having the lowest

incidence of Lyme disease in Virginia. A comparison of incidence rates by locality can be viewed in the map below. Although Lyme disease cases were reported in every quarter during 2014, there was a seasonal pattern, with 76% of cases occurring in the warmer months of April through September. In 2014, the peak in occurrence was in June and is correlated with the period when the majority of nymph stage blacklegged ticks, the primary vectors of Lyme disease, are actively feeding.



Lymphogranuloma Venereum

Agent: Specific strains of the bacterium *Chlamydia trachomatis*
Mode of Transmission: Sexually transmitted through direct contact with the lesions of an infected person.
Signs/Symptoms: Ulcerative lesions on the penis or vulva, inflammation of the lymph nodes in the genital area, or rectal ulcers. Fever, chills, headache, anorexia, and joint pain may also be present. Some infections are asymptomatic, especially in females.
Prevention: Preventive measures include adhering to safe sexual practices.
Other Important Information: Lymphogranuloma venereum has historically been rare in developed countries. Recent outbreaks have occurred in Europe and North America, primarily among men who have sex with men.

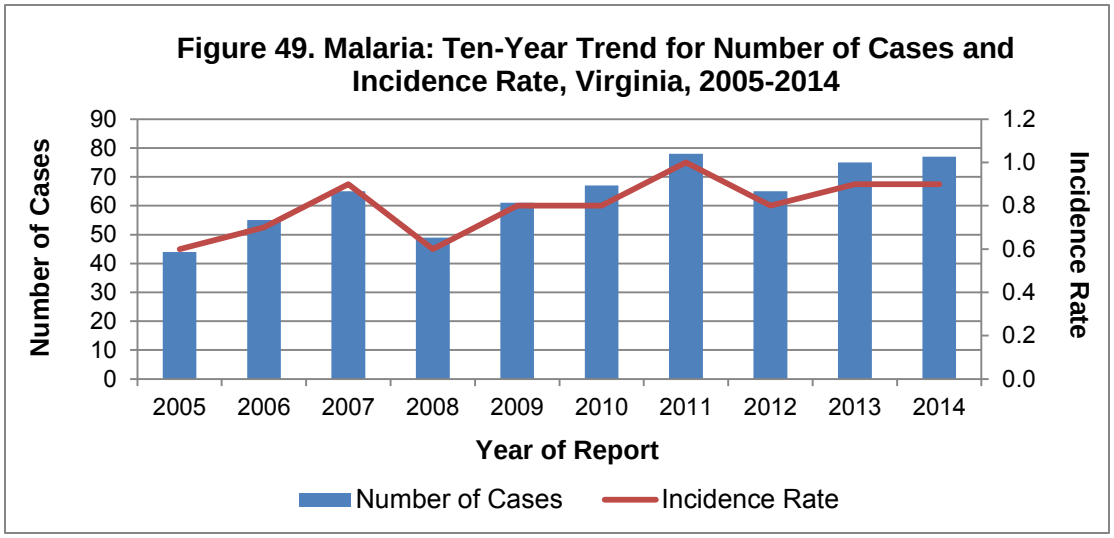
No cases of lymphogranuloma venereum were reported in Virginia in 2014. The last two reported cases occurred in 2005.

Malaria

Agent(s): Four different species of protozoan parasites: *Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale,* and *Plasmodium malariae*
Mode of Transmission: Transmission through the bite of an infected female *Anopheles* mosquito. Transmission might also occur from infected mother to child during pregnancy or delivery, by blood product transfusion or through transplanted organs from infected donors. Humans and certain *Anopheles* mosquito species are the only natural reservoirs for malaria.
Signs/Symptoms: Typically, high fevers, chills, sweats, severe headache, muscle and joint pain, anorexia, nausea, flu-like illness, anemia and an enlarged spleen. *P. falciparum* infections may progress to severe malaria if not treated promptly; symptoms include acute alteration of brain structure and function (i.e., cerebral malaria), severe anemia, jaundice, renal failure and coma.
Prevention: Appropriate medication for malaria prophylaxis should be taken by travelers when traveling to malaria-endemic countries. Anopheline mosquitoes bite only at dusk, dawn or during night-time hours and tend to enter buildings. Control measures include staying in structures with adequate screening and bed nets, and when outdoors, wearing long-sleeved, loose-fitting, light-colored clothing and mosquito repellents.
Other Important Information: Almost all infections reported in Virginia occur in persons who were infected in other countries. Although malaria is not endemic to Virginia, it may be brought to this region by travelers or immigrants with dormant or inapparent infections. Malaria might also arrive in Virginia with infected mosquitoes transported in aircraft or ships arriving from foreign destinations. Two potential mosquito vectors for malaria are present in Virginia: *Anopheles quadrimaculatus* and *An. punctipennis*.

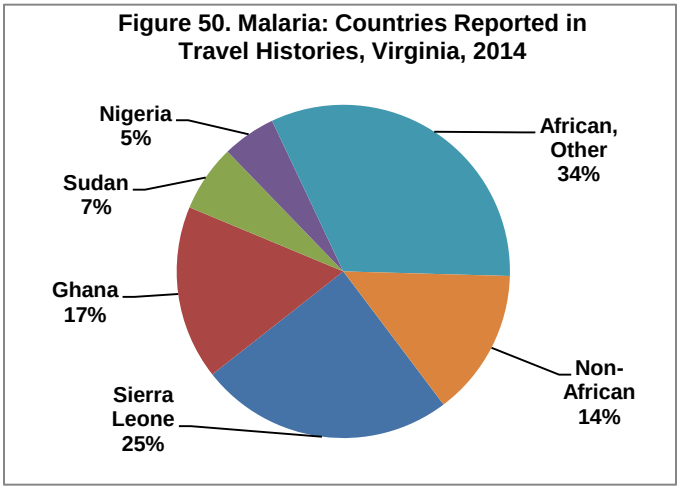
Malaria: 2014 Data Summary	
Number of Cases:	77
5-Year Average Number of Cases:	69.2
% Change from 5-Year Average:	+11%
Incidence Rate per 100,000:	0.9

In 2014, 77 cases of malaria were reported in Virginia. This represents a slight increase from the 75 cases reported in 2013, and an 11% increase from the five-year average of 69.2 cases per year (Figure 49). Incidence rates were highest in the 20-29 year age group (1.4 per 100,000), followed by the 30-39 year age group (1.2 per 100,000). Incidence among the remaining age groups ranged from 0.4 to 1.0 per 100,000, with no cases occurring in infants. Race was not reported for 29% of cases. For cases with a known race, the incidence rate in the black population (2.5 per 100,000) was substantially higher than rates for the "other" race population (0.5 per 100,000) and the white population (0.2 per 100,000). Males had a higher incidence rate than females (1.2 and 0.6 per 100,000, respectively).



The majority of cases (74%) and highest incidence rate (2.4 per 100,000) were reported from the northern region. This is noticeably higher than the statewide rate of 0.9 per 100,000. Incidence by locality can be viewed in the map below. Cases occurred throughout the year. Malaria is almost always acquired outside the U.S.; therefore, any observed temporal patterns are related to patterns of travel to endemic countries.

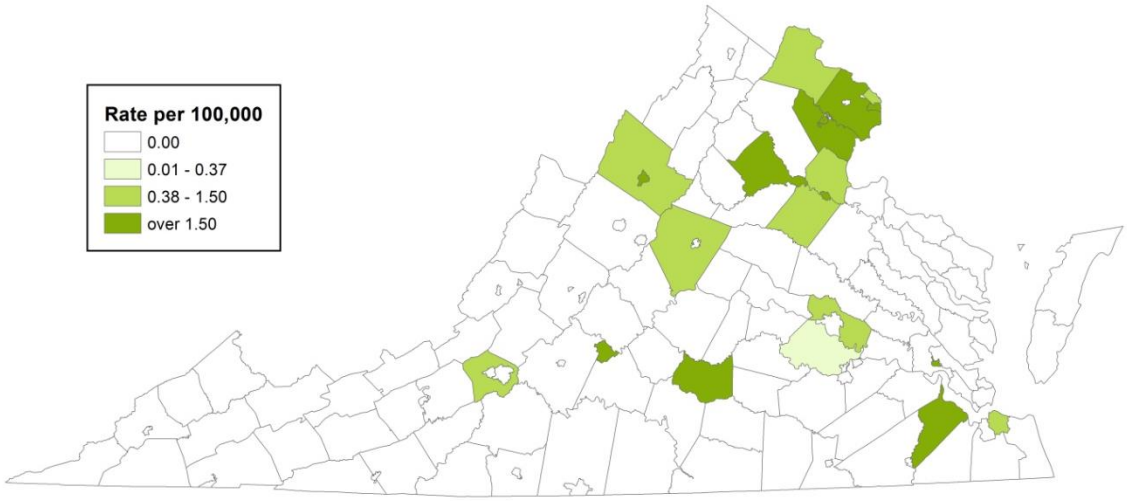
All cases reported a history of travel outside of the U.S. within the two years prior to disease onset. The majority of those with travel outside the U.S. (88%) had visited countries on the African continent. The African countries most frequently referenced included Sierra Leone (19 cases), Ghana (13 cases), Sudan (5 cases) and Nigeria (4 cases) (Figure 50). Non-African countries most frequently mentioned in travel histories included India (3 cases), Pakistan (3 cases), and Honduras (2 cases).



The parasitic species of *Plasmodium* were identified in 70 individuals diagnosed with malaria in 2014. Specifically, 70% were infected with *P. falciparum*, 13% *P. vivax*, 3% *P. malariae*, and 3% *P. ovale*. One case was infected with two species, *P. vivax and P. ovale*. Species could not be determined for the remaining 7 cases.

Information on malaria prophylaxis usage was obtained for 66 of the cases. Of these, only 27% (21 individuals) reported receiving prophylaxis for malaria, and 8 of the 21 individuals reported missing at least one dose. No deaths were known to be due to malaria in Virginia in 2014.

Malaria Incidence Rate by Locality
Virginia, 2014



Measles

Agent: Measles virus
Mode of Transmission: Primarily person-to-person transmission by inhalation of respiratory droplets or direct contact with nasal or throat secretions of infected people; however, airborne transmission via aerosolized droplet nuclei has been documented.
Signs/Symptoms: Fever, cough, conjunctivitis, coryza, and a typical rash on the third to seventh day after onset of symptoms.
Prevention: Measles vaccine should be given as part of the measles, mumps, and rubella (MMR) series beginning at 12-15 months of age followed by a second dose at age 4-6 years. Infants <12 months of age traveling internationally should be vaccinated with an additional dose if at least 6 months of age.
Other Important Information: Measles is highly communicable, with secondary attack rates greater than 90% among susceptible people who have close contact with the infected person. Measles elimination has been maintained in the United States since it was declared no longer endemic in 2000. Measles remains endemic in parts of the world, but progress is being made toward elimination as demonstrated by a 67% decrease in reported cases from 2000-2013. Imported cases, many that originate in Asia and Europe, continue to occur in U.S. residents who were exposed while traveling abroad and by persons visiting the United States. As cases are imported and can be costly to control, it is important for individuals planning international travel to be aware of their immune status and obtain a vaccination if necessary.

Measles: 2014 Data Summary	
Number of Cases:	2
5-Year Average Number of Cases:	2.2
% Change from 5-Year Average:	-9%
Incidence Rate per 100,000:	0.0

Two cases of measles were reported in Virginia for 2014. These cases were epidemiologically linked and were the first to occur in two years; seven cases were reported in 2011, three cases were reported in 2010, and one case each for 2009 and 2008.

The Virginia index case in 2014 occurred in a young school-aged child who was exposed during international travel and was not age-appropriately vaccinated. The second case occurred in an adult following direct contact with the index case. The second case was fully vaccinated, but was a vaccine non-responder and had a mild case presentation. Both cases occurred in the northern region and resulted in a multi-jurisdictional response not only within Virginia, but also surrounding states.

In 2014, the U.S. reported the most cases since measles was declared non-endemic, with 668 cases from 27 states. Twenty-three outbreaks were reported across the U.S. and accounted for 89% of the cases in 2014. Outbreaks were reported in California, Florida, Washington, and Ohio. The Ohio outbreak accounted for 383 cases of measles and

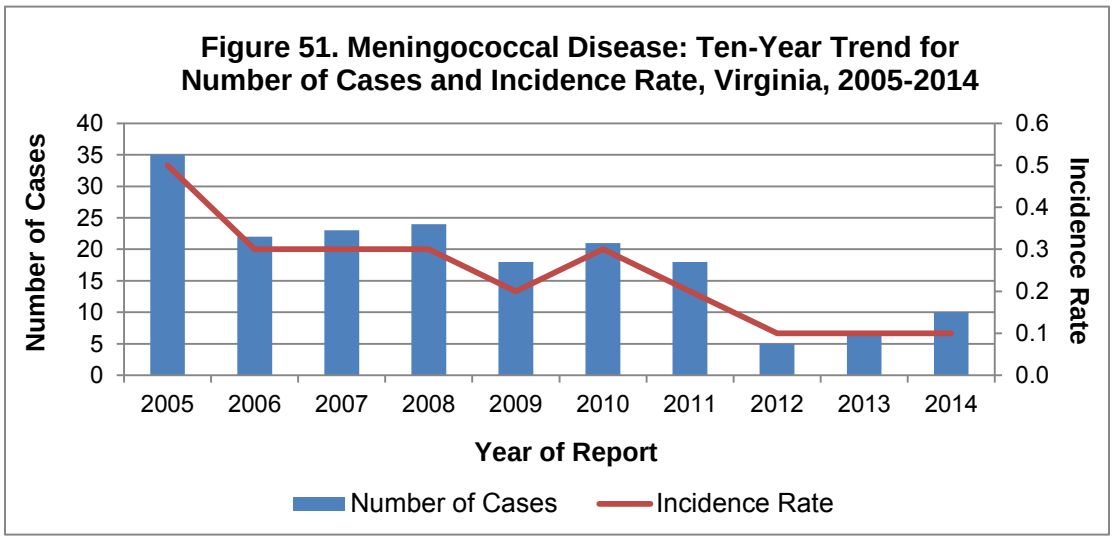
occurred within unvaccinated Amish communities. This event was linked to an outbreak that was ongoing in the Philippines with a total of 21,420 confirmed cases and 110 deaths in 2014. By the end of 2014, California reported its second outbreak; investigation for this outbreak is ongoing. Epidemiologically linked cases from the California outbreak were reported for seven other states (Arizona, Colorado, Nebraska, Oregon, Utah, and Washington), and two other countries (Mexico and Canada). While vaccination with MMR remains high throughout the U.S. ($\geq$90% MMR vaccine coverage among children 19-35 months and adolescents), communities remain at risk as coverage varies at the local level. Outbreaks reported in 2014 demonstrate that groups that refuse vaccination, for either religious or philosophical beliefs, tend to cluster geographically. Ensuring high MMR vaccination rates continues to be the best defense against a widespread measles outbreak.

Meningococcal Disease

Agent: *Neisseria meningitidis* (bacteria)
Mode of Transmission: Transmission occurs through contact with respiratory droplets from the nose or throat of an infected person (e.g., through coughing or kissing).
Signs/Symptoms: Meningitis is the most common presentation of invasive disease and includes sudden onset of fever, headache, and stiff neck, and often nausea, vomiting, sensitivity to light, and confusion. A rash may be present. A bloodstream infection may also occur (without meningitis), leading to abrupt onset of fever and a rash; it is often associated with shock and multi-organ failure. Less commonly, meningococcal disease can lead to pneumonia, arthritis, middle ear infections, or inflammation of the epiglottis.
Prevention: Almost all invasive disease is caused by one of five serogroups: A, B, C, W, and Y. The Advisory Committee on Immunization Practices (ACIP) recommends routine vaccination with a quadrivalent (protects against serogroups A, C, W, and Y) meningococcal conjugate vaccine for adolescents 11-18 years, and vaccination of those older than two months for certain groups at increased risk for meningococcal disease. In October 2014, the FDA approved the first serogroup B vaccine as a three-dose series. ACIP recommends use of a serogroup B meningococcal vaccine in certain persons aged 10 years or older who are at increased risk for meningococcal disease. Vaccination is also recommended to control outbreaks.
Other Important Information: Crowding, exposure to tobacco smoke, and preceding upper respiratory tract infections increase the risk of disease. Individuals with certain medical conditions, such as complement component deficiency (immunodeficiency disorders) and asplenia (no spleen), are also at increased risk for disease. Meningococcal disease is more commonly diagnosed among infants, adolescents, and young adults than other age groups. Five to ten percent of people carry *N. meningitidis* in their nose without having any symptoms of disease; those who develop the disease are usually infected by a carrier who does not have symptoms. The case-fatality for meningococcal disease is eight to fifteen percent, even with appropriate antibiotic therapy.

Meningococcal Disease: 2014 Data Summary	
Number of Cases:	10
5-Year Average Number of Cases:	13.8
% Change from 5-Year Average:	-28%
Incidence Rate per 100,000:	0.1

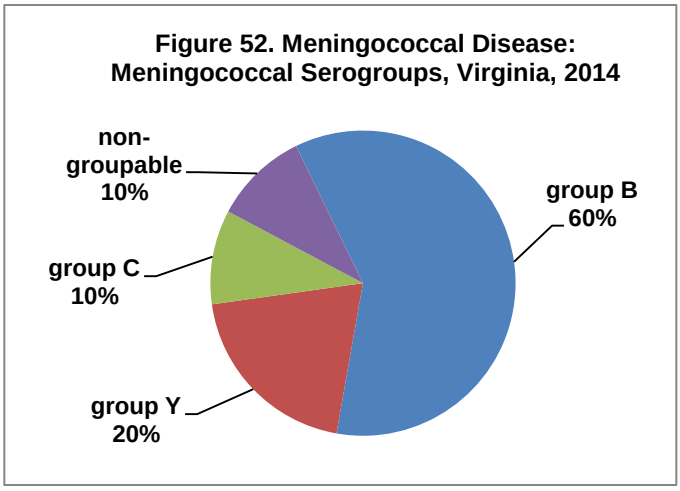
During 2014, ten cases of meningococcal disease were reported in Virginia, with a statewide incidence rate of 0.1 per 100,000 (Figure 51). The ten cases reported in 2014 represent an increase over the seven cases reported in 2013, but a 28% decrease from the five-year average of 13.8 cases per year. Rates of meningococcal disease have been declining in the U.S. and Virginia over the last two decades.



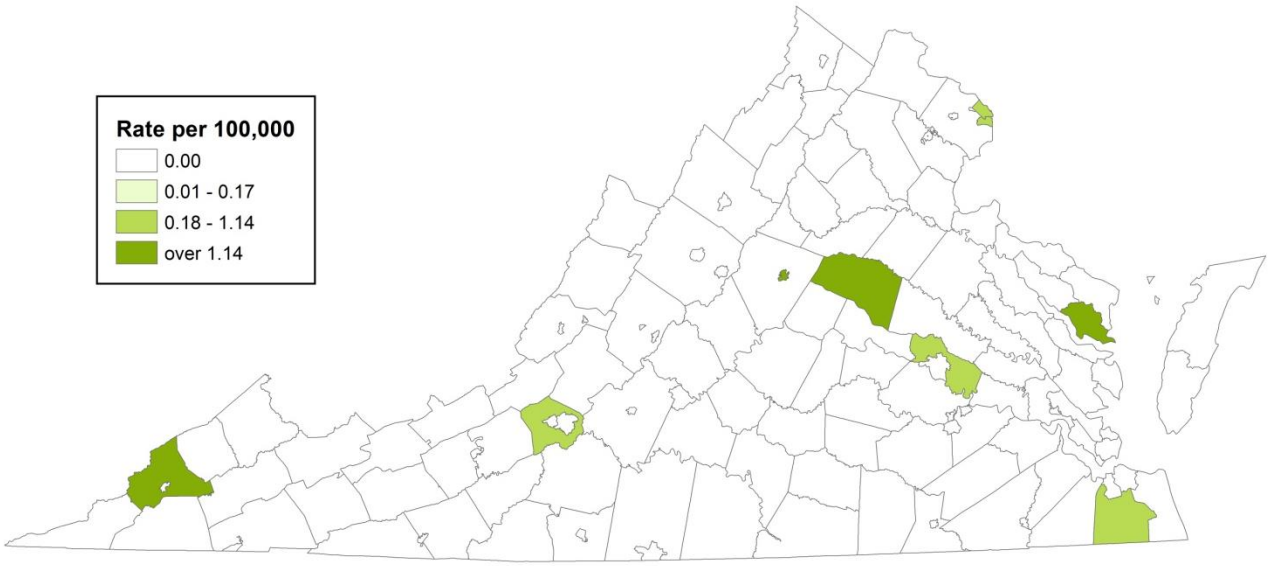
In Virginia, the 60 year and older age group accounted for four cases and an incidence rate of 0.3 cases per 100,000 persons. The 10-19 and 20-29 year age groups each accounted for two cases and an incidence rate of 0.2 per 100,000. The remaining two cases occurred in the 1-9 and 40-49 year age groups. Three cases occurred in the black population (0.2 per 100,000), and seven cases occurred in the white population (0.1 per 100,000). The incidence rate among males and females was similar (0.1 per 100,000, respectively).

Cases were reported from each health planning region with the northwest region having a slightly higher incidence (0.2 per 100,000), compared to the incidence of 0.1 per 100,000 in the remaining regions. See the map below for incidence rates by locality. While cases occurred throughout the year, four cases (40%) were reported during the fourth quarter.

Serogroup was reported for nine of ten (90%) cases. Group B was the most common serotype identified (six cases, 60%). Two cases (20%) were identified as serogroup Y, one (10%) case was serogroup C, and one (10%) case was non-groupable (Figure 52). Vaccination with a quadrivalent meningococcal vaccine was reported for three individuals. All three vaccinated cases were linked to disease caused by serogroup B. Two deaths were attributed to meningococcal disease in 2014, including one death in the 20-29 year age group, and one death in the 60 year and older age group. No outbreaks attributed to meningococcal disease were reported in 2014 in Virginia.



Meningococcal Disease Incidence Rate by Locality
Virginia, 2014



Monkeypox

Agent: Monkeypox virus (genus *Orthopoxvirus*)
Mode of Transmission: Transmission to humans from an infected animal by bite or direct contact with lesions or body fluids. Though less common, infection can be transmitted directly from person to person by respiratory droplets or contact with body fluids of an infected person, or indirectly by contact with virus-contaminated objects, such as bedding.
Signs/Symptoms: Similar to smallpox, though more mild. Initial symptoms include fever, headache, backache, sore throat, cough and swollen lymph nodes. Three days after fever onset, a rash develops.
Prevention: Contact with exotic or wild mammals that originate from areas where monkeypox has occurred should be avoided.
Other Important Information: Monkeypox is a rare disease that occurs primarily in central and western Africa. In 2003, a monkeypox outbreak in the United States was identified among persons exposed to native prairie dogs that had contact with imported African rodents.

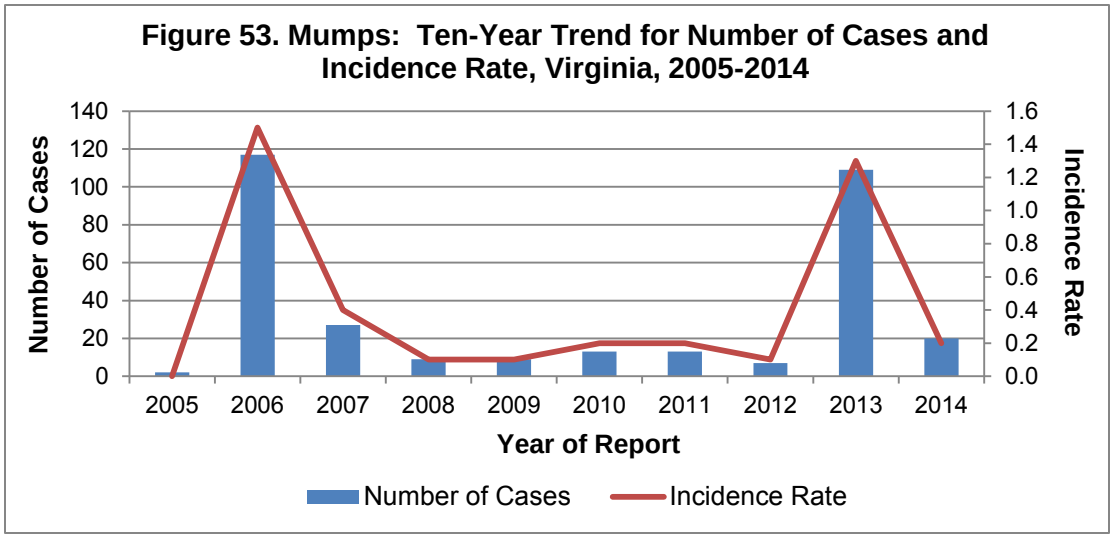
Monkeypox became a reportable disease in Virginia in 2004. No cases of monkeypox have ever been reported in Virginia.

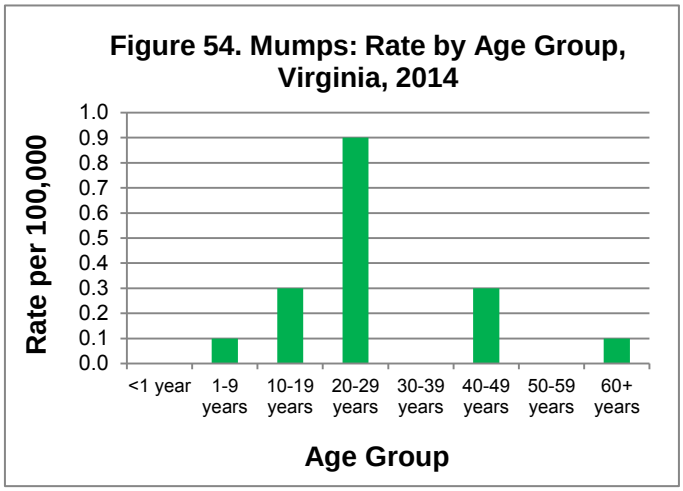
Mumps

Agent: Mumps (virus)
Mode of Transmission: Person-to-person transmission through respiratory droplets, as well as through direct contact with saliva of an infected person.
Signs/Symptoms: Fever, swelling and tenderness of one or more salivary glands. Mumps infection may present with only nonspecific or primarily respiratory symptoms and as many as 20% of mumps infections are asymptomatic. Serious complications are rare but can occur in the absence of parotitis (inflammation of salivary glands).
Prevention: Vaccination, preferably as measles-mumps-rubella (MMR) vaccine, should be administered beginning at age 12 months. Two doses of mumps-containing vaccine are recommended for school-aged children, healthcare workers, international travelers, and college students. Although MMR vaccine is very effective, it does not provide complete protection against mumps. Two doses are 88% effective at protecting against mumps; one dose is 78% effective. Outbreaks can still occur in highly vaccinated U.S. communities, particularly in close-contact settings. However, high vaccination coverage helps limit the size, duration, and spread of mumps outbreaks.
Other Important Information: In 2006, the United States experienced a multi-state mumps outbreak involving more than 6,500 reported cases. This resurgence predominantly affected college-aged students living in the Midwest, but led to college outbreaks in other states. This included Virginia, with cases occurring on multiple college campuses across the state. Between 2011 and 2013, several smaller mumps outbreaks were reported on campuses with high two-dose vaccination coverage in California, Maryland and Virginia. However, these outbreaks had limited spread, and national case counts for these years were at usual levels. The number of mumps cases increased nationally in 2014 with 949 cases reported from 30 states and two cities. Notably, Ohio reported 506 cases from a community outbreak that lasted for over nine months.

Mumps: 2014 Data Summary	
Number of Cases:	20
5-Year Average Number of Cases:	30.2
% Change from 5-Year Average:	-34%
Incidence Rate per 100,000:	0.2

In 2014, 20 cases of mumps were reported in Virginia. This is far less than the 109 cases reported in 2013, and a 34% decrease from the five-year average of 30.2 cases per year (Figure 53). Of note, the 109 cases reported in 2013 were primarily attributed to two college outbreaks, and closely mirror the case counts from 2006 when similar large-scale college outbreaks resulted in 117 cases in Virginia.

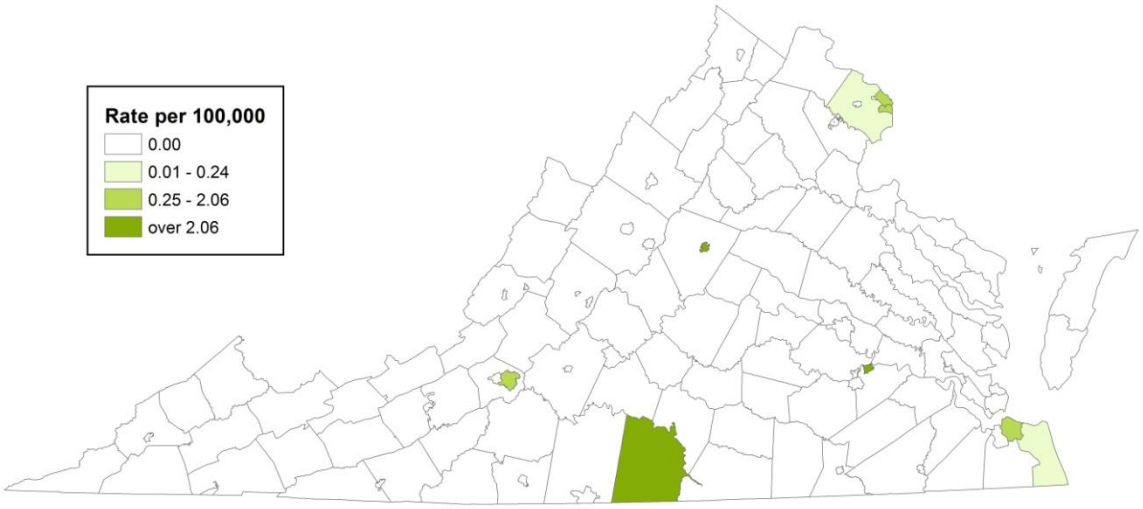




Among 2014 cases, the incidence rate was highest in the 20-29 year age group with 0.9 cases per 100,000, followed by the 10-19 and 40-49 year age groups with 0.3 cases per 100,000 each (Figure 54). Race was not reported for 25% of cases. Among cases where race was known, incidence was similar across racial groups with the highest incidence from the "other" race population (0.5 cases per 100,000), followed by the black and white populations with 0.2 cases per 100,000 each. Incidence was similar for males and females (0.3 and 0.2 per 100,000, respectively).

While reported from every region of the state, cases were limited to small clusters within only a few localities (see map below). Charlottesville had the highest incidence rate with 20.3 cases per 100,000, followed by Hopewell (4.5 cases per 100,000) and Halifax County (2.8 cases per 100,000). Incidence for Charlottesville was more than 100 times higher than the state incidence rate of 0.2 cases per 100,000. Cases were reported throughout the year; however, 45% of the cases had onset within the first quarter of the year.

Mumps Incidence Rate by Locality
Virginia, 2014



Ophthalmia Neonatorum

Agent: *Chlamydia trachomatis* (bacteria) or *Neisseria gonorrhoeae* (bacteria). *C. trachomatis* is more common.
Mode of Transmission: Infants are typically exposed to the organism in the birth canal during childbirth. Rarely, infection during cesarean section or in utero may occur.
Signs/Symptoms: Redness or swelling of one or both eyes beginning five to fourteen days after birth.
Prevention: All pregnant women should be screened for chlamydia and gonorrhea. Women who were infected with *C. trachomatis* or *N. gonorrhoeae* in the first trimester of pregnancy should be retested during the third trimester to prevent postnatal infection in the infant. Topical prophylactic agents applied to newborns' eyes are highly effective at preventing development of gonococcal ophthalmia, but do not always effectively prevent chlamydial ophthalmia.

Ophthalmia Neonatorum: 2014 Data Summary	
Number of Cases:	6
5-Year Average Number of Cases:	7.4
% Change from 5-Year Average:	-19%
Incidence Rate per 100,000:	0.1

In 2014, six infants were reported with ophthalmia neonatorum in Virginia. Two cases were caused by *N. gonorrhoeae* and four by *C. trachomatis*. Although chlamydial ophthalmia cases have decreased significantly in recent years, two out of seven gonococcal ophthalmia cases reported in the last decade occurred in 2014.

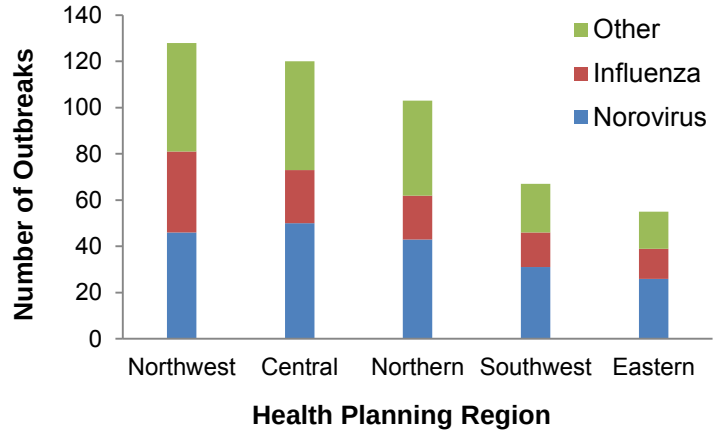
Outbreaks

Introduction

In 2014, a total of 478 outbreaks were reported to the Virginia Department of Health (VDH). Approximately two-thirds of the outbreaks (301, 63%) were suspected or confirmed to be caused by norovirus (196, 41%) or influenza (105, 22%). Other etiologic agents were suspected or confirmed to have contributed to the remaining outbreaks (177, 37%).

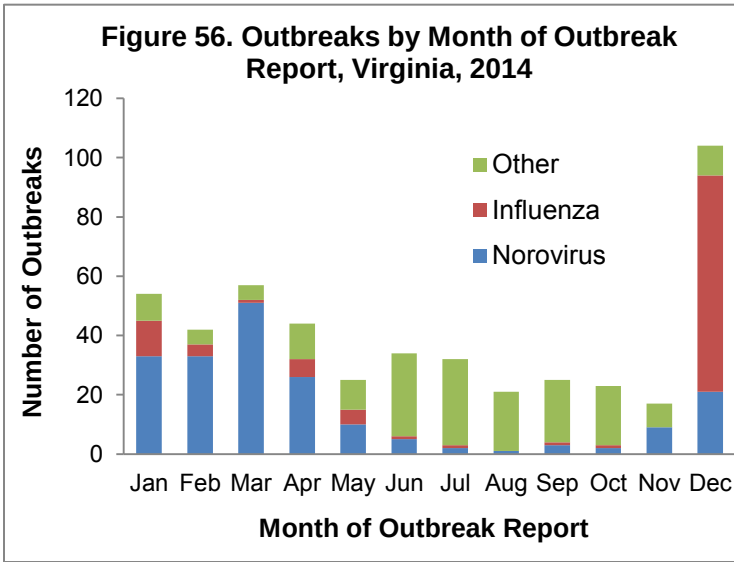
Geographically, 128 (27%) outbreaks were reported from the northwest region, followed in frequency by the central (120 outbreaks, 25%), northern (103 outbreaks, 22%), southwest (67 outbreaks, 14%), and eastern (55 outbreaks, 12%) regions (Figure 55). In addition, the VDH Central Office led investigations in 5 multi-state or multi-jurisdictional outbreaks (1%). Another state led the investigation in one out-of-state outbreak in which VDH provided assistance. This out-of-state outbreak was not counted in the 478 Virginia outbreaks in 2014.

Figure 55. Outbreaks by Health Planning Region, Virginia, 2014



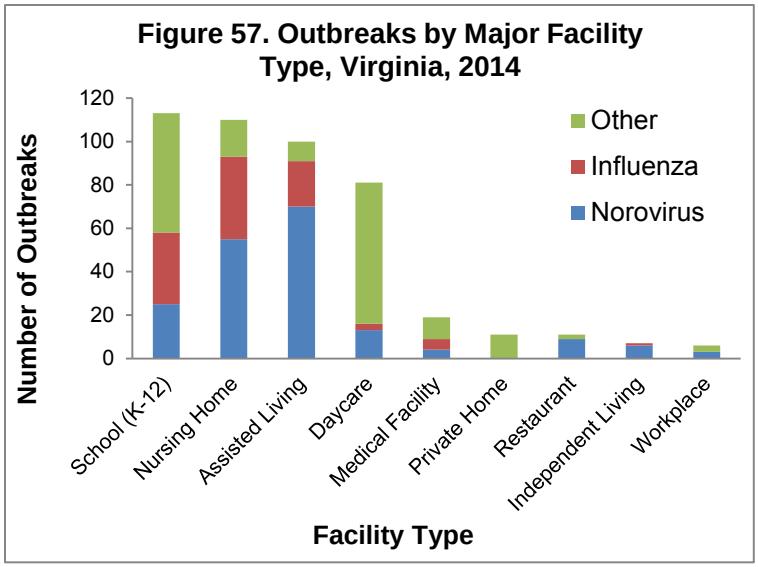
Outbreaks were reported throughout the year in 2014, but more outbreaks were reported in the colder months. Close to two-thirds of outbreaks occurred in January, February, March, April, or December of 2014 (301, 63%). Consistent with previous years, the majority of outbreaks during the colder months were confirmed or suspected to be caused by norovirus and influenza, reflecting the active circulation of these pathogens in colder months (Figure 56). The large number of outbreaks in December 2014 indicates the abrupt start of the 2014-2015 influenza season in Virginia.

Figure 56. Outbreaks by Month of Outbreak Report, Virginia, 2014



Schools (K-12) reported the most outbreaks (113, 24%) in 2014, followed by nursing homes (110, 23%), assisted living facilities (100, 21%), and daycare centers (81, 17%). The majority of outbreaks reported from these facilities were

confirmed or suspected to be caused by influenza or norovirus. Outbreaks were also reported from medical facilities (19, 4%), restaurants (11, 2%), private homes (11, 2%), and other settings, including independent living facilities (7, 2%), workplaces (6, 1%), adult daycare centers (4, 1%), colleges (4, 1%), camps (2, 0.4%), correctional facilities (2, 0.4%), military bases (2, 0.4%), community event (1, 0.2%), country club (1, 0.2%), youth event (1, 0.2%), private party (1, 0.2%), church (1, 0.2%), and hotel (1, 0.2%) (Figure 57).



The following sections describe norovirus outbreaks that were transmitted through person-to-person contact, influenza outbreaks, outbreaks transmitted through foodborne, waterborne, or zoonotic mechanisms, vaccine-preventable disease outbreaks, outbreaks that occurred in healthcare facilities, and outbreaks related to other types of illnesses.

Person-to-person Norovirus Outbreaks

Please see the Foodborne Outbreaks section below for a description of norovirus outbreaks that had a foodborne route of transmission.

Norovirus was suspected or confirmed as the cause of 196 (41%) outbreaks in Virginia in 2014, similar to the 187 norovirus outbreaks reported in 2013. Among these, 179 were transmitted through person-to-person contact and 14 through food. The mode of transmission could not be determined in three outbreaks. The average number of persons who became ill in person-to-person norovirus outbreaks was 39, with a range of 3 to 214 persons.

Person-to-person norovirus outbreaks were reported from all regions in Virginia in 2014. Overall, the most person-to-person norovirus outbreaks were reported from the central region (47, 26%), followed by the northwest region (40, 22%), northern region (38, 21%), southwest region (28, 16%), and eastern region (26, 15%).

The most frequent settings for person-to-person norovirus outbreaks were assisted living facilities (70, 39%), nursing homes (55, 31%) and schools (K-12) (24, 13%). Outbreaks from these three settings accounted for the majority (149, 83%) of all person-to-person norovirus outbreaks in 2014. This distribution pattern was similar to that of 2013, in which 38%, 29%, and 15% of person-to-person norovirus outbreaks occurred at assisted living facilities, nursing homes, and schools (K-12), respectively. Person-to-person norovirus outbreaks also occurred in

other types of settings, including daycare facilities (13, 7%), independent living facilities (6, 3%), adult daycare centers (3, 2%), and medical facilities (3, 2%). In addition, a workplace, camp, college, hotel, and military base each reported one person-to-person norovirus outbreak.

Although person-to-person norovirus outbreaks occurred throughout the year in 2014, the majority of these outbreaks occurred in the colder months of January (31, 17%), February (33, 18%), March (47, 26%), April (23, 13%), and December (19, 11%).

Norovirus was confirmed by laboratory testing in over half (101, 56%) of the 179 person-to-person norovirus outbreaks. Sequencing analysis was performed for 57 of 101 confirmed outbreaks, which revealed that norovirus genotype *Sydney* (36, 63%) predominated among all norovirus with sequencing data in 2014. Other strains identified included *Potsdam* (13, 23%), *Gwynedd* (4, 7%), *Shindlesham* (1, 2%), *Southampton* (1, 2%), *Seacroft* (1, 2%), and *Miami* (1, 2%). Sequencing data were not available for 44 (44%) of the confirmed outbreaks.

In addition to the 179 person-to-person norovirus outbreaks, there were three norovirus outbreaks in 2014 for which the transmission route could not be determined. Two of these outbreaks occurred in the northwest region; one was associated with a restaurant and the other was associated with a school (K–12). The third norovirus outbreak with unknown transmission route occurred in the central region and was associated with a restaurant.

Influenza Outbreaks

After norovirus, influenza (105, 22%) was the most common suspected or confirmed etiologic agent responsible for causing outbreaks in Virginia in 2014. An average of 31 people became ill in each influenza outbreak, with a range of 3 to 215 people.

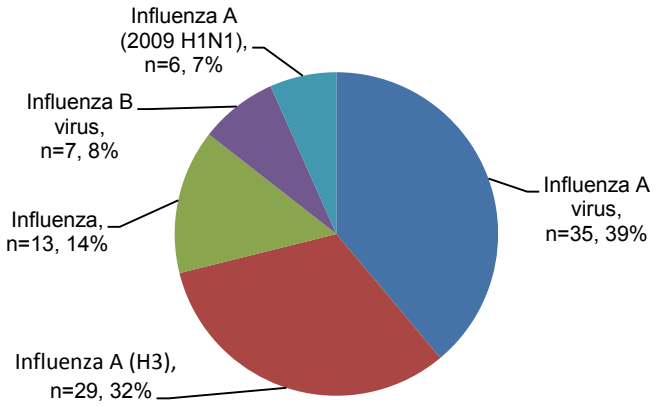
Influenza outbreaks were reported from all regions in Virginia in 2014. The northwest region had 35 (33%) influenza outbreaks, followed by the central (23, 22%), northern (19, 18%), southwest (15, 14%), and eastern (13, 12%) regions. Of note, the northwest region consistently reported more influenza outbreaks than most other regions in 2012 (28, 28%), 2013 (19, 24%), and 2014 (35, 33%).

More than half of influenza outbreaks were reported from nursing home (38, 36%) or assisted living facility (21, 20%) settings in 2014. Schools (K-12) reported 33 (31%) influenza outbreaks in 2014, which was an increase from 2013, during which schools (K-12) reported approximately one-tenth of all influenza outbreaks (9, 11%). Influenza outbreaks were also occasionally reported by other facilities, including medical facilities (5, 5%), child daycare centers (3, 3%), correctional facilities (2, 2%), an independent living facility (1, 1%), an adult daycare center (1, 1%), and a military base (1, 1%).

Two-thirds of influenza outbreaks (73, 70%) were reported in December 2014, which corresponded to a month when an abrupt, substantial increase in influenza activity was observed in both outbreaks and sporadic cases. The remaining outbreaks were scattered throughout the following months of 2014: January (13, 12%), February (3, 3%), March (1, 1%), April (6, 6%),

May (5, 5%), June (1, 1%), July (1, 1%), September (1, 1%), and October (1, 1%). Three (3%) of the outbreaks reported in January had illness onset in December 2013.

Figure 58. Strain of Influenza Virus in Confirmed Influenza Outbreaks, Virginia, 2014



Among the 105 influenza outbreaks occurring in 2014, 90 (86%) were confirmed by laboratory testing. Influenza A virus predominated in 70 (78%) of these confirmed outbreaks. Specifically, among laboratory-confirmed influenza outbreaks, influenza A (H3) was identified in 29 (32%) outbreaks, influenza A (not further specified) was identified in 35 (39%) outbreaks, influenza A (2009 H1N1) was identified in 6 (7%) outbreaks, and influenza B was identified in 7 (8%) outbreaks. Influenza was identified by rapid test in another 13 (14%) outbreaks but information on the virus subtype was not available (Figure 58).

For information on influenza outbreaks that occurred in the 2014-2015 influenza season (rather than calendar year 2014, as described above), please see the "Outbreaks" section of the "Influenza" chapter of the annual report.

Foodborne Outbreaks

During 2014, 23 foodborne outbreaks were reported in Virginia. This is similar to the 20 outbreaks reported in 2013 (Table 8). The average number of ill persons per outbreak was 31 and ranged from one to greater than 200 persons.

Foodborne outbreaks occurred throughout the year, although 12 (52%) had illness onset between April and July. Geographically, eight (35%) outbreaks occurred in the northwest health planning region, followed by six (26%) in the northern, and three each (13%) in the central and southwest regions. The remaining three (13%) outbreaks were multi-state outbreaks that involved cases from Virginia and other states.

Etiologic agents were confirmed by laboratory testing in 16 (70%) of 23 outbreaks. The majority of confirmed outbreaks (62%) were due to viral pathogens, while 38% were due to bacterial agents. Confirmed etiologic agents included norovirus (10), *Salmonella* (5), and *Clostridium perfringens* (1). Three outbreaks were multistate (fewer than the seven reported in 2013), and all were attributed to *Salmonella*. Norovirus was suspected in four additional outbreaks. The etiologic agent was unknown in three of the outbreaks (13%). Most foodborne outbreaks were associated with food prepared in restaurant (8, 35%) or private home (5, 22%) settings. The remaining outbreak settings included two caterers, two colleges, two hotels, a grocery store, a manufacturing plant, and a community park. One outbreak was associated with an undetermined setting due to exposures at multiple types of locations. Contributing factors were identified in twelve (52%) of these outbreaks, including bare-hand or glove-hand contact by an infected food

handler, foods contaminated by a non-food handler who was suspected to be infectious, contaminated raw product that was consumed without undergoing the intended kill step (such as cooking to the required temperature), food intended to be served raw was contaminated, failure to control food temperature or the length of time food was out of temperature control, improper cold holding or hot holding due to improper procedure or protocol, improper/slow cooling, and insufficient time and/or temperature control during initial cooking/heat processing or during reheating.

Table 8. Foodborne Outbreaks Reported in Virginia, 2014

Onset Date	Health District	Number of Cases	Etiologic Agent	Vehicle	Place Where Food Prepared
1/12/2014	Richmond City	19	Norovirus GI.3B Potsdam	Unknown; Food handler implicated	Caterer
1/15/2014	Chesterfield	44	Norovirus GI.3B Potsdam	Sub sandwiches	Grocery store
2/28/2014	Pittsylvania-Danville	45	Norovirus GII.3A Milwaukee	Salad	Restaurant
3/16/2014	Alleghany	7	Norovirus suspected	Unknown	Restaurant
3/29/2014	New River	8	Norovirus suspected	Unknown	Restaurant
4/02/2014	Central Shenandoah	64	Norovirus GII	Unknown	College/ University
4/03/2014	Lord Fairfax	36	*Clostridium perfringens*	Chicken	Private Home
4/06/2014	Lord Fairfax	8	Unknown	Unknown	Restaurant
4/24/2014	Multi-state	1 VA 20 US	*Salmonella* ser. Baildon	Cantaloupe (suspected)	Private Home
4/25/2014	Fairfax	35	Norovirus GI	Unknown; Food handler implicated	Restaurant
5/04/2014	Central Shenandoah	25	Norovirus GI	Unknown	Caterer
5/05/2014	Fairfax	10	Norovirus suspected	Unknown	Restaurant
5/19/2014	Thomas Jefferson	4	*Salmonella* ser. Typhimurium	Possible ground beef	Community park
5/28/2014	Henrico	32	Unknown	Spoiled milk	Manufacturing plant
6/15/2014	Lord Fairfax	50	Norovirus GI.3B Potsdam	Unknown	Undetermined
7/13/2014	Multi-state	27 VA 275 US	*Salmonella* ser. Newport	Cucumbers	Private Home
7/31/2014	Fairfax	16	Unknown	Unknown	Restaurant
8/16/2014	Central Shenandoah	37	*Salmonella* ser. Thompson	Chicken	Private Home

Table 8. Foodborne Outbreaks Reported in Virginia, 2014 (cont.)

Onset Date	Health District	Number of Cases	Etiologic Agent	Vehicle	Place Where Food Prepared
10/20/2014	Arlington	4	Norovirus suspected	Unknown	Restaurant
11/12/2014	Multi-state	1 VA 115 US	*Salmonella* ser. Enteritidis	Bean sprouts	Private Home
11/15/2014	Thomas Jefferson	>200	Norovirus GII.6B Miami	University cafeteria lunch items; Food handler implicated	College/ University
12/7/2014	Arlington	29	Norovirus GII.4 Sydney	Unknown; Food handler implicated	Hotel
12/10/2014	Arlington	15	Norovirus GII	Unknown; Food handler implicated	Hotel

Outbreak spotlight: Out-of-state outbreak suspected to be caused by Clostridium perfringens

In 2014, one outbreak suspected to be caused by *Clostridium perfringens* was investigated by another state health department and thus not included as a Virginia outbreak. However, 8 Virginia residents and 208 out-of-state residents developed gastrointestinal illness after consuming a catered lunch at a convention center. The investigation indicated that chicken marsala might have become contaminated due to improper hot holding.

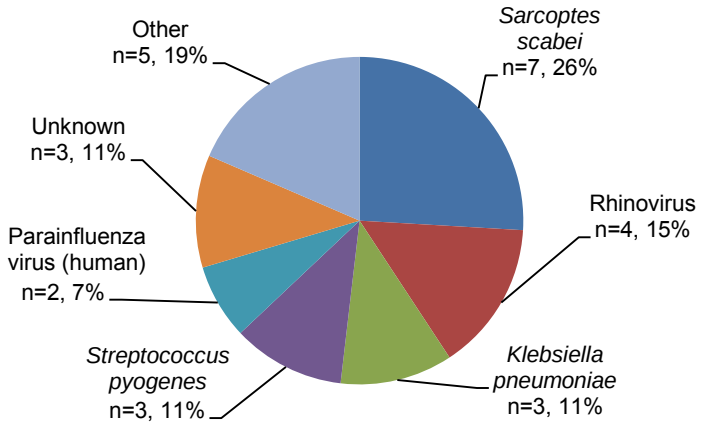
Healthcare-Associated Outbreaks

A healthcare-associated outbreak is a group of illnesses with a common etiology among patients, residents, or staff in a healthcare setting (e.g., hospital, medical center, nursing home, physician's office, dialysis center, or other healthcare facility), where the illness is associated with that setting. Note that prior to 2008, only outbreaks that occurred in hospitals and nursing homes (facilities meeting the definition of a medical care facility in 12VAC5-90-10) were included in these statistics.

During 2014, 27 healthcare-associated outbreaks with suspected or confirmed etiologic agents other than norovirus or influenza were reported in Virginia. This is similar to the 30 non-norovirus, non-influenza outbreaks reported from healthcare facilities in 2013. The average number of ill persons per healthcare-associated outbreak in 2014 was 14, and ranged from two to 57 persons. The majority of healthcare-associated outbreaks occurred in nursing homes (17, 63%) and the remaining outbreaks (10, 37%) occurred in medical facilities, including hospitals, an outpatient facility, and an intermediate care facility for people with disabilities. The majority of the healthcare-associated outbreaks (22, 81%) were attributed to person-to-person transmission. One outbreak was related to environmental exposure (1, 4%). The route of transmission could not be determined in 4 outbreaks (15%).

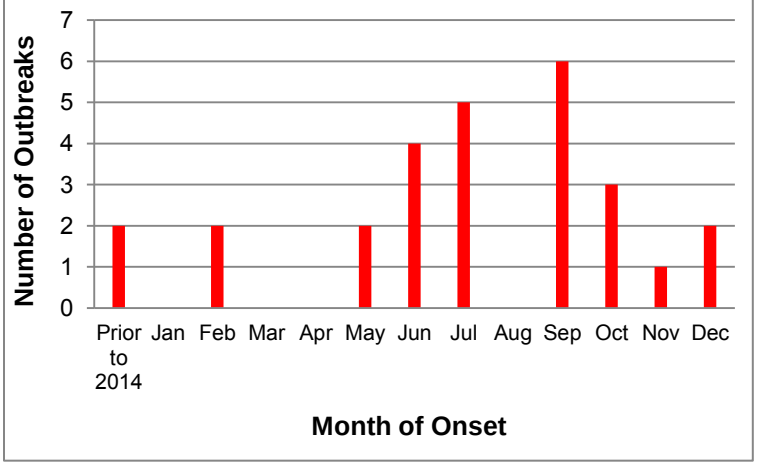
Etiologic agents were confirmed in 17 (63%) of the outbreaks, suspected in 7 (26%) and unknown in 3 (11%). *Sarcoptes scabei* (scabies) (7, 26%), rhinovirus (4, 15%), *Klebsiella pneumoniae* (3, 11%), *Streptococcus pyogenes* (3, 11%), and human parainfluenza viruses (2, 7%) were each suspected or confirmed in multiple outbreaks. Aspergillus, respiratory syncytial virus, *Sphingomonas paucimobilis*, *Clostridium difficile*, and methicillin resistant *Staphylococcus aureus* were each responsible for one outbreak (Figure 59). The seven scabies outbreaks reported from healthcare facilities in 2014 is similar to the eight reported outbreaks in 2013. The three outbreaks associated with *Streptococcus pyogenes* involved invasive disease. Two outbreaks occurred in nursing homes and one occurred in an outpatient medical facility.

Figure 59. Healthcare-Associated Outbreaks: Etiologic Agent Confirmed or Suspected, Virginia, 2014



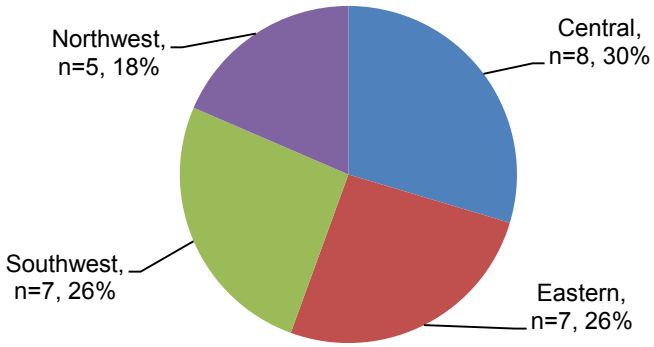
Although healthcare-associated outbreaks were reported throughout the year, they tended to cluster in the warmer weather months (Figure 60). More than half (16, 59%) had onsets between May and September with more than one-third (10, 37%) occurring in July or September. This contrasts with the healthcare-associated outbreaks from 2013, when 13 (43%) of the outbreaks had onsets during the colder months of December, January, February, and March.

Figure 60. Healthcare-Associated Outbreaks: Month of Onset, Virginia, 2014



In 2014, healthcare-associated outbreaks were reported most frequently from the central (8, 30%), eastern (7, 26%), and southwest (7, 26%) health planning regions. The northwest region reported five outbreaks (19%), while the northern region reported none (Figure 61).

Figure 61. Healthcare-Associated Outbreaks: Region of Occurrence, Virginia, 2014



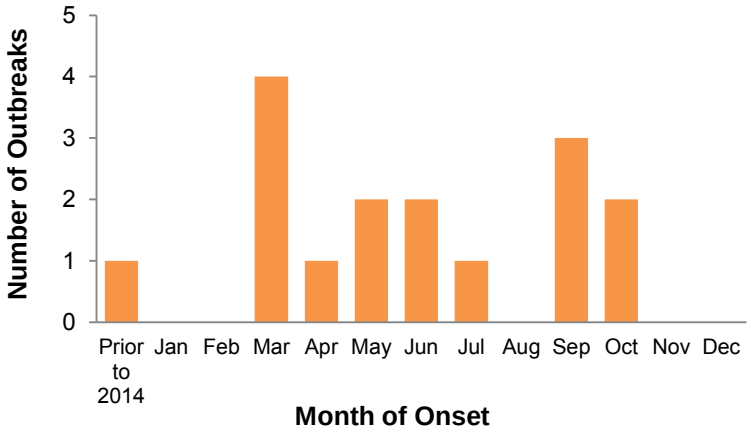
Vaccine-Preventable Disease Outbreaks

During 2014, a total of 17 vaccine-preventable disease outbreaks were reported in Virginia. This is higher than 2013, when 14 outbreaks were reported. Of these 17 outbreaks, 16 were related to pertussis and one was related to varicella (chickenpox).

All 16 of the pertussis outbreaks reported in 2014 were confirmed by laboratory testing. The average number of ill persons per outbreak was 6, with a range from two to 23 persons. Ten (63%) of the 16 pertussis outbreaks occurred in schools (K-12) and three (19%) occurred in private homes. Of the remaining three outbreaks, one (6%) was associated with a camp/ campground, one (6%) occurred in a daycare/pre-K facility, and one (6%) was associated with a country club.

Pertussis outbreaks were spread fairly evenly throughout the year, although the months from March to July accounted for more than half (10, 63%) of the outbreaks (Figure 62). This varies slightly from 2013, when the majority of outbreaks (80%) were reported in the second half of the year.

Figure 62. Pertussis Outbreaks: Month of Onset, Virginia, 2014



The northern areas of the state had substantially more pertussis outbreaks (13, 81%) than other areas in 2014. The northwest health planning region reported the most outbreaks (7, 44%), followed by the northern region (6, 38%). The southwest region had two pertussis outbreaks (13%), while the eastern region had one pertussis outbreak (6%).

One chickenpox outbreak was reported in 2014. The outbreak occurred in a private home in the central region and was not confirmed by laboratory testing. Six people were affected by the outbreak.

Lack of compliance with the recommended immunization schedule contributed to these outbreaks. For the 16 pertussis outbreaks, up-to-date immunizations were reported among all case-patients in only five outbreaks (31%). The other 11 outbreaks affected persons who were either unvaccinated, had not received all recommended doses of vaccine, or documentation was not available to confirm that all recommended doses had been received. No other outbreaks caused by vaccine-preventable diseases such as measles, mumps, rubella, or *Haemophilus influenzae* type B were reported in 2014.

Waterborne Outbreaks

In 2014, one waterborne outbreak was reported in Virginia (Table 9), compared to three outbreaks reported in 2013. The outbreak occurred in July in a private home in the southwest region and affected two individuals. It was confirmed to be caused by *Legionella pneumophila*, resulting from an inhalational exposure to a treated recreational water source (hot tub).

Table 9. Waterborne Outbreaks Reported in Virginia, 2014

Onset Date	Health District	Number of Cases	Etiologic Agent	Suspected Vehicle	Place Where Outbreak Occurred
7/28/2014	Mount Rogers	2	*Legionella pneumophila*	Recreational water source - treated	Private Home

Zoonotic Outbreaks

In 2014, two multi-state zoonotic outbreaks were reported that involved residents of Virginia. Both occurred in private home settings. One of the outbreaks was caused by *Salmonella* ser. Hadar, Infantis, and Newport and involved live poultry exposure. The other outbreak was due to *Salmonella* ser. Typhimurium and was associated with exposure to frozen feeder rodents. There were 26 total Virginia cases in these multi-state outbreaks, with 25 cases occurring as a result of the live poultry outbreak and one case due to the feeder rodent outbreak (Table 10).

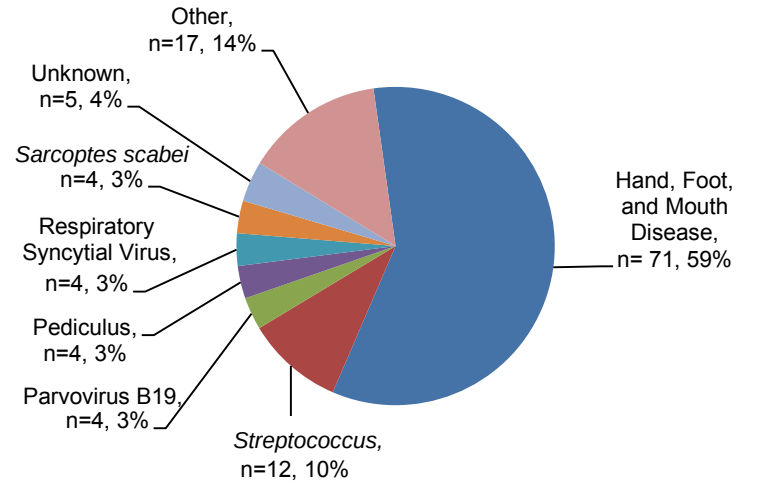
Table 10. Zoonotic Outbreaks Reported in Virginia, 2014

Onset Date	Health District	Number of Cases	Etiologic Agent	Vehicle	Place Where Outbreak Occurred
4/05/2014	Multi-state	25 VA 363 US	*Salmonella* ser. Hadar, Infantis, and Newport	Live Poultry	Private Home
6/13/2014	Multi-state	5 VA 41 US	*Salmonella* ser. Typhimurium	Frozen feeder rodents	Private Home

Other Outbreaks

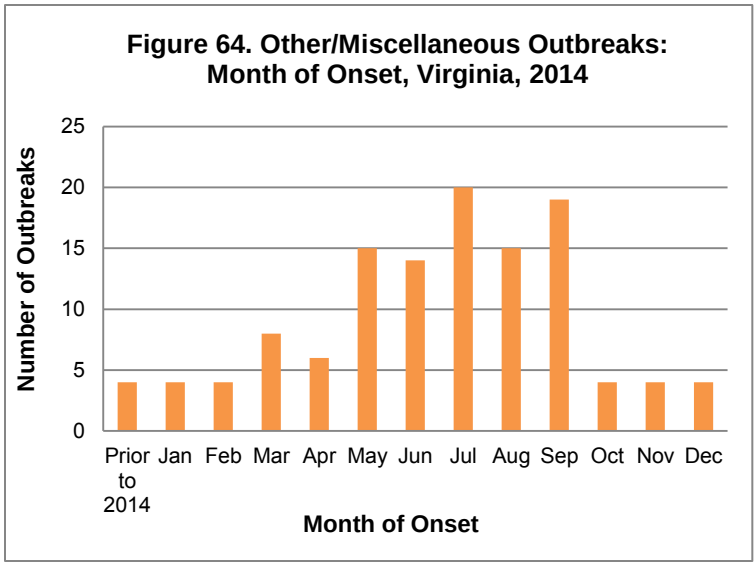
In addition to the norovirus, influenza, foodborne, healthcare-associated, vaccine-preventable, waterborne, and zoonotic disease outbreaks discussed above, 121 other outbreaks were reported in Virginia in 2014, which was a 89% increase compared to the 64 outbreaks reported in 2013. The average number of ill persons per outbreak was 15, and ranged from one to 76 persons. As in previous years, the majority of these outbreaks (114, 94%) were attributed to person-to-person transmission. Environmental exposure, chemical exposure, and laboratory exposure contributed to one outbreak (1%) each. The remaining six (5%) outbreaks were attributed to undetermined factors.

Figure 63. Other/Miscellaneous Outbreaks: Etiologic Agent Confirmed or Suspected, Virginia, 2014



The most frequent causes of outbreaks reported from other settings were confirmed or suspected to be hand, foot, and mouth (HFM) disease (71 outbreaks, 59%) or *Streptococcus* (12, 10%). The remaining 38 outbreaks were suspected or confirmed to be caused by a variety of etiologic agents (Figure 63). Four outbreaks each were suspected or confirmed to be caused by human parvovirus B19, pediculus (head lice), respiratory syncytial virus, and *Sarcoptes scabei* (scabies). The number and percentage of scabies outbreaks decreased notably compared to the prior year. In 2013, there were 14 scabies outbreaks, representing 22% of all outbreaks in other settings. Other outbreaks in 2014 included three gastrointestinal illnesses confirmed to be due to *Shigella*, two skin infections suspected to be caused by *Tinea corporis* (ringworm), and two outbreaks of gastrointestinal illness confirmed to be caused by *Salmonella* ser. Typhimurium. In addition, single outbreaks were confirmed or suspected to be gastrointestinal illness caused by *Campylobacter jejuni*, carbon monoxide poisoning, gastrointestinal illness suspected to be due to enterovirus, respiratory illness confirmed to be due to enterovirus/rhinovirus, gastrointestinal illness caused by *Escherichia coli* O157:H7, skin infection caused by human herpes virus 1,

upper respiratory illness caused by metapneumovirus, gastrointestinal illness caused by rotavirus, gastrointestinal illness caused by sapovirus, and gastrointestinal illness caused by *Staphylococcus aureus*. The etiologic agent was unknown in three gastrointestinal illness outbreaks, one respiratory illness outbreak, and one conjunctivitis outbreak.



Overall, the most common settings for these 121 outbreaks were daycare/pre-K facilities (64, 53%), schools (K-12) (43, 35%), and assisted living facilities (9, 7%). In addition, two (2%) outbreaks were reported from a business/workplace. One (1%) outbreak occurred in each of the following settings: a laboratory, private home, and restaurant. One outbreak was a cluster of genetically related enteric bacteria identified by the state public health laboratory that had an undetermined route of transmission (i.e., not foodborne, waterborne, or zoonotic).

Although these outbreaks occurred throughout the year, more than two-thirds (83, 69%) of the outbreaks had illness onset in the warmer months of the year, between May and September (Figure 64).

Regionally, outbreaks occurred throughout the state, with the largest proportions in the central (37, 31%), northern (33, 27%), and northwest (31, 26%) health planning regions, followed by the southwest (11, 9%) and eastern (8, 7%) regions. One (1%) multi-state outbreak affected a resident of the northern region.

Outbreak spotlight: Streptococcal infection

Twelve outbreaks of Streptococcal disease (7 confirmed, 5 suspected) were reported in other settings in 2014. These outbreaks caused respiratory or rash illnesses (primarily presenting as "strep throat") in 8 school (K-12) settings, 3 daycare/pre-K settings, and 1 assisted facility. One of the outbreaks in a daycare/pre-K setting included one case of invasive group A Streptococcal infection and numerous cases of non-invasive illness. Eight of the 12 *Streptococcus* outbreaks were reported from the northwest region. All other regions except the central region reported at least one outbreak.

Outbreak spotlight: Hand, foot, and mouth disease

Among the 121 other outbreaks in 2014, 71 (59%) were outbreaks suspected to be due to hand, foot, and mouth (HFM) disease, a viral illness that can cause fever, blister-like sores in the mouth, and a skin rash. This is ten times the number of HFM outbreaks reported in 2013. HFM disease usually affects infants and children younger than 5 years of age, but can sometimes occur in adults. HFM disease is caused by the Enterovirus group of viruses, which includes

polioviruses, coxsackieviruses, echoviruses, and enteroviruses. None of the 71 HFM outbreaks in 2014 was confirmed by laboratory testing. More than two-thirds of the HFM disease outbreaks occurred in daycare facilities (50, 70%), and the remaining outbreaks occurred in school (K-12) settings (21, 30%).

Disease spotlight: Enterovirus D68 (EV-D68) infection

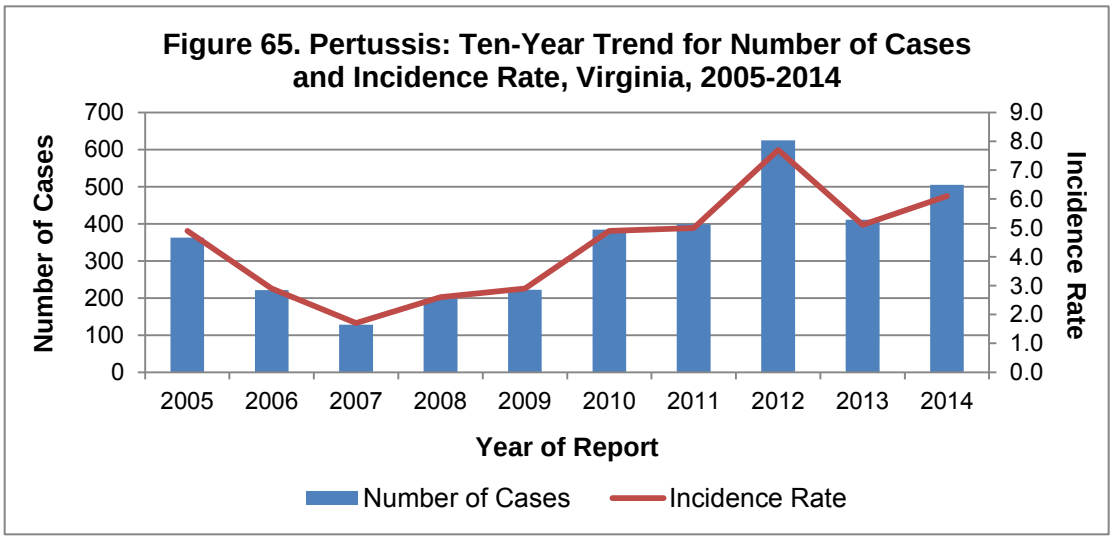
In 2014, eight large community events involving more than 150 cases were confirmed to be caused by enterovirus D68 (EV-D68). EV-D68 can cause mild to severe respiratory illness and is spread from person to person through contact or droplets, similar to influenza. The central, eastern, and northern regions were affected by these community events, but sporadic cases of EV-D68 were reported throughout the state in the fall of 2014. The increase in EV-D68 infection in Virginia in 2014 was consistent with the trend in the U.S. Other states experienced community clusters and outbreaks of EV-D68 during this period as well. From mid-August 2014 to mid-January 2015, more than 1,150 people in 49 states and the District of Columbia were confirmed to have respiratory illness caused by EV-D68. Nearly all of the confirmed cases nationally were among children, many of whom had a history of asthma or wheezing.

Pertussis

Agent: *Bordetella pertussis* (bacteria)
Mode of Transmission: Person-to-person transmission by contact with respiratory droplets from infected patients.
Signs/Symptoms: Insidious cough that progresses to paroxysmal coughing (i.e., severe, sequential coughs with difficulty inhaling) and may be accompanied by post-cough vomiting.
Prevention: Appropriate vaccine should be administered beginning at 2 months of age.
Other Important Information: Pertussis is also known as whooping cough. Coughing fits can last up to 10 weeks or more. In vaccinated populations, the case-fatality rate is low. When deaths occur, they are generally in children less than six months old who are too young to have been vaccinated.

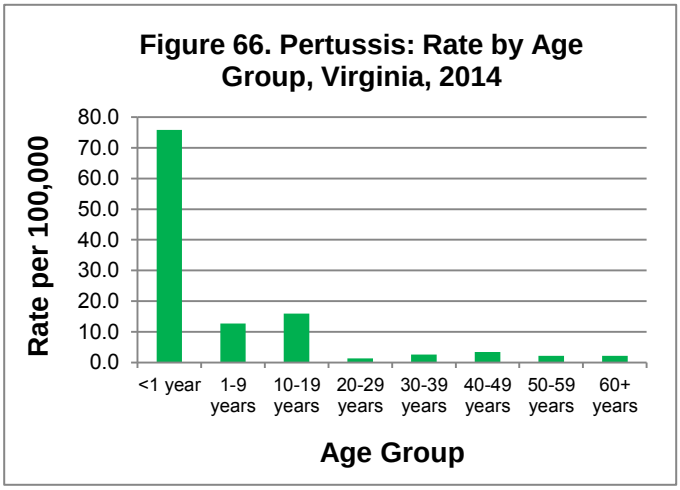
Pertussis: 2014 Data Summary	
Number of Cases:	505
5-Year Average Number of Cases:	409.6
% Change from 5-Year Average:	+23%
Incidence Rate per 100,000:	6.1

In 2014, 505 cases of pertussis were reported in Virginia. This is a 21% increase from the 418 cases reported in 2013 and a 23% increase from the five-year average of 409.6 cases per year (Figure 65). Cases of pertussis typically occur in waves, with peak numbers appearing every 3-5 years. For the past 20-30 years, the peaks have been getting higher and overall case counts have been rising. The number of pertussis cases in 2012 was the highest reported in Virginia since 1959 when 1,114 cases were reported. In addition, the 48,277 cases reported nationally in 2012 was the highest number reported since 1955. Since 2012, the number of cases has declined nationally and in Virginia, but is still higher than numbers seen in previous waves. The increase observed in Virginia in 2014 is inconsistent with the typical pertussis disease cycle and was not seen nationally.



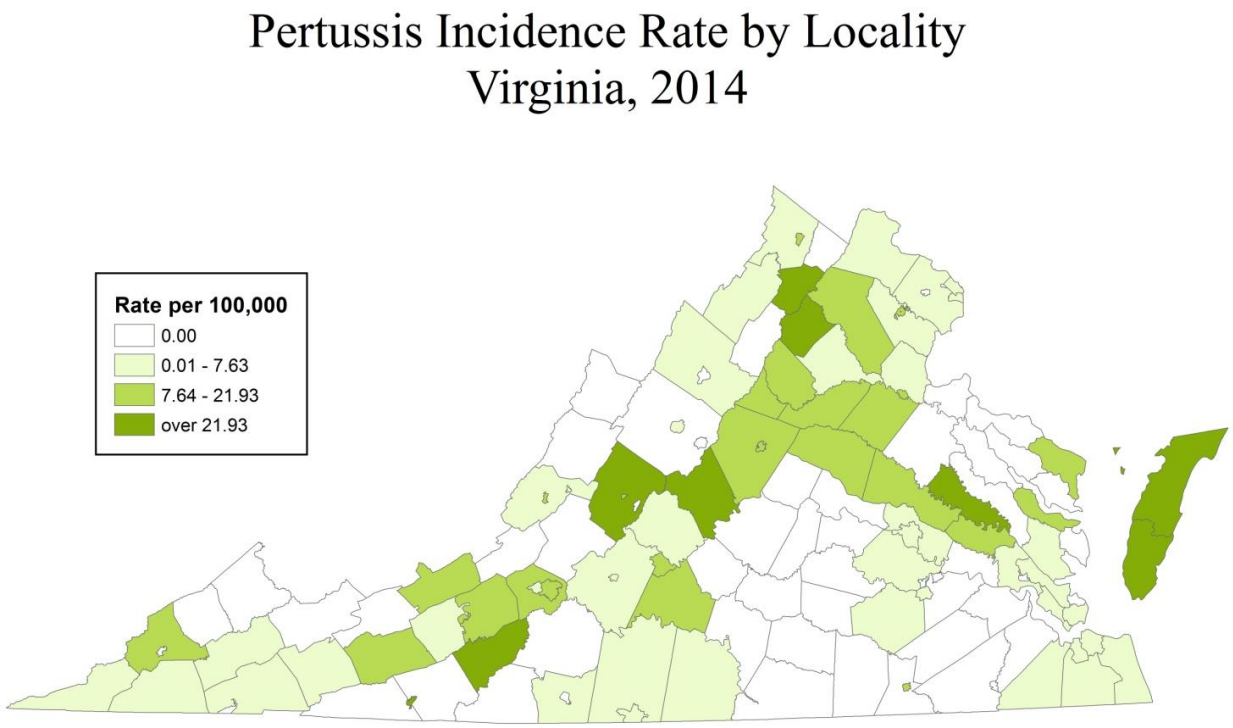
Several factors may help explain the general increase in the last decade. These include increased awareness of the disease, improved diagnostic tests and their wider availability, better reporting, increased circulation of the bacteria and waning immunity in all age groups. It is also becoming apparent that the acellular pertussis vaccine currently used in the United States may not protect for

as long as the whole cell vaccine that was used earlier. As discussed below, the highest incidence rates, nationally and in Virginia, are in children (i.e., born after 1996) who received only acellular vaccine.



Pertussis cases were reported from every age group. However, the less than one year age group had a substantially higher incidence rate than other age groups, with 75.9 cases per 100,000 population (Figure 66). The next highest incidence was observed in the 1-9 and 10-19 year age groups, with 12.7 and 15.9 cases per 100,000, respectively. Race was not reported for 44% of cases. Among cases with a known race, incidence in the white population (4.2 per 100,000) was more than twice the rate in the black population (1.7 per 100,000), and more than three times the rate in the "other" race category (1.3 per 100,000). Incidence among females was slightly higher than incidence among males (6.5 and 5.7 per 100,000, respectively).

Among regions, the northwest region had the highest number of cases and incidence rate (139 cases, 10.9 per 100,000). Rates in other regions ranged from 7.4 per 100,000 in the southwest region to 4.1 per 100,000 in the central region. Please see the map below for more detailed incidence rates by locality. While cases occurred throughout the year, the largest proportion (30%) of cases had onset in the second quarter of the year. Sixteen pertussis outbreaks were reported in 2014. Over half of the outbreaks (56%) were linked to school settings. The largest outbreak involved 23 individuals from the eastern region. One death due to pertussis was reported in 2014 in an infant less than six months of age.



Plague

Agent: *Yersinia pestis* (bacteria)
Mode of Transmission: Transmitted to humans through the bite of infected fleas or through handling tissue or body fluids of a plague-infected animal. If the disease attacks the lungs, it may be spread from person to person by respiratory droplets released when coughing.
Signs/Symptoms: Fever, chills, nausea, headache and body aches. Specific types of plague also lead to other symptoms, such as swollen lymph nodes ("buboes"), bloodstream infections, and pneumonia.
Prevention: In areas where plague occurs, travelers should avoid contact with rodents and fleas and avoid handling stray animals. Persons with plague that results in pneumonia should be isolated until 48 hours after antibiotics have been started.
Other Important Information: Modern antibiotics are effective in treating plague; however, without prompt treatment, the disease can result in serious illness or death. Fewer than 20 people in the United States are diagnosed with plague every year. Human plague infections continue to occur in the western United States, but many more cases occur in Africa and Asia. *Y. pestis* is considered to be one of the agents that could be used for bioterrorism because the bacteria can be spread from person to person and would cause increased illness and death in the population if it were used as a weapon.

No cases of plague have been reported in Virginia since the nineteenth century.

Poliovirus Infection, Including Poliomyelitis

Agent: Poliovirus
Mode of Transmission: Person-to-person transmission through ingestion of contaminated food or direct contact with fecal material from infected people.
Signs/Symptoms: Up to 90% of all polio infections are asymptomatic. Ten percent will develop into a non-specific syndrome with fever, malaise, headache, nausea, and vomiting. Flaccid paralysis occurs in less than 1% of poliovirus infections.
Prevention: Vaccine should be administered beginning at 2 months of age. Four doses of trivalent, inactivated poliovirus vaccine (IPV) are recommended with the last dose administered prior to kindergarten entry and after the fourth birthday.
Other Important Information: Polio eradication programs have led to the elimination of the disease in four of the six World Health Organization (WHO) designated regions. Polio incidence has dropped more than 99% since the launch of global polio eradication efforts in 1988, and 80% of the world's population now live in polio-free areas. Poliovirus transmission continues in only three countries - Afghanistan, Nigeria, and Pakistan. In 2014, Pakistan reported the most cases of polio with 306, followed by Afghanistan with 28 cases and Nigeria with six cases. Until poliovirus transmission is interrupted in these endemic countries, all countries remain at risk of importation of polio, especially in the "wild poliovirus importation belt" stretching from west Africa to central Africa and the Horn of Africa. In 2014, the WHO South-East Asia region, which includes eleven countries from Indonesia to India, was certified polio-free. This certification follows India's third year of not reporting any cases of polio. According to WHO, there were 359 cases of polio worldwide in 2014, down from 416 reported cases in 2013. The decline in cases could be a result of vaccination efforts done in 2013 in response to polio outbreaks in the Middle East. In 2011, Virginia's reporting requirements were changed to require reporting of any poliovirus infection, not only poliomyelitis.

No poliovirus infections were reported in Virginia in 2014. The last reported case of poliomyelitis in Virginia occurred in 1978.

Psittacosis

Agent: *Chlamydia psittaci* (bacteria)
Mode of Transmission: Transmission usually occurs when a person inhales organisms that have been aerosolized from dried feces or respiratory tract secretions of infected birds. Other means of exposure include mouth-to-beak contact and handling of feathers or tissues from infected birds.
Signs/Symptoms: Most commonly fever, headache, weakness, loss of appetite, muscle aches, chills, sore throat, and cough. The severity of the disease ranges from a mild, non-specific influenza-like illness to a systemic illness with severe pneumonia. With appropriate treatment, the infection is rarely fatal.
Prevention: Preventive measures include proper design and management of facilities that raise and sell birds and use of protective clothing (e.g., wearing of masks or respirators and gloves) by those working with birds. Bird cages should be cleaned regularly with disinfectants and the contents of the cage should be disposed of properly. People who work with birds or have birds as companion animals who experience symptoms compatible with psittacosis should bring this potential exposure to their healthcare providers' attention.
Other Important Information: Birds may or may not show signs of illness when infected. Chlamydial organisms have been isolated from over 460 bird species, but are most commonly identified in psittacine (parrot-type) birds, especially cockatiels and budgerigars (also called parakeets or budgies). Among caged, nonpsittacine birds, infection with *C. psittaci* occurs most frequently in pigeons and doves. People who raise, sell or keep birds should consult with a licensed veterinarian about protocols and best practices for preventing and treating avian psittacosis.

No cases of psittacosis were reported in Virginia during 2014. The most recent psittacosis case was reported in 2003.

Q Fever

Agent: *Coxiella burnetii* (bacteria)
Mode of Transmission: Inhalation of air contaminated with *Coxiella burnetii*. Most commonly, people are exposed to this organism via inhalation of infectious aerosols directly from birth fluids of infected animals or via inhalation of dust contaminated with dried birth fluids or tissues. Less common routes of transmission include ingestion of raw milk and dairy products or contact with contaminated clothing. Person-to-person transmission is rare.
Signs/Symptoms: While approximately 50% of infections are asymptomatic, symptomatic Q fever may be acute or chronic. Acute Q fever is characterized by high fever, severe headache, fatigue, chills and muscles aches. Serious illness can progress to pneumonia or inflammation of the heart and liver. Children with Q fever are less likely than adults to have symptoms, and might have a milder illness. When symptomatic, children are more likely to manifest gastrointestinal symptoms of illness and develop a skin rash. Chronic Q fever is a severe disease developing in less than 5% of acutely-infected patients, and is rarely reported in children. Endocarditis is the major form of chronic disease, comprising 60-70% of all reported cases. It may present within 6 weeks after an acute infection, or may manifest years later. Chronic disease can occur after symptomatic or asymptomatic infections. The three groups at highest risk for developing chronic Q fever are pregnant women, immunocompromised persons and patients with a pre-existing heart valve defect.
Prevention: Preventive measures include appropriate disposal of potentially infectious tissues and proper hygiene when handling animal birth material.
Other Important Information: Although infection has been confirmed in many species, cattle, sheep and goats are the main natural reservoirs for *C. burnetii*. The infectious form of these bacteria is highly resistant to heat, desiccation, and disinfectant substances, and can persist in the environment for long periods of time. Windborne particles containing infectious organisms can travel a half-mile or more, which may contribute to cases with no known animal contact. From 2000-2010, information associated with Q fever cases reported to the CDC indicated that 60% of patients reported no animal contact. This bacterium is classified by the CDC as a potential bioterrorism agent because it could easily be disseminated and result in a moderate amount of illness.

Four cases of Q fever, one chronic and three acute, were reported in Virginia in 2014. This is slightly higher than the five-year average of 1.8 cases per year. Of the four cases in 2014, two were in adult males and two were in adult females. Two cases occurred in the northern region, and one each in the northwest and central regions. One of the acute cases had a confirmed history of raw milk consumption and the other reported travel to Ecuador where raw dairy products may have been consumed. No specific risk factors were identified for the third acute case. The chronic case was associated with valvular heart disease.

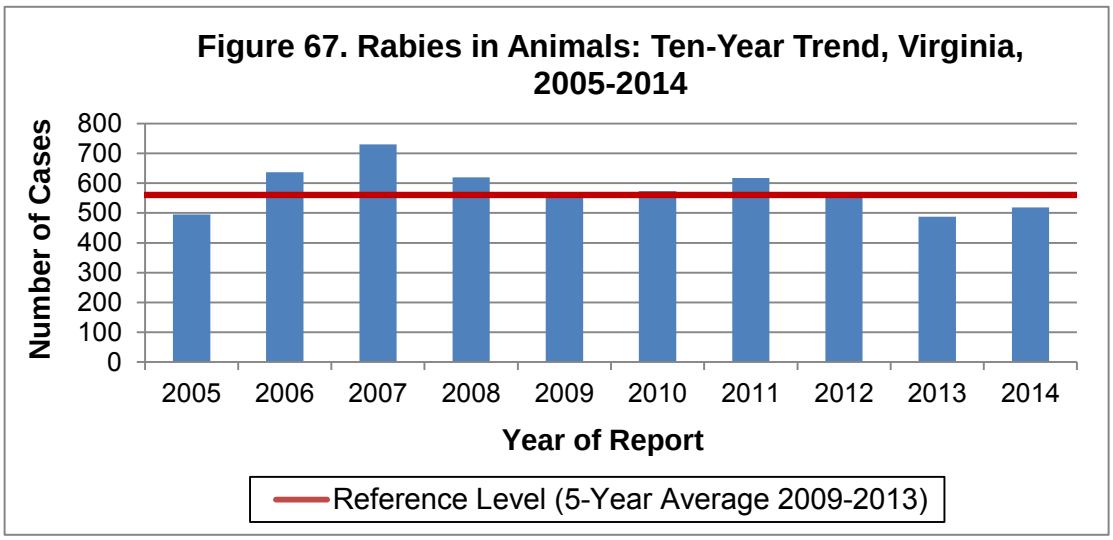
Rabies

Agent: Rabies virus, a rhabdovirus of the genus Lyssavirus
Mode of Transmission: Most commonly transmitted through the bite of an infected animal, but may be transmitted through any method by which virus-infected saliva or central nervous system tissue enters the body.
Signs/Symptoms: Vary widely, but in people, symptoms often include an initial headache, fever and apprehension which progresses to paralysis, spasms of the muscles used for swallowing, delirium and convulsions. Once symptoms appear, rabies is almost invariably fatal.
Prevention: Important prevention methods include vaccinating cats, dogs, and ferrets; using animal control to remove stray animals; and avoiding handling wildlife. A series of vaccines is recommended for people whose occupations increase their likelihood of being exposed to rabies (e.g., veterinarians and laboratorians working with rabies virus) and a vaccine series is also available for people who have been exposed.
Other Important Information: The main reservoir of rabies in the United States is wildlife. In most other countries, the main reservoir is dogs. Not everyone who meets the health department's definition of possible exposure to rabies is required to undergo the rabies vaccination series, also known as post-exposure prophylaxis (PEP). A person may receive PEP if he is considered exposed to rabies and the animal associated with the exposure is either not available or tests positive for rabies.

Human

In 2014, no human rabies cases were reported in Virginia. The last human rabies case reported in Virginia occurred in 2009 in an adult male who was infected with the Indian canine variant of the rabies virus. This person was thought to have been exposed during an encounter with a dog while traveling in India. The patient died as a result of this infection.

In 2014, 1,545 individuals were reported as having received rabies post-exposure prophylaxis in Virginia. This represents a statewide rate of 18.7 per 100,000 individuals receiving PEP and is an increase of 4% from 2013 when 1,483 individuals were reported as having received PEP. Fairfax Health District had the highest number of individuals (236) receiving PEP, but the highest rate was reported from the New River Health District, where 91 individuals received PEP (50.5 per 100,000). Rates in the remaining districts ranged from 3.7 per 100,000 (Hampton Health District, 5 people) to 39.5 per 100,000 (Lord Fairfax Health District, 90 people). The number of individuals receiving PEP by region ranged from 194 (10.6 per 100,000) in the eastern region to 463 (19.4 per 100,000) in the northern region. For health districts that recorded exposures by species among those receiving PEP, more than 40% of individuals received PEP due to exposure to a wildlife species, approximately 30% received PEP due to exposure to a dog, and approximately 25% received PEP due to exposure to a cat. Less than 3% of people received PEP due to livestock exposure. Twelve individuals received PEP due to an unknown animal exposure. Most potential human exposures to rabies reported to the health department each year are associated with dogs and cats.



Animal

In 2014, health districts investigated over 19,000 incidents where either an animal potentially exposed a person to rabies or the animal itself was potentially exposed to rabies. Almost two-thirds of these incidents involved dogs. Cats accounted for less than one-fourth of all incidents. Among all the incidents investigated, only 3,743 animals were submitted for rabies testing. Of these, 519 (14%) were laboratory confirmed positive for rabies. This is within the range of 13-16% of animals testing positive that has been observed over the last 10 years. The 519 animals that tested positive for rabies in 2014 represents a 6% increase from the 488 animals that tested positive for rabies in 2013 (Figure 67). The largest number of laboratory-confirmed rabid animals was reported from the northwest region (138 animals, 27%) followed by the southwest region (124 animals, 24%). The number of lab-confirmed rabid animals in the remaining regions ranged from 82 to 90. By district, the largest number of rabid animals were reported from the Lord Fairfax Health District (51 animals, 10%), followed by the Fairfax Health District (47 animals, 9%), and Central Shenandoah Health District (36 animals, 7%) (Table 11). No rabid animals were identified in the Arlington Health District or Lenowisco Health District in 2014.

Table 11: Animals Testing Positive for Rabies by Health District, Virginia, 2014

Health District	Number of Animals Tested	Positive	
		Number	Percent
Alexandria	28	1	4%
Alleghany	65	19	29%
Arlington	41	0	0%
Central Shenandoah	199	36	18%
Central Virginia	217	34	16%
Chesapeake	57	4	7%

Table 11: Animals Testing Positive for Rabies by Health District, Virginia, 2014 (cont.)

Health District	Number of Animals Tested	Positive	
		Number	Percent
Chesterfield	156	3	2%
Chickahominy	125	16	13%
Crater	57	9	16%
Cumberland Plateau	37	3	8%
Eastern Shore	61	17	28%
Fairfax	399	47	12%
Hampton	44	5	11%
Henrico	160	12	8%
Lenowisco	24	0	0%
Lord Fairfax	206	51	25%
Loudoun	151	20	13%
Mount Rogers	121	19	16%
New River	137	17	12%
Norfolk	32	3	9%
Peninsula	91	13	14%
Piedmont	63	18	29%
Pittsylvania/Danville	82	16	20%
Portsmouth	7	1	14%
Prince William	148	17	11%
Rappahannock	135	12	9%
Rappahannock/Rapidan	171	23	13%
Richmond City	149	9	6%
Roanoke City	124	6	5%
Southside	54	15	28%
Thomas Jefferson	110	16	15%
Three Rivers	77	19	25%
Virginia Beach	87	14	16%
West Piedmont	73	10	14%
Western Tidewater	51	14	27%
Out Of State (DE, MD, NY)	4	0	0%
Total for 2014	**3,743**	**519**	**14%**

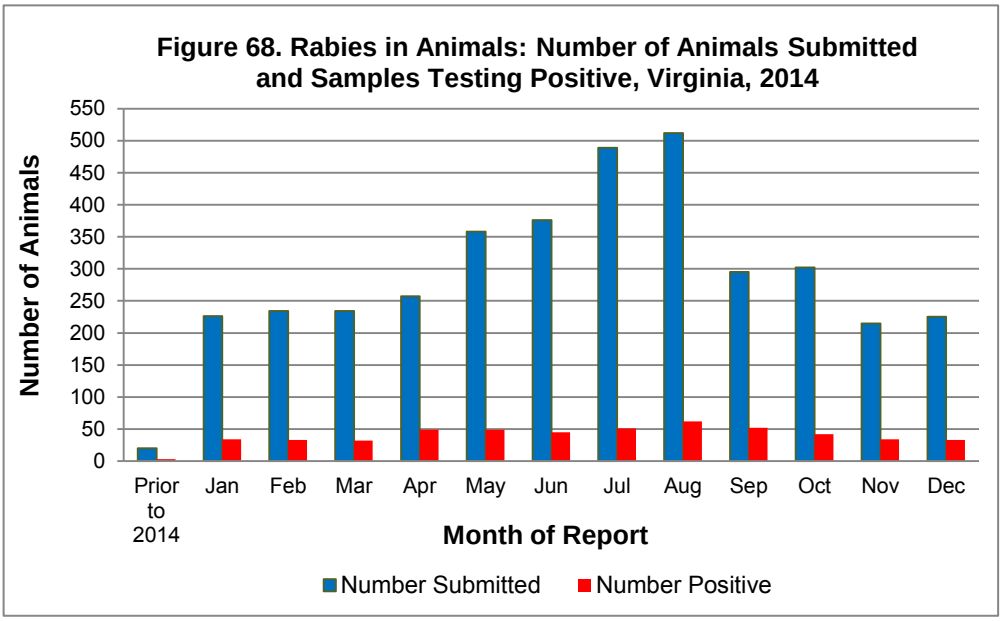
Among all animal species tested for rabies, cats were tested most frequently (869 cats tested, 3% positive) (Table 12). Bats were the most commonly tested wildlife species, with 864 specimens submitted and 3% positive. Aside from a single otter testing positive (100%), skunks had the highest percentage of positive test results (63%), followed by bobcats (50%), and raccoons (41%). Of the 519 animals testing positive for rabies in Virginia in 2014, raccoons accounted for almost half (45%) of all positive results, followed by skunks (31%), and foxes (9%). Cattle accounted for the largest proportion (16%) of livestock testing positive for rabies. All small rodents submitted for testing were negative. Cats remain the domestic animal

most commonly diagnosed with rabies, and raccoons remain the most common wildlife species to test positive; these trends have been consistent for over 10 years.

Table 12. Animals Testing Positive for Rabies by Species, Virginia, 2014

Animal Species	Number of Animals Tested	Positive	
		Number	Percent
Alpaca	5	0	0%
Bat	864	23	3%
Beaver	1	0	0%
Bobcat	2	1	50%
Cat	869	28	3%
Chipmunk	7	0	0%
Cow	77	12	16%
Coyote	8	1	13%
Deer	5	0	0%
Dog	575	1	0%
Donkey	3	0	0%
Ferret	2	0	0%
Fox	130	45	42%
Goat	38	1	3%
Groundhog	86	5	6%
Guinea Pig	1	0	0%
Horse	35	0	0%
Kinkajou	1	0	0%
Llama	1	0	0%
Mink	1	0	0%
Mole	1	0	0%
Mouse	2	0	0%
Muskrat	3	0	0%
Nutria	1	0	0%
Opossum	130	0	0%
Otter	1	1	100%
Rabbit	11	0	0%
Raccoon	577	236	41%
Rat	2	0	0%
Rodent	4	0	0%
Sheep	11	1	6%
Skunk	256	162	63%
Squirrel	45	0	0%
Vole	1	0	0%
Wolf Hybrid	1	0	0%
Total for 2014	**3,743**	**519**	**14%**

The largest proportion of animals submitted for rabies testing occurred during the late spring and summer months, while the fewest animals were submitted for testing during the winter months (Figure 68). This seasonal pattern is likely a result of increased domestic animal and human interaction with wildlife during warmer months. No particularly strong seasonal pattern was observed in the number of animals testing positive for rabies, but August had the highest number of any month, with 62 animals testing positive.



Rubella

Agent: Rubella virus
Mode of Transmission: Person-to-person transmission through contact with nose and throat secretions from infected people. The virus may also be transmitted from mother to child during pregnancy, causing congenital rubella syndrome (CRS) in the infant.
Signs/Symptoms: Fever and rash, with frequent occurrences of joint pain, arthritis, and swelling of the lymph nodes.
Prevention: Vaccination, preferably administered as MMR vaccine, should begin at 12 months of age.
Other Important Information: In 2004, rubella was declared to no longer be endemic in the United States, although a small number of cases continue to be imported.

No cases of rubella were reported in Virginia during 2014. The most recent Virginia cases occurred in 2010 in two unvaccinated individuals. Prior to these cases, the last reported case occurred in 2001. While nine cases of rubella were reported in the United States in 2014, the five-year U.S. average for cases of rubella has declined to 6 cases per year.

Progress has been made in the Western hemisphere for rubella elimination, but it remains endemic for other parts of the world. An estimated 100,000 babies are born worldwide with CRS every year. While Virginia does not have a higher proportion of unvaccinated residents compared to other states, many international travelers visit Virginia each year. This underscores the importance of maintaining high vaccination rates and ensuring vaccination for those traveling abroad.

Salmonellosis

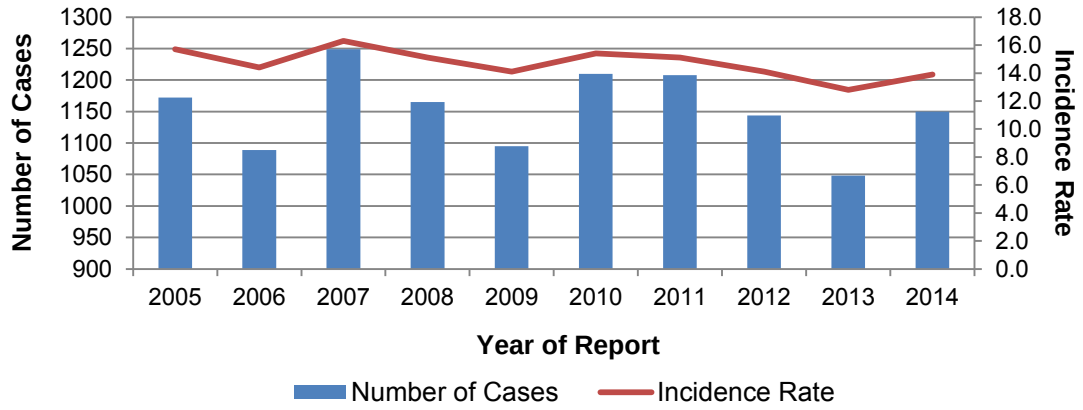
Agent: *Salmonella* (bacteria)
Mode of Transmission: Ingestion of food or water contaminated with animal or human feces. Infected persons can spread the bacteria to other persons by not washing their hands properly after going to the bathroom and then handling food that others will eat. Infection can also occur after eating, smoking, or touching one's mouth if hands are contaminated with the bacteria and not washed well. People can also be infected with *Salmonella* by the feces of some pets, including reptiles and young birds, if hands are not washed well after contact with sick or seemingly healthy infected animals.
Signs/Symptoms: Sudden onset of headache, fever, abdominal pain, diarrhea and sometimes vomiting. Dehydration, especially in older adults and young children, can be a severe complication.
Prevention: Preventive measures should include following proper sanitation methods for food preparation and water supplies, including preventing cross-contamination of food preparation surfaces; maintaining sanitary sewage disposal; excluding infected people from handling food or providing healthcare; and prohibiting the sale of small turtles and restricting the sale of other reptiles for pets. Proper hand hygiene should be practiced, including washing hands after toileting or diapering, before and after handling food, and after handling animals or their feces. Eggs and other animal food products should be cooked thoroughly.
Other Important Information: With approximately 42,000 salmonellosis cases reported each year in the United States, *Salmonella* is one of the leading pathogens that cause foodborne illnesses, many of which result in hospital admissions. Incidence rates are highest among infants and young children. Mortality rates are higher in infants, older adults and people with impaired immune systems.
Special Note about Salmonellosis: While more than 2,500 serotypes of *Salmonella* can cause human illness, two specific *Salmonella* serotypes (*S.* Typhi and *S.* Paratyphi*) can lead to typhoidal illness (i.e., typhoid fever and paratyphoid fever, respectively). Typhoidal illness is found only in humans and often results in more serious infections than those seen in other *Salmonella* serotypes; up to 10% of people who are untreated for typhoidal illness may die. Cases of typhoid fever and paratyphoid fever are usually associated with foreign travel and are alike in regard to clinical features and measures necessary to control the spread of infection. However, despite their similarities, paratyphoid fever tends to be milder than typhoid fever, with a lower fatality rate. Due to its severity, typhoid fever is reported as a separate condition in Virginia (see the Typhoid Fever section of this report for more information), while cases of paratyphoid fever are included in the general salmonellosis report.

* Paratyphoid fever can be caused by any of three separate strains of *S.* Paratyphi: *S.* Paratyphi A, *S.* schottmuelleri (also called *S.* Paratyphi B), or *S.* hirschfeldii (also called *S.* Paratyphi C). A separate strain of *S.* Paratyphi B (i.e., *S.* Paratyphi B var. L[+] tartrate [+]) causes illness that resembles non-typhoidal salmonellosis; these cases are treated as general salmonellosis and are not considered to be paratyphoid fever.

Salmonellosis: 2014 Data Summary	
Number of Cases:	1,150
5-Year Average Number of Cases:	1,141.0
% Change from 5-Year Average:	+1%
Incidence Rate per 100,000:	13.9

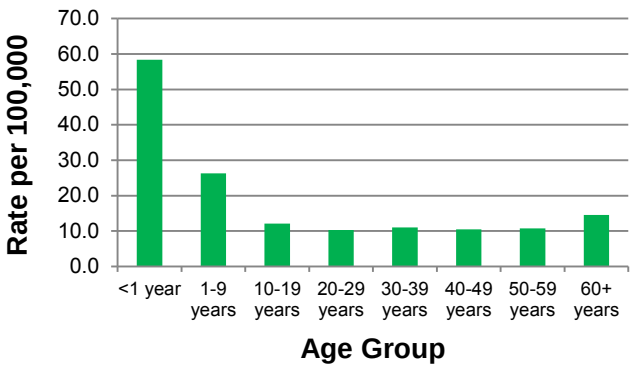
In 2014, 1,150 cases of salmonellosis were reported in Virginia which is higher than the 1,048 cases reported in 2013, but similar to the five-year average of 1,141 cases per year (Figure 69).

Figure 69. Salmonellosis: Ten-Year Trend for Number of Cases and Incidence Rate, Virginia, 2005-2014



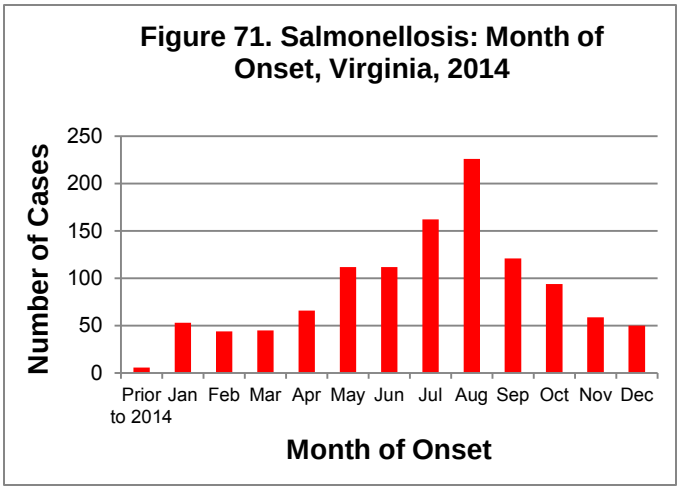
During 2014, the highest incidence rate was observed in infants less than 1 year of age (58.4 per 100,000), followed by the 1-9 year age group (26.3 per 100,000) (Figure 70). Rates in the other age groups ranged from 10.3 to 14.5 per 100,000. Race information was not reported for 42% of cases. For cases with a known race, incidence was higher in the white population (8.8 per 100,000) compared to the black and "other" race populations (6.7 and 4.8 per 100,000, respectively). Rates were higher among females than males (14.8 and 13.0 per 100,000, respectively).

Figure 70. Salmonellosis: Rate by Age Group, Virginia, 2014



As can be seen in the map below, cases of salmonellosis were reported from almost every locality in the state. Geographically, the northwest health planning region had the highest incidence rate (16.2 per 100,000) and the lowest rates were observed in the northern and southwest regions (12.4 and 12.5 per 100,000, respectively).

While *Salmonella* infections occurred throughout the year, the largest proportion of cases (44%) occurred in the third quarter, peaking in August (Figure 71). Among persons infected with *Salmonella* during 2014, one death in an adult female was reported.



Nine confirmed salmonellosis outbreaks occurred during 2014, six of which were multistate outbreaks. Five of the *Salmonella* outbreaks involving Virginia residents in 2014 were foodborne outbreaks. The number of Virginia residents affected in each foodborne outbreak ranged from 1 to 37. Two outbreaks were related to animal contact; one was attributed to live poultry (e.g., chicks, ducklings, and partridges) and one was associated with frozen feeder rodents, with 25 and 5 Virginia residents affected, respectively. One salmonellosis outbreak was linked to exposure to clinical and teaching microbiology laboratories, with one Virginia case. One other salmonellosis outbreak occurred among six members of a family; the mode of transmission for this outbreak could not be identified. See the Outbreaks section of this report for more information.

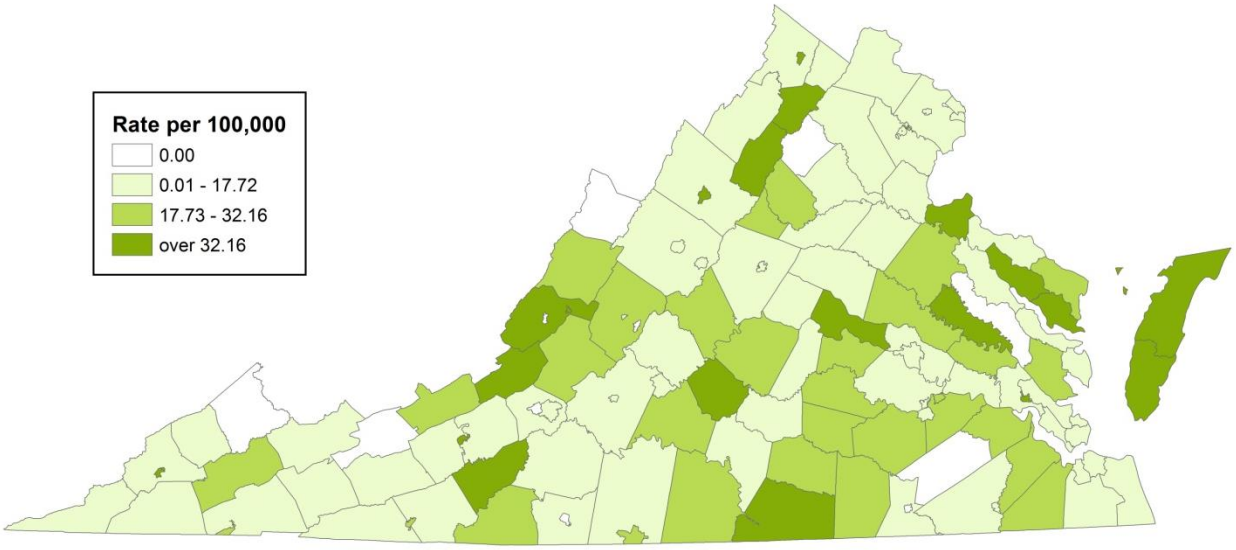
Illnesses identified during salmonellosis outbreaks in 2014 were attributed to several *Salmonella* serotypes; during some outbreaks, more than one *Salmonella* serotype was detected. The serotypes involved in the outbreaks included Baildon, Enteritidis, Infantis, Newport, Thompson, and Typhimurium. For all salmonellosis infections in 2014, including sporadic cases among Virginia residents, the most commonly detected serotypes were *Salmonella* ser. Typhimurium and *Salmonella* ser. Enteritidis (Table 13).

Table 13. Top Ten *Salmonella* Serotypes Reported to the CDC PulseNet System by the Division of Consolidated Laboratory Services, Virginia, 2014

Rank	Serotype Causing Infection	Number		Rank	Serotype Causing Infection	Number
1	*S.* ser Typhimurium	214		6	*S.* ser Bareilly	37
2	*S.* ser Enteritidis	191		7	*S.* ser Saintpaul	36
3	*S.* ser Newport	153		8	*S.* ser Infantis	36
4	*S.* ser Javiana	87		9	*S.* ser Thompson	26
5	*S.* ser I 4,[5],12:i:-	48		10	*S.* ser Litchfield	23

In 2014, 3 cases of paratyphoid fever (one *S.* Paratyphi A and two *S.* Paratyphi B) were reported among Virginia residents. This is similar to the four cases identified in 2013. All three individuals reported a history of international travel in the weeks prior to illness onsets; two reported travel to South America and one reported travel to Asia.

Salmonellosis Incidence Rate by Locality
Virginia, 2014



Severe Acute Respiratory Syndrome (SARS)

Agent: Severe acute respiratory syndrome-associated coronavirus (SARS-CoV)
Mode of Transmission: Most likely transmitted from person to person through respiratory droplets released during coughing and sneezing; transmission can also occur by touching a contaminated surface or object and then touching the mouth, nose, or eyes. It is possible that SARS-CoV might be spread more broadly through the air or by other routes that are not yet known.
Signs/Symptoms: Fever, chills, headache, body aches, followed by respiratory symptoms, such as cough, shortness of breath, or difficulty breathing. Diarrhea may occur.
Prevention: Factors that may reduce transmission include frequent hand washing, avoidance of touching the eyes, nose, and mouth with contaminated hands, and covering the nose and mouth with a tissue when coughing or sneezing.
Other Important Information: Major outbreaks of SARS occurred between November 2002 and July 2003 in Canada, China, Singapore and Vietnam. In the United States, eight people had laboratory evidence of SARS-CoV infection. SARS is thought to have originated in China. In 2012, the National Select Agent Registry program published a final rule declaring SARS coronavirus a select agent because of its potential to pose a severe threat to public health and safety.

No cases of SARS have been reported in Virginia since 2003. One case of SARS was confirmed in Virginia in 2003 during the international outbreaks in 2002 and 2003. The case occurred in a female aged 50 years or older who had traveled to several Asian countries in the four weeks before she developed symptoms. Her exposure most likely occurred in a Singapore hospital where she had direct contact with patients being treated for SARS.

The last reported case detected through active global surveillance occurred in China in April 2004. Since then, there has been no evidence of SARS circulating in the human population.

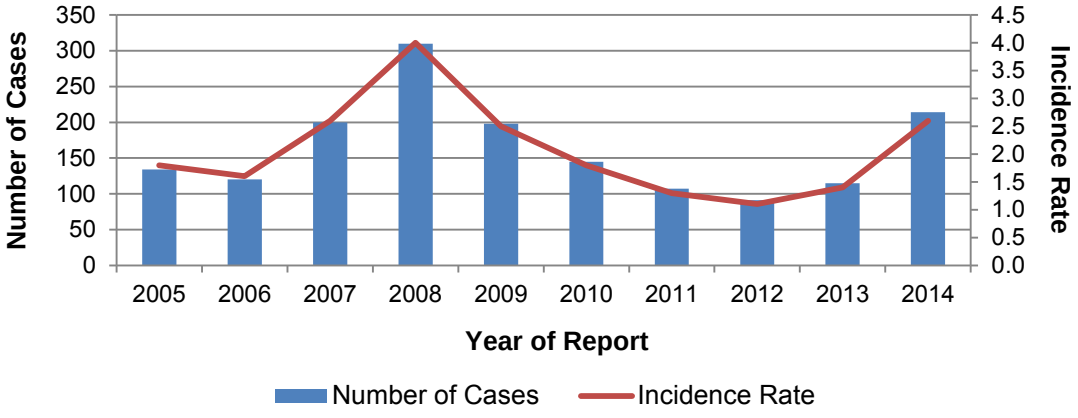
Shigellosis

Agent: *Shigella* (bacteria)
Mode of Transmission: Primarily person-to-person transmission when the bacteria are passed from the stool of an infected person to another person through direct contact. Additionally, contact with contaminated surfaces or objects (such as changing tables, diaper pails, toys), ingestion of contaminated food or water, and exposure to feces through sexual contact may spread the disease.
Signs/Symptoms: Diarrhea ranging from watery and loose to mucoid with or without blood; fever; and sometimes nausea, vomiting, abdominal cramps and painful straining while defecating. Mild and asymptomatic infections can also occur.
Prevention: Proper hand hygiene is essential to limit transmission. Additional control measures include improved sanitation, chlorination of drinking water, proper cooking and storage of food, and measures to decrease contamination of food by houseflies. Cases of shigellosis in food handlers, childcare center attendees or workers, or in healthcare personnel providing direct patient/resident care require public health evaluation and intervention to prevent the spread of disease.
Other Important Information: *Shigella sonnei*, (also known as "group D" *Shigella)*, accounts for over two-thirds of shigellosis in the United States, while *Shigella flexneri* (also known as "group B" *Shigella)* accounts for almost all the rest. Resistance to some antibiotics used to treat shigellosis is increasing worldwide.

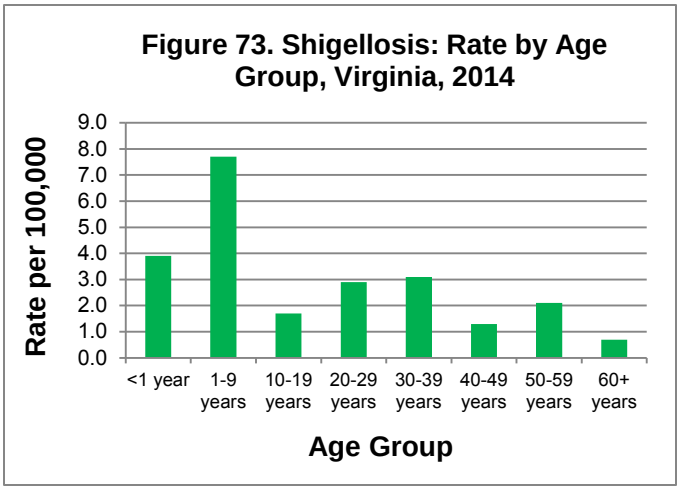
Shigellosis: 2014 Data Summary	
Number of Cases:	214
5-Year Average Number of Cases:	131.2
% Change from 5-Year Average:	+63%
Incidence Rate per 100,000:	2.6

During 2014, 214 cases of shigellosis were reported in Virginia. This represents an 86% increase from the 115 cases reported in 2013, and is also higher than the five-year average of 131.2 cases per year (Figure 72). *Shigella* spp. are estimated to cause almost

Figure 72. Shigellosis: Ten-Year Trend for Number of Cases and Incidence Rate, Virginia, 2005-2014



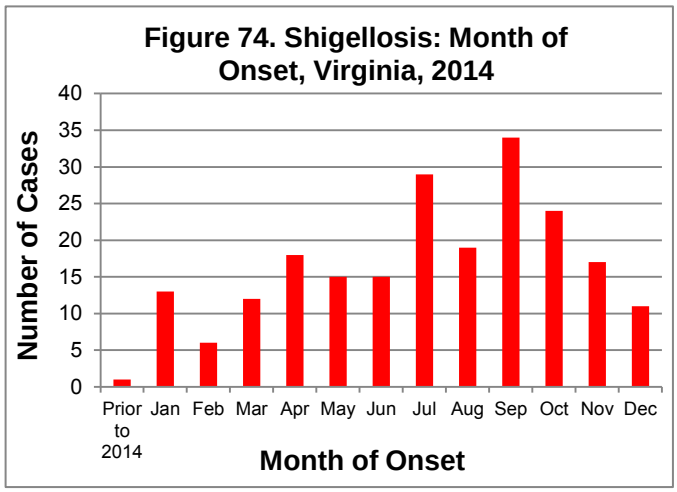
500,000 illnesses each year in the United States, although the number of laboratory-confirmed cases is much lower (CDC).



Historically in Virginia, the 1-9 year age group has had the highest number of cases and the highest incidence rate. This remained true in 2014, with 72 cases and an incidence rate of 7.7 per 100,000 in that age group (Figure 73). High incidence in this age group is expected because toddlers, age 2 to 4 years, are more likely to be exposed to shigellosis in child care and home settings where other young children may not routinely wash their hands after using the toilet. Four cases were reported in children less than one year of age resulting in an incidence rate of 3.9 per 100,000 for that age group. These are the first cases reported in children less than one year of age since 2009. Incidence among the other age groups ranged from 0.7 to 3.1 per 100,000.

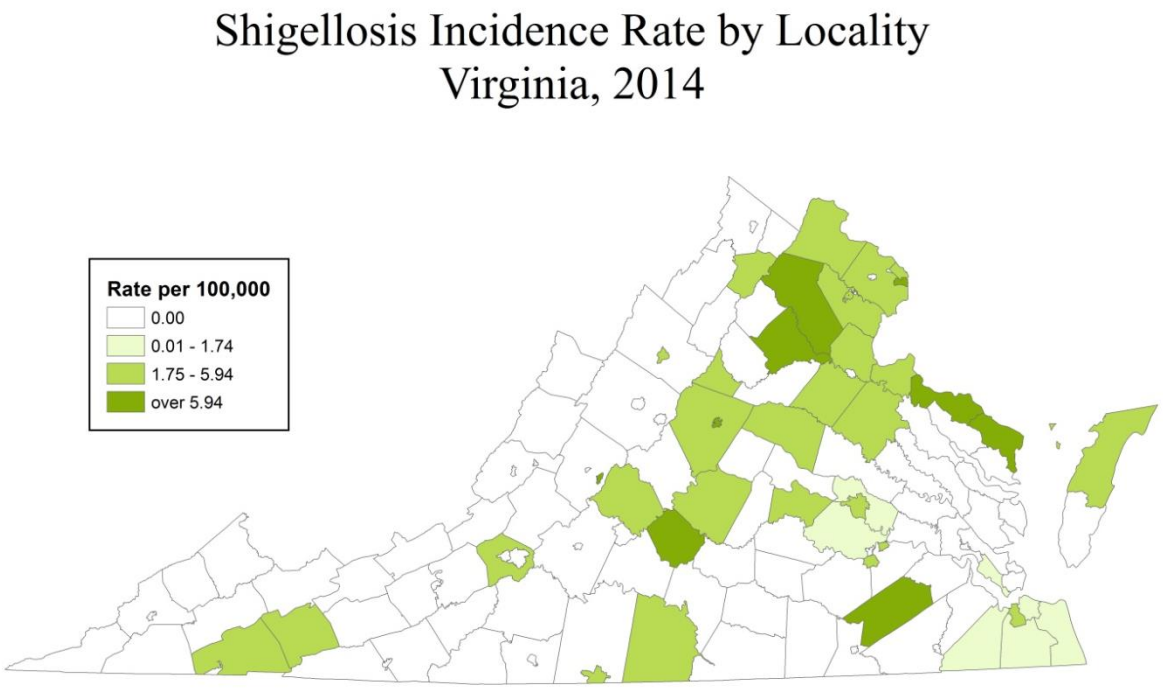
Race was not reported for 43% of cases. Among those with a known race, incidence rates were highest in the black population (4.0 per 100,000), followed by the white and "other" populations (0.9 and 0.8 per 100,000, respectively). Incidence was slightly higher among males compared to females (2.9 and 2.3 per 100,000, respectively).

Geographically, the northern region had the highest incidence rate (4.4 per 100,000), followed by the northwest region (4.1 per 100,000). The central, eastern, and southwest regions had incidence rates ranging from 0.6 to 1.9 per 100,000 (see map below). In 2014, transmission occurred throughout the year, with the majority of cases occurring in the late summer through early fall (Figure 74).



Several clusters of shigellosis were reported in Virginia in 2014. A large, protracted cluster of shigellosis cases occurred from May through September, spreading from the northern region of the state into the northwest region. In total, almost 50 cases were linked via laboratory data. Some cases were associated with outbreaks in kindergarten and preschool classrooms. Beyond the classrooms, transmission appeared to occur in the general community. A second local cluster followed in October, involving five confirmed cases linked to an elementary

school. Additionally, six Virginia residents were matched into multi-state clusters associated with international travel. The six Virginia cases shared no common exposures; five of the six had traveled internationally to five different countries.



Smallpox

Agent: Variola virus
Mode of Transmission: Person-to-person transmission through contact with respiratory droplets, airborne particles (rare), and skin lesions of an infected person. Smallpox can also be transmitted through contact with contaminated clothing or bedding.
Signs/Symptoms: Sudden onset of fever, headache, weakness and exhaustion followed by development of a rash that first appears on the face and extremities.
Prevention: Preventive measures include vaccination with the genetically distinct vaccinia virus. Routine vaccination of the American public stopped in 1972. At this time, vaccine is available only to members of emergency response teams and some military personnel.
Other Important Information: The last case of smallpox in the United States was in 1949; the last naturally occurring case in the world was in Somalia in 1977. Although the disease was declared eradicated in 1980 after worldwide vaccination programs, smallpox is considered to be one of the agents that could be used for bioterrorism because the disease can be spread from person to person and would cause increased illness and death in the population if used as a weapon.

The last case of smallpox in Virginia occurred in 1944.

Spotted Fever Rickettsiosis, including Rocky Mountain Spotted Fever

Agent: Tick-borne species of *Rickettsia* (bacteria). Spotted fever rickettsiosis (SFR) may be caused by several different tick-borne disease agents, including *Rickettsia rickettsii*, the cause of Rocky Mountain spotted fever (RMSF), and *Rickettsia parkeri*, the cause of Tidewater spotted fever. Cases may also be caused by exposure to other tick-borne species of *Rickettsia* that commonly occur in Virginia.

Mode of Transmission: Transmitted to humans by the bite of an infected tick. Ticks generally must be attached for 10 to 20 hours to transmit the bacterium.

Signs/Symptoms: Persons with spotted fever rickettsiosis may have a sudden onset of fever, severe headache, muscle pain, nausea and vomiting and a rash. In the case of RMSF, a rash may develop three to five days after onset of illness. This rash starts on the wrists and ankles, and spreads to the rest of the body, and is seen in about 90% of RMSF cases.

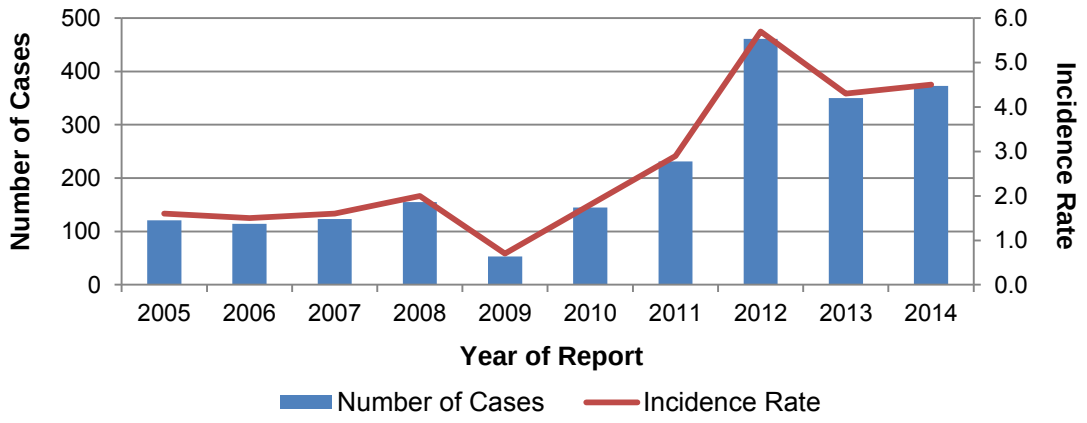
Prevention: RMSF, the most serious SFR, may be transmitted by either the brown dog tick (*Rhipicephalus sanguinius*) or the American dog tick (*Dermacentor variabilis*). Bites by the brown dog tick can be avoided by vigilance for ticks when exposed to the bedding, floors or walls of kennels, dog houses or buildings where dogs have been kept. Bites by the American dog tick, and ticks in general, can be prevented by avoiding tick-prone habitats such as leaf litter or low vegetation in forests, old fields with early succession forest growth, and open fields with tall brush and weeds. Repellents containing DEET, Picaridin, BioUD, IR3535, or oil of lemon eucalyptus as active ingredients are effective against ticks and should be applied to exposed areas of skin before entering tick habitats. When in tick-prone habitats, light-colored clothing should be worn to make ticks more visible. Additionally, pants legs should be tucked into socks and shirts tucked into pants. Permethrin-based repellants should be applied to clothing, socks and shoes. After visiting tick habitats, a person should thoroughly check all body surfaces for ticks and, if found, attached ticks should be removed as soon as possible.

Other Important Information: Although the severity of infections attributable to spotted fever rickettsiosis varies greatly depending on the causative agent, all suspect patients should be treated as if they have RMSF. RMSF can be a serious illness, particularly in untreated patients and patients treated late in the course of illness. About 25% of all untreated RMSF cases are fatal and up to 3% of hospitalized patients die because treatment was provided too late in the course of illness. If tick exposure is noted or RMSF is suspected, treatment should be started based on suspicion of infection and not delayed pending the outcome of diagnostic tests. While SFR case numbers have increased in recent years, case-fatality rates have declined to less than 1% of reported cases. One possible explanation is prompt disease recognition and increased availability and appropriate use of effective antibiotics. Another explanation is the increasing prevalence of other spotted fever group *Rickettsia* (SFGR) species in Virginia's ticks. These other SFGR species may not cause illness in people, or may cause only a mild illness, but exposure to any SFGR causes cross-reactive positive results on blood tests for RMSF. Therefore, it is possible that most reported RMSF cases in recent years are actually due to exposure to non-pathogenic or mildly pathogenic SFGR, and/or to other Rickettsial illnesses such as ehrlichiosis, which cause acute symptoms similar to those of RMSF. Lone star ticks are the most common cause of tick bites in Virginia, and tick surveys have shown that the majority of lone star ticks in Virginia carry a non-pathogenic SFGR, as well as several agents of ehrlichiosis, but do not carry RMSF.

Spotted Fever Rickettsiosis: 2014 Data Summary	
Number of Cases:	373
5-Year Average Number of Cases:	248.0
% Change from 5-Year Average:	+50%
Incidence Rate per 100,000:	4.5

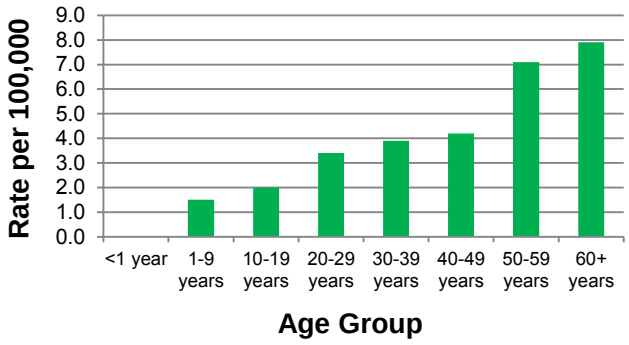
In 2014, 373 cases of spotted fever rickettsiosis were reported in Virginia. This represents a 7% increase from the 350 cases reported in 2013, and is 50% higher than the five-year average of 248.0 cases per year (Figure 75).

Figure 75. Spotted Fever Rickettsiosis (including RMSF): Ten-Year Trend for Number of Cases and Incidence Rate, Virginia, 2005-2014



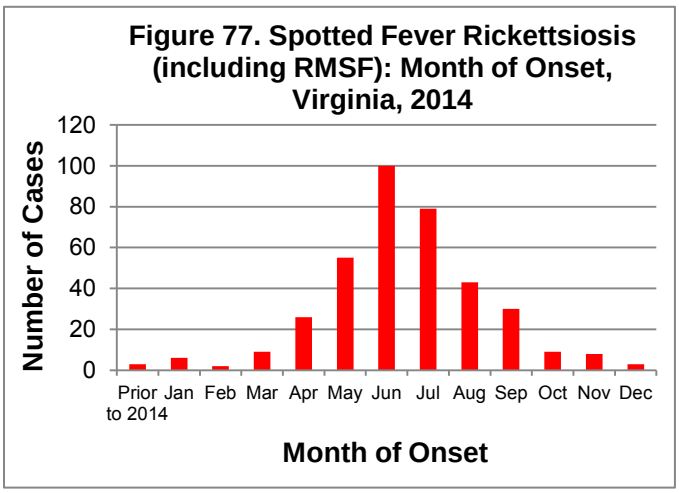
In 2014, spotted fever rickettsiosis incidence rates increased with age from an incidence rate of 0.0 per 100,000 in the less than one year age group to a rate of 7.9 per 100,000 in the 60 year and older age group (Figure 76). Although previous U.S. studies have shown higher incidence for RMSF in children under age ten years, more recent U.S. data indicate a shift in the age distribution, with the highest incidence among adults 40 years and older. This is the general pattern observed in Virginia since 2004, and is consistent with the age distribution of Rickettsial diseases other than RMSF, such as ehrlichiosis or anaplasmosis.

Figure 76. Spotted Fever Rickettsiosis (including RMSF): Rate by Age Group, Virginia, 2014



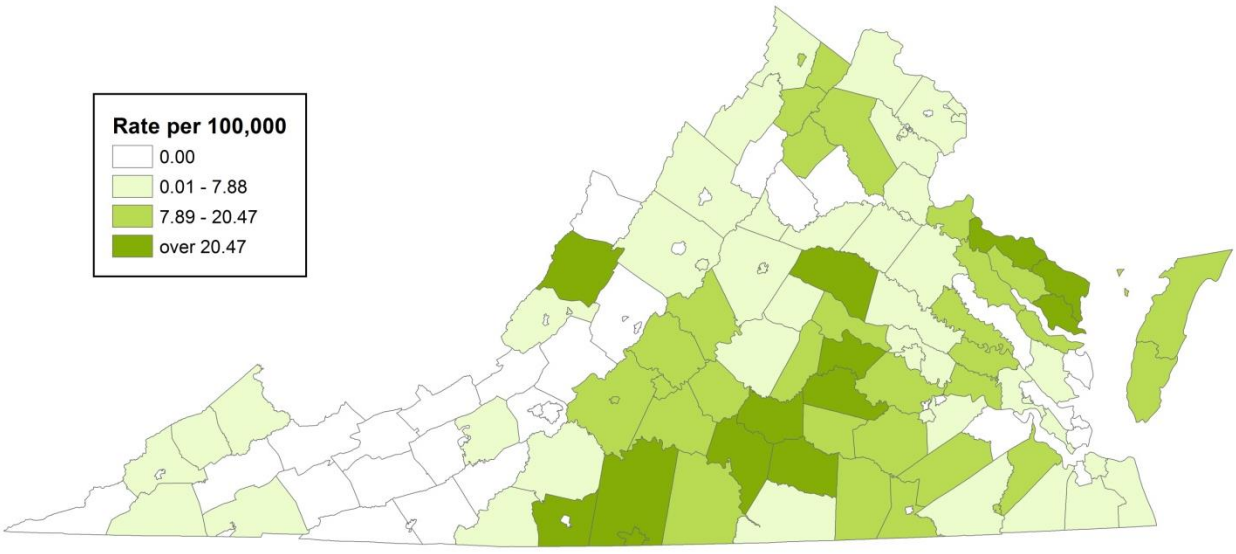
Race was not provided for 57% of reported cases. Among cases with a known race, the incidence rate for the white population (2.5 cases per 100,000) was five times higher than incidence in the "other" and black race populations (0.5 and 0.4 per 100,000, respectively). Incidence among males was more than double the rate among females (6.4 and 2.7 per 100,000, respectively).

The southwest region had the highest incidence rate at 7.4 per 100,000 followed closely by the central and northwest regions with 7.1 and 6.2 cases per 100,000, respectively. Incidence rates in the eastern and northern regions were lower (3.0 and 1.6 per 100,000, respectively). The northwest and central regions have had high incidence rates since 2009, but the incidence rate in the southwest region increased substantially during 2012 and remained high in 2014. Incidence rates by locality can be viewed in the map below.



Spotted fever rickettsiosis displays a distinctly seasonal pattern. For 74% of cases, symptom onset occurred from May through August, with a peak in June (Figure 77). This is consistent with the peak activity periods for the most common human-biting tick species in Virginia. One death attributed to spotted fever rickettsiosis occurred among the 373 cases reported in 2014. This fatality was definitively diagnosed as a case of RMSF by its distinctive clinical presentation and confirmation by specific laboratory assays at the CDC.

Spotted Fever Rickettsiosis, including RMSF Incidence Rate by Locality, Virginia, 2014



Staphylococcus aureus Infection, Invasive, Methicillin-Resistant (MRSA)

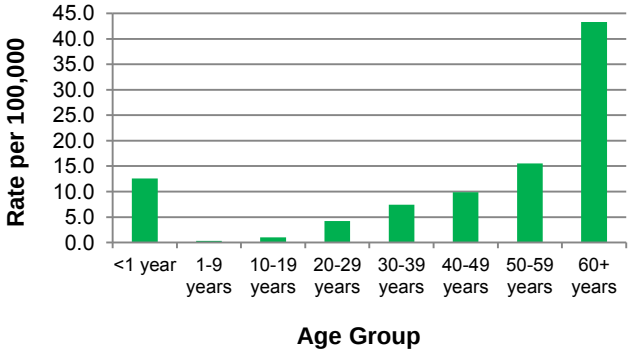
Agent: *Staphylococcus aureus* (bacteria) that have developed resistance to the class of beta-lactam antibiotics, including penicillin, cloxacillin, oxacillin, nafcillin, and methicillin, as well as cephalosporins and carbapenems.
Mode of Transmission: Person-to-person transmission via direct contact with colonized skin or skin lesions of an infected person, or by indirect contact with contaminated personal items or surfaces. Invasive infections occur when the bacteria penetrate normally sterile sites.
Signs/Symptoms: Invasive infections may affect the blood, bone, lung, and lining of the brain and spinal cord and may cause fever, difficulty breathing, chills, pain and other syndrome-specific signs and symptoms. Non-invasive skin and soft tissue infections commonly cause swelling, tenderness, and redness and can manifest as abscesses, boils, or pustules.
Prevention: In the community, preventive measures include practicing proper hygiene and wound care and cleaning hands regularly and thoroughly with soap and water or alcohol-based hand sanitizer. In healthcare settings, control measures include adhering to appropriate infection prevention practices, including management of catheters or other medical equipment, and practicing prudent use of antibiotics.
Other Important Information: Only invasive MRSA infections are required to be reported in Virginia and only laboratories are required to report these infections. Asymptomatic colonization and infections from non-sterile sites (e.g., skin and soft tissue) do not have to be reported to the health department. Reporting of this condition became effective in Virginia on October 26, 2007.

***Staphylococcus aureus* Infection, Invasive, Methicillin-Resistant (MRSA): 2014 Data Summary**	
Number of Cases:	1,134
5-Year Average Number of Cases:	1,234.0
% Change from 5-Year Average:	-8%
Incidence Rate per 100,000:	13.7

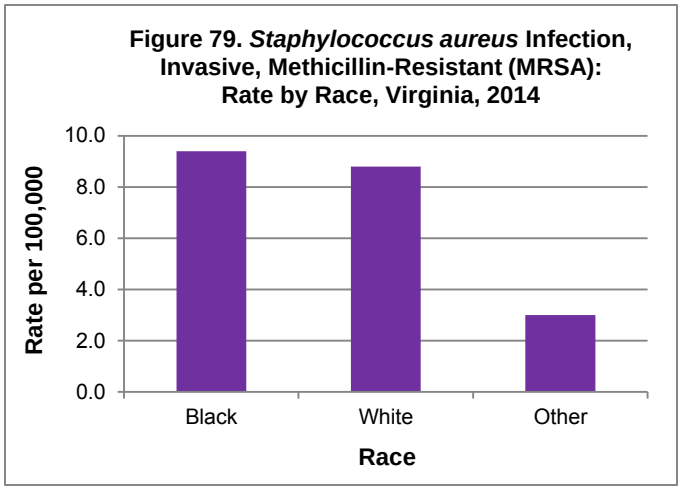
The 1,134 cases of invasive MRSA infection reported in Virginia in 2014 represent a 9% decrease from the 1,247 cases reported in 2013, and a 26% decrease from the 1,524 cases reported in 2008, the first full reporting year for invasive MRSA infection in Virginia.

With the exception of children less than one year of age, incidence rates increased as age increased in 2014 (Figure 78). Consistent with previous years, persons 60 years and older experienced both the highest number of cases and highest

Figure 78. *Staphylococcus aureus* Infection, Invasive, Methicillin-Resistant (MRSA): Rate by Age Group, Virginia, 2014



incidence rate (681 cases, 43.3 per 100,000), followed by the 50-59 year age group (180 cases, 15.5 per 100,000). Children less than one year of age had the third highest incidence rate (13 cases, 12.6 per 100,000). Children 1-9 years age had the lowest number of cases and lowest incidence of all age groups in 2014 (3 cases, 0.3 per 100,000).



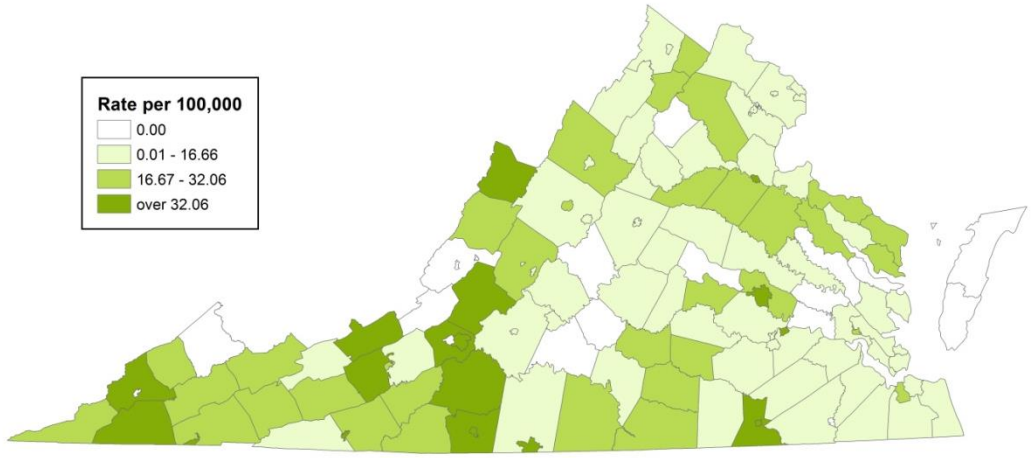
Race was not provided for 38% of cases. Among cases with a known race, incidence rates in the black population (9.4 per 100,000) were slightly higher than incidence in the white population (8.8 per 100,000) (Figure 79). This represents the second consecutive year that incidence among the black population was not substantially higher than incidence among the white population. Racial disparities in invasive MRSA have been noted nationally, with the black population having two-fold the incidence rate of the white population. It is unclear why Virginia saw little difference in incidence between these two populations in 2014 and 2013. Perhaps, a larger proportion of cases with no reported race are black and thus not being included in the analysis. In Virginia, incidence was higher in males compared to females (15.5 and 12.0 per 100,000, respectively).

The southwest region had the highest incidence rate (24.3 per 100,000) and the northern region had the lowest (6.1 per 100,000). Incidence is typically higher in the western half of the state. Incidence rates by locality can be viewed in the map below. In general, invasive MRSA infections occurred throughout the year with little seasonal variation.

One invasive MRSA outbreak was reported in 2014. This outbreak occurred in a nursing home in the northwest region and involved three nursing home residents. The facility instituted numerous control measures that prevented additional cases.

Twenty-eight (2%) of the persons reported with an invasive MRSA infection in 2014 died. The median age of those who died was 67, with a range in age from 16 to 93 years. Seventy-one percent of the deaths occurred in adults age 60 years and older. The case-fatality rate was slightly higher in females than males (3% and 2%, respectively).

Staphylococcus aureus Infection, Invasive, Methicillin-Resistant (MRSA), Incidence Rate by Locality, Virginia, 2014



Staphylococcus aureus **Infection, Vancomycin-Intermediate (VISA) or Vancomycin-Resistant (VRSA)**

Agent: *Staphylococcus aureus* (bacteria) that have developed intermediate or complete resistance to the antibiotic vancomycin, based on susceptibility testing.
Mode of Transmission: Person-to-person spread through direct contact or through contact with contaminated materials or surfaces.
Signs/Symptoms: Dependent on site of infection (e.g., skin, bone, urinary or respiratory tract). VISA or VRSA infections can cause a range of symptoms including skin infections, abscesses, pneumonia, and infection of the heart valves, bones, or blood. Infection may develop into toxic shock syndrome. Asymptomatic colonization can occur.
Prevention: Preventive measures include appropriate use of antibiotics to treat infections, good hand hygiene, and proper cleaning and disinfecting of contaminated surfaces.
Other Important Information: While VRSA infection became a reportable condition in 1999, VISA infection was not added to the reportable list of conditions until 2007.

Three cases of VISA infection were reported in Virginia in 2014. All three cases occurred among persons older than 60 years. Race information was reported as black for all three cases, with two being female and one male. Two cases were reported from the eastern region and one from the northern region. One case occurred following use of vancomycin, and one case resulted in death. Twelve cases have been reported in Virginia since surveillance was initiated in 1999. Of note, 9 of 12 VISA cases have occurred in the black population.

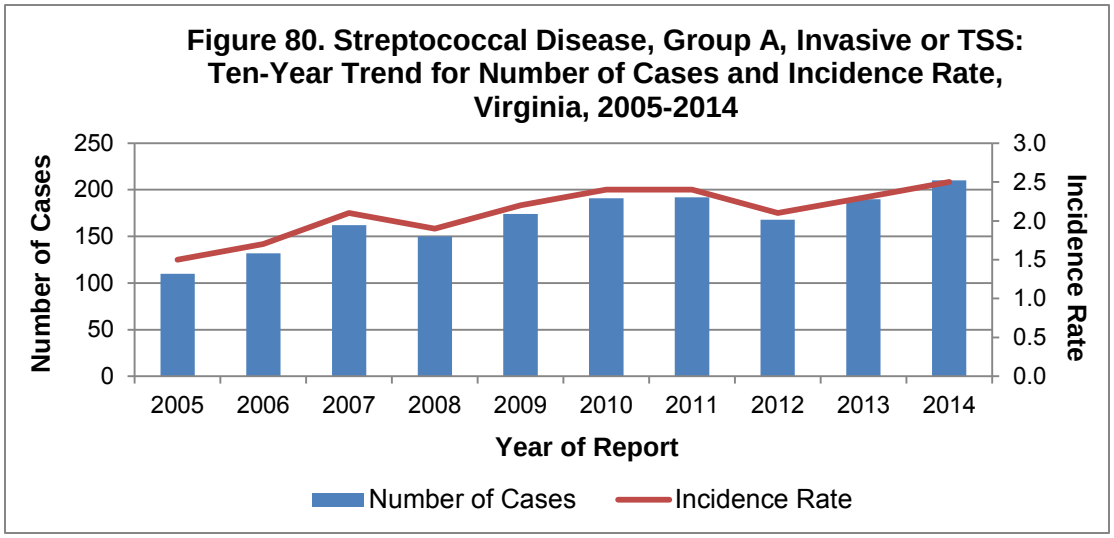
VRSA has never been reported in a Virginia resident.

Streptococcal Disease, Group A (GAS), Invasive or Toxic Shock Syndrome

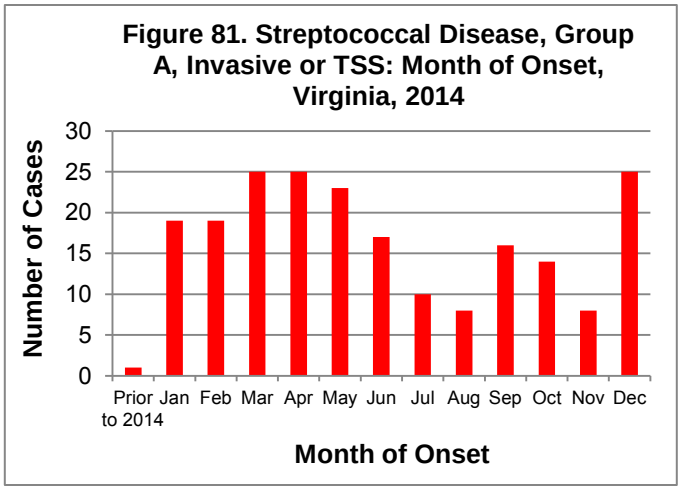
Agent: *Streptococcus pyogenes* (bacteria)
Mode of Transmission: Person-to-person transmission through respiratory droplets, contact with infected wounds or sores, or (rarely) through indirect contact with objects contaminated with the body fluids of infected persons.
Signs/Symptoms: People may carry group A streptococci in the throat or on the skin and have no symptoms of illness. Most GAS infections are relatively mild, such as "strep throat" or impetigo (a skin infection). Rarely, the bacteria can lead to severe invasive infections of the blood or other internal body fluids if they enter a normally sterile site. Invasive infections often require hospitalization and may cause death.
Prevention: The spread of all types of GAS infection can be reduced by careful attention to hand washing, especially after coughing or sneezing. Other preventive measures include prompt identification and treatment of non-invasive cases (such as strep throat) and temporary exclusion of infected healthcare employees/others from work and other group settings for the first 24 hours of antibiotic therapy. Wounds should be kept clean, and medical care should be sought at the first signs of infection.
Other Important Information: Persons at higher risk for developing invasive GAS infections include older persons, immunocompromised persons, and those with chronic, underlying conditions (such as diabetes). The two most severe, but least common, forms of invasive GAS infections are necrotizing fasciitis (NF) and streptococcal toxic shock syndrome (TSS). NF infections present with severe pain and rapid destruction of muscles, fat, and skin tissue. Streptococcal TSS infections are characterized by shock and rapid organ failure.

Streptococcal Disease, Group A, Invasive or TSS: 2014 Data Summary	
Number of Cases:	210
5-Year Average Number of Cases:	183.0
% Change from 5-Year Average:	+15%
Incidence Rate per 100,000:	2.5

During 2014, 210 cases of invasive GAS infection were reported in Virginia. This represents an 11% increase from the 190 cases reported in 2013, and a 15% increase from the five-year average of 183 cases per year (Figure 80).



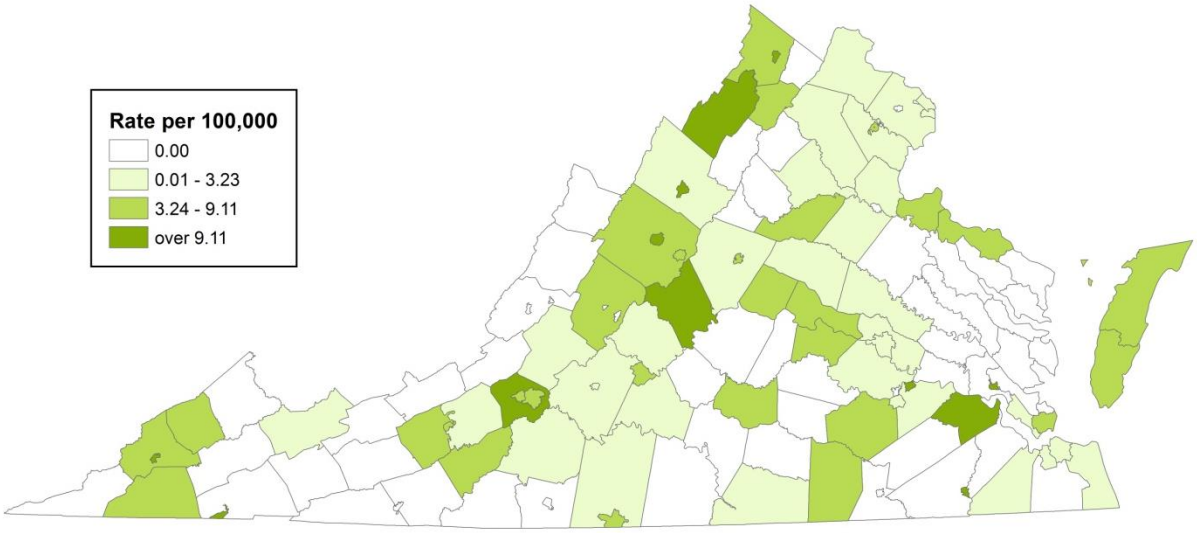
The highest number and incidence rate of invasive GAS infections occurred in the 60 year and older age group (92 cases, 5.9 per 100,000). This was followed by the 50-59 and 40-49 year age groups, with incidence rates of 3.3 and 2.0 per 100,000, respectively. The other age groups had rates between 0.6 and 1.8 per 100,000. Race information was not provided for nearly 30% of reported cases. Among cases with a known race, incidence was highest in the white population (2.0 per 100,000) compared to the black and "other" populations (1.6 and 0.3 per 100,000, respectively). Incidence was similar among males and females (2.7 and 2.4 per 100,000, respectively). Geographically, incidence was highest in the northwest region (4.2 per 100,000), followed by the southwest region (3.3 per 100,000). Rates in the other regions ranged from 1.5 to 2.5 per 100,000. Information on incidence rates for individual localities is presented in the map below.



While cases occurred throughout the year, the majority of cases were reported from January through May and the month of December (Figure 81). This general late-winter to spring pattern is also typically seen with "strep throat", a non-invasive GAS infection. Among the 210 cases reported in 2014, 24 persons died from invasive GAS infection. One death was attributed to streptococcal toxic shock syndrome. Of all deaths, fourteen (58%) occurred in individuals aged 60 years and older. Three outbreaks were attributed to invasive GAS infection in 2014; two of the outbreaks occurred in nursing homes, and one outbreak occurred in a medical facility (non-long-term care). One outbreak each occurred in the central, northwest and southwest regions. Additionally, twelve non-invasive outbreaks of streptococcal disease were reported. These outbreaks caused respiratory or rash illnesses (primarily presenting as "strep throat"). Of the twelve outbreaks,

eight occurred in school (K-12) settings, three in daycare/pre-K facilities, and one in an assisted living facility. One of the outbreaks in daycare/pre-K settings included a single case of invasive GAS infection and numerous cases of non-invasive illness.

Streptococcal Disease, Group A, Invasive or TSS Incidence Rate by Locality, Virginia, 2014

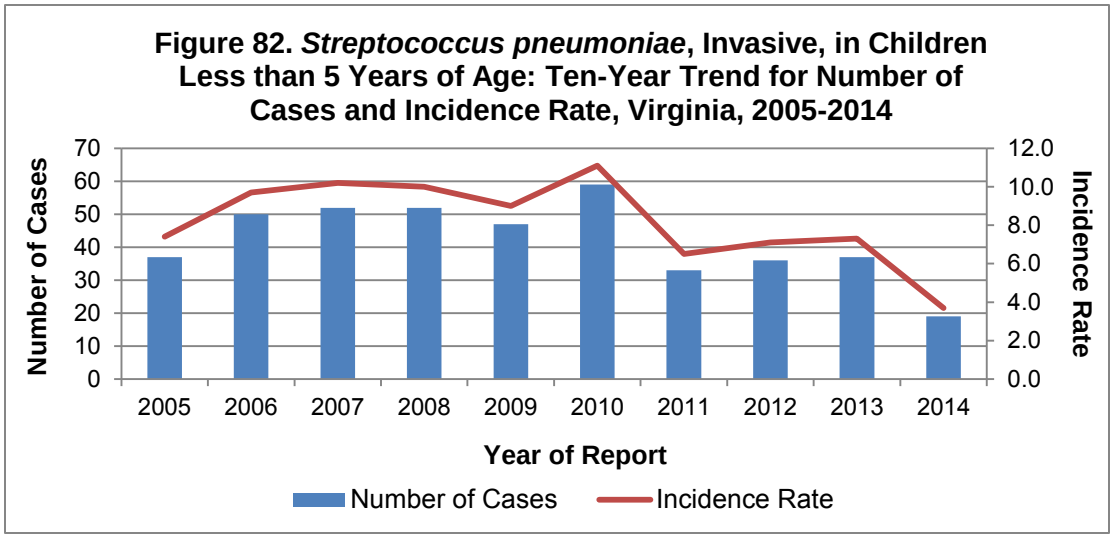


Streptococcus pneumoniae, Invasive, in Children Less than 5 Years of Age

Agent: *Streptococcus pneumoniae* (bacteria)
Mode of Transmission: Person-to-person transmission via respiratory droplets or direct contact with respiratory secretions from persons carrying the bacteria in their upper respiratory tract.
Signs/Symptoms: Invasive pneumococcal disease (IPD) may affect the blood, lung, and lining of the brain and spinal cord and may cause fever, chills, and irritability. Headache, stiff neck, confusion, sleepiness, vomiting, and poor feeding can occur with meningitis.
Prevention: Routine immunization with pneumococcal conjugate vaccine as a 4-dose series is recommended for infants at 2, 4, 6, and 12 to 15 months of age. IPD can be hard to treat because of antibiotic resistance, thus making prevention through vaccination even more important. The 7-valent conjugate vaccine was first licensed in the U.S. in 2000 and a 13-valent vaccine was licensed in 2012. Following the introduction of the 13-valent vaccine, clients that completed the immunization series were recommended to receive a booster dose for protection against the additional strains. Clients two years of age and over with certain high-risk conditions are also recommended to receive one dose of a 23-valent polysaccharide vaccine following series completion with pneumococcal conjugate vaccine. Vaccination with 13-valent followed by 23-valent polysaccharide vaccine is also recommended for adults aged 65 years or older and other persons at increased risk for infection.
Other Important Information: There are more than 90 known serotypes of *S. pneumoniae*. Although all serotypes may cause serious disease, a relatively limited number of serotypes cause the majority of invasive infections. From 1998 (two years before implementation of routine immunization of infants with 7-valent pneumococcal conjugate vaccine) through 2007, incidence of vaccine-type invasive pneumococcal infections decreased by 99% in children less than 5 years, and the incidence for all pneumococcal infections decreased by 76%. Today *S. pneumoniae* continues to be the leading cause of bacterial meningitis among children less than 5 years of age in the United States.

***Streptococcus pneumoniae*, Invasive, in Children Less than 5 Years of Age: 2014 Data Summary**	
Number of Cases:	19
5-Year Average Number of Cases:	42.4
% Change from 5-Year Average:	-55%
Incidence Rate per 100,000:	3.7

Nineteen cases of invasive *S. pneumonia* infection in children less than five years of age were reported in Virginia in 2014. This represents a large decrease from the 37 cases reported in 2013 (Figure 82). This decline is similar to that seen from 2010 to 2011 and could be indicative of a cyclical trend with the disease. The 19 cases also represent a 55% decrease when compared to the five-year average of 42.4 cases per year.



Incidence rates were highest in persons less than one year of age (5.8 cases per 100,000) compared to persons one to four years of age (3.2 cases per 100,000). Incidence among males was higher than females, 4.6 and 2.8 cases per 100,000 respectively. Race was reported for 74% of cases. Among those with a known race, incidence was highest in the "other" race population (4.7 cases per 100,000) when compared to the black population (4.1 cases per 100,000) and the white population (2.0 cases per 100,000). Incidence rates have been adjusted to reflect populations based on children less than five years of age.

Incidence rates varied across the health planning regions ranging from 1.4 cases per 100,000 to 6.2 cases per 100,000, with the highest incidence being reported from the central region. Both the central and northern regions had incidence rates greater than the state incidence rate of 3.7 cases per 100,000. A cold-weather seasonal trend was observed for case onset with 42% of cases reported in the first quarter of the year. One death was reported in 2014 in a child confirmed with invasive pneumococcal disease, but it is unknown if *S. pneumoniae* was the direct cause of death. Thirteen (68%) of the 19 cases were hospitalized.

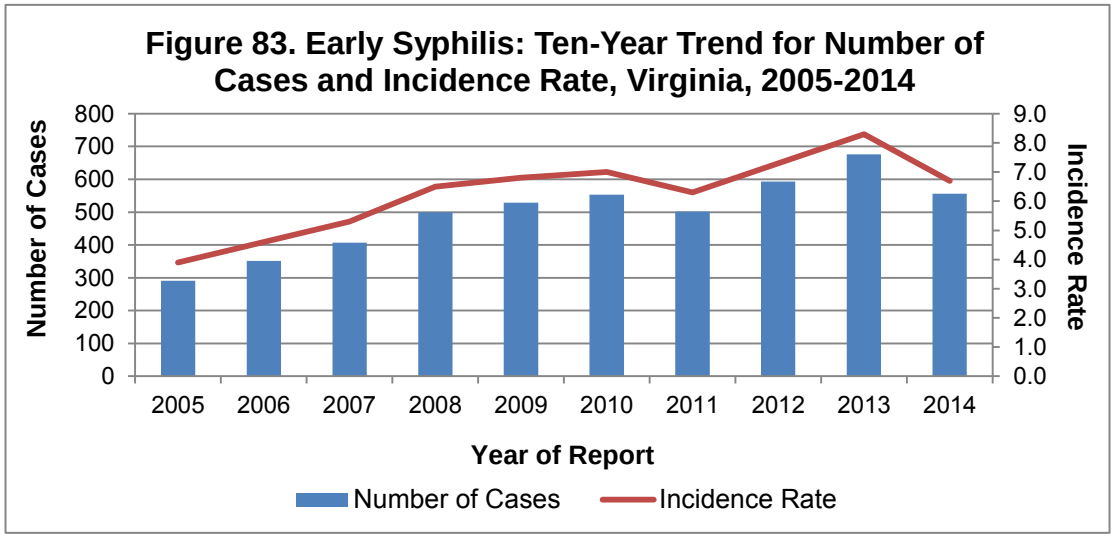
Syphilis

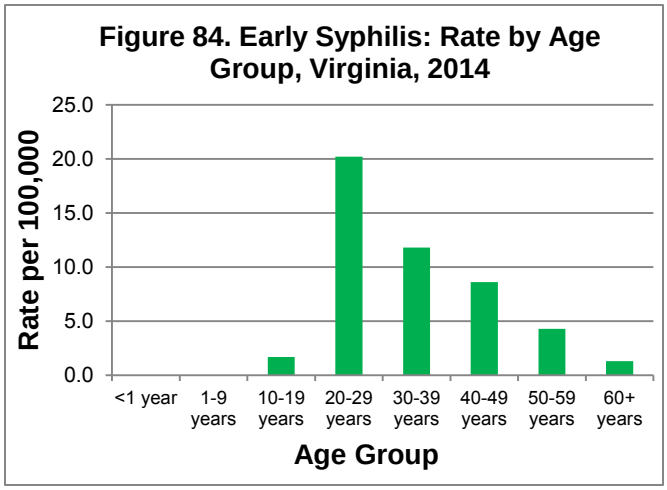
Agent: *Treponema pallidum* (bacteria)
Mode of Transmission: Through sexual intercourse, from mother to child through the placenta (or during birth) and via blood transfusion from an infected donor in the early stage of disease.
Signs/Symptoms: The primary stage is characterized by a painless sore (called a chancre). The secondary stage includes a skin rash and lesions of the mucous membranes. A latent period follows with no clinical symptoms. If left untreated, late syphilis occurs. The central nervous system, skin, bones and heart may become sufficiently damaged, causing disability or death.
Prevention: Preventive measures include safe sexual practices, screening of all women during early pregnancy to prevent infection of infants, and treatment of infected partners.
Other Important Information: Nationwide, the rate of primary and secondary syphilis is on the rise for men who have sex with men (MSM) and persons of black race.

Early Syphilis: 2014 Data Summary	
Number of Cases:	556
5-Year Average Number of Cases:	570.6
% Change from 5-Year Average:	-3%
Incidence Rate per 100,000:	6.7

Early Syphilis

"Early syphilis" refers to primary, secondary and early latent (cases diagnosed without signs/symptoms within one year from infection) syphilis. In 2014, 556 early syphilis cases were reported in Virginia. This represents an 18% decrease from the spike of 676 cases reported in 2013 (Figure 83). Despite this decrease, the five-year incidence rate (6.7 per 100,000) remains higher than the 2005 early syphilis rate (3.9 per 100,000). In Virginia and nationwide, there is a growing gender gap in early syphilis diagnoses; infections are declining among women and increasing among men.





As in previous years, the highest incidence rate in 2014 occurred in the 20-29 year age group (20.2 per 100,000), followed by the 30-39 year age group (11.8 per 100,000) (Figure 84). No early syphilis cases were reported in children less than 10 years of age. The incidence rate in the black population (17.3 per 100,000) was more than four times the incidence rate observed in the white population (3.9 per 100,000) and more than three times the incidence rate observed in the "other" race population (5.0 per 100,000). The rising incidence of early syphilis among MSM continues to widen the gender divide. The incidence rate among males was nearly nine times the incidence rate among females (12.2 and 1.4 per 100,000, respectively). Although the eastern region has historically maintained the highest incidence of early syphilis, it experienced a decrease from 2013 to 2014 (12.3 and 9.5 per 100,000) and was surpassed by the central region (10.1 per 100,000 in 2014). This is primarily due to 31% and 51% respective decreases from the previous year in reported cases of early syphilis in Norfolk and Newport News, two historically high morbidity areas in the eastern region. The northwest, northern, and southwest regions had incidence rates of 2.7, 5.3 and 5.8 per 100,000. Incidence by locality can be seen in the map below.

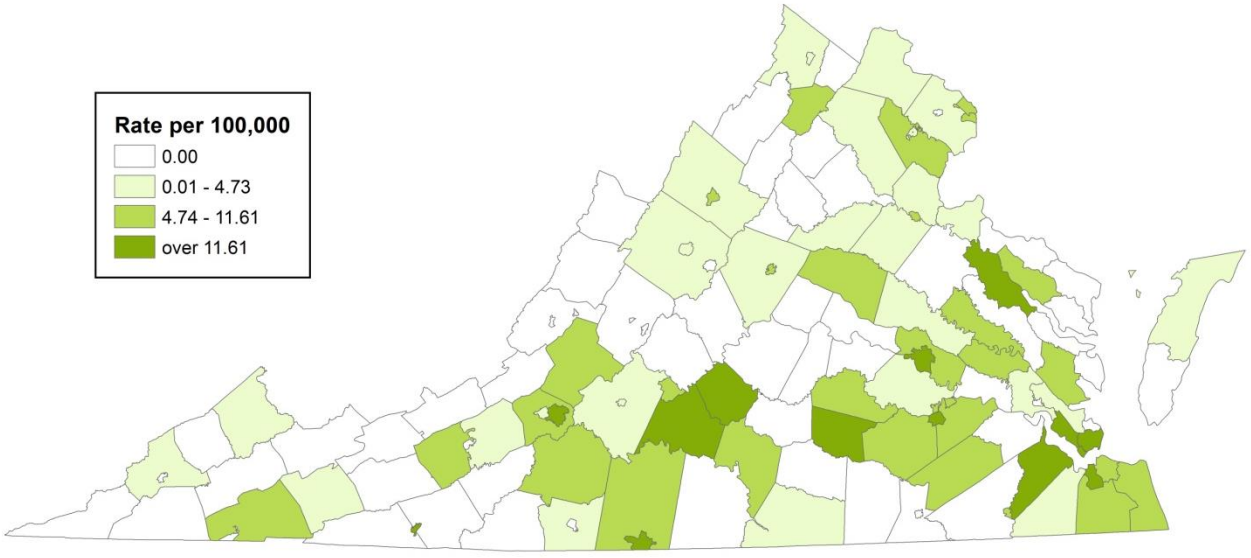
Congenital Syphilis

Congenital syphilis is a condition affecting an infant whose mother had untreated or inadequately treated syphilis at delivery. Diagnosis is based on maternal serologic testing because the serologic tests performed on the infected infant can be nonreactive if the antibody level is low or if the mother was infected late in pregnancy. Three cases of congenital syphilis were reported in Virginia in 2014. Two cases were reported in Virginia in 2013, before which there had not been more than one case reported per year since 2009. In the U.S., 348 cases of congenital syphilis were reported during 2013, the most recent year for which national data are available. The Centers for Disease Control and Prevention considers each case of congenital syphilis in the U.S. to be a sentinel event representing a public health failure.

Latent Syphilis

Latent syphilis is diagnosed when there is no evidence that infection was acquired within the preceding 12 months. In 2014, 310 cases of latent syphilis were reported in Virginia, a 6% decrease from 2013. Nearly 48% of latent syphilis cases diagnosed in 2014 occurred in black individuals, and nearly twice as many males were infected as females.

Syphilis, Early Stage, Incidence Rate by Locality
Virginia, 2014



Tetanus

Agent: Toxin secreted by the bacteria *Clostridium tetani*
Mode of Transmission: The bacteria enter the body through a break in the skin, usually when a wound, either major or minor, is infected by contaminated soil, dust, or animal or human feces. Person-to-person transmission does not occur.
Signs/Symptoms: A descending pattern of painful muscle contractions, particularly of the neck muscles, difficulty swallowing and abdominal rigidity.
Prevention: Tetanus vaccine is available as part of the diphtheria/tetanus/pertussis (DTaP) vaccine for children and the combination tetanus/diphtheria/pertussis (Tdap) vaccine for adolescents and adults. One dose of Tdap should be given at 11 to 12 years of age with booster doses of tetanus/diphtheria (Td) every ten years thereafter.
Other Important Information: First produced in 1924, tetanus toxoid was primarily used for armed services in World War II. Tetanus was made nationally reportable in 1947 and since then, cases of tetanus have declined more than 95% and deaths from tetanus have declined more than 99%. The decline in cases and deaths from tetanus is primarily attributed to continued use of tetanus antitoxin for wound management, and the universal vaccination recommendations for children with tetanus boosters for adults every ten years. The case-fatality rate of tetanus ranges from 10% to over 80% and depends on patient age, length of incubation period, and quality of and access to care, especially access to intensive care unit resources and tetanus immune globulin. Sporadic cases of tetanus continue to occur in adults, especially in people who were not vaccinated in childhood or did not receive ten-year booster shots. Proper wound management is necessary for all wounds, even wounds that appear to be minor, as a higher proportion of patients with tetanus in recent years had minor wounds. .

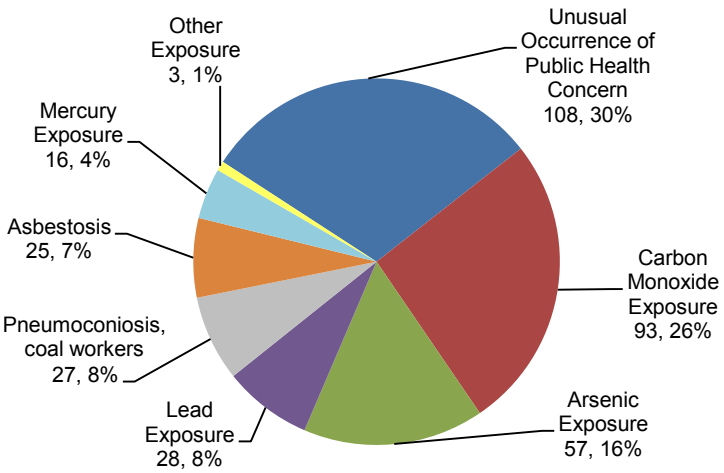
In 2014, no cases of tetanus were reported in Virginia. In recent years, one case of tetanus was reported in each of 2004, 2005 and 2012, and two cases were reported in 2013. The five-year average for tetanus is less than one case per year.

Toxic Substance-Related Illness

Agent: Multiple, including heavy metals (e.g., lead, cadmium, mercury, arsenic), occupational dusts or fibers (e.g., coal, silica, asbestos), gases (e.g., carbon monoxide, methane), pesticides, or radioactive materials.
Mode of Transmission: Varies depending on agent; can include absorption through skin, ingestion, or inhalation.
Signs/Symptoms: Varies depending on agent and route, dose and duration of exposure. Chronic occupational dust or fiber exposure may increase the risk of lung cancer, mesothelioma and nonmalignant lung disorders. Heavy metals, gases and pesticides may damage nervous, hepatic (liver), digestive, or reproductive systems.
Prevention: Eating, drinking, or smoking should not occur in contaminated work areas. Hands and face should be washed with soap and water after contacting toxic materials. After working with potential toxic substances, showering and changing clothes should occur at the worksite, if possible. Preventive measures include strict adherence to safety guidelines and requirements.
Other Important Information: Improving public and healthcare professional awareness and recognition of various toxic substance exposures can help reduce subsequent illness.

In 2014, 357 cases of toxic substance-related illness were reported in Virginia. This is a 16% increase from the five-year average of 306.8 cases per year. A determination of illness is based upon a physician's diagnosis or on a laboratory finding outside an occupational standard, or when no standard exists, outside expected normal values. Toxic substance exposures are identified by public health from electronic laboratory reports and death certificates, and through claims by exposed persons to the Virginia Workers' Compensation Commission (WCC). The two most frequently reported toxic substance-related conditions in 2014 were carbon monoxide and arsenic exposure. These were followed by lead exposure, coal workers' pneumoconiosis, asbestosis, and mercury exposure (Figure 85). Other toxic substance-related exposures reported during 2014 included silicosis and exposures to cadmium. Illness from exposure to rarely reported substances were also captured. While the occurrence of most types of toxic exposure or illness has remained very similar in recent years, more "unusual occurrences of public health concern" were captured in 2013 and 2014. These included unintentional workplace exposures to aerosol cleaners, solvents, exhaust fumes, and methane, or other illness sustained during a toxic substance or chemical release. Inhalation was the most common route of exposure, followed by dermal contact and ingestion.

Figure 85: Reported Toxic Substance-Related Illness, by Illness or Exposure Type, Virginia, 2014



Arsenic exposure has continued to be one of the most frequently reported toxic substance exposures, due in part to the presence of arsenic in various foods, particularly seafood. There was a general increase from the 18 cases reported in 2007 to the 92 cases reported in 2012. This increase was primarily due to more comprehensive reporting of persons with arsenic levels above normal laboratory values with the implementation of electronic laboratory reporting. However, the decrease to 66 reported arsenic exposures in 2013 and 57 exposures in 2014 suggests that this trend is stabilizing. The same phenomenon was seen, to a lesser extent, in the reporting of mercury and cadmium exposures. The number of reported cases of these two conditions has dropped noticeably in the last two years, so that together they accounted for only 5% of toxic substance-related exposures in 2014. Most laboratory reports of elevated arsenic provide results for total urine levels, without further speciation of this substance. Without the additional information from speciation, reports for total urinary arsenic levels may contain a non-toxic organic form of arsenic (arsenobetaine) and, therefore, elevated levels of this compound may overstate the health hazard of arsenic exposures.

Reports of adult lead exposures (≥25 μg/dL of lead in blood for persons aged 16 years or older) continued to decrease. In 2014, 28 cases of elevated blood lead levels in adults were reported compared to 181 cases in 2006. The persons with elevated lead exposures in 2014 worked in stained glass making or repair, painting, construction, or at firing ranges. Greater awareness of the dangers of lead exposure, as well as enforcement of workplace lead safety standards, has contributed to the decrease in reported exposures. Lead exposures among children aged 15 years and younger are discussed in the childhood lead section of this report.

The number of reported cases of illness from asbestos exposure has remained relatively stable over the past decade, but dropped slightly in 2014. In 2014, 25 persons were reported with asbestosis in Virginia, compared to 48 persons in 2013. The age of those affected ranged from 71-96 years, with a mean age of 83 years. This older age group reflects current illness from exposures occurring before regulatory standards and guidelines went into effect. Ten (25%) of the asbestos exposures were reported through death certificates. The remaining asbestosis cases were reported by the WCC as asbestosis-related disease due to previous exposures.

In 2014, the number of reported carbon monoxide exposures was 93 compared to 14 exposures in 2013. This dramatic increase was due, in part, to 48 workers who were exposed to carbon monoxide at a produce facility in the southwest region. The source of carbon monoxide was thought to be exhaust from forklifts located inside the facility. The other persons with reported carbon monoxide exposures worked in various industries including automobile services. Nine of the exposures were reported through death certificates and resulted from exposure to vehicle exhaust or carbon monoxide inside the home. Three were deliberate exposures.

Nearly all 8 persons reported with pneumoconiosis worked in the coal mining industry, and were identified from death certificates.

Among all toxic substance exposures, the largest proportion of cases (25%) occurred in the 60 year and older age group; however, the highest incidence rate occurred in the 30-39 year age group with a rate of 6.4 per 100,000. Incidence rates ranged from 6.3 to 0.1 per 100,000 among

the remaining age groups, with no cases reported for infants less than one year of age (excluding childhood lead). This age distribution reflects the large proportion of cases identified by public health through WCC reports and death certificates, which are likely to represent long-term exposures. Race information was not reported for 60% of toxic substance-related cases. As such, no statement can be made about the distribution of this condition by race. Sixty-four percent of all cases occurred in males. The incidence rate among males was almost twice the rate in females (5.6 and 3.0 per 100,000, respectively). The southwest region had the highest incidence rate at 10.5 per 100,000. Rates in other regions ranged from 2.6 to 3.7 per 100,000.

Trichinosis

Agent: Roundworms of genus *Trichinella; T. spiralis* is the most common cause of human infections.
Mode of Transmission: Eating raw or undercooked contaminated meat, including bear, pork, wild feline (such as cougar), fox, dog, wolf, horse, seal, or walrus. Trichinosis is not transmitted from person to person.
Signs/Symptoms: Usually occur in 1-2 days after consuming contaminated meat and may include nausea, diarrhea, vomiting, fatigue, fever, and abdominal discomfort. Headaches, fever, chills, cough, eye swelling, aching joints and muscle pains, itchy skin, diarrhea, or constipation may follow. Individuals may be asymptomatic, but severe or even fatal infections can occur.
Prevention: All meat should be cooked to safe temperatures and a meat thermometer should be used to measure the internal temperature of cooked meat. Whole cuts of meat (excluding poultry and wild game) should be cooked to at least 145 degrees Fahrenheit. Ground meat (excluding poultry) and wild game (both whole cuts and ground) should be cooked to at least 160 degrees Fahrenheit. All poultry products should be cooked to at least 165 degrees Fahrenheit. Meat grinders should be cleaned thoroughly after each use.
Other Important Information: Trichinosis used to be more common in the United States, but has decreased dramatically in the past forty years. Consumption of raw or undercooked pork products was the most common risk factor. Now, more cases in the United States are associated with consuming raw or undercooked wild game meats than with pork products. Curing, drying, smoking or microwaving meat alone does not always kill infective worms. Homemade jerky and sausage have reportedly been the cause of many cases in recent years.

One case of trichinosis was reported in Virginia in 2014. The infection occurred in an adult female in the northern region. No clear source of the infection was established. The five-year average for trichinosis in Virginia is 1.2 cases per year.

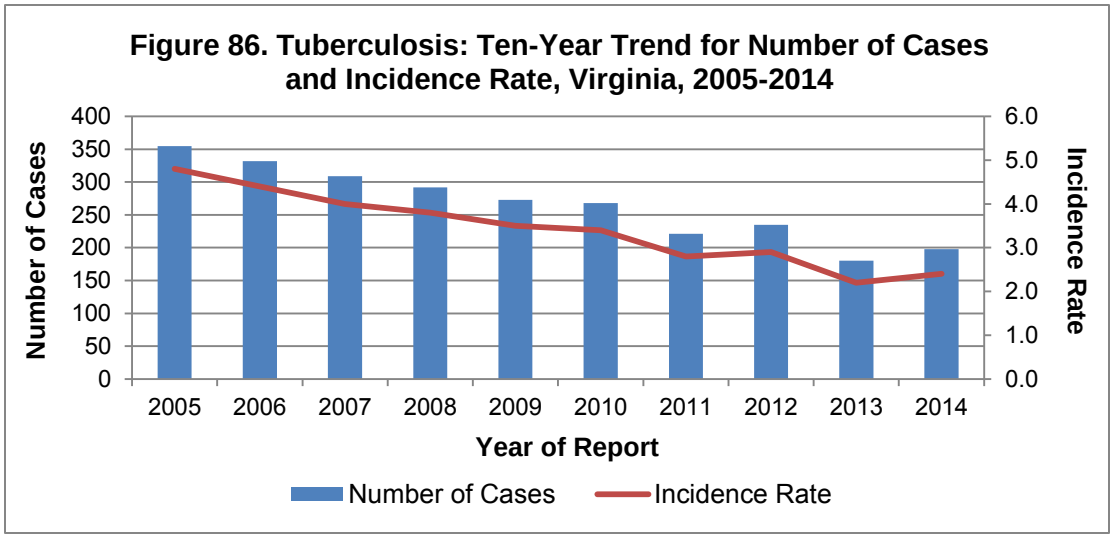
Tuberculosis

Agent: *Mycobacterium tuberculosis* (bacteria)
Mode of Transmission: Inhalation of tubercle bacilli via airborne droplets produced when patients with pulmonary or respiratory tract tuberculosis (TB) exhale the bacilli through coughing, singing, or sneezing.
Signs/Symptoms: Dependent on the organ(s) affected. General systemic signs and symptoms include fever, chills, night sweats, weight loss and fatigue. Symptoms of pulmonary tuberculosis may also include a prolonged (i.e., greater than 3 weeks) productive cough and coughing up blood.
Prevention: Control measures include the prompt identification, diagnosis and treatment of persons with infectious tuberculosis, followed by timely contact investigations to identify and treat additional persons with active tuberculosis disease and persons with latent tuberculosis infection. Special infection control measures should be practiced in high-risk settings.
Other Important Information: Persons with latent tuberculosis infection do not have any signs or symptoms of disease. These persons do not spread tuberculosis bacteria. Approximately 10% of those infected with tuberculosis will develop active disease during their lifetime, with the greatest risk for disease progression during the two years following infection. Co-infection with HIV and other immune suppressing conditions represent the greatest risks for progression to active disease.

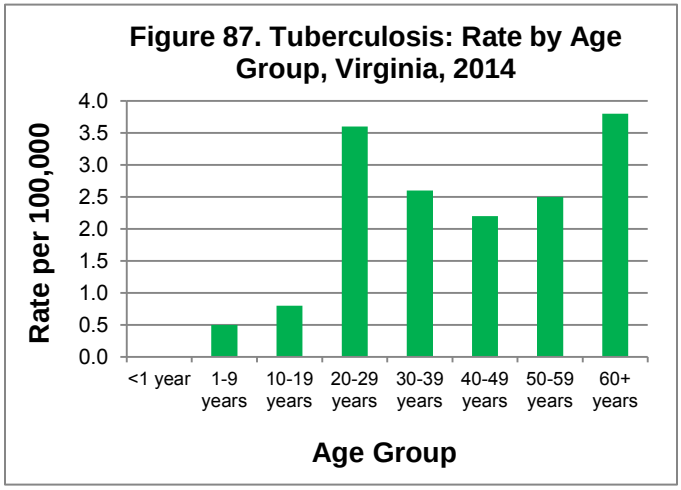
Tuberculosis: 2014 Data Summary	
Number of Cases:	198
5-Year Average Number of Cases:	235.4
% Change from 5-Year Average:	-16%
Incidence Rate per 100,000:	2.4

In 2014, 198 cases of tuberculosis were reported in Virginia. While this represents a 10% increase in reported cases when compared to 2013, when a record low of 180 cases were reported, the general trend in tuberculosis incidence in Virginia continues to be downward (Figure 86). The U.S. incidence rate of 3.0 cases per 10,000 was a 2% decrease from the 2013 incidence rate, which is the smallest incidence rate decrease in the last ten years.

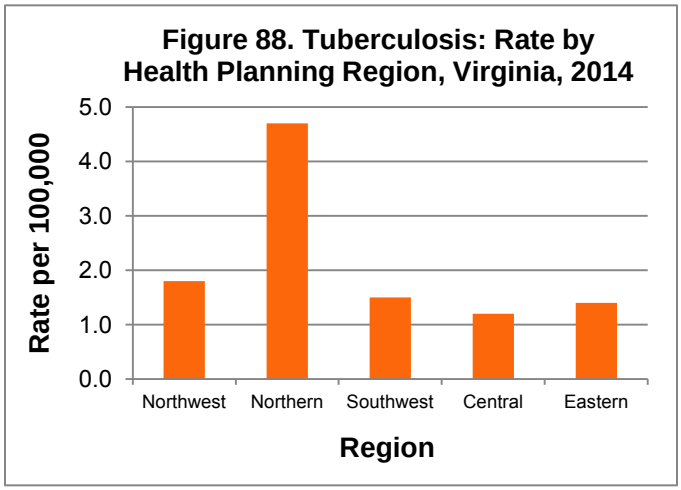
The increase in reported cases of tuberculosis in Virginia in 2014 can largely be attributed to a 65% increase in cases among U.S.-born persons, from 31 in 2013 to 51 in 2014. However, the 31 in 2013 was a 40% drop from the 52 in 2012, indicating that the occurrence of this disease in the U.S.-born population fluctuates. The number of cases among the foreign-born population stayed relatively stable, with 147 cases reported in 2014 compared to 149 in 2013. The five most frequent countries of origin for persons reported with tuberculosis in 2014 who were born outside the U.S. were India, Viet Nam, Ethiopia, Korea, Philippines and El Salvador (tie).



Incidence rates were higher in adults than in children and adolescents. The highest incidence occurred among those in the 60 year and older age group (3.8 cases per 100,000), followed by those aged 20-29 (3.6 per 100,000) (Figure 87). Incidence among other adult age groups ranged from 2.2 to 2.6 cases per 100,000. Incidence among children ranged from 0.5 per 100,000 in the 1-9 year age group to 0.8 per 100,000 in the 10-19 year age group. No cases occurred among infants in 2014. By race, the highest incidence was observed in the "other" race population (13.2 per 100,000), while incidence was substantially lower in the black and white populations (2.9 and 1.2 per 100,000, respectively). Males had higher incidence (2.6 per 100,000) than females (2.2 per 100,000).

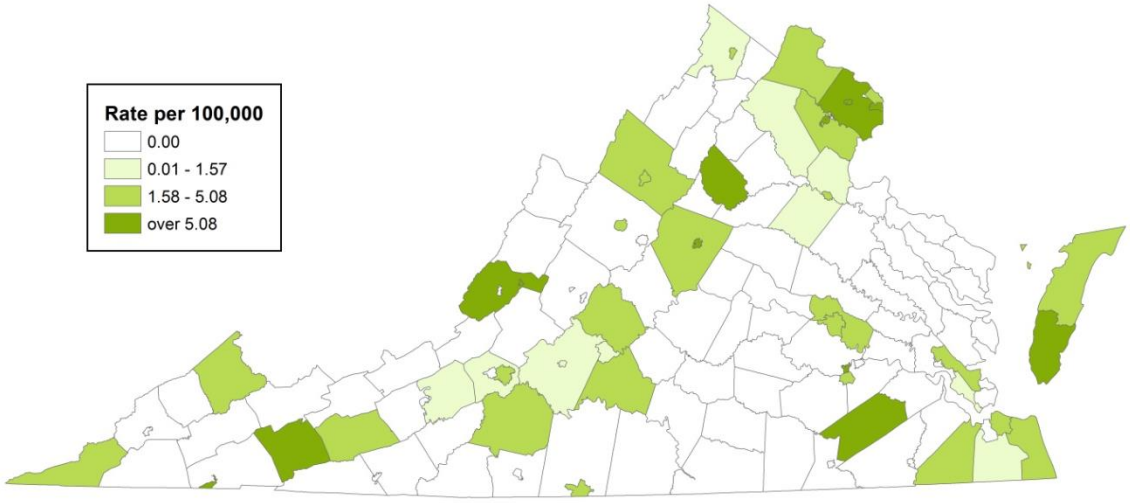


The highest number of cases and highest incidence rate (113 cases, 4.7 per 100,000) occurred in the northern region, where 70% of the foreign-born TB cases live (Figure 88). Incidence in the other regions ranged from 1.2 per 100,000 in the central region to 1.8 per 100,000 in the northwest region. Incidence by locality can be seen in the map below.



For culture-positive cases with drug sensitivity reported, 13% had resistance to at least one first-line drug. Three cases were multidrug-resistant (resistant to isoniazid and rifampin). No outbreaks were attributed to TB during 2014.

Tuberculosis Incidence Rate by Locality
Virginia, 2014



Tularemia

Agent: *Francisella tularensis* (bacteria)
Mode of Transmission: Transmission in the United States is primarily by the bite of an infected tick such as the American dog tick, the lone star tick, or occasionally by the bite of an infected deer fly. Hunters can contract the disease while cleaning infected game or when eating infected meat that is raw or undercooked. Humans can also become infected by drinking water contaminated by infected animals, by contaminating their eyes with infected material, or by breathing *F. tularensis* spores from the dried carcasses or pelts of animals that died from tularemia. Because *F. tularensis* is highly infectious when grown in culture, laboratorians who work with the bacteria can became infected with the bacteria through wound contamination, or inhalation of aerosolized material. The bacteria are not transmitted directly from person to person.
Signs/Symptoms: Symptoms vary depending on the mode of transmission, but usually include sudden onset of high fever, chills, fatigue, general body aches, headache and nausea. An ulcer can occur at the site of infectious bites or wounds, and proximate lymph nodes can become swollen and painful. Ingestion can result in painful pharyngitis, abdominal pain, diarrhea and vomiting. Pulmonary infection can result in pneumonia and requires prompt identification and treatment to prevent development of life-threatening illness.
Prevention: Preventive measures include minimizing the risk of tick bites by the use of both appropriate dress and insect repellants when recreating or working in tick habitats, and avoiding the consumption of untreated water. Impervious protective gloves should be used when skinning rabbits and other wild game. Utensils used for preparing meat from game should not be used to prepare other food items. Undercooked meat should not be consumed. Mowing over dead animals should be avoided to lower the risk of aerosolizing infectious particles.
Other Important Information: Wild animals are the reservoir for *F. tularensis*, and rabbits, hares, and rodents are especially susceptible to infection. Tularemia is classified as a potential bioweapon because its spores are relatively easy to disseminate as a breathable aerosol or as a food and water contaminant.

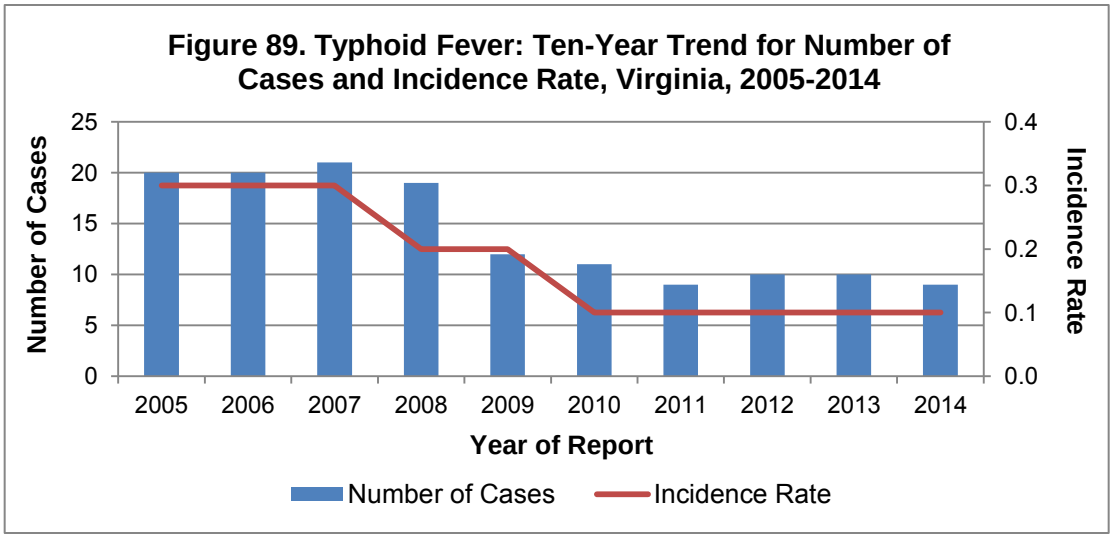
In 2014, no cases of tularemia were reported in Virginia residents. Two cases of tularemia occurred in 2013 and risk factors associated with these cases included contact with wildlife, including rabbits, and tick bites. In Virginia, the 5-year average incidence rate for tularemia is 2.2 cases per year.

Typhoid Fever

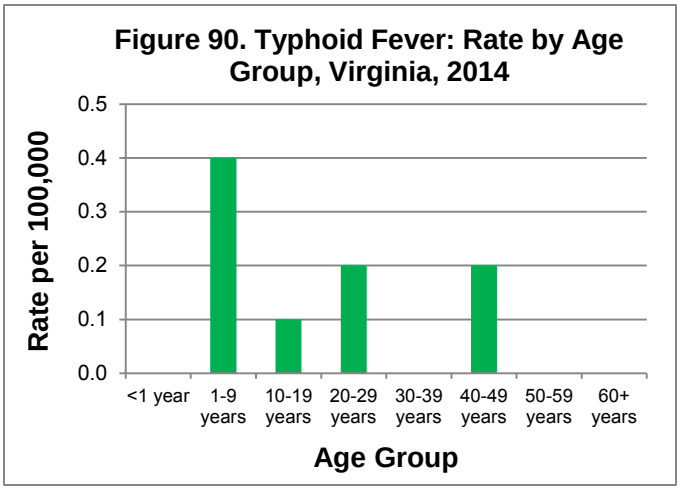
Agent: *Salmonella* ser. Typhi (bacteria)
Mode of Transmission: Ingestion of food or water contaminated by feces or urine of infected persons. The bacteria live only in humans.
Signs/Symptoms: Include sustained fever, headache, malaise, altered mental status, lethargy, anorexia, fast heart rate, enlarged spleen, a non-productive cough and constipation.
Prevention: Access to safe water and proper sanitation, and following safe food handling and hand hygiene practices are essential. Travelers to countries where the disease is common should get vaccinated and avoid consuming risky foods and drinks.
Other Important Information: According to the CDC, most cases of typhoid fever in the U.S. (up to 75%) are acquired while traveling internationally. The condition is very common in the developing world, where it affects more than 20 million persons annually. Approximately 200,000 deaths are attributed to typhoid fever worldwide each year.

Typhoid Fever: 2014 Data Summary	
Number of Cases:	9
5-Year Average Number of Cases:	10.4
% Change from 5-Year Average:	-13%
Incidence Rate per 100,000:	0.1

During 2014, 9 cases of typhoid fever were reported in Virginia. This is similar to the 10 cases reported in 2013, and a slight decrease from the five-year average of 10.4 cases per year (Figure 89). Eight of the nine cases had a history of travel outside the United States in the 30 days prior to illness onset. Travel histories included 5 persons who traveled to India, and one person each to Pakistan, Peru, and Sierra Leone. One case was not associated with travel and had no known exposures.



Among all age groups, the 1-9 year age group had the highest number of cases and incidence rate (4 cases, 0.4 per 100,000) (Figure 90). Race information was not provided for four cases. For cases with a known race, two were white, 2 were "other" race, and one was black. Males and females had similar rates (0.1 per 100,000 each). Seven cases were reported from the northern region, resulting in an incidence rate of 0.3 per 100,000, and the remaining two cases were reported from the central region with an incidence rate of 0.1 per 100,000.



Onset occurred throughout the year. However, because most cases are acquired outside the country, any seasonal pattern would most likely be related to travel patterns. During 2014, no deaths were attributed to typhoid fever in Virginia.

Vaccinia, Disease or Adverse Event

Agent: Vaccinia virus, which is used in the smallpox vaccine. The virus also occurs in some bovine (cattle) populations, primarily in Brazil.
Mode of Transmission: Through injection with the smallpox vaccine, or through direct contact with contaminated materials or the vaccination site before it has healed. Outbreaks among dairy cattle in Brazil have led to transmission of the virus to their human handlers, primarily farmers and ranchers.
Signs/Symptoms: Include rash, fever and head and body aches. Some individuals, especially those with certain skin conditions or weakened immune systems, may experience more serious effects, such as a toxic or allergic reaction at the vaccination site or spread of the virus to other parts of the body.
Prevention: When smallpox is not circulating, and to prevent serious reaction to the vaccine, administration of the smallpox vaccine should be generally limited to laboratory workers who handle smallpox and similar viruses and certain healthcare workers. The vaccine is currently available only to members of emergency response teams and some military personnel.
Other Important Information: The U.S. government has enough smallpox vaccine to vaccinate every person in the country in the event of a smallpox emergency. Vaccinia became a reportable condition in Virginia in 2003. It is not a nationally notifiable condition and U.S. totals are not available.

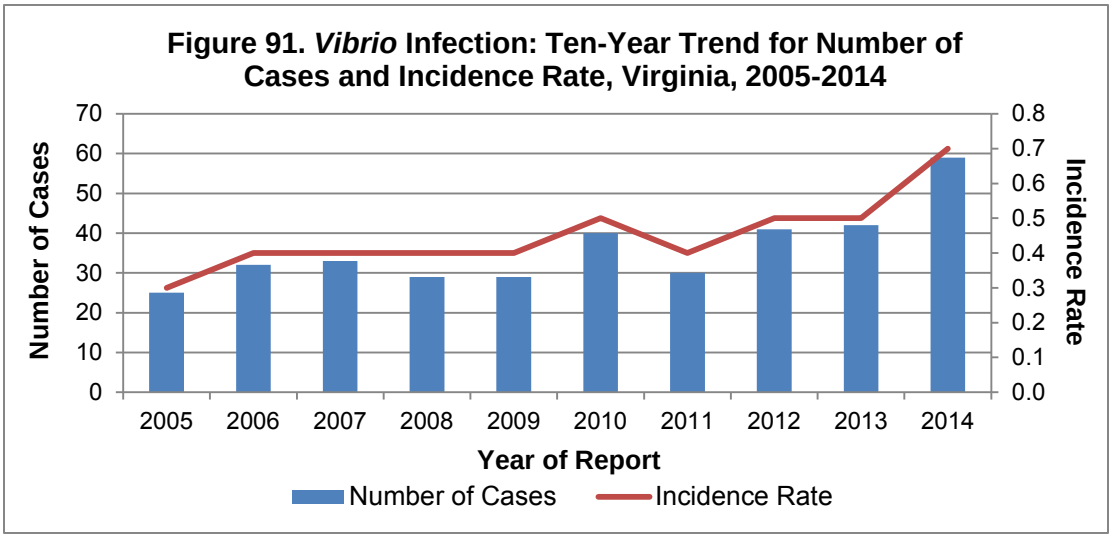
Smallpox vaccination is generally limited to a small population. Therefore, occurrences of vaccinia due to inadvertent transmission of the vaccine virus or occurrences of adverse events in vaccine recipients are very rare. No cases of vaccinia were reported in 2014. The five-year average of 0.2 cases per year is based upon one case of a vaccinia adverse event reported in 2013. The adverse event occurred in a vaccinated member of the military. The first and only other report of vaccinia infection in Virginia was received in 2008 and occurred in a laboratory worker who handled vaccinia-infected mice.

Vibrio Infection

Agent: *Vibrio* (bacteria)
Mode of Transmission: Gastroenteritis caused by *Vibrio* is usually related to the consumption of raw or undercooked seafood, particularly shellfish. Several large foodborne outbreaks of *Vibrio parahaemolyticus* have occurred in the United States in which undercooked seafood was the food vehicle. Wound infections occur when seawater carrying the *Vibrio* bacteria enters the body through a break in the skin, usually from brackish (i.e., somewhat salty) waters or from occupational injuries (e.g., among fishermen).
Signs/Symptoms: Symptoms associated with *Vibrio* infection include diarrhea (gastrointestinal infection), wound infection, and septicemia (bloodstream infection). Diarrheal illness is most common and includes watery stools and abdominal cramping. Low-grade fever, headache, and chills are seen in half of those ill with diarrheal illness, while 30% of those with diarrheal illness will experience vomiting. Wound infection is usually severe in those who have liver disease or weakened immune systems. Among those infected with *V. vulnificus*, approximately 50% of patients with primary septicemia die.
Prevention: Seafood should be cooked adequately and should be refrigerated. Avoid exposing open wounds to sea or brackish water. Abrasions suffered by those swimming in sea or brackish water should be washed with soap and clean water. Most people are considered susceptible, especially those with liver disease, decreased gastric acidity, diabetes, peptic ulcers, or weakened immune systems. People in high risk groups should refrain from eating raw or undercooked seafood.
Other Important Information: Marine coastal areas are the natural habitat of *Vibrio*. During the cold season, organisms are found in marine silt; during the warm season, they are found free in coastal waters and in fish and shellfish. Most *Vibrio* infections occur during summer and fall months, when levels of bacteria in brackish waters and estuaries are highest.

***Vibrio* Infection: 2014 Data Summary**	
Number of Cases:	59
5-Year Average Number of Cases:	36.4
% Change from 5-Year Average:	+62%
Incidence Rate per 100,000:	0.7

During 2014, 59 cases of *Vibrio* infection were reported in Virginia. This is higher than the 42 cases reported in 2013, and a 62% increase from the 5-year average of 36.4 cases per year (Figure 91). The incidence rate of *Vibrio* infection in the population in 2014 (0.7 per 100,000) was higher than the incidence rate in 2013 (0.5 per 100,000).



Species were identified for all but four of the *Vibrio* infections in 2014; specimen source was recorded for all but one case. As in previous years, *V. parahaemolyticus* was the most commonly identified strain (44%). Illnesses included 19 wound infections, 17 gastrointestinal infections, 8 ear infections, 7 bloodstream infections, 1 urinary tract infection, and 4 cases with wound and bloodstream co-infections (Table 13).

Table 13. *Vibrio* Infections by Species and Specimen Source, 2014

***Vibrio* species (number of cases)**	***Vibrio* Specimen Source***					
	Wound	**Stool**	**Ear**	**Blood**	**Urine**	**Other‡**
V. parahaemolyticus (26)	10	13	0	3	0	1
V. vulnificus (11)	8	0	0	5	1	0
V. alginolyticus (10)	2	0	7	0	0	1
V. fluvialis (5)	1	2	0	1	0	1
Vibrio, unspeciated (4)	2	0	1	1	0	0
V. parahaemolyticus/ *V. fluvialis* coinfection (2)	0	2	0	0	0	0
V. mimicus (1)	0	0	0	1	0	0

*The total number of positive specimens is larger than the total number of *Vibrio* cases because multiple specimen types may have been collected from a single patient.
‡ Includes sinus aspirate, biliary tube gallbladder fluid, and an unknown specimen source.

The largest number of *Vibrio* infections occurred in the 60 year and older age group (22 cases), with an incidence rate of 1.4 per 100,000 population. The 10-19 and 50-59 year age groups followed, both having rates of 0.9 per 100,000 (9 and 10 cases, respectively). No cases were reported among children less than one year of age.

Among the 85% of cases for which race information was available, the incidence rate was highest for the white population (0.7 per 100,000) as compared to the black and the "other" race populations (0.3 per 100,000 each, respectively). In Virginia, *Vibrio* infections typically affect males more often than females, which was unchanged in 2014 with 78% of cases reported to have occurred in males.

As in previous years, the eastern region had the highest number of cases and the highest incidence rate (29, 1.6 per 100,000), followed by the northern (15, 0.6 per 100,000) and northwest (9, 0.7 per 100,000) regions. The central region had five cases, and the southwest region had one case in 2014. Cases were clustered from late spring through fall, with onset of illness for 81% of cases occurring from June through October, with a peak in July (Figure 92).

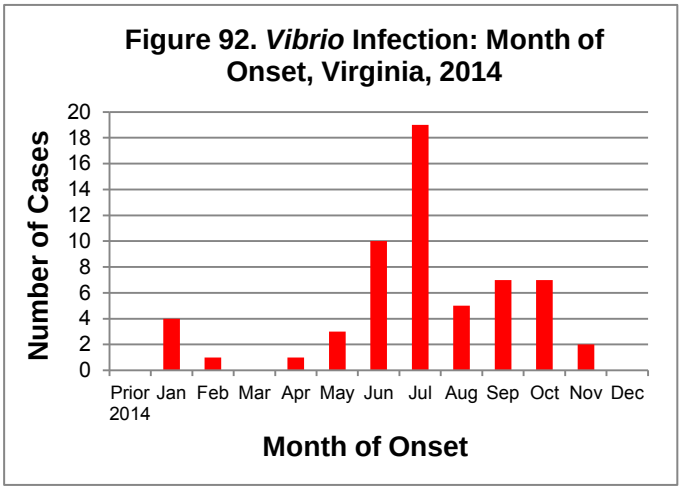


Figure 92. *Vibrio* Infection: Month of Onset, Virginia, 2014

Nineteen (32%) vibriosis patients required hospitalization during 2014. No deaths or outbreaks attributed to *Vibrio* infection were reported in Virginia in 2014.

Viral Hemorrhagic Fever

Agent(s): Viruses of four distinct families including *Arenaviridae* (Argentine, Bolivian, Venezuelan, Brazilian, Chapare and Lujo hemorrhagic fevers, and Lassa fever), *Filoviridae* (Ebola and Marburg hemorrhagic fevers), *Bunyaviridae* (Crimean-Congo hemorrhagic fever, Rift Valley fever, and hemorrhagic fever with renal syndrome [HFRS]), and *Flaviviridae* (dengue hemorrhagic fever, yellow fever, Omsk hemorrhagic fever, and Kyasansur Forest disease). Historically, among the viral hemorrhagic fevers, only dengue hemorrhagic fever has been found to occur naturally in North America.
Mode of Transmission: Varies by agent. Arenaviruses are carried by rodents and are contracted by breathing dust contaminated with saliva, feces or urine of infected rodents, but may also be transmitted person-to-person by infected patients. Filovirus hemorrhagic fevers are contracted through direct contact with blood or body fluids from infected animals or persons. Bunyaviruses are typically transmitted by the bites of arthropods but may also be contracted through contact with the blood and body fluids of infected livestock or people, or in the case of HFRS may be contracted through exposure to dust contaminated with saliva, feces or urine of infected rodents. Hemorrhagic fevers caused by Flaviviruses are typically transmitted by the bites of arthropods (mosquitoes or ticks).
Signs/Symptoms: Vary by type, including but not limited to, malaise, headache, fever, bleeding from the nose and gums, rash, appearance of blood in the eyes, or vomiting. Case-fatality rates can range from 1% (dengue) to 90% (Ebola).
Prevention: Depending on agent, exposure to hemorrhagic diseases can be reduced by rodent control in and around the home in endemic areas, by isolation of infected persons during their febrile period, by preventing contact with blood or body fluids of sick or dead humans or animals, and by avoiding the bites of mosquito or tick vectors.
Other Important Information: Viral hemorrhagic fevers are classified as potential bioweapons because they could cause high mortality, public panic, or social disruption. For surveillance purposes, cases of dengue fever are counted in the Arboviral Infection section of this report, while cases of yellow fever are counted in the Yellow Fever section. Therefore, any cases of dengue fever or yellow fever, including those with hemorrhagic signs, will be discussed in their respective sections of this surveillance report.

Although the largest outbreak of Ebola virus ever to be recorded in human history occurred across four West African countries in 2014, there were no human cases of Ebola imported into Virginia by travelers from West Africa. Additionally, no cases of viral hemorrhagic fever of any type were reported in Virginia during 2014. In 2011, one case of dengue hemorrhagic fever was reported and was counted for surveillance purposes as an arboviral condition and was discussed in the Arboviral Infection section of the report.

Yellow Fever

Agent: Yellow fever virus
Mode of Transmission: Transmitted through the bites of several species of infected *Aedes* mosquitoes, most notably the yellow fever mosquito (*Aedes aegypti*), which breeds in containers of water occurring around human habitats. Yellow fever mosquitoes occur in Virginia but have become rare after being displaced from their container breeding habitats by the arrival of the closely related Asian tiger mosquito (*Aedes albopictus*) in 1992. The Asian tiger mosquito is more cold tolerant than the yellow fever mosquito and is able to overwinter and maintain populations from year to year in most parts of Virginia. As a result, tiger mosquitoes have become very common throughout most of Virginia and could be potential vectors of the yellow fever virus. Tiger mosquitoes are similar in behavior and appearance to yellow fever mosquitoes. Although the Asian tiger mosquito's competence as a yellow fever vector has been proven in laboratory studies, there are currently no records of this mosquito having transmitted yellow fever in nature.
Signs/Symptoms: Varying levels of severity, but could include a sudden onset of fever, chills, headache, backache, generalized muscle pain, prostration, nausea, vomiting and jaundice. Jaundice is usually mild in early disease but intensifies later. Among cases with jaundice, the fatality rate is 20% to 50%.
Prevention: Vaccination against the yellow fever virus before traveling to yellow fever endemic regions of the world and avoidance of mosquito bites while traveling in these regions.
Other Important Information: Yellow fever has three transmission cycles: (1) the jungle (sylvatic) cycle, which involves transmission between nonhuman primates and mosquitoes. The virus is then transmitted from infected mosquitoes to humans working in the jungle; (2) the intermediate (savannah) cycle, which involves transmission of virus from mosquitoes to humans living or working in jungle border areas; and (3) the urban cycle, which involves transmission of the virus between humans and urban mosquitoes. The virus is usually brought to the urban area by a human who was infected in the jungle or savannah.

Although sporadic cases of jungle (sylvatic) yellow fever were seen in various countries of Africa and South America in 2014, no cases of yellow fever have been reported in Virginia since the nineteenth century.

Yersiniosis

Agent: *Yersinia* species (bacteria)
Mode of Transmission: Ingestion of contaminated foods, particularly raw or incompletely cooked pork products and unpasteurized milk, contaminated surface or well water, or by direct or indirect contact with infected people or animals.
Signs/Symptoms: Vary depending on age, but may include fever, abdominal pain, and bloody diarrhea.
Prevention: Preventive measures include safe food preparation and pasteurization of dairy products. People handling pork intestines should wash their hands and environmental surfaces thoroughly after contact with raw meat, and should not handle infants or young children or their toys, bottles, or pacifiers until hands are washed thoroughly.
Other Important Information: Infection most often occurs from eating contaminated food, especially raw or undercooked pork products, including pork intestines (chitterlings). Children are infected more often than adults. While most infections occur during the winter months, this is believed to be related to the preparation of chitterlings for the holidays, and not to outdoor temperatures.

Yersiniosis: 2014 Data Summary	
Number of Cases:	21
5-Year Average Number of Cases:	10.6
% Change from 5-Year Average:	98%
Incidence Rate per 100,000:	0.3

In 2014, 21 cases of yersiniosis were reported in Virginia. This represents the highest number reported since yersiniosis became reportable in 2007 and nearly double the five-year average of 10.6 cases per year.

The median age of those with yersiniosis was 43.1 years, and ranged from 0-94 years. Yersiniosis cases affected the youngest and oldest age groups, including four cases (19%) in infants and eight cases (38%) in persons 60 years of age and older. Among the 15 cases with a known race, 12 were in the white population and three were in the black population. Cases were almost equally distributed among sex, including 11 males and 10 females.

Five cases each were reported from the eastern, northwest and southwest regions, while three cases each were from the northern and central regions. No seasonal pattern was observed using onset dates although only one case had onset during the third quarter of the year.

NUMBER OF REPORTED CASES
AND
RATE PER 100,000 POPULATION
FOR SELECTED DISEASES BY
LOCALITY, DISTRICT AND REGION

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Amebiasis REPORTED CASES	Amebiasis RATE PER 100,000	Campylobacteriosis REPORTED CASES	Campylobacteriosis RATE PER 100,000	Chickenpox REPORTED CASES	Chickenpox RATE PER 100,000
VIRGINIA TOTAL	8,260,405	29	0.4	744	9.0	324	3.9
LOCALITY							
Accomack County	33,148	0	0.0	4	12.1	0	0.0
Albemarle County	103,000	1	1.0	3	2.9	13	12.6
Alleghany County, Clifton Forge	16,161	0	0.0	2	12.4	2	12.4
Amelia County	12,745	0	0.0	5	39.2	0	0.0
Amherst County	32,178	0	0.0	1	3.1	0	0.0
Appomattox County	15,255	0	0.0	1	6.6	1	6.6
Arlington County	224,906	3	1.3	61	27.1	7	3.1
Augusta County	73,912	0	0.0	1	1.4	7	9.5
Bath County	4,616	0	0.0	2	43.3	0	0.0
Bedford County, Bedford	75,773	0	0.0	4	5.3	1	1.3
Bland County	6,735	0	0.0	0	0.0	1	14.8
Botetourt County	33,002	0	0.0	5	15.2	1	3.0
Brunswick County	16,973	0	0.0	2	11.8	0	0.0
Buchanan County	23,597	0	0.0	0	0.0	2	8.5
Buckingham County	17,136	0	0.0	4	23.3	0	0.0
Campbell County	55,235	0	0.0	1	1.8	0	0.0
Caroline County	29,298	0	0.0	2	6.8	1	3.4
Carroll County	29,883	0	0.0	1	3.3	0	0.0
Charles City County	7,130	0	0.0	0	0.0	0	0.0
Charlotte County	12,305	0	0.0	2	16.3	3	24.4
Chesterfield County	327,745	0	0.0	24	7.3	13	4.0
Clarke County	14,348	0	0.0	4	27.9	2	13.9
Craig County	5,210	0	0.0	0	0.0	0	0.0
Culpeper County	48,506	0	0.0	2	4.1	4	8.2
Cumberland County	9,841	0	0.0	2	20.3	0	0.0
Dickenson County	15,486	0	0.0	0	0.0	0	0.0
Dinwiddie County	27,904	0	0.0	3	10.8	8	28.7
Essex County	11,229	0	0.0	1	8.9	2	17.8
Fairfax County	1,130,924	4	0.4	118	10.4	55	4.9
Fauquier County	67,207	0	0.0	14	20.8	1	1.5
Floyd County	15,528	0	0.0	3	19.3	1	6.4
Fluvanna County	25,977	0	0.0	1	3.8	1	3.8
Franklin County	56,335	0	0.0	4	7.1	0	0.0
Frederick County	81,319	0	0.0	24	29.5	1	1.2
Giles County	16,925	0	0.0	4	23.6	0	0.0
Gloucester County	36,834	0	0.0	4	10.9	0	0.0
Goochland County	21,626	0	0.0	4	18.5	0	0.0
Grayson County	15,161	0	0.0	1	6.6	0	0.0
Greene County	18,804	0	0.0	1	5.3	0	0.0
Greensville County	11,886	0	0.0	1	8.4	0	0.0
Halifax County, South Boston	35,401	0	0.0	4	11.3	0	0.0
Hanover County	101,330	1	1.0	18	17.8	5	4.9
Henrico County	318,611	0	0.0	30	9.4	11	3.5
Henry County	52,617	0	0.0	2	3.8	1	1.9
Highland County	2,215	0	0.0	1	45.1	0	0.0
Isle of Wight County	35,656	1	2.8	4	11.2	0	0.0
James City County	70,516	0	0.0	4	5.7	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Amebiasis REPORTED CASES	Amebiasis RATE PER 100,000	Campylobacteriosis REPORTED CASES	Campylobacteriosis RATE PER 100,000	Chickenpox REPORTED CASES	Chickenpox RATE PER 100,000
VIRGINIA TOTAL	8,260,405	29	0.4	744	9.0	324	3.9
LOCALITY							
King and Queen County	7,130	0	0.0	0	0.0	0	0.0
King George County	24,926	0	0.0	0	0.0	0	0.0
King William County	16,097	0	0.0	3	18.6	0	0.0
Lancaster County	11,148	0	0.0	1	9.0	0	0.0
Lee County	25,185	0	0.0	5	19.9	1	4.0
Loudoun County	349,679	0	0.0	37	10.6	26	7.4
Louisa County	33,945	0	0.0	3	8.8	2	5.9
Lunenburg County	12,527	0	0.0	1	8.0	0	0.0
Madison County	13,200	0	0.0	1	7.6	1	7.6
Mathews County	8,897	0	0.0	0	0.0	0	0.0
Mecklenburg County	31,426	0	0.0	3	9.5	2	6.4
Middlesex County	10,762	0	0.0	0	0.0	0	0.0
Montgomery County	96,207	0	0.0	11	11.4	3	3.1
Nelson County	14,789	0	0.0	2	13.5	0	0.0
New Kent County	19,507	0	0.0	4	20.5	1	5.1
Northampton County	12,125	0	0.0	1	8.2	0	0.0
Northumberland County	12,200	0	0.0	0	0.0	0	0.0
Nottoway County	15,773	0	0.0	1	6.3	0	0.0
Orange County	34,689	0	0.0	1	2.9	1	2.9
Page County	23,821	0	0.0	4	16.8	4	16.8
Patrick County	18,368	0	0.0	0	0.0	0	0.0
Pittsylvania County	62,426	0	0.0	3	4.8	1	1.6
Powhatan County	28,259	0	0.0	5	17.7	1	3.5
Prince Edward County	22,802	0	0.0	4	17.5	1	4.4
Prince George County	37,253	0	0.0	1	2.7	1	2.7
Prince William County	438,580	3	0.7	31	7.1	17	3.9
Pulaski County	34,507	0	0.0	7	20.3	0	0.0
Rappahannock County	7,478	0	0.0	0	0.0	0	0.0
Richmond County	8,953	0	0.0	0	0.0	1	11.2
Roanoke County	93,524	0	0.0	7	7.5	2	2.1
Rockbridge County	22,307	0	0.0	2	9.0	1	4.5
Rockingham County	77,741	0	0.0	3	3.9	6	7.7
Russell County	28,264	0	0.0	4	14.2	2	7.1
Scott County	22,640	0	0.0	5	22.1	2	8.8
Shenandoah County	42,684	0	0.0	13	30.5	4	9.4
Smyth County	31,652	0	0.0	1	3.2	1	3.2
Southampton County	18,128	0	0.0	2	11.0	0	0.0
Spotsylvania County	127,348	0	0.0	12	9.4	5	3.9
Stafford County	136,788	2	1.5	4	2.9	1	0.7
Surry County	6,765	0	0.0	2	29.6	0	0.0
Sussex County	11,810	0	0.0	1	8.5	2	16.9
Tazewell County	44,103	0	0.0	4	9.1	4	9.1
Warren County	38,699	0	0.0	9	23.3	1	2.6
Washington County	54,907	0	0.0	2	3.6	0	0.0
Westmoreland County	17,612	0	0.0	0	0.0	0	0.0
Wise County	40,589	0	0.0	0	0.0	2	4.9
Wythe County	29,344	0	0.0	4	13.6	2	6.8
York County	66,269	0	0.0	3	4.5	2	3.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Amebiasis REPORTED CASES	Amebiasis RATE PER 100,000	Campylobacteriosis REPORTED CASES	Campylobacteriosis RATE PER 100,000	Chickenpox REPORTED CASES	Chickenpox RATE PER 100,000
VIRGINIA TOTAL	8,260,405	29	0.4	744	9.0	324	3.9
LOCALITY							
Alexandria	148,892	3	2.0	23	15.4	8	5.4
Bristol	17,341	0	0.0	0	0.0	1	5.8
Buena Vista	6,680	0	0.0	1	15.0	0	0.0
Charlottesville	44,349	0	0.0	3	6.8	7	15.8
Chesapeake	230,571	0	0.0	5	2.2	3	1.3
Colonial Heights	17,634	0	0.0	1	5.7	0	0.0
Covington	5,818	0	0.0	1	17.2	0	0.0
Danville	42,907	0	0.0	2	4.7	3	7.0
Emporia	5,588	0	0.0	0	0.0	0	0.0
Fairfax City	23,973	0	0.0	0	0.0	1	4.2
Falls Church	13,508	0	0.0	0	0.0	0	0.0
Franklin City	8,638	0	0.0	0	0.0	0	0.0
Fredericksburg	28,132	0	0.0	1	3.6	0	0.0
Galax	7,035	2	28.4	0	0.0	2	28.4
Hampton	136,699	0	0.0	4	2.9	5	3.7
Harrisonburg	51,395	0	0.0	2	3.9	5	9.7
Hopewell	22,163	1	4.5	2	9.0	0	0.0
Lexington	7,170	0	0.0	0	0.0	0	0.0
Lynchburg	78,014	0	0.0	2	2.6	0	0.0
Manassas	41,705	1	2.4	2	4.8	1	2.4
Manassas Park	16,149	0	0.0	3	18.6	0	0.0
Martinsville	13,755	0	0.0	1	7.3	0	0.0
Newport News	182,020	1	0.5	7	3.8	7	3.8
Norfolk	246,139	1	0.4	10	4.1	1	0.4
Norton	4,017	0	0.0	0	0.0	0	0.0
Petersburg	32,538	0	0.0	2	6.1	0	0.0
Poquoson	12,104	0	0.0	1	8.3	0	0.0
Portsmouth	96,205	0	0.0	4	4.2	0	0.0
Radford	17,184	0	0.0	2	11.6	1	5.8
Richmond City	214,114	3	1.4	20	9.3	3	1.4
Roanoke City	98,465	0	0.0	6	6.1	7	7.1
Salem	25,299	0	0.0	1	4.0	0	0.0
Staunton	24,350	0	0.0	0	0.0	0	0.0
Suffolk	85,728	1	1.2	7	8.2	2	2.3
Virginia Beach	448,479	1	0.2	29	6.5	17	3.8
Waynesboro	21,263	0	0.0	1	4.7	1	4.7
Williamsburg	15,206	0	0.0	10	65.8	3	19.7
Winchester	27,216	0	0.0	5	18.4	2	7.3

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Amebiasis REPORTED CASES	Amebiasis RATE PER 100,000	Campylobacteriosis REPORTED CASES	Campylobacteriosis RATE PER 100,000	Chickenpox REPORTED CASES	Chickenpox RATE PER 100,000
VIRGINIA TOTAL	8,260,405	29	0.4	744	9.0	324	3.9
DISTRICT/REGION							

Central Shenandoah	291,649	0	0.0	13	4.5	20	6.9
Lord Fairfax	228,087	0	0.0	59	25.9	14	6.1
Rappahannock	346,492	2	0.6	19	5.5	7	2.0
Rappahannock/Rapidan	171,080	0	0.0	18	10.5	7	4.1
Thomas Jefferson	240,864	1	0.4	13	5.4	23	9.5
Northwest Region	1,278,172	3	0.2	122	9.5	71	5.6

Alexandria	148,892	3	2.0	23	15.4	8	5.4
Arlington	224,906	3	1.3	61	27.1	7	3.1
Fairfax	1,168,405	4	0.3	118	10.1	56	4.8
Loudoun	349,679	0	0.0	37	10.6	26	7.4
Prince William	496,434	4	0.8	36	7.3	18	3.6
Northern Region	2,388,316	14	0.6	275	11.5	115	4.8

Alleghany	179,014	0	0.0	16	8.9	5	2.8
Central Virginia	256,455	0	0.0	9	3.5	2	0.8
Cumberland Plateau	111,450	0	0.0	8	7.2	8	7.2
Lenowisco	92,431	0	0.0	10	10.8	5	5.4
Mount Rogers	192,058	2	1.0	9	4.7	7	3.6
New River	180,351	0	0.0	27	15.0	5	2.8
Pittsylvania/Danville	105,333	0	0.0	5	4.7	4	3.8
Roanoke City	98,465	0	0.0	6	6.1	7	7.1
West Piedmont	141,075	0	0.0	7	5.0	1	0.7
Southwest Region	1,356,632	2	0.1	97	7.2	44	3.2

Chesterfield	373,638	0	0.0	30	8.0	14	3.7
Chickahominy	149,593	1	0.7	26	17.4	6	4.0
Crater	155,907	1	0.6	12	7.7	11	7.1
Henrico	318,611	0	0.0	30	9.4	11	3.5
Piedmont	103,129	0	0.0	19	18.4	4	3.9
Richmond City	214,114	3	1.4	20	9.3	3	1.4
Southside	83,800	0	0.0	9	10.7	2	2.4
Central Region	1,398,792	5	0.4	146	10.4	51	3.6

Chesapeake	230,571	0	0.0	5	2.2	3	1.3
Eastern Shore	45,273	0	0.0	5	11.0	0	0.0
Hampton	136,699	0	0.0	4	2.9	5	3.7
Norfolk	246,139	1	0.4	10	4.1	1	0.4
Peninsula	346,115	1	0.3	25	7.2	12	3.5
Portsmouth	96,205	0	0.0	4	4.2	0	0.0
Three Rivers	140,862	0	0.0	9	6.4	3	2.1
Virginia Beach	448,479	1	0.2	29	6.5	17	3.8
Western Tidewater	148,150	2	1.3	13	8.8	2	1.3
Eastern Region	1,838,493	5	0.3	104	5.7	43	2.3

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***Chlamydia trachomatis* Infection**		**Cryptosporidiosis**		**Ehrlichiosis/ Anaplasmosis**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	35,725	432.5	152	1.8	137	1.7
LOCALITY							
Accomack County	33,148	262	790.4	1	3.0	1	3.0
Albemarle County	103,000	217	210.7	3	2.9	4	3.9
Alleghany County, Clifton Forge	16,161	47	290.8	0	0.0	1	6.2
Amelia County	12,745	33	258.9	0	0.0	1	7.8
Amherst County	32,178	102	317.0	1	3.1	1	3.1
Appomattox County	15,255	63	413.0	0	0.0	2	13.1
Arlington County	224,906	742	329.9	4	1.8	1	0.4
Augusta County	73,912	131	177.2	0	0.0	0	0.0
Bath County	4,616	10	216.6	0	0.0	0	0.0
Bedford County, Bedford	75,773	112	147.8	2	2.6	5	6.6
Bland County	6,735	6	89.1	0	0.0	0	0.0
Botetourt County	33,002	55	166.7	0	0.0	0	0.0
Brunswick County	16,973	110	648.1	0	0.0	1	5.9
Buchanan County	23,597	11	46.6	0	0.0	0	0.0
Buckingham County	17,136	45	262.6	1	5.8	0	0.0
Campbell County	55,235	193	349.4	0	0.0	3	5.4
Caroline County	29,298	99	337.9	2	6.8	0	0.0
Carroll County	29,883	63	210.8	1	3.3	0	0.0
Charles City County	7,130	27	378.7	0	0.0	1	14.0
Charlotte County	12,305	38	308.8	0	0.0	1	8.1
Chesterfield County	327,745	1,283	391.5	0	0.0	8	2.4
Clarke County	14,348	27	188.2	0	0.0	0	0.0
Craig County	5,210	4	76.8	0	0.0	0	0.0
Culpeper County	48,506	141	290.7	0	0.0	5	10.3
Cumberland County	9,841	41	416.6	1	10.2	0	0.0
Dickenson County	15,486	33	213.1	0	0.0	0	0.0
Dinwiddie County	27,904	118	422.9	0	0.0	1	3.6
Essex County	11,229	54	480.9	0	0.0	0	0.0
Fairfax County	1,130,924	2,226	196.8	29	2.6	4	0.4
Fauquier County	67,207	154	229.1	1	1.5	4	6.0
Floyd County	15,528	22	141.7	0	0.0	0	0.0
Fluvanna County	25,977	44	169.4	0	0.0	0	0.0
Franklin County	56,335	155	275.1	0	0.0	5	8.9
Frederick County	81,319	189	232.4	0	0.0	3	3.7
Giles County	16,925	31	183.2	0	0.0	0	0.0
Gloucester County	36,834	83	225.3	1	2.7	2	5.4
Goochland County	21,626	65	300.6	0	0.0	0	0.0
Grayson County	15,161	28	184.7	1	6.6	0	0.0
Greene County	18,804	25	133.0	1	5.3	0	0.0
Greensville County	11,886	65	546.9	0	0.0	0	0.0
Halifax County, South Boston	35,401	148	418.1	0	0.0	1	2.8
Hanover County	101,330	256	252.6	1	1.0	1	1.0
Henrico County	318,611	1,704	534.8	2	0.6	1	0.3
Henry County	52,617	188	357.3	0	0.0	1	1.9
Highland County	2,215	2	90.3	0	0.0	0	0.0
Isle of Wight County	35,656	155	434.7	0	0.0	0	0.0
James City County	70,516	180	255.3	1	1.4	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***Chlamydia trachomatis* Infection**		**Cryptosporidiosis**		**Ehrlichiosis/ Anaplasmosis**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	35,725	432.5	152	1.8	137	1.7
LOCALITY							
King and Queen County	7,130	23	322.6	0	0.0	0	0.0
King George County	24,926	67	268.8	0	0.0	3	12.0
King William County	16,097	32	198.8	0	0.0	0	0.0
Lancaster County	11,148	42	376.7	0	0.0	0	0.0
Lee County	25,185	41	162.8	2	7.9	0	0.0
Loudoun County	349,679	607	173.6	12	3.4	2	0.6
Louisa County	33,945	77	226.8	1	2.9	1	2.9
Lunenburg County	12,527	45	359.2	0	0.0	0	0.0
Madison County	13,200	40	303.0	0	0.0	1	7.6
Mathews County	8,897	20	224.8	0	0.0	0	0.0
Mecklenburg County	31,426	141	448.7	0	0.0	2	6.4
Middlesex County	10,762	33	306.6	0	0.0	0	0.0
Montgomery County	96,207	274	284.8	3	3.1	0	0.0
Nelson County	14,789	26	175.8	1	6.8	0	0.0
New Kent County	19,507	54	276.8	0	0.0	0	0.0
Northampton County	12,125	77	635.1	0	0.0	2	16.5
Northumberland County	12,200	55	450.8	0	0.0	0	0.0
Nottoway County	15,773	123	779.8	0	0.0	2	12.7
Orange County	34,689	115	331.5	0	0.0	3	8.6
Page County	23,821	49	205.7	0	0.0	1	4.2
Patrick County	18,368	19	103.4	0	0.0	0	0.0
Pittsylvania County	62,426	212	339.6	0	0.0	2	3.2
Powhatan County	28,259	60	212.3	1	3.5	3	10.6
Prince Edward County	22,802	124	543.8	1	4.4	0	0.0
Prince George County	37,253	243	652.3	0	0.0	2	5.4
Prince William County	438,580	1,497	341.3	10	2.3	3	0.7
Pulaski County	34,507	86	249.2	1	2.9	0	0.0
Rappahannock County	7,478	21	280.8	0	0.0	1	13.4
Richmond County	8,953	27	301.6	0	0.0	0	0.0
Roanoke County	93,524	244	260.9	0	0.0	0	0.0
Rockbridge County	22,307	53	237.6	1	4.5	1	4.5
Rockingham County	77,741	158	203.2	0	0.0	0	0.0
Russell County	28,264	31	109.7	0	0.0	0	0.0
Scott County	22,640	32	141.3	0	0.0	0	0.0
Shenandoah County	42,684	82	192.1	1	2.3	0	0.0
Smyth County	31,652	63	199.0	2	6.3	0	0.0
Southampton County	18,128	87	479.9	0	0.0	1	5.5
Spotsylvania County	127,348	367	288.2	0	0.0	7	5.5
Stafford County	136,788	396	289.5	1	0.7	3	2.2
Surry County	6,765	43	635.6	0	0.0	0	0.0
Sussex County	11,810	60	508.0	0	0.0	0	0.0
Tazewell County	44,103	63	142.8	0	0.0	0	0.0
Warren County	38,699	125	323.0	0	0.0	1	2.6
Washington County	54,907	72	131.1	1	1.8	1	1.8
Westmoreland County	17,612	76	431.5	0	0.0	1	5.7
Wise County	40,589	133	327.7	1	2.5	0	0.0
Wythe County	29,344	79	269.2	2	6.8	1	3.4
York County	66,269	191	288.2	2	3.0	1	1.5

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***Chlamydia trachomatis* Infection**		**Cryptosporidiosis**		**Ehrlichiosis/ Anaplasmosis**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	35,725	432.5	152	1.8	137	1.7
LOCALITY							
Alexandria	148,892	622	417.8	9	6.0	0	0.0
Bristol	17,341	72	415.2	2	11.5	0	0.0
Buena Vista	6,680	19	284.4	1	15.0	0	0.0
Charlottesville	44,349	202	455.5	0	0.0	0	0.0
Chesapeake	230,571	1,269	550.4	3	1.3	4	1.7
Colonial Heights	17,634	81	459.3	0	0.0	0	0.0
Covington	5,818	26	446.9	0	0.0	0	0.0
Danville	42,907	443	1,032.5	0	0.0	4	9.3
Emporia	5,588	78	1,395.8	0	0.0	1	17.9
Fairfax City	23,973	145	604.8	0	0.0	0	0.0
Falls Church	13,508	58	429.4	0	0.0	1	7.4
Franklin City	8,638	88	1,018.8	0	0.0	1	11.6
Fredericksburg	28,132	218	774.9	0	0.0	1	3.6
Galax	7,035	25	355.4	0	0.0	0	0.0
Hampton	136,699	1,412	1,032.9	4	2.9	0	0.0
Harrisonburg	51,395	262	509.8	0	0.0	0	0.0
Hopewell	22,163	192	866.3	0	0.0	0	0.0
Lexington	7,170	12	167.4	0	0.0	0	0.0
Lynchburg	78,014	491	629.4	1	1.3	6	7.7
Manassas	41,705	178	426.8	0	0.0	0	0.0
Manassas Park	16,149	45	278.7	0	0.0	0	0.0
Martinsville	13,755	89	647.0	0	0.0	1	7.3
Newport News	182,020	1,776	975.7	19	10.4	1	0.5
Norfolk	246,139	2,817	1,144.5	1	0.4	1	0.4
Norton	4,017	16	398.3	1	24.9	0	0.0
Petersburg	32,538	598	1,837.9	0	0.0	2	6.1
Poquoson	12,104	22	181.8	0	0.0	0	0.0
Portsmouth	96,205	1,068	1,110.1	0	0.0	0	0.0
Radford	17,184	173	1,006.8	0	0.0	0	0.0
Richmond City	214,114	2,868	1,339.5	2	0.9	1	0.5
Roanoke City	98,465	649	659.1	1	1.0	1	1.0
Salem	25,299	58	229.3	0	0.0	0	0.0
Staunton	24,350	83	340.9	0	0.0	0	0.0
Suffolk	85,728	564	657.9	3	3.5	2	2.3
Virginia Beach	448,479	2,315	516.2	6	1.3	6	1.3
Waynesboro	21,263	73	343.3	1	4.7	0	0.0
Williamsburg	15,206	87	572.1	2	13.2	0	0.0
Winchester	27,216	159	584.2	0	0.0	1	3.7

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***Chlamydia trachomatis* Infection**		**Cryptosporidiosis**		**Ehrlichiosis/ Anaplasmosis**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	35,725	432.5	152	1.8	137	1.7
DISTRICT/REGION							

Central Shenandoah	291,649	803	275.3	3	1.0	1	0.3
Lord Fairfax	228,087	631	276.6	1	0.4	6	2.6
Rappahannock	346,492	1,147	331.0	3	0.9	14	4.0
Rappahannock/Rapidan	171,080	471	275.3	1	0.6	14	8.2
Thomas Jefferson	240,864	591	245.4	6	2.5	5	2.1
Northwest Region	1,278,172	3,643	285.0	14	1.1	40	3.1

Alexandria	148,892	622	417.8	9	6.0	0	0.0
Arlington	224,906	742	329.9	4	1.8	1	0.4
Fairfax	1,168,405	2,429	207.9	29	2.5	5	0.4
Loudoun	349,679	607	173.6	12	3.4	2	0.6
Prince William	496,434	1,720	346.5	10	2.0	3	0.6
Northern Region	2,388,316	6,120	256.2	64	2.7	11	0.5

Alleghany	179,014	434	242.4	0	0.0	1	0.6
Central Virginia	256,455	961	374.7	4	1.6	17	6.6
Cumberland Plateau	111,450	138	123.8	0	0.0	0	0.0
Lenowisco	92,431	222	240.2	4	4.3	0	0.0
Mount Rogers	192,058	408	212.4	9	4.7	2	1.0
New River	180,351	586	324.9	4	2.2	0	0.0
Pittsylvania/Danville	105,333	655	621.8	0	0.0	6	5.7
Roanoke City	98,465	649	659.1	1	1.0	1	1.0
West Piedmont	141,075	451	319.7	0	0.0	7	5.0
Southwest Region	1,356,632	4,504	332.0	22	1.6	34	2.5

Chesterfield	373,638	1,424	381.1	1	0.3	11	2.9
Chickahominy	149,593	402	268.7	1	0.7	2	1.3
Crater	155,907	1,397	896.0	0	0.0	6	3.8
Henrico	318,611	1,704	534.8	2	0.6	1	0.3
Piedmont	103,129	449	435.4	3	2.9	4	3.9
Richmond City	214,114	2,868	1,339.5	2	0.9	1	0.5
Southside	83,800	399	476.1	0	0.0	4	4.8
Central Region	1,398,792	8,643	617.9	9	0.6	29	2.1

Chesapeake	230,571	1,269	550.4	3	1.3	4	1.7
Eastern Shore	45,273	339	748.8	1	2.2	3	6.6
Hampton	136,699	1,412	1,032.9	4	2.9	0	0.0
Norfolk	246,139	2,817	1,144.5	1	0.4	1	0.4
Peninsula	346,115	2,256	651.8	24	6.9	2	0.6
Portsmouth	96,205	1,068	1,110.1	0	0.0	0	0.0
Three Rivers	140,862	445	315.9	1	0.7	3	2.1
Virginia Beach	448,479	2,315	516.2	6	1.3	6	1.3
Western Tidewater	148,150	894	603.4	3	2.0	4	2.7
Eastern Region	1,838,493	12,815	697.0	43	2.3	23	1.3

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***Escherichia coli* Infection, Shiga Toxin-Producing**		**Giardiasis**		**Gonorrhea**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	121	1.5	256	3.1	8,196	99.2
LOCALITY							
Accomack County	33,148	0	0.0	0	0.0	28	84.5
Albemarle County	103,000	2	1.9	3	2.9	44	42.7
Alleghany County, Clifton Forge	16,161	0	0.0	1	6.2	1	6.2
Amelia County	12,745	0	0.0	1	7.8	6	47.1
Amherst County	32,178	0	0.0	1	3.1	22	68.4
Appomattox County	15,255	0	0.0	0	0.0	6	39.3
Arlington County	224,906	2	0.9	18	8.0	132	58.7
Augusta County	73,912	2	2.7	3	4.1	32	43.3
Bath County	4,616	0	0.0	0	0.0	3	65.0
Bedford County, Bedford	75,773	0	0.0	0	0.0	44	58.1
Bland County	6,735	0	0.0	1	14.8	1	14.8
Botetourt County	33,002	2	6.1	0	0.0	9	27.3
Brunswick County	16,973	0	0.0	0	0.0	23	135.5
Buchanan County	23,597	0	0.0	0	0.0	0	0.0
Buckingham County	17,136	0	0.0	0	0.0	9	52.5
Campbell County	55,235	0	0.0	1	1.8	36	65.2
Caroline County	29,298	1	3.4	0	0.0	11	37.5
Carroll County	29,883	3	10.0	1	3.3	4	13.4
Charles City County	7,130	0	0.0	0	0.0	2	28.1
Charlotte County	12,305	0	0.0	1	8.1	6	48.8
Chesterfield County	327,745	3	0.9	3	0.9	266	81.2
Clarke County	14,348	1	7.0	0	0.0	3	20.9
Craig County	5,210	0	0.0	0	0.0	3	57.6
Culpeper County	48,506	0	0.0	4	8.2	17	35.0
Cumberland County	9,841	0	0.0	0	0.0	12	121.9
Dickenson County	15,486	0	0.0	0	0.0	2	12.9
Dinwiddie County	27,904	0	0.0	0	0.0	24	86.0
Essex County	11,229	0	0.0	0	0.0	4	35.6
Fairfax County	1,130,924	14	1.2	61	5.4	277	24.5
Fauquier County	67,207	3	4.5	0	0.0	13	19.3
Floyd County	15,528	1	6.4	1	6.4	4	25.8
Fluvanna County	25,977	0	0.0	3	11.5	12	46.2
Franklin County	56,335	3	5.3	2	3.6	58	103.0
Frederick County	81,319	3	3.7	4	4.9	23	28.3
Giles County	16,925	0	0.0	0	0.0	3	17.7
Gloucester County	36,834	0	0.0	1	2.7	19	51.6
Goochland County	21,626	1	4.6	2	9.2	8	37.0
Grayson County	15,161	0	0.0	0	0.0	1	6.6
Greene County	18,804	0	0.0	0	0.0	3	16.0
Greensville County	11,886	1	8.4	0	0.0	7	58.9
Halifax County, South Boston	35,401	0	0.0	0	0.0	40	113.0
Hanover County	101,330	0	0.0	1	1.0	29	28.6
Henrico County	318,611	2	0.6	7	2.2	455	142.8
Henry County	52,617	0	0.0	1	1.9	79	150.1
Highland County	2,215	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,656	0	0.0	0	0.0	34	95.4
James City County	70,516	0	0.0	1	1.4	41	58.1

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***Escherichia coli* Infection, Shiga Toxin-Producing**		**Giardiasis**		**Gonorrhea**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	121	1.5	256	3.1	8,196	99.2
LOCALITY							
King and Queen County	7,130	0	0.0	0	0.0	6	84.2
King George County	24,926	0	0.0	0	0.0	9	36.1
King William County	16,097	0	0.0	0	0.0	2	12.4
Lancaster County	11,148	0	0.0	1	9.0	3	26.9
Lee County	25,185	1	4.0	0	0.0	4	15.9
Loudoun County	349,679	13	3.7	22	6.3	61	17.4
Louisa County	33,945	0	0.0	1	2.9	17	50.1
Lunenburg County	12,527	0	0.0	0	0.0	14	111.8
Madison County	13,200	0	0.0	1	7.6	17	128.8
Mathews County	8,897	0	0.0	0	0.0	1	11.2
Mecklenburg County	31,426	0	0.0	0	0.0	26	82.7
Middlesex County	10,762	0	0.0	0	0.0	7	65.0
Montgomery County	96,207	1	1.0	3	3.1	31	32.2
Nelson County	14,789	0	0.0	0	0.0	7	47.3
New Kent County	19,507	0	0.0	0	0.0	9	46.1
Northampton County	12,125	0	0.0	0	0.0	4	33.0
Northumberland County	12,200	0	0.0	1	8.2	2	16.4
Nottoway County	15,773	0	0.0	0	0.0	13	82.4
Orange County	34,689	1	2.9	1	2.9	20	57.7
Page County	23,821	1	4.2	1	4.2	0	0.0
Patrick County	18,368	0	0.0	0	0.0	8	43.6
Pittsylvania County	62,426	0	0.0	0	0.0	35	56.1
Powhatan County	28,259	0	0.0	1	3.5	6	21.2
Prince Edward County	22,802	0	0.0	1	4.4	21	92.1
Prince George County	37,253	0	0.0	0	0.0	37	99.3
Prince William County	438,580	4	0.9	21	4.8	158	36.0
Pulaski County	34,507	0	0.0	0	0.0	24	69.6
Rappahannock County	7,478	0	0.0	0	0.0	2	26.7
Richmond County	8,953	1	11.2	1	11.2	3	33.5
Roanoke County	93,524	4	4.3	1	1.1	64	68.4
Rockbridge County	22,307	2	9.0	1	4.5	1	4.5
Rockingham County	77,741	7	9.0	7	9.0	19	24.4
Russell County	28,264	1	3.5	0	0.0	0	0.0
Scott County	22,640	1	4.4	1	4.4	2	8.8
Shenandoah County	42,684	4	9.4	0	0.0	3	7.0
Smyth County	31,652	0	0.0	1	3.2	6	19.0
Southampton County	18,128	1	5.5	0	0.0	23	126.9
Spotsylvania County	127,348	0	0.0	2	1.6	51	40.0
Stafford County	136,788	1	0.7	3	2.2	53	38.7
Surry County	6,765	0	0.0	0	0.0	11	162.6
Sussex County	11,810	0	0.0	0	0.0	10	84.7
Tazewell County	44,103	1	2.3	1	2.3	2	4.5
Warren County	38,699	1	2.6	4	10.3	11	28.4
Washington County	54,907	3	5.5	2	3.6	9	16.4
Westmoreland County	17,612	0	0.0	0	0.0	6	34.1
Wise County	40,589	1	2.5	1	2.5	6	14.8
Wythe County	29,344	1	3.4	0	0.0	11	37.5
York County	66,269	0	0.0	0	0.0	33	49.8

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***Escherichia coli* Infection, Shiga Toxin-Producing**		**Giardiasis**		**Gonorrhea**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	121	1.5	256	3.1	8,196	99.2
LOCALITY							
Alexandria	148,892	2	1.3	8	5.4	120	80.6
Bristol	17,341	0	0.0	0	0.0	22	126.9
Buena Vista	6,680	1	15.0	0	0.0	2	29.9
Charlottesville	44,349	2	4.5	3	6.8	69	155.6
Chesapeake	230,571	2	0.9	0	0.0	305	132.3
Colonial Heights	17,634	0	0.0	1	5.7	13	73.7
Covington	5,818	0	0.0	0	0.0	0	0.0
Danville	42,907	0	0.0	1	2.3	139	324.0
Emporia	5,588	0	0.0	0	0.0	6	107.4
Fairfax City	23,973	0	0.0	0	0.0	17	70.9
Falls Church	13,508	0	0.0	0	0.0	18	133.3
Franklin City	8,638	1	11.6	0	0.0	38	439.9
Fredericksburg	28,132	0	0.0	0	0.0	28	99.5
Galax	7,035	1	14.2	0	0.0	0	0.0
Hampton	136,699	0	0.0	3	2.2	386	282.4
Harrisonburg	51,395	2	3.9	1	1.9	28	54.5
Hopewell	22,163	0	0.0	1	4.5	61	275.2
Lexington	7,170	0	0.0	0	0.0	2	27.9
Lynchburg	78,014	0	0.0	0	0.0	164	210.2
Manassas	41,705	1	2.4	1	2.4	28	67.1
Manassas Park	16,149	0	0.0	1	6.2	10	61.9
Martinsville	13,755	0	0.0	1	7.3	41	298.1
Newport News	182,020	0	0.0	4	2.2	492	270.3
Norfolk	246,139	2	0.8	4	1.6	784	318.5
Norton	4,017	0	0.0	0	0.0	1	24.9
Petersburg	32,538	0	0.0	1	3.1	206	633.1
Poquoson	12,104	0	0.0	0	0.0	2	16.5
Portsmouth	96,205	0	0.0	1	1.0	354	368.0
Radford	17,184	0	0.0	0	0.0	16	93.1
Richmond City	214,114	0	0.0	9	4.2	1,018	475.4
Roanoke City	98,465	1	1.0	4	4.1	283	287.4
Salem	25,299	0	0.0	0	0.0	15	59.3
Staunton	24,350	0	0.0	1	4.1	27	110.9
Suffolk	85,728	0	0.0	0	0.0	164	191.3
Virginia Beach	448,479	7	1.6	8	1.8	546	121.7
Waynesboro	21,263	0	0.0	1	4.7	23	108.2
Williamsburg	15,206	3	19.7	1	6.6	15	98.6
Winchester	27,216	2	7.3	0	0.0	29	106.6

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***Escherichia coli* Infection, Shiga Toxin-Producing**		**Giardiasis**		**Gonorrhea**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	121	1.5	256	3.1	8,196	99.2
DISTRICT/REGION							

Central Shenandoah	291,649	14	4.8	14	4.8	137	47.0
Lord Fairfax	228,087	12	5.3	9	3.9	69	30.3
Rappahannock	346,492	2	0.6	5	1.4	152	43.9
Rappahannock/Rapidan	171,080	4	2.3	6	3.5	69	40.3
Thomas Jefferson	240,864	4	1.7	10	4.2	152	63.1
Northwest Region	1,278,172	36	2.8	44	3.4	579	45.3

Alexandria	148,892	2	1.3	8	5.4	120	80.6
Arlington	224,906	2	0.9	18	8.0	132	58.7
Fairfax	1,168,405	14	1.2	61	5.2	312	26.7
Loudoun	349,679	13	3.7	22	6.3	61	17.4
Prince William	496,434	5	1.0	23	4.6	196	39.5
Northern Region	2,388,316	36	1.5	132	5.5	821	34.4

Alleghany	179,014	6	3.4	2	1.1	92	51.4
Central Virginia	256,455	0	0.0	2	0.8	272	106.1
Cumberland Plateau	111,450	2	1.8	1	0.9	4	3.6
Lenowisco	92,431	3	3.2	2	2.2	13	14.1
Mount Rogers	192,058	8	4.2	5	2.6	54	28.1
New River	180,351	2	1.1	4	2.2	78	43.2
Pittsylvania/Danville	105,333	0	0.0	1	0.9	174	165.2
Roanoke City	98,465	1	1.0	4	4.1	283	287.4
West Piedmont	141,075	3	2.1	4	2.8	186	131.8
Southwest Region	1,356,632	25	1.8	25	1.8	1,156	85.2

Chesterfield	373,638	3	0.8	5	1.3	285	76.3
Chickahominy	149,593	1	0.7	3	2.0	48	32.1
Crater	155,907	1	0.6	2	1.3	362	232.2
Henrico	318,611	2	0.6	7	2.2	455	142.8
Piedmont	103,129	0	0.0	3	2.9	81	78.5
Richmond City	214,114	0	0.0	9	4.2	1,018	475.4
Southside	83,800	0	0.0	0	0.0	89	106.2
Central Region	1,398,792	7	0.5	29	2.1	2,338	167.1

Chesapeake	230,571	2	0.9	0	0.0	305	132.3
Eastern Shore	45,273	0	0.0	0	0.0	32	70.7
Hampton	136,699	0	0.0	3	2.2	386	282.4
Norfolk	246,139	2	0.8	4	1.6	784	318.5
Peninsula	346,115	3	0.9	6	1.7	583	168.4
Portsmouth	96,205	0	0.0	1	1.0	354	368.0
Three Rivers	140,862	1	0.7	4	2.8	53	37.6
Virginia Beach	448,479	7	1.6	8	1.8	546	121.7
Western Tidewater	148,150	2	1.3	0	0.0	259	174.8
Eastern Region	1,838,493	17	0.9	26	1.4	3,302	179.6

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***H. influenzae* Infection, Invasive**		**Hepatitis A**		**Hepatitis B, Acute**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	88	1.1	27	0.3	61	0.7
LOCALITY							
Accomack County	33,148	0	0.0	1	3.0	0	0.0
Albemarle County	103,000	0	0.0	0	0.0	0	0.0
Alleghany County, Clifton Forge	16,161	0	0.0	0	0.0	0	0.0
Amelia County	12,745	0	0.0	0	0.0	0	0.0
Amherst County	32,178	0	0.0	0	0.0	0	0.0
Appomattox County	15,255	0	0.0	0	0.0	0	0.0
Arlington County	224,906	0	0.0	0	0.0	1	0.4
Augusta County	73,912	2	2.7	0	0.0	0	0.0
Bath County	4,616	0	0.0	0	0.0	0	0.0
Bedford County, Bedford	75,773	0	0.0	0	0.0	1	1.3
Bland County	6,735	0	0.0	0	0.0	1	14.8
Botetourt County	33,002	0	0.0	0	0.0	1	3.0
Brunswick County	16,973	0	0.0	0	0.0	0	0.0
Buchanan County	23,597	0	0.0	0	0.0	0	0.0
Buckingham County	17,136	0	0.0	0	0.0	0	0.0
Campbell County	55,235	2	3.6	0	0.0	0	0.0
Caroline County	29,298	0	0.0	0	0.0	1	3.4
Carroll County	29,883	0	0.0	1	3.3	0	0.0
Charles City County	7,130	0	0.0	0	0.0	0	0.0
Charlotte County	12,305	0	0.0	0	0.0	0	0.0
Chesterfield County	327,745	2	0.6	1	0.3	3	0.9
Clarke County	14,348	0	0.0	0	0.0	0	0.0
Craig County	5,210	0	0.0	0	0.0	0	0.0
Culpeper County	48,506	1	2.1	0	0.0	0	0.0
Cumberland County	9,841	0	0.0	0	0.0	0	0.0
Dickenson County	15,486	0	0.0	1	6.5	1	6.5
Dinwiddie County	27,904	0	0.0	0	0.0	0	0.0
Essex County	11,229	0	0.0	0	0.0	0	0.0
Fairfax County	1,130,924	8	0.7	6	0.5	1	0.1
Fauquier County	67,207	1	1.5	0	0.0	0	0.0
Floyd County	15,528	0	0.0	0	0.0	0	0.0
Fluvanna County	25,977	1	3.8	0	0.0	0	0.0
Franklin County	56,335	2	3.6	0	0.0	0	0.0
Frederick County	81,319	1	1.2	0	0.0	1	1.2
Giles County	16,925	2	11.8	0	0.0	0	0.0
Gloucester County	36,834	1	2.7	0	0.0	0	0.0
Goochland County	21,626	0	0.0	0	0.0	0	0.0
Grayson County	15,161	0	0.0	0	0.0	0	0.0
Greene County	18,804	0	0.0	0	0.0	0	0.0
Greensville County	11,886	0	0.0	0	0.0	0	0.0
Halifax County, South Boston	35,401	0	0.0	0	0.0	0	0.0
Hanover County	101,330	1	1.0	1	1.0	0	0.0
Henrico County	318,611	3	0.9	2	0.6	5	1.6
Henry County	52,617	0	0.0	0	0.0	0	0.0
Highland County	2,215	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,656	2	5.6	0	0.0	0	0.0
James City County	70,516	1	1.4	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***H. influenzae* Infection, Invasive**		**Hepatitis A**		**Hepatitis B, Acute**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	88	1.1	27	0.3	61	0.7
LOCALITY							
King and Queen County	7,130	0	0.0	0	0.0	0	0.0
King George County	24,926	0	0.0	0	0.0	0	0.0
King William County	16,097	0	0.0	0	0.0	1	6.2
Lancaster County	11,148	0	0.0	0	0.0	0	0.0
Lee County	25,185	0	0.0	0	0.0	2	7.9
Loudoun County	349,679	1	0.3	1	0.3	0	0.0
Louisa County	33,945	1	2.9	0	0.0	0	0.0
Lunenburg County	12,527	0	0.0	0	0.0	0	0.0
Madison County	13,200	0	0.0	0	0.0	0	0.0
Mathews County	8,897	0	0.0	0	0.0	1	11.2
Mecklenburg County	31,426	0	0.0	1	3.2	0	0.0
Middlesex County	10,762	0	0.0	0	0.0	0	0.0
Montgomery County	96,207	1	1.0	0	0.0	2	2.1
Nelson County	14,789	0	0.0	0	0.0	0	0.0
New Kent County	19,507	1	5.1	0	0.0	0	0.0
Northampton County	12,125	0	0.0	0	0.0	0	0.0
Northumberland County	12,200	1	8.2	0	0.0	0	0.0
Nottoway County	15,773	0	0.0	0	0.0	0	0.0
Orange County	34,689	1	2.9	0	0.0	0	0.0
Page County	23,821	1	4.2	1	4.2	0	0.0
Patrick County	18,368	0	0.0	0	0.0	0	0.0
Pittsylvania County	62,426	1	1.6	0	0.0	1	1.6
Powhatan County	28,259	0	0.0	0	0.0	0	0.0
Prince Edward County	22,802	0	0.0	0	0.0	0	0.0
Prince George County	37,253	0	0.0	0	0.0	0	0.0
Prince William County	438,580	2	0.5	4	0.9	0	0.0
Pulaski County	34,507	1	2.9	0	0.0	0	0.0
Rappahannock County	7,478	0	0.0	0	0.0	0	0.0
Richmond County	8,953	0	0.0	0	0.0	0	0.0
Roanoke County	93,524	2	2.1	0	0.0	1	1.1
Rockbridge County	22,307	0	0.0	1	4.5	0	0.0
Rockingham County	77,741	3	3.9	0	0.0	1	1.3
Russell County	28,264	0	0.0	1	3.5	3	10.6
Scott County	22,640	2	8.8	0	0.0	1	4.4
Shenandoah County	42,684	1	2.3	1	2.3	0	0.0
Smyth County	31,652	2	6.3	0	0.0	0	0.0
Southampton County	18,128	0	0.0	0	0.0	0	0.0
Spotsylvania County	127,348	0	0.0	1	0.8	0	0.0
Stafford County	136,788	0	0.0	0	0.0	0	0.0
Surry County	6,765	0	0.0	0	0.0	0	0.0
Sussex County	11,810	0	0.0	0	0.0	0	0.0
Tazewell County	44,103	0	0.0	0	0.0	2	4.5
Warren County	38,699	1	2.6	0	0.0	1	2.6
Washington County	54,907	0	0.0	1	1.8	3	5.5
Westmoreland County	17,612	1	5.7	0	0.0	0	0.0
Wise County	40,589	4	9.9	0	0.0	3	7.4
Wythe County	29,344	1	3.4	0	0.0	0	0.0
York County	66,269	1	1.5	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***H. influenzae* Infection, Invasive**		**Hepatitis A**		**Hepatitis B, Acute**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	88	1.1	27	0.3	61	0.7
LOCALITY							
Alexandria	148,892	1	0.7	1	0.7	0	0.0
Bristol	17,341	0	0.0	0	0.0	0	0.0
Buena Vista	6,680	0	0.0	0	0.0	0	0.0
Charlottesville	44,349	0	0.0	0	0.0	0	0.0
Chesapeake	230,571	2	0.9	0	0.0	1	0.4
Colonial Heights	17,634	0	0.0	0	0.0	0	0.0
Covington	5,818	0	0.0	0	0.0	0	0.0
Danville	42,907	0	0.0	0	0.0	1	2.3
Emporia	5,588	0	0.0	0	0.0	0	0.0
Fairfax City	23,973	0	0.0	0	0.0	0	0.0
Falls Church	13,508	0	0.0	0	0.0	0	0.0
Franklin City	8,638	0	0.0	0	0.0	0	0.0
Fredericksburg	28,132	1	3.6	0	0.0	0	0.0
Galax	7,035	0	0.0	0	0.0	0	0.0
Hampton	136,699	0	0.0	0	0.0	4	2.9
Harrisonburg	51,395	1	1.9	0	0.0	0	0.0
Hopewell	22,163	1	4.5	0	0.0	0	0.0
Lexington	7,170	0	0.0	0	0.0	0	0.0
Lynchburg	78,014	3	3.8	0	0.0	0	0.0
Manassas	41,705	0	0.0	0	0.0	0	0.0
Manassas Park	16,149	0	0.0	0	0.0	0	0.0
Martinsville	13,755	0	0.0	0	0.0	0	0.0
Newport News	182,020	1	0.5	1	0.5	1	0.5
Norfolk	246,139	1	0.4	0	0.0	1	0.4
Norton	4,017	1	24.9	0	0.0	0	0.0
Petersburg	32,538	1	3.1	0	0.0	0	0.0
Poquoson	12,104	0	0.0	0	0.0	0	0.0
Portsmouth	96,205	0	0.0	0	0.0	0	0.0
Radford	17,184	0	0.0	0	0.0	0	0.0
Richmond City	214,114	5	2.3	0	0.0	5	2.3
Roanoke City	98,465	3	3.0	0	0.0	2	2.0
Salem	25,299	0	0.0	0	0.0	0	0.0
Staunton	24,350	0	0.0	0	0.0	0	0.0
Suffolk	85,728	1	1.2	0	0.0	1	1.2
Virginia Beach	448,479	5	1.1	0	0.0	7	1.6
Waynesboro	21,263	1	4.7	0	0.0	0	0.0
Williamsburg	15,206	0	0.0	0	0.0	0	0.0
Winchester	27,216	1	3.7	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		***H. influenzae* Infection, Invasive**		**Hepatitis A**		**Hepatitis B, Acute**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	88	1.1	27	0.3	61	0.7
DISTRICT/REGION							

Central Shenandoah	291,649	7	2.4	1	0.3	1	0.3
Lord Fairfax	228,087	5	2.2	2	0.9	2	0.9
Rappahannock	346,492	1	0.3	1	0.3	1	0.3
Rappahannock/Rapidan	171,080	3	1.8	0	0.0	0	0.0
Thomas Jefferson	240,864	2	0.8	0	0.0	0	0.0
Northwest Region	1,278,172	18	1.4	4	0.3	4	0.3

Alexandria	148,892	1	0.7	1	0.7	0	0.0
Arlington	224,906	0	0.0	0	0.0	1	0.4
Fairfax	1,168,405	8	0.7	6	0.5	1	0.1
Loudoun	349,679	1	0.3	1	0.3	0	0.0
Prince William	496,434	2	0.4	4	0.8	0	0.0
Northern Region	2,388,316	12	0.5	12	0.5	2	0.1

Alleghany	179,014	2	1.1	0	0.0	2	1.1
Central Virginia	256,455	5	1.9	0	0.0	1	0.4
Cumberland Plateau	111,450	0	0.0	2	1.8	6	5.4
Lenowisco	92,431	7	7.6	0	0.0	6	6.5
Mount Rogers	192,058	3	1.6	2	1.0	4	2.1
New River	180,351	4	2.2	0	0.0	2	1.1
Pittsylvania/Danville	105,333	1	0.9	0	0.0	2	1.9
Roanoke City	98,465	3	3.0	0	0.0	2	2.0
West Piedmont	141,075	2	1.4	0	0.0	0	0.0
Southwest Region	1,356,632	27	2.0	4	0.3	25	1.8

Chesterfield	373,638	2	0.5	1	0.3	3	0.8
Chickahominy	149,593	2	1.3	1	0.7	0	0.0
Crater	155,907	2	1.3	0	0.0	0	0.0
Henrico	318,611	3	0.9	2	0.6	5	1.6
Piedmont	103,129	0	0.0	0	0.0	0	0.0
Richmond City	214,114	5	2.3	0	0.0	5	2.3
Southside	83,800	0	0.0	1	1.2	0	0.0
Central Region	1,398,792	14	1.0	5	0.4	13	0.9

Chesapeake	230,571	2	0.9	0	0.0	1	0.4
Eastern Shore	45,273	0	0.0	1	2.2	0	0.0
Hampton	136,699	0	0.0	0	0.0	4	2.9
Norfolk	246,139	1	0.4	0	0.0	1	0.4
Peninsula	346,115	3	0.9	1	0.3	1	0.3
Portsmouth	96,205	0	0.0	0	0.0	0	0.0
Three Rivers	140,862	3	2.1	0	0.0	2	1.4
Virginia Beach	448,479	5	1.1	0	0.0	7	1.6
Western Tidewater	148,150	3	2.0	0	0.0	1	0.7
Eastern Region	1,838,493	17	0.9	2	0.1	17	0.9

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		**Hepatitis C, Acute**		**HIV Disease***		**Lead-Elevated Blood Levels in Children** Age 0-15 years**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	53	0.6	1,090	13.2	264	15.9
LOCALITY							
Accomack County	33,148	0	0.0	8	24.1	8	126.6
Albemarle County	103,000	0	0.0	9	8.7	3	15.5
Alleghany County, Clifton Forge	16,161	0	0.0	0	0.0	0	0.0
Amelia County	12,745	0	0.0	3	23.5	0	0.0
Amherst County	32,178	0	0.0	4	12.4	0	0.0
Appomattox County	15,255	0	0.0	0	0.0	0	0.0
Arlington County	224,906	0	0.0	56	24.9	5	14.5
Augusta County	73,912	1	1.4	1	1.4	1	7.7
Bath County	4,616	0	0.0	0	0.0	0	0.0
Bedford County, Bedford	75,773	0	0.0	4	5.3	2	14.7
Bland County	6,735	0	0.0	1	14.8	0	0.0
Botetourt County	33,002	1	3.0	1	3.0	0	0.0
Brunswick County	16,973	0	0.0	6	35.4	1	37.6
Buchanan County	23,597	0	0.0	0	0.0	1	26.8
Buckingham County	17,136	0	0.0	1	5.8	2	69.9
Campbell County	55,235	0	0.0	2	3.6	0	0.0
Caroline County	29,298	3	10.2	3	10.2	0	0.0
Carroll County	29,883	0	0.0	2	6.7	1	19.6
Charles City County	7,130	0	0.0	1	14.0	0	0.0
Charlotte County	12,305	0	0.0	1	8.1	1	42.8
Chesterfield County	327,745	0	0.0	31	9.5	4	5.6
Clarke County	14,348	0	0.0	0	0.0	0	0.0
Craig County	5,210	0	0.0	0	0.0	0	0.0
Culpeper County	48,506	1	2.1	2	4.1	0	0.0
Cumberland County	9,841	0	0.0	1	10.2	1	55.2
Dickenson County	15,486	1	6.5	0	0.0	0	0.0
Dinwiddie County	27,904	0	0.0	1	3.6	0	0.0
Essex County	11,229	0	0.0	3	26.7	1	49.9
Fairfax County	1,130,924	0	0.0	167	14.8	26	10.8
Fauquier County	67,207	0	0.0	1	1.5	2	14.1
Floyd County	15,528	0	0.0	0	0.0	1	35.2
Fluvanna County	25,977	0	0.0	3	11.5	0	0.0
Franklin County	56,335	0	0.0	2	3.6	0	0.0
Frederick County	81,319	1	1.2	4	4.9	1	5.8
Giles County	16,925	1	5.9	3	17.7	0	0.0
Gloucester County	36,834	0	0.0	0	0.0	1	15.2
Goochland County	21,626	0	0.0	2	9.2	2	55.5
Grayson County	15,161	1	6.6	2	13.2	1	42.4
Greene County	18,804	0	0.0	2	10.6	0	0.0
Greensville County	11,886	0	0.0	3	25.2	0	0.0
Halifax County, South Boston	35,401	0	0.0	3	8.5	5	77.1
Hanover County	101,330	0	0.0	6	5.9	0	0.0
Henrico County	318,611	2	0.6	42	13.2	19	28.5
Henry County	52,617	1	1.9	5	9.5	0	0.0
Highland County	2,215	0	0.0	1	45.1	0	0.0
Isle of Wight County	35,656	0	0.0	9	25.2	1	15.2
James City County	70,516	0	0.0	7	9.9	2	15.4

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Hepatitis C, Acute: REPORTED CASES	Hepatitis C, Acute: RATE PER 100,000	HIV Disease*: REPORTED CASES	HIV Disease*: RATE PER 100,000	Lead-Elevated Blood Levels in Children Age 0-15 years**: REPORTED CASES	Lead-Elevated Blood Levels in Children Age 0-15 years**: RATE PER 100,000
VIRGINIA TOTAL	8,260,405	53	0.6	1,090	13.2	264	15.9
LOCALITY							
King and Queen County	7,130	0	0.0	0	0.0	0	0.0
King George County	24,926	0	0.0	1	4.0	0	0.0
King William County	16,097	0	0.0	0	0.0	0	0.0
Lancaster County	11,148	0	0.0	0	0.0	0	0.0
Lee County	25,185	1	4.0	0	0.0	0	0.0
Loudoun County	349,679	0	0.0	12	3.4	6	6.4
Louisa County	33,945	0	0.0	3	8.8	2	31.7
Lunenburg County	12,527	0	0.0	0	0.0	1	48.4
Madison County	13,200	0	0.0	0	0.0	0	0.0
Mathews County	8,897	0	0.0	2	22.5	0	0.0
Mecklenburg County	31,426	0	0.0	3	9.5	2	37.7
Middlesex County	10,762	0	0.0	1	9.3	0	0.0
Montgomery County	96,207	1	1.0	2	2.1	1	7.4
Nelson County	14,789	0	0.0	0	0.0	2	81.2
New Kent County	19,507	0	0.0	1	5.1	0	0.0
Northampton County	12,125	0	0.0	1	8.2	1	47.1
Northumberland County	12,200	0	0.0	0	0.0	0	0.0
Nottoway County	15,773	0	0.0	3	19.0	1	35.9
Orange County	34,689	0	0.0	4	11.5	0	0.0
Page County	23,821	0	0.0	0	0.0	1	23.5
Patrick County	18,368	0	0.0	0	0.0	1	34.0
Pittsylvania County	62,426	0	0.0	1	1.6	1	9.2
Powhatan County	28,259	1	3.5	4	14.2	0	0.0
Prince Edward County	22,802	0	0.0	1	4.4	1	30.1
Prince George County	37,253	0	0.0	4	10.7	1	14.3
Prince William County	438,580	2	0.5	42	9.6	15	13.5
Pulaski County	34,507	4	11.6	2	5.8	1	17.8
Rappahannock County	7,478	0	0.0	0	0.0	0	0.0
Richmond County	8,953	0	0.0	0	0.0	0	0.0
Roanoke County	93,524	1	1.1	11	11.8	3	17.4
Rockbridge County	22,307	1	4.5	1	4.5	1	29.3
Rockingham County	77,741	2	2.6	1	1.3	0	0.0
Russell County	28,264	0	0.0	0	0.0	0	0.0
Scott County	22,640	1	4.4	0	0.0	0	0.0
Shenandoah County	42,684	1	2.3	2	4.7	0	0.0
Smyth County	31,652	0	0.0	2	6.3	0	0.0
Southampton County	18,128	0	0.0	4	22.1	0	0.0
Spotsylvania County	127,348	2	1.6	10	7.9	1	3.4
Stafford County	136,788	1	0.7	8	5.8	0	0.0
Surry County	6,765	0	0.0	1	14.8	2	179.5
Sussex County	11,810	1	8.5	3	25.4	0	0.0
Tazewell County	44,103	1	2.3	1	2.3	0	0.0
Warren County	38,699	2	5.2	0	0.0	0	0.0
Washington County	54,907	1	1.8	1	1.8	0	0.0
Westmoreland County	17,612	0	0.0	2	11.4	0	0.0
Wise County	40,589	4	9.9	2	4.9	1	13.9
Wythe County	29,344	4	13.6	1	3.4	1	19.0
York County	66,269	0	0.0	1	1.5	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Hepatitis C, Acute: REPORTED CASES	Hepatitis C, Acute: RATE PER 100,000	HIV Disease*: REPORTED CASES	HIV Disease*: RATE PER 100,000	Lead-Elevated Blood Levels in Children Age 0-15 years**: REPORTED CASES	Lead-Elevated Blood Levels in Children Age 0-15 years**: RATE PER 100,000
VIRGINIA TOTAL	8,260,405	53	0.6	1,090	13.2	264	15.9
LOCALITY							
Alexandria	148,892	0	0.0	33	22.2	7	28.9
Bristol	17,341	0	0.0	1	5.8	1	32.6
Buena Vista	6,680	0	0.0	0	0.0	0	0.0
Charlottesville	44,349	0	0.0	8	18.0	5	81.2
Chesapeake	230,571	0	0.0	32	13.9	2	4.0
Colonial Heights	17,634	0	0.0	3	17.0	0	0.0
Covington	5,818	0	0.0	0	0.0	0	0.0
Danville	42,907	0	0.0	4	9.3	5	58.6
Emporia	5,588	0	0.0	0	0.0	0	0.0
Fairfax City	23,973	0	0.0	0	0.0	0	0.0
Falls Church	13,508	0	0.0	2	14.8	0	0.0
Franklin City	8,638	0	0.0	1	11.6	0	0.0
Fredericksburg	28,132	2	7.1	1	3.6	10	189.6
Galax	7,035	0	0.0	1	14.2	0	0.0
Hampton	136,699	0	0.0	34	24.9	1	3.8
Harrisonburg	51,395	1	1.9	2	3.9	5	67.2
Hopewell	22,163	0	0.0	6	27.1	3	59.9
Lexington	7,170	0	0.0	0	0.0	0	0.0
Lynchburg	78,014	0	0.0	12	15.4	5	36.3
Manassas	41,705	1	2.4	1	2.4	3	29.4
Manassas Park	16,149	0	0.0	1	6.2	0	0.0
Martinsville	13,755	0	0.0	4	29.1	0	0.0
Newport News	182,020	0	0.0	45	24.7	11	28.4
Norfolk	246,139	0	0.0	98	39.8	13	28.6
Norton	4,017	0	0.0	0	0.0	0	0.0
Petersburg	32,538	0	0.0	19	58.4	5	78.8
Poquoson	12,104	0	0.0	1	8.3	0	0.0
Portsmouth	96,205	0	0.0	28	29.1	2	9.7
Radford	17,184	2	11.6	2	11.6	0	0.0
Richmond City	214,114	1	0.5	89	41.6	26	72.2
Roanoke City	98,465	1	1.0	23	23.4	11	56.3
Salem	25,299	0	0.0	0	0.0	3	68.1
Staunton	24,350	1	4.1	2	8.2	1	24.7
Suffolk	85,728	0	0.0	16	18.7	6	31.2
Virginia Beach	448,479	0	0.0	76	16.9	0	0.0
Waynesboro	21,263	0	0.0	1	4.7	0	0.0
Williamsburg	15,206	0	0.0	1	6.6	0	0.0
Winchester	27,216	0	0.0	2	7.3	1	17.6

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		**Hepatitis C, Acute**		**HIV Disease***		**Lead-Elevated Blood Levels in Children** Age 0-15 years**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	53	0.6	1,090	13.2	264	15.9
DISTRICT/REGION							

Central Shenandoah	291,649	6	2.1	9	3.1	8	15.7
Lord Fairfax	228,087	4	1.8	8	3.5	3	6.6
Rappahannock	346,492	8	2.3	23	6.6	11	14.0
Rappahannock/Rapidan	171,080	1	0.6	7	4.1	2	5.6
Thomas Jefferson	240,864	0	0.0	25	10.4	12	27.7
Northwest Region	1,278,172	19	1.5	72	5.6	36	14.2

Alexandria	148,892	0	0.0	33	22.2	7	28.9
Arlington	224,906	0	0.0	56	24.9	5	14.5
Fairfax	1,168,405	0	0.0	169	14.5	26	10.4
Loudoun	349,679	0	0.0	12	3.4	6	6.4
Prince William	496,434	3	0.6	44	8.9	18	14.3
Northern Region	2,388,316	3	0.1	314	13.1	62	11.8

Alleghany	179,014	2	1.1	12	6.7	6	18.6
Central Virginia	256,455	0	0.0	22	8.6	7	15.3
Cumberland Plateau	111,450	2	1.8	1	0.9	1	5.2
Lenowisco	92,431	6	6.5	2	2.2	1	6.2
Mount Rogers	192,058	6	3.1	11	5.7	4	12.0
New River	180,351	8	4.4	9	5.0	3	11.1
Pittsylvania/Danville	105,333	0	0.0	5	4.7	6	30.9
Roanoke City	98,465	1	1.0	23	23.4	11	56.3
West Piedmont	141,075	1	0.7	11	7.8	1	4.0
Southwest Region	1,356,632	26	1.9	96	7.1	40	16.8

Chesterfield	373,638	1	0.3	38	10.2	4	5.1
Chickahominy	149,593	0	0.0	10	6.7	2	7.0
Crater	155,907	1	0.6	37	23.7	11	37.8
Henrico	318,611	2	0.6	42	13.2	19	28.5
Piedmont	103,129	0	0.0	10	9.7	7	39.9
Richmond City	214,114	1	0.5	89	41.6	26	72.2
Southside	83,800	0	0.0	12	14.3	8	55.4
Central Region	1,398,792	5	0.4	238	17.0	77	28.4

Chesapeake	230,571	0	0.0	32	13.9	2	4.0
Eastern Shore	45,273	0	0.0	9	19.9	9	106.6
Hampton	136,699	0	0.0	34	24.9	1	3.8
Norfolk	246,139	0	0.0	98	39.8	13	28.6
Peninsula	346,115	0	0.0	55	15.9	13	18.7
Portsmouth	96,205	0	0.0	28	29.1	2	9.7
Three Rivers	140,862	0	0.0	8	5.7	2	8.5
Virginia Beach	448,479	0	0.0	76	16.9	0	0.0
Western Tidewater	148,150	0	0.0	30	20.2	7	22.7
Eastern Region	1,838,493	0	0.0	370	20.1	49	13.4

***** Beginning in 2009, HIV infection and AIDS data, formerly presented separately, are presented together as HIV disease. This category encompasses persons newly reported to VDH with HIV infection regardless of disease progression, including those with an AIDS-defining condition at first report.

** Rates are based on population figures for ages 0-15 years only

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Legionellosis REPORTED CASES	Legionellosis RATE PER 100,000	Listeriosis REPORTED CASES	Listeriosis RATE PER 100,000	Lyme Disease REPORTED CASES	Lyme Disease RATE PER 100,000
VIRGINIA TOTAL	8,260,405	129	1.6	25	0.3	1,346	16.3
LOCALITY							
Accomack County	33,148	0	0.0	0	0.0	3	9.1
Albemarle County	103,000	0	0.0	0	0.0	32	31.1
Alleghany County, Clifton Forge	16,161	4	24.8	0	0.0	0	0.0
Amelia County	12,745	0	0.0	0	0.0	1	7.8
Amherst County	32,178	0	0.0	1	3.1	4	12.4
Appomattox County	15,255	0	0.0	0	0.0	1	6.6
Arlington County	224,906	3	1.3	2	0.9	30	13.3
Augusta County	73,912	0	0.0	0	0.0	27	36.5
Bath County	4,616	0	0.0	0	0.0	0	0.0
Bedford County, Bedford	75,773	1	1.3	2	2.6	5	6.6
Bland County	6,735	0	0.0	1	14.8	2	29.7
Botetourt County	33,002	2	6.1	0	0.0	3	9.1
Brunswick County	16,973	2	11.8	0	0.0	0	0.0
Buchanan County	23,597	0	0.0	1	4.2	0	0.0
Buckingham County	17,136	0	0.0	0	0.0	0	0.0
Campbell County	55,235	0	0.0	0	0.0	2	3.6
Caroline County	29,298	0	0.0	0	0.0	3	10.2
Carroll County	29,883	0	0.0	0	0.0	34	113.8
Charles City County	7,130	1	14.0	0	0.0	0	0.0
Charlotte County	12,305	0	0.0	0	0.0	0	0.0
Chesterfield County	327,745	9	2.7	0	0.0	22	6.7
Clarke County	14,348	0	0.0	0	0.0	11	76.7
Craig County	5,210	0	0.0	0	0.0	0	0.0
Culpeper County	48,506	0	0.0	0	0.0	6	12.4
Cumberland County	9,841	1	10.2	0	0.0	2	20.3
Dickenson County	15,486	1	6.5	0	0.0	0	0.0
Dinwiddie County	27,904	0	0.0	0	0.0	1	3.6
Essex County	11,229	1	8.9	0	0.0	0	0.0
Fairfax County	1,130,924	7	0.6	3	0.3	284	25.1
Fauquier County	67,207	1	1.5	0	0.0	23	34.2
Floyd County	15,528	0	0.0	1	6.4	48	309.1
Fluvanna County	25,977	0	0.0	0	0.0	8	30.8
Franklin County	56,335	2	3.6	0	0.0	1	1.8
Frederick County	81,319	0	0.0	0	0.0	33	40.6
Giles County	16,925	0	0.0	0	0.0	16	94.5
Gloucester County	36,834	0	0.0	0	0.0	1	2.7
Goochland County	21,626	2	9.2	0	0.0	1	4.6
Grayson County	15,161	1	6.6	0	0.0	9	59.4
Greene County	18,804	1	5.3	0	0.0	7	37.2
Greensville County	11,886	0	0.0	0	0.0	0	0.0
Halifax County, South Boston	35,401	0	0.0	0	0.0	1	2.8
Hanover County	101,330	0	0.0	0	0.0	3	3.0
Henrico County	318,611	8	2.5	0	0.0	5	1.6
Henry County	52,617	2	3.8	0	0.0	2	3.8
Highland County	2,215	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,656	0	0.0	0	0.0	1	2.8
James City County	70,516	0	0.0	0	0.0	1	1.4

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Legionellosis REPORTED CASES	Legionellosis RATE PER 100,000	Listeriosis REPORTED CASES	Listeriosis RATE PER 100,000	Lyme Disease REPORTED CASES	Lyme Disease RATE PER 100,000
VIRGINIA TOTAL	8,260,405	129	1.6	25	0.3	1,346	16.3
LOCALITY							
King and Queen County	7,130	0	0.0	0	0.0	0	0.0
King George County	24,926	1	4.0	0	0.0	6	24.1
King William County	16,097	0	0.0	0	0.0	0	0.0
Lancaster County	11,148	0	0.0	0	0.0	1	9.0
Lee County	25,185	1	4.0	0	0.0	0	0.0
Loudoun County	349,679	0	0.0	1	0.3	193	55.2
Louisa County	33,945	1	2.9	1	2.9	7	20.6
Lunenburg County	12,527	0	0.0	0	0.0	0	0.0
Madison County	13,200	0	0.0	0	0.0	6	45.5
Mathews County	8,897	1	11.2	0	0.0	1	11.2
Mecklenburg County	31,426	3	9.5	0	0.0	0	0.0
Middlesex County	10,762	0	0.0	0	0.0	2	18.6
Montgomery County	96,207	1	1.0	0	0.0	72	74.8
Nelson County	14,789	0	0.0	1	6.8	7	47.3
New Kent County	19,507	0	0.0	0	0.0	1	5.1
Northampton County	12,125	1	8.2	0	0.0	1	8.2
Northumberland County	12,200	0	0.0	0	0.0	1	8.2
Nottoway County	15,773	0	0.0	0	0.0	3	19.0
Orange County	34,689	2	5.8	1	2.9	4	11.5
Page County	23,821	1	4.2	0	0.0	13	54.6
Patrick County	18,368	0	0.0	1	5.4	5	27.2
Pittsylvania County	62,426	2	3.2	1	1.6	5	8.0
Powhatan County	28,259	0	0.0	0	0.0	0	0.0
Prince Edward County	22,802	0	0.0	0	0.0	1	4.4
Prince George County	37,253	0	0.0	1	2.7	0	0.0
Prince William County	438,580	6	1.4	1	0.2	55	12.5
Pulaski County	34,507	1	2.9	0	0.0	42	121.7
Rappahannock County	7,478	0	0.0	0	0.0	3	40.1
Richmond County	8,953	0	0.0	0	0.0	0	0.0
Roanoke County	93,524	1	1.1	0	0.0	13	13.9
Rockbridge County	22,307	0	0.0	0	0.0	12	53.8
Rockingham County	77,741	4	5.1	0	0.0	28	36.0
Russell County	28,264	2	7.1	0	0.0	0	0.0
Scott County	22,640	0	0.0	0	0.0	0	0.0
Shenandoah County	42,684	0	0.0	0	0.0	9	21.1
Smyth County	31,652	2	6.3	0	0.0	0	0.0
Southampton County	18,128	1	5.5	0	0.0	0	0.0
Spotsylvania County	127,348	1	0.8	0	0.0	14	11.0
Stafford County	136,788	2	1.5	0	0.0	9	6.6
Surry County	6,765	0	0.0	0	0.0	1	14.8
Sussex County	11,810	1	8.5	0	0.0	1	8.5
Tazewell County	44,103	0	0.0	0	0.0	0	0.0
Warren County	38,699	1	2.6	0	0.0	28	72.4
Washington County	54,907	2	3.6	0	0.0	1	1.8
Westmoreland County	17,612	0	0.0	0	0.0	0	0.0
Wise County	40,589	1	2.5	0	0.0	0	0.0
Wythe County	29,344	0	0.0	0	0.0	17	57.9
York County	66,269	3	4.5	0	0.0	1	1.5

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Legionellosis REPORTED CASES	Legionellosis RATE PER 100,000	Listeriosis REPORTED CASES	Listeriosis RATE PER 100,000	Lyme Disease REPORTED CASES	Lyme Disease RATE PER 100,000
VIRGINIA TOTAL	8,260,405	129	1.6	25	0.3	1,346	16.3
LOCALITY							
Alexandria	148,892	0	0.0	0	0.0	19	12.8
Bristol	17,341	0	0.0	0	0.0	0	0.0
Buena Vista	6,680	0	0.0	0	0.0	2	29.9
Charlottesville	44,349	1	2.3	0	0.0	7	15.8
Chesapeake	230,571	6	2.6	0	0.0	5	2.2
Colonial Heights	17,634	0	0.0	0	0.0	1	5.7
Covington	5,818	0	0.0	0	0.0	0	0.0
Danville	42,907	5	11.7	0	0.0	4	9.3
Emporia	5,588	0	0.0	0	0.0	0	0.0
Fairfax City	23,973	0	0.0	0	0.0	0	0.0
Falls Church	13,508	0	0.0	0	0.0	0	0.0
Franklin City	8,638	0	0.0	0	0.0	0	0.0
Fredericksburg	28,132	0	0.0	0	0.0	6	21.3
Galax	7,035	0	0.0	0	0.0	6	85.3
Hampton	136,699	3	2.2	0	0.0	3	2.2
Harrisonburg	51,395	0	0.0	1	1.9	2	3.9
Hopewell	22,163	0	0.0	0	0.0	1	4.5
Lexington	7,170	0	0.0	0	0.0	1	13.9
Lynchburg	78,014	0	0.0	0	0.0	14	17.9
Manassas	41,705	0	0.0	0	0.0	0	0.0
Manassas Park	16,149	0	0.0	0	0.0	0	0.0
Martinsville	13,755	0	0.0	0	0.0	0	0.0
Newport News	182,020	1	0.5	1	0.5	1	0.5
Norfolk	246,139	1	0.4	0	0.0	4	1.6
Norton	4,017	0	0.0	0	0.0	0	0.0
Petersburg	32,538	0	0.0	0	0.0	1	3.1
Poquoson	12,104	0	0.0	0	0.0	0	0.0
Portsmouth	96,205	5	5.2	1	1.0	0	0.0
Radford	17,184	0	0.0	1	5.8	9	52.4
Richmond City	214,114	9	4.2	0	0.0	14	6.5
Roanoke City	98,465	2	2.0	0	0.0	2	2.0
Salem	25,299	0	0.0	0	0.0	1	4.0
Staunton	24,350	0	0.0	0	0.0	14	57.5
Suffolk	85,728	0	0.0	0	0.0	1	1.2
Virginia Beach	448,479	5	1.1	1	0.2	11	2.5
Waynesboro	21,263	0	0.0	0	0.0	7	32.9
Williamsburg	15,206	0	0.0	1	6.6	0	0.0
Winchester	27,216	0	0.0	0	0.0	14	51.4

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Legionellosis REPORTED CASES	Legionellosis RATE PER 100,000	Listeriosis REPORTED CASES	Listeriosis RATE PER 100,000	Lyme Disease REPORTED CASES	Lyme Disease RATE PER 100,000
VIRGINIA TOTAL	8,260,405	129	1.6	25	0.3	1,346	16.3
DISTRICT/REGION							

Central Shenandoah	291,649	4	1.4	1	0.3	93	31.9
Lord Fairfax	228,087	2	0.9	0	0.0	108	47.4
Rappahannock	346,492	4	1.2	0	0.0	38	11.0
Rappahannock/Rapidan	171,080	3	1.8	1	0.6	42	24.5
Thomas Jefferson	240,864	3	1.2	2	0.8	68	28.2
Northwest Region	1,278,172	16	1.3	4	0.3	349	27.3

Alexandria	148,892	0	0.0	0	0.0	19	12.8
Arlington	224,906	3	1.3	2	0.9	30	13.3
Fairfax	1,168,405	7	0.6	3	0.3	284	24.3
Loudoun	349,679	0	0.0	1	0.3	193	55.2
Prince William	496,434	6	1.2	1	0.2	55	11.1
Northern Region	2,388,316	16	0.7	7	0.3	581	24.3

Alleghany	179,014	7	3.9	0	0.0	17	9.5
Central Virginia	256,455	1	0.4	3	1.2	26	10.1
Cumberland Plateau	111,450	3	2.7	1	0.9	0	0.0
Lenowisco	92,431	2	2.2	0	0.0	0	0.0
Mount Rogers	192,058	5	2.6	1	0.5	69	35.9
New River	180,351	2	1.1	2	1.1	187	103.7
Pittsylvania/Danville	105,333	7	6.6	1	0.9	9	8.5
Roanoke City	98,465	2	2.0	0	0.0	2	2.0
West Piedmont	141,075	4	2.8	1	0.7	8	5.7
Southwest Region	1,356,632	33	2.4	9	0.7	318	23.4

Chesterfield	373,638	9	2.4	0	0.0	23	6.2
Chickahominy	149,593	3	2.0	0	0.0	5	3.3
Crater	155,907	1	0.6	1	0.6	5	3.2
Henrico	318,611	8	2.5	0	0.0	5	1.6
Piedmont	103,129	1	1.0	0	0.0	7	6.8
Richmond City	214,114	9	4.2	0	0.0	14	6.5
Southside	83,800	5	6.0	0	0.0	1	1.2
Central Region	1,398,792	36	2.6	1	0.1	60	4.3

Chesapeake	230,571	6	2.6	0	0.0	5	2.2
Eastern Shore	45,273	1	2.2	0	0.0	4	8.8
Hampton	136,699	3	2.2	0	0.0	3	2.2
Norfolk	246,139	1	0.4	0	0.0	4	1.6
Peninsula	346,115	4	1.2	2	0.6	3	0.9
Portsmouth	96,205	5	5.2	1	1.0	0	0.0
Three Rivers	140,862	2	1.4	0	0.0	6	4.3
Virginia Beach	448,479	5	1.1	1	0.2	11	2.5
Western Tidewater	148,150	1	0.7	0	0.0	2	1.3
Eastern Region	1,838,493	28	1.5	4	0.2	38	2.1

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Malaria REPORTED CASES	Malaria RATE PER 100,000	Meningococcal Disease REPORTED CASES	Meningococcal Disease RATE PER 100,000	Mumps REPORTED CASES	Mumps RATE PER 100,000
VIRGINIA TOTAL	8,260,405	77	0.9	10	0.1	20	0.2
LOCALITY							
Accomack County	33,148	0	0.0	0	0.0	0	0.0
Albemarle County	103,000	1	1.0	0	0.0	0	0.0
Alleghany County, Clifton Forge	16,161	0	0.0	0	0.0	0	0.0
Amelia County	12,745	0	0.0	0	0.0	0	0.0
Amherst County	32,178	0	0.0	0	0.0	0	0.0
Appomattox County	15,255	0	0.0	0	0.0	0	0.0
Arlington County	224,906	1	0.4	1	0.4	1	0.4
Augusta County	73,912	0	0.0	0	0.0	0	0.0
Bath County	4,616	0	0.0	0	0.0	0	0.0
Bedford County, Bedford	75,773	0	0.0	0	0.0	0	0.0
Bland County	6,735	0	0.0	0	0.0	0	0.0
Botetourt County	33,002	0	0.0	0	0.0	0	0.0
Brunswick County	16,973	0	0.0	0	0.0	0	0.0
Buchanan County	23,597	0	0.0	0	0.0	0	0.0
Buckingham County	17,136	0	0.0	0	0.0	0	0.0
Campbell County	55,235	0	0.0	0	0.0	0	0.0
Caroline County	29,298	0	0.0	0	0.0	0	0.0
Carroll County	29,883	0	0.0	0	0.0	0	0.0
Charles City County	7,130	0	0.0	0	0.0	0	0.0
Charlotte County	12,305	0	0.0	0	0.0	0	0.0
Chesterfield County	327,745	1	0.3	0	0.0	0	0.0
Clarke County	14,348	0	0.0	0	0.0	0	0.0
Craig County	5,210	0	0.0	0	0.0	0	0.0
Culpeper County	48,506	1	2.1	0	0.0	0	0.0
Cumberland County	9,841	0	0.0	0	0.0	0	0.0
Dickenson County	15,486	0	0.0	0	0.0	0	0.0
Dinwiddie County	27,904	0	0.0	0	0.0	0	0.0
Essex County	11,229	0	0.0	0	0.0	0	0.0
Fairfax County	1,130,924	29	2.6	0	0.0	2	0.2
Fauquier County	67,207	0	0.0	0	0.0	0	0.0
Floyd County	15,528	0	0.0	0	0.0	0	0.0
Fluvanna County	25,977	0	0.0	0	0.0	0	0.0
Franklin County	56,335	0	0.0	0	0.0	0	0.0
Frederick County	81,319	0	0.0	0	0.0	0	0.0
Giles County	16,925	0	0.0	0	0.0	0	0.0
Gloucester County	36,834	0	0.0	0	0.0	0	0.0
Goochland County	21,626	0	0.0	0	0.0	0	0.0
Grayson County	15,161	0	0.0	0	0.0	0	0.0
Greene County	18,804	0	0.0	0	0.0	0	0.0
Greensville County	11,886	0	0.0	0	0.0	0	0.0
Halifax County, South Boston	35,401	0	0.0	0	0.0	1	2.8
Hanover County	101,330	0	0.0	0	0.0	0	0.0
Henrico County	318,611	2	0.6	1	0.3	0	0.0
Henry County	52,617	0	0.0	0	0.0	0	0.0
Highland County	2,215	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,656	1	2.8	0	0.0	0	0.0
James City County	70,516	0	0.0	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Malaria REPORTED CASES	Malaria RATE PER 100,000	Meningococcal Disease REPORTED CASES	Meningococcal Disease RATE PER 100,000	Mumps REPORTED CASES	Mumps RATE PER 100,000
VIRGINIA TOTAL	8,260,405	77	0.9	10	0.1	20	0.2
LOCALITY							
King and Queen County	7,130	0	0.0	0	0.0	0	0.0
King George County	24,926	0	0.0	0	0.0	0	0.0
King William County	16,097	0	0.0	0	0.0	0	0.0
Lancaster County	11,148	0	0.0	1	9.0	0	0.0
Lee County	25,185	0	0.0	0	0.0	0	0.0
Loudoun County	349,679	5	1.4	0	0.0	0	0.0
Louisa County	33,945	0	0.0	2	5.9	0	0.0
Lunenburg County	12,527	0	0.0	0	0.0	0	0.0
Madison County	13,200	0	0.0	0	0.0	0	0.0
Mathews County	8,897	0	0.0	0	0.0	0	0.0
Mecklenburg County	31,426	0	0.0	0	0.0	0	0.0
Middlesex County	10,762	0	0.0	0	0.0	0	0.0
Montgomery County	96,207	0	0.0	0	0.0	0	0.0
Nelson County	14,789	0	0.0	0	0.0	0	0.0
New Kent County	19,507	0	0.0	0	0.0	0	0.0
Northampton County	12,125	0	0.0	0	0.0	0	0.0
Northumberland County	12,200	0	0.0	0	0.0	0	0.0
Nottoway County	15,773	0	0.0	0	0.0	0	0.0
Orange County	34,689	0	0.0	0	0.0	0	0.0
Page County	23,821	0	0.0	0	0.0	0	0.0
Patrick County	18,368	0	0.0	0	0.0	0	0.0
Pittsylvania County	62,426	0	0.0	0	0.0	0	0.0
Powhatan County	28,259	0	0.0	0	0.0	0	0.0
Prince Edward County	22,802	1	4.4	0	0.0	0	0.0
Prince George County	37,253	0	0.0	0	0.0	0	0.0
Prince William County	438,580	15	3.4	0	0.0	0	0.0
Pulaski County	34,507	0	0.0	0	0.0	0	0.0
Rappahannock County	7,478	0	0.0	0	0.0	0	0.0
Richmond County	8,953	0	0.0	0	0.0	0	0.0
Roanoke County	93,524	1	1.1	1	1.1	0	0.0
Rockbridge County	22,307	0	0.0	0	0.0	0	0.0
Rockingham County	77,741	1	1.3	0	0.0	0	0.0
Russell County	28,264	0	0.0	0	0.0	0	0.0
Scott County	22,640	0	0.0	0	0.0	0	0.0
Shenandoah County	42,684	0	0.0	0	0.0	0	0.0
Smyth County	31,652	0	0.0	0	0.0	0	0.0
Southampton County	18,128	0	0.0	0	0.0	0	0.0
Spotsylvania County	127,348	1	0.8	0	0.0	0	0.0
Stafford County	136,788	2	1.5	0	0.0	0	0.0
Surry County	6,765	0	0.0	0	0.0	0	0.0
Sussex County	11,810	0	0.0	0	0.0	0	0.0
Tazewell County	44,103	0	0.0	0	0.0	0	0.0
Warren County	38,699	0	0.0	0	0.0	0	0.0
Washington County	54,907	0	0.0	0	0.0	0	0.0
Westmoreland County	17,612	0	0.0	0	0.0	0	0.0
Wise County	40,589	0	0.0	1	2.5	0	0.0
Wythe County	29,344	0	0.0	0	0.0	0	0.0
York County	66,269	0	0.0	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Malaria REPORTED CASES	Malaria RATE PER 100,000	Meningococcal Disease REPORTED CASES	Meningococcal Disease RATE PER 100,000	Mumps REPORTED CASES	Mumps RATE PER 100,000
VIRGINIA TOTAL	8,260,405	77	0.9	10	0.1	20	0.2
LOCALITY							
Alexandria	148,892	6	4.0	1	0.7	1	0.7
Bristol	17,341	0	0.0	0	0.0	0	0.0
Buena Vista	6,680	0	0.0	0	0.0	0	0.0
Charlottesville	44,349	0	0.0	1	2.3	9	20.3
Chesapeake	230,571	0	0.0	1	0.4	0	0.0
Colonial Heights	17,634	0	0.0	0	0.0	0	0.0
Covington	5,818	0	0.0	0	0.0	0	0.0
Danville	42,907	0	0.0	0	0.0	0	0.0
Emporia	5,588	0	0.0	0	0.0	0	0.0
Fairfax City	23,973	0	0.0	0	0.0	0	0.0
Falls Church	13,508	0	0.0	0	0.0	0	0.0
Franklin City	8,638	0	0.0	0	0.0	0	0.0
Fredericksburg	28,132	2	7.1	0	0.0	0	0.0
Galax	7,035	0	0.0	0	0.0	0	0.0
Hampton	136,699	0	0.0	0	0.0	0	0.0
Harrisonburg	51,395	1	1.9	0	0.0	0	0.0
Hopewell	22,163	0	0.0	0	0.0	1	4.5
Lexington	7,170	0	0.0	0	0.0	0	0.0
Lynchburg	78,014	2	2.6	0	0.0	0	0.0
Manassas	41,705	1	2.4	0	0.0	0	0.0
Manassas Park	16,149	0	0.0	0	0.0	0	0.0
Martinsville	13,755	0	0.0	0	0.0	0	0.0
Newport News	182,020	0	0.0	0	0.0	0	0.0
Norfolk	246,139	2	0.8	0	0.0	2	0.8
Norton	4,017	0	0.0	0	0.0	0	0.0
Petersburg	32,538	0	0.0	0	0.0	0	0.0
Poquoson	12,104	0	0.0	0	0.0	0	0.0
Portsmouth	96,205	0	0.0	0	0.0	0	0.0
Radford	17,184	0	0.0	0	0.0	0	0.0
Richmond City	214,114	0	0.0	0	0.0	0	0.0
Roanoke City	98,465	0	0.0	0	0.0	2	2.0
Salem	25,299	0	0.0	0	0.0	0	0.0
Staunton	24,350	0	0.0	0	0.0	0	0.0
Suffolk	85,728	0	0.0	0	0.0	0	0.0
Virginia Beach	448,479	0	0.0	0	0.0	1	0.2
Waynesboro	21,263	0	0.0	0	0.0	0	0.0
Williamsburg	15,206	1	6.6	0	0.0	0	0.0
Winchester	27,216	0	0.0	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Malaria REPORTED CASES	Malaria RATE PER 100,000	Meningococcal Disease REPORTED CASES	Meningococcal Disease RATE PER 100,000	Mumps REPORTED CASES	Mumps RATE PER 100,000
VIRGINIA TOTAL	8,260,405	77	0.9	10	0.1	20	0.2
DISTRICT/REGION							

Central Shenandoah	291,649	2	0.7	0	0.0	0	0.0
Lord Fairfax	228,087	0	0.0	0	0.0	0	0.0
Rappahannock	346,492	5	1.4	0	0.0	0	0.0
Rappahannock/Rapidan	171,080	1	0.6	0	0.0	0	0.0
Thomas Jefferson	240,864	1	0.4	3	1.2	9	3.7
Northwest Region	1,278,172	9	0.7	3	0.2	9	0.7

Alexandria	148,892	6	4.0	1	0.7	1	0.7
Arlington	224,906	1	0.4	1	0.4	1	0.4
Fairfax	1,168,405	29	2.5	0	0.0	2	0.2
Loudoun	349,679	5	1.4	0	0.0	0	0.0
Prince William	496,434	16	3.2	0	0.0	0	0.0
Northern Region	2,388,316	57	2.4	2	0.1	4	0.2

Alleghany	179,014	1	0.6	1	0.6	0	0.0
Central Virginia	256,455	2	0.8	0	0.0	0	0.0
Cumberland Plateau	111,450	0	0.0	0	0.0	0	0.0
Lenowisco	92,431	0	0.0	1	1.1	0	0.0
Mount Rogers	192,058	0	0.0	0	0.0	0	0.0
New River	180,351	0	0.0	0	0.0	0	0.0
Pittsylvania/Danville	105,333	0	0.0	0	0.0	0	0.0
Roanoke City	98,465	0	0.0	0	0.0	2	2.0
West Piedmont	141,075	0	0.0	0	0.0	0	0.0
Southwest Region	1,356,632	3	0.2	2	0.1	2	0.1

Chesterfield	373,638	1	0.3	0	0.0	0	0.0
Chickahominy	149,593	0	0.0	0	0.0	0	0.0
Crater	155,907	0	0.0	0	0.0	1	0.6
Henrico	318,611	2	0.6	1	0.3	0	0.0
Piedmont	103,129	1	1.0	0	0.0	0	0.0
Richmond City	214,114	0	0.0	0	0.0	0	0.0
Southside	83,800	0	0.0	0	0.0	1	1.2
Central Region	1,398,792	4	0.3	1	0.1	2	0.1

Chesapeake	230,571	0	0.0	1	0.4	0	0.0
Eastern Shore	45,273	0	0.0	0	0.0	0	0.0
Hampton	136,699	0	0.0	0	0.0	0	0.0
Norfolk	246,139	2	0.8	0	0.0	2	0.8
Peninsula	346,115	1	0.3	0	0.0	0	0.0
Portsmouth	96,205	0	0.0	0	0.0	0	0.0
Three Rivers	140,862	0	0.0	1	0.7	0	0.0
Virginia Beach	448,479	0	0.0	0	0.0	1	0.2
Western Tidewater	148,150	1	0.7	0	0.0	0	0.0
Eastern Region	1,838,493	4	0.2	2	0.1	3	0.2

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Pertussis REPORTED CASES	Pertussis RATE PER 100,000	Rabies in Animals REPORTED CASES	Rabies in Animals PERCENT OF TOTAL*	Salmonellosis REPORTED CASES	Salmonellosis RATE PER 100,000
VIRGINIA TOTAL	8,260,405	505	6.1	519	100.0	1,150	13.9
LOCALITY							
Accomack County	33,148	12	36.2	8	1.5	13	39.2
Albemarle County	103,000	12	11.7	3	0.6	10	9.7
Alleghany County, Clifton Forge	16,161	1	6.2	7	1.3	7	43.3
Amelia County	12,745	0	0.0	0	0.0	4	31.4
Amherst County	32,178	2	6.2	9	1.7	4	12.4
Appomattox County	15,255	0	0.0	4	0.8	6	39.3
Arlington County	224,906	14	6.2	0	0.0	22	9.8
Augusta County	73,912	0	0.0	9	1.7	7	9.5
Bath County	4,616	0	0.0	4	0.8	1	21.7
Bedford County, Bedford	75,773	2	2.6	8	1.5	5	6.6
Bland County	6,735	0	0.0	2	0.4	0	0.0
Botetourt County	33,002	0	0.0	10	1.9	6	18.2
Brunswick County	16,973	0	0.0	1	0.2	4	23.6
Buchanan County	23,597	0	0.0	0	0.0	0	0.0
Buckingham County	17,136	0	0.0	4	0.8	5	29.2
Campbell County	55,235	5	9.1	8	1.5	11	19.9
Caroline County	29,298	0	0.0	1	0.2	6	20.5
Carroll County	29,883	0	0.0	4	0.8	2	6.7
Charles City County	7,130	0	0.0	1	0.2	1	14.0
Charlotte County	12,305	0	0.0	6	1.2	2	16.3
Chesterfield County	327,745	10	3.1	2	0.4	42	12.8
Clarke County	14,348	0	0.0	5	1.0	1	7.0
Craig County	5,210	0	0.0	0	0.0	2	38.4
Culpeper County	48,506	2	4.1	1	0.2	6	12.4
Cumberland County	9,841	0	0.0	0	0.0	1	10.2
Dickenson County	15,486	0	0.0	0	0.0	2	12.9
Dinwiddie County	27,904	1	3.6	2	0.4	7	25.1
Essex County	11,229	0	0.0	1	0.2	1	8.9
Fairfax County	1,130,924	46	4.1	41	7.9	151	13.4
Fauquier County	67,207	13	19.3	13	2.5	7	10.4
Floyd County	15,528	10	64.4	3	0.6	5	32.2
Fluvanna County	25,977	0	0.0	0	0.0	3	11.5
Franklin County	56,335	0	0.0	5	1.0	6	10.7
Frederick County	81,319	2	2.5	6	1.2	11	13.5
Giles County	16,925	3	17.7	1	0.2	3	17.7
Gloucester County	36,834	1	2.7	6	1.2	8	21.7
Goochland County	21,626	0	0.0	5	1.0	7	32.4
Grayson County	15,161	0	0.0	3	0.6	2	13.2
Greene County	18,804	4	21.3	2	0.4	6	31.9
Greensville County	11,886	0	0.0	1	0.2	1	8.4
Halifax County, South Boston	35,401	2	5.6	4	0.8	8	22.6
Hanover County	101,330	19	18.8	8	1.5	19	18.8
Henrico County	318,611	11	3.5	12	2.3	25	7.8
Henry County	52,617	2	3.8	3	0.6	4	7.6
Highland County	2,215	0	0.0	3	0.6	0	0.0
Isle of Wight County	35,656	0	0.0	7	1.3	9	25.2
James City County	70,516	3	4.3	2	0.4	8	11.3

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Pertussis REPORTED CASES	Pertussis RATE PER 100,000	Rabies in Animals REPORTED CASES	Rabies in Animals PERCENT OF TOTAL*	Salmonellosis REPORTED CASES	Salmonellosis RATE PER 100,000
VIRGINIA TOTAL	8,260,405	505	6.1	519	100.0	1,150	13.9
LOCALITY							
King and Queen County	7,130	0	0.0	2	0.4	0	0.0
King George County	24,926	0	0.0	2	0.4	13	52.2
King William County	16,097	4	24.8	2	0.4	9	55.9
Lancaster County	11,148	0	0.0	0	0.0	4	35.9
Lee County	25,185	1	4.0	0	0.0	1	4.0
Loudoun County	349,679	25	7.1	20	3.9	52	14.9
Louisa County	33,945	4	11.8	1	0.2	5	14.7
Lunenburg County	12,527	0	0.0	3	0.6	4	31.9
Madison County	13,200	2	15.2	2	0.4	4	30.3
Mathews County	8,897	0	0.0	2	0.4	1	11.2
Mecklenburg County	31,426	0	0.0	10	1.9	14	44.5
Middlesex County	10,762	1	9.3	0	0.0	1	9.3
Montgomery County	96,207	9	9.4	7	1.3	6	6.2
Nelson County	14,789	4	27.0	7	1.3	3	20.3
New Kent County	19,507	3	15.4	2	0.4	4	20.5
Northampton County	12,125	11	90.7	9	1.7	10	82.5
Northumberland County	12,200	1	8.2	2	0.4	3	24.6
Nottoway County	15,773	0	0.0	1	0.2	3	19.0
Orange County	34,689	7	20.2	2	0.4	1	2.9
Page County	23,821	0	0.0	10	1.9	8	33.6
Patrick County	18,368	0	0.0	2	0.4	4	21.8
Pittsylvania County	62,426	3	4.8	16	3.1	8	12.8
Powhatan County	28,259	0	0.0	1	0.2	6	21.2
Prince Edward County	22,802	0	0.0	4	0.8	3	13.2
Prince George County	37,253	0	0.0	3	0.6	9	24.2
Prince William County	438,580	25	5.7	17	3.3	47	10.7
Pulaski County	34,507	2	5.8	5	1.0	4	11.6
Rappahannock County	7,478	2	26.7	5	1.0	0	0.0
Richmond County	8,953	0	0.0	2	0.4	3	33.5
Roanoke County	93,524	15	16.0	0	0.0	7	7.5
Rockbridge County	22,307	8	35.9	2	0.4	4	17.9
Rockingham County	77,741	3	3.9	10	1.9	7	9.0
Russell County	28,264	1	3.5	1	0.2	6	21.2
Scott County	22,640	1	4.4	0	0.0	2	8.8
Shenandoah County	42,684	2	4.7	13	2.5	6	14.1
Smyth County	31,652	1	3.2	3	0.6	4	12.6
Southampton County	18,128	0	0.0	3	0.6	2	11.0
Spotsylvania County	127,348	16	12.6	4	0.8	11	8.6
Stafford County	136,788	7	5.1	4	0.8	19	13.9
Surry County	6,765	0	0.0	1	0.2	2	29.6
Sussex County	11,810	0	0.0	1	0.2	0	0.0
Tazewell County	44,103	0	0.0	2	0.4	3	6.8
Warren County	38,699	36	93.0	12	2.3	14	36.2
Washington County	54,907	3	5.5	0	0.0	6	10.9
Westmoreland County	17,612	0	0.0	2	0.4	3	17.0
Wise County	40,589	7	17.2	0	0.0	4	9.9
Wythe County	29,344	4	13.6	7	1.3	5	17.0
York County	66,269	1	1.5	2	0.4	11	16.6

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Pertussis REPORTED CASES	Pertussis RATE PER 100,000	Rabies in Animals REPORTED CASES	Rabies in Animals PERCENT OF TOTAL*	Salmonellosis REPORTED CASES	Salmonellosis RATE PER 100,000
VIRGINIA TOTAL	8,260,405	505	6.1	519	100.0	1,150	13.9
LOCALITY							
Alexandria	148,892	9	6.0	1	0.2	16	10.7
Bristol	17,341	0	0.0	0	0.0	4	23.1
Buena Vista	6,680	0	0.0	0	0.0	0	0.0
Charlottesville	44,349	4	9.0	3	0.6	7	15.8
Chesapeake	230,571	4	1.7	4	0.8	27	11.7
Colonial Heights	17,634	0	0.0	0	0.0	1	5.7
Covington	5,818	1	17.2	2	0.4	0	0.0
Danville	42,907	1	2.3	0	0.0	10	23.3
Emporia	5,588	1	17.9	0	0.0	0	0.0
Fairfax City	23,973	0	0.0	4	0.8	1	4.2
Falls Church	13,508	0	0.0	2	0.4	0	0.0
Franklin City	8,638	0	0.0	0	0.0	1	11.6
Fredericksburg	28,132	6	21.3	1	0.2	3	10.7
Galax	7,035	3	42.6	0	0.0	2	28.4
Hampton	136,699	1	0.7	5	1.0	8	5.9
Harrisonburg	51,395	0	0.0	1	0.2	28	54.5
Hopewell	22,163	0	0.0	0	0.0	4	18.0
Lexington	7,170	1	13.9	1	0.2	1	13.9
Lynchburg	78,014	11	14.1	5	1.0	10	12.8
Manassas	41,705	6	14.4	0	0.0	2	4.8
Manassas Park	16,149	3	18.6	0	0.0	3	18.6
Martinsville	13,755	0	0.0	0	0.0	0	0.0
Newport News	182,020	10	5.5	5	1.0	19	10.4
Norfolk	246,139	5	2.0	3	0.6	24	9.8
Norton	4,017	0	0.0	0	0.0	2	49.8
Petersburg	32,538	1	3.1	1	0.2	4	12.3
Poquoson	12,104	0	0.0	1	0.2	1	8.3
Portsmouth	96,205	6	6.2	1	0.2	11	11.4
Radford	17,184	3	17.5	1	0.2	7	40.7
Richmond City	214,114	10	4.7	9	1.7	32	14.9
Roanoke City	98,465	8	8.1	6	1.2	9	9.1
Salem	25,299	1	4.0	0	0.0	0	0.0
Staunton	24,350	1	4.1	3	0.6	4	16.4
Suffolk	85,728	1	1.2	4	0.8	21	24.5
Virginia Beach	448,479	19	4.2	14	2.7	58	12.9
Waynesboro	21,263	0	0.0	3	0.6	2	9.4
Williamsburg	15,206	0	0.0	3	0.6	12	78.9
Winchester	27,216	3	11.0	5	1.0	9	33.1

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Pertussis REPORTED CASES	Pertussis RATE PER 100,000	Rabies in Animals REPORTED CASES	Rabies in Animals PERCENT OF TOTAL*	Salmonellosis REPORTED CASES	Salmonellosis RATE PER 100,000
VIRGINIA TOTAL	8,260,405	505	6.1	519	100.0	1,150	13.9
DISTRICT/REGION							

Central Shenandoah	291,649	13	4.5	36	6.9	54	18.5
Lord Fairfax	228,087	43	18.9	51	9.8	49	21.5
Rappahannock	346,492	29	8.4	12	2.3	52	15.0
Rappahannock/Rapidan	171,080	26	15.2	23	4.4	18	10.5
Thomas Jefferson	240,864	28	11.6	16	3.1	34	14.1
Northwest Region	1,278,172	139	10.9	138	26.6	207	16.2

Alexandria	148,892	9	6.0	1	0.2	16	10.7
Arlington	224,906	14	6.2	0	0.0	22	9.8
Fairfax	1,168,405	46	3.9	47	9.1	152	13.0
Loudoun	349,679	25	7.1	20	3.9	52	14.9
Prince William	496,434	34	6.8	17	3.3	52	10.5
Northern Region	2,388,316	128	5.4	85	16.4	294	12.3

Alleghany	179,014	18	10.1	19	3.7	22	12.3
Central Virginia	256,455	20	7.8	34	6.6	36	14.0
Cumberland Plateau	111,450	1	0.9	3	0.6	11	9.9
Lenowisco	92,431	9	9.7	0	0.0	9	9.7
Mount Rogers	192,058	11	5.7	19	3.7	25	13.0
New River	180,351	27	15.0	17	3.3	25	13.9
Pittsylvania/Danville	105,333	4	3.8	16	3.1	18	17.1
Roanoke City	98,465	8	8.1	6	1.2	9	9.1
West Piedmont	141,075	2	1.4	10	1.9	14	9.9
Southwest Region	1,356,632	100	7.4	124	23.9	169	12.5

Chesterfield	373,638	10	2.7	3	0.6	49	13.1
Chickahominy	149,593	22	14.7	16	3.1	31	20.7
Crater	155,907	3	1.9	9	1.7	27	17.3
Henrico	318,611	11	3.5	12	2.3	25	7.8
Piedmont	103,129	0	0.0	18	3.5	22	21.3
Richmond City	214,114	10	4.7	9	1.7	32	14.9
Southside	83,800	2	2.4	15	2.9	26	31.0
Central Region	1,398,792	58	4.1	82	15.8	212	15.2

Chesapeake	230,571	4	1.7	4	0.8	27	11.7
Eastern Shore	45,273	23	50.8	17	3.3	23	50.8
Hampton	136,699	1	0.7	5	1.0	8	5.9
Norfolk	246,139	5	2.0	3	0.6	24	9.8
Peninsula	346,115	14	4.0	13	2.5	51	14.7
Portsmouth	96,205	6	6.2	1	0.2	11	11.4
Three Rivers	140,862	7	5.0	19	3.7	33	23.4
Virginia Beach	448,479	19	4.2	14	2.7	58	12.9
Western Tidewater	148,150	1	0.7	14	2.7	33	22.3
Eastern Region	1,838,493	80	4.4	90	17.3	268	14.6

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* Population rate is not applicable for rabies in animals.

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Shigellosis REPORTED CASES	Shigellosis RATE PER 100,000	Spotted Fever Rickettsiosis, including RMSF REPORTED CASES	Spotted Fever Rickettsiosis, including RMSF RATE PER 100,000	*Staphylococcus aureus* Infection, Invasive (MRSA) REPORTED CASES	*Staphylococcus aureus* Infection, Invasive (MRSA) RATE PER 100,000
VIRGINIA TOTAL	8,260,405	214	2.6	373	4.5	1,134	13.7
LOCALITY							
Accomack County	33,148	1	3.0	3	9.1	0	0.0
Albemarle County	103,000	4	3.9	7	6.8	6	5.8
Alleghany County, Clifton Forge	16,161	0	0.0	1	6.2	0	0.0
Amelia County	12,745	0	0.0	4	31.4	1	7.8
Amherst County	32,178	1	3.1	3	9.3	2	6.2
Appomattox County	15,255	1	6.6	2	13.1	0	0.0
Arlington County	224,906	7	3.1	1	0.4	16	7.1
Augusta County	73,912	0	0.0	1	1.4	9	12.2
Bath County	4,616	0	0.0	1	21.7	1	21.7
Bedford County, Bedford	75,773	0	0.0	8	10.6	5	6.6
Bland County	6,735	0	0.0	0	0.0	1	14.8
Botetourt County	33,002	0	0.0	0	0.0	13	39.4
Brunswick County	16,973	0	0.0	2	11.8	2	11.8
Buchanan County	23,597	0	0.0	1	4.2	0	0.0
Buckingham County	17,136	1	5.8	1	5.8	2	11.7
Campbell County	55,235	0	0.0	5	9.1	0	0.0
Caroline County	29,298	1	3.4	2	6.8	6	20.5
Carroll County	29,883	0	0.0	0	0.0	5	16.7
Charles City County	7,130	0	0.0	1	14.0	0	0.0
Charlotte County	12,305	0	0.0	3	24.4	1	8.1
Chesterfield County	327,745	4	1.2	32	9.8	47	14.3
Clarke County	14,348	0	0.0	2	13.9	3	20.9
Craig County	5,210	0	0.0	0	0.0	0	0.0
Culpeper County	48,506	17	35.0	0	0.0	6	12.4
Cumberland County	9,841	0	0.0	2	20.3	1	10.2
Dickenson County	15,486	0	0.0	1	6.5	3	19.4
Dinwiddie County	27,904	0	0.0	4	14.3	2	7.2
Essex County	11,229	0	0.0	1	8.9	3	26.7
Fairfax County	1,130,924	48	4.2	20	1.8	72	6.4
Fauquier County	67,207	8	11.9	10	14.9	16	23.8
Floyd County	15,528	0	0.0	0	0.0	3	19.3
Fluvanna County	25,977	0	0.0	2	7.7	3	11.5
Franklin County	56,335	0	0.0	2	3.6	26	46.2
Frederick County	81,319	0	0.0	3	3.7	8	9.8
Giles County	16,925	0	0.0	0	0.0	10	59.1
Gloucester County	36,834	0	0.0	2	5.4	2	5.4
Goochland County	21,626	0	0.0	3	13.9	0	0.0
Grayson County	15,161	0	0.0	0	0.0	2	13.2
Greene County	18,804	1	5.3	1	5.3	2	10.6
Greensville County	11,886	0	0.0	1	8.4	4	33.7
Halifax County, South Boston	35,401	1	2.8	4	11.3	7	19.8
Hanover County	101,330	0	0.0	4	3.9	2	2.0
Henrico County	318,611	5	1.6	5	1.6	68	21.3
Henry County	52,617	0	0.0	15	28.5	28	53.2
Highland County	2,215	0	0.0	0	0.0	1	45.1
Isle of Wight County	35,656	0	0.0	4	11.2	4	11.2
James City County	70,516	0	0.0	2	2.8	1	1.4

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Shigellosis REPORTED CASES	Shigellosis RATE PER 100,000	Spotted Fever Rickettsiosis, including RMSF REPORTED CASES	Spotted Fever Rickettsiosis, including RMSF RATE PER 100,000	*Staphylococcus aureus* Infection, Invasive (MRSA) REPORTED CASES	*Staphylococcus aureus* Infection, Invasive (MRSA) RATE PER 100,000
VIRGINIA TOTAL	8,260,405	214	2.6	373	4.5	1,134	13.7
LOCALITY							
King and Queen County	7,130	0	0.0	0	0.0	0	0.0
King George County	24,926	1	4.0	5	20.1	4	16.0
King William County	16,097	0	0.0	3	18.6	1	6.2
Lancaster County	11,148	0	0.0	11	98.7	2	17.9
Lee County	25,185	0	0.0	0	0.0	8	31.8
Loudoun County	349,679	14	4.0	1	0.3	5	1.4
Louisa County	33,945	1	2.9	7	20.6	2	5.9
Lunenburg County	12,527	0	0.0	4	31.9	4	31.9
Madison County	13,200	0	0.0	0	0.0	1	7.6
Mathews County	8,897	0	0.0	0	0.0	1	11.2
Mecklenburg County	31,426	0	0.0	2	6.4	6	19.1
Middlesex County	10,762	0	0.0	2	18.6	0	0.0
Montgomery County	96,207	0	0.0	1	1.0	14	14.6
Nelson County	14,789	0	0.0	3	20.3	0	0.0
New Kent County	19,507	0	0.0	3	15.4	0	0.0
Northampton County	12,125	0	0.0	1	8.2	0	0.0
Northumberland County	12,200	1	8.2	6	49.2	3	24.6
Nottoway County	15,773	0	0.0	3	19.0	5	31.7
Orange County	34,689	0	0.0	2	5.8	6	17.3
Page County	23,821	0	0.0	0	0.0	2	8.4
Patrick County	18,368	0	0.0	1	5.4	4	21.8
Pittsylvania County	62,426	0	0.0	31	49.7	7	11.2
Powhatan County	28,259	1	3.5	6	21.2	5	17.7
Prince Edward County	22,802	0	0.0	7	30.7	5	21.9
Prince George County	37,253	0	0.0	1	2.7	3	8.1
Prince William County	438,580	14	3.2	14	3.2	31	7.1
Pulaski County	34,507	0	0.0	0	0.0	12	34.8
Rappahannock County	7,478	0	0.0	1	13.4	0	0.0
Richmond County	8,953	0	0.0	1	11.2	1	11.2
Roanoke County	93,524	3	3.2	0	0.0	37	39.6
Rockbridge County	22,307	0	0.0	0	0.0	4	17.9
Rockingham County	77,741	0	0.0	2	2.6	15	19.3
Russell County	28,264	0	0.0	0	0.0	6	21.2
Scott County	22,640	0	0.0	1	4.4	10	44.2
Shenandoah County	42,684	0	0.0	1	2.3	7	16.4
Smyth County	31,652	1	3.2	0	0.0	8	25.3
Southampton County	18,128	0	0.0	1	5.5	1	5.5
Spotsylvania County	127,348	5	3.9	6	4.7	27	21.2
Stafford County	136,788	4	2.9	9	6.6	16	11.7
Surry County	6,765	0	0.0	0	0.0	1	14.8
Sussex County	11,810	1	8.5	1	8.5	1	8.5
Tazewell County	44,103	0	0.0	0	0.0	8	18.1
Warren County	38,699	1	2.6	6	15.5	11	28.4
Washington County	54,907	1	1.8	1	1.8	13	23.7
Westmoreland County	17,612	2	11.4	4	22.7	3	17.0
Wise County	40,589	0	0.0	2	4.9	14	34.5
Wythe County	29,344	0	0.0	0	0.0	5	17.0
York County	66,269	0	0.0	0	0.0	1	1.5

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		**Shigellosis**		**Spotted Fever Rickettsiosis, including RMSF**		***Staphylococcus aureus* Infection, Invasive (MRSA)**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	214	2.6	373	4.5	1,134	13.7
LOCALITY							
Alexandria	148,892	21	14.1	1	0.7	15	10.1
Bristol	17,341	0	0.0	0	0.0	12	69.2
Buena Vista	6,680	1	15.0	0	0.0	1	15.0
Charlottesville	44,349	7	15.8	2	4.5	1	2.3
Chesapeake	230,571	3	1.3	2	0.9	36	15.6
Colonial Heights	17,634	0	0.0	0	0.0	2	11.3
Covington	5,818	0	0.0	0	0.0	0	0.0
Danville	42,907	1	2.3	18	42.0	17	39.6
Emporia	5,588	0	0.0	0	0.0	3	53.7
Fairfax City	23,973	0	0.0	0	0.0	2	8.3
Falls Church	13,508	0	0.0	0	0.0	0	0.0
Franklin City	8,638	0	0.0	1	11.6	0	0.0
Fredericksburg	28,132	0	0.0	2	7.1	11	39.1
Galax	7,035	0	0.0	0	0.0	5	71.1
Hampton	136,699	0	0.0	0	0.0	19	13.9
Harrisonburg	51,395	1	1.9	0	0.0	6	11.7
Hopewell	22,163	1	4.5	0	0.0	13	58.7
Lexington	7,170	0	0.0	0	0.0	1	13.9
Lynchburg	78,014	0	0.0	7	9.0	2	2.6
Manassas	41,705	2	4.8	1	2.4	4	9.6
Manassas Park	16,149	0	0.0	0	0.0	0	0.0
Martinsville	13,755	0	0.0	0	0.0	8	58.2
Newport News	182,020	2	1.1	1	0.5	19	10.4
Norfolk	246,139	3	1.2	2	0.8	38	15.4
Norton	4,017	0	0.0	0	0.0	0	0.0
Petersburg	32,538	1	3.1	1	3.1	5	15.4
Poquoson	12,104	0	0.0	0	0.0	1	8.3
Portsmouth	96,205	4	4.2	0	0.0	28	29.1
Radford	17,184	0	0.0	0	0.0	3	17.5
Richmond City	214,114	12	5.6	6	2.8	77	36.0
Roanoke City	98,465	0	0.0	0	0.0	38	38.6
Salem	25,299	0	0.0	0	0.0	0	0.0
Staunton	24,350	0	0.0	0	0.0	6	24.6
Suffolk	85,728	1	1.2	4	4.7	9	10.5
Virginia Beach	448,479	4	0.9	4	0.9	31	6.9
Waynesboro	21,263	0	0.0	1	4.7	2	9.4
Williamsburg	15,206	0	0.0	1	6.6	4	26.3
Winchester	27,216	0	0.0	3	11.0	1	3.7

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Shigellosis REPORTED CASES	Shigellosis RATE PER 100,000	Spotted Fever Rickettsiosis, including RMSF REPORTED CASES	Spotted Fever Rickettsiosis, including RMSF RATE PER 100,000	*Staphylococcus aureus* Infection, Invasive (MRSA) REPORTED CASES	*Staphylococcus aureus* Infection, Invasive (MRSA) RATE PER 100,000
VIRGINIA TOTAL	8,260,405	214	2.6	373	4.5	1,134	13.7
DISTRICT/REGION							

Central Shenandoah	291,649	2	0.7	5	1.7	46	15.8
Lord Fairfax	228,087	1	0.4	15	6.6	32	14.0
Rappahannock	346,492	11	3.2	24	6.9	64	18.5
Rappahannock/Rapidan	171,080	25	14.6	13	7.6	29	17.0
Thomas Jefferson	240,864	13	5.4	22	9.1	14	5.8
Northwest Region	1,278,172	52	4.1	79	6.2	185	14.5

Alexandria	148,892	21	14.1	1	0.7	15	10.1
Arlington	224,906	7	3.1	1	0.4	16	7.1
Fairfax	1,168,405	48	4.1	20	1.7	74	6.3
Loudoun	349,679	14	4.0	1	0.3	5	1.4
Prince William	496,434	16	3.2	15	3.0	35	7.1
Northern Region	2,388,316	106	4.4	38	1.6	145	6.1

Alleghany	179,014	3	1.7	1	0.6	50	27.9
Central Virginia	256,455	2	0.8	25	9.7	9	3.5
Cumberland Plateau	111,450	0	0.0	2	1.8	17	15.3
Lenowisco	92,431	0	0.0	3	3.2	32	34.6
Mount Rogers	192,058	2	1.0	1	0.5	51	26.6
New River	180,351	0	0.0	1	0.6	42	23.3
Pittsylvania/Danville	105,333	1	0.9	49	46.5	24	22.8
Roanoke City	98,465	0	0.0	0	0.0	38	38.6
West Piedmont	141,075	0	0.0	18	12.8	66	46.8
Southwest Region	1,356,632	8	0.6	100	7.4	329	24.3

Chesterfield	373,638	5	1.3	38	10.2	54	14.5
Chickahominy	149,593	0	0.0	11	7.4	2	1.3
Crater	155,907	3	1.9	8	5.1	32	20.5
Henrico	318,611	5	1.6	5	1.6	68	21.3
Piedmont	103,129	1	1.0	24	23.3	19	18.4
Richmond City	214,114	12	5.6	6	2.8	77	36.0
Southside	83,800	1	1.2	8	9.5	15	17.9
Central Region	1,398,792	27	1.9	100	7.1	267	19.1

Chesapeake	230,571	3	1.3	2	0.9	36	15.6
Eastern Shore	45,273	1	2.2	4	8.8	0	0.0
Hampton	136,699	0	0.0	0	0.0	19	13.9
Norfolk	246,139	3	1.2	2	0.8	38	15.4
Peninsula	346,115	2	0.6	4	1.2	26	7.5
Portsmouth	96,205	4	4.2	0	0.0	28	29.1
Three Rivers	140,862	3	2.1	30	21.3	16	11.4
Virginia Beach	448,479	4	0.9	4	0.9	31	6.9
Western Tidewater	148,150	1	0.7	10	6.7	14	9.4
Eastern Region	1,838,493	21	1.1	56	3.0	208	11.3

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		**Streptococcal Disease, Group A, Invasive or TSS**		**Syphilis, Early**		**Tuberculosis**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	210	2.5	556	6.7	198	2.4
LOCALITY							
Accomack County	33,148	2	6.0	1	3.0	1	3.0
Albemarle County	103,000	3	2.9	2	1.9	4	3.9
Alleghany County, Clifton Forge	16,161	0	0.0	0	0.0	1	6.2
Amelia County	12,745	0	0.0	1	7.8	0	0.0
Amherst County	32,178	1	3.1	0	0.0	1	3.1
Appomattox County	15,255	0	0.0	6	39.3	0	0.0
Arlington County	224,906	4	1.8	24	10.7	10	4.4
Augusta County	73,912	3	4.1	2	2.7	0	0.0
Bath County	4,616	0	0.0	0	0.0	0	0.0
Bedford County, Bedford	75,773	1	1.3	3	4.0	1	1.3
Bland County	6,735	0	0.0	0	0.0	0	0.0
Botetourt County	33,002	1	3.0	2	6.1	0	0.0
Brunswick County	16,973	1	5.9	0	0.0	0	0.0
Buchanan County	23,597	0	0.0	1	4.2	1	4.2
Buckingham County	17,136	0	0.0	0	0.0	0	0.0
Campbell County	55,235	1	1.8	7	12.7	1	1.8
Caroline County	29,298	0	0.0	0	0.0	0	0.0
Carroll County	29,883	0	0.0	0	0.0	0	0.0
Charles City County	7,130	0	0.0	0	0.0	0	0.0
Charlotte County	12,305	0	0.0	1	8.1	0	0.0
Chesterfield County	327,745	7	2.1	12	3.7	0	0.0
Clarke County	14,348	0	0.0	0	0.0	0	0.0
Craig County	5,210	0	0.0	0	0.0	0	0.0
Culpeper County	48,506	1	2.1	0	0.0	0	0.0
Cumberland County	9,841	0	0.0	0	0.0	0	0.0
Dickenson County	15,486	1	6.5	0	0.0	0	0.0
Dinwiddie County	27,904	1	3.6	3	10.8	0	0.0
Essex County	11,229	0	0.0	2	17.8	0	0.0
Fairfax County	1,130,924	30	2.7	41	3.6	58	5.1
Fauquier County	67,207	1	1.5	1	1.5	1	1.5
Floyd County	15,528	1	6.4	0	0.0	0	0.0
Fluvanna County	25,977	1	3.8	0	0.0	0	0.0
Franklin County	56,335	1	1.8	4	7.1	2	3.6
Frederick County	81,319	4	4.9	1	1.2	1	1.2
Giles County	16,925	0	0.0	0	0.0	0	0.0
Gloucester County	36,834	0	0.0	3	8.1	0	0.0
Goochland County	21,626	1	4.6	0	0.0	0	0.0
Grayson County	15,161	0	0.0	0	0.0	0	0.0
Greene County	18,804	0	0.0	0	0.0	0	0.0
Greensville County	11,886	0	0.0	0	0.0	0	0.0
Halifax County, South Boston	35,401	0	0.0	0	0.0	0	0.0
Hanover County	101,330	2	2.0	2	2.0	0	0.0
Henrico County	318,611	8	2.5	26	8.2	9	2.8
Henry County	52,617	0	0.0	1	1.9	0	0.0
Highland County	2,215	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,656	0	0.0	7	19.6	0	0.0
James City County	70,516	0	0.0	2	2.8	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Streptococcal Disease, Group A, Invasive or TSS: REPORTED CASES	Streptococcal Disease, Group A, Invasive or TSS: RATE PER 100,000	Syphilis, Early: REPORTED CASES	Syphilis, Early: RATE PER 100,000	Tuberculosis: REPORTED CASES	Tuberculosis: RATE PER 100,000
VIRGINIA TOTAL	8,260,405	210	2.5	556	6.7	198	2.4
LOCALITY							
King and Queen County	7,130	0	0.0	0	0.0	0	0.0
King George County	24,926	1	4.0	1	4.0	0	0.0
King William County	16,097	0	0.0	1	6.2	0	0.0
Lancaster County	11,148	0	0.0	0	0.0	0	0.0
Lee County	25,185	0	0.0	0	0.0	1	4.0
Loudoun County	349,679	5	1.4	8	2.3	10	2.9
Louisa County	33,945	1	2.9	3	8.8	0	0.0
Lunenburg County	12,527	0	0.0	0	0.0	0	0.0
Madison County	13,200	0	0.0	0	0.0	4	30.3
Mathews County	8,897	0	0.0	0	0.0	0	0.0
Mecklenburg County	31,426	1	3.2	1	3.2	0	0.0
Middlesex County	10,762	0	0.0	0	0.0	0	0.0
Montgomery County	96,207	1	1.0	2	2.1	1	1.0
Nelson County	14,789	3	20.3	0	0.0	0	0.0
New Kent County	19,507	0	0.0	2	10.3	0	0.0
Northampton County	12,125	1	8.2	0	0.0	1	8.2
Northumberland County	12,200	0	0.0	0	0.0	0	0.0
Nottoway County	15,773	0	0.0	4	25.4	0	0.0
Orange County	34,689	3	8.6	1	2.9	0	0.0
Page County	23,821	0	0.0	0	0.0	0	0.0
Patrick County	18,368	0	0.0	0	0.0	0	0.0
Pittsylvania County	62,426	2	3.2	5	8.0	0	0.0
Powhatan County	28,259	1	3.5	0	0.0	0	0.0
Prince Edward County	22,802	1	4.4	0	0.0	0	0.0
Prince George County	37,253	1	2.7	4	10.7	0	0.0
Prince William County	438,580	6	1.4	34	7.8	14	3.2
Pulaski County	34,507	2	5.8	2	5.8	0	0.0
Rappahannock County	7,478	0	0.0	0	0.0	0	0.0
Richmond County	8,953	0	0.0	1	11.2	0	0.0
Roanoke County	93,524	10	10.7	10	10.7	1	1.1
Rockbridge County	22,307	1	4.5	0	0.0	0	0.0
Rockingham County	77,741	1	1.3	1	1.3	3	3.9
Russell County	28,264	0	0.0	0	0.0	0	0.0
Scott County	22,640	1	4.4	0	0.0	0	0.0
Shenandoah County	42,684	7	16.4	0	0.0	0	0.0
Smyth County	31,652	0	0.0	1	3.2	2	6.3
Southampton County	18,128	0	0.0	0	0.0	0	0.0
Spotsylvania County	127,348	2	1.6	5	3.9	1	0.8
Stafford County	136,788	3	2.2	5	3.7	2	1.5
Surry County	6,765	1	14.8	0	0.0	0	0.0
Sussex County	11,810	0	0.0	1	8.5	1	8.5
Tazewell County	44,103	1	2.3	0	0.0	0	0.0
Warren County	38,699	3	7.8	2	5.2	0	0.0
Washington County	54,907	0	0.0	3	5.5	0	0.0
Westmoreland County	17,612	1	5.7	0	0.0	0	0.0
Wise County	40,589	2	4.9	1	2.5	0	0.0
Wythe County	29,344	0	0.0	0	0.0	1	3.4
York County	66,269	0	0.0	1	1.5	2	3.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:

LOCALITY/DISTRICT/REGION	2013 POPULATION	Streptococcal Disease, Group A, Invasive or TSS: REPORTED CASES	Streptococcal Disease, Group A, Invasive or TSS: RATE PER 100,000	Syphilis, Early: REPORTED CASES	Syphilis, Early: RATE PER 100,000	Tuberculosis: REPORTED CASES	Tuberculosis: RATE PER 100,000
VIRGINIA TOTAL	8,260,405	210	2.5	556	6.7	198	2.4
LOCALITY							
Alexandria	148,892	3	2.0	16	10.7	15	10.1
Bristol	17,341	2	11.5	0	0.0	2	11.5
Buena Vista	6,680	0	0.0	0	0.0	0	0.0
Charlottesville	44,349	2	4.5	4	9.0	3	6.8
Chesapeake	230,571	0	0.0	24	10.4	3	1.3
Colonial Heights	17,634	0	0.0	1	5.7	1	5.7
Covington	5,818	0	0.0	0	0.0	0	0.0
Danville	42,907	3	7.0	5	11.7	1	2.3
Emporia	5,588	0	0.0	0	0.0	0	0.0
Fairfax City	23,973	0	0.0	0	0.0	3	12.5
Falls Church	13,508	0	0.0	1	7.4	0	0.0
Franklin City	8,638	1	11.6	1	11.6	0	0.0
Fredericksburg	28,132	0	0.0	2	7.1	1	3.6
Galax	7,035	0	0.0	1	14.2	0	0.0
Hampton	136,699	5	3.7	20	14.6	0	0.0
Harrisonburg	51,395	5	9.7	3	5.8	1	1.9
Hopewell	22,163	3	13.5	2	9.0	0	0.0
Lexington	7,170	0	0.0	0	0.0	0	0.0
Lynchburg	78,014	6	7.7	8	10.3	1	1.3
Manassas	41,705	2	4.8	1	2.4	3	7.2
Manassas Park	16,149	0	0.0	1	6.2	0	0.0
Martinsville	13,755	0	0.0	0	0.0	0	0.0
Newport News	182,020	1	0.5	26	14.3	1	0.5
Norfolk	246,139	4	1.6	26	10.6	4	1.6
Norton	4,017	2	49.8	0	0.0	0	0.0
Petersburg	32,538	1	3.1	10	30.7	1	3.1
Poquoson	12,104	0	0.0	0	0.0	0	0.0
Portsmouth	96,205	3	3.1	19	19.7	0	0.0
Radford	17,184	1	5.8	0	0.0	0	0.0
Richmond City	214,114	5	2.3	71	33.2	5	2.3
Roanoke City	98,465	4	4.1	16	16.2	3	3.0
Salem	25,299	1	4.0	1	4.0	0	0.0
Staunton	24,350	4	16.4	1	4.1	1	4.1
Suffolk	85,728	1	1.2	4	4.7	3	3.5
Virginia Beach	448,479	5	1.1	37	8.3	10	2.2
Waynesboro	21,263	1	4.7	0	0.0	0	0.0
Williamsburg	15,206	3	19.7	0	0.0	0	0.0
Winchester	27,216	4	14.7	1	3.7	1	3.7

Number of Cases and Rate for each Locality, District, and Region for these Diseases in 2014:		**Streptococcal Disease, Group A, Invasive or TSS**		**Syphilis, Early**		**Tuberculosis**	
LOCALITY/DISTRICT/REGION	2013 POPULATION	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000	REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	8,260,405	210	2.5	556	6.7	198	2.4
DISTRICT/REGION							

Central Shenandoah	291,649	15	5.1	7	2.4	5	1.7
Lord Fairfax	228,087	18	7.9	4	1.8	2	0.9
Rappahannock	346,492	6	1.7	13	3.8	4	1.2
Rappahannock/Rapidan	171,080	5	2.9	2	1.2	5	2.9
Thomas Jefferson	240,864	10	4.2	9	3.7	7	2.9
Northwest Region	1,278,172	54	4.2	35	2.7	23	1.8

Alexandria	148,892	3	2.0	16	10.7	15	10.1
Arlington	224,906	4	1.8	24	10.7	10	4.4
Fairfax	1,168,405	30	2.6	42	3.6	61	5.2
Loudoun	349,679	5	1.4	8	2.3	10	2.9
Prince William	496,434	8	1.6	36	7.3	17	3.4
Northern Region	2,388,316	50	2.1	126	5.3	113	4.7

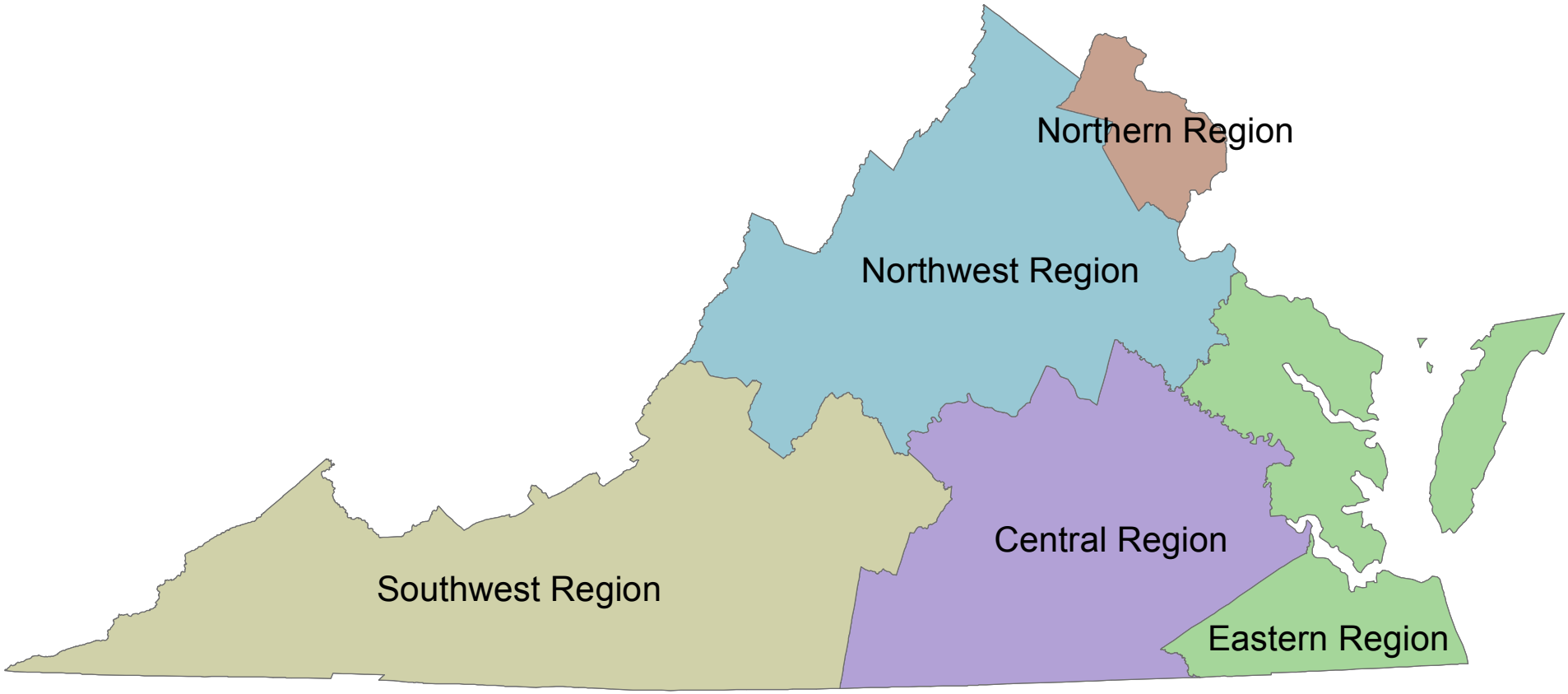
Alleghany	179,014	12	6.7	13	7.3	2	1.1
Central Virginia	256,455	9	3.5	24	9.4	4	1.6
Cumberland Plateau	111,450	2	1.8	1	0.9	1	0.9
Lenowisco	92,431	5	5.4	1	1.1	1	1.1
Mount Rogers	192,058	2	1.0	5	2.6	5	2.6
New River	180,351	5	2.8	4	2.2	1	0.6
Pittsylvania/Danville	105,333	5	4.7	10	9.5	1	0.9
Roanoke City	98,465	4	4.1	16	16.2	3	3.0
West Piedmont	141,075	1	0.7	5	3.5	2	1.4
Southwest Region	1,356,632	45	3.3	79	5.8	20	1.5

Chesterfield	373,638	8	2.1	13	3.5	1	0.3
Chickahominy	149,593	3	2.0	4	2.7	0	0.0
Crater	155,907	7	4.5	20	12.8	2	1.3
Henrico	318,611	8	2.5	26	8.2	9	2.8
Piedmont	103,129	1	1.0	6	5.8	0	0.0
Richmond City	214,114	5	2.3	71	33.2	5	2.3
Southside	83,800	2	2.4	1	1.2	0	0.0
Central Region	1,398,792	34	2.4	141	10.1	17	1.2

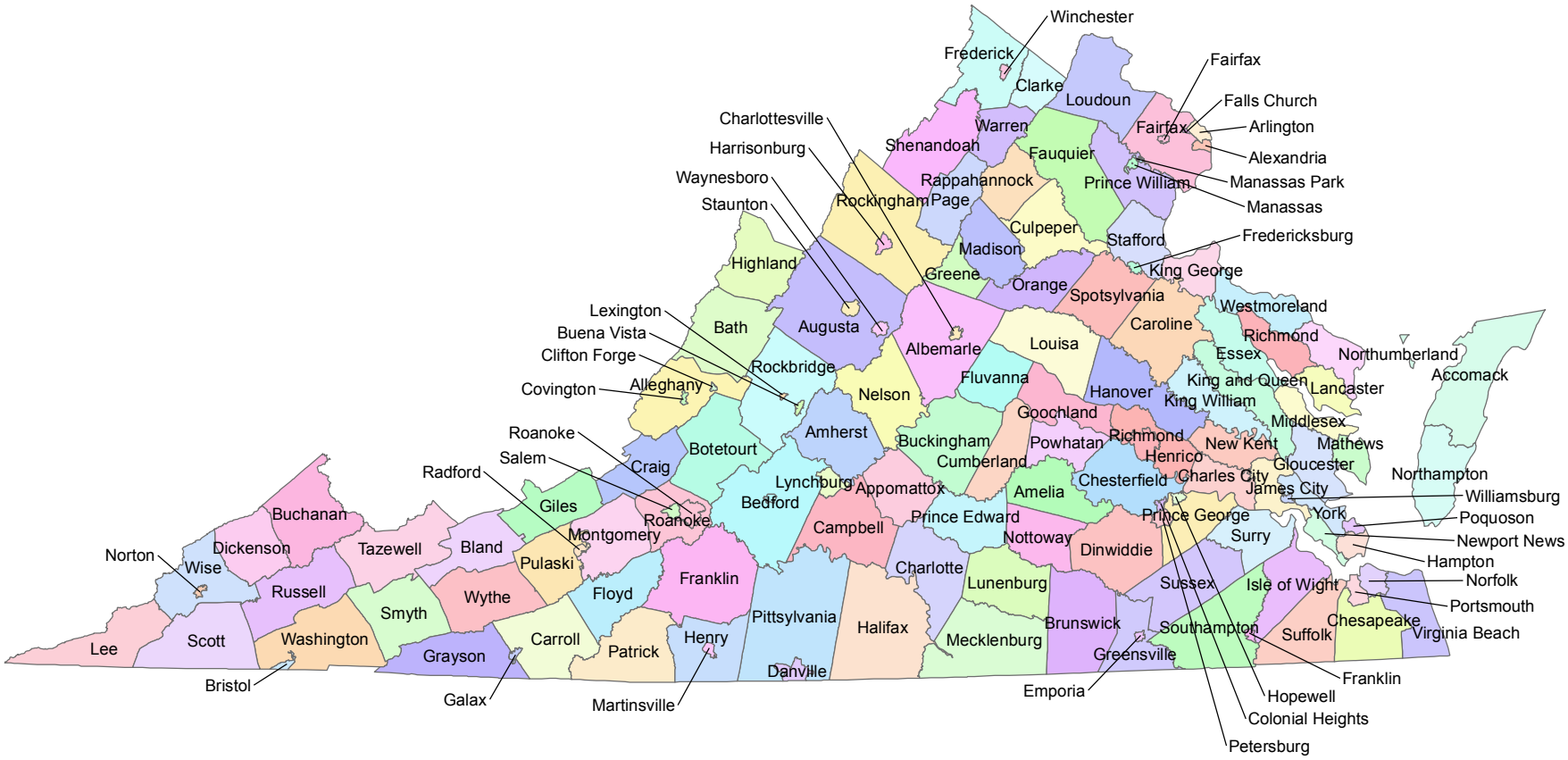
Chesapeake	230,571	0	0.0	24	10.4	3	1.3
Eastern Shore	45,273	3	6.6	1	2.2	2	4.4
Hampton	136,699	5	3.7	20	14.6	0	0.0
Norfolk	246,139	4	1.6	26	10.6	4	1.6
Peninsula	346,115	4	1.2	29	8.4	3	0.9
Portsmouth	96,205	3	3.1	19	19.7	0	0.0
Three Rivers	140,862	1	0.7	7	5.0	0	0.0
Virginia Beach	448,479	5	1.1	37	8.3	10	2.2
Western Tidewater	148,150	2	1.3	12	8.1	3	2.0
Eastern Region	1,838,493	27	1.5	175	9.5	25	1.4

MAPS OF INCIDENCE RATES FOR SELECTED DISEASES BY LOCALITY

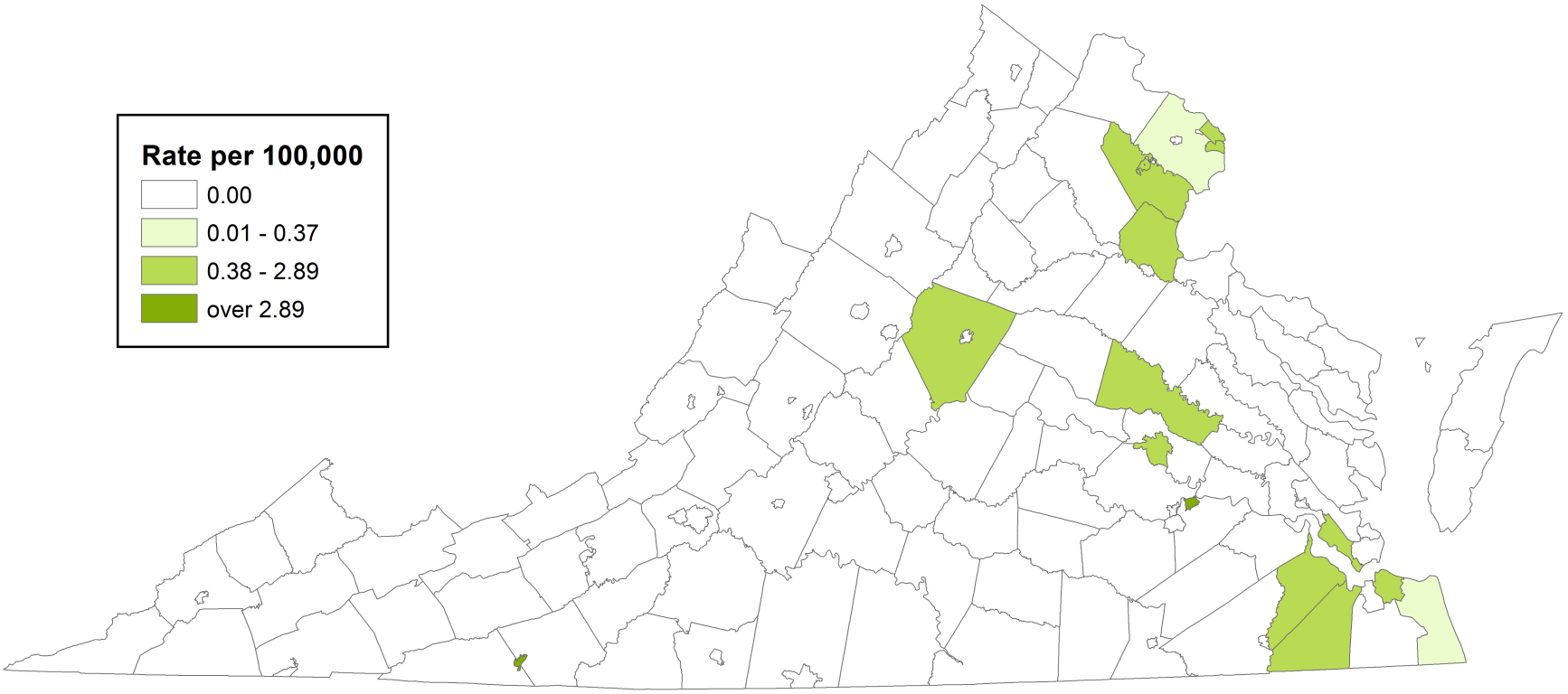
Health Planning Regions in Virginia



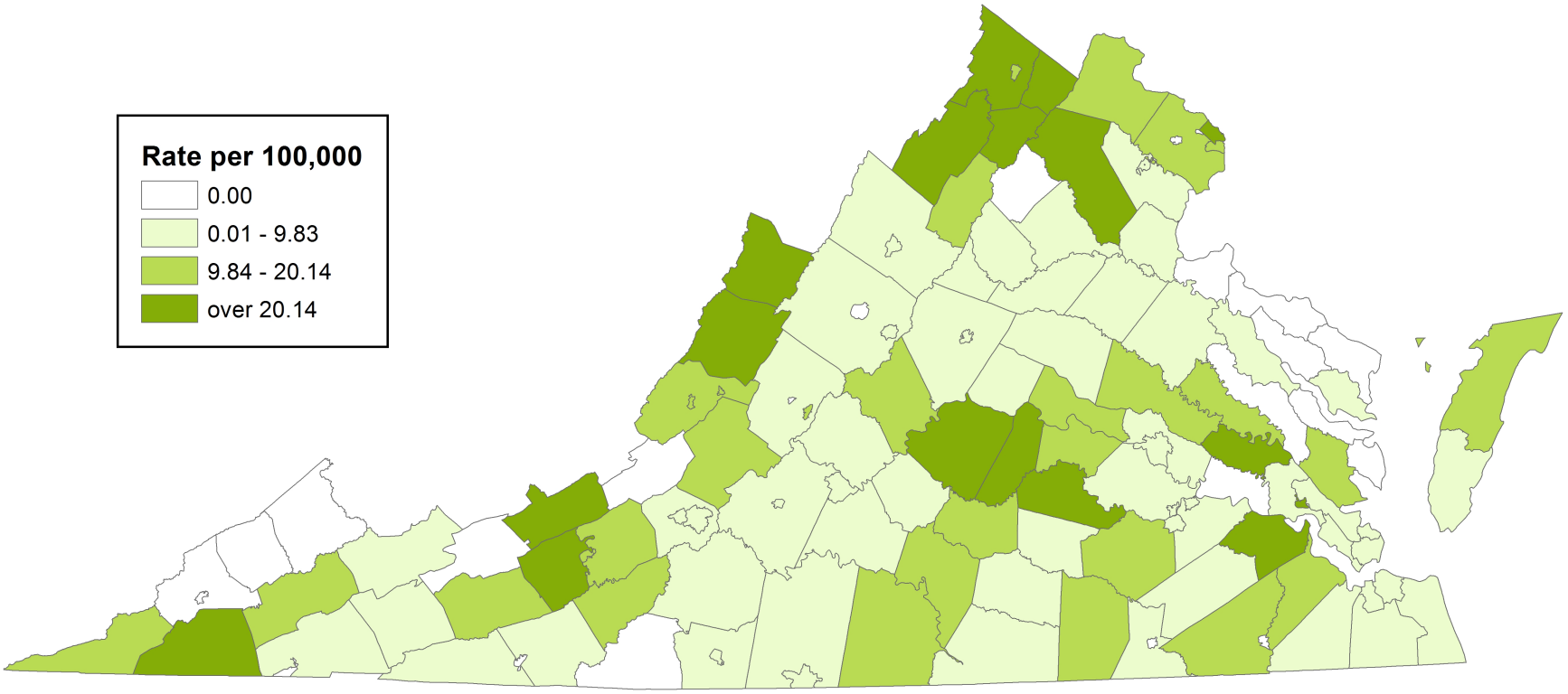
Virginia Localities



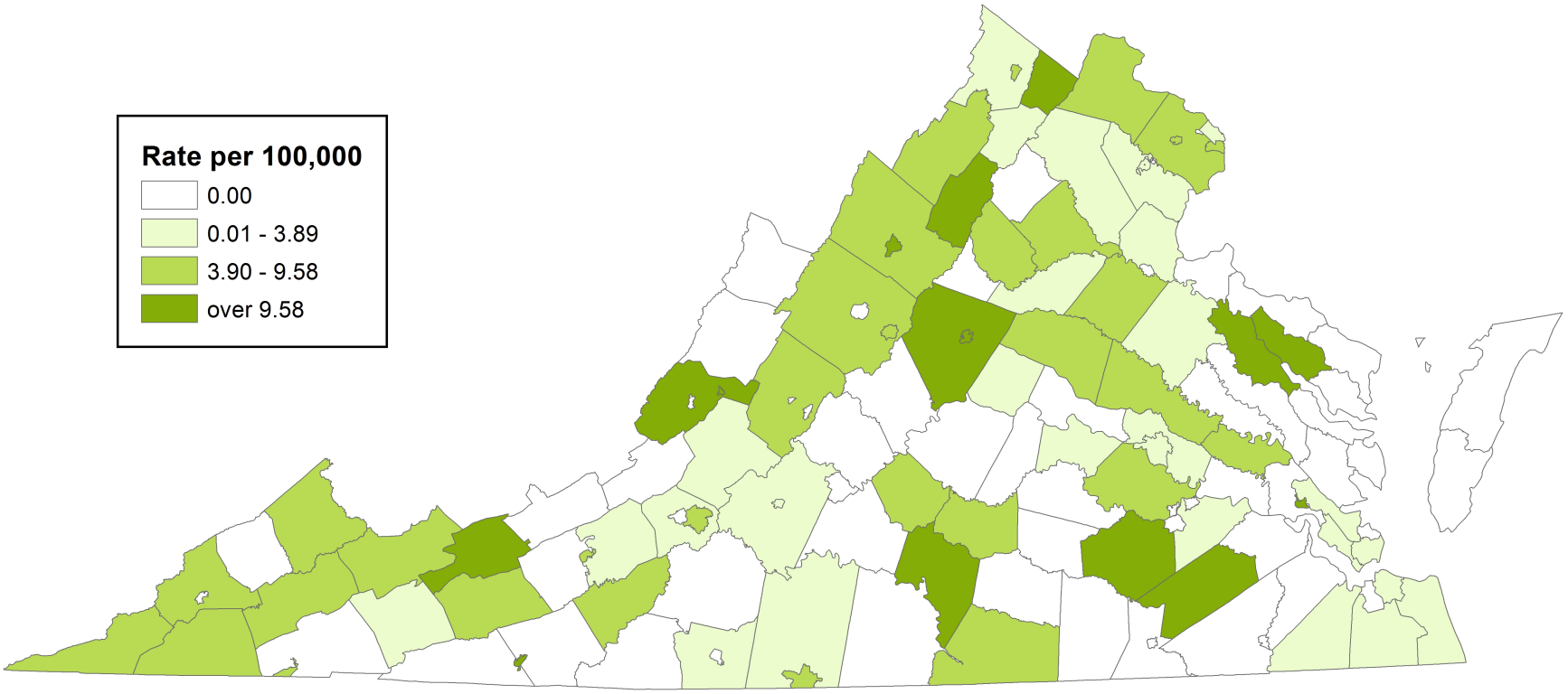
Amebiasis Incidence Rate by Locality
Virginia, 2014



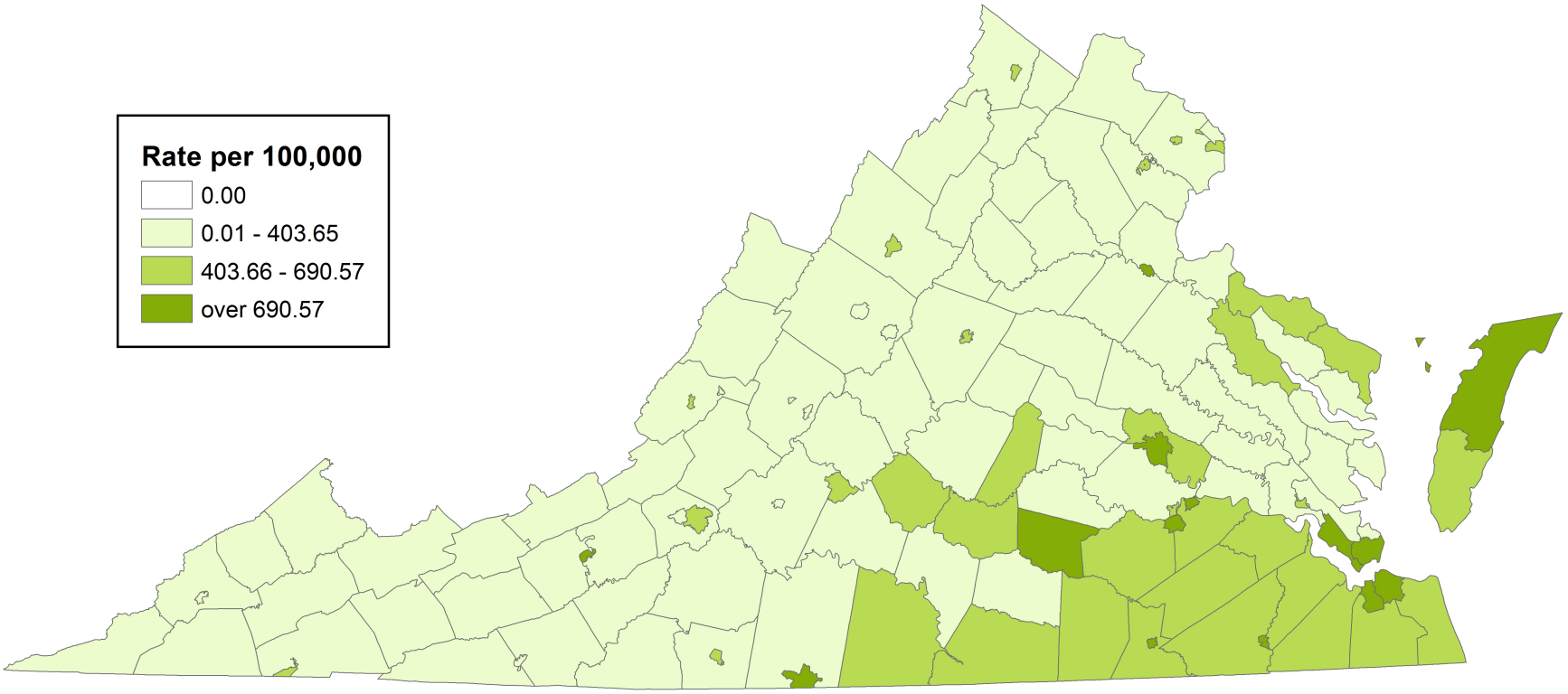
Campylobacteriosis Incidence Rate by Locality
Virginia, 2014



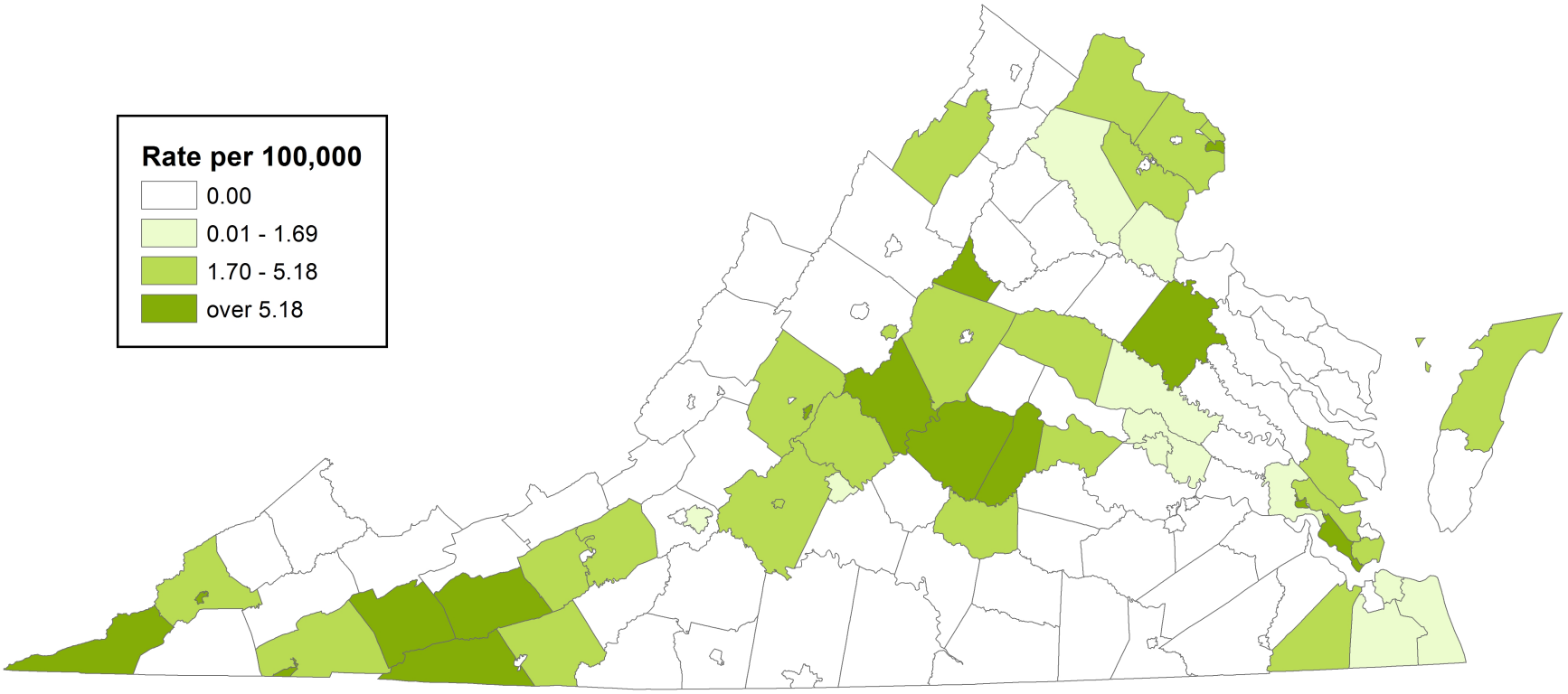
Chickenpox Incidence Rate by Locality
Virginia, 2014



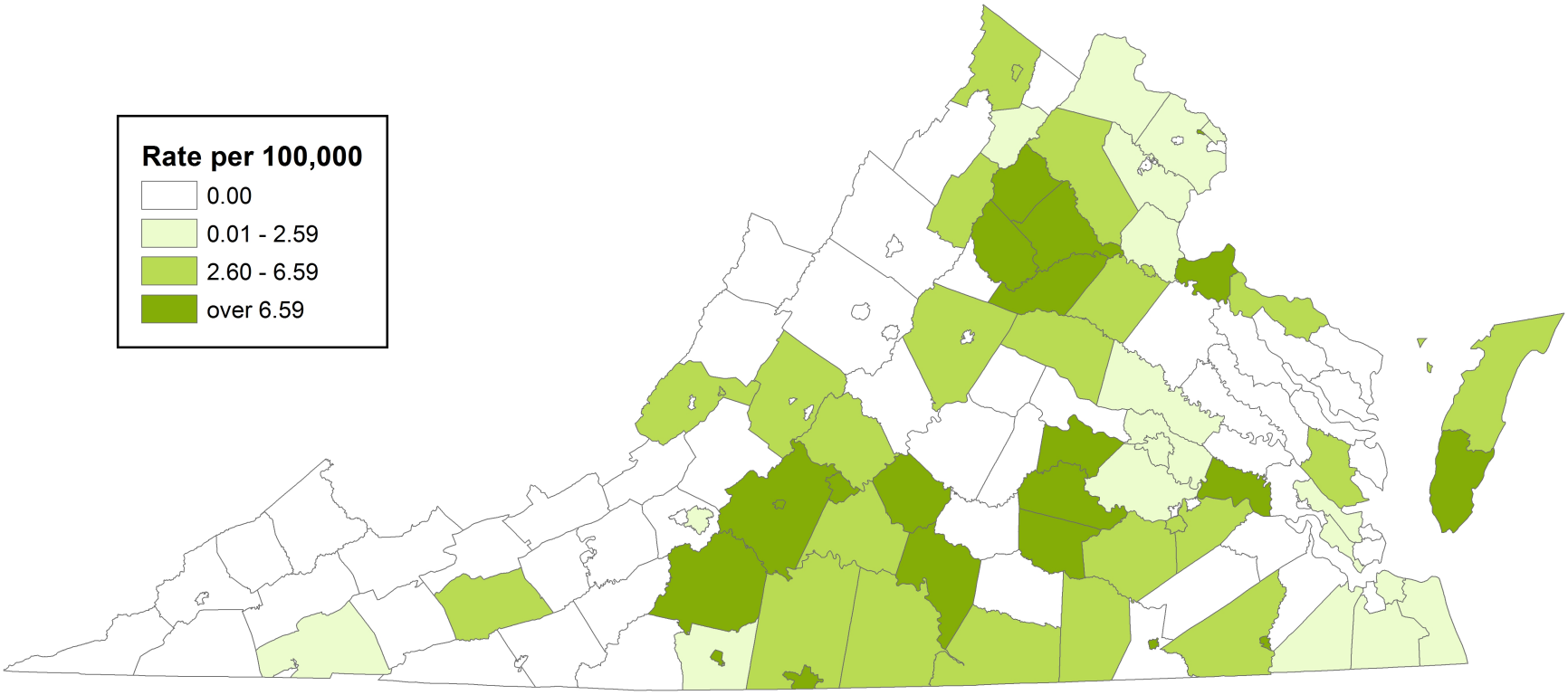
Chlamydia trachomatis Infection Incidence Rate by Locality Virginia, 2014



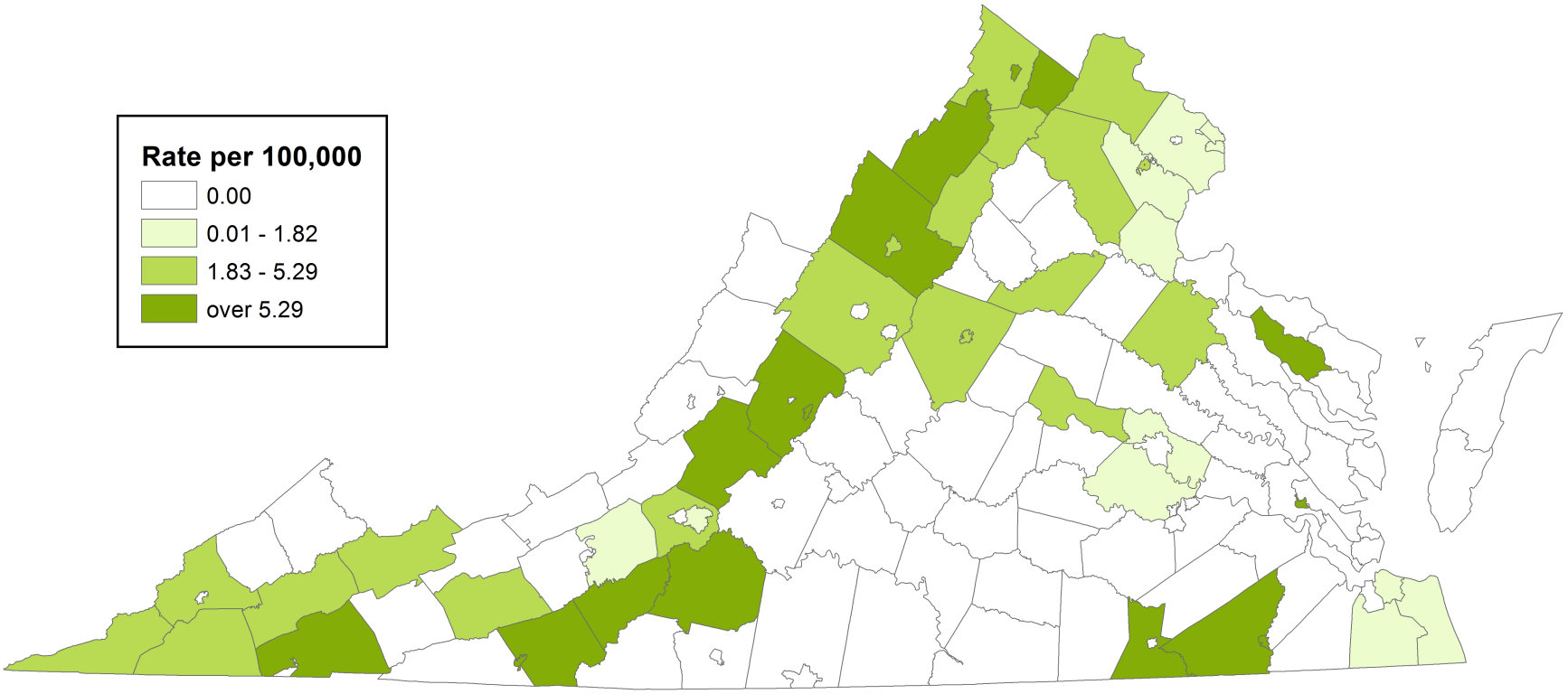
Cryptosporidiosis Incidence Rate by Locality
Virginia, 2014



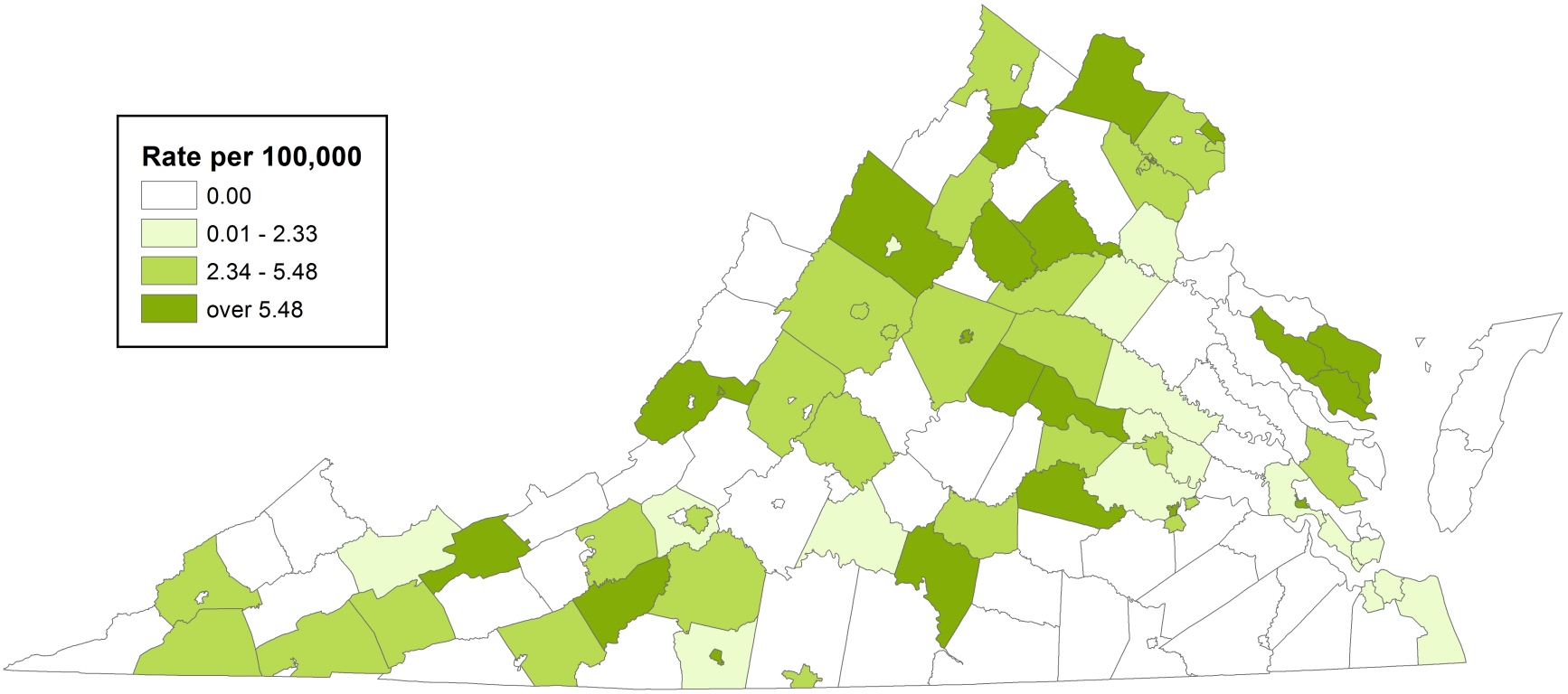
Ehrlichiosis / Anaplasmosis Incidence Rate by Locality
Virginia, 2014



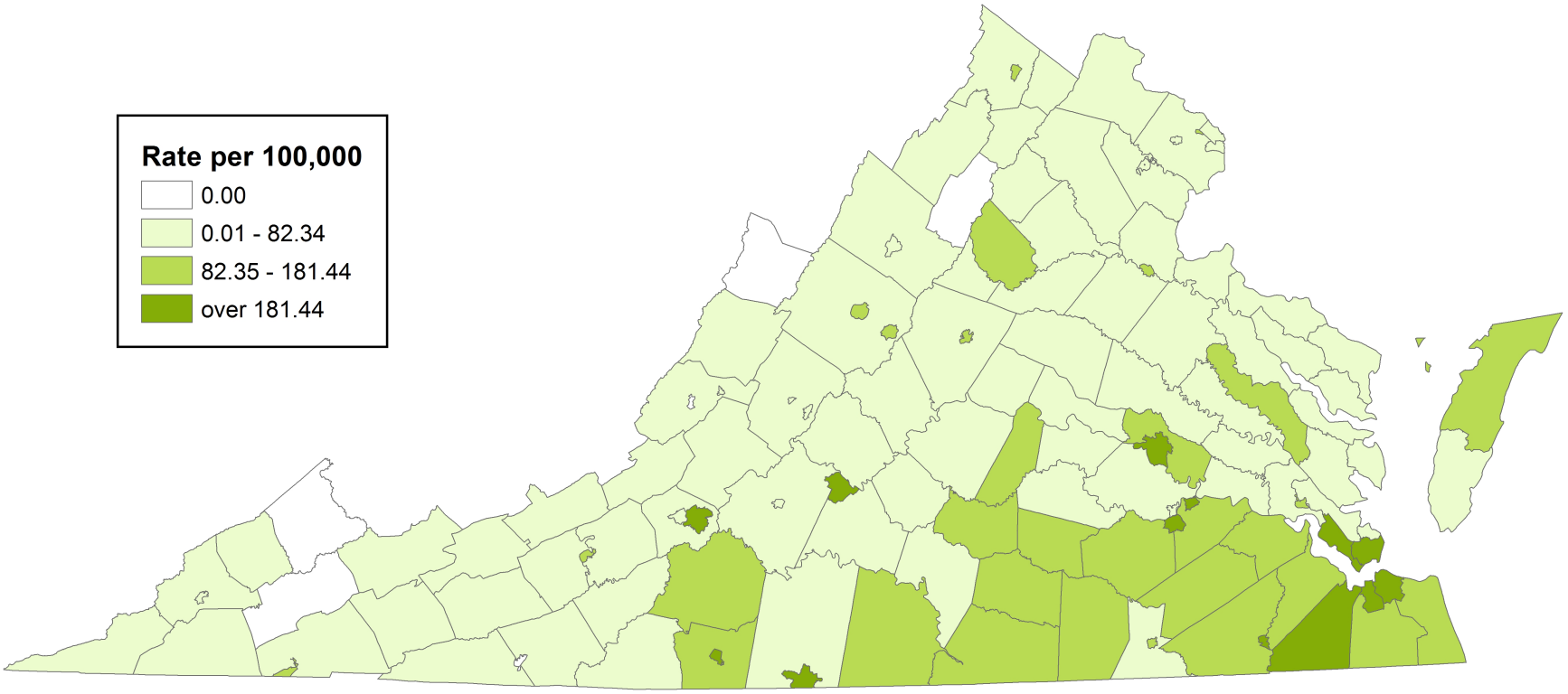
Escherichia coli Infection, Shiga Toxin-Producing Incidence Rate by Locality, Virginia, 2014



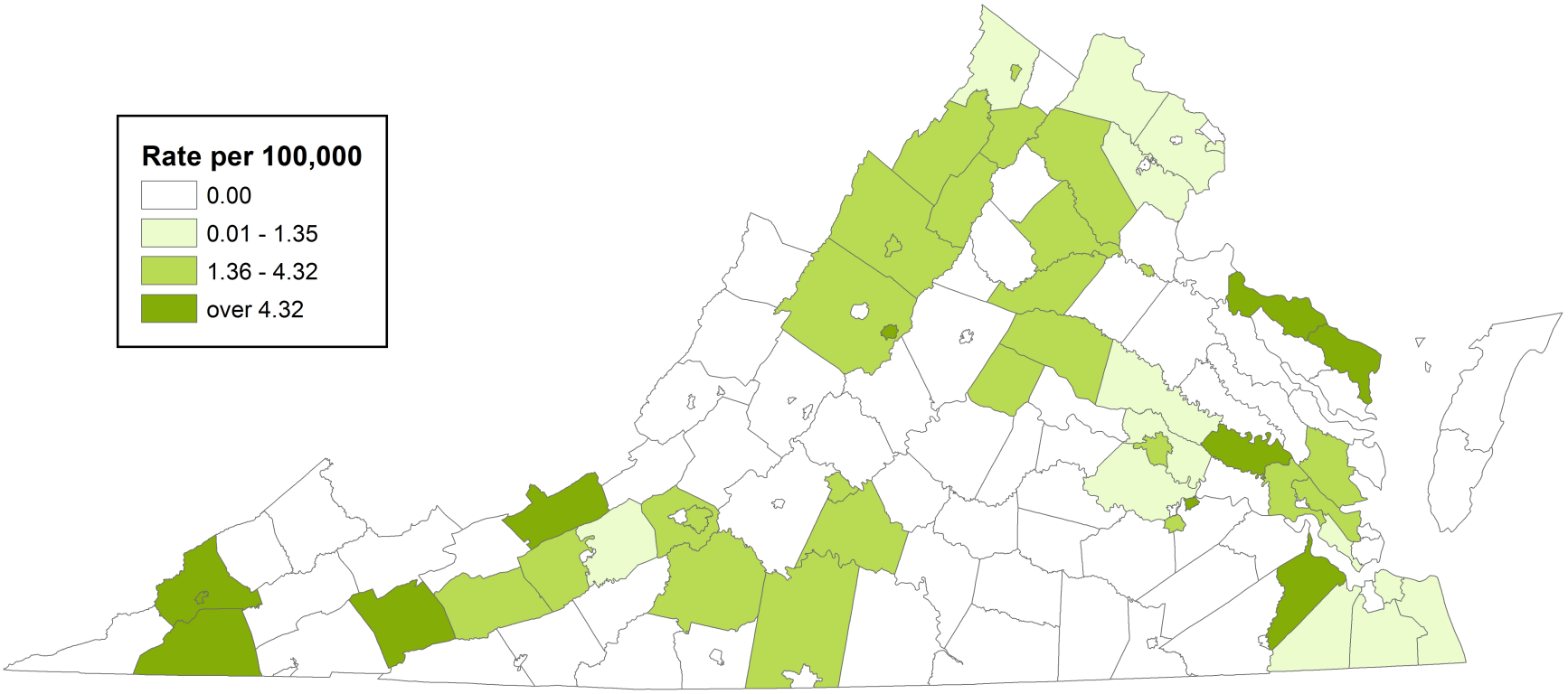
Giardiasis Incidence Rate by Locality
Virginia, 2014



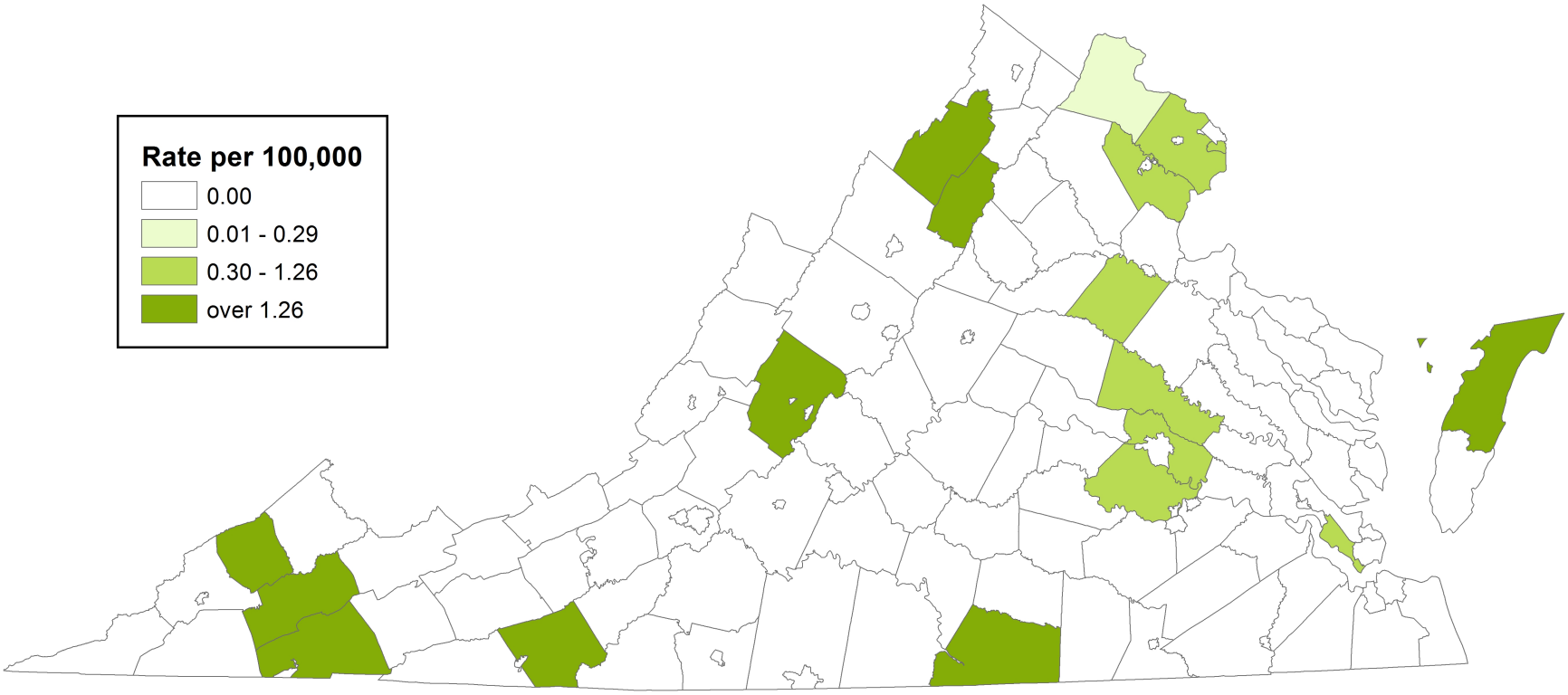
Gonorrhea Incidence Rate by Locality
Virginia, 2014



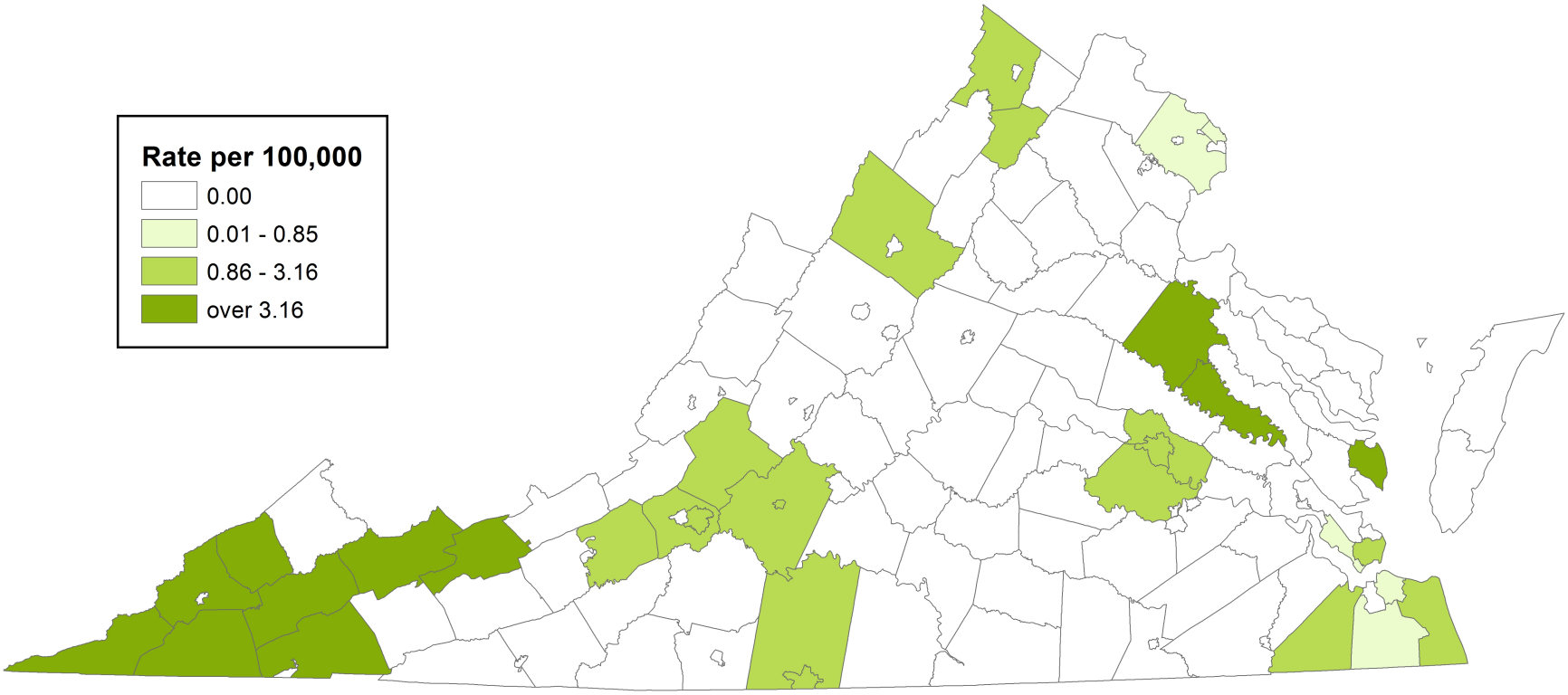
Haemophilus influenzae Infection, Invasive Incidence Rate by Locality, Virginia, 2014



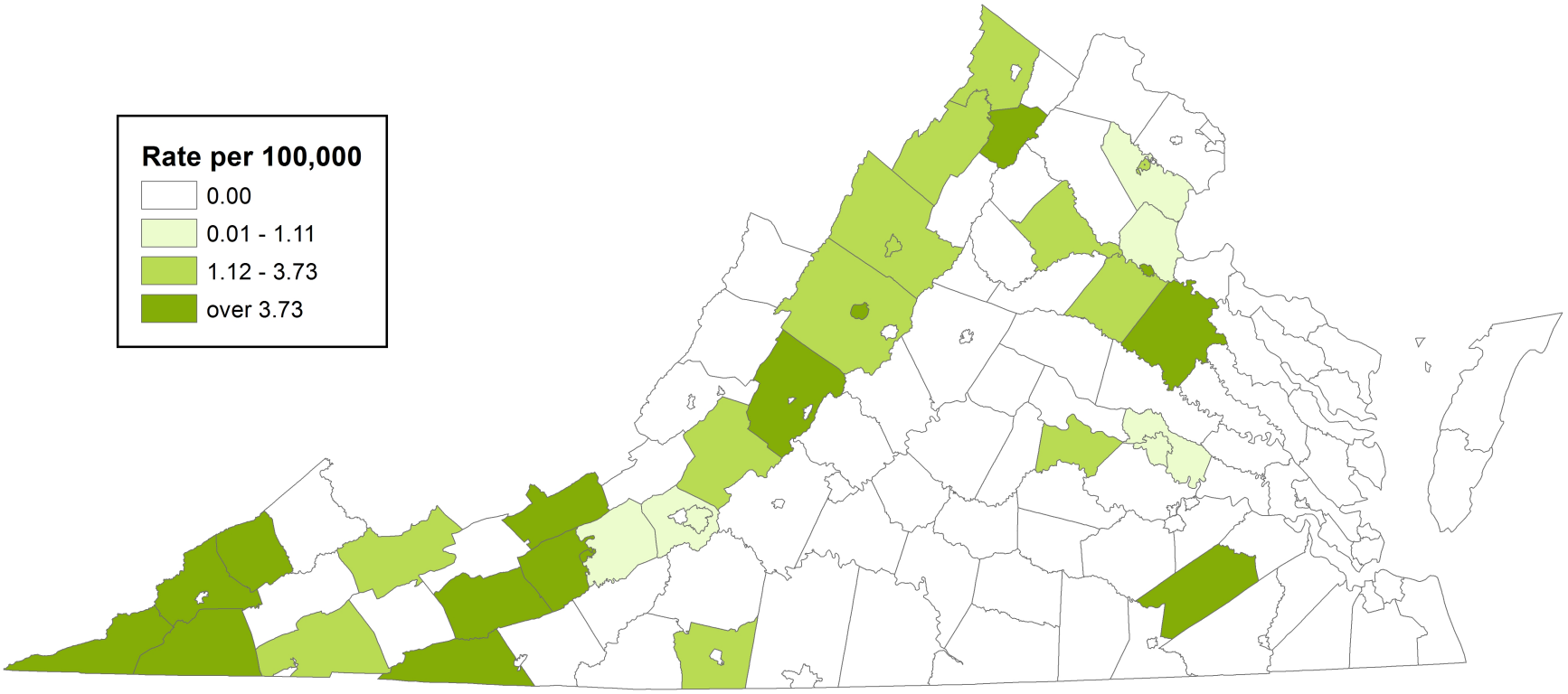
Hepatitis A Incidence Rate by Locality
Virginia, 2014



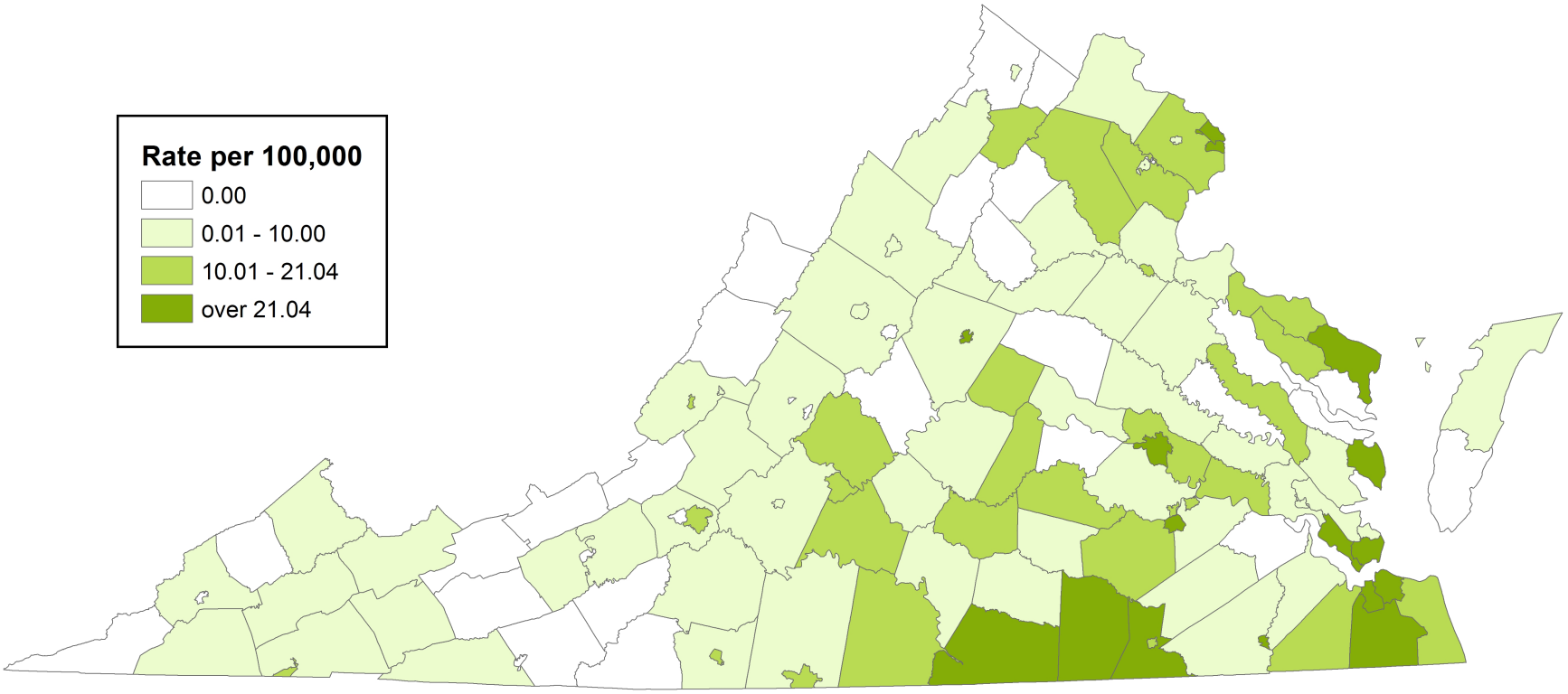
Hepatitis B, Acute, Incidence Rate by Locality
Virginia, 2014



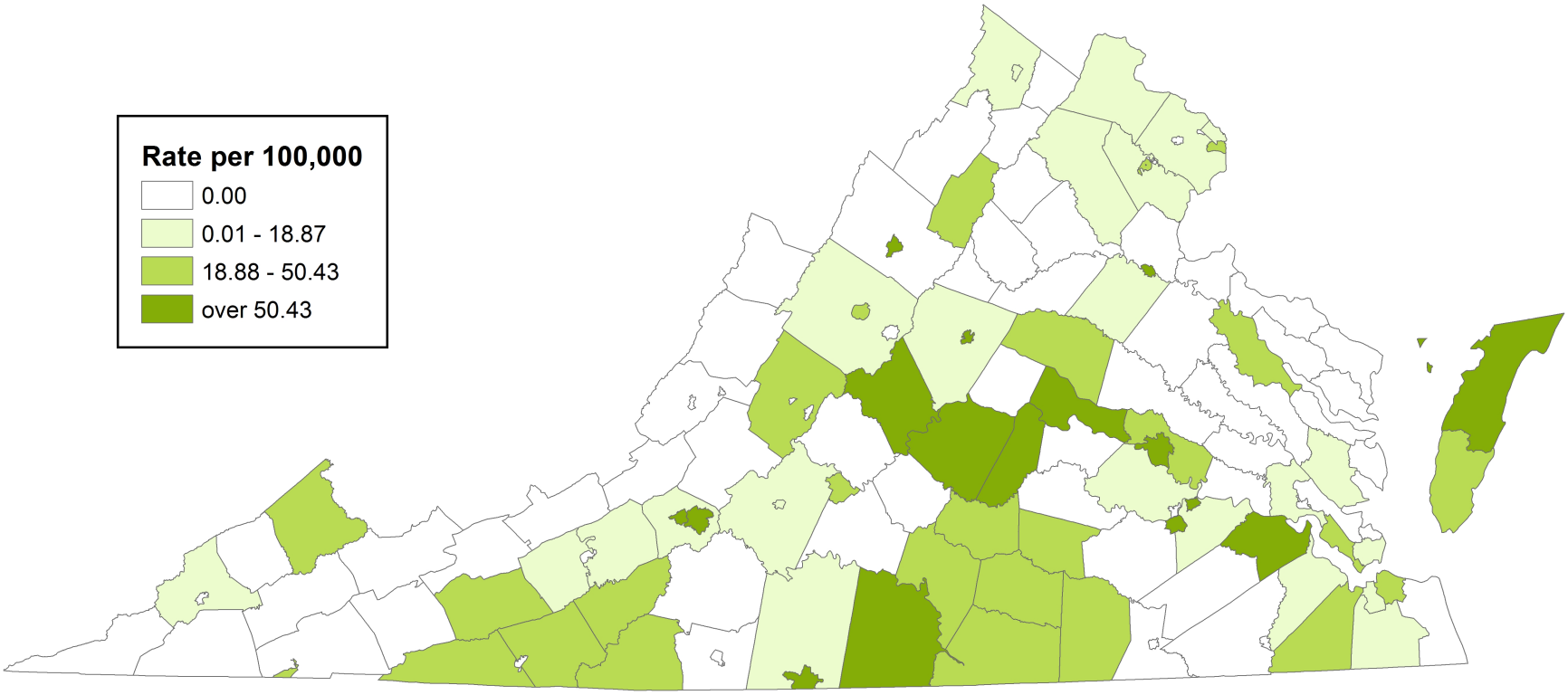
Hepatitis C, Acute, Incidence Rate by Locality
Virginia, 2014



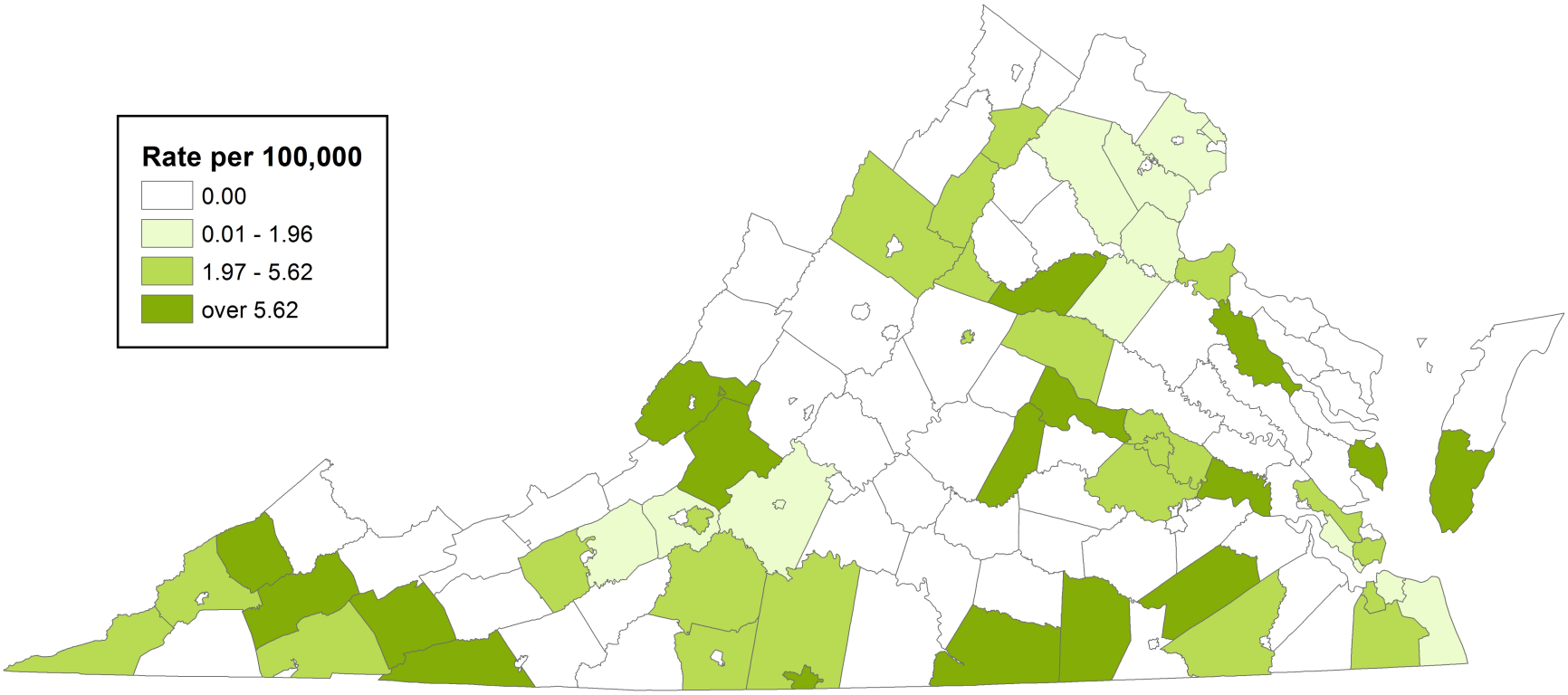
HIV Disease Incidence Rate by Locality
Virginia, 2014



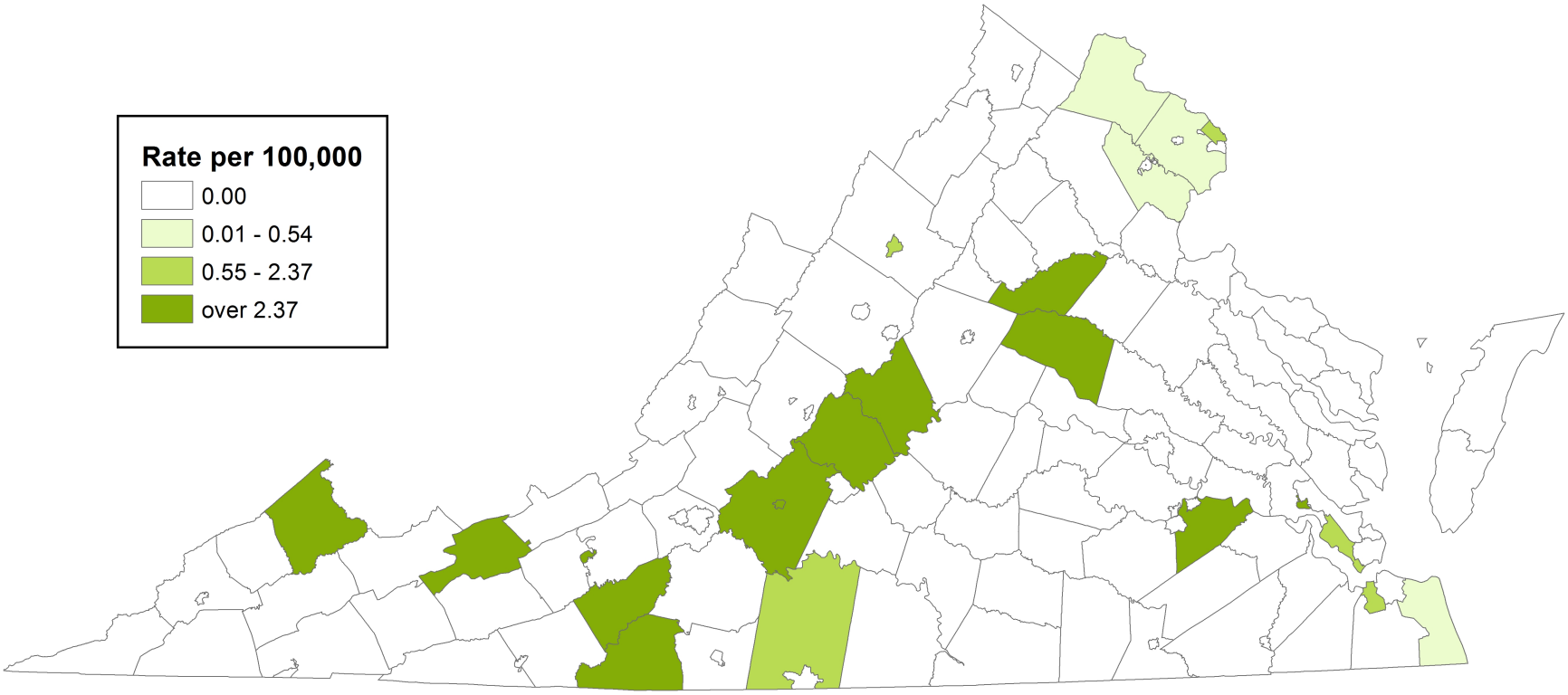
Lead - Elevated Blood Levels in Children
Incidence Rate by Locality, Virginia, 2014



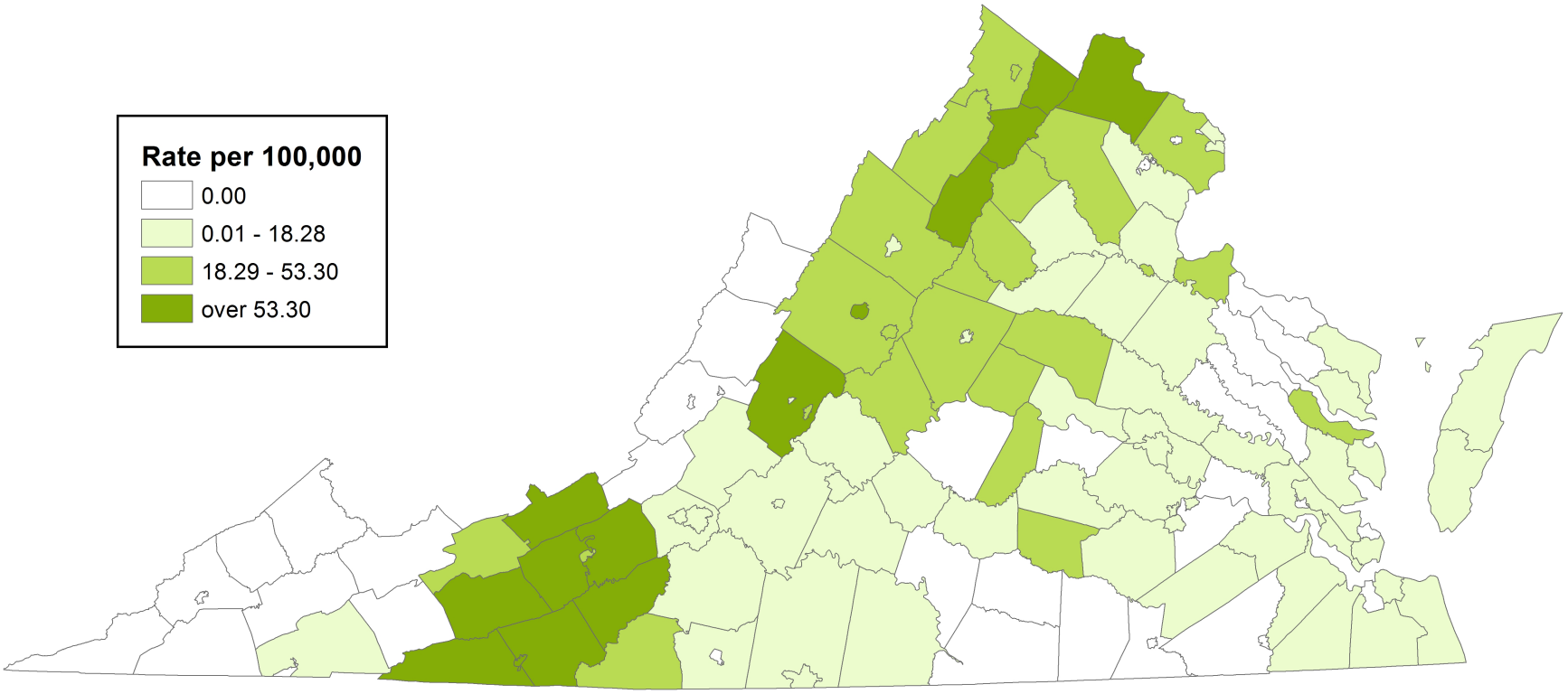
Legionellosis Incidence Rate by Locality
Virginia, 2014



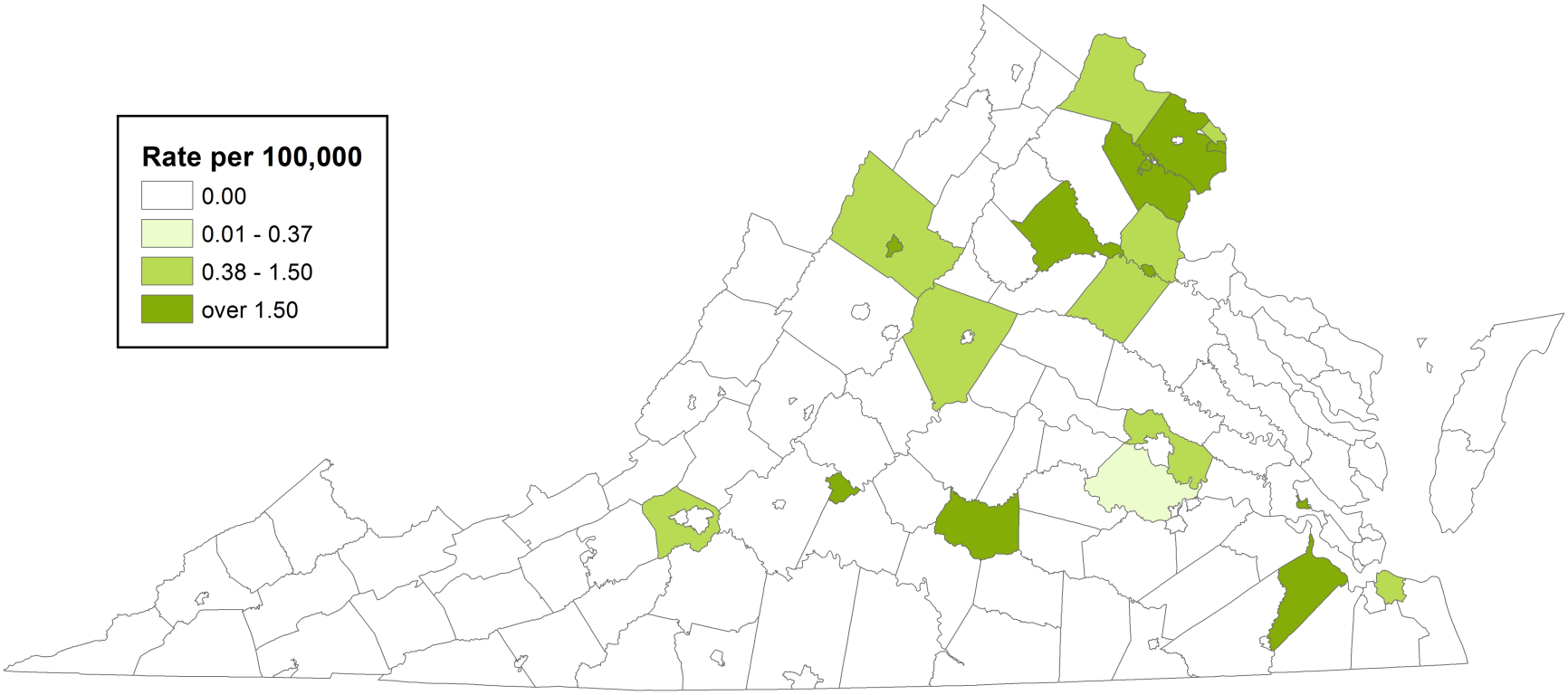
Listeriosis Incidence Rate by Locality
Virginia, 2014



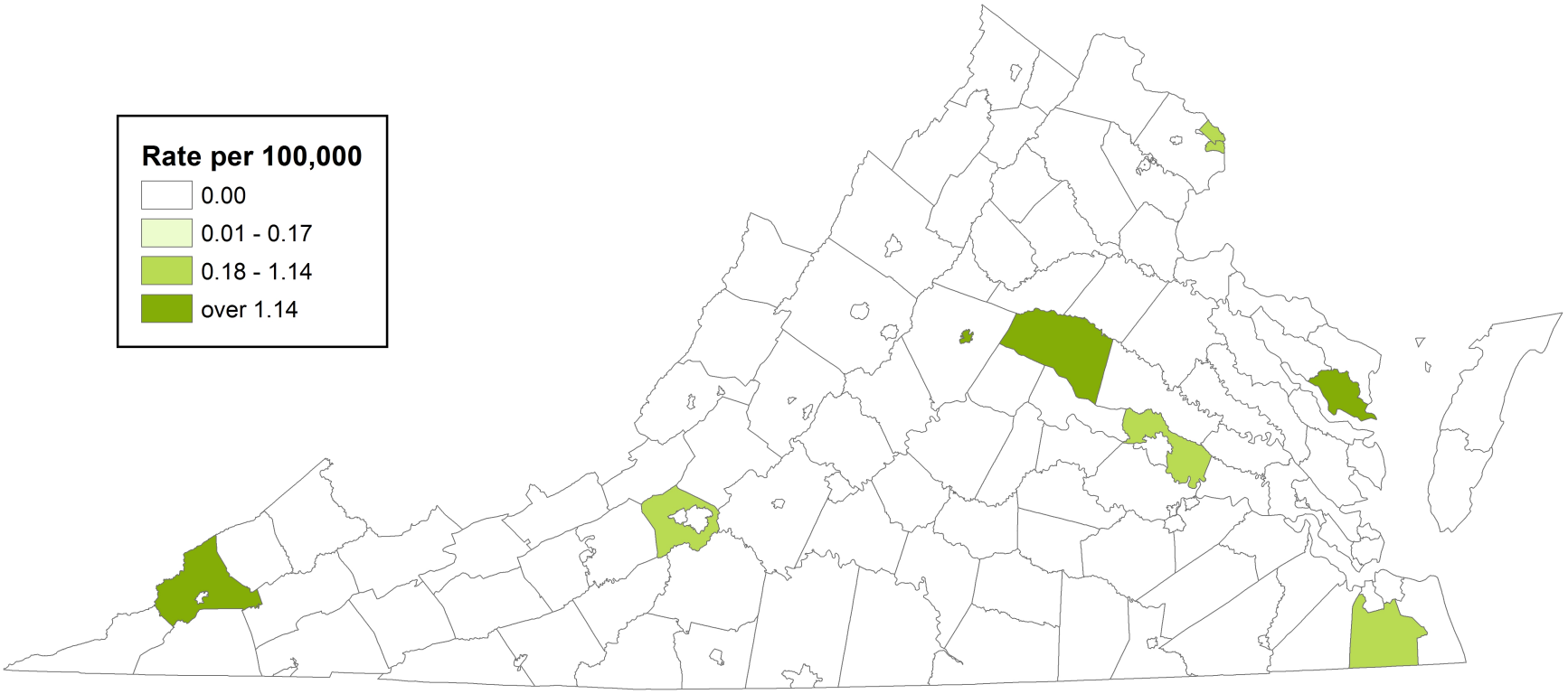
Lyme Disease Incidence Rate by Locality
Virginia, 2014



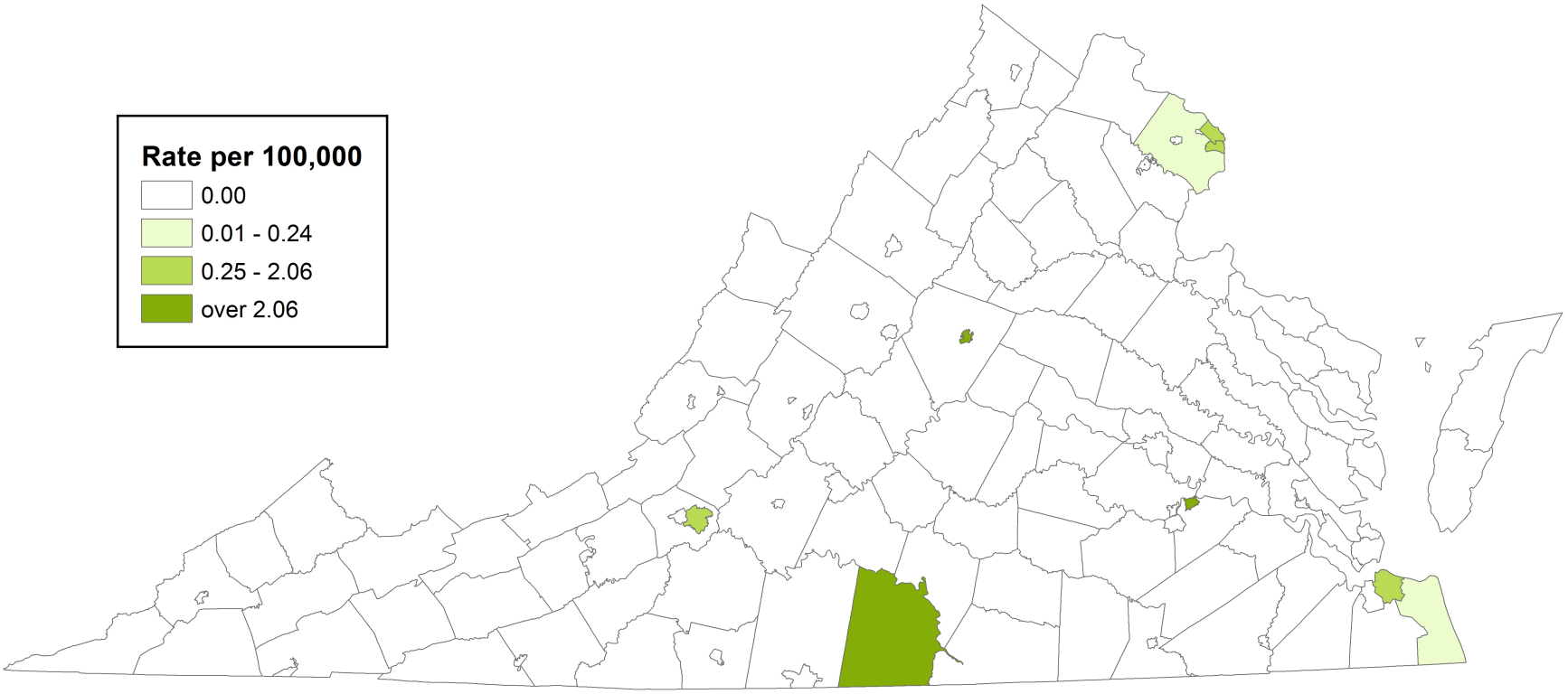
Malaria Incidence Rate by Locality
Virginia, 2014



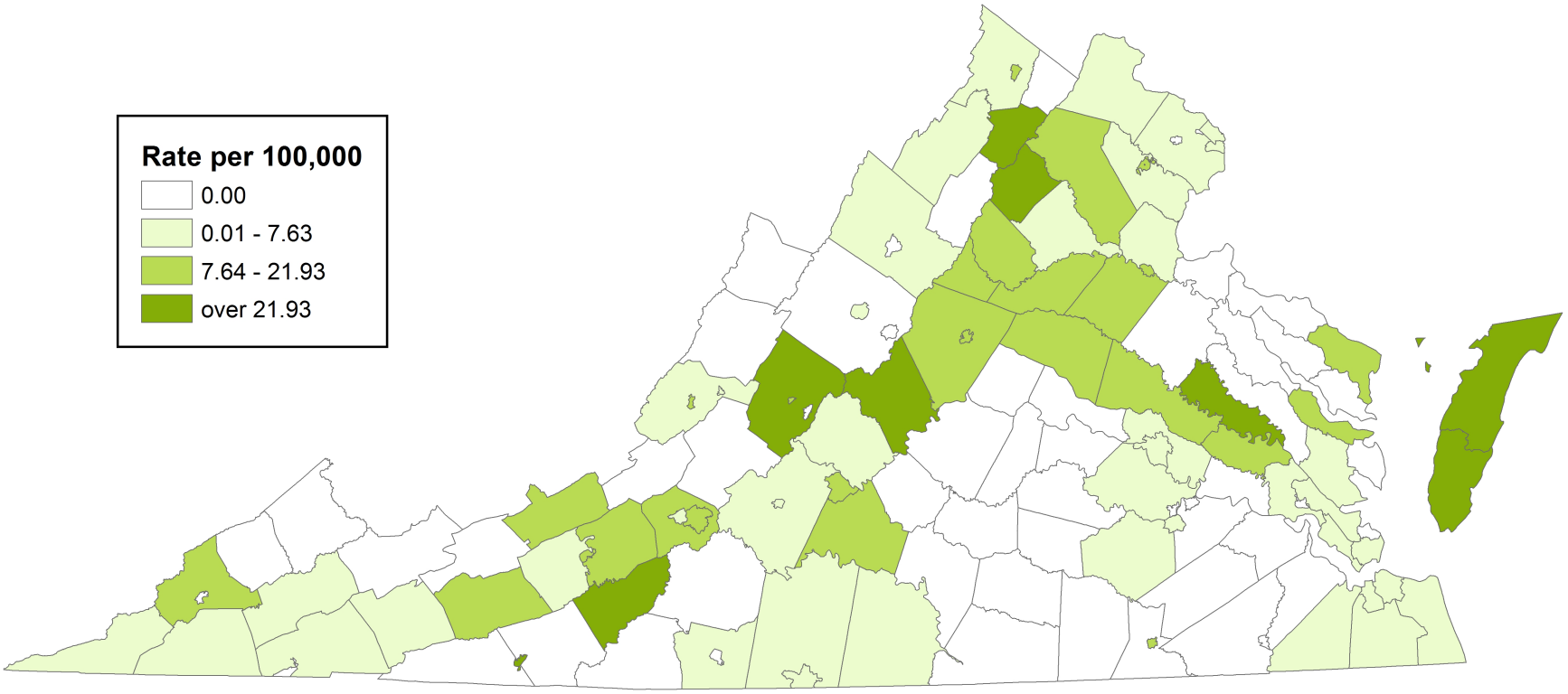
Meningococcal Disease Incidence Rate by Locality
Virginia, 2014



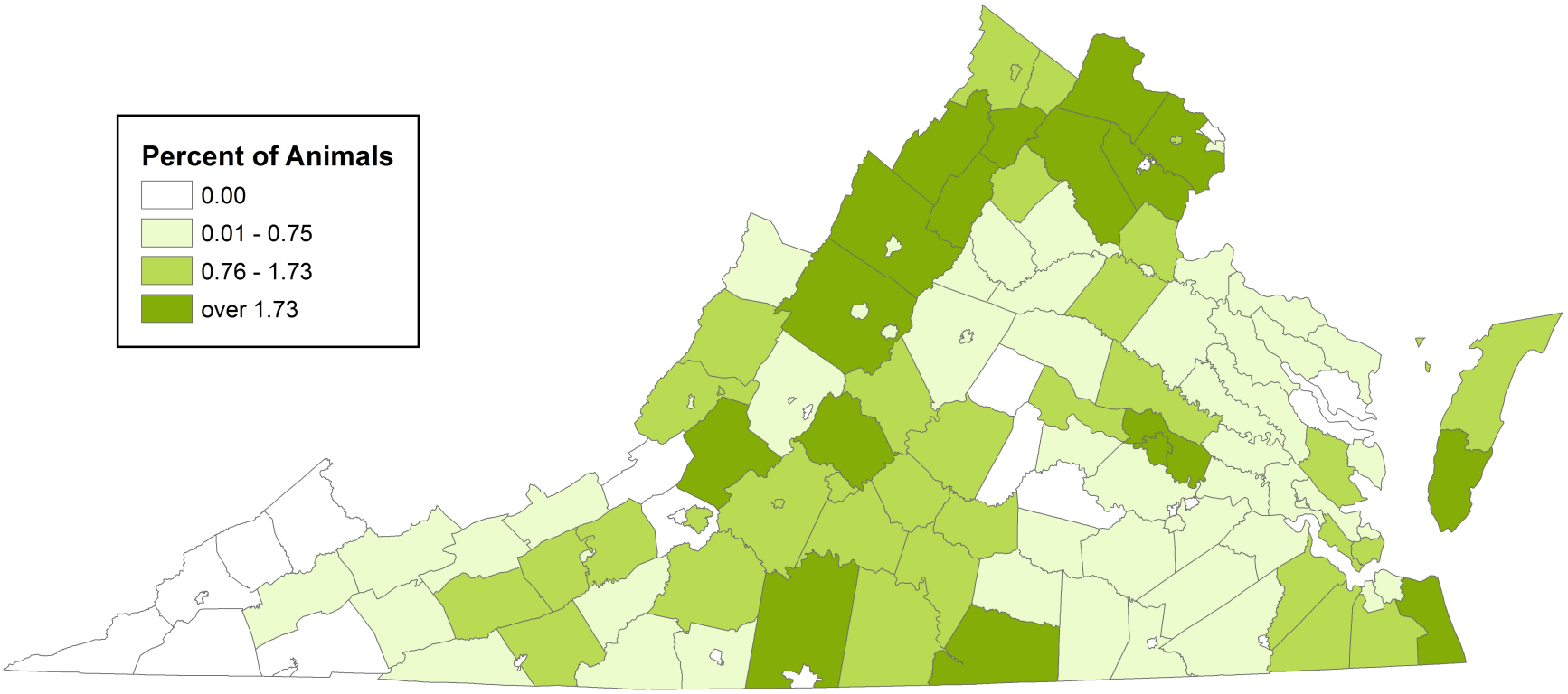
Mumps Incidence Rate by Locality
Virginia, 2014



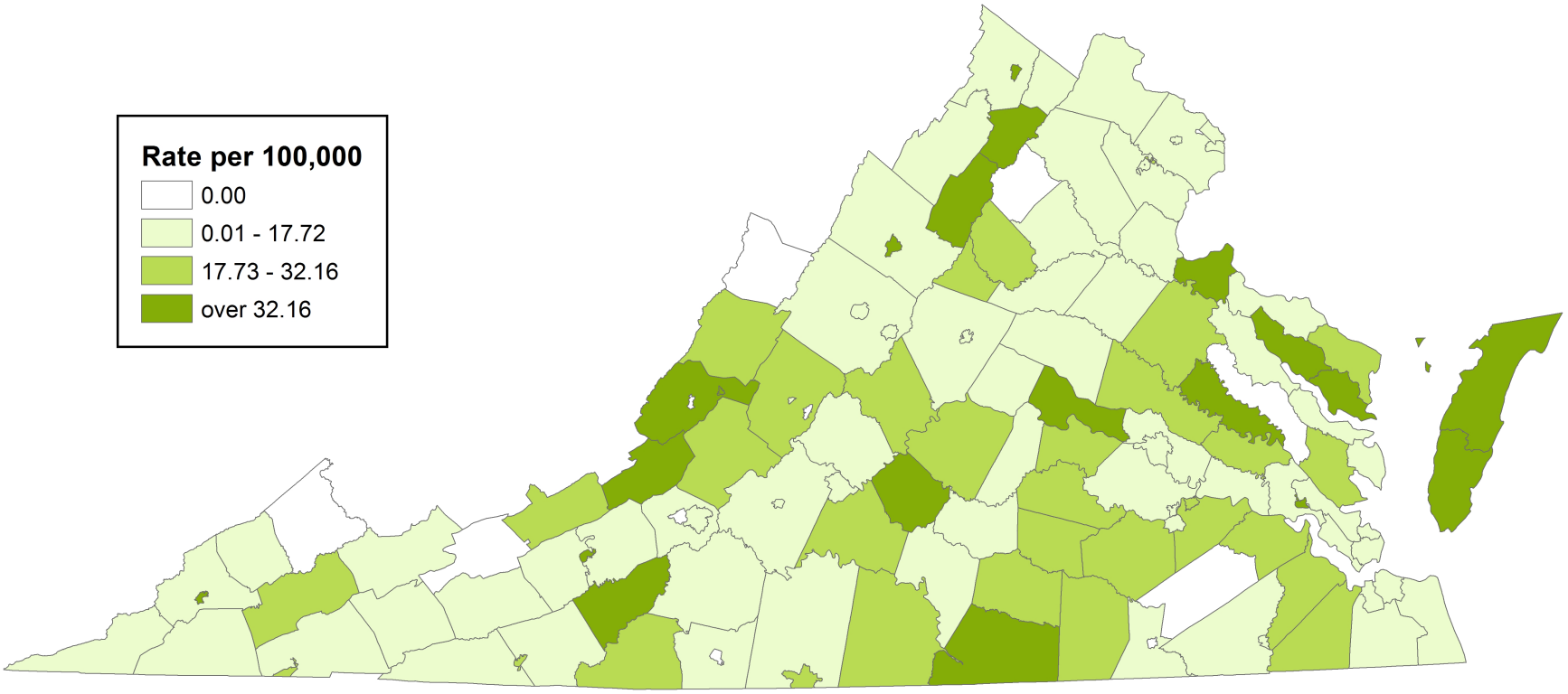
Pertussis Incidence Rate by Locality
Virginia, 2014



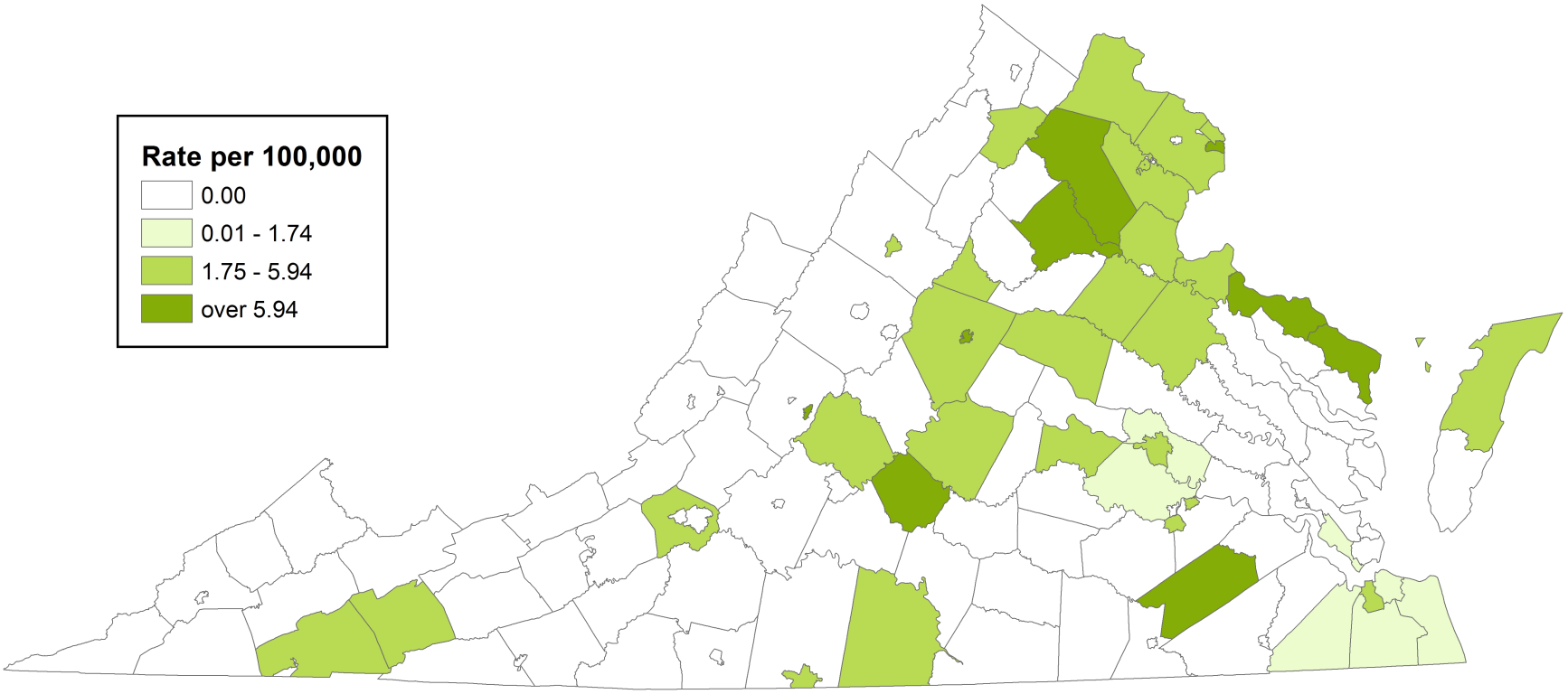
Rabies - Percent of Animals Testing Positive by Locality
Virginia, 2014



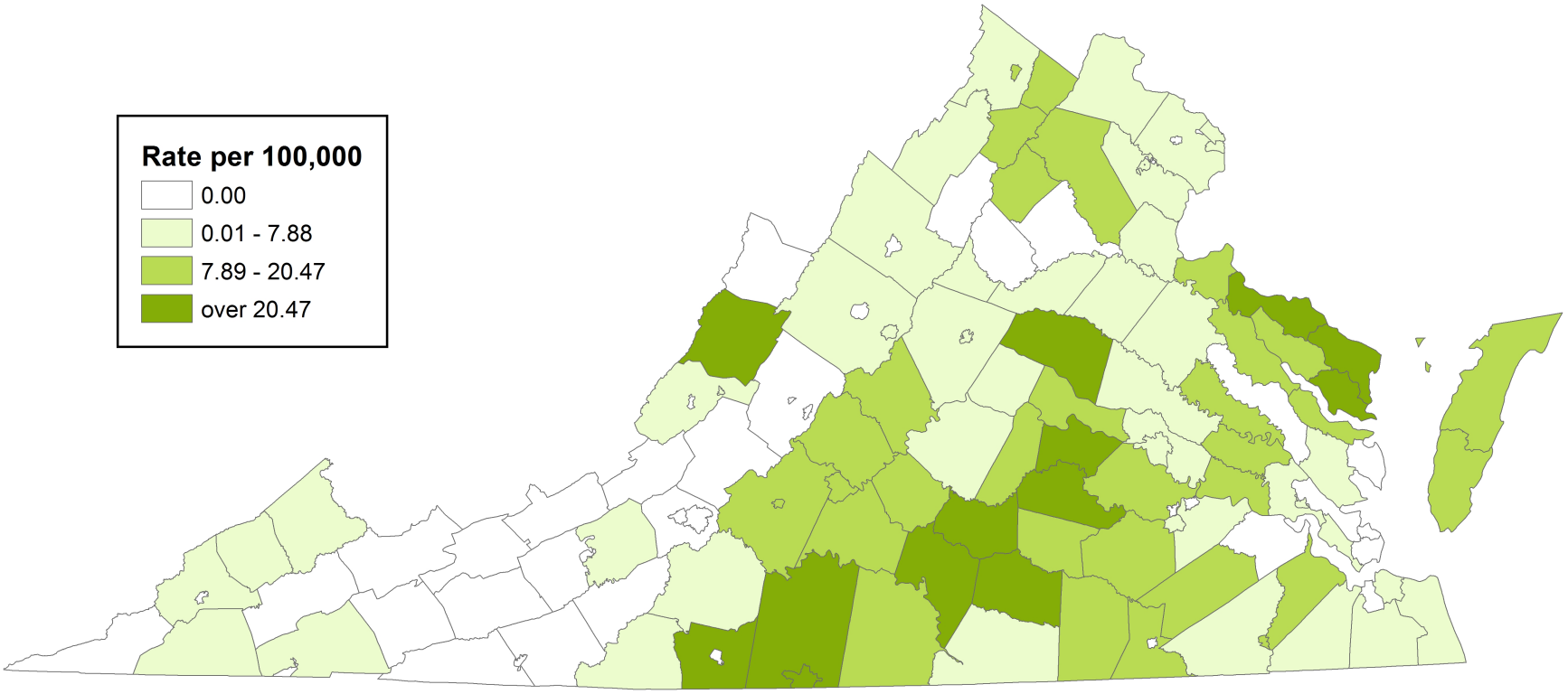
Salmonellosis Incidence Rate by Locality
Virginia, 2014



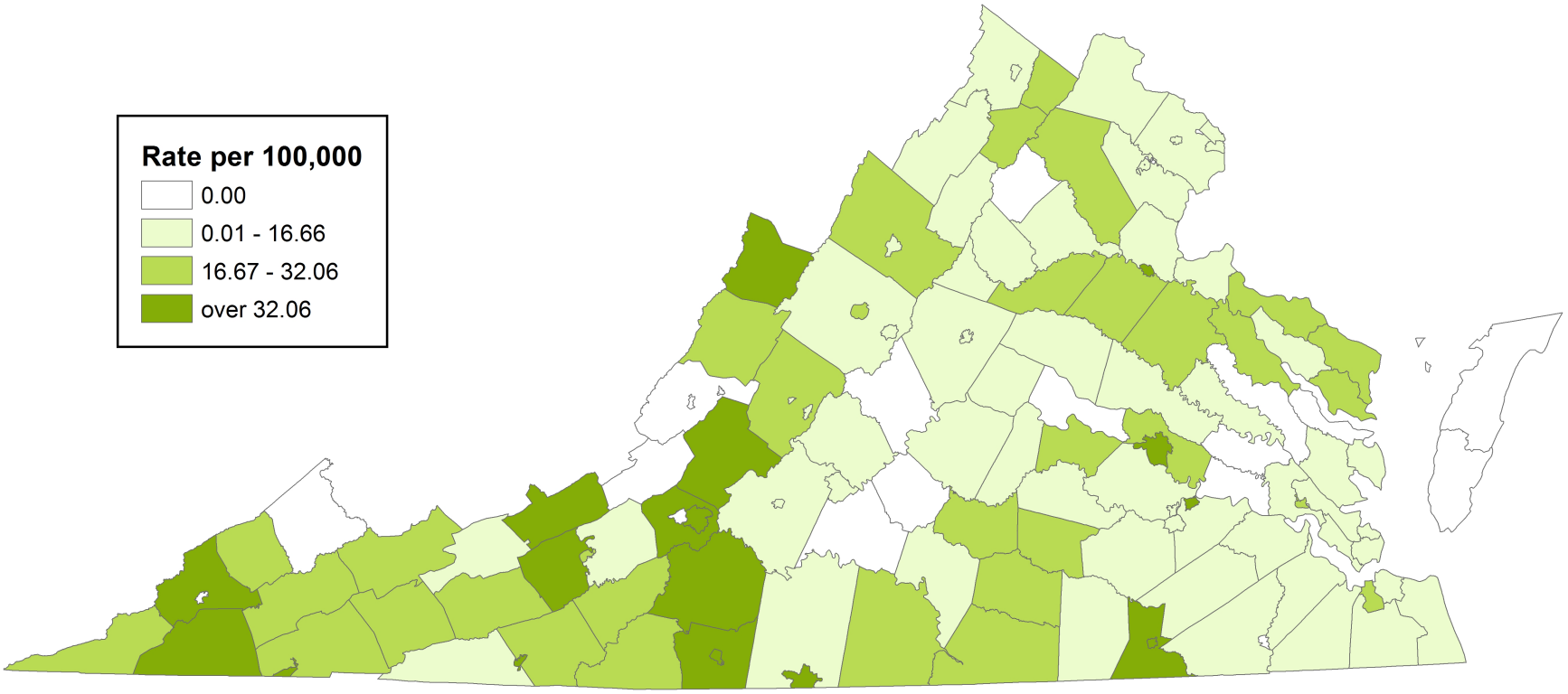
Shigellosis Incidence Rate by Locality
Virginia, 2014



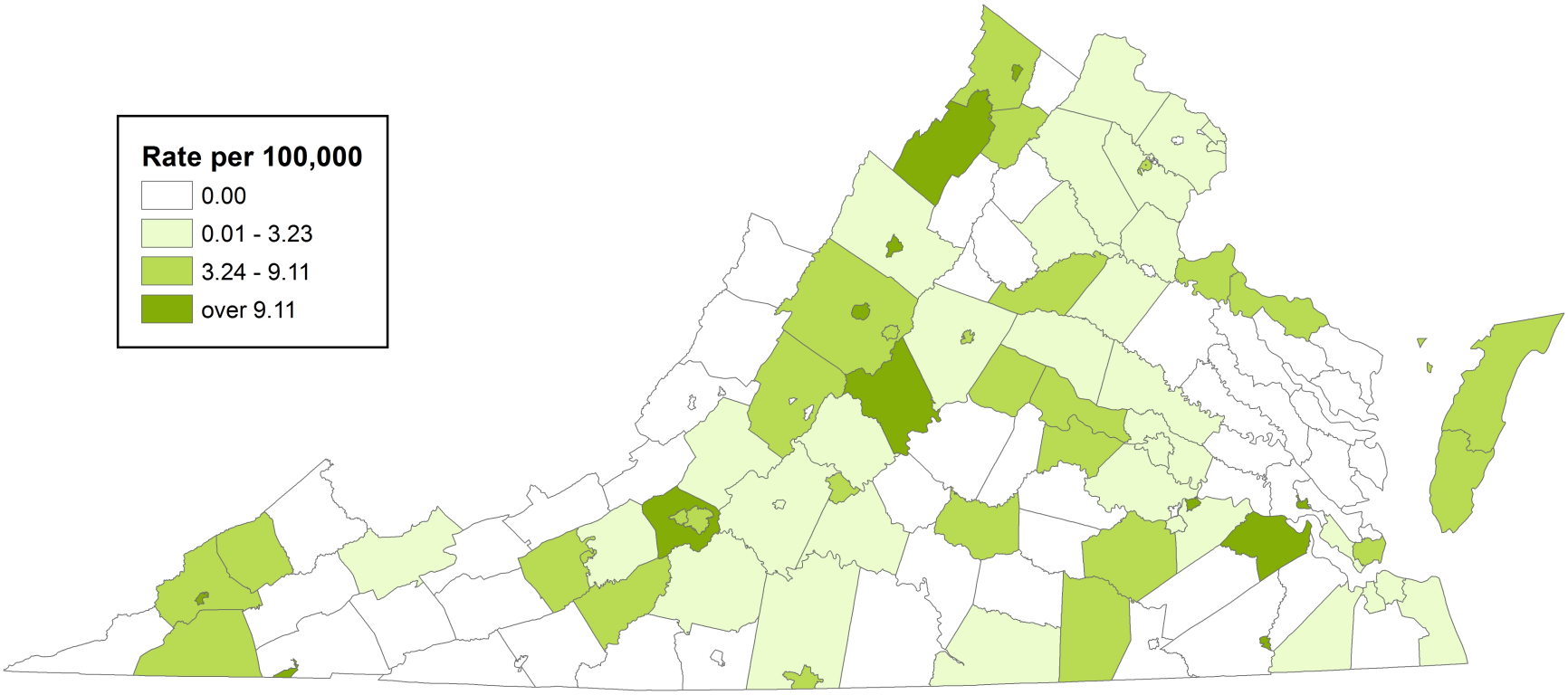
Spotted Fever Rickettsiosis, including RMSF Incidence Rate by Locality, Virginia, 2014



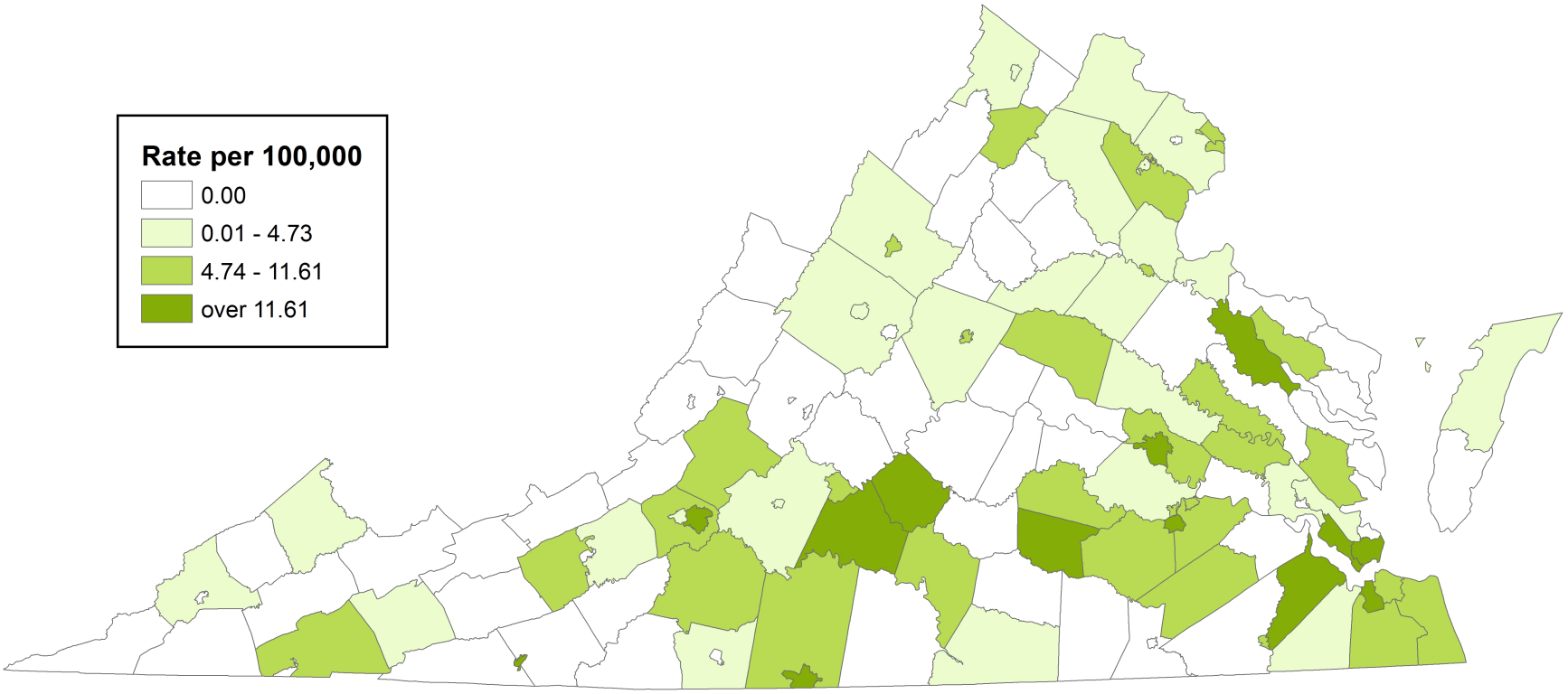
Staphylococcus aureus Infection, Invasive, Methicillin-Resistant (MRSA), Incidence Rate by Locality, Virginia, 2014



Streptococcal Disease, Group A, Invasive or TSS Incidence Rate by Locality, Virginia, 2014



Syphilis, Early Stage, Incidence Rate by Locality
Virginia, 2014



Tuberculosis Incidence Rate by Locality
Virginia, 2014