Reportable Disease Surveillance in Virginia, 2009

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Introduction

The Virginia Department of Health, Office of Epidemiology is pleased to present its twenty-second 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 2009.

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 to all who need to know. 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, laboratories, and other health care providers are therefore key 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 2009 morbidity are included in this introductory section. These tables include the list of reportable diseases; ten year trends; 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 by quarter of onset.

Descriptive Epidemiology of Reportable Diseases: This section consists of narrative and graphics summarizing the populations reported with each disease or condition. The section includes information about the total number of cases reported; the ten year trend in reported cases; 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. Mortality, microbial species, and other attributes of diseases also are presented when applicable. Sources of information include the CDC (http://www.cdc.gov/), *Infectious Disease Epidemiology* (Nelson, K., Williams, C., & Graham, N., 2004), *Red Book: 2009 Report of the Committee on Infectious Diseases* (American Academy of Pediatrics, Pickering, L., Baker, C., Kimberlin, D., Long, S., eds., 2009), and *Control of Communicable Diseases Manual* (Heymann, D., ed., 2008)

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 2008 prepared by the United States Census Bureau for the state's cities and counties and total population were used. Some additional notes on coding are listed below.

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

Date of onset is used whenever it is available. Onset is the time at which symptoms first occurred. Some cases reported in 2009 experienced onset prior to the year of report. 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. Cities and counties that have separate health departments are listed individually. Those that share one health department are combined. Caution is urged in interpreting the data in this section as well as in the following section. Localities with small populations may have large disease rates but only a few reported cases of disease. Both number of cases and incidence rates should be weighed when using these tables to rank morbidity by city or county.

Maps of Incidence Rates: The first map in this section illustrates the location of the health planning regions in Virginia, while the second map provides a geographical view of counties and selected cities in the state. Following that, disease-specific maps are presented which depict the incidence rates listed in the previous section. 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, P.O. Box 2448, 109 Governor St., 5th Floor, Richmond, Virginia 23218, or by telephone at 804-864-8141.

Data Summary

Following this section are pages containing tables of statewide summary data for selected diseases. Table 1 is a list of reportable conditions in Virginia in 2009. Table 2 presents the number of cases of selected diseases reported annually during the past ten years. The number of cases of selected diseases reported for 2009 is delineated by age group in Table 3, by race in Table 4, and by sex in Table 5. Table 6 shows the number of cases and rate per 100,000 by health planning region. Table 7 provides the number and percent of cases with onset by quarter of the year. A brief summary of the major findings presented in these tables follows.

TREND – Notable increases in numbers of cases (>5%) were observed for the following diseases in 2009 compared to 2008: AIDS, arboviral infection, brucellosis, campylobacteriosis, cryptosporidiosis, ehrlichiosis, giardiasis, acute hepatitis C, HIV infection, influenza, elevated blood lead levels in children, malaria, pertussis, invasive group A streptococcal disease, and early syphilis. Notable decreases occurred for the number of cases of amebiasis, chickenpox, Shiga-toxin producing *Escherichia coli* infection, gonorrhea, hepatitis A, acute hepatitis B, listeriosis, meningococcal disease, opthalmia neonatorum, rabies in animals, Rocky Mountain spotted fever, salmonellosis, shigellosis, invasive *Staphylococcus aureus* infection (MRSA), invasive *Streptococcus pneumoniae* in children less than 5 years old, tuberculosis, typhoid fever, and yersiniosis.

AGE – Infants (age <1 year) had the highest incidence rates for campylobacteriosis, cryptosporidiosis, Shiga-toxin producing *Escherichia coli* infection, Kawasaki syndrome, listeriosis, pertussis, salmonellosis, and invasive *Streptococcus pneumoniae* in children less than 5 years old. They showed the lowest rate for amebiasis, ehrlichiosis, hepatitis A, Lyme disease, malaria, Rocky Mountain spotted fever, tuberculosis, and *Vibrio* infection. No cases of AIDS, arboviral infection, acute hepatitis B, acute hepatitis C, HIV infection, legionellosis, meningococcal disease, mumps, early syphilis, or typhoid fever were reported in infants.

Children aged 1-9 years had the highest incidence rates for chickenpox, giardiasis, elevated blood lead levels in children, shigellosis, and typhoid fever. The only cases of hemolytic uremic syndrome (HUS) were reported from this age group. The lowest rates of *Chlamydia trachomatis* infection, gonorrhea, invasive *Staphylococcus aureus* infection (MRSA), and invasive *Streptococcus pneumoniae* in children less than 5 years old were reported among children aged 1-9 years. No cases of AIDS, acute hepatitis B, acute hepatitis C, HIV infection, legionellosis, listeriosis, meningococcal disease, or early syphilis were reported in this age group.

Incidence rates in the 10-19 year age group were lowest for campylobacteriosis, invasive *Haemophilus influenzae* infection, elevated blood lead levels in children, and invasive group A streptococcal disease. There were no cases of arboviral infections, acute hepatitis C, Kawasaki syndrome, legionellosis, or listeriosis reported in this age group. In addition, this age group did not represent the highest incidence rate for any disease or condition.

Persons in their twenties had higher rates of *Chlamydia trachomatis* infection, gonorrhea, hepatitis A, acute hepatitis C, HIV infection, malaria, meningitis, mumps, and early syphilis. This group also had the only reported case of measles in 2009. No cases of Kawasaki syndrome were reported in this age group. No disease or condition was represented with the lowest incidence rate from this age group.

Rates for persons in their thirties exceeded the rates in other age groups for acute hepatitis B and tuberculosis. No cases of arboviral infection, Kawasaki syndrome, or meningococcal disease, and no disease or condition with the lowest incidence rate was reported in this age group.

Incidence rates for those in their forties exceeded the rates in other age groups for AIDS and Rocky Mountain spotted fever. Persons in their forties had the lowest rate of cryptosporidiosis, Shiga-toxin producing *Escherichia coli* infection, and salmonellosis. No cases of Kawasaki syndrome were reported in this age group.

Incidence rates for those in their fifties exceeded the rates in other age groups for amebiasis and Lyme disease. The only reported case of Q fever occurred in this age group. The lowest rate for shigellosis occurred in the 50-59 year age group and no cases of acute hepatitis C, Kawasaki syndrome, or mumps were reported in this age group.

The sixty year and older age group had the highest rates of arboviral disease, ehrlichiosis, invasive *Haemophilus influenzae* infection, legionellosis, invasive *Staphylococcus aureus* infection (MRSA), invasive group A streptococcal disease, and *Vibrio* infection, and the lowest rates of chickenpox, giardiasis, pertussis, and early syphilis. In this age group, no cases of acute hepatitis C, Kawasaki syndrome, or typhoid fever were reported.

RACE – Among conditions where race was known for at least 80% of cases, the black population had a higher incidence rate for AIDS, gonorrhea, HIV infection, invasive *Streptococcus pneumoniae* in children less than 5 years old and early syphilis. The white population did not have a higher incidence rate than other populations for any disease where at least 80% of cases had a reported race. However, the only cases of HUS, measles, and Q fever reported in 2009 occurred in the white population. Of the 3 reported cases of Kawasaki syndrome, 2 occurred in the black population and one occurred in the white population. The "other" race group had the highest rate for tuberculosis.

SEX – In general, the incidence rates of reportable diseases tend to be similar in males and females. Among conditions where the percent difference between reported sexes was at least 50%, incidence rates for *Chlamydia trachomatis* infection and acute hepatitis C were notably higher among females in 2009. Incidence rates were higher among males for AIDS, arboviral disease, HIV infection, malaria, early syphilis, and *Vibrio* infection. In addition, the two reported cases of hemolytic uremic syndrome and the single reported cases of measles and Q fever were all male. Incidence was the same for females and males for amebiasis, invasive *Haemophilus influenzae* infection, meningococcal disease, shigellosis, and typhoid fever.

REGION – The northwest health planning region had the highest incidence rates for campylobacteriosis, chickenpox, cryptosporidiosis, ehrlichiosis/anaplasmosis, Shiga toxin-producing *Escherichia coli* infection, invasive *Haemophilus influenzae* infection, rabies in animals, Rocky Mountain spotted fever, salmonellosis, shigellosis, invasive group A streptococcal disease and invasive *Streptococcus pneumoniae* in children less than 5 years old compared to the other regions of the state. The lowest incidence rates for AIDS, acute hepatitis B, HIV disease, early syphilis, and typhoid fever were seen in this region. No cases of hemolytic uremic syndrome, Kawasaki syndrome, measles, or typhoid fever were reported from the northwest region. In addition, the one case of Q fever reported in 2009 was reported from the northwest region.

The northern health planning region experienced the highest incidence rates for amebiasis, giardiasis, hepatitis A, HIV disease, Lyme disease, malaria, tuberculosis, and typhoid fever. The lowest incidence rates for *Chlamydia trachomatis* infection, ehrlichiosis/anaplasmosis, gonorrhea, invasive *Haemophilus influenzae* infection, elevated blood lead levels in children, listeriosis, meningococcal disease, mumps, rabies in animals, invasive *Staphylococcus aureus* infection (MRSA), invasive group A streptococcal disease and invasive *Streptococcus pneumoniae* in children less than 5 years old were reported from the northern region. No cases of hemolytic uremic syndrome, Kawasaki, or Q fever syndrome were reported from this region. In addition, the one measles case reported in 2009 was reported from the northern region.

The southwest health planning region had the highest incidence rates for acute hepatitis C, legionellosis, and meningococcal disease. It had the lowest rates for giardiasis, influenza, salmonellosis, tuberculosis, and *Vibrio* infection. There were no cases of measles or Q fever reported from the southwest.

The central health planning region experienced the highest rates for AIDS, acute hepatitis B, influenza, elevated blood lead levels in children, pertussis, invasive *Staphylococcus aureus* infection (MRSA), and early syphilis. The lowest rate for chickenpox was seen in this region. No cases of measles or Q fever were reported from the central region.

The eastern health planning region had the highest incidence rates for *Chlamydia trachomatis* infection, gonorrhea, and *Vibrio* infection. This region experienced the lowest rates for arboviral infection, campylobacteriosis, Shiga toxin-producing *Escherichia coli* infection, hepatitis A, legionellosis, Lyme disease, pertussis, and shigellosis. No cases of arboviral infection, hemolytic uremic syndrome, measles, or Q fever were reported from the eastern region.

ONSET – A few diseases showed distinct seasonal trends with the majority of onset occurring within one or two quarters. The largest proportion of cases for listeriosis (37%) and Rocky Mountain spotted fever (49%) occurred during the second quarter of the year. The largest proportion of cases for arboviral infection (87%), cryptosporidiosis (38%), hepatitis A (43%), malaria (47%), pertussis (37%), salmonellosis (38%), and Vibrio infection (55%) occurred in the third quarter. Fifty-five percent of influenza cases had onset during the fourth quarter. For those diseases where the majority of onset spanned

two quarters, the largest proportion of cases for amebiasis (80%) and mumps (78%) occurred during the first and second quarters. The second and third quarters accounted for the largest proportion of cases of ehrlichiosis/anaplasmosis (93%), Shiga toxin-producing *Escherichia coli* infection (70%) and Lyme disease (75%). More than 10% of cases for acute hepatitis C, mumps, and invasive *Streptococcus pneumoniae* in children less than 5 years old reported in 2009 had onset in the prior year. This is a result of delays in obtaining case reports or information needed to confirm a case. Similar delays for cases with late onset in 2009 are likely to have reduced the number of reported cases in the fourth quarter. Several diseases had very low onset percentages for at least one quarter. These included cryptosporidiosis (10%), ehrlichiosis/anaplasmosis (1%) and legionellosis (9%) for the first quarter; influenza (6%) for the second quarter; and amebiasis (5%), Lyme disease (8%), and Rocky Mountain spotted fever (4%) for the fourth quarter. In addition, several diseases had no onset reported in at least one quarter. These diseases included arboviral infection (first and second quarter), mumps (fourth quarter), and *Vibrio* infection (first quarter).

Table 1. Reportable Diseases in Virginia, 2009

Acquired immunodeficiency syndrome (AIDS)
Amebiasis
Anthrax
Arboviral infection (e.g., EEE, LAC, SLV, WNV)
Botulism
Brucellosis
Campylobacteriosis
Chancroid
Chickenpox (Varicella)
Chlamydia trachomatis infection
Cholera
Creutzfeldt-Jakob disease if <55 years of age
Cryptosporidiosis
Cyclosporiasis
Diphtheria
Disease caused by an agent that may have been used as a weapon
Ehrlichiosis/Anaplasmosis
Escherichia coli infection, Shiga toxin-producing
Giardiasis
Gonorrhea
Granuloma inguinale
Haemophilus influenzae infection, invasive
Hantavirus pulmonary syndrome
Hemolytic uremic syndrome (HUS)
Hepatitis A
Hepatitis B (acute and chronic)
Hepatitis C (acute and chronic)
Hepatitis, other acute viral
Human immunodeficiency virus (HIV) infection
Influenza
Influenza-associated deaths in children <18 years
Kawasaki syndrome
Lead - elevated blood levels
Legionellosis
Leprosy (Hansen disease)
Listeriosis
Lyme disease
Lymphogranuloma venereum
Malaria
Measles (Rubeola)
Meningococcal disease
Monkeypox
Mumps
Ophthalmia neonatorum
Outbreaks, all (including foodborne, nosocomial, occupational, toxic substance-related, waterborne, and other outbreaks)
Pertussis
Plague
Poliomyelitis
Psittacosis
Q fever
Rabies, human and animal
Rabies treatment, post exposure
Rocky Mountain spotted fever
Rubella, including congenital rubella syndrome
Salmonellosis
Severe acute respiratory syndrome (SARS)
Shigellosis
Smallpox
Staphylococcus aureus infection (invasive methicillin-resistant and any vancomycin-intermediate or vancomycin-resistant)
Streptococcal disease, Group A, invasive
Streptococcus pneumoniae infection, invasive, in children <5 years of age
Syphilis
Tetanus
Toxic shock syndrome
Toxic substance-related illness
Trichinosis (Trichinellosis)
Tuberculosis, active disease (Mycobacteria)
Tuberculosis infection in children <4 years of age
Tularemia
Typhoid fever
Unusual occurrence of disease of public health concern
Vaccinia, disease or adverse event
Vibrio infection
Viral hemorrhagic fever
Yellow fever
Yersiniosis

Table 2. Ten-Year Trend in Number of Reported Cases of Notifiable Diseases in Virginia, 2000-2009

Disease	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	5-year Average
AIDS	908	970	866	793	774	626	589	599	638	819	645.2
Amebiasis	24	37	16	20	25	42	45	53	42	20	41.4
Anthrax	0	2	0	0	0	0	0	0	0	0	0.0
Arboviral infection	0	2	32	31	7	5	5	5	3	8	5.0
Botulism, foodborne	0	0	1	0	0	0	0	1	0	0	0.2
Botulism, infant	2	4	3	1	3	1	0	0	3	4	1.4
Brucellosis	1	1	0	2	1	1	0	0	0	5	0.4
Campylobacteriosis	574	583	686	882	668	618	669	665	669	770	657.8
Chancroid	2	0	1	0	0	0	1	0	0	0	0.2
Chickenpox (Varicella)	592	563	605	682	1,240	1,834	1,959	1,582	1,489	773	1,620.8
Chlamydia trachomatis infection	15,366	18,322	18,518	19,439	21,635	22,668	24,081	24,528	31,205	30,904	24,823.4
Cholera	0	0	0	0	0	0	0	0	0	0	0.0
Creutzfeldt-Jakob disease (CJD)^	1	1	1	0	0	0	1	1	0	0	0.4
Cryptosporidiosis	21	27	35	56	66	77	71	90	81	86	77.0
Cyclosporiasis	0	1	1	3	1	3	0	2	2	1	1.6
Diphtheria	0	0	0	0	0	0	0	0	0	0	0.0
Ehrlichiosis/Anaplasmosis	1	2	6	12	8	13	8	39	65	72	26.6
E. coli infection, Shiga toxin-producing	83	61	81	63	62	111	168	165	241	156	149.4
Giardiasis	437	417	386	426	563	602	514	582	432	503	538.6
Gonorrhea	10,166	11,082	10,462	9,062	8,565	8,346	6,474	6,267	10,336	7,791	7,997.6
Granuloma inguinale	0	1	0	0	0	0	0	0	0	0	0.0
Haemophilus influenzae infection, invasive	41	34	41	68	56	61	69	80	92	88	71.6
Hansen's disease (Leprosy)	0	1	0	0	0	0	1	1	0	0	0.4
Hantavirus pulmonary syndrome	0	0	0	0	0	0	0	0	0	0	0.0
Hemolytic uremic syndrome	3	1	8	1	1	1	2	1	2	2	1.4
Hepatitis A	164	167	163	141	140	93	64	89	51	42	87.4
Hepatitis B, acute	174	213	224	227	303	146	78	144	130	110	160.2
Hepatitis C, acute	3	3	15	15	15	13	9	8	8	10	10.6
HIV disease	804	977	992	797	875	833	914	836	844	1,429	860.4
Influenza	1,909	1,963	3,486	18,765	3,404	15,942	16,107	8,416	24,580	40,614	13,689.8
Kawasaki syndrome	29	28	11	11	16	19	6	2	3	3	9.2
Lead - elevated blood levels in children*	727	679	791	643	703	527	515	394	307	389	489.2
Legionellosis	37	39	35	110	56	55	68	61	66	67	61.2
Listeriosis	9	15	10	18	27	17	20	16	17	16	19.4
Lyme disease	149	156	259	202	216	274	357	959	933	908	547.8
Lymphogranuloma venereum	1	0	0	0	1	2	0	0	0	0	0.6
Malaria	55	54	36	60	59	44	55	65	49	61	54.4
Measles	2	1	0	0	0	0	0	0	1	1	0.2

Table 2. Ten-Year Trend in Number of Reported Cases of Notifiable Diseases in Virginia, 2000-2009 (continued)

Disease	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	5-year Average
Meningococcal disease	42	46	46	28	24	35	22	23	24	18	25.6
Monkeypox	-	-	-	0	0	0	0	0	0	0	0.0
Mumps	11	8	5	1	11	2	117	27	9	9	33.2
Ophthalmia neonatorum	3	1	16	10	8	18	11	5	10	7	10.4
Pertussis	134	272	168	219	400	363	221	128	198	222	262.0
Plague	0	0	0	0	0	0	0	0	0	0	0.0
Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0.0
Psittacosis	0	0	0	1	0	0	0	0	0	0	0.0
Q fever	0	0	0	0	0	2	4	4	2	1	2.4
Rabies in animals	574	502	592	542	474	495	637	730	620	564	591.2
Rabies in humans	0	0	0	1	0	0	0	0	0	1	0.0
Rocky Mountain spotted fever	7	40	43	34	45	121	114	123	155	53	111.6
Rubella, including congenital	0	1	0	0	0	0	0	0	0	0	0.0
Salmonellosis	1,020	1,368	1,277	1,175	1,196	1,172	1,089	1,249	1,165	1,095	1,174.2
Severe acute respiratory syndrome (SARS)	-	-	-	1	0	0	0	0	0	0	0.0
Shigellosis	460	784	1,061	451	167	134	120	200	310	198	186.2
Smallpox	0	0	0	0	0	0	0	0	0	0	0.0
Staphylococcus aureus infection, invasive (MRSA)	-	-	-	-	-	-	-	253	1,524	1,124	355.4
Staphylococcus aureus infection, VISA or VRSA	0	0	0	0	0	0	0	1	0	0	0.2
Streptococcal disease, Group A, invasive	57	85	82	111	74	110	132	162	150	174	125.6
Streptococcus pneumoniae infection, invasive**	-	0	20	27	35	37	50	52	52	47	45.2
Syphilis, early	266	235	165	156	224	291	351	407	500	529	354.6
Tetanus	0	0	0	0	1	1	0	0	0	0	0.4
Toxic shock syndrome	0	2	3	3	2	1	0	1	0	0	0.8
Toxic substance-related illness	399	430	493	213	321	324	415	434	356	342	370.0
Trichinosis (Trichinellosis)	0	0	0	0	1	1	0	0	1	0	0.6
Tuberculosis	292	306	315	332	329	355	332	309	292	273	323.4
Tularemia	1	0	1	4	0	0	0	3	1	0	0.8
Typhoid fever	22	15	8	16	11	20	20	21	19	12	18.2
Vaccinia, disease or adverse event	-	-	-	0	0	0	0	0	1	0	0.2
Vibrio infection	12	22	20	26	20	25	32	33	29	29	27.8
Viral hemorrhagic fever	-	-	-	0	0	0	0	0	0	0	0.0
Yellow fever	0	0	0	0	0	0	0	0	0	0	0.0
Yersiniosis	3	3	8	3	10	18	10	10	14	11	12.4

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

- Not a reportable disease at this time

* 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, 2009

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	104,534		915,724		1,025,983		1,096,259		1,075,597		1,178,313		1,035,624		1,337,055		
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	
AIDS	0	0.0	0	0.0	18	1.8	119	10.9	214	19.9	287	24.4	138	13.3	42	3.1	1
Amebiasis	0	0.0	3	0.3	1	0.1	4	0.4	1	0.1	4	0.3	5	0.5	1	0.1	1
Arboviral infection	0	0.0	1	0.1	0	0.0	1	0.1	0	0.0	1	0.1	1	0.1	4	0.3	0
Campylobacteriosis	13	12.4	101	11.0	62	6.0	102	9.3	101	9.4	123	10.4	94	9.1	142	10.6	32
Chickenpox (Varicella)	24	23.0	358	39.1	293	28.6	35	3.2	23	2.1	20	1.7	6	0.6	5	0.4	9
Chlamydia trachomatis infection	10	9.6	8	0.9	10,686	1,041.5	16,703	1,523.6	2,666	247.9	606	51.4	136	13.1	89	6.7	0
Cryptosporidiosis	3	2.9	10	1.1	9	0.9	11	1.0	10	0.9	10	0.8	9	0.9	24	1.8	0
Ehrlichiosis/Anaplasmosis	0	0.0	1	0.1	2	0.2	5	0.5	7	0.7	12	1.0	16	1.5	29	2.2	0
E. coli infection, Shiga toxin-producing	9	8.6	61	6.7	26	2.5	24	2.2	10	0.9	5	0.4	8	0.8	12	0.9	1
Giardiasis	5	4.8	141	15.4	58	5.7	47	4.3	66	6.1	61	5.2	49	4.7	47	3.5	29
Gonorrhea	3	2.9	4	0.4	2,363	230.3	4,047	369.2	928	86.3	321	27.2	86	8.3	39	2.9	0
Haemophilus influenzae infection, invasive	3	2.9	7	0.8	1	0.1	4	0.4	4	0.4	10	0.8	8	0.8	50	3.7	1
Hemolytic uremic syndrome	0	0.0	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Hepatitis A	0	0.0	3	0.3	7	0.7	11	1.0	6	0.6	8	0.7	3	0.3	4	0.3	0
Hepatitis B, acute	0	0.0	0	0.0	1	0.1	22	2.0	33	3.1	30	2.5	15	1.4	9	0.7	0
Hepatitis C, acute	0	0.0	0	0.0	0	0.0	4	0.4	3	0.3	3	0.3	0	0.0	0	0.0	0
HIV disease	0	0.0	0	0.0	72	7.0	420	38.3	350	32.5	366	31.1	174	16.8	42	3.1	5
Kawasaki syndrome	1	1.0	2	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Lead - elevated blood levels in children*	30	28.7	349	38.1	10	1.7	-	-	-	-	-	-	-	-	-	-	0
Legionellosis	0	0.0	0	0.0	0	0.0	1	0.1	8	0.7	12	1.0	16	1.5	30	2.2	0
Listeriosis	2	1.9	0	0.0	0	0.0	2	0.2	1	0.1	3	0.3	1	0.1	7	0.5	0
Lyme disease	1	1.0	114	12.4	137	13.4	96	8.8	109	10.1	130	11.0	158	15.3	162	12.1	1
Malaria	0	0.0	5	0.5	9	0.9	14	1.3	10	0.9	11	0.9	9	0.9	3	0.2	0
Measles	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0
Meningococcal disease	0	0.0	0	0.0	3	0.3	5	0.5	0	0.0	2	0.2	3	0.3	5	0.4	0
Mumps	0	0.0	2	0.2	1	0.1	3	0.3	1	0.1	1	0.1	0	0.0	1	0.1	0
Pertussis	51	48.8	56	6.1	57	5.6	6	0.5	13	1.2	18	1.5	12	1.2	5	0.4	4
Q fever	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0	0
Rocky Mountain spotted fever	0	0.0	1	0.1	6	0.6	8	0.7	11	1.0	13	1.1	6	0.6	8	0.6	0
Salmonellosis	71	67.9	281	30.7	107	10.4	104	9.5	97	9.0	103	8.7	115	11.1	189	14.1	28
Shigellosis	1	1.0	80	8.7	24	2.3	27	2.5	22	2.0	19	1.6	8	0.8	14	1.0	3
Staphylococcus aureus infection, invasive (MRSA)	16	15.3	12	1.3	17	1.7	42	3.8	62	5.8	129	10.9	197	19.0	623	46.6	26
Streptococcal disease, Group A, invasive	2	1.9	18	2.0	6	0.6	9	0.8	15	1.4	21	1.8	32	3.1	69	5.2	2
Streptococcus pneumoniae, invasive**	20	19.1	27	6.5	-	-	-	-	-	-	-	-	-	-	-	-	0
Syphilis, early	0	0.0	0	0.0	52	5.1	238	21.7	91	8.5	108	9.2	27	2.6	13	1.0	0
Tuberculosis	1	1.0	14	1.5	16	1.6	56	5.1	50	4.6	42	3.6	25	2.4	69	5.2	0
Typhoid fever	0	0.0	4	0.4	1	0.1	2	0.2	2	0.2	2	0.2	1	0.1	0	0.0	0
Vibrio infection	0	0.0	4	0.4	3	0.3	2	0.2	4	0.4	4	0.3	3	0.3	9	0.7	0

- Not reportable at this age

* 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, 2009

Disease	Total		Black		White		Other	Unk.
Population	7,769,089		1,546,444		5,673,913		548,732	
		N	Rate	N	Rate	N	Rate	N
AIDS	819	509	32.9	218	3.8	92	16.8	0
Amebiasis	20	1	0.1	4	0.1	3	0.5	12
Arboviral infection	8	0	0.0	5	0.1	1	0.2	2
Campylobacteriosis	770	33	2.1	347	6.1	14	2.6	376
Chickenpox (Varicella)	773	75	4.8	457	8.1	27	4.9	214
Chlamydia trachomatis infection	30,904	14,916	964.5	5,329	93.9	1,829	333.3	8,830
Cryptosporidiosis	86	10	0.6	46	0.8	3	0.5	27
Ehrlichiosis/Anaplasmosis	72	5	0.3	39	0.7	0	0.0	28
E. coli infection, Shiga toxin-producing	156	4	0.3	67	1.2	2	0.4	83
Giardiasis	503	35	2.3	117	2.1	39	7.1	312
Gonorrhea	7,791	5,555	359.2	765	13.5	181	33.0	1,290
Haemophilus influenzae infection, invasive	88	11	0.7	58	1.0	0	0.0	19
Hemolytic uremic syndrome	2	0	0.0	2	0.0	0	0.0	0
Hepatitis A	42	3	0.2	13	0.2	7	1.3	19
Hepatitis B, acute	110	23	1.5	32	0.6	2	0.4	53
Hepatitis C, acute	10	0	0.0	7	0.1	0	0.0	3
HIV disease	1,429	820	53.0	460	8.1	149	27.2	0
Kawasaki syndrome	3	2	0.1	1	0.0	0	0.0	0
Lead - elevated blood levels in children*	389	110	30.4	67	6.0	13	8.8	199
Legionellosis	67	10	0.6	38	0.7	0	0.0	19
Listeriosis	16	3	0.2	9	0.2	0	0.0	4
Lyme disease	908	8	0.5	347	6.1	6	1.1	547
Malaria	61	31	2.0	6	0.1	4	0.7	20
Measles	1	0	0.0	1	0.0	0	0.0	0
Meningococcal disease	18	3	0.2	10	0.2	0	0.0	5
Mumps	9	2	0.1	4	0.1	0	0.0	3
Pertussis	222	16	1.0	126	2.2	3	0.5	77
Q fever	1	0	0.0	1	0.0	0	0.0	0
Rocky Mountain spotted fever	53	3	0.2	22	0.4	0	0.0	28
Salmonellosis	1,095	105	6.8	456	8.0	36	6.6	498
Shigellosis	198	41	2.7	47	0.8	1	0.2	109
Staphylococcus aureus infection, invasive (MRSA)	1,124	256	16.6	507	8.9	5	0.9	356
Streptococcal disease, Group A, invasive	174	35	2.3	92	1.6	2	0.4	45
Streptococcus pneumoniae, invasive**	47	16	13.8	22	6.3	1	1.8	8
Syphilis, early	529	358	23.1	132	2.3	36	6.6	3
Tuberculosis	273	91	5.9	71	1.3	111	20.2	0
Typhoid fever	12	0	0.0	0	0.0	8	1.5	4
Vibrio infection	29	4	0.3	16	0.3	1	0.2	8

* 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, 2009

Disease	Total	Female		Male		Unk.
Population	7,769,089	3,952,047		3,817,042		
		N	Rate	N	Rate	N
AIDS	819	206	5.2	613	16.1	0
Amebiasis	20	10	0.3	10	0.3	0
Arboviral infection	8	2	0.1	6	0.2	0
Campylobacteriosis	770	339	8.6	421	11.0	10
Chickenpox (Varicella)	773	344	8.7	418	11.0	11
Chlamydia trachomatis infection	30,904	22,393	566.6	8,440	221.1	71
Cryptosporidiosis	86	35	0.9	50	1.3	1
Ehrlichiosis/Anaplasmosis	72	27	0.7	45	1.2	0
E. coli infection, Shiga toxin-producing	156	82	2.1	73	1.9	1
Giardiasis	503	210	5.3	287	7.5	6
Gonorrhea	7,791	4,315	109.2	3,466	90.8	10
Haemophilus influenzae infection, invasive	88	44	1.1	43	1.1	1
Hemolytic uremic syndrome	2	0	0.0	2	0.1	0
Hepatitis A	42	23	0.6	19	0.5	0
Hepatitis B, acute	110	47	1.2	62	1.6	1
Hepatitis C, acute	10	7	0.2	3	0.1	0
HIV disease	1,429	286	7.2	1,143	29.9	0
Kawasaki syndrome	3	2	0.1	1	0.0	0
Lead - elevated blood levels in children*	389	175	22.1	213	25.8	1
Legionellosis	67	26	0.7	41	1.1	0
Listeriosis	16	10	0.3	5	0.1	1
Lyme disease	908	423	10.7	476	12.5	9
Malaria	61	19	0.5	42	1.1	0
Measles	1	0	0.0	1	0.0	0
Meningococcal disease	18	9	0.2	8	0.2	1
Mumps	9	6	0.2	3	0.1	0
Pertussis	222	134	3.4	88	2.3	0
Q fever	1	0	0.0	1	0.0	0
Rocky Mountain spotted fever	53	19	0.5	34	0.9	0
Salmonellosis	1,095	577	14.6	506	13.3	12
Shigellosis	198	99	2.5	97	2.5	2
Staphylococcus aureus infection, invasive (MRSA)	1,124	479	12.1	612	16.0	33
Streptococcal disease, Group A, invasive	174	96	2.4	75	2.0	3
Streptococcus pneumoniae, invasive**	47	15	5.9	31	11.6	1
Syphilis, early	529	65	1.6	464	12.2	0
Tuberculosis	273	121	3.1	152	4.0	0
Typhoid fever	12	6	0.2	6	0.2	0
Vibrio infection	29	8	0.2	21	0.6	0

* 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, 2009

Disease	Total		Northwest Region		Northern Region		Southwest Region		Central Region		Eastern Region	
Population	7,769,089		1,202,922		2,105,422		1,328,110		1,331,169		1,801,466	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
AIDS	819	10.5	63	5.2	235	11.2	98	7.4	190	14.3	233	12.9
Amebiasis	20	0.3	3	0.2	13	0.6	1	0.1	2	0.2	1	0.1
Arboviral infection	8	0.1	2	0.2	4	0.2	1	0.1	1	0.1	0	0.0
Campylobacteriosis	770	9.9	168	14.0	237	11.3	138	10.4	109	8.2	118	6.6
Chickenpox (Varicella)	773	9.9	210	17.5	165	7.8	120	9.0	103	7.7	175	9.7
Chlamydia trachomatis infection	30,904	397.8	2,993	248.8	4,131	196.2	3,726	280.5	7,382	554.6	12,672	703.4
Cryptosporidiosis	86	1.1	23	1.9	27	1.3	17	1.3	8	0.6	11	0.6
Ehrlichiosis/Anaplasmosis	72	0.9	25	2.1	3	0.1	18	1.4	17	1.3	9	0.5
E. coli infection, Shiga toxin-producing	156	2.0	38	3.2	59	2.8	23	1.7	19	1.4	17	0.9
Giardiasis	503	6.5	98	8.1	180	8.5	53	4.0	85	6.4	87	4.8
Gonorrhea	7,791	100.3	456	37.9	636	30.2	768	57.8	2,152	161.7	3,779	209.8
Haemophilus influenzae infection, invasive	88	1.1	24	2.0	15	0.7	21	1.6	11	0.8	17	0.9
Hemolytic uremic syndrome	2	0.0	0	0.0	0	0.0	1	0.1	1	0.1	0	0.0
Hepatitis A	42	0.5	5	0.4	23	1.1	4	0.3	8	0.6	2	0.1
Hepatitis B, acute	110	1.4	9	0.7	17	0.8	19	1.4	41	3.1	24	1.3
Hepatitis C, acute	10	0.1	1	0.1	2	0.1	4	0.3	2	0.2	1	0.1
HIV disease	1,429	18.4	96	8.0	515	24.5	129	9.7	323	24.3	366	20.3
Influenza	40,614	522.8	6,089	506.2	9,777	464.4	3,781	284.7	10,610	797.0	10,357	574.9
Kawasaki syndrome	3	0.0	0	0.0	0	0.0	1	0.1	1	0.1	1	0.1
Lead - elevated blood levels in children*	389	5.0	58	23.5	63	13.3	61	25.7	124	45.8	83	21.3
Legionellosis	67	0.9	18	1.5	13	0.6	23	1.7	6	0.5	7	0.4
Listeriosis	16	0.2	1	0.1	1	0.0	5	0.4	5	0.4	4	0.2
Lyme disease	908	11.7	210	17.5	555	26.4	49	3.7	41	3.1	53	2.9
Malaria	61	0.8	3	0.2	42	2.0	2	0.2	8	0.6	6	0.3
Measles	1	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0
Meningococcal disease	18	0.2	2	0.2	2	0.1	7	0.5	4	0.3	3	0.2
Mumps	9	0.1	3	0.2	1	0.0	1	0.1	2	0.2	2	0.1
Pertussis	222	2.9	39	3.2	59	2.8	31	2.3	59	4.4	34	1.9
Q fever	1	0.0	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
Rabies in animals	564	7.3	146	12.1	88	4.2	108	8.1	120	9.0	102	5.7
Rocky Mountain spotted fever	53	0.7	16	1.3	10	0.5	5	0.4	14	1.1	8	0.4
Salmonellosis	1,095	14.1	201	16.7	276	13.1	171	12.9	173	13.0	274	15.2
Shigellosis	198	2.5	44	3.7	62	2.9	36	2.7	39	2.9	17	0.9
Staphylococcus aureus infection, invasive (MRSA)	1,124	14.5	167	13.9	129	6.1	279	21.0	345	25.9	204	11.3

Table 6. Number of Reported Cases of Selected Diseases and Rate per 100,000 by Health Planning Region, Virginia, 2009 (continued)

Disease	Total		Northwest Region		Northern Region		Southwest Region		Central Region		Eastern Region	
Population	7,769,089		1,202,922		2,105,422		1,328,110		1,331,169		1,801,466	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Streptococcal disease, Group A, invasive	174	2.2	38	3.2	26	1.2	31	2.3	36	2.7	43	2.4
Streptococcus pneumoniae, invasive**	47	0.6	11	14.1	8	4.9	4	5.5	9	10.5	15	12.1
Syphilis, early	529	6.8	21	1.7	100	4.7	57	4.3	167	12.5	184	10.2
Tuberculosis	273	3.5	24	2.0	158	7.5	20	1.5	33	2.5	38	2.1
Typhoid fever	12	0.2	0	0.0	7	0.3	1	0.1	3	0.2	1	0.1
Vibrio infection	29	0.4	4	0.3	4	0.2	1	0.1	6	0.5	14	0.8

* 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 7. Number of Reported Cases of Selected Diseases by Quarter of Onset, Virginia, 2009

Disease	Total	Prior to 2009		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
		N	%	N	%	N	%	N	%	N	%
AIDS	819	0	0.0	190	23.2	244	29.8	258	31.5	127	15.5
Amebiasis	20	1	5.0	8	40.0	8	40.0	2	10.0	1	5.0
Arboviral infection	8	0	0.0	0	0.0	0	0.0	7	87.5	1	12.5
Campylobacteriosis	770	8	1.0	117	15.2	242	31.4	245	31.8	158	20.5
Chickenpox (Varicella)	773	38	4.9	226	29.2	231	29.9	159	20.6	119	15.4
Chlamydia trachomatis infection	30,904	0	0.0	6,071	19.6	9,522	30.8	7,896	25.6	7,415	24.0
Cryptosporidiosis	86	6	7.0	9	10.5	20	23.3	33	38.4	18	20.9
Ehrlichiosis/Anaplasmosis	72	0	0.0	1	1.4	41	56.9	26	36.1	4	5.6
E. coli infection, Shiga toxin-producing	156	1	0.6	20	12.8	53	34.0	57	36.5	25	16.0
Giardiasis	503	16	3.2	112	22.3	109	21.7	150	29.8	116	23.1
Gonorrhea	7,791	0	0.0	1,402	18.0	1,953	25.1	2,026	26.0	2,410	30.9
Haemophilus influenzae infection, invasive	88	6	6.8	26	29.5	23	26.1	18	20.5	15	17.0
Hemolytic uremic syndrome	2	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0
Hepatitis A	42	0	0.0	9	21.4	7	16.7	18	42.9	8	19.0
Hepatitis B, acute	110	2	1.8	21	19.1	28	25.5	30	27.3	29	26.4
Hepatitis C, acute	10	3	30.0	3	30.0	1	10.0	1	10.0	2	20.0
HIV disease	1,429	0	0.0	479	33.5	297	20.8	269	18.8	384	26.9
Influenza	40,614	0	0.0	13,004	32.0	2,359	5.8	2,847	7.0	22,404	55.2
Kawasaki syndrome	3	0	0.0	0	0.0	0	0.0	2	66.7	1	33.3
Legionellosis	67	1	1.5	6	9.0	20	29.9	20	29.9	20	29.9
Listeriosis	16	1	6.3	2	12.5	6	37.5	3	18.8	4	25.0
Lyme disease	908	67	7.4	92	10.1	385	42.4	293	32.3	71	7.8
Malaria	61	0	0.0	10	16.4	10	16.4	29	47.5	12	19.7
Measles	1	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0
Meningococcal disease	18	1	5.6	5	27.8	4	22.2	2	11.1	6	33.3
Mumps	9	1	11.1	4	44.4	3	33.3	1	11.1	0	0.0
Pertussis	222	7	3.2	43	19.4	52	23.4	83	37.4	37	16.7
Q fever	1	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0
Rocky Mountain spotted fever	53	0	0.0	12	22.6	26	49.1	13	24.5	2	3.8
Salmonellosis	1,095	27	2.5	166	15.2	292	26.7	421	38.4	189	17.3
Shigellosis	198	5	2.5	48	24.2	62	31.3	55	27.8	28	14.1
Staphylococcus aureus infection, invasive (MRSA)	1,124	17	1.5	258	23.0	299	26.6	303	27.0	247	22.0
Streptococcal disease, Group A, invasive	174	4	2.3	65	37.4	52	29.9	20	11.5	33	19.0
Streptococcus pneumoniae, invasive*	47	8	17.0	15	31.9	7	14.9	8	17.0	9	19.1
Syphilis, early	529	0	0.0	104	19.7	143	27.0	149	28.2	133	25.1
Typhoid fever	12	1	8.3	2	16.7	3	25.0	3	25.0	3	25.0
Vibrio infection	29	1	3.4	0	0.0	6	20.7	16	55.2	6	20.7

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

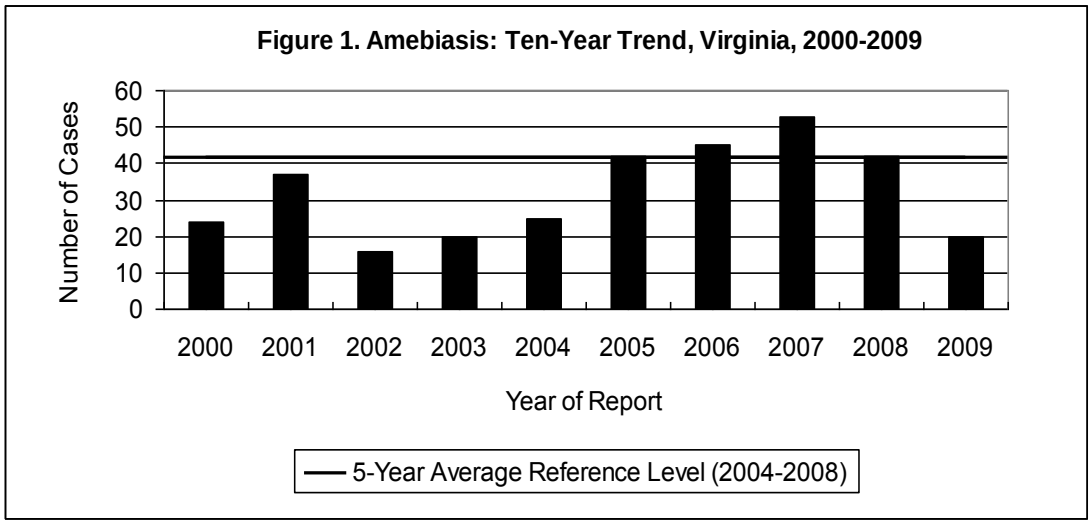
DESCRIPTIVE EPIDEMIOLOGY

OF

REPORTABLE DISEASES

Amebiasis

Agent: *Entameoba histolytica* (parasite)
Mode of Transmission: Ingestion of food or water contaminated with amebic cysts or by direct contact with fecal material from infected animals or people.
Signs/Symptoms: Most infections are asymptomatic. Symptomatic infections include diarrhea, which may become severe, bloody or contain mucus; lower abdominal pain; straining to pass stool or urine; weight loss; fever; chills; and constipation. Symptoms may become chronic.
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.
Other Important Information: Amebiasis is most common in people who live in tropical areas with poor sanitary conditions. In the United States, it is most common in people who travel to or emigrate from these tropical areas or in people living in institutions that have poor sanitation. Invasive amebiasis is mostly a disease of young adults and is rare in children under five years of age.



Twenty cases of amebiasis were reported in Virginia during 2009. This is a significant decrease (52%) from the 42 cases reported in 2008, and a similar decrease from the five- year average of 41.4 cases per year. It is the second consecutive annual decrease in reported cases from the peak in 2007 (Figure 1). One factor for the observed decrease in the number of reported cases is a change in the case definition that occurred in 2008 which states that laboratory-confirmed cases must also be symptomatic.
The 50-59 year age group had the highest incidence rate (0.5 per 100,000), followed by those aged 20-29 (0.4 per 100,000). No cases occurred in the <1 year age group. Because information on race was missing for 60% of reported cases, no statement can be made about the impact of race. Both males and females had incidence rates of 0.3 per 100,000. The largest proportion of cases (65%) and highest incidence rate (0.6 per 100,000) were seen in the northern region. The other regions had incidence rates of 0.1 to 0.3 per 100,000. While cases occurred throughout the year, 80% were reported during the first two quarters of the year.

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 and 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 were reported in Virginia during 2009. The last reported cases occurred in 2001. Two Virginia residents were reported with inhalation anthrax from an intentional release of *Bacillus anthracis* spores through the U.S. Postal Service. Both individuals were exposed at their workplace and both survived. These were the first reported cases of anthrax in Virginia since 1970.

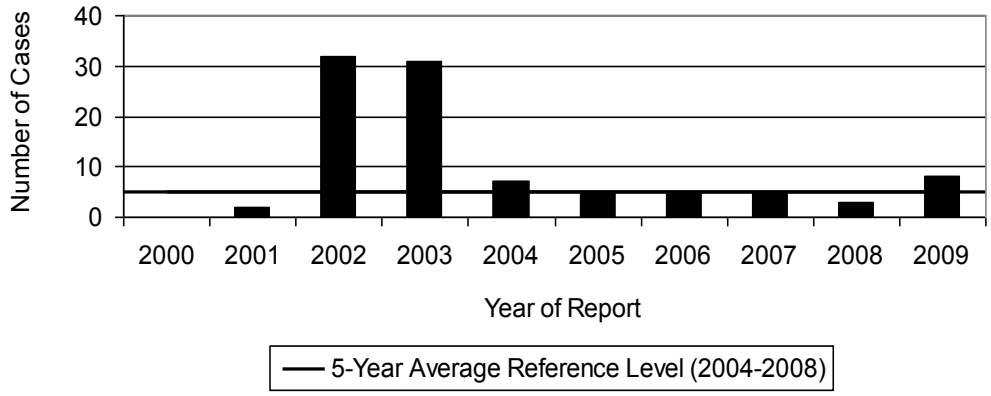
Arboviral Infection

Agent(s): In Virginia, the endemic agents of arboviral infection listed from most to least common are the mosquito-borne West Nile virus (WNV), LaCrosse encephalitis (LAC) virus, St. Louis encephalitis (SLE) virus and Eastern equine encephalitis (EEE) virus. Other arboviral agents reported in Virginia include the imported dengue virus and chikungunya virus.
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 or by cuts or punctures with contaminated scalpels or needles and, more rarely, through inhalation or ingestion of dust or particles from infected bird feces.
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 or as aseptic meningitis. 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 sequelae or death.
Prevention: Minimizing mosquito bites by avoiding areas infested by mosquitoes and, when in those areas, using mosquito repellents and wearing long-sleeved, loose fitting, light-colored clothing because mosquitoes are not attracted to light colors. Additional 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.

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.

Figure 2. Human Arboviral Infection: Ten-Year Trend, Virginia, 2000-2009



Human

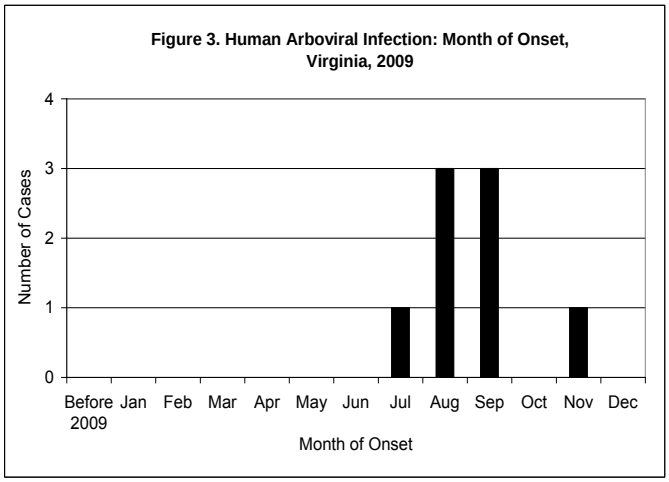
Eight human arboviral infections were reported in 2009, which exceeds the average of five arboviral infections recorded in Virginia over the past five years (Figure 2). Among the 2009 arboviral infections, one case of chikungunya virus infection was diagnosed in a Virginia resident who had just returned from India where the person became infected. The other seven infections were acquired in Virginia and included five WNV infections, one LAC virus infection and one Powassan virus infection.

WNV activity has decreased significantly since 2002 and 2003 when the virus first appeared in Virginia. The five cases identified in 2009 represent a slight increase from the five-year average of 3.4 WNV cases per year. All five WNV infections occurred in males over 40 years of age. Three of the cases occurred in urbanized jurisdictions of northern Virginia, including Alexandria, Manassas, and Fairfax County. Most of Virginia's WNV infections identified since 2002 have been from the northern region of the state. The other two WNV infections from 2009 occurred in rural areas of northwest Virginia.

The single case of LAC virus infection seen in 2009 occurred in a highly endemic area in the southwestern part of the state, and was reported in a female in the 1-9 year age group. On average, less than two cases of LAC virus infection are reported annually. The imported case of chikungunya occurred in a person from the central region who was in the 20-29 year age group.

The Powassan virus infection is the first ever recorded case in Virginia. The infection likely resulted from encountering ticks while deer hunting in the northwestern area of the state. The affected person was a male in the 60 year and older age group.

The majority of arboviral infections (80%) occurred in August and September, which is typical for arboviral disease in Virginia (Figure 3).



Animal

Zoonotic surveillance for WNV and EEE is conducted each year using mosquitoes, sentinel chickens and horses. There is no mosquito testing program for LAC or SLE viruses, but testing of horses or sentinel chickens is used to monitor for these viruses.

During 2009, over 396,854 mosquitoes were tested for WNV. Mosquitoes were tested as "pools" (i.e., batches of up to 50 mosquitoes). Of the 11,733 pools tested for WNV, 133 (1%) were positive (i.e., contained at least one WNV positive mosquito). In 2009, WNV positivity in the tested mosquito pools from northern Virginia was lower than in any year since 2001. This result may be partly due to changes in the laboratory that performs testing for the northern Virginia mosquito pools and in their testing procedures. In 2009, three horses with WNV infection were reported. The three horses were from Pittsylvania, Augusta, and New Kent counties, representing three different regions of the state. Sentinel chicken testing detected 16 WNV positive chickens in the Hampton Roads area of Virginia.

Of the 267,925 mosquitoes (6,266 pools) tested for EEE in the Hampton Roads region of Virginia, 141 (2%) pools were positive. Nine horses and two other mammals tested positive for EEE, all in Hampton Roads and adjacent regions of Virginia. Sentinel chicken testing for EEE detected 59 positive chickens in the Hampton Roads area.

Botulism

Agent: Neurotoxin produced by *Clostridium botulinum* (spore-forming, anaerobic bacteria)
Mode of Transmission: Ingestion of food that contains toxin and has not been sufficiently heated to inactivate the toxin (foodborne botulism); ingestion of food contaminated with spores that then germinate, multiply, and produce toxin in the intestine (intestinal botulism, formerly known as infant botulism); and contamination of wounds by ground-in soil or gravel or from improperly treated open fractures (wound botulism). *C. botulinum* is not transmitted from person to person.
Signs/Symptoms: 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. Intestinal 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. All three forms can result in descending, flaccid paralysis which can lead to cessation of breathing and death unless respiration is aided.
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, but much higher temperatures are required to kill the spores. To prevent intestinal 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. Wound botulism can be prevented by maintaining proper wound care and seeking medical care 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 2009. The only case in the preceding 5 years in Virginia occurred in 2007 in an adult female from the southwest region. The five-year average is 0.2 cases per year.

Intestinal

Four cases of intestinal botulism were reported in Virginia during 2009. This is higher than the three cases reported in 2008, and nearly three times the five-year average of 1.4 cases per year. Among the cases reported in 2009, two were in males and two were in females. Two cases were reported from the northwest region, one from the northern region, and one from the eastern region. One case was associated with ingestion of corn syrup.

Brucellosis

Agent: *Brucella* species (bacteria)
Mode of Transmission: Through contamination of skin wounds with infected animal tissue or body fluids; ingestion of unpasteurized milk or milk products; and inhalation of the organism.
Signs/Symptoms: Intermittent or irregular fever, headache, chills, sweating, and muscle pain.
Prevention: Rubber gloves should be used when handling animal tissue. Unpasteurized dairy products, especially milk, cheese, or ice cream, should not be consumed.
Other Important Information: Primarily an occupational disease of those working with infected animals, especially farm workers, veterinarians, and abattoir workers. 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.

Five cases of brucellosis were reported in 2009 compared with no cases between 2006 and 2008. In those cases where a species was identified, *B. melitensis* was detected in two cases and *B. abortus* was detected in a third case. *B. melitensis* is usually acquired from goats while *B. abortus* is usually acquired from cows. However, both are commonly transmitted to humans through unpasteurized milk or milk products that come from outside the United States. Four of the cases reported possible exposure to a cheese product imported from Central America. A definitive exposure was not provided for the remaining case.

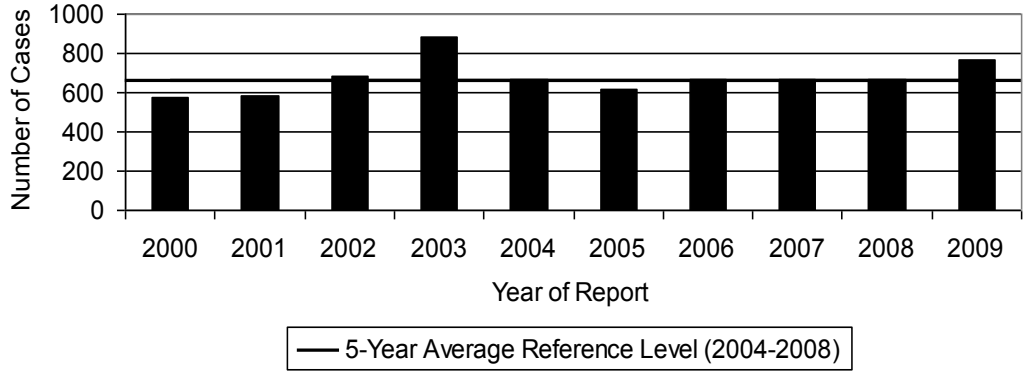
Two of the infections occurred in persons aged 20-29 years and the remaining three infections occurred in persons aged 30-39 years. Four of the five cases occurred in females. Four cases were reported from the eastern region, and the remaining case was reported from the central region.

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 that can develop include reactive arthritis, febrile convulsions or Guillain-Barré Syndrome.
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 thoroughly cooked.

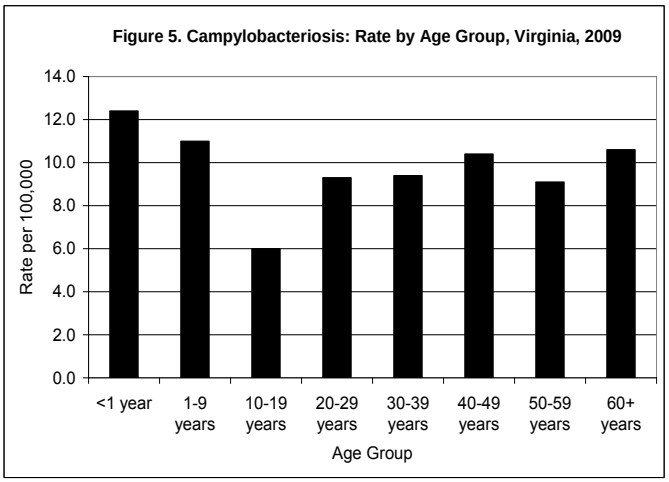
During 2009, 770 cases of campylobacteriosis were reported in Virginia. This is a 17% increase from the five-year average of 657.8 cases per year, and a 15% increase from the 669 cases reported in 2008 (Figure 4).

Figure 4. Campylobacteriosis: Ten-Year Trend, Virginia, 2000-2009



In 2009, the highest incidence of campylobacteriosis occurred in the <1 year age group (12.4 per 100,000). Rates in the other age groups ranged between 6.0 and 11.0 per 100,000 (Figure 5). Race information was missing for 49% of reported campylobacteriosis cases. Among cases for which race was reported, the incidence rate in the white population (6.1 per 100,000) was higher than in the black and "other" populations (2.1 and 2.6 per 100,000, respectively). The incidence rate among males (11.0 per 100,000) was higher than the rate among females (8.6 per 100,000).

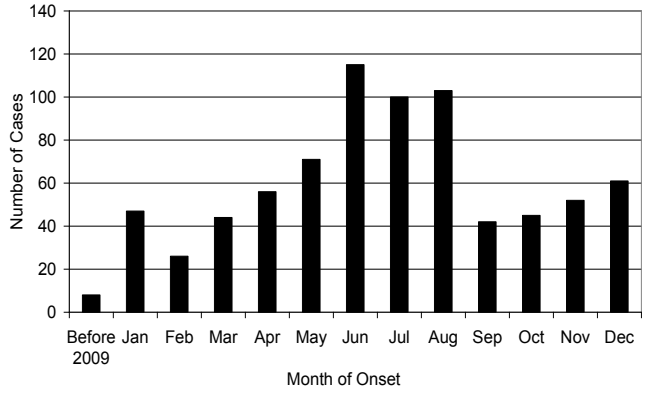
Figure 5. Campylobacteriosis: Rate by Age Group, Virginia, 2009



By region, the highest rates of disease occurred in the northwest and northern regions (14.0 and 11.3 per 100,000, respectively). Rates among the other regions were between 6.6 and 10.4 per 100,000. Cases occurred throughout the year, but by month, more cases occurred in June, July and August (Figure 6). Two campylobacteriosis outbreaks were reported during 2009 and both were reported from the central region. The first outbreak occurred in April and involved six members of a group who traveled on a missionary trip to a European country. The exposure likely occurred outside the U.S. and was suspected to be foodborne, but the food vehicle was undetermined.

The second outbreak occurred in August among lunch and dinner patrons of a restaurant, and guests of a wedding party who consumed food at the wedding reception that was prepared by the same restaurant. Seventeen persons reported gastrointestinal symptoms during this outbreak. Among cases reported in 2009, two deaths were attributed to campylobacteriosis. One occurred in a child from the eastern region, and the other in an adult from the northwest region.

Figure 6. Campylobacteriosis: Month of Onset, Virginia, 2009



Chancroid

Agent: *Haemophilis 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 is also possible.
Signs/Symptoms: Appearance of one or more sores or raised bumps on the genital organs. Sores are surrounded by a narrow red border and become filled with purulent secretion, and eventually rupture leaving a painful open lesion. The sore is soft to the touch, which is why the term soft chancre is frequently used to describe the chancroid ulcer. 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 cured.
Other Important Information: Chancroid is common in tropical countries. In the U.S., it usually occurs in discrete outbreaks. This disease is a cofactor for HIV transmission, as are genital herpes and syphilis. High rates of HIV infection among patients who have chancroid are seen in the United States and other countries.

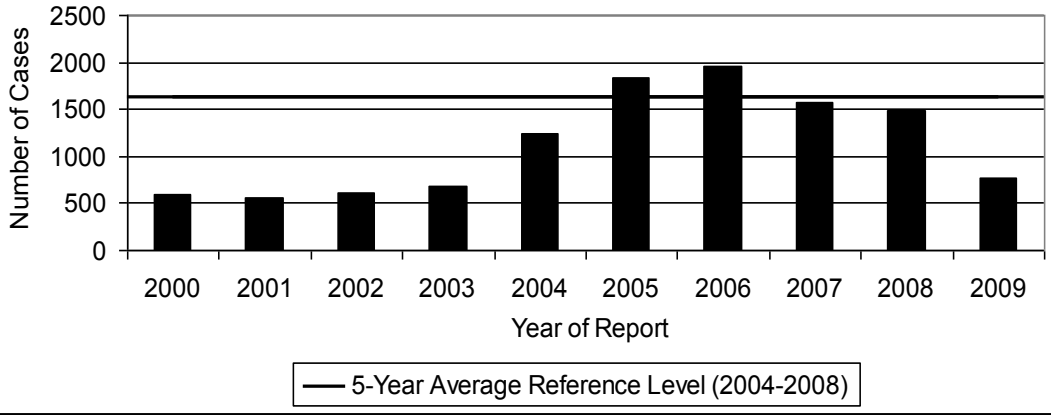
No cases of chancroid were reported in Virginia in 2009. The last reported case occurred in 2006.

Chickenpox (Varicella)

Agent: Varicella-zoster virus
Mode of Transmission: Person-to-person transmission by direct contact or through droplet or airborne spread of vesicle fluid or respiratory secretions from an infected person.
Signs/Symptoms: Acute onset of mild fever and vesicular rash. Successive crops of lesions appear first on the head and progress to the trunk and extremities. The skin lesions can appear on the scalp, armpit, and mucous membranes of the mouth and respiratory tract.
Prevention: Vaccination of 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. Acute varicella is generally mild and self-limited, but severe complications may occur.

The 773 cases of chickenpox reported in Virginia during 2009 represented a 48% decrease from the 1,489 cases in 2008, and was 52% lower than the five-year average of 1,620.8 cases (Figure 7). The drop in the number of cases in 2009 may be attributed to implementation of the recommendation for a second dose of vaccine.

Figure 7. Chickenpox: Ten-Year Trend, Virginia, 2000-2009



Varicella vaccine was licensed in 1995, and in 1999 vaccination became a requirement for entry into school and daycare in Virginia for all children born on or after January 1, 1997. However, continued outbreaks of chickenpox occurred despite high vaccination coverage, as a single dose of vaccine was found to be only 70-90% effective in preventing infection. As a result, recommendations for a second dose of varicella vaccine, to be administered before kindergarten entry, were published in June, 2007.

The majority of cases (87%) were reported in those less than 20 years of age. The 1-9 year age group had the highest incidence rate (39.1 per 100,000). This was followed by the 10-19 year age group (28.6 per 100,000) and the less than 1 year age group (23.0 per 100,000). The other age groups had much lower incidence rates, ranging from 0.4 to 3.2 cases per 100,000 and confirming that this disease primarily occurs in children and adolescents. Race data were not

provided for 28% of the reported cases. Among cases where race was known, incidence in the white population was highest (8.1 per 100,000), followed by rates in the "other" and black populations (4.9 and 4.8 per 100,000, respectively). The rate in males was slightly higher than the rate in females (11.0 and 8.7 per 100,000, respectively).

By region, the highest incidence (17.5 cases per 100,000) occurred in the northwest and was almost twice the rate found in other regions, which ranged between 7.7 and 9.9 cases per 100,000. This higher rate in the northwest region may be attributed to three large school-based outbreaks affecting one county in the region.

Cases occurred throughout the year, with the highest proportion of cases (59%) occurring during the first and second quarters of the year. This is consistent with the traditional seasonal fluctuation seen in chickenpox, with the highest incidence occurring in winter and early spring.

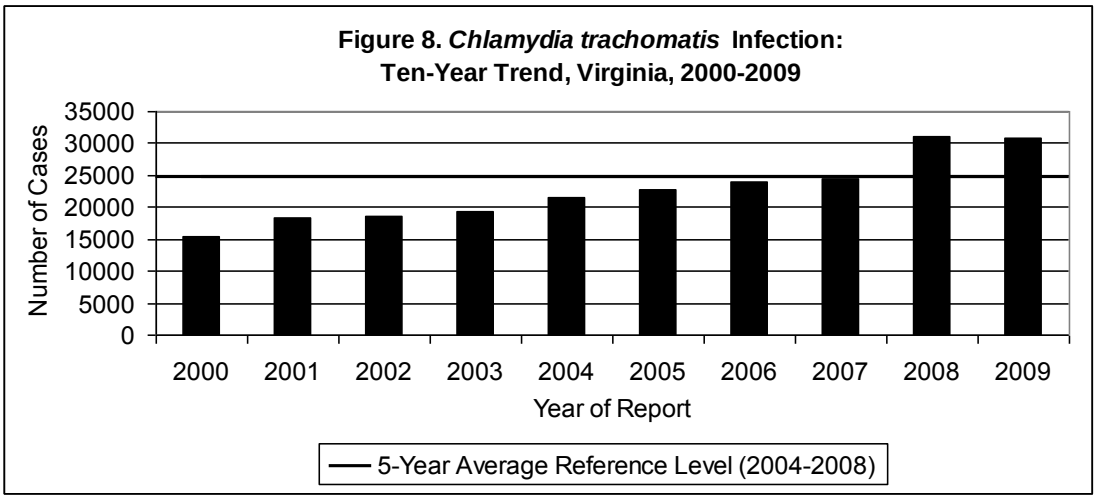
Eighteen outbreaks were reported in 2009, with an average of 11.3 cases per outbreak. All of the outbreaks involved school-aged children. This is fewer than the 24 outbreaks reported in 2008, indicating that the two-dose vaccination schedule is helping reduce the occurrence of illness in young children. While breakthrough infections have continued to occur in vaccinated individuals, on average, the illness in vaccinated individuals is much milder (i.e., less than 50 skin lesions, low or no fever, and a shorter duration of illness).

Chlamydia trachomatis Infection

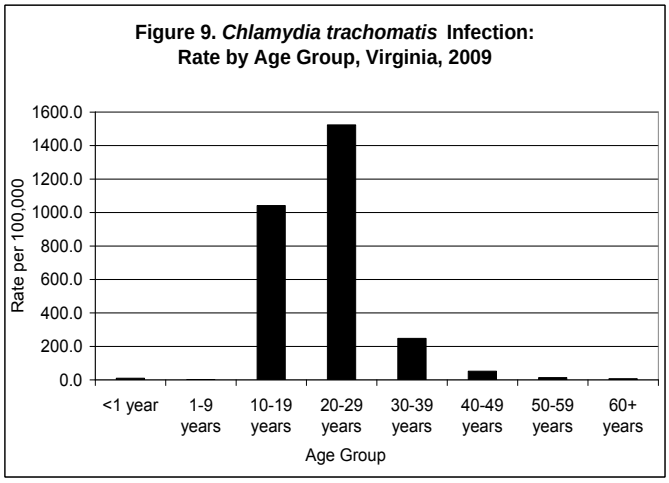
Agent: *Chlamydia trachomatis* (bacteria)
Mode of Transmission: Person-to-person via sexual transmission, or from the genital tract of an infected mother to her infant during birth.
Signs/Symptoms:
Men: Urethritis, with discharge, itching, and burning upon urination.
Women: Cervical inflammation with discharge, fluid buildup, and easily induced vaginal bleeding.
Infants: Infections of the eyes and respiratory tract.
Prevention: Preventive measures include adhering to safe sexual practices; screening of young women under 25 years of age; and presumptive treatment for *Chlamydia* infection among people who are exposed.
Other Important Information: Approximately 70% of infected women are asymptomatic.

During 2009, a total of 30,904 cases of *C. trachomatis* infection were reported in Virginia (Figure 8). This is a 24% increase over the average number of cases for the preceding 5 years, and is more than double the number of cases reported in 2000. The overall incidence rate in Virginia during 2009 was 397.8 per 100,000. Nationwide, the number of reported cases continues to rise. The steady increase in reported *C. trachomatis* infections may be attributed to the use of testing technology with improved sensitivity and specificity, as well as to increased infections. Despite the recent leveling in reported cases in Virginia during 2008 and 2009, the true number of annual infections remains undercounted. This undercounting is related to factors including the commonly asymptomatic nature of *C. trachomatis* infections, presumptive treatment for persons diagnosed with other sexually transmitted infections (e.g., gonorrhea) and

screening programs that have historically been limited to high-risk females and male partners of infected women. Although it is expected that more females will be tested than males because of current screening criteria, the number of males screened continues to increase. This increase in detection of disease among males is reflected in the current incidence rates.



In 2009, the highest rates were in the 20-29 year age group (1,523.6 per 100,000) followed by the 10-19 year age group (1,041.5 per 100,000) (Figure 9). Among *C. trachomatis* infections in the less than 1 year age group, six were ophthalmic (eye) infections due to perinatal exposure (see Ophthalmia Neonatorum section). Incidence in the black population (964.5 per 100,000) was more than ten times the rate in the white population (93.9 per 100,000) and almost three times the rate in the "other" population (333.3 per 100,000). The rate of *C. trachomatis* infection in females (566.6 per 100,000) was 2.6 times the rate in males (221.1 per 100,000).



Since 2001, the eastern region has experienced the highest *C. trachomatis* infection rates in Virginia (703.4 per 100,000 in 2009). The lowest rate in 2009 occurred in the northern region (196.2 per 100,000).

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 unlikely to spread directly from one person to another.
Signs/Symptoms: Sudden onset of profuse, painless watery stools, often described as rice-water stool, provoked by an enterotoxin that affects the small intestine. Nausea and profuse vomiting occur early in the course of illness. In untreated cases, rapid dehydration, acidosis, circulatory collapse, hypoglycemia in children and renal failure can rapidly lead to death. In most cases infection is asymptomatic or causes mild diarrhea.
Prevention: Two oral cholera vaccines (OCVs) provide significant protection for several months against cholera caused by O1 strains. One is a live vaccine and the other vaccine is inactivated. OCVs are mainly used by travelers from industrialized countries. Measures that inhibit or otherwise compromise the movement of people, foods or other goods are not epidemiologically justified and have never proved effective to control cholera.
Other Important Information: In severely dehydrated cases (cholera gravis), death may occur within a few hours and the case-fatality rate may exceed 50%. With proper and timely rehydration, this can be less than 1%.

No cases of cholera were reported in Virginia in 2009. The last case of cholera in Virginia occurred in 1994.

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.

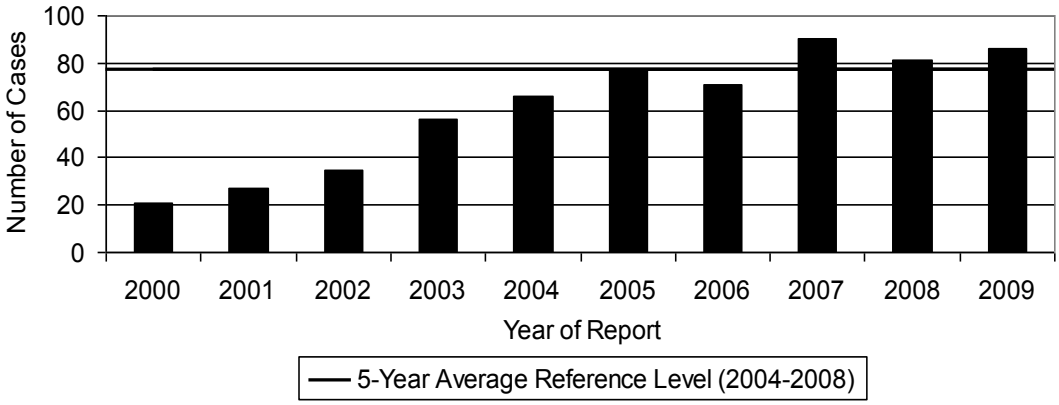
No cases of Creutzfeldt-Jakob disease in persons less than 55 years of age were reported in Virginia during 2009. The last reported case occurred in 2007 in a white male in the 30-39 year age group, and the infection was determined to be classic CJD. The individual died as a result of this condition. There have been six cases of classic CJD infection diagnosed in Virginia residents less than 55 years of age since 1998.

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 contaminated cattle products consumed as a child when living in Saudi Arabia. It was the third case of vCJD reported in a U.S. resident. The two previously reported cases were born and raised in the United Kingdom, where they were believed to have been infected.

Cryptosporidiosis

Agent: *Cryptosporidium parvum* (parasite)
Mode of Transmission: Occurs via the fecal-oral route and can include person-to-person, animal-to-person, foodborne and waterborne transmission. *Cryptosporidium* oocytes can remain infectious for 2-6 months after being excreted from infected individuals. The oocytes are very resistant to chemicals used to purify drinking water.
Signs/Symptoms: Profuse watery diarrhea with cramping and abdominal pain. The diarrhea may be preceded by anorexia and vomiting in children. 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.

Figure 10. Cryptosporidiosis: Ten-Year Trend, Virginia, 2000-2009



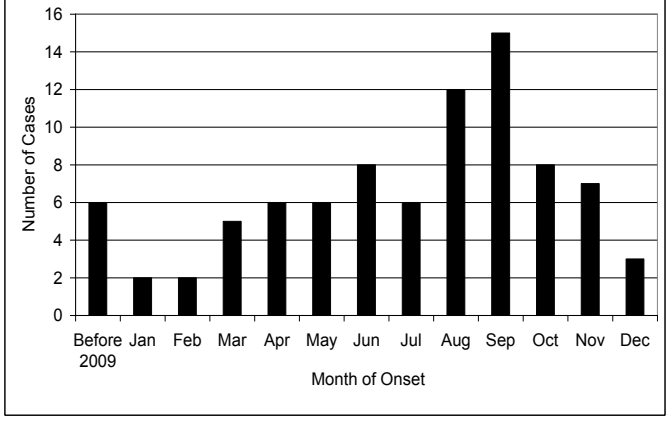
Eighty-six cases of cryptosporidiosis were reported in Virginia during 2009. This is a 6% increase from the 81 cases reported in 2008 and a 12% increase from the five-year average of 77 cases per year (Figure 10). The 86 cases reported in 2009 contribute to an overall upward trend

in reported cryptosporidiosis cases seen throughout the past decade in Virginia, and mirror an upward trend in reported cases seen nationally.

In 2009, the highest incidence rates occurred in the 1-9 year age group (2.9 per 100,000), followed by the 60 year and older age group (1.8 cases per 100,000). The other age groups had rates between 0.8 and 1.1 per 100,000. Race was not reported for 31% of cases, but among those with information on race, the white, black and "other" race populations had similar rates of infection (0.8, 0.6 and 0.5 per 100,000, respectively). The rate of infection among males was slightly higher than that among females (1.3 compared with 0.9 per 100,000), reversing the pattern seen in 2008.

By region, the highest rate was reported from the northwest region (1.9 per 100,000). The other regions had rates between 0.6 and 1.3 per 100,000. A seasonal trend was observed, with the fewest cases (15%) seen during the winter months of December through February and a peak (31%) in August and September (Figure 11). One or more risk factors were identified in 87% of the reported cases. The most frequently reported risk factor was contact with animals (35 cases, 41%), followed by consumption of untreated water (30 cases, 35%). Other noted risk factors included 20 cases (23%) with a recent history of travel, and 15 cases (17%) with an exposure to recreational waters. Among cases reported in 2009, no deaths were attributed to cryptosporidiosis.

Figure 11. Cryptosporidiosis: Month of Onset, Virginia, 2009



Cyclosporiasis

Agent: *Cyclospora cayetanensis* (parasite)
Mode of Transmission: Consumption of food or water contaminated with feces containing the infective parasite. Direct person-to-person transmission is unlikely because the parasites excreted in stool require days to weeks outside the host to become infectious.
Signs/Symptoms: Profuse watery diarrhea commonly occurs, along with nausea, vomiting, anorexia, substantial weight loss, abdominal bloating or cramping and prolonged fatigue. Fever occurs in approximately half the patients.
Prevention: Fresh produce should be washed thoroughly before it is consumed.
Other Important Information: The parasite is resistant to chlorination.

One case of cyclosporiasis was reported during 2009. This is similar to the five-year average of 1.6 cases per year. The reported case was a female in the 20-29 year age group from the northwest region with no history of travel prior to onset of illness. While consumption of fresh produce was reported, the source of exposure was not identified.

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 vaccination beginning at two months of age. Antibody levels wane over time making booster doses necessary every 10 years, beginning at age 11-12 years.
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.

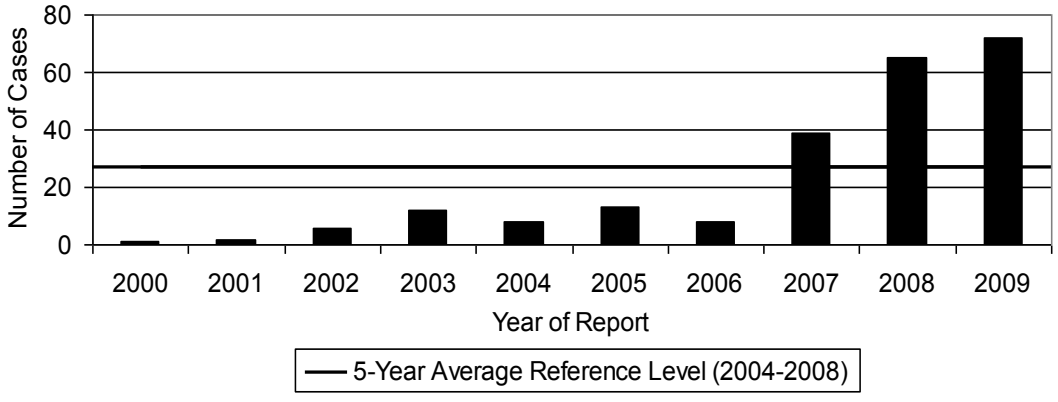
No cases of diphtheria were reported in Virginia during 2009. The last reported case occurred in 1989. Nationally, zero to five cases of diphtheria are reported each year.

Ehrlichiosis/Anaplasmosis

Agent(s): Bacteria belonging to the family *Anaplasmataceae*. *Ehrlichia chaffeensis* infects monocytes and causes an illness called human monocytic ehrlichiosis (HME). *E. ewingii* infects granulocytes 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. *Ehrlichia chaffeensis* and *E. ewingii* may infect adult or occasionally nymphal stage lone star ticks. *Anaplasma phagocytophilum* may infect nymphal stage blacklegged ticks, formerly known as deer ticks. Transmission of these pathogens occurs when an infected tick bites a person and feeds (i.e., remains attached) for a period of more than 24 hours.
Signs/Symptoms: Symptoms are usually non-specific, but commonly include fever, headache, nausea, anorexia, vomiting, and muscle pain. Blood work may be characterized by anemia, leukopenia, thrombocytopenia, or elevated hepatic transaminases. Untreated infections may result in prolonged fever, renal failure, respiratory distress, seizures, coma and death. Neurological symptoms due to inflammation of the brain and the lining around the brain and spinal cord develop in 20% of patients with HME, but are uncommon with HGA.
Prevention: Minimizing tick bites by avoiding likely tick habitats such as humid forest environments with dense undergrowth or heavy leaf litter, and tall weeds along forest margins, tree lines, forest trails and forest clearings. DEET, Picaridin, or Oil of Lemon Eucalyptus-based repellents 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 habitats, body surfaces and pets should be thoroughly checked for ticks and, if found, attached ticks should be removed as soon as possible.

Seventy-two cases of ehrlichiosis/anaplasmosis were reported in Virginia during 2009. This is an 11% increase from the 65 cases seen in 2008 and a 171% increase from the five-year average of 26.6 cases per year (Figure 12). The reason for this considerable increase is unknown. It may be partially explained by changes in diagnosis and reporting, and may be related to the growing deer populations, particularly in recently developed suburban areas where deer populations were previously maintained by hunting. Adult lone star ticks and blacklegged ticks both depend on deer blood for their reproduction and deer serve as a reservoir for *Ehrlichia chaffeensis*. Among cases reported in 2009, 68 were specified as HME, and four were specified as HGA.

Figure 12. Ehrlichiosis/Anaplasmosis: Ten-Year Trend, Virginia, 2000-2009



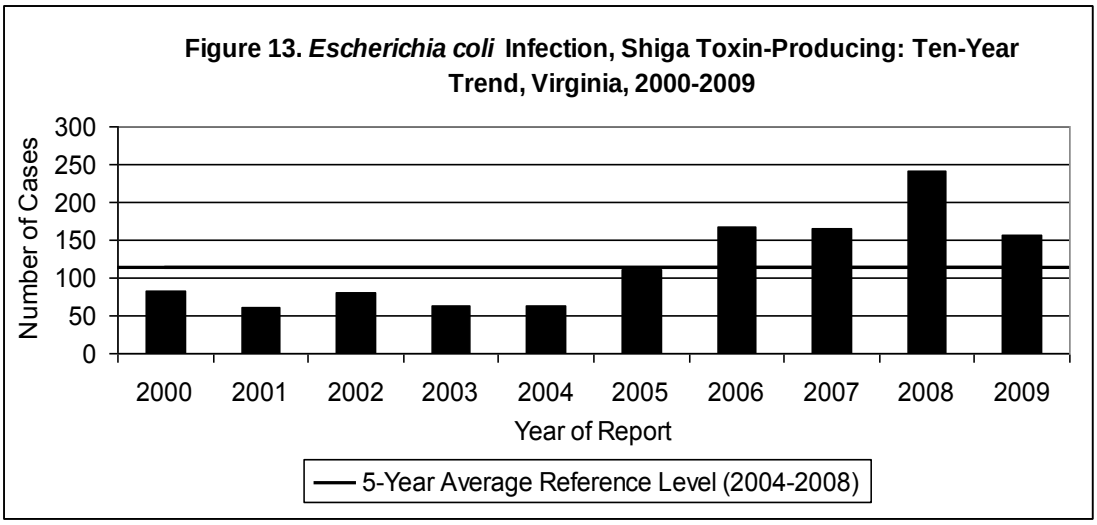
In 2009, ehrlichiosis/anaplasmosis incidence was highest in the 60 year and older age group with 2.2 cases per 100,000. Incidence decreased with age, ranging from 1.5 per 100,000 in the 50-59 year age group to 0.1 per 100,000 in the 1-9 year age group. No cases were reported from the less than one year age group. This is similar to the age pattern for ehrlichiosis/anaplasmosis observed in other endemic areas of the United States, where infections occur predominantly among those over the age of 50 years. Incidence in the white population was more than twice that in the black population (0.7 and 0.3 per 100,000, respectively). The rate in males was almost double the rate in females (1.2 and 0.7 per 100,000, respectively).

Cases were reported from all regions of the state. The northwest region had the highest incidence of ehrlichiosis/anaplasmosis, at 2.1 cases per 100,000, followed by the southwest region at 1.4 per 100,000. Rates in the remaining regions of the state ranged from 0.1 to 1.3 per 100,000, respectively. The vast majority of cases (93.1%) had onsets in the second and third quarters, which represents the time of year when ticks are most actively feeding.

Escherichia coli Infection, Shiga Toxin-Producing

Agent: Shiga toxin-producing *Escherichia coli* (bacteria)
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.
Signs/Symptoms: Non-bloody to bloody diarrhea 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°. Raw milk, unpasteurized dairy products, and unpasteurized juices should not be consumed.
Other Important Information: The most virulent serotype in the shiga toxin-producing pathotype 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 section on Hemolytic Uremic Syndrome for more information.

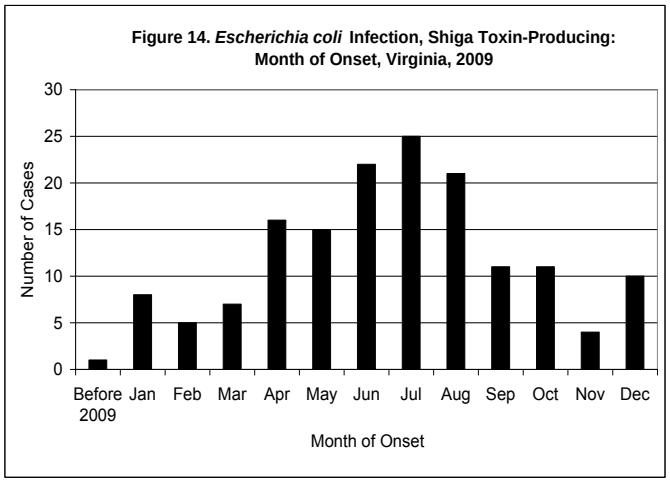
Figure 13. *Escherichia coli* Infection, Shiga Toxin-Producing: Ten-Year Trend, Virginia, 2000-2009



Shiga toxin-producing *E. coli* infection has been a reportable condition in Virginia since 1999. During 2009, 156 cases were reported in the state. This is a 35% decrease from 2008, and a 4% increase from the five-year average of 149.4 cases per year (Figure 13).

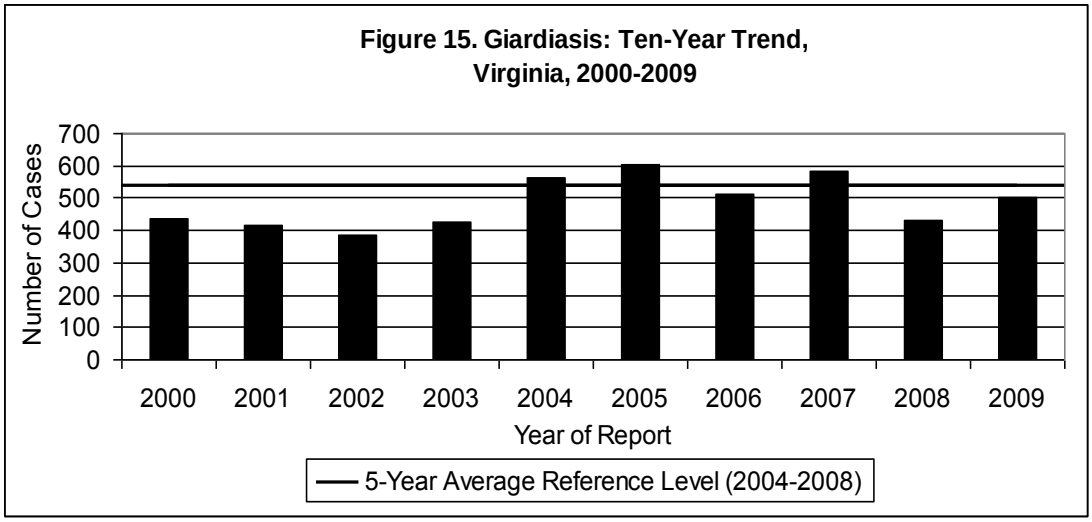
The highest rate of infection was seen in the less than one year age group (8.6 per 100,000), followed by the 1-9 year age group (6.7 per 100,000) Other age groups had incidence rates between 0.4 and 2.5 per 100,000. Information on race was not available for 53% of the cases. Among those with race information, the rate for the white population was higher (1.2 per 100,000) than rates for the black and "other" populations (0.3 and 0.4 per 100,000, respectively). Females and males had similar incidence (2.1 and 1.9 per 100,000, respectively). The northwest and northern regions reported the highest incidence rates (3.2 and 2.8 per 100,000, respectively),

whereas incidence rates in the other regions ranged from 0.9 to 1.7 per 100,000. The lowest incidence rate was observed in the eastern region. Cases occurred throughout the year, but peaked in the warmer months, between April and August (Figure 14). One outbreak attributed to *E. coli* infection was reported during 2009. The multistate outbreak involved 72 cases, two of which were Virginia residents, and was associated with consumption of raw cookie dough.



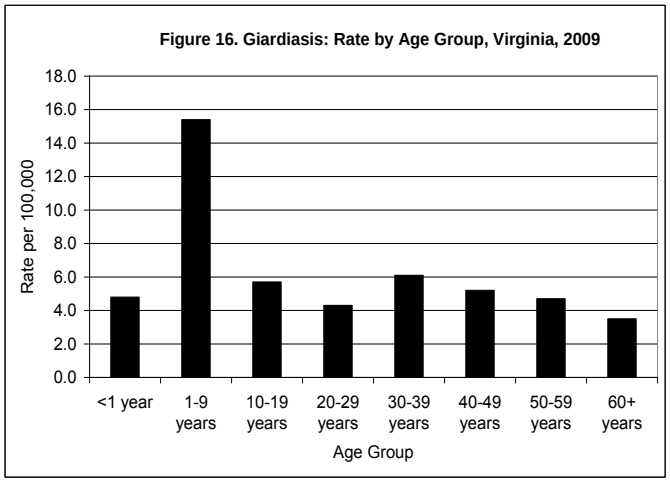
Giardiasis

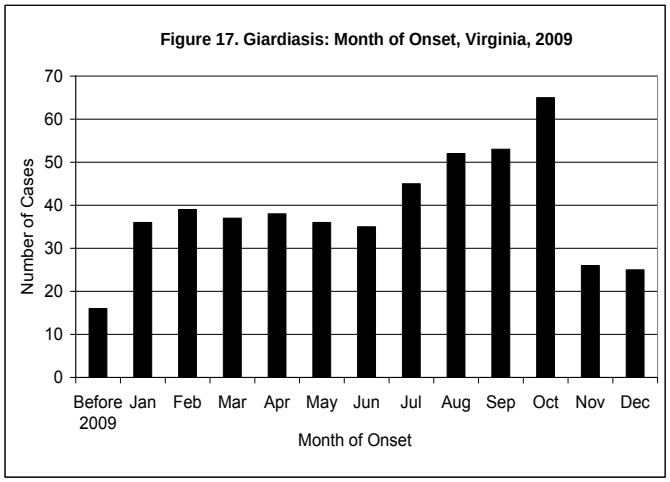
Agent: *Giardia lamblia* (parasite)
Mode of Transmission: Person-to-person transmission by hand-to-mouth transfer of cysts from the feces of an infected person. Localized outbreaks are more often due to ingestion of cysts in fecally-contaminated drinking and recreational water (e.g., lakes, rivers, springs, 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.



During 2009, 503 cases of giardiasis were reported in Virginia. This is a 16% increase from the 432 cases reported in 2008, but is 6% lower than the five-year average of 538.6 cases per year (Figure 15). An investigation conducted by VDH in 2007 indicated that the increase in cases observed during 2004 through 2007 was at least partly attributed to infections identified through screening of refugees who had recently arrived in the United States. Among the cases reported in 2009, 34% were documented as being acquired outside the country.

In 2009, 28% of cases occurred in the 1-9 year age group, and most of these (over 60%) occurred in pre-school aged children. The incidence rate in the 1-9 year age group (15.4 cases per 100,000) was more than twice the rate in any other age group (3.5 to 6.1 per 100,000) a (Figure 16). This elevated incidence of giardiasis in the 1-9 year age group is a consistent pattern in Virginia and is observed nationally. Of the 146 reported cases of giardiasis in children less than ten years of age, 104 (71%) were refugees or listed as having acquired the disease outside the country. Race was not reported for 62% of the cases, but among those with a reported race, rates were higher in the "other" populations (7.1 per 100,000) than among the black or white populations (2.3 and 2.1 per 100,000, respectively). A higher rate was seen in the male population (7.5 per 100,000) than in the female population (5.3 per 100,000).





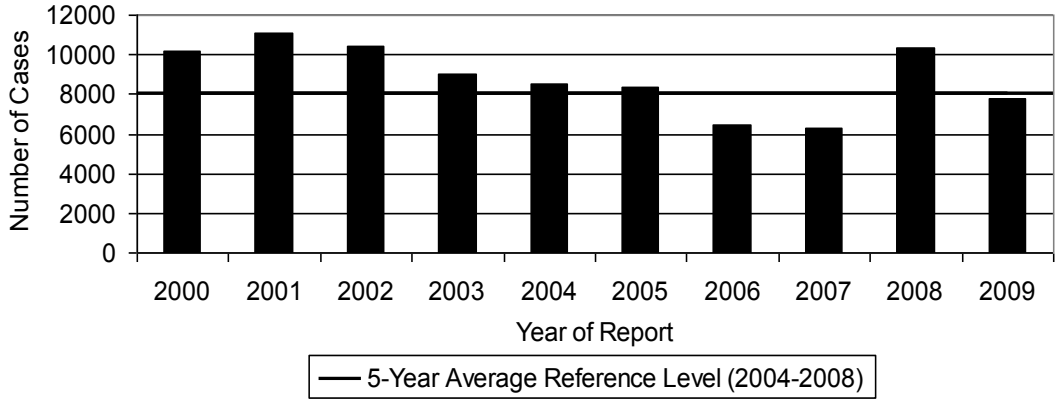
By region, the highest incidence rates were seen in the northern and northwest regions (8.5 and 8.1 per 100,000, respectively). Rates in the other regions ranged from 4.0 to 6.4 per 100,000. Illness onset peaked during July through October, with 43% of cases occurring during these four months (Figure 17).

Gonorrhea

Agent: *Neisseria gonorrhoeae* (bacteria)
Mode of Transmission: Sexually transmitted through direct contact with infected areas.
Signs/Symptoms: Infected men can have a burning sensation while urinating and a discharge from the urethra. Infected women are usually asymptomatic, although vaginal discharge or bleeding after intercourse may occur.
Prevention: Preventive measures include safe sexual practices and ensuring that infected sexual contacts are treated.
Other Important Information: In 2004, CDC stopped recommending fluoroquinolones as a first-line treatment of gonorrhea in men who have sex with men (MSM) because of an increase in fluoroquinolone resistance. Since April 2007, CDC has advised providers not to use fluoroquinolones (e.g., ciprofloxacin, ofloxacin, and levofloxacin) for the treatment of any gonorrhea infection. In April 2008, cefixime became available again for distribution in the United States. A single 400 mg dose of cefixime is the only oral treatment for uncomplicated gonorrhea of the cervix, urethra or rectum recommended by CDC.

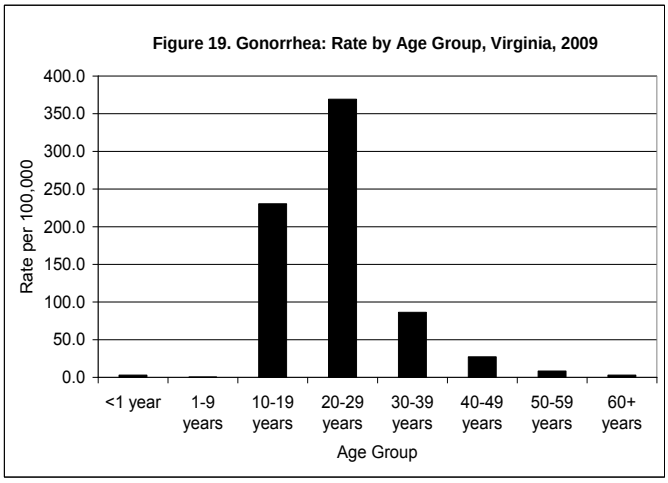
According to CDC, gonorrhea is substantially under-diagnosed and underreported, and approximately twice as many new infections are estimated to occur as are reported each year. In Virginia, reported cases of gonorrhea declined from 2001 to 2007. The number of reported cases subsequently increased in 2008 to 10,336 before dropping by 25% to 7,791 cases in 2009. Morbidity from 2009 was approximately equivalent to the five-year average of 7,997.6 cases per year (Figure 18).

Figure 18. Gonorrhea: Ten-Year Trend, Virginia, 2000-2009



A comparison of age groups indicates that the incidence of gonorrhea is highest in the 20-29 year age group (369.2 per 100,000 population), followed by the 10-19 year age group (230.3 per 100,000 population) (Figure 19). The rate in the black population (359.2 per 100,000) was 26 times the rate in the white population (13.5 per 100,000). Gonorrhea remains the sexually transmitted disease with the most significant racial disparity in Virginia.

Gonorrhea incidence rates were higher among females compared with males (109.2 and 90.8 per 100,000, respectively). The eastern region had the highest incidence rate (209.8 per 100,000), followed by the central region (161.7 per 100,000). Among the other regions in the state, incidence ranged from 30.2 to 57.8 per 100,000.



Granuloma Inguinale

Agent: *Calymmatobacterium granulomatis* (bacteria)
Mode of Transmission: Direct contact with lesions, presumably during sexual activity. Young children can become infected by contact with infectious secretions.
Signs/Symptoms: Skin lesions that eventually form fibrous tissue. This is a chronic condition that can lead to 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.

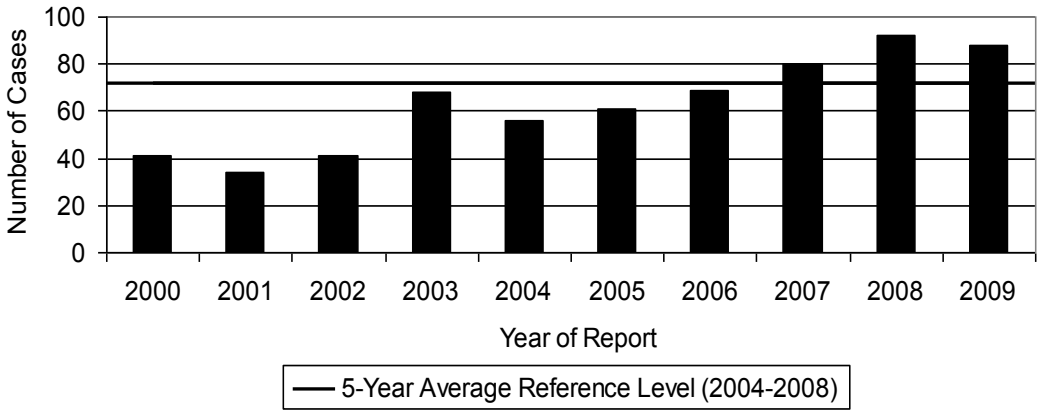
No cases of granuloma inguinale were reported in Virginia during 2009. The last reported case occurred in 2001.

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 discharge during the infectious period.
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 conjugate *Haemophilus influenzae* type b (Hib) vaccine beginning at 2 months of age and including a booster at 12 to 15 months of age.
Other Important Information: 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* 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.

Eighty-eight cases of invasive *H. influenzae* infection were reported in Virginia during 2009. This is a 4% decrease from the 92 cases reported in 2008, and a 23% increase from the five-year average of 71.6 cases per year (Figure 20).

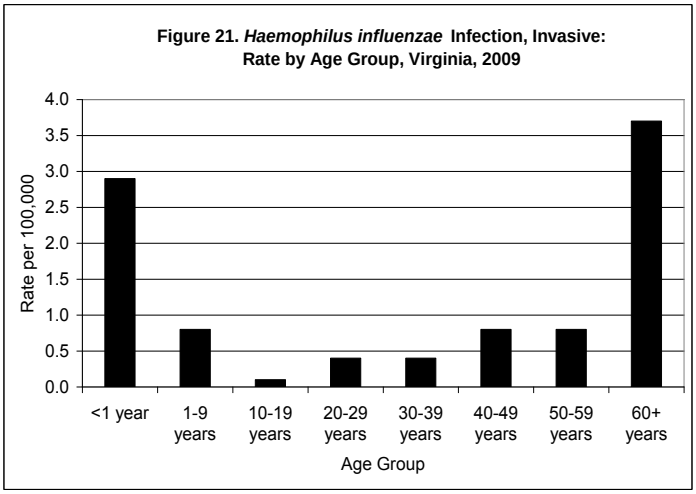
Figure 20. *Haemophilus influenzae* Infection, Invasive: Ten-Year Trend, Virginia, 2000-2009



Incidence rates were highest in the oldest and youngest age groups. Adults in the 60 years and older age group had a rate of 3.7 per 100,000, while children less than 1 year of age had a rate of 2.9 per 100,000 (Figure 21). The other age groups had rates ranging from 0.1 to 0.8 per 100,000. Race information was unknown for 22% of the reported cases. Among those for which race information was available, the white population had a higher rate than the black population (1.0 and 0.7 per 100,000, respectively). No cases were reported from the "other" population. Incidence in females and males was the same, 1.1 per 100,000. The northwest region had the highest rate (2.0 per 100,000), followed by the southwest region (1.6 per 100,000). The other regions had rates ranging from 0.7 to 0.9 per 100,000. Cases occurred throughout the year with a slightly higher (30%) proportion occurring in the first quarter.

Vaccination status at time of disease was known for 6 (67%) of the 9 children under five years of age. Four of these children were age-appropriately vaccinated with three doses each and two of the children were too young to be vaccinated at the time of onset. The serotype for individual isolates was reported for 68 (77%) of the cases; one of these isolates was confirmed as type b, the serotype addressed by the vaccine, and occurred in an adult from the 30-39 year age group. For all other isolates with an identified serotype, 40 (59%) were reported to be nontypable from the non-encapsulated strains, 14 (21%) were type f, eight (12%) were type e, four (6%) were non-type b, and one isolate was type d. Among cases reported in 2009, six deaths were attributed to invasive *H. influenzae* infection, all of which occurred in persons greater than 60 years of age.

Figure 21. *Haemophilus influenzae* Infection, Invasive: Rate by Age Group, Virginia, 2009



Hansen Disease (Leprosy)

Agent: *Mycobacterium leprae* (bacteria)
Mode of Transmission: Person-to-person transmission, probably through respiratory droplets from persons with untreated lepromatous disease (those with discolored spots on the skin).
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.
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.

No cases of Hansen disease were reported in Virginia during 2009. The last reported case occurred in 2007 in an adult male immigrant from South America where the disease was likely to have been acquired. The five-year average for the occurrence of this condition in Virginia is less than one case per year.

Hantavirus Pulmonary Syndrome

Agent: Hantavirus family
Mode of Transmission: Several different types of hantaviruses have been identified 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. Person-to-person transmission does not occur.
Signs/Symptoms: Fever, muscle pain, and gastrointestinal complaints 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. Approved respirators should be used to avoid inhalation of dust when cleaning or removing potentially infected materials. Contaminated areas should be cleaned with a wet mop and not be vacuumed or swept.
Other Important Information: Although most common in the southwestern part of the country, hantavirus infections can occur anywhere. In the United States, the deer mouse (*Peromyscus maniculatus*) is the primary reservoir of the hantavirus that causes this syndrome.

No cases of hantavirus pulmonary syndrome (HPS) were reported in Virginia during 2009. The only hantavirus case reported in Virginia occurred in 1993. In 2004, a resident of southwest Virginia died due to HPS following an exposure that occurred in West Virginia. For surveillance purposes, that case was attributed to West Virginia.

Hemolytic Uremic Syndrome

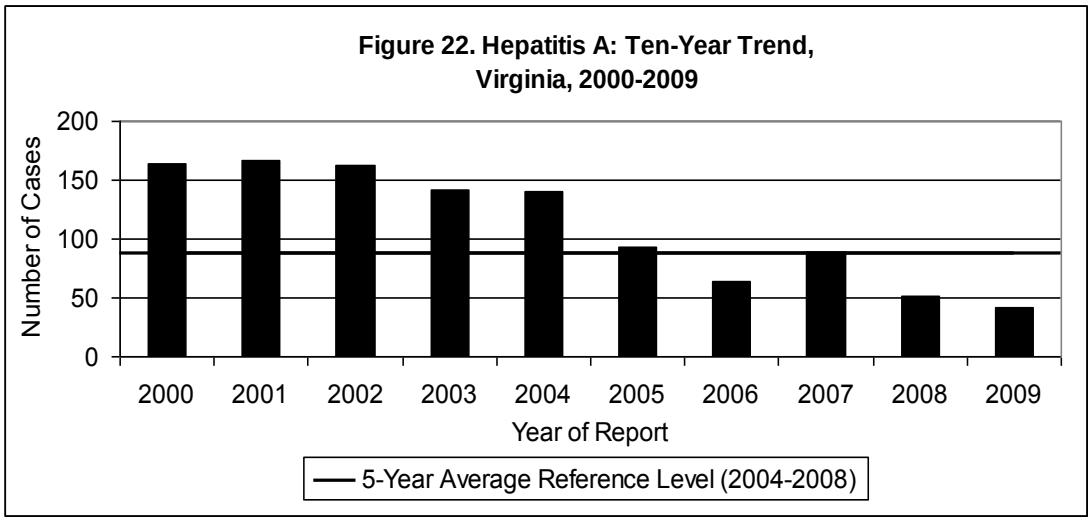
Agent: Serious sequelae associated with infection with shiga toxin-producing bacteria, such as *Escherichia coli* or *Shigella*.
Mode of Transmission: See section on *E. coli* Infection, Shiga Toxin-Producing or Shigellosis.
Signs/Symptoms: Classic signs of hemolytic uremic syndrome (HUS) include red 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: See section on *E. coli* Infection, Shiga Toxin-Producing or Shigellosis.
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 20% of children with *E. coli* O157 infection. See section on *E. coli* Infection, Shiga Toxin-Producing or Shigellosis.

Two cases of HUS were reported in 2009. This is slightly more than the five-year average of 1.4 cases per year. One case was attributed to shiga toxin-producing *E. coli*, while no organism was found to be associated with the other case. Both illnesses occurred in children in the 1-9 year age group. One case was reported from the southwest region and the other from the central region. One occurred in the second quarter and the other occurred in the third quarter of the year.

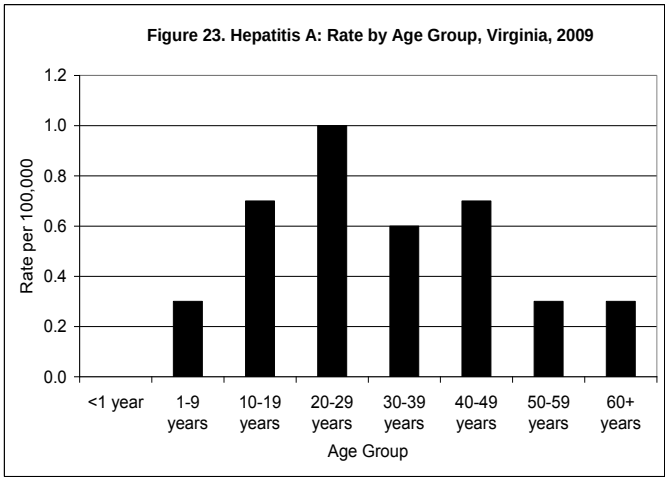
Hepatitis A

Agent: Hepatitis A virus (Picornaviridae family)
Mode of Transmission: Person-to-person transmission by direct contact with fecal material from infected animals or people. Important vehicles for transmission include food or water contaminated by infected animals or people.
Signs/Symptoms: Fever, malaise, nausea, abdominal discomfort, 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). Administering 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.

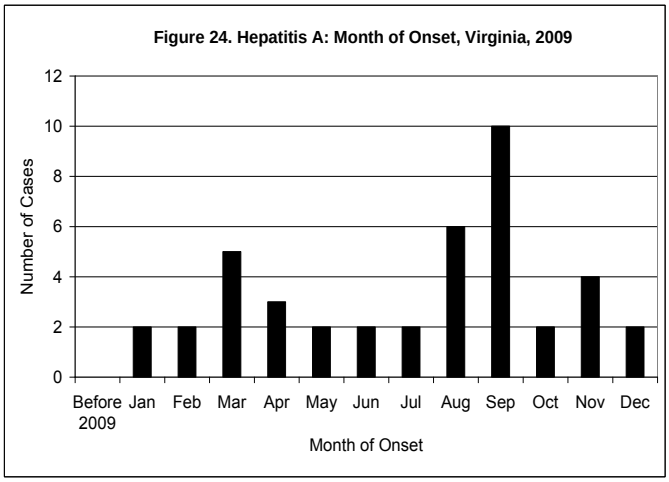
Reports of acute hepatitis A in Virginia have shown a general decline that began in 2002. The 42 cases reported in 2009 represent an 18% decrease from the 51 cases reported in 2008 and a 52% decrease from the five-year average of 87.4 cases per year (Figure 22). This downward trend in acute hepatitis A cases reflects a national pattern which began in the late 1990s. The introduction of hepatitis A vaccine in 1995 is most likely responsible for this decrease



In Virginia in 2009, the highest incidence rate occurred in the 20-29 year age group (1.0 per 100,000) (Figure 23). Rates in the other age groups ranged from 0.0 (in infants) to 0.7 per 100,000 (10-19 age group and 40-49 year age group). Forty-five percent of cases were missing race information. Among cases with race reported, the rate in the "other" race group was highest (1.3 per 100,000), while the rate in the white and black populations was the same (0.2 per 100,000). Females and males had similar rates of infection (0.6 and 0.5 per 100,000, respectively).



The incidence rate observed in the northern region (1.1 per 100,000) was twice the observed rate for the entire state (0.5 per 100,000). The second highest rate occurred in the central region (0.6 per 100,000). Rates in the other regions ranged from 0.2 to 0.4 per 100,000. Cases occurred throughout the year, with 43% of cases developing during the third quarter, and of those, 10 (56%) occurred in September (Figure 24). No outbreaks of hepatitis A were reported in Virginia. A potential common source exposure was not identified for the cases that occurred in September, but seven of these ten cases that were interviewed for risk factors reported recent international travel.

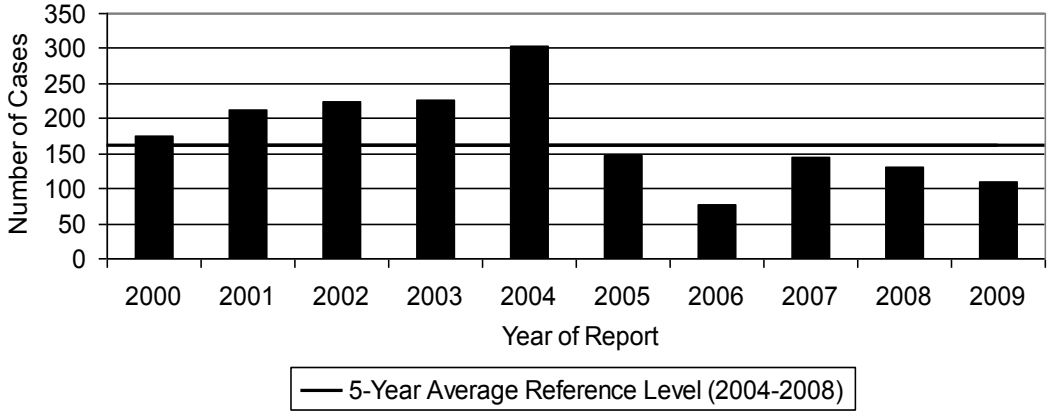


Hepatitis B, Acute

Agent: Hepatitis B virus (Hepadnavirus)
Mode of Transmission: Person-to-person transmission by blood or body fluid exposure (e.g., sexual, perinatal, or through the skin, such as during injection drug use).
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 that 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 may lead to chronic (i.e., long-term) infection. Death from liver disease occurs in 15%-25% of those with chronic infection.

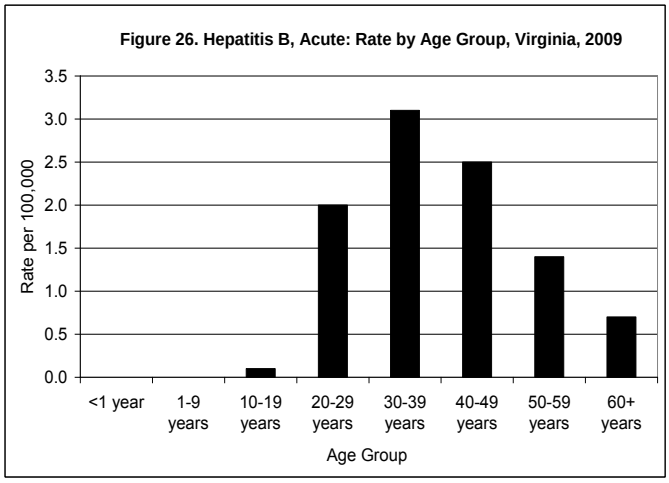
The 110 cases of acute hepatitis B reported in Virginia during 2009 represent a 15% decrease from the 130 cases reported in 2008, and a 31% decrease from the five-year average of 160.2 cases per year (Figure 25).

Figure 25. Hepatitis B, Acute: Ten-Year Trend, Virginia, 2000-2009



By age group, the highest incidence rate was seen in the 30-39 year age group (3.1 per 100,000), followed by the 40-49 and the 20-29 year age groups (2.5 and 2.0 per 100,000, respectively) (Figure 26). Only one case was reported in a person under the age of 20 years. Fifty-two percent of reports were missing race information. Among cases with race reported, the rate in the black population (1.5 per 100,000) was more than two times the rate in the white population (0.6 per 100,000), and nearly four times the rate in the "other" population (0.4 per 100,000). The rate of occurrence in males was slightly higher than the rate in females (1.6 and 1.2 per 100,000, respectively). The central region had the highest rate of new acute hepatitis B infections (3.1 per 100,000). The other regions had rates between 0.7 and 1.4 per 100,000. Acute hepatitis B infections do not have a seasonal pattern.

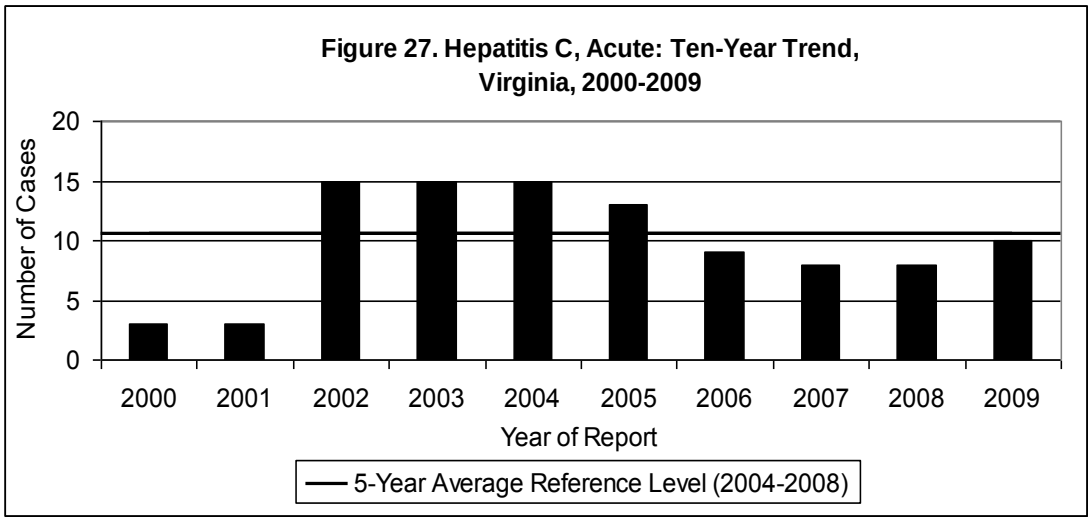
Of cases with identified risk factors, having multiple sex partners was the most frequently reported potential source of infection. During 2009, VDH conducted an investigation of acute hepatitis B infections among residents of an assisted living facility in the central region. This led to the identification of thirteen acute hepatitis B infections among residents and staff, which were attributed to sharing of blood glucose monitoring equipment. Among the cases reported in 2009, two deaths in adults (one male and one female) were attributed to acute hepatitis B infection.



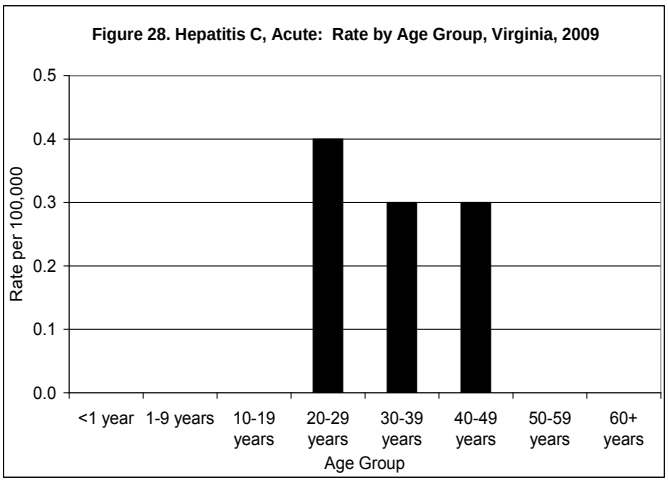
Hepatitis C, Acute

Agent: Hepatitis C virus (HCV) (Flaviviridae family)
Mode of Transmission: Person-to-person transmission through the skin, such as during injection drug use, or blood, such as transfusion of blood from unscreened donors; less commonly through perinatal exposure or sexual exposure to blood or body fluids.
Signs/Symptoms: Fever, fatigue, loss of appetite, nausea, abdominal discomfort, or jaundice.
Prevention: Preventive measures include screening of donated blood and organs and avoidance of injection drug use.
Other Important Information: Only 10% of new infections cause symptoms, but 80% of new infections become chronic, resulting in carriers capable of spreading infection. As people with chronic HCV infection age, they are at higher risk for developing chronic liver disease, cirrhosis, and liver cancer. A vaccine to prevent HCV is not available.

Ten cases of acute hepatitis C were reported in 2009 (Figure 27). This is comparable to the five-year average of 10.6 cases per year. Cases ranged in age from 22 to 47 years and the incidence rate was slightly higher in the 20-29 year age group (0.4 per 100,000), than the 30-39 and 40-49 year age groups (0.3 per 100,000, each) (Figure 28). All seven cases for which race information was available were white and this resulted in an incidence of 0.1 per 100,000 in that population.



Females and males had similar incidence rates (0.2 and 0.1 per 100,000, respectively). The highest number of cases and the highest incidence rate occurred in the southwest region (4 cases, 0.3 per 100,000), followed by the central region (3 cases, 0.2 per 100,000). Illness onset occurred in the first quarter for three cases and the fourth quarter for two cases. The three remaining cases had illness onset before the 2009 report year. No deaths were identified among the ten acute hepatitis C cases reported in 2009.



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

Agent: Human Immunodeficiency Virus (retrovirus)
Mode of Transmission: Person-to-person via unprotected intercourse, contact of cut or abraded skin with body secretions carrying the virus, use of contaminated needles, blood transfusions and transplants with organs from infected donors, or from mother to child before or during birth or through breastfeeding.
Signs/Symptoms: Initial infection with HIV can cause an acute illness of fever, muscle pain, and sore throat, after which the person can be asymptomatic for several years. Eventually the immune system is affected, causing 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 instead of for HIV and AIDS as explained below. Additional information regarding the changes in analytical methods is available at http://www.vdh.virginia.gov/epidemiology/DiseasePrevention/Data/documents/Technical Notes and Glossary of Terms_Revised_04-2010.pdf. More detailed epidemiologic analyses of HIV/AIDS, as well as other STDs, 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, please visit http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5524a2.htm, call your local health department, or contact the Virginia Department of Health HIV/STD/Viral Hepatitis Hotline at 1-800-533-4148.

Change in Epidemiologic Analyses of HIV Disease

Due to the evolving understanding of the HIV epidemic and current recommended surveillance practices, VDH has modified the way HIV and AIDS surveillance data are analyzed to better depict the epidemic in Virginia. Unlike many communicable diseases, HIV infection is chronic in nature. For epidemiologic and community planning purposes, it is often helpful to evaluate all cases of HIV and AIDS as one group: persons diagnosed with HIV disease. This is a change from previous practices, where patients initially reported with an AIDS defining condition were excluded from the count of new HIV infections. This new analytical strategy was implemented in 2009. Therefore, the number of cases of HIV disease reported in 2009 calculated using the new method is not comparable to counts of HIV or AIDS cases based on the previous method. A reported case of HIV disease refers to anyone who is newly reported as HIV infected, regardless of disease progression. This includes persons who have an AIDS defining condition at the first report of HIV infection.

Figure 29a shows the trend for HIV disease for the previous 10 years when this new methodology is applied to the entire 2000-2009 period. For comparison, Figure 29b uses the previous methodology to depict the trend for HIV infections for the 2000-2008 period. Use of the

older methodology will be phased out of this report as time progresses. 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 of this report.

Figure 29a. HIV Disease: Ten-Year Trend, Virginia, 2000-2009

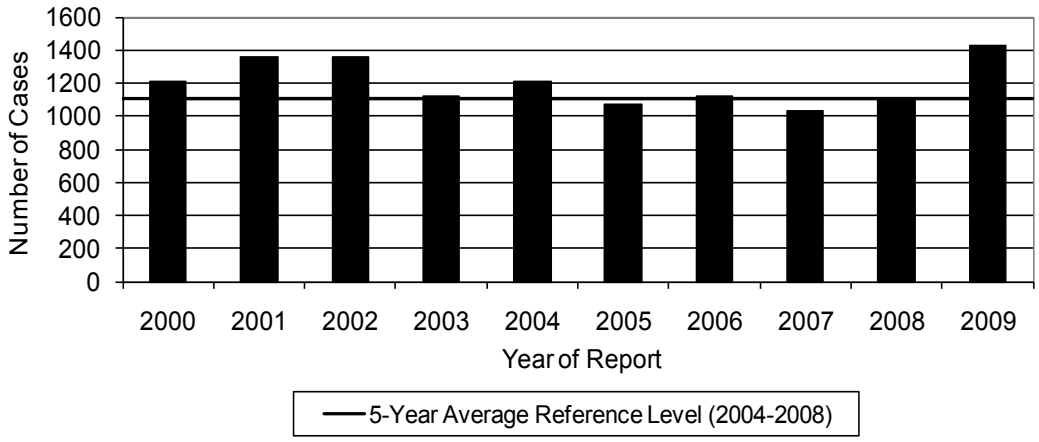
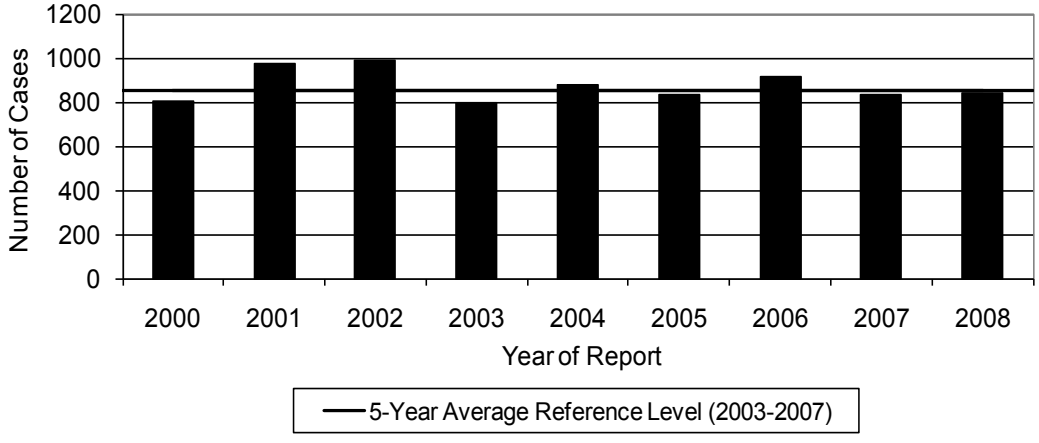


Figure 29b. HIV Infection: Nine-Year Trend, Virginia, 2000-2008



HIV Disease

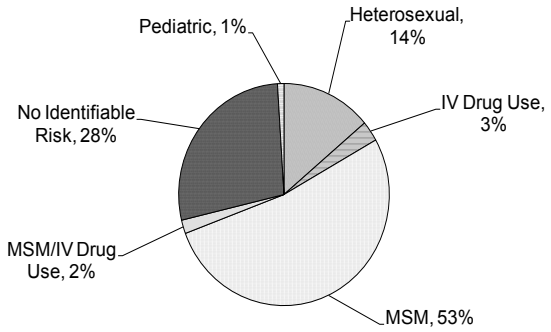
As illustrated in Figure 29a, 1,429 cases of HIV disease were reported in Virginia during 2009. This represents a substantial increase from the 1,097 cases in 2008. The higher number of cases identified in 2009 is likely the result of enhanced surveillance activities. Analysis of HIV disease data by diagnosis date rather than date of report shows that a substantial number of cases identified in 2009 had been diagnosed in previous years, suggesting that this does not represent a true increase in disease. A total of 18.1 cases per 100,000 population were reported in 2009.

The highest HIV disease rates occurred in the 20-29 and 30-39 year age groups (38.3 and 32.5 per 100,000, respectively), followed by the 40-49 year age group (31.1 per 100,000). The incidence rate in the black population (53.0 per 100,000) was 6.5 times the rate in the white

population (8.1 per 100,000), and almost twice the rate in the "other" race population (27.2 per 100,000). Incidence rates among males have been consistently higher than rates among females. In 2009, males were more than four times as likely to be reported with HIV disease as females (29.9 and 7.2 per 100,000, respectively). In 2009, the eastern, central and northern regions reported the highest incidence rates (20.3, 24.3 and 24.5 per 100,000, respectively).

Men who have sex with men (MSM) was the most frequently reported transmission category for HIV disease and represented 53% of Virginia's cases in 2009. Among cases attributed to MSM, 36% were 20-29 years of age, and 48% were black. Heterosexual contact was the mode of transmission for 14% of all newly reported HIV disease cases, and 3% were attributed to intravenous drug use (Figure 30).

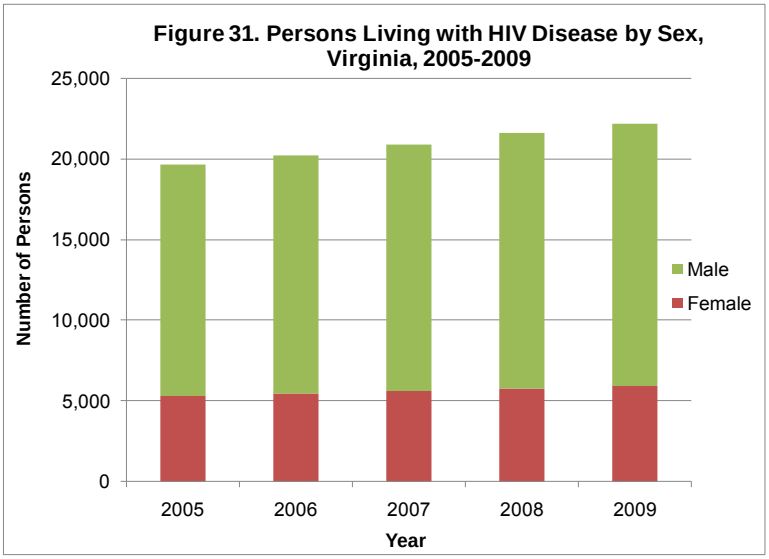
Figure 30. HIV: Mode of Transmission, Virginia, 2009

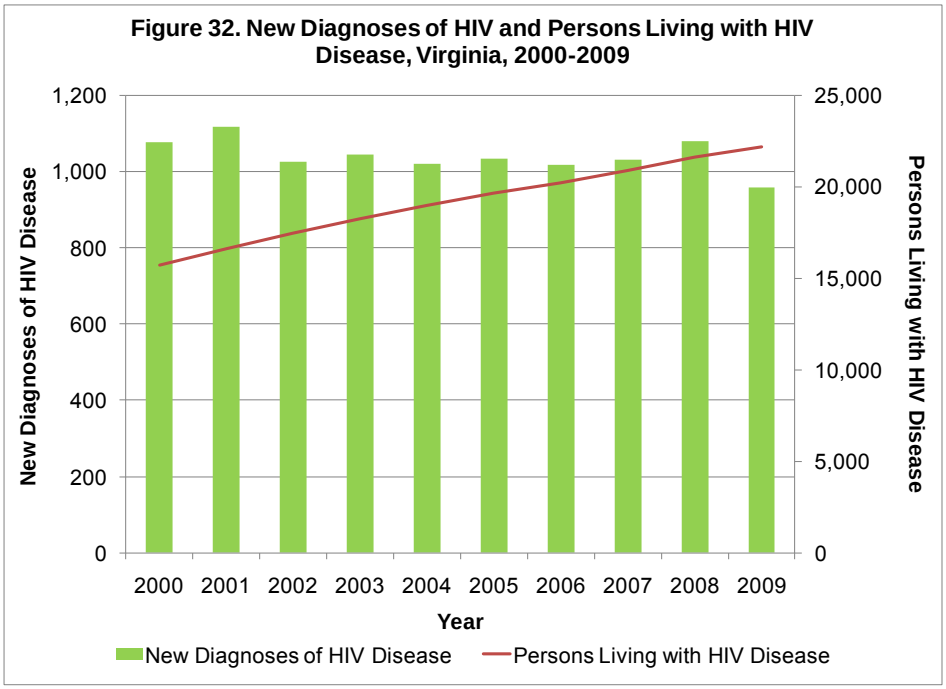


Persons Living with HIV Disease

Advances in medical therapies have resulted in people living longer with HIV disease. As of December 31, 2009, 22,559 persons in Virginia, or one in 349 Virginians, were known to be living with HIV disease. The majority of persons known to be living with HIV disease are men (74%) (Figure 31). Among those living with HIV disease, 49% have an AIDS defining condition, 61% are black, 36% are from the 30-39 year age group, and 49% are classified as MSM. While new diagnoses of HIV disease have remained stable over the previous 10 years, the number of persons living with the disease continues to increase (Figure 32).

Figure 31. Persons Living with HIV Disease by Sex, Virginia, 2005-2009





AIDS

Prior to 1996, approximately 50% of those infected with HIV developed AIDS within 10 years. However, the introduction of anti-retroviral medications significantly extended this interval. The annual number of AIDS cases reported in Virginia remained consistent between 2005 and 2008, with an average of just over 613 new cases per year. The number of reported cases increased to 819 in 2009, which equates to a 28% increase from the previous year. As with HIV disease, enhanced surveillance activities in 2009 are likely to have artificially increased AIDS case counts. When AIDS morbidity is analyzed by diagnosis date, there is no evidence of an increase. The highest incidence rates in 2009 were observed in the 40-49 year age group (24.4 per 100,000), followed by the 30-39 year age group (19.9 per 100,000).

Influenza

Agent: Influenza virus; Types A, B and (rarely) C cause human disease.
Mode of Transmission: Person-to-person primarily through inhalation of droplets released through coughing or sneezing.
Signs/Symptoms: Fever, headache, muscle pain, fatigue, sore throat and cough; influenza can also lead to pneumonia, especially in those with underlying medical conditions (e.g., lung or heart disease).
Prevention: Annual vaccination is the primary prevention strategy; antiviral medications are sometimes used with high-risk populations (e.g., nursing home residents) to prevent illness. Transmission may be reduced by frequent hand washing or using alcohol-based hand-sanitizers; avoidance of 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.
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

The 2008-2009 influenza season began in October 2008 and lasted through April of 2009, and included the beginning of the 2009 H1N1 pandemic. The start of the season reflected typical influenza-like illness (ILI) with a peak in activity in late February. However, in late April, a novel H1N1 strain emerged and extended ILI activity beyond the timeframe considered as the traditional flu season. During the influenza pandemic, influenza illness continued through the summer of 2009, peaked at the end of October and dropped off sharply in December 2009. Activity continued to decline until May 2010 when it reached background levels usually observed during the late summer months. This report covers the 2008-2009 influenza season, as well as influenza activity associated with the pandemic through the end of calendar year 2009, but does not include the remainder of the pandemic period which extended through May 2010.

Flu surveillance efforts do not count every individual with disease but instead monitor indicators of activity level using multiple sources of data. Surveillance information is shared across health districts and with CDC to track influenza-related illness, determine the types of influenza viruses circulating, detect changes in influenza viruses, and measure the impact of influenza on morbidity and mortality.

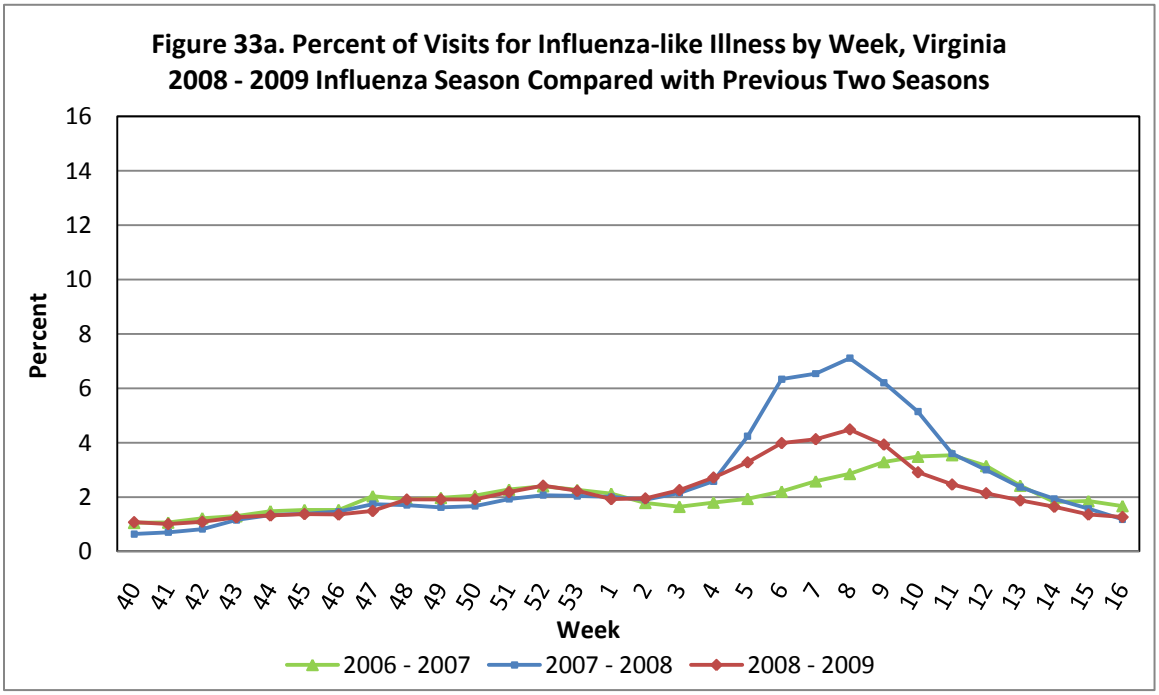
For the 2008-2009 influenza season, data sources included reporting from hospital emergency departments and urgent care centers, laboratory reports, evaluations of outbreak investigations, pediatric deaths associated with influenza and school absenteeism data. During the pandemic period, existing surveillance activities were enhanced to provide better state-wide coverage and richer data. In addition, new initiatives were implemented to expand the type of information available to monitor the impact of the epidemic. The initiatives included monitoring of school closures, the identification of pneumonia and influenza deaths from death certificates, evaluation of the proportion of ILI visits to emergency departments that resulted in admissions, and monitoring of the number of antiviral prescriptions filled.

In addition, a number of events were tracked, including reported H1N1 deaths, reported H1N1 hospitalizations, reported H1N1 infections in pregnant women, and treatment with the antiviral peramivir under an emergency use authorization. Surveillance was conducted for Guillan-Barré Syndrome and intensive medical record reviews were carried out on a small sample of H1N1-associated hospitalizations and deaths and severe illness due to HIN1 infection in pregnant women to contribute to national studies.

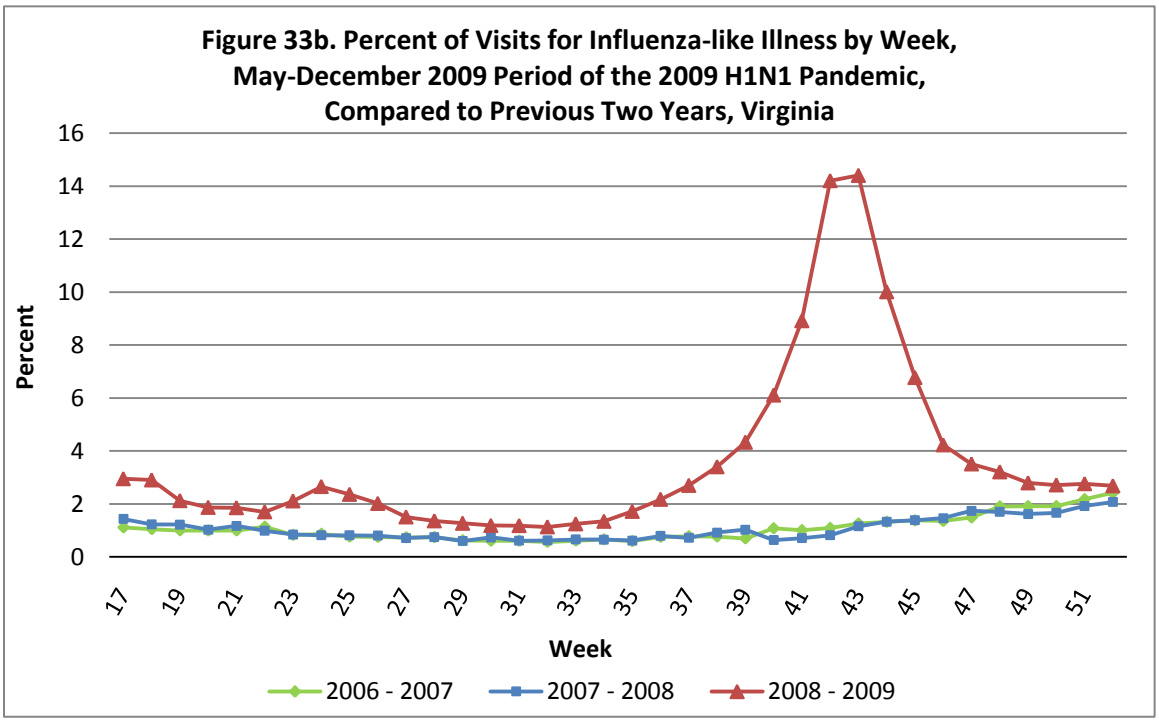
Influenza-Like Illness Surveillance

VDH receives information regarding patient visits to emergency departments and urgent care facilities for influenza-like illness 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 2008-2009 influenza season, 79 emergency or urgent care facilities provided data to VDH for surveillance monitoring and the number of participating facilities was expanded to 91 during the pandemic period.

As shown in Figure 33a, the 2008-2009 season showed a small increase in ILI activity during the last weeks of December (week 52 in 2008). ILI activity then decreased slightly before the seasonal peak during the week ending February 28 (week 8 in 2009), when 4.4% of visits were due to ILI. Significantly, ILI activity peaked during the same week during the 2007-2008 season, but approximately three weeks later during the 2006-2007 season.

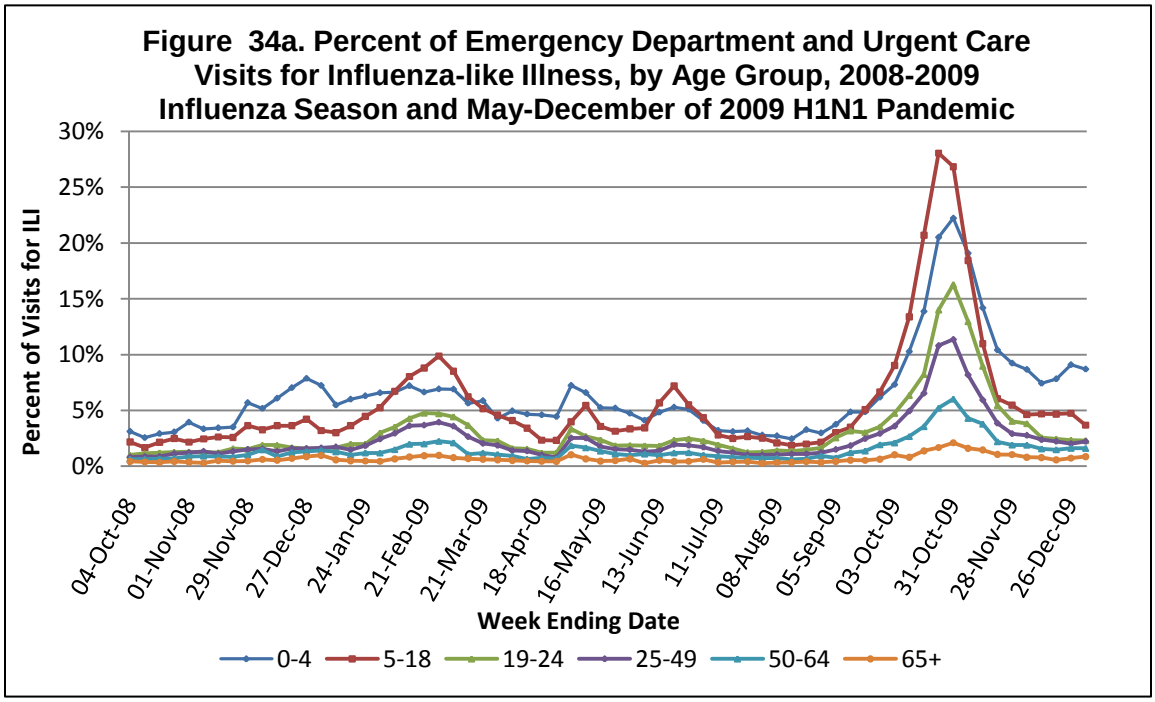


During typical seasons, ILI activity continues to decline and reaches baseline levels during the summer months. However, the identification of the 2009 H1N1 strain in late April altered the pattern in 2009 (Figure 33b). A small increase in visits for ILI was observed in May (weeks 17 and 18) when the 2009 H1N1 strain was identified. Because there were few 2009 H1N1 infections in Virginia at this point, this is likely to represent people with flu-like symptoms seeking medical evaluation. A second increase occurred in June (week 24), and laboratory testing indicated that, by this time, the 2009 H1N1 virus was circulating in Virginia. Although ILI visits and positive specimens declined at the end of the summer (weeks 30-33), activity began to increase in the fall as children returned to school. It peaked during October (weeks 41-43), and then dropped off sharply in December.



ILI Activity by Age

Analyzing ILI activity by age provides additional insight. While influenza vaccination efforts have often targeted the elderly due to concerns over complications of infection, the youngest age groups show the highest proportions of health care visits for ILI. An early peak among the 0-4 year age group historically marks the beginning of influenza activity during a season. It often occurs during mid- to late-December and can be seen on the graph below in late December 2008 (Figure 34a). A similar peak in late April through early May 2009 occurred when the 2009 H1N1 strain was identified, although there were still few infections in Virginia. In all age groups, the proportion of visits for ILI was much higher at the peak of the epidemic than in an ordinary season or during the rest of the year.



Influenza Outbreaks

VDH received ten confirmed reports of influenza outbreaks during the 2008-2009 season from various facilities, the first of which occurred on December 9, 2008 (week 50). This represented significantly fewer outbreaks than occurred during the 2007-2008 season, during which the state confirmed 31 influenza outbreaks. Five of the 2008-2009 outbreaks occurred in schools (K-12), three occurred in nursing homes, one occurred in an adult and pediatric skilled nursing facility, and one was in a correctional facility. By region, two of the outbreaks were reported from the central region, three from the eastern region, two from the northern region, one from northwestern region, and one from the southwestern region. Laboratory analysis identified influenza B in two of the outbreaks and a combination of influenza A and B in two outbreaks. Influenza typing was not available for the remaining six outbreaks. The number of cases associated with the outbreaks ranged from 2 – 140 individuals, with an average of 40 cases per outbreak.

In comparison, 116 confirmed influenza outbreaks occurred during the pandemic period from May to December 2009. The first Virginia outbreak related to the pandemic occurred on a university campus. VDH conducted a thorough epidemiologic investigation including an online survey. Twelve students were confirmed to have the 2009 H1N1 virus. Overall, 15 outbreaks were reported from the central region, 22 from the eastern region, 26 from the northern region, 32 from northwest region, and 21 from the southwest region. The outbreaks occurred in various settings including 73 schools (K-12), 10 daycare settings, nine camp/campgrounds, six assisted living facilities, five colleges/universities, five medical facilities (non long-term care), four nursing homes, three correctional facilities, and one military base.

Sentinel Provider Specimen Collection

Throughout each influenza season, sentinel physicians and medical facilities located throughout the Commonwealth submit specimens from patients with ILI to the Virginia Division of Consolidated Laboratory Services (DCLS) for analysis. DCLS performs viral culture and reverse transcription polymerase chain reaction (RT-PCR) testing on the specimens. The testing aids in detecting the seasonal emergence of influenza and characterizing the strains of influenza circulating throughout the state.

During the 2008-2009 influenza season, 47 facilities participated in sentinel surveillance and represented 34 of the 35 health districts in Virginia. These providers were asked to submit two specimens early in the influenza season, two mid-season, and two specimens during the latter portion of the season. During the traditional influenza season, approximately 50 percent of sentinel providers regularly submitted specimens. To address pandemic influenza, additional providers were added in each district, and an in-patient facility was added for each region. From August through December 2009, there were 303 participating sentinel facilities who were encouraged to submit specimens each month.

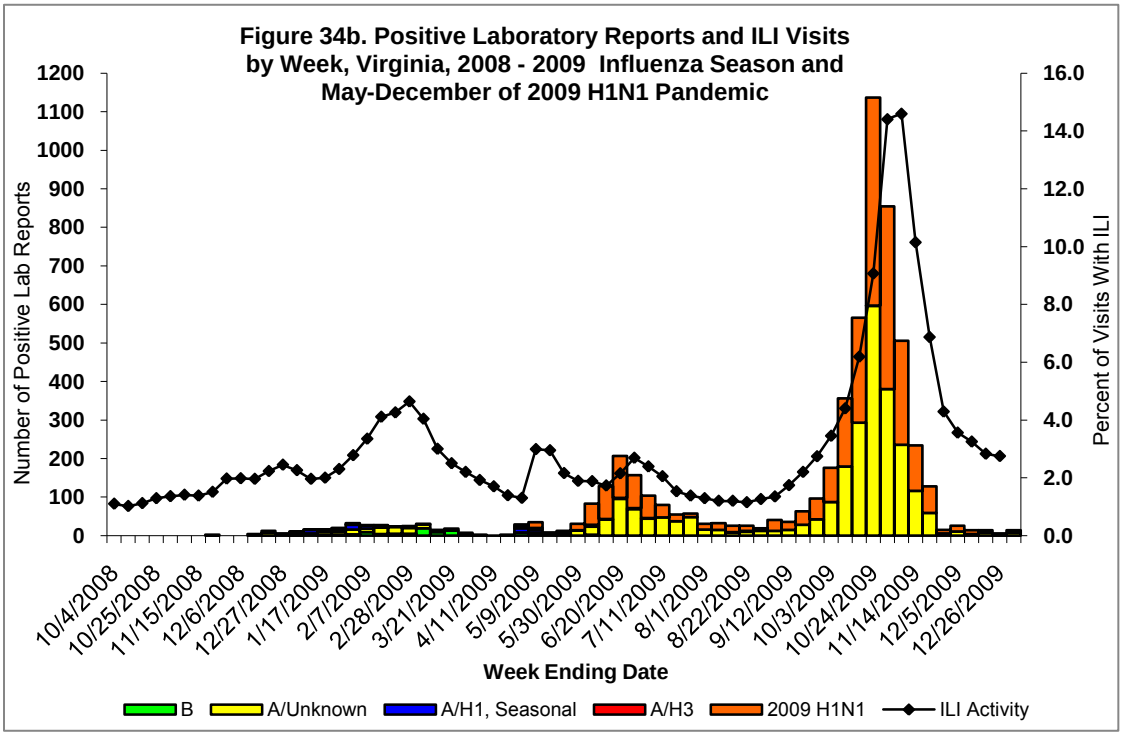
Laboratory Testing

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

During the 2008-2009 season, VDH received results from 364 specimens with influenza virus detected by one of these three methods. Among the reports, 46% (166) were from DCLS, while 40% (146) were reported through NREVSS and 14% (52) were submitted by private laboratories.

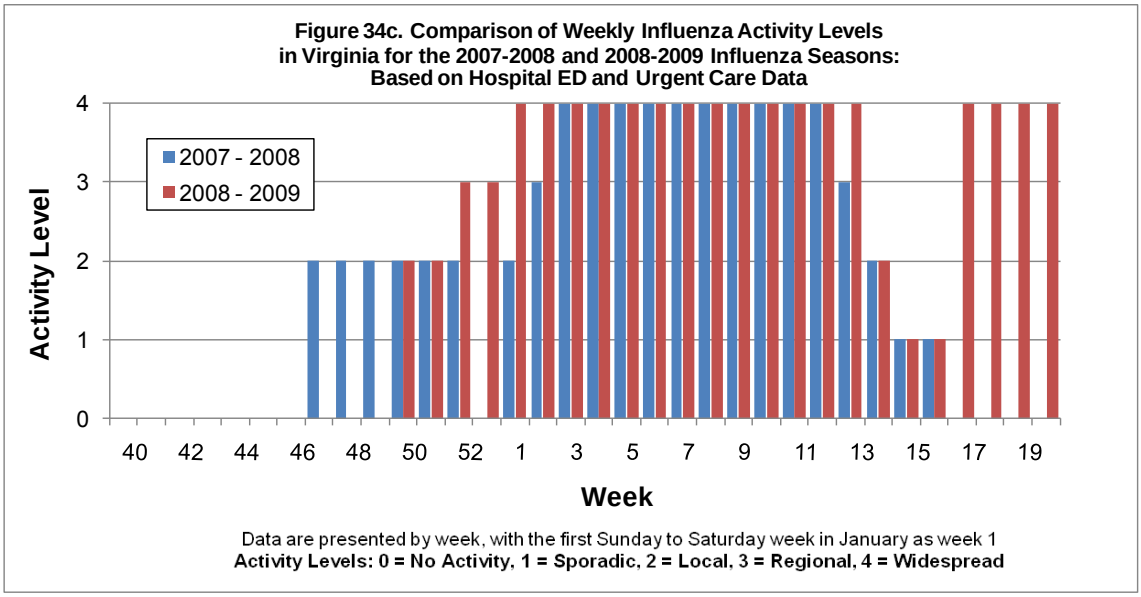
Among influenza findings received during the normal 2008-2009 influenza season, 70% (236) were type A and 30% (99) were type B. Subtyping of influenza A viruses indicated that 36% were H1, 7% were H3, and 56% were not subtyped.

The increased participation of sentinel providers during the pandemic period allowed VDH to test over 2,300 specimens from May through December 2009. Of these, 61% (1,420) showed evidence of influenza. Of the 722 specimens that were subtyped, 57% (410) were identified as 2009 H1N1, 41% (294) were identified as seasonal A (H1), 1% (10) were identified as A (H3), and 1% (7) were identified as influenza B (Figure 34b).



Activity Level

The state follows national 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 in 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 spread of influenza activity around the state. Six weeks of ILI data, collected from July through September, are used to establish baseline thresholds for the five health planning regions; ILI activity is considered elevated when a region exceeds its threshold.



During the 2008-2009 season, localized influenza activity occurred from late November through mid-December, correlating to weeks 51 and 52 (Figure 34c). After a brief period of regional activity in December, the state quickly elevated to widespread activity in January (week 1). The activity level remained elevated through March 2009 and decreased to sporadic activity by the traditional end of flu season in April (week 16). However, the emergence of the 2009 H1N1 strain increased the influenza activity level in Virginia in late April (week 17). Activity levels hovered at widespread and regional from May to July, with a slight decrease in July, to localized levels, before increasing to regional in August. The state experienced widespread levels in October. Widespread activity remained through the month of December. Activity continued to decline until May 2010 when it reached background levels.

Pediatric Mortality

Physicians and directors of medical care facilities are required to report influenza-associated pediatric deaths to VDH to allow monitoring of this severe outcome of influenza illness. Two influenza-associated pediatric deaths were reported to VDH during the normal 2008–2009 flu season, one in February in a preschool-aged child (0-4 years) and the second in March in a teen (13-17 years). CDC received reports of 65 influenza-associated pediatric deaths for the 2008-2009 season (through the week ending April 11, 2009). During the pandemic period, Virginia received reports of six influenza-associated deaths among school-aged children, ages 5 to 18 years, which occurred from September to November, 2009. All six were associated with influenza A strains and three were subtyped as 2009 H1N1 influenza A. Nationwide, CDC received reports of 329 pediatric deaths from April 15, 2009 through January 23, 2010.

School Absenteeism

School absenteeism data are a recent addition to influenza surveillance in Virginia. Information on absenteeism was submitted by school divisions on a daily basis and made available to the health districts to identify emerging problems and monitor potential influenza activity in their communities. Centrally, it was evaluated by region and school level (elementary, middle and high school) for unusual patterns. During the normal influenza season, six school divisions in the eastern and central regions of the state provided data. However, during the pandemic period efforts expanded to include information from 123 school divisions. While school absenteeism provides a general, but not influenza-specific, measure of illness, it was very useful for monitoring illness activity and identifying schools with emerging outbreaks during the pandemic period.

School Closure

During the pandemic period, the Virginia Department of Education encouraged school districts considering school closures to consult with their local health department. School closure is generally not recommended for reducing the spread of influenza and is usually recommended only when student and faculty absenteeism reach levels that interfere with the educational process. It was important that health officials were consulted before closure decisions were made so that they could reinforce messages about disease control practices within the schools and address health concerns in the community. VDH learned of one school closure that involved Amelia County public schools. The schools remained closed for one week.

Admissions from Emergency Department Visits for ILI or Pneumonia

To monitor the severity of illness during the pandemic period, the information used to assess ILI visits was further analyzed to evaluate the proportion of emergency department visits for ILI or pneumonia that resulted in a hospital admission. While this strategy did not provide as precise a measure as direct reporting of all pneumonia and influenza hospital admissions, when combined with evidence from other Virginia information sources and hospital admission data from other states, all indicated that while there were more individuals being admitted than expected during a normal season, and while some individuals were severely affected, 2009 H1N1 influenza was not causing unusually severe illness. This strategy provided a useful monitoring tool that did not impose an additional reporting burden on hospital staff. If the evidence had indicated changes in disease severity, more intensive surveillance efforts could have been implemented.

Identification of Pneumonia and Influenza Deaths from Death Certificates

Cause of death information is generally not available quickly because of the processes for certifying a death and correctly classifying the cause of death. During the pandemic period, the VDH Office of Vital Records expedited the process and implemented special procedures to generate information about pneumonia and influenza deaths on a weekly basis. This provided important information for assessing the severity of influenza illness. The data showed only a small increase n the number of influenza-related deaths compared to the previous year.

Tracking of High Profile Events

VDH utilized additional tracking methods to address high profile events such as H1N1 deaths and hospitalizations, and severe H1N1 illness in pregnant women. This was not an attempt at thorough enumeration, but an effort to be responsive to situations that required medical consultation or received media attention. Additionally, VDH staff conducted medical record reviews and interviewed physicians and patients to collect information for CDC studies on hospitalizations and deaths and on patients receiving peramivir, an antiviral drug made available under an FDA Emergency Use Authorization.

Guillain-Barré Syndrome Surveillance

A special surveillance system was established during the pandemic period using neurologists to identify Guillan-Barré Syndrome (GBS) incidence and to evaluate whether there was any relationship to influenza vaccination. GBS is an acute ascending paralysis that is associated with various infections and rarely with vaccination. In the United States, an estimated 3,000 to 6,000 people develop GBS each year, whether or not they received a vaccination. This is about 1 to 2 cases of GBS per 100,000 people. During the 1976 H1N1 "swine flu" vaccination campaign, incidence of GBS increased by one additional case of GBS per 100,000 persons vaccinated; however, studies of seasonal influenza vaccines used in subsequent years have found small or no increased risk of GBS. The 2009 H1N1 monovalent vaccine was produced in the same manner as the 2008-2009 seasonal influenza vaccine and was expected to have a similar safety profile. Special surveillance was implemented to detect any H1N1 vaccine-associated GBS, to be able to reassure the community if evidence indicated that the vaccine did not present any risk and to intiate appropriate action if the vaccine appeared to present a risk of GBS.

Surveillance for GBS was conducted from October 2009 through May 2010. VDH received reports of 13 people newly diagnosed with GBS. Of these reports, only two had a reported history of receiving the 2009 H1N1 vaccine during the 8 weeks prior to onset of neurologic symptoms. Persons reported with GBS had a median age of 47 years.

Estimations of Immunity

To estimate the proportion of the community that had developed immunity to 2009 H1N1 influenza through either vaccination or infection, VDH extrapolated CDC estimates of the number of infected individuals in the Virginia population, and combined this with estimates of the numbers of Virginians vaccinated for H1N1 from the VDH Division of Immunization. The estimates suggest that 37.3% of Virginians developed immunity to 2009 H1N1 influenza either through infection or vaccination.

Other Surveillance Information Used

In coordination with CDC, VDH conducts the Behavioral Risk Factor Surveillance System (BRFSS) and Pregnancy Risk Assessment Monitoring System (PRAMS) to obtain population-based information about health factors among Virginians. During the pandemic period, each survey added questions related to influenza vaccination and illness. CDC's National Respiratory and Enteric Virus Surveillance System (NREVSS) provided information on respiratory syncytial virus activity in Virginia, which was useful in interpreting ILI trends. As part of the BRFSS, questions related to influenza were asked between September 2009 and February 2010. Responses indicate that in Virginia, 8.2% of adults (95% CI 6.2% – 10.2%) and 25.0% of children (95% CI 20.7 – 29.3%) experienced influenza-like illness within the month before the interview. For adults, peak illness occurred in December, affecting an estimated 15.0% (95% CI 7.7% – 22.2%) of the adult population over the course of the month. For children, peak illness occurred in November, when 36.1% (95% CI 24.2% – 47.9%) of children were ill with ILI at some time during the month. Among adults, the odds of experiencing ILI were significantly higher among unmarried persons compared to married persons, young to middle-aged adults (compared to those 65 years or older), persons with fair or poor health (compared to those with very good or excellent health), persons with a history of asthma, and adults with a child in the household who had influenza-like illness.

Kawasaki Syndrome

Agent: Unknown – toxin or infectious agent suspected
Mode of Transmission: Unknown
Signs/Symptoms: High fever, rash, swelling of the hands and feet, irritability, conjunctivitis, swollen lymph nodes and inflammation of mouth, lips, or throat.
Prevention: Unknown
Other Important Information: Children less than five years of age make up approximately 80% of cases worldwide.

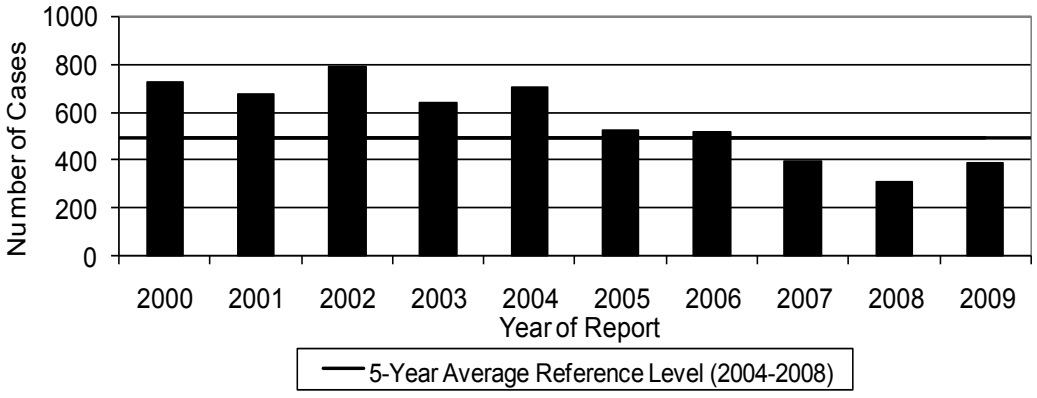
Three cases of Kawasaki syndrome were reported in Virginia during 2009. This was the same number reported in 2008, but below the five-year average of 9.2 reported cases annually. All cases were reported in children less than ten years of age. Race was reported as black for two of the children, and white for the other child. Two cases were female and the other case was male. One case each was reported from the eastern, central and southwest regions. Illness onsets occurred in the third and fourth quarters of the year.

Lead - Elevated Blood Levels in Children

Agent: Lead (metal)
Mode of Transmission: Chewing objects painted with lead paint; ingestion of contaminated dust, soil or water; 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, behavior problems, muscle weakness, decreased growth, hearing damage, or anemia.
Prevention: Ingestion of lead-contaminated materials and use of lead-containing objects should be avoided. Education of healthcare professionals and parents is important in reducing and detecting lead exposure.
Other Important Information: The primary source of lead for children is exposure to deteriorated paint in housing built before 1978. There is an increased awareness of new 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 which use lead glazes.

Elevated blood lead levels of ≥10 micrograms per deciliter (μg/dL) are reportable in children aged 15 years or younger. In 2009, there were 389 newly reported cases of elevated blood levels in children. This is a 21% increase from the 307 cases reported in 2008, but a 20% decrease from the five-year average of 489.2 cases per year (Figure 35). Although the overall number of reported cases has declined since 2002, the lower figures are partially a result of better data quality and less ambiguity in the case status for surveillance purposes. The improved reporting of specimen type (e.g., capillary or venous) by physicians and laboratories has enhanced the ability to interpret test findings and has resulted in more accurate information on the number of children with confirmed elevated blood lead levels and the ruling out of unknown case status.

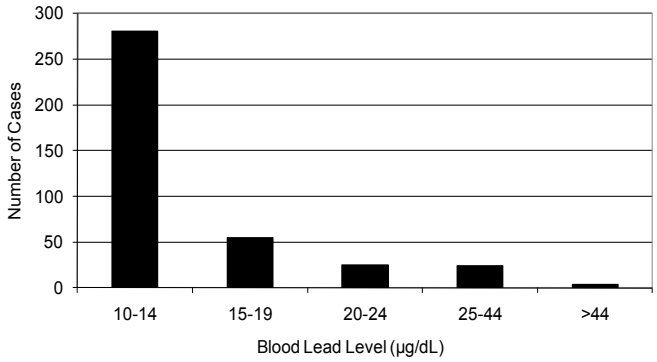
Figure 35. Elevated Blood Lead Levels in Children: Ten-Year Trend, Virginia, 2000-2009



Blood lead levels in the 10-14 μg/dL range are above normal, but only require lead awareness education and follow-up monitoring. Blood lead levels in the 15-19 μg/dL range require nutritional and environmental education, as well as more frequent testing to ascertain if the blood lead level is increasing. Blood lead levels greater than 20 μg/dL require 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 389 reported cases of elevated blood lead levels in children in 2009, 281 (72%) involved blood lead levels in the 10-14 μg/dL range, 55 (14%) involved levels in the 15-19 μg/dL range, 25 (6%) involved levels in the 20-24 μg/dL range, 24 (6%) involved levels in the 25-44 μg/dL range, and 4 (1%) involved levels above 44 μg/Dl (Figure 36).

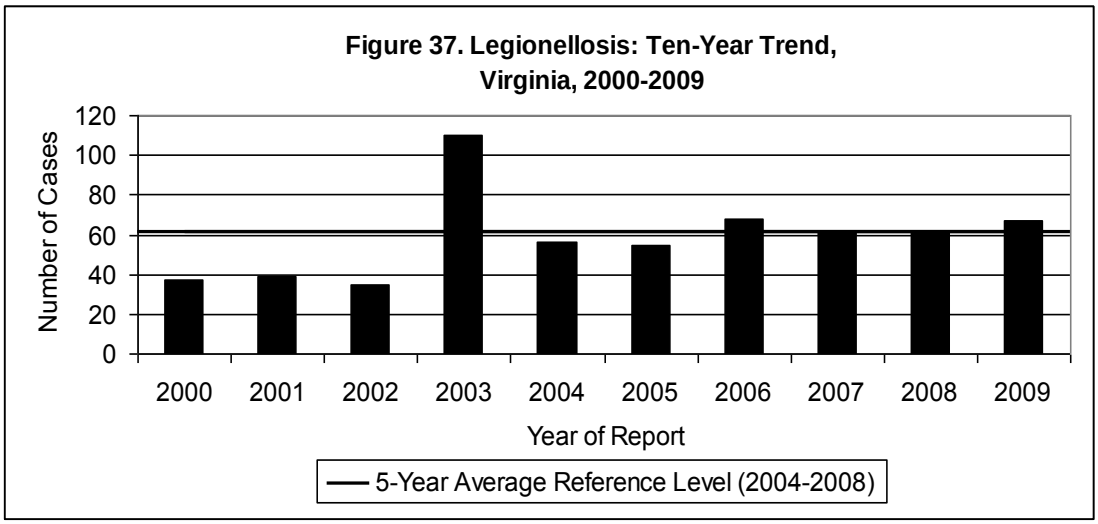
Figure 36: Elevated Blood Lead Levels in Children: Range of Elevation, Virginia, 2009



By age, the majority (90%) of elevated blood lead levels and the highest incidence rate occurred in those aged 1-9 years (349 cases, 38.1 per 100,000). Infants (28.7 per 100,000) and 10-15 year olds (1.7 per 100,000) had the second and third highest incidence rates, respectively. Fifty-one percent of reports were missing race data. Among reports with race information, the black population had an incidence rate five times that of the white population (30.4 versus 6.0 per 100,000, respectively), while the "other" population had an incidence rate of 8.8 per 100,000. The male population had a higher incidence rate than the female population (25.8 and 22.1 per 100,000, respectively). By region, the central region had the highest incidence rate of elevated blood lead levels in children with 45.8 per 100,000. This was followed by the southwest, northwest and eastern regions, with incidence rates ranging from 21.3 to 25.7 per 100,000. The northern region had the lowest rate, at 13.3 per 100,000.

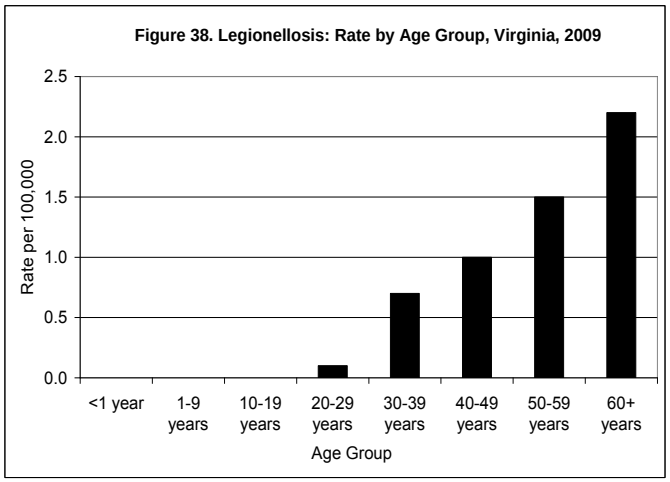
Legionellosis

Agent: *Legionella* species (bacteria); most infections in the United States are caused by *Legionella pneumophila*
Mode of Transmission: Inhalation of contaminated aerosols (e.g., water sprays, mists).
Signs/Symptoms: Infection with *L. pneumophila* causes two distinct illnesses: Legionnaires' disease, characterized by fever, muscle aches, headaches, malaise, cough, and pneumonia; and Pontiac fever, a milder influenza-like illness without pneumonia. 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°-170°F, and appropriate mechanical cleaning.
Other Important Information: Legionellosis is more common among people who smoke or have chronic medical conditions.



During 2009, 67 cases of legionellosis were reported in Virginia. This is similar to the 66 cases reported in 2008, and represents a 9% increase from the five-year average of 61.2 cases per year (Figure 37). This trend is consistent with a national pattern which showed a sudden increase in legionellosis cases in 2003, and higher incidence in the post-2003 period than in the pre-2003 period. The cause of this increase is not clearly understood.

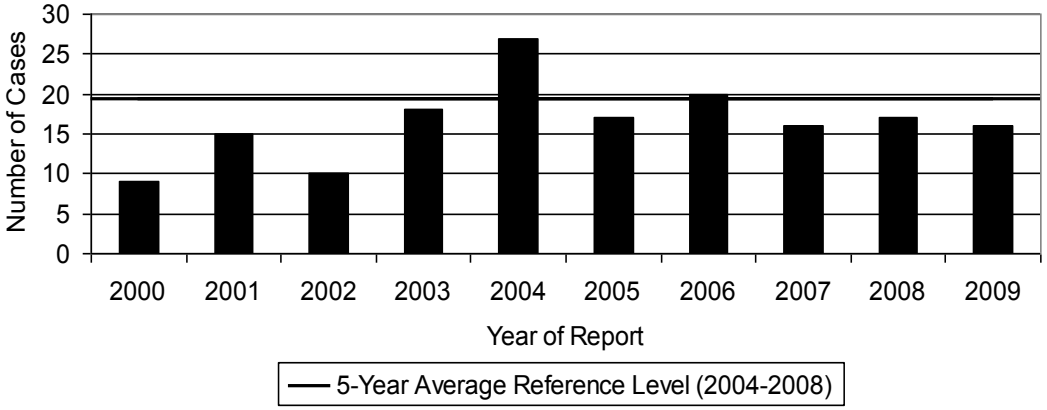
Legionellosis incidence is closely associated with age. The highest incidence occurred among adults in the 60 year and over age group (2.2 per 100,000) followed by the 50-59 year age group (1.5 per 100,000). No cases were reported among persons younger than 20 years of age (Figure 38). By race, incidence was similar for the black and white populations (0.6 and 0.7 per 100,000, respectively). Males had a higher incidence than females (1.1 and 0.7 per 100,000, respectively). Regionally, the southwest region had the highest incidence (1.7 per 100,000), followed by the northwest region (1.5 per 100,000 each). Ninety percent of the cases had onset in the last three quarters of the year and were evenly distributed among those quarters. This seasonal trend is also observed nationally. No outbreaks attributed to *Legionella pneumophila* were reported in 2009. Among cases reported in 2009, 10 deaths were attributed to legionellosis and occurred in persons ranging in age from 50 to 89 years. Seven of those who died were male and three were female.



Listeriosis

Agent: *Listeria monocytogenes* (bacteria)
Mode of Transmission: Ingestion of contaminated foods or beverages.
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 raw food from animals and washing vegetables). High risk foods (e.g., unpasteurized dairy products) should be avoided.
Other Important Information: Persons at higher risk include pregnant women and their unborn babies and newborns, and persons with weakened immune systems.

Figure 39. Listeriosis: Ten-Year Trend, Virginia, 2000-2009



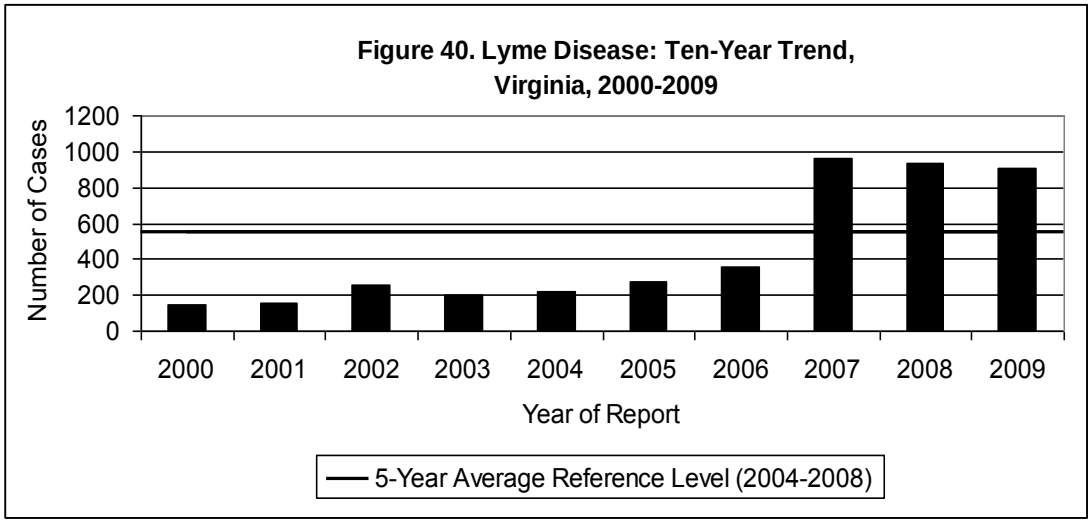
The 16 cases of listeriosis reported in Virginia during 2009 represent an 18% decrease from the five-year average of 19.4 cases per year (Figure 39). The 60 year and older age group had the highest number of cases (7 cases, 0.5 per 100,000), but the highest rate occurred among infants (2 cases, 1.9 per 100,000). Other age groups had consistently lower incidence, with rates between 0.1 and 0.3 per 100,000. No cases occurred in the 1-9 year or 10-19 year age groups. Race information was missing for 25% of reported cases.

Among cases with race reported, incidence rates were the same in the black and white populations (0.2 per 100,000). The rate was slightly higher for females than for males (0.3 and 0.1 per 100,000, respectively). Incidence rates among the regions ranged from 0.1 to 0.4 per 100,000, with the highest rate in the southwest and central regions (0.4 per 100,000). Cases occurred throughout the year, with peak activity (38% of cases) occurring in the second quarter. Five (31%) of the reported cases were associated with pregnancy, including three pregnant females and two neonates aged less than one month. Among cases reported in 2009, two deaths were attributed to listeriosis. Both deaths occurred in adults from the central region.

Lyme Disease

Agent: *Borrelia burgdorferi* (spirochete bacteria)
Mode of Transmission: Transmitted to humans through the bite of infected nymphal or adult blacklegged ticks (formerly known as deer ticks). No other tick species plays a role in Lyme disease transmission to people in the eastern U.S. Infected ticks must bite a human and remain attached while feeding 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, and nervous system.
Prevention: Minimizing tick bites by avoiding likely tick habitats such as humid forest environments with dense undergrowth or heavy leaf litter, and tall weeds along forest margins, tree lines, forest trails and forest clearings. DEET, Picaridin, or Oil of Lemon Eucalyptus-based repellents 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 habitats, body surfaces and pets should be checked thoroughly for ticks and, if found, attached ticks should be removed as soon as possible.
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 that is distinctive enough to allow a definitive diagnosis without laboratory testing. The EM rash causes little or no sensation, and may be overlooked or absent in up to 30% of persons with Lyme disease.

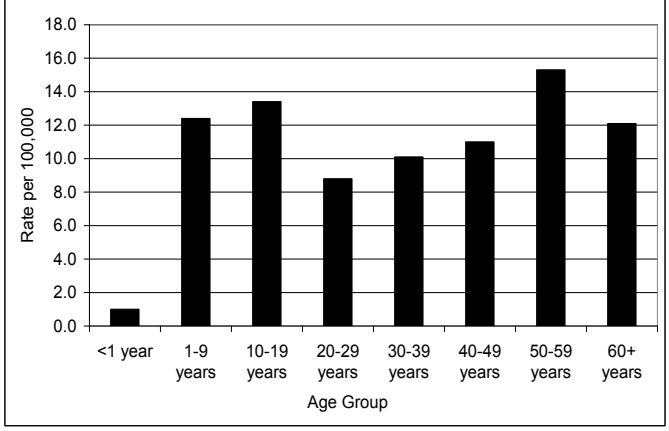
The 908 cases reported in 2009 was similar to the number of cases reported in 2008 (933 cases) and in 2007 (959 cases), and represent a 65% increase from the five-year average of 547.8 cases per year (Figure 40). The dramatic increase in the number of reported cases of Lyme disease since 2007 is likely due to both an actual increase in Lyme disease occurrence and increased case follow-up by local health departments, aided by voluntary reporting of Lyme-positive findings by laboratories. The increase in disease incidence since 2007 has occurred primarily in places



where new suburban areas have formed on land that was previously farmland and forests. Suburbanization can enhance the environment for white-tailed deer which are crucial for tick reproduction and white-footed mice, which play an important role in transmission of the Lyme disease agent to ticks. Deer hunting activity declines substantially as forest and farm land becomes suburbanized, and suburban development brings the human population into more frequent contact with the tick vector's natural habitat.

In 2009, there was a bimodal distribution of cases by age group, with the highest incidence in adults aged 50 to 59 years (15.3 cases per 100,000) (Figure 41), followed by adolescents age 10-19 years (13.4 cases per 100,000). This bimodal age distribution for Lyme disease is typical of what is observed in Lyme-endemic regions of the United States.

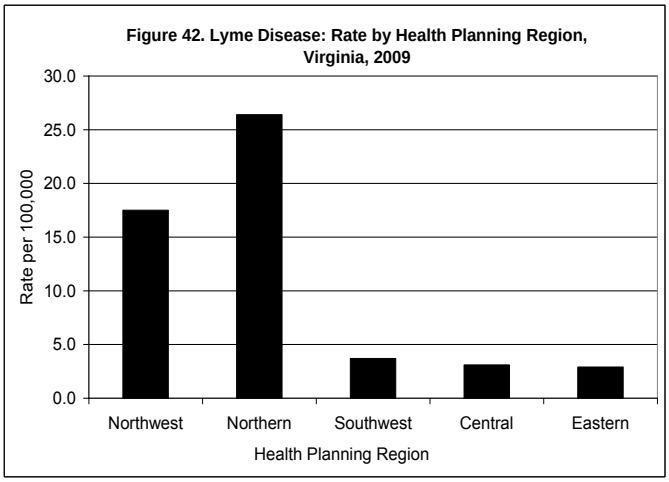
Figure 41. Lyme Disease: Rate by Age Group, Virginia, 2009



Among the 40% of cases for which race was recorded, the white population had the highest incidence (6.1 cases per 100,000), followed by the "other" race population (1.1 per 100,000), and the black population (0.5 per 100,000). Racial differences may in part be related to differences in access to healthcare for diagnosis, varying exposure to suburban and rural tick habitats and possibly easier detection of the EM rash in individuals with lighter skin pigmentation. The incidence rate was higher in males than in females (12.5 and 10.7 per 100,000, respectively).

Cases were reported from all regions of the state; however, the incidence of Lyme disease was highest in the northern region (26.4 cases per 100,000) followed by the northwest region (17.5 per 100,000) (Figure 42). Rates in other regions ranged from 2.9 to 3.7 per 100,000. Although Lyme disease cases were reported in every quarter during 2009, there was a seasonal pattern, with the majority of cases (70%) reported from April to September and a peak in occurrence during June and July. The seasonality of Lyme disease is strongly correlated with the period when the nymphal stage black-legged ticks, which serve as the primary vectors of Lyme disease, are actively feeding. This period occurs from April through mid-July.

Figure 42. Lyme Disease: Rate by Health Planning Region, Virginia, 2009



Lymphogranuloma Venereum

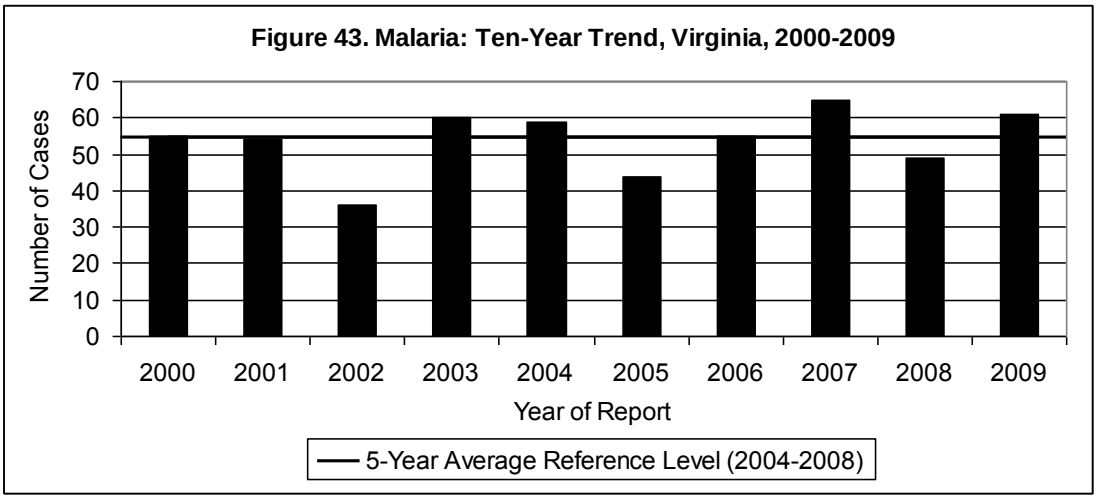
Agent: Specific strains of the bacteria *Chlamydia trachomatis*
Mode of Transmission: Sexually transmitted through direct contact with the lesions of an infected person.
Signs/Symptoms: Small, painless lesions on the penis or vulva, which usually go unnoticed or ulcers, and inflammation of the lymph nodes in the genital area; rectal ulcers may also be present. 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: Historically, lymphogranuloma venereum disease was thought to occur rarely in most developed countries. However, recent outbreaks in Europe and North America, most among men who have sex with men, have demonstrated its reemergence in these areas.

No cases of lymphogranuloma venereum were reported in Virginia in 2009. The last two reported cases occurred in 2005.

Malaria

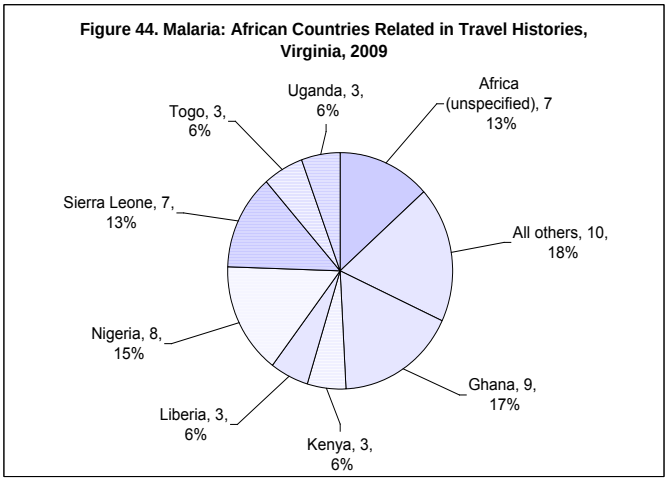
Agent(s): Four different species of protozoan parasites: *Plasmodium falciparum, P. vivax, P. ovale,* and *P. malariae*
Mode of Transmission: Transmission through the bite of an infected, female *Anopheles* mosquito. Transmission might also occur from infected mother to child during pregnancy or delivery, 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 equipped with bed nets, and when outdoors, wearing longsleeved, 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 by infected mosquitoes transported in aircraft or ships arriving from foreign destinations. There are two potential mosquito vectors for malaria in Virginia: *Anopheles quadrimaculatus* and *An. punctipennis*.

During 2009, 61 cases of malaria were reported in Virginia. This is a 24% increase from the 49 cases reported in 2008, and a 12% increase from the five-year average of 54.4 cases per year (Figure 43).



The highest incidence rate (1.3 per 100,000) was observed in the 20-29 year age group, followed by a rate of 0.9 per 100,000 in four age groups (the 10-19, 30-39, 40-49, and 50-59 year age groups). Although race was missing for 33% of reported malaria cases, among the cases for which race information was reported, the highest number of cases and incidence (31 cases, 2.0 per 100,000) occurred in the black population, followed by a much lower incidence in the "other" and white populations (0.7 and 0.1 per 100,000, respectively). Incidence in males was more than twice the rate among females (1.1 and 0.5 per 100,000, respectively). Sixty-nine percent of the cases were reported from the northern region, resulting in the highest regional incidence rate (2.0 per 100,000). Rates in other regions ranged between 0.2 and 0.6 per 100,000. No deaths due to malaria have been reported in Virginia since 2005.

All but two cases reported a history of travel outside of the United States within the four years before disease onset. Among cases where specific travel information was provided, 90% of the infections occurred in persons arriving from or returning from countries in Africa. Other countries mentioned in travel history included India and Pakistan. The most frequently referenced African countries in the travel histories included Ghana, Nigeria, and Sierra Leone (Figure 44).



Information on malaria prophylaxis usage was obtained for 51 (84%) of the reported cases. Of these, 18 (35%) reported receiving prophylaxis for malaria, although 13 of the 18 patients reported missing at least one dose. The largest proportion of 2009 cases (47%) occurred in the third quarter of the year, which is a pattern historically seen in Virginia. However, cases of malaria are usually acquired outside the United States and any observed seasonality patterns would be related to the travel patterns to endemic countries.

Measles

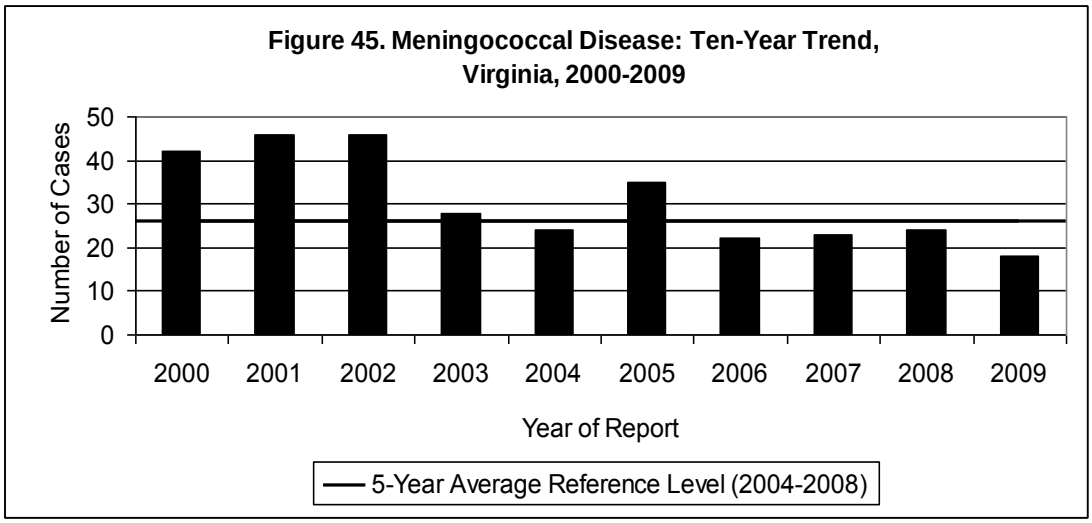
Agent: Measles virus
Mode of Transmission: Primarily person-to-person transmission by inhalation of respiratory droplets or direct contact with nasal or throat secretions of infected people; however, airborne transmission via aerosolized droplet nuclei has been documented.
Signs/Symptoms: Fever, cough, 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.
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. Although measles is no longer endemic in the United States, infections acquired in other countries continue to cause transmission after importation. In recent years these import-associated cases have occurred largely among school-aged children who were eligible for vaccination, but whose parents chose not to have them vaccinated.

One case of measles was reported in Virginia during 2009 and occurred in an adult male from the northern region. It is not known how or where the disease was acquired. A single case was also reported in 2008 and that case was linked to international travel. Before 2008, the last reported case in Virginia occurred in 2001.

Meningococcal Disease

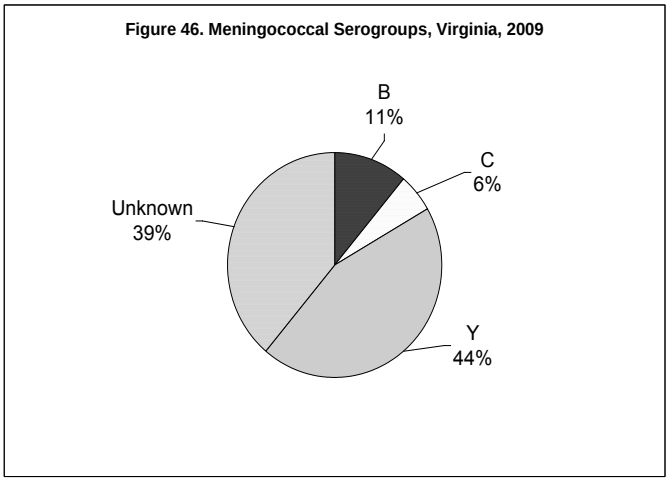
Agent: *Neisseria meningitidis* (bacteria)
Mode of Transmission: Transmission occurs through contact with respiratory droplets from the nose or throat of infected people (e.g., through coughing or kissing).
Signs/Symptoms: Sudden onset of fever, headache, stiff neck, vomiting, and sensitivity to light. A rash may also be present.
Prevention: Vaccination with recommended meningococcal vaccine. The three most commonly occurring serogroups of meningococcal bacteria in the U.S. are B, C, and Y. There is currently no licensed vaccine that protects against serogroup B in the U.S.
Other Important Information: Crowding, exposure to tobacco smoke, and coexisting respiratory tract infections increase the risk of disease. Five to ten percent of people carry *N. meningitidis* in their nose without having any symptoms of disease; those who develop disease are usually infected by a carrier who does not have symptoms.

During 2009, 18 cases of meningococcal disease were reported in Virginia. This represents 25% fewer cases than the 24 cases reported in 2008, and a 30% decrease from the five-year average of 25.6 cases per year (Figure 45).



The rate of new infections was highest in the 20-29 year age group (0.5 per 100,000). Incidence rates among the remaining age groups were similar and ranged from 0.2 to 0.4 per 100,000, except that no cases were reported in children less than ten years of age or among adults from the 30-39 year age group. Information on race was not provided for 28% of the reported cases. Among cases where race information was reported, the incidence rate in the black population was the same as the rate in the white population (0.2 per 100,000). Incidence for males and females was also the same (0.2 per 100,000). By region, the highest incidence rate was observed in the southwest (0.5 per 100,000), with rates in the other regions ranging from 0.1 to 0.3 per 100,000. By onset date, the largest proportion of cases (33%) occurred in the fourth quarter of the year, and the smallest proportion (11%) occurred during the third quarter.

Of the eleven cases for which a serogroup was identified, two were group B, one was group C, and eight were group Y (Figure 46). Among 2009 cases, two deaths were reported in individuals whose infections developed into meningitis. Both fatalities occurred in females, one in the 20-29 age group, and the other in the 50-59 age group.



Methicillin-Resistant Staphylococcus aureus Infection (MRSA)

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

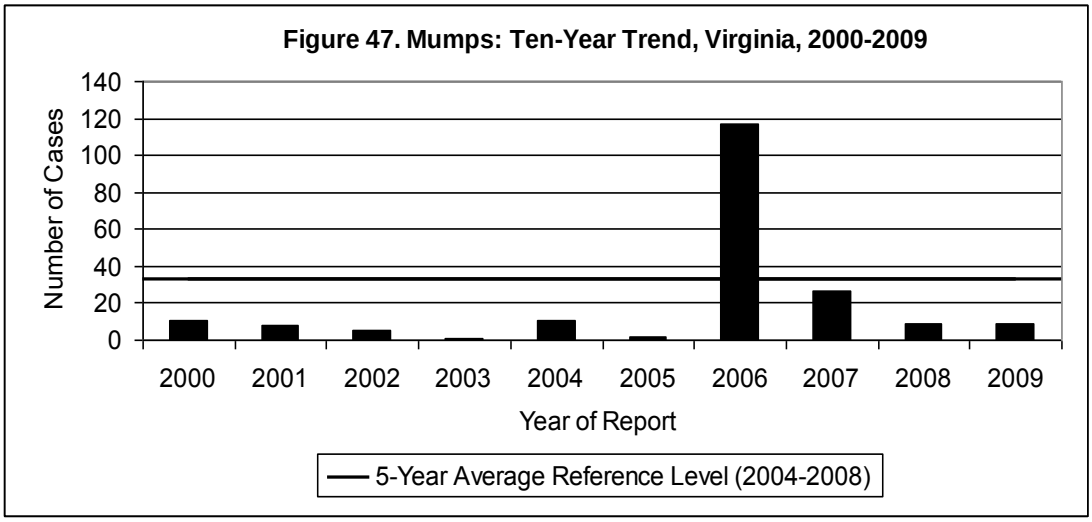
Monkeypox

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.

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

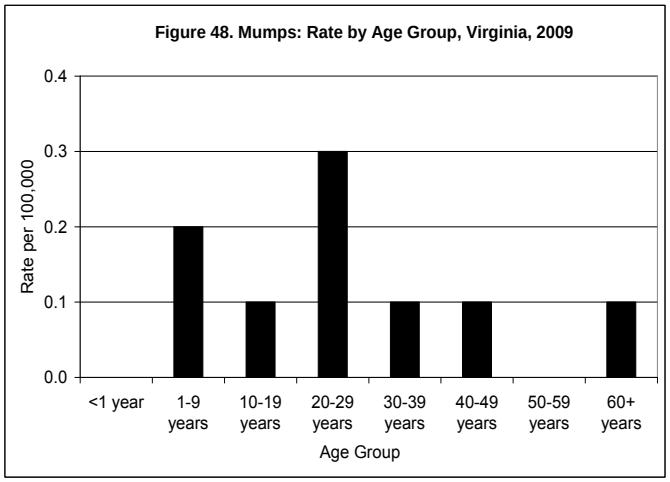
Mumps

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. In children age less than five years, 40%-50% of cases are associated with respiratory symptoms. As many as 20% of mumps infections are asymptomatic.
Prevention: Vaccination, preferably administered as MMR vaccine, beginning at age 12 months. Two doses of mumps-containing vaccine are recommended for school-aged children, healthcare workers, international travelers, and college students.



Nine cases of mumps were reported in 2009, which equals the number of cases reported in 2008. This represents a 73% decrease from the five-year average of 32.2 reported cases, which is inflated because of a spike in cases in 2006 (Figure 47). The large number of cases reported in 2006 was due primarily to elevated awareness of mumps following a large multi-state outbreak in the mid-western part of the country, coupled with a university-based outbreak in Virginia. When a longer period of time is considered, the nine cases in 2009 more closely align with the ten-year average of 20.2 cases.

Among the 2009 cases, the highest incidence occurred in the 20-29 year age group (0.3 per 100,000). This reflects the three cases which occurred in young college students (Figure 48). No cases were reported in infants or in the 50-59 year age group. Rates were the same for the white and black populations (0.1 per 100,000) and slightly higher in females than males (0.2 and 0.1 per 100,000, respectively). Cases were reported from all five regions of the state, with the northwest and central regions having the highest incidence (0.2 per 100,000, each). The traditional late winter and early spring seasonality of mumps was demonstrated with onsets between January and May for 78% of the cases.



Ophthalmia Neonatorum

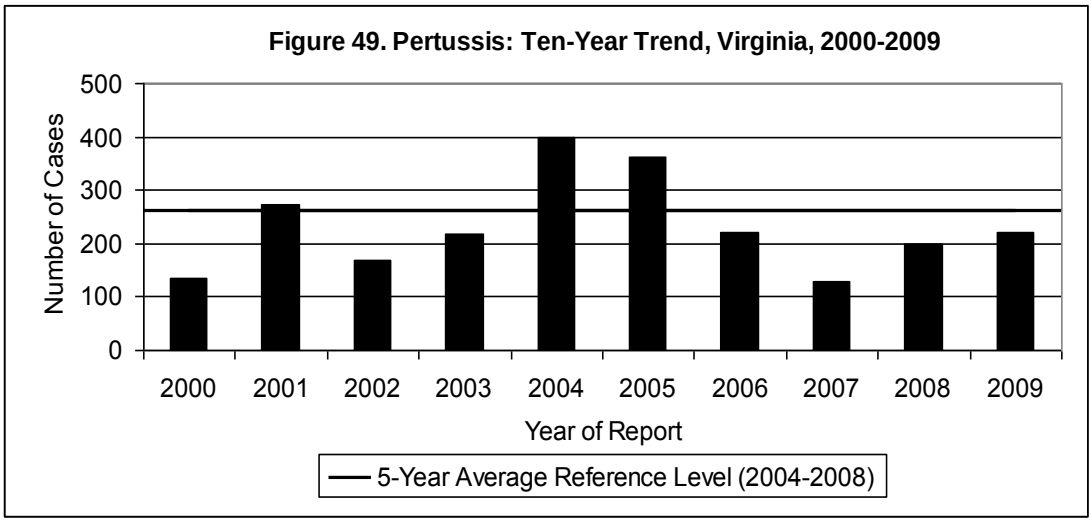
Agent: *Chlamydia trachomatis* (bacteria) or *Neisseria gonorrhoeae* (bacteria), although *C. trachomatis* is more common.
Mode of Transmission: Infants are exposed to the organism in the birth canal during childbirth.
Signs/Symptoms: Redness or swelling of one or both eyes beginning five to fourteen days after birth.
Prevention: All pregnant women should be screened for chlamydia and gonorrhea infection, followed with appropriate treatment for infected women and their partner(s).

Seven infants were reported with ophthalmia neonatorum in 2009. Six were caused by *C. trachomatis* and one by *N. gonorrhoeae.*

Pertussis

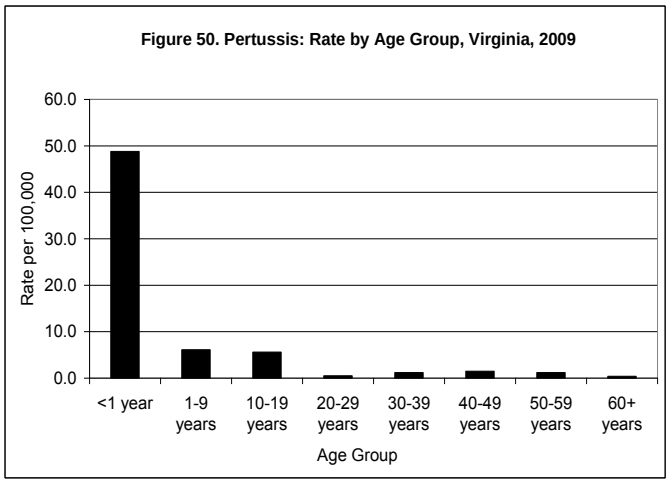
Agent: *Bordetella pertussis* (bacteria)
Mode of Transmission: Person-to-person transmission by contact with respiratory droplets from infected patients.
Signs/Symptoms: Insidious cough that progresses to paroxysmal coughing (i.e., severe, sequential coughs with difficulty inhaling) and may be accompanied by post-cough vomiting.
Prevention: Vaccination 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.

In 2009, 222 cases of pertussis were reported in Virginia. This is a 12% increase from the 198 cases reported in 2008 and a 15% decrease from the five-year average of 262.0 per year (Figure 49). Cases of pertussis typically occur in waves, with peak numbers appearing every 3-5 years. A large number of cases (400) was reported in 2004 with a downward trend through 2007. This general downward trend in pertussis cases since 2004 was also observed nationally. The number of pertussis cases has been increasing since 2007 in Virginia and nationally.



In Virginia, pertussis cases were reported from every age group, but those <1 year of age had a substantially higher incidence rate than any of the other age groups, with 48.8 cases per 100,000 population. The next highest incidence rates were observed in the 1-9 year and 10-19 year age groups, with 6.1 and 5.6 cases per 100,000, respectively (Figure 50). Thirty-five percent of cases were missing race data. Among cases with race reported, incidence in the white population was

more than twice the rate in the black population (2.2 and 1.0 per 100,000, respectively), and more than four times the rate in the "other" population. Females had a higher incidence rate than males (3.4 and 2.3 per 100,000, respectively).



Among regions, the central region had the highest incidence (4.4 per 100,000). This was followed by the northwest region (3.2 per 100,000). The largest proportion of cases (37%) occurred in the third quarter of the year. Ten outbreaks related to pertussis were reported in 2009. Seven of the outbreaks were linked to schools, two to daycare facilities, and one was a community-based outbreak involving children and adults. The largest outbreaks occurred in the northwest, central and southwest regions; each of these outbreaks involved 5 cases.

Plague

Agent: *Yersinia pestis* (bacteria)
Mode of Transmission: Transmitted to humans through the bite of infected fleas or through bites or scratches from infected animals (e.g., cats). 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 result in pneumonia should be isolated until 48 hours after antibiotics have been started.
Other Important Information: Fewer than 20 people in the United States are diagnosed with plague every year. *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.

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 < 1% of poliovirus infections.
Prevention: Vaccination beginning at 2 months of age.
Other Important Information: Polio eradication programs have led to the elimination of the disease in the Western Hemisphere; however, at the end of 2009, the following four countries still had endemic polio: Afghanistan, India, Nigeria, and Pakistan. In addition, transmission has been re-established in the countries of Angola, Chad, Democratic Republic of Congo, and Sudan following the importation of cases to these areas.

The last reported case of poliomyelitis in Virginia occurred in 1978.

Psittacosis

Agent: *Chlamydophila psittaci* (formerly known as *Chlamydia psittaci*) (bacteria)

Mode of Transmission: Transmission occurs when the bacteria are inhaled from aerosolized dried feces, from respiratory tract secretions, or from the handling of infected birds' feathers.
Signs/Symptoms: Most commonly fever, headache, weakness, loss of appetite, muscle aches, chills, sore throat, and cough. Symptoms can present as a mild flu-like illness or can be very severe, especially in older persons.
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.
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.

No cases of psittacosis were reported in Virginia during 2009. The last case was reported in 2003 and before that, one case was reported in 1998.

Q Fever

Agent: *Coxiella burnetii* (bacteria)
Mode of Transmission: Inhalation of air contaminated with dried placental material, birth fluids, or excreta of infected animals; direct exposure to infected animals or tissues; exposure to contaminated material, such as wool, straw, fertilizer, or laundry.
Signs/Symptoms: Acute infections are characterized by high fever, severe headache, malaise, muscle aches, confusion, non-productive cough, nausea, diarrhea, abdominal pain, and/or chest pain. Patients may have abnormal results on liver function tests and some develop hepatitis. In chronic Q fever, infection persists for more than six months and the most serious complication is endocarditis. As many as 65% of persons with chronic Q fever may die of the illness.
Prevention: Preventive measures include appropriate disposal of potentially infectious tissues and proper hygiene when handling animal birth material.
Other Important Information: Cattle, sheep and goats are the main natural reservoirs for *C. burnetii*. 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.

One case of Q fever was reported in Virginia in 2009, which is less than the five-year average of 2.4 cases per year. The illness occurred in an adult male from the northwest region. No potential source of exposure was identified.

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 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 and dogs, eliminating stray animals, and avoiding handling wildlife. A pre-exposure vaccine should be given to people at high risk of infection (e.g., veterinarians and laboratorians working with rabies virus). Post-exposure vaccine should be administered to anyone possibly exposed to a rabid animal.
Other Important Information: The main reservoir of rabies in the United States is wildlife. In most other countries, the main reservoir is dogs.

Human

One human case of rabies was reported in Virginia during 2009. This case occurred in an adult male from the northern region who was infected with the Indian canine variant of the rabies virus and 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. The last case of human rabies in Virginia occurred in 2003 in an adult male from the northern region who was infected with a raccoon rabies variant.

In 2009, 1,201 people received rabies post-exposure prophylaxis (PEP). The largest proportion of those receiving PEP lived in the Fairfax Health District (199 people, 16%). The district with the second highest number of residents receiving rabies PEP was Prince William Health District (76 people, 6%), which was followed by Lord Fairfax Health District (70 people, slightly less than 6%). While the northern region had the highest number of residents receiving PEP (345 people, 29%), the eastern region had the fewest (187 people, 16%).

For every animal with a laboratory-confirmed rabies infection in Virginia in 2009, 2.1 people were reported as receiving PEP. By health region, the northern region averaged 3.9 people receiving rabies PEP for every animal that tested positive while the other regions ranged from 1.8 to 2.1 residents receiving PEP for every animal that tested positive (Table 8).

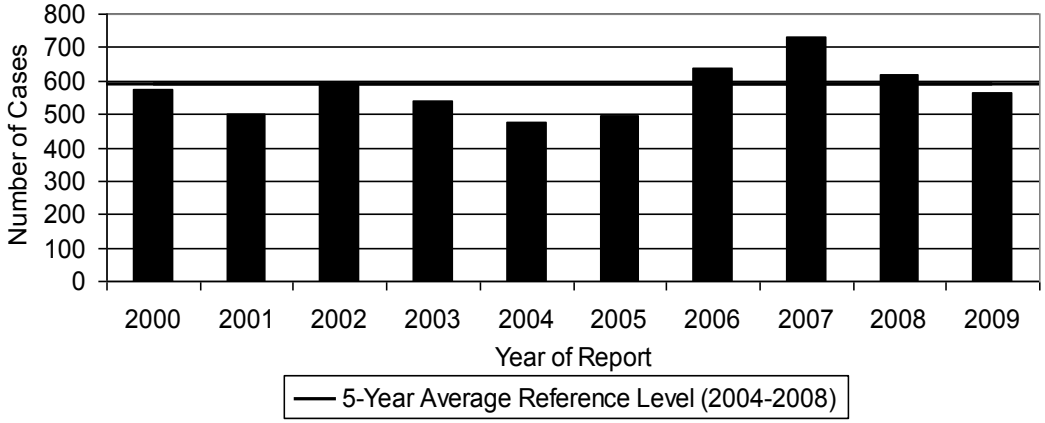
Table 8. Number of People Receiving Rabies PEP per Rabies Positive Animal, Virginia, 2009

Region	Number of People Receiving Rabies PEP	Number of Animals Positive for Rabies	People Receiving Rabies PEP/ Animals Positive for Rabies
Central	223	120	1.8
Eastern	187	102	1.8
Northern	345	88	3.9
Northwest	221	146	1.5
Southwest	225	108	2.1
Total	1201	564	2.1

Animal

A decrease was observed in the number of animals testing positive for rabies, from 620 in 2008 to 564 in 2009 (Figure 51). The proportion of animals that tested positive also decreased slightly, from 15% in 2008 to 14% in 2009. Fairfax Health District reported the highest number of rabid animal cases with 44 (8%) cases, followed closely by Chickahominy and Central Shenandoah Health Districts (42 and 40 cases respectively, 7% each).

Figure 51. Rabies in Animals: Ten-Year Trend, Virginia, 2000-2009



By region, the northwest region reported the highest number of laboratory-confirmed rabid animals with 146 (26%) cases, followed by the central region with 120 (21%) cases. The remaining regions ranged from 88 to 108 cases each.

The largest number of animals that were submitted for rabies testing occurred during June through August, and the months with the fewest submissions were December and January. This seasonal pattern is likely a result of increased interactions with wildlife during warmer months. No seasonal pattern was observed in the number of animals testing positive for rabies. Of all species tested for rabies, cats were the most commonly tested animal with 1,061 tests (Table 9). Although skunks had the highest positivity (65%) among all animals tested, followed by raccoons (44%), and foxes (38%), nearly half of all rabid animals identified in Virginia in 2009 were raccoons.

Table 9. Animals Testing Positive for Rabies by Species, Virginia, 2009

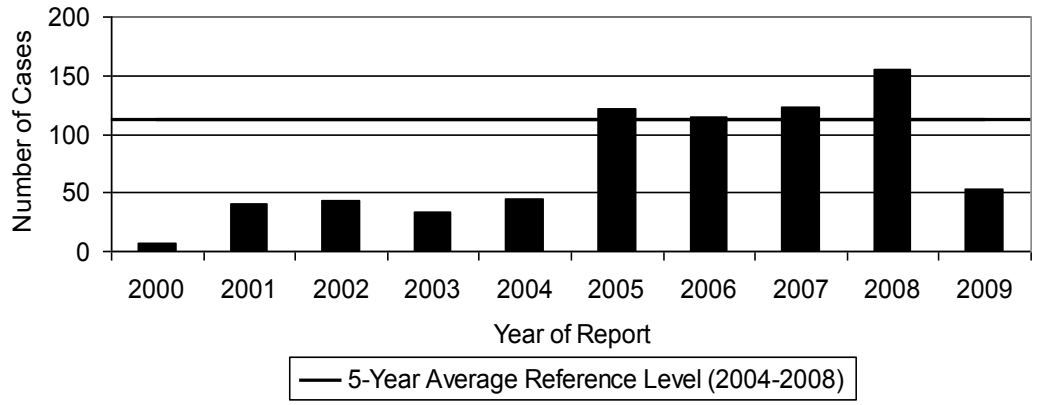
Animal Species	Number of Animals Tested	Positive	
		Number	Percent
Alpaca	3	0	0%
Bat	742	22	3%
Bear	1	0	0%
Beaver	5	0	0%
Bobcat	4	1	25%
Bovine	66	10	15%
Cat	1,061	40	4%
Chipmunk	10	0	0%
Coyote	3	0	0%
Deer	4	0	0%
Dog	563	4	1%
Equine	65	1	2%
Ferret	4	0	0%
Fox	159	60	38%
Goat	30	0	0%
Groundhog	127	5	4%
Guinea Pig	1	0	0%
Hamster	3	0	0%
Llama	2	0	0%
Mole	9	0	0%
Mouse	9	0	0%
Mule	1	0	0%
Muskrat	8	0	0%
Opossum	233	1	0%
Rabbit	14	0	0%
Raccoon	617	269	44%
Rat	6	0	0%
Sheep	4	0	0%
Skunk	233	151	65%
Squirrel	70	0	0%
Vole	2	0	0%
TOTAL	4,059	564	14%

Rocky Mountain Spotted Fever

Agent: *Rickettsia rickettsii* (bacteria)
Mode of Transmission: Transmitted to humans by the bite of an infected American dog tick. Ticks must be attached while feeding for at least 4 to 6 hours to transmit the bacterium.
Signs/Symptoms: Persons with Rocky Mountain spotted fever (RMSF) may have a sudden onset of fever, severe headache, muscle pain, nausea and vomiting. Three to five days after onset of illness, a rash may develop that starts on the hands and feet and spreads to the rest of the body. The rash is seen in only 40% to 60% of cases.
Prevention: Minimizing tick bites by avoiding likely American dog tick-prone habitats such as open fields with tall brush and weeds, old fields with early succession forest growth, or brushy vegetation along forest margins and trails. DEET, Picaridin, or Oil of Lemon Eucalyptus-based repellents 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 habitats, body surfaces and pets should be thoroughly checked for ticks. Any attached ticks should be removed as soon as possible. American dog ticks are frequently found feeding on a human's neck or head, or in hair at the base of the scalp.
Other Important Information: RMSF can be difficult to diagnose in the early stages, but without early intervention, may be fatal in up to 30% of untreated patients. Although the national case fatality rates ranged from 3% to 8% of all reported cases in the United States from 1970 to 1982, national case fatality rates have declined in recent years to <1% of cases reported from 2001 to 2007. Possible explanations for this decrease include more prompt disease recognition and increased availability and appropriate use of effective antimicrobial therapy.

In 2009, only 53 cases of RMSF were reported in Virginia. This is a substantial decrease from the 155 cases reported in 2008, and less than half of the five-year average of 111.6 cases per year (Figure 52). The reason for this dramatic decrease in the number of RMSF cases in Virginia is unclear. Nationally, RMSF cases decreased 29% from those reported in 2008. According to CDC, this decrease might be partly due to a reduced number of vector tick populations and ecological changes influencing disease transmission.

Figure 52. Rocky Mountain Spotted Fever: Ten-Year Trend, Virginia, 2000-2009



In 2009, RMSF incidence rates were highest in persons aged 40 to 49 years and 30-39 years (1.1 and 1.0 per 100,000, respectively) (Figure 53). Although previous national studies have shown a higher incidence for RMSF in children aged less than 10 years, more recent national data indicate a shift in age distribution, with the highest rates among adults aged 40-64 years.

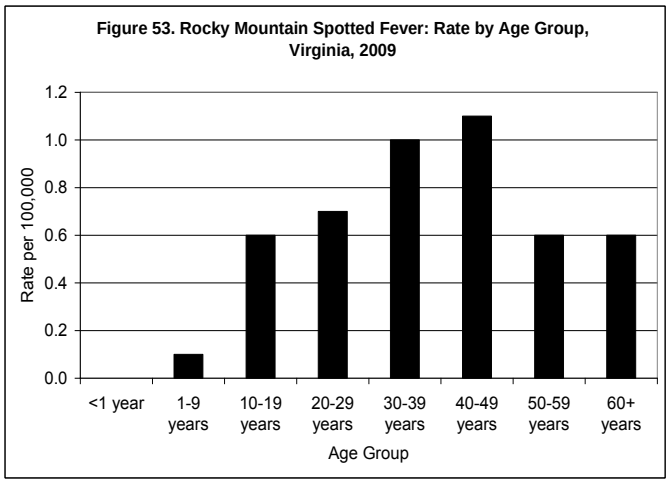


Figure 53. Rocky Mountain Spotted Fever: Rate by Age Group, Virginia, 2009

Information on race was missing for 53% of reported cases. Where race information was provided, incidence in the white population was shown to be twice the rate in the black population (0.4 and 0.2 per 100,000, respectively). Males had a somewhat higher rate than females (0.9 and 0.5 per 100,000, respectively). The northwest and central regions of Virginia had the highest incidence (1.3 and 1.1 per 100,000, respectively) and rates in other regions ranged from 0.4 to 0.5 per 100,000. For nearly half of all cases (49%) symptoms were reported to begin between April and June (Figure 54). These months are consistent with the activity peaks for many tick species in Virginia, but the noticeable drop in the number of cases reported during May of 2009 is unexplained.

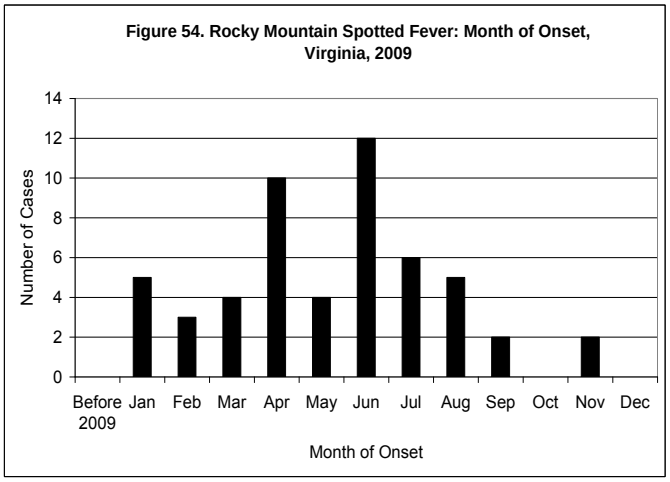


Figure 54. Rocky Mountain Spotted Fever: Month of Onset, Virginia, 2009

Rubella

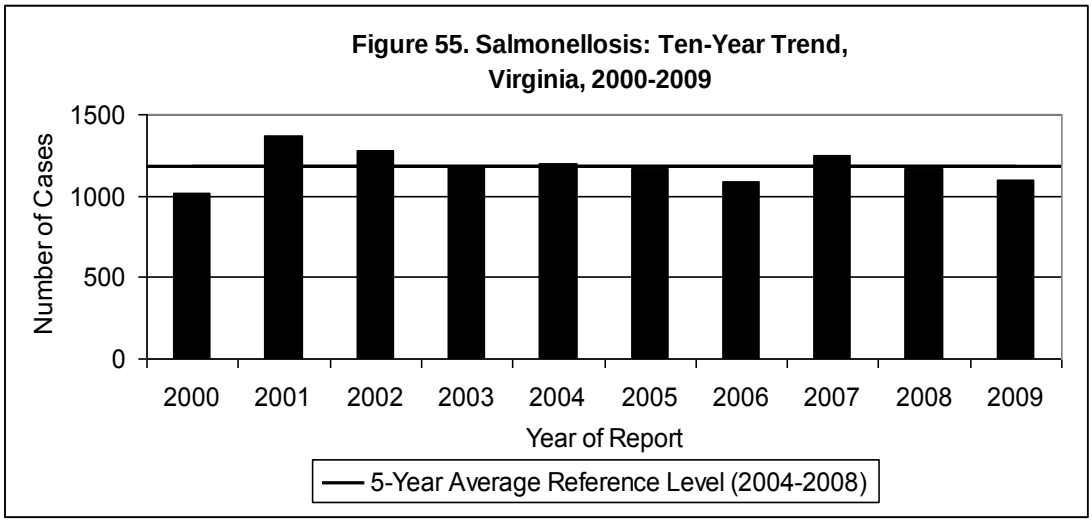
Agent: Rubella virus
Mode of Transmission: Person-to-person transmission through contact with nose and throat secretions from infected people. The virus may also be transmitted from mother to child during pregnancy, causing congenital rubella syndrome in the infant.
Signs/Symptoms: Fever and rash, with frequent occurrences of arthralgia, arthritis, and lymphadenopathy.
Prevention: Vaccination, preferably administered as MMR vaccine, beginning at 12 months of age.
Other Important Information: In 2004, rubella was declared to be no longer endemic in the United States.

No cases of rubella were reported in Virginia during 2009. The last case in Virginia was reported in 2001.

Salmonellosis

Agent: *Salmonella* (bacteria)
Mode of Transmission: Ingestion of contaminated food or drinking water. Infected persons can spread the bacteria to other persons by not washing their hands after going to the bathroom and then handling food that other people will eat. This disease may also be acquired by having direct contact with feces from an infected person or animal and then ingesting the bacteria from contaminated hands.
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: Proper sanitation methods for food preparation including preventing cross-contamination of food preparation surfaces, sanitation of water supplies, proper hand hygiene, including after handling animals or their feces, sanitary sewage disposal, exclusion of infected people from handling food or providing healthcare, prohibiting the sale of small turtles and restricting the sale of other reptiles for pets. Eggs and other animal food products should be cooked thoroughly.
Other Important Information: With approximately 40,000 salmonellosis cases reported each year in the United States, *Salmonella* is one of the leading pathogens that cause foodborne illnesses and result in hospital admissions. The incidence rate is highest among infants and young children. Mortality rates are higher in infants, older adults and people with immunosuppressive conditions.

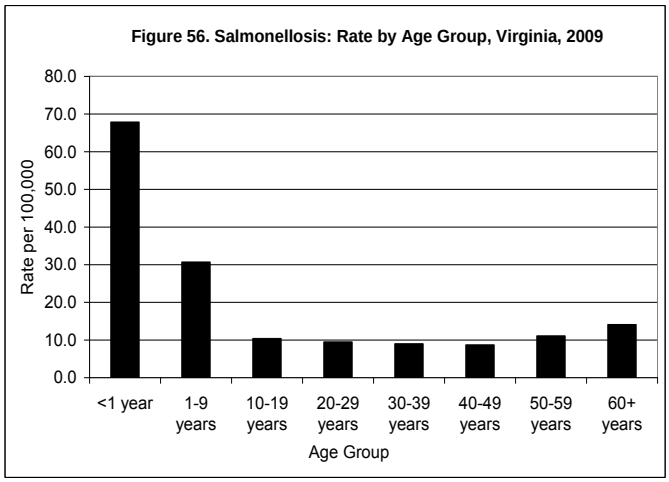
The 1,095 cases of salmonellosis reported in 2009 represent a 6% decrease from the 1,165 cases reported in 2008, and a 7% decrease from the five-year average of 1,174.2 cases per year (Figure 55).

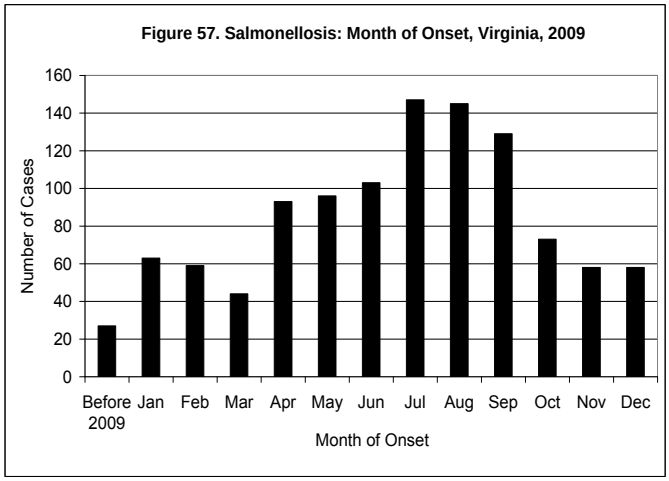


The highest incidence rate was observed in the <1 year age group (67.9 per 100,000), followed by the 1-9 year age group (30.7 per 100,000) (Figure 56). Rates in the other age groups ranged from 8.7 to 14.1 per 100,000. Although information on race was missing for 45% of the cases,

where race was known, incidence was higher in the white population (8.0 per 100,000) than the black and "other" populations (6.8 and 6.6 per 100,000, respectively). Rates were slightly higher among females than males (14.6 and 13.3 per 100,000, respectively).

By region, the northwest region had the highest incidence rate, with 16.7 cases per 100,000. Rates in all other regions ranged from 12.9 to 15.2 per 100,000. While salmonellosis occurred throughout the year, there was a notable increase in the second and third quarters (65% of the cases), with a peak in July and August (Figure 57). Among cases reported in 2009, 1 death was attributed to salmonellosis and occurred in an adult female from the northern region.





Nine salmonellosis outbreaks were reported during 2009. Four of these were foodborne outbreaks and the number of cases per outbreak ranged from eight to nineteen. The other five outbreaks were linked to environmental issues and the number of cases per outbreak ranged from two to seventeen. All the environmental outbreaks involved contact with animals, including baby chicks, puppies, snakes, and frogs. Of all the salmonellosis outbreaks, three involved multi-state jurisdictions in which Virginians were involved. Serotypes identified in the outbreaks included Enteritidis, Typhimurium, Newport, and Johannesburg. For Virginia salmonellosis cases reported in 2009, the most commonly identified serotype was *Salmonella* ser. Enteritidis (Table 9).

Table 10. Number and Percent of *Salmonella* Infections by Serotype, Virginia, 2009

Serotype Causing Infection	Number	Percent		Serotype Causing Infection	Number	Percent
S. ser. Enteritidis	217	19.7		*S.* ser. Saintpaul	21	1.9
S. ser. Typhimurium	213	19.4		*S.* ser. Bareilly	17	1.5
S. ser. Newport	99	9.0		*S.* ser. Braenderup	17	1.5
S. ser. Javiana	50	4.5		All Others	184	16.7
S. ser. Heidelberg	28	2.5		Unspecified	253	23.0
				Total*	1,099	

*The total number of serotypes (1,099) is larger than the total number of *Salmonella* infections (1,095) because a person may be infected with more than one serotype.

Severe Acute Respiratory Syndrome (SARS)

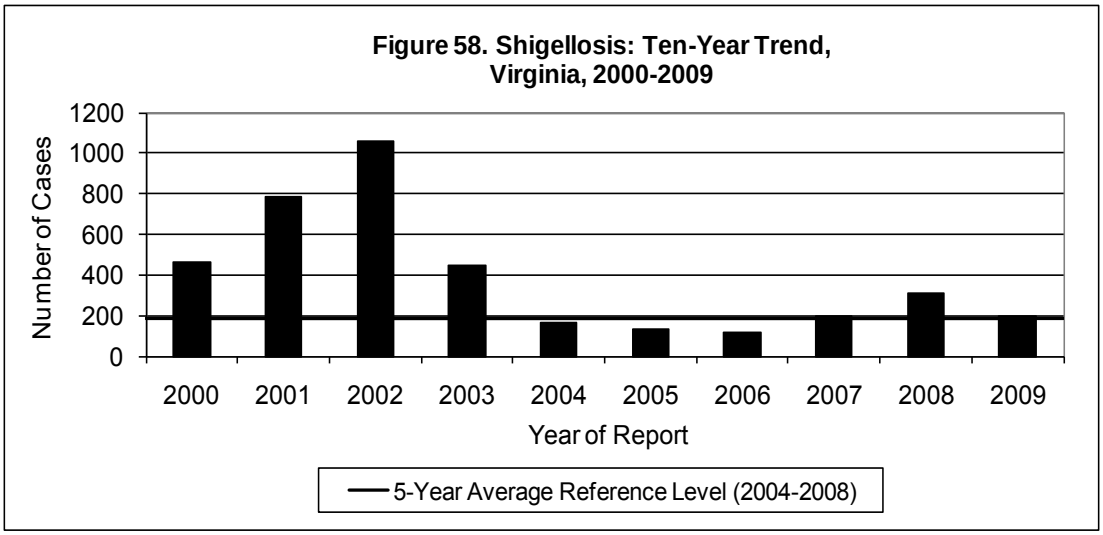
Agent: Severe acute respiratory syndrome-associated coronavirus (SARS-CoV)
Mode of Transmission: Most likely transmitted from person to person through respiratory droplets released during coughing and sneezing; transmission can also occur by touching a contaminated surface or object and then touching 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.

No cases of SARS were reported in Virginia during 2009. Previously, 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 more who had traveled to Taiwan, Malaysia and Singapore 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.

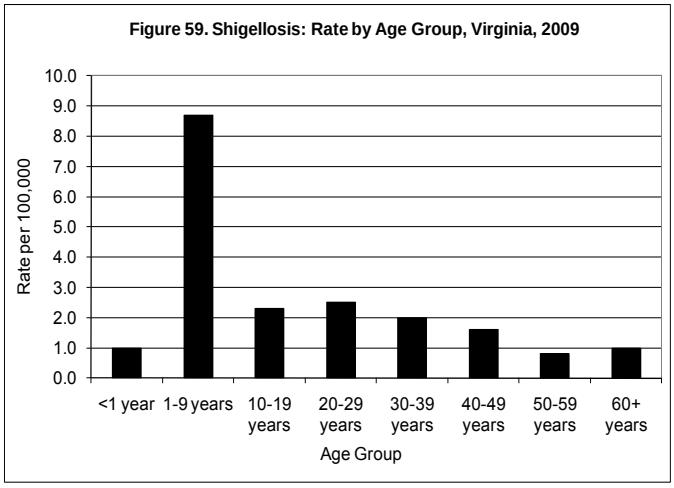
Shigellosis

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 a contaminated inanimate object, ingestion of contaminated food or water and 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, the exclusion of infected persons as food handlers and measures to decrease contamination of food by houseflies.

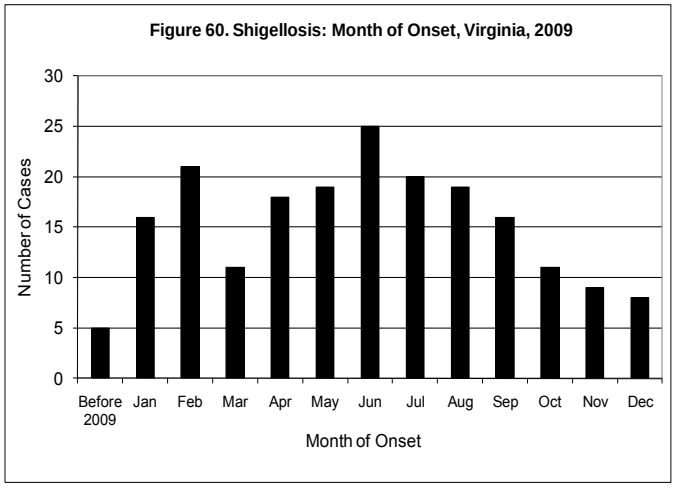
During 2009, 198 cases of shigellosis were reported in Virginia. This represents a 36% decrease from the 310 cases reported in 2008, and a 6% increase from the five-year average of 186.2 cases per year (Figure 58).



The 1-9 year age group had the highest number of cases with 80 reported infections, and the highest incidence at 8.7 per 100,000. The other age groups had rates between 0.8 and 2.5 per 100,000 (Figure 59). Race data were missing for 55% of reported cases. Among cases with race information, the incidence rate in the black population (2.7 per 100,000) was more than three times the rate in the white population (0.8 per 100,000). This racial disparity was also seen nationally. The CDC summary data for 2008 reported the rate for the black population was more than double the rate for the white population. In Virginia, the incidence rate was the same for males and females (2.5 per 100,000).



By region, the northwest region had the highest incidence rate (3.7 per 100,000). This was followed by the northern and central regions, each with 2.9 per 100,000. By onset date, the largest proportion of cases (31%) occurred in the second quarter of the year, and the smallest proportion (14%) occurred during the fourth quarter (Figure 60). Two shigellosis outbreaks were identified during 2009, and both occurred in daycare settings in the central region. The number of cases per outbreak ranged from two to eighteen, and both outbreaks had onset during the second quarter. Among cases reported in 2009, one death was attributed to shigellosis in a female from the 30-39 year age group.



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: Vaccination with the genetically distinct vaccinia virus. Routine vaccination of the American public stopped in 1972.
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. 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.

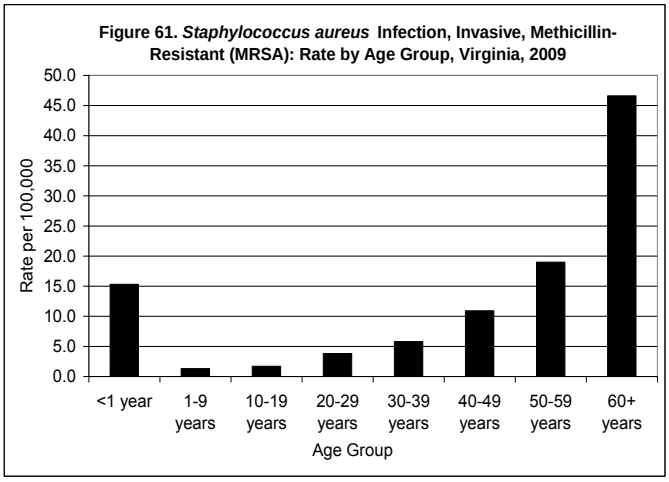
The last case of smallpox in Virginia occurred in 1944.

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

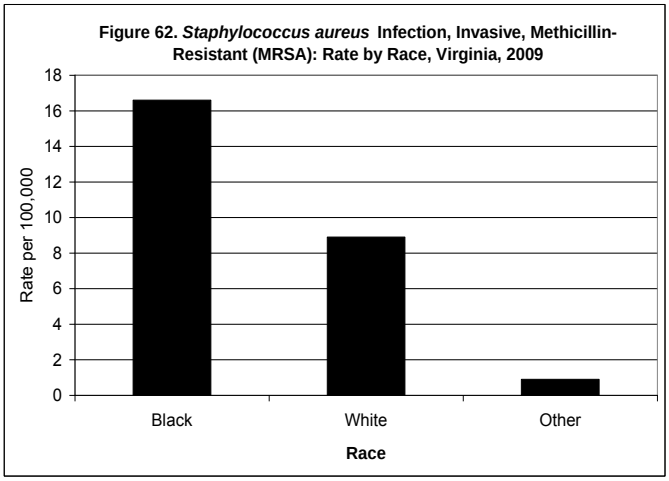
Agent: *Staphylococcus aureus* (bacteria) that has developed resistance to the class of beta-lactam antibiotics, including penicillin, cloxacillin, oxacillin, nafcillin, and methicillin, as well as cephalosporins and carbapenems.
Mode of Transmission: Person-to-person transmission via direct contact 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 washing hands regularly and thoroughly with soap and water. In healthcare settings, control measures include adhering to appropriate infection control, 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) are not reportable. Reporting of this condition became effective on October 26, 2007.

During the approximately nine-week reporting period in 2007, 253 cases of invasive MRSA infection were reported in Virginia. In 2008, the first full reporting year, 1,524 cases were reported. In 2009, 1,124 cases were reported in Virginia, demonstrating a 26% decrease from 2008.

The highest incidence occurred in the 60 year and older age group (46.6 per 100,000), followed by the 50-59 age group (19.0 per 100,000) and infants (15.3 per 100,000) (Figure 61). Among the remaining age groups, there was an incremental increase in rates as age increased. Thirty-two percent of cases were missing race data.



Among cases with race information, incidence in the black population (16.6 per 100,000) was nearly twice the rate in the white population (8.9 per 100,000), and eighteen times greater than the rate in the "other" population (Figure 62). This racial disparity in invasive MRSA infections has also been observed nationally; although the cause of this disparity is unknown. In Virginia, incidence was higher in males than in females (16.0 and 12.1 per 100,000, respectively). By region, the central region had the highest incidence rate (25.9 per 100,000), while the other regions had rates ranging from 11.3 to 21.0 per 100,000. Invasive MRSA reporting was consistent throughout the year with each quarter representing 22%-27% of the cases. One MRSA outbreak was reported in 2009, involving five infants in a medical facility. Among cases reported in 2009, forty-five (4%) of the 1,124 persons with invasive MRSA infections were reported to have died from these infections. Thirty-four (75%) of these deaths were in adults aged 60 years or older. Twenty of these fatal cases were in females and twenty-five occurred in males.



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

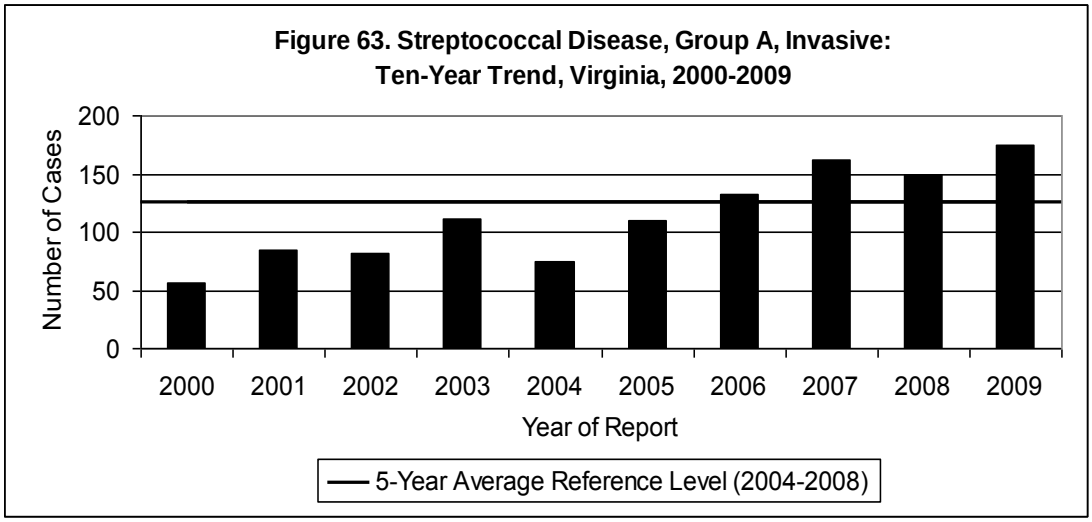
Agent: *Staphylococcus aureus* (bacteria) that has developed intermediate or complete resistance to the antibiotic vancomycin, based on susceptibility testing
Mode of Transmission: Person-to-person transmission through direct contact or through contact with contaminated materials or surfaces.
Signs/Symptoms: Depends on site of infection (e.g., skin, bone, urinary or respiratory tract). Infection may develop into toxic shock syndrome (see Toxic Shock Syndrome section). Asymptomatic colonization can occur.
Prevention: Appropriate use of antibiotics to treat infections, good hand hygiene, and proper cleaning of contaminated surfaces.

No cases of VISA or VRSA infection were reported in Virginia in 2009. VRSA has never been reported in a Virginia resident. The only reported case of VISA infection in Virginia occurred in 2007. The infection resulted in death for this female in the 60 year and older age group from the eastern region.

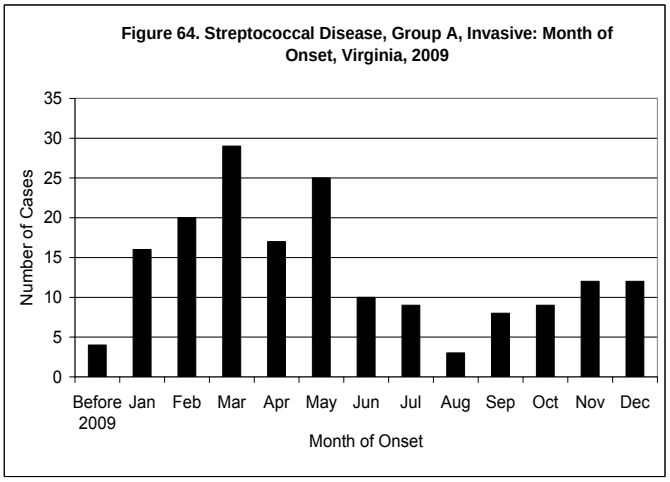
Streptococcal Disease, Group A (GAS), Invasive

Agent: *Streptococcus pyogenes* (bacteria)
Mode of Transmission: Person-to-person transmission through direct contact with mucus from the nose, throat or other body fluids of persons who are infected with GAS, or through contact with infected wounds or sores.
Signs/Symptoms: These bacteria can cause common infections, such as strep throat and skin infections. Rarely, they can lead to severe invasive infections of the blood or other internal body fluids. These infections often require hospitalization.
Prevention: Preventive measures include prompt identification and treatment of non-invasive cases and temporary exclusion of infected healthcare employees from work for the first 24 hours of antibiotic therapy. Wounds should be kept clean and medical care should be sought at signs of infection.
Other Important Information: Persons at higher risk for developing invasive GAS infections are older persons, immunocompromised persons, and those with chronic, underlying illnesses. The two most severe, but least common, forms of invasive GAS infections are necrotizing fasciitis (NF) and streptococcal toxic shock syndrome (STSS). NF infections present with severe pain and rapid destruction of tissue. STSS infections are characterized by shock and rapid organ failure.

During 2009, 174 cases of invasive GAS infections were reported in Virginia. This is a 16% increase from the 150 cases reported in 2008, and a 39% increase above the five-year average of 125.6 cases per year (Figure 63).



The highest incidence of invasive GAS infections occurred in the 60 year and older age group (69 cases, 5.2 per 100,000). This was followed by the 50-59 year age group (32 cases, 3.1 per 100,000). The other age groups had rates between 0.6 and 2.0 per 100,000. Race information was missing for 26% of reported cases. Among cases for which race was reported, the rate in the black population (2.3 per 100,000) was more than twice the rate in the white population (1.6 per 100,000), and was almost six times the rate in the "other" population. Females had slightly higher incidence than males (2.4 and 2.0 per 100,000, respectively). By region, the northwest region had the highest rate (3.2 per 100,000), while the other regions in the state had rates ranging from 1.2 to 2.7 per 100,000. A seasonal trend was noted with 37% of cases occurring during the first quarter of the year and peaking in March (Figure 64). This trend is also typically seen with "strep throat" infections and highlights the importance of transmission of GAS by these persons. Among cases reported in 2009, fourteen deaths were attributed to invasive GAS infection. Nine (64%) of the deaths occurred in those aged 60 years and older, and nine (64%) were in males. In 2009, one case of STSS was reported.



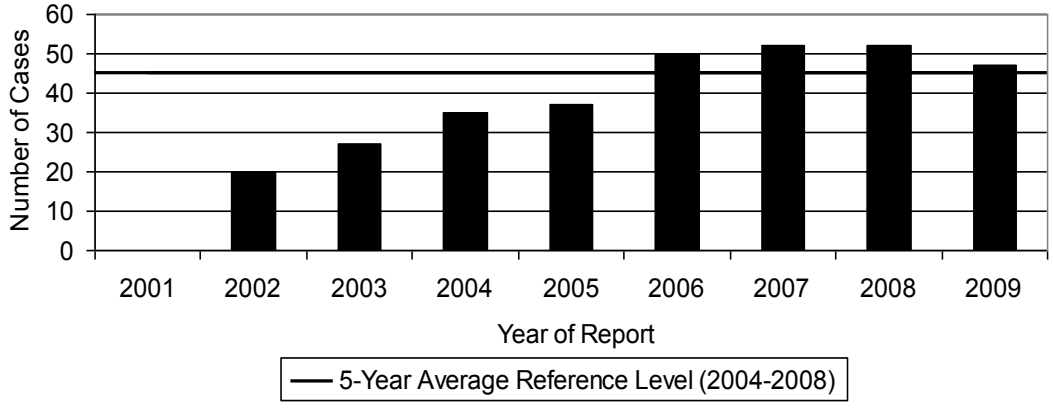
***Streptococcus pneumoniae*, Invasive, in Children Less than 5 Years of Age**

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 infections 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 for infants at 2, 4, 6, and 12 to 15 months of age. Pneumococcal infections can be hard to treat because of antibiotic resistance, thus making prevention through vaccination even more important. Vaccine is also recommended for adults aged 65 years or older and other persons at increased risk for infection.
Other Important Information: With the decline of invasive *Haemophilus influenzae* infections, *S. pneumoniae* has become the leading cause of bacterial meningitis among children less than 5 years of age in the United States.

Forty-seven cases of invasive *S. pneumoniae* infection in children less than 5 years of age were reported in Virginia during 2009. This represents a 10% decrease from the 52 cases reported in 2008, but is similar to the five-year average of 45.2 cases per year (Figure 65).

Figure 65. *Streptococcus pneumoniae* , Invasive, in Children Less than 5 Years of Age: Nine-Year Trend, Virginia, 2001-2009



Forty-three percent of the reported cases occurred in infants aged less than one year, resulting in an incidence rate of 19.1 per 100,000. The incidence rate in children aged 1 to 4 years was substantially lower than that of infants with 6.5 cases per 100,000. Among the 83% of cases with information about race, the incidence was higher in the black population (13.8 per 100,000) than in the white and "other" populations (6.3 and 1.8 per 100,000, respectively). The rate of *S. pneumoniae* infection among males (11.6 per 100,000) was almost twice as high as the rate of infection in females (5.9 per 100,000). This reflects national data that show males are more likely than females to contract pneumococcal infections. Although cases were reported from all regions of the state, the highest incidence was seen in the northwest region (14.1 per 100,000).

The rates in other regions ranged from 4.9 to 12.1 per 100,000. Cases occurred throughout the year, with 32% of cases having onset during the first quarter, which is consistent with the seasonal pattern of pneumococcal infections. Among cases reported in 2009, one death was attributed to *S. pneumoniae* infection in an infant who was too young for the administration of vaccine. Of the 40 cases where hospitalization status was reported, 72% were hospitalized, highlighting the serious nature of the disease.

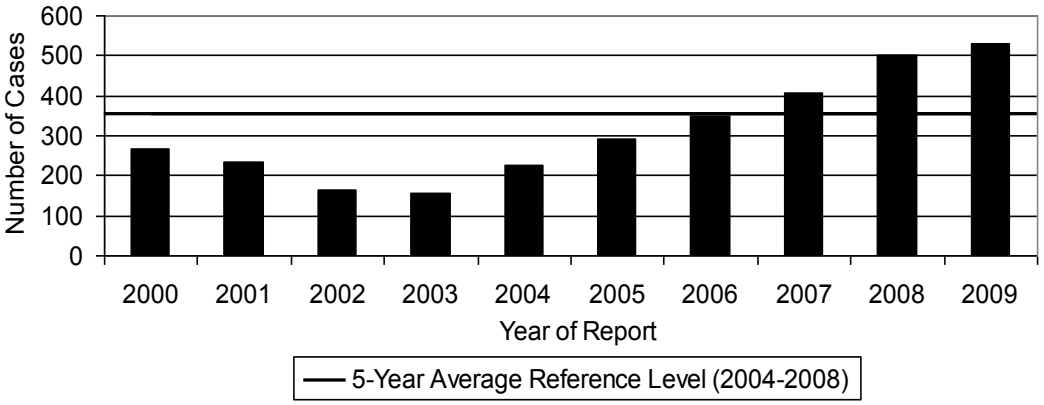
Syphilis

Agent: *Treponema pallidum* (bacteria)
Mode of Transmission: Through sexual intercourse, from mother to child through the placenta, and via blood transfusion from an infected donor in the early stage of disease.
Signs/Symptoms: The primary stage is characterized by a chancre. The secondary stage includes a skin rash and lesions of the mucous membranes. A latent period follows with no clinical symptoms. In late syphilis, the central nervous system may become sufficiently damaged, causing death.
Prevention: Preventive measures include safer 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 two populations: men who have sex with men (MSM) and blacks.

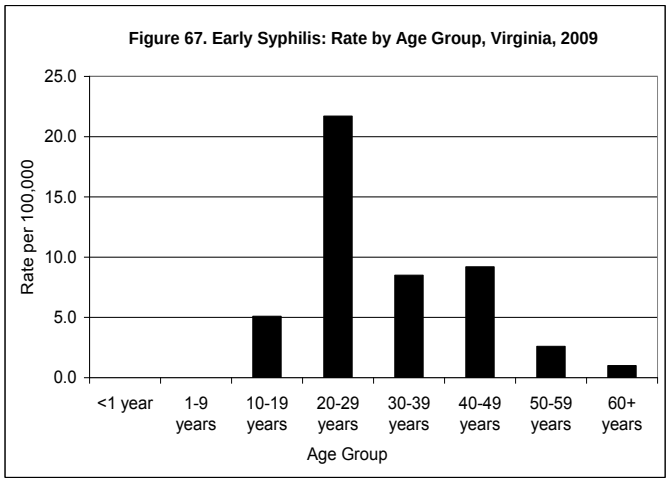
Early Syphilis

Early syphilis includes the primary and secondary stages and early latent syphilis (cases diagnosed without signs and symptoms within one year from the time of infection). Mirroring national trends, syphilis continues to rise in Virginia. There were 529 cases of early syphilis reported in Virginia during 2009 (Figure 66). This is a 49% increase from the five-year average of 354.6 cases per year. Since 2002, incidence has nearly tripled from 2.3 to 6.8 per 100,000 in 2009.

Figure 66. Early Syphilis: Ten-Year Trend, Virginia, 2000-2009



The highest incidence occurred in the 20-29 year age group (21.7 per 100,000), followed by the 40-49 year age group (9.2 per 100,000) (Figure 67). The rate in the black population (23.1 per 100,000) was ten times the rate in the white population (2.3 per 100,000), and more than three times the rate in the "other" population (6.6 per 100,000). The rate in males was more than seven times the rate in females (12.2 and 1.6 per 100,000, respectively). The male to female ratio has risen from approximately 1:1 to 8:1 over the past ten years, which is indicative of a rising syphilis incidence among MSM. Since 2002, the rate of early syphilis has tripled in the southwest and central regions of Virginia.



Congenital Syphilis

Congenital syphilis is a condition affecting an infant whose mother had untreated syphilis or inadequately treated syphilis at delivery, regardless of signs in the infant, or an infant or child who has a reactive treponemal test for syphilis. Two cases of congenital syphilis were reported in Virginia in 2009, which is slightly lower than the average of 3.2 cases per year over the preceding 5 years.

Late Syphilis

Late syphilis is diagnosed in those patients where there is no evidence of having acquired the disease within the preceding 12 months, and whose age and titer do not meet the criteria specified for latent syphilis of unknown duration. Late syphilis occurs when the disease goes untreated. In 2009, 221 cases of late syphilis were reported in Virginia, which was 21% less than the 281 cases reported in 2008. Incidence in the black population was 14 times the incidence in the white population (8.2 and 0.6 per 100,000, respectively), and the rate in males was slightly higher than in females (3.6 and 2.2 per 100,000, respectively). The highest incidence rate was reported in the 40-49 year age group (5.4 per 100,000). Incidence rates were highest in the central and northern regions, at 4.2 and 3.5 per 100,000, respectively.

Tetanus

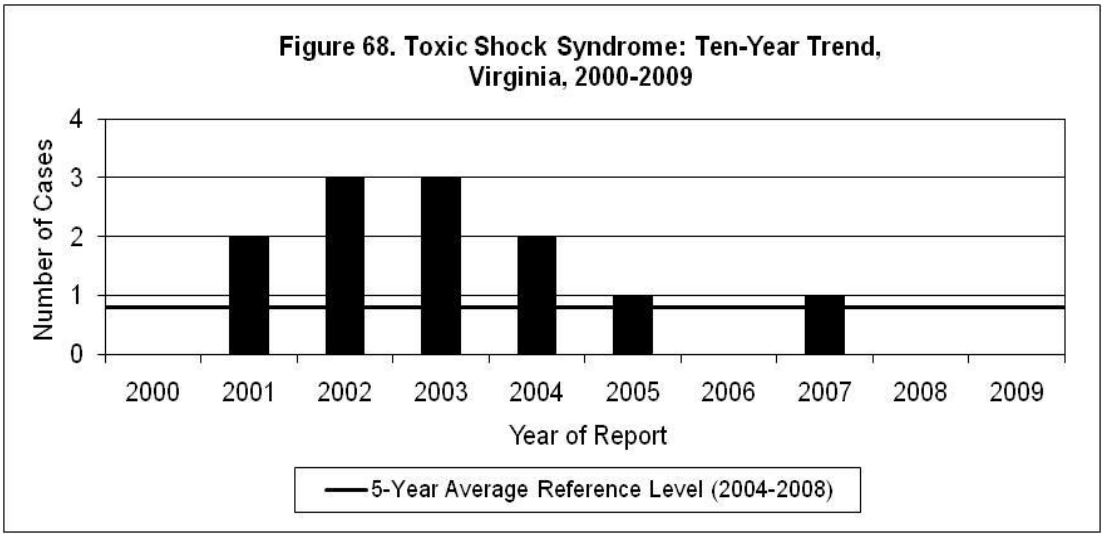
Agent: Toxin secreted by the bacteria *Clostridium tetani*
Mode of Transmission: The bacteria enter the body through a break in the skin, usually when a wound is infected by contaminated soil, dust, or animal or human feces. Person-to-person transmission does not occur.
Signs/Symptoms: A descending pattern 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 as a new 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.
Other Important Information: The case-fatality rate of tetanus ranges from 10% to 80% and depends on age, quality of and access to care, length of incubation and recognition of symptoms as indicative of tetanus. Attempts at laboratory confirmation may not be helpful because the organism is rarely recovered from the site of infection, and there is usually no detectable antibody response.

No cases of tetanus were reported in Virginia in 2009. Single cases were reported in 2004 and 2005. Before 2004, the last reported case of tetanus in Virginia occurred in 1998.

Toxic Shock Syndrome

Agent: *Staphylococcus aureus* or beta-hemolytic streptococci (bacteria)
Mode of Transmission: Person-to-person transmission through direct contact or through contact with contaminated materials or surfaces.
Signs/Symptoms: Sudden onset of high fever, rash, vomiting, watery diarrhea, and muscle pain, followed by a drop in blood pressure, and shock in severe cases.
Prevention: Hands should be washed carefully and all skin abrasions should be cleaned thoroughly. Preventive measures include the eradication of *S. aureus* and *Streptococcus pyogenes* from draining wounds.
Other Important Information: The majority of early cases were reported in women during menses; however, in recent years, only 55% of cases have been reported among women of child-bearing age.

No cases of toxic shock syndrome due to *S. aureus* were reported in Virginia during 2009. The last reported case occurred in 2007 in a white female adolescent from the northwest region. For the past five years, the average occurrence of this condition was 0.8 cases per year (Figure 68).



For information on toxic shock syndrome cases caused by infection with group A *Streptococcus,* see the "Streptococcal Disease, Group A, Invasive" section in this report.

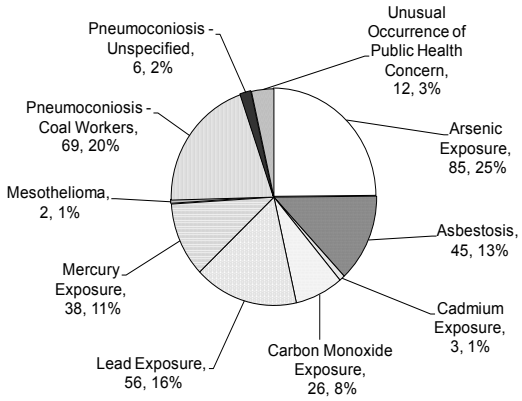
Toxic Substance-Related Illness

Agent: Multiple, including pesticides, heavy metals (e.g., lead, cadmium, mercury, arsenic), occupational dusts or fibers (e.g., coal, silica, asbestos), gases (e.g., carbon monoxide, methane) or radioactive materials.
Mode of Transmission: Varies depending on agent; can include absorption through skin, ingestion, or inhalation.
Signs/Symptoms: Varies depending on agent, dose of exposure, 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, 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 among healthcare professionals can help reduce subsequent illness.

During 2009, 342 cases of toxic substance-related illness were reported in Virginia. This is comparable to the five-year average of 370.0 cases per year. An incidence of exposure is based on a physician's diagnosis or on a laboratory finding above expected normal values. The three most frequently reported toxic substance-related illnesses were arsenic exposure, pneumoconiosis, and lead exposure (Figure 69). Additional toxic substance-related illnesses reported during 2009 included mesothelioma and exposures to asbestos, cadmium, carbon monoxide, and mercury. In addition, occurrence of illness from exposure to rarely reported substances were captured. These unusual occurrences of public health concern included exposures to combustion products, ethylene glycol, noxious fumes, aluminum, carbon dioxide,

isopropanol, argon gas, and bleach. Many of these unusual occurrence exposures were reported through death certificates.

Figure 69: Reported Adult Toxic Substance-Related Illness, by Illness Type, Virginia, 2009



The number of cases of arsenic exposure has significantly increased in the past two years, from 18 cases in 2007 to 85 cases in 2009. This increase in reported arsenic exposure has been the result of additional submissions of electronic laboratory reports for persons with arsenic levels above normal laboratory values. This same reporting phenomenon is seen, to a lesser extent, with reported cases of mercury exposure. Most of the arsenic and mercury reports resulted from elevated blood or urine levels for total arsenic or mercury. Further speciations for the more dangerous forms of inorganic arsenic or mercury were not provided. Numbers for reported cases of adult lead exposure continue to decrease. In 2005, 140 cases of elevated blood lead levels in adults were reported compared with 56 cases in 2009. Greater awareness of the dangers of lead exposure, as well as enforcement of workplace lead standards have contributed to the decrease in reported exposures.

Among other frequently reported conditions, 88% of those reported with pneumoconiosis worked in the coal mining industry, and of these reported cases, 38% died from this condition. The 26 persons with reported carbon monoxide exposures worked in various industries; however, all but six of the exposures were reported through death certificates and resulted from accidental fires and exposure to generator exhaust or deliberate exposure to vehicle exhaust. Although asbestosis accounted for 13% of all toxic substance related-illness in 2009, the number of reported cases has dropped steadily over the past decade. The average age reported for asbestosis was 80 years, which is reflective of exposures occurring before regulatory standards and guidelines became effective. Ninety-seven percent of the asbestos exposures were reported through death certificates, and of these, 51% listed asbestosis as a primary cause of death.

Among all toxic exposures, the highest percentage of cases (39%) occurred in the 60 year and older age group with an incidence rate of 10.1 per 100,000, followed by the 50-59 year age group with a rate of 7.0 per 100,000. Race information was not reported for 51% of toxic substance-related cases. Where race information was provided, the white population had the highest incidence (2.5 per 100,000), followed by the black population (1.2 per 100,000). Eighty-one percent of all cases occurred in males and the incidence was more than four times that of females (7.3 and 1.6 per 100,000, respectively). The southwest region, where coal and battery manufacturing industries are concentrated, accounted for 32% of reported exposures and had an incidence of 8.4 per 100,000. Other regions of the state had incidence rates ranging from 2.6 to 4.6 per 100,000.

Children with exposure to lead are not discussed in this section. For that information, see the "Lead - Elevated Blood Levels in Children" section of this report.

Trichinosis

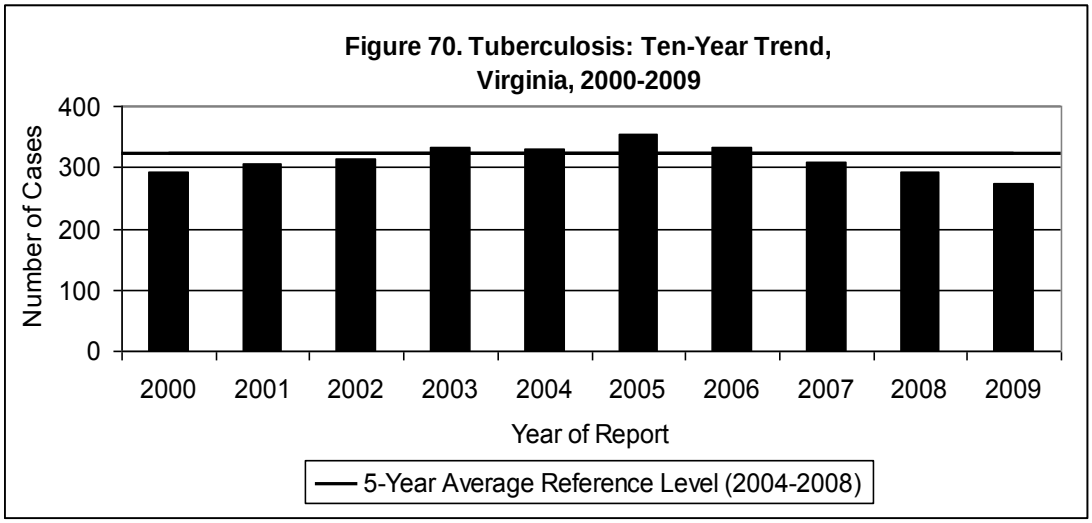
Agent: Roundworms of genus *Trichinella; T. spiralis* is the most common cause of human infections.
Mode of Transmission: Eating undercooked contaminated meat, including bear, pork, wild feline (such as cougar), fox, dog, wolf, horse, seal, or walrus.
Signs/Symptoms: Nausea, diarrhea, vomiting, fatigue, fever, and abdominal discomfort. Headaches, fevers, 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 pork products and meat from wild animals should be cooked to an internal temperature of at least 160 degrees Fahrenheit.
Other Important Information: Trichinosis used to be more common in the United States and was more often associated with consumption of raw or undercooked pork products. Now, more cases in the United States are associated with consuming raw or undercooked wild game meats than with pork products. Trichinosis is not transmitted from person to person. Infected meat will remain infective until it has been properly cooked, cured, frozen or irradiated.

No cases of trichinosis were reported in Virginia during 2009. The last reported case in Virginia occurred in 2008 in an adult male with a recent history of consuming undercooked meat products, including wild elk.

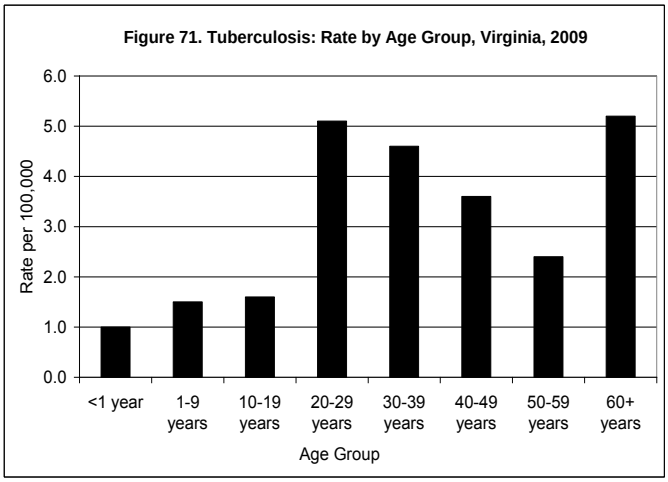
Tuberculosis

Agent: *Mycobacterium tuberculosis* (bacteria)
Mode of Transmission: Inhalation of tubercle bacilli via airborne droplets produced when patients with pulmonary or respiratory tract tuberculosis 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. 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. About 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.

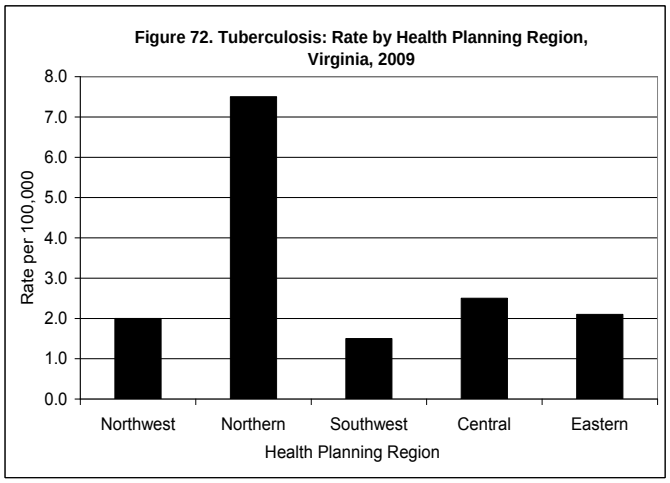
The 273 tuberculosis cases reported in 2009 represent a 6% decrease from the 292 cases reported in 2008, a 16% decrease compared with the five-year average of 323.4 cases per year, and the fewest number of cases reported in Virginia since 1979 (Figure 70). In 2009, the nation reported the lowest number of tuberculosis cases since reporting began in 1954. The decline in Virginia in 2009 was entirely due to a smaller number of cases among foreign-born persons: 190 in 2009 compared to 212 in 2008. Drug resistance was found in 30 cases, three of which were multi-drug resistant. No cases of extensively drug resistant tuberculosis were reported. The majority of cases (70%) were reported among foreign-born persons. The five most common countries of origin were the Philippines, Viet Nam, India, Ethiopia and Nepal. This is the first year in the last decade that Mexico was not among the top five countries of origin.



Incidence rates in adults were higher than rates in children and adolescents. The highest incidence rate occurred among persons in the 60 year and older age group (5.2 per 100,000), followed by those in the 20-29 and 30-39 year age groups (5.1 and 4.6 per 100,000, respectively). The lowest rate (1.0 per 100,000) was reported among those aged less than one year (Figure 71). By race, the highest incidence by far was observed in the "other" race population (20.2 per 100,000) followed by the black population (5.9 per 100,000) and the white population (1.3 per 100,000). In 2009, all persons of "other" race with tuberculosis were Asian or Pacific Islanders.



Males had a higher rate (4.0 per 100,000) than females (3.1 per 100,000). The highest number of cases and highest incidence rate were reported from the northern region (158 cases, 7.5 per 100,000), and the lowest number and rate were seen in the southwest region (20 cases, 1.5 per 100,000) (Figure 72). The high rate in the northern region is attributed to 75% of the 190 foreign-born cases being reported from that area. Among cases reported in 2009, thirteen deaths were attributed to tuberculosis. Thirty-nine percent of these deaths occurred in persons under the age of 45.



Tularemia

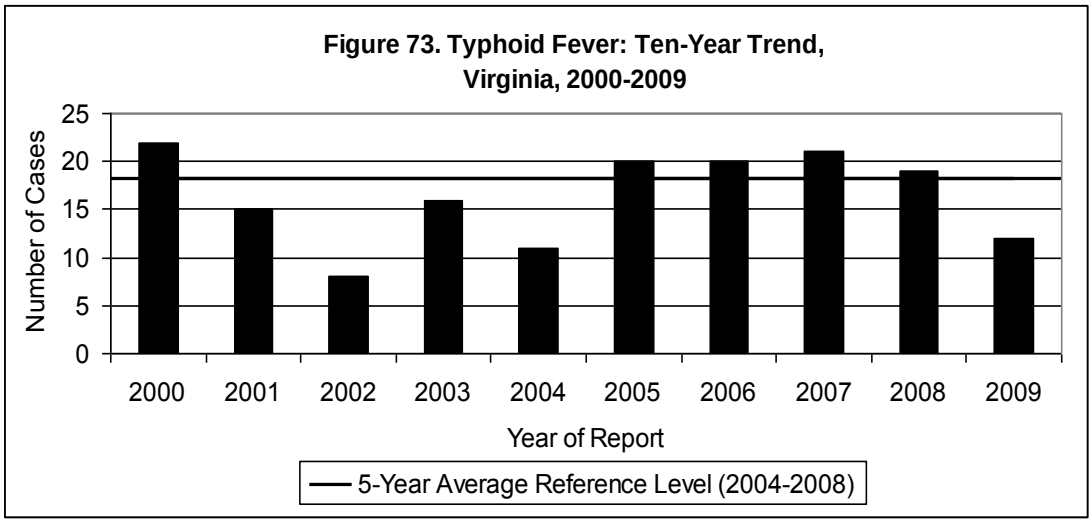
Agent: *Francisella tularensis* (bacteria)
Mode of Transmission: In the United States, by the bite of an infected tick such as the American dog tick, the lone star tick, the blacklegged tick or occasionally by the bite of an infected deer fly. Hunters can contract the disease while cleaning infected game or when eating raw or undercooked infected meat. Humans may also become infected by drinking water contaminated by infected animals, 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 may became infected with the bacteria during aerosol-generating procedures. The bacteria are not transmitted from person to person.
Signs/Symptoms: Vary depending on the mode of transmission, but usually include sudden onset of high fever, chills, fatigue, general body aches, headache and nausea. Pneumonia may complicate the disease and requires prompt identification and specific treatment to prevent development of serious, life-threatening illness.
Prevention: Preventive measures include minimizing bites by avoiding areas infested by ticks or deer flies, and avoiding untreated water in areas where tularemia is prevalent among wild animals. 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.
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.

No cases of tularemia were reported in Virginia during 2009. The last reported case occurred in 2008 in a male child, and the infection was associated with a tick bite.

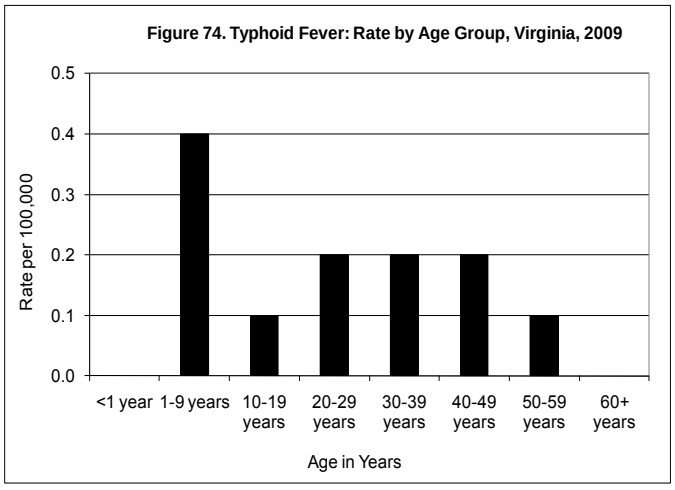
Typhoid Fever

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.

During 2009, 12 cases of typhoid fever were reported in Virginia. This is a 37% decrease from the 19 cases reported in 2008, and a 34% decrease from the five-year average of 18.2 cases per year (Figure 73). Travel histories were obtained for all cases, and infected persons had traveled outside the United States in the 30 days before illness onset. The countries visited were Pakistan, India, Bangladesh, and Belgium.



The 1-9 year age group had the highest incidence rate (0.4 per 100,000), followed by the 20-29, 30-39 and 40-49 year age groups (0.2 per 100,000 each) (Figure 74). Race information was not available for 33% of the cases. The remaining cases were reported as "other" race with an incidence of 1.5 per 100,000). Incidence was evenly distributed between females and males (0.2 per 100,000). Seven (58%) cases were reported from the northern region, where the incidence rate was 0.3 per 100,000. Among other regions in the state, incidence rates



ranged from 0.0 to 0.2 per 100,000. Onset occurred throughout the year with a slight peak in August; however, because these infections were acquired outside the country, any seasonality would be related to travel patterns to countries where the disease is more common.

Vaccinia, Disease or Adverse Event

Agent: Vaccinia virus, which is used in the smallpox vaccine
Mode of Transmission: Through injection with the smallpox vaccine or through direct contact with contaminated materials or the vaccination site before it has healed.
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.
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. Since then, the first report of vaccinia infection in Virginia was received in 2008. The infection occurred in a laboratory worker who handled vaccinia-infected mice. No cases of vaccinia were reported in Virginia in 2009.

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

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

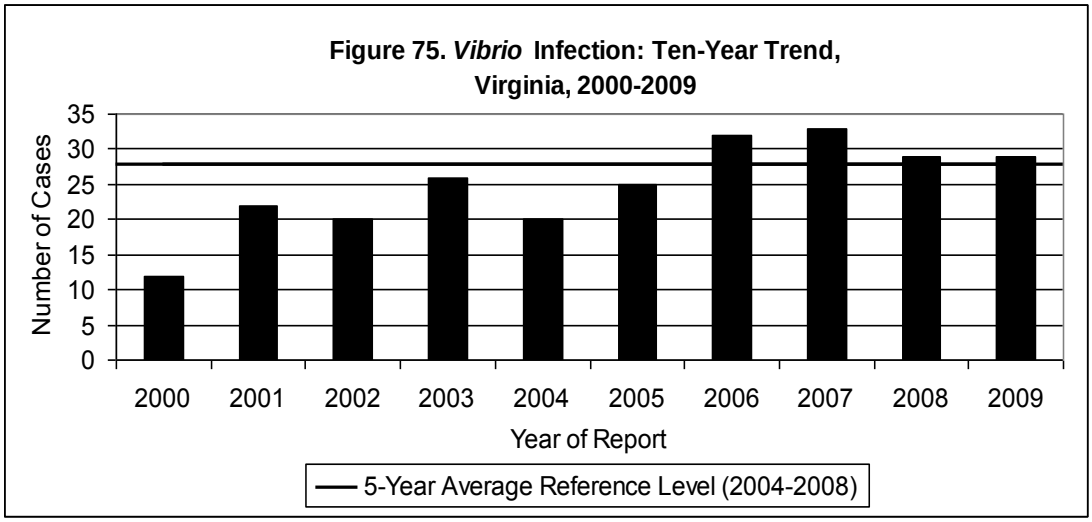
Vibrio Infection

Agent: *Vibrio* (bacteria)
Mode of Transmission: Gastroenteritis 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 arise from environmental exposures, usually from brackish waters or from occupational injuries (e.g., among fishermen).
Signs/Symptoms: Syndromes associated with *Vibrio* infection include diarrhea, wound infection, and septicemia. Diarrheal illness is most common and includes watery stools, cramping, and abdominal pain. 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 are immunosuppressed. Among those infected with *V. vulnificus*, over 50% of patients with primary septicemia die.

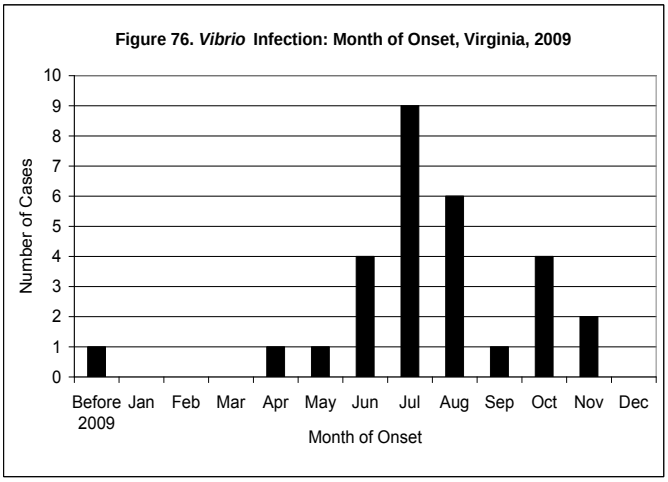
Prevention: Seafood should be cooked adequately and should be refrigerated. Abrasions suffered by those swimming in the ocean should be rinsed with clean, fresh water. Most people are probably susceptible, especially those with liver disease, decreased gastric acidity, diabetes, peptic ulcers, or immunosuppression. People in high risk groups should refrain from consuming raw or undercooked shellfish.

Other Important Information: Marine coast 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.



During 2009, 29 cases of *Vibrio* infection were reported in Virginia. This is the same as the 29 cases reported in 2008 and a 4% increase over the five-year average of 27.8 cases per year (Figure 75). The species breakdown among the 29 *Vibrio* infections included nine (31%) infections caused by *V. parahaemolyticus*; seven (24%) caused by *V. alginolyticus*; five (17%) caused by *V. vulnificus*; three (10%) caused by *V. cholera* non 01, non 0139; two (7%) caused by *V. fluvialis*; two (7%) caused by other identified species of *Vibrio (mimicus, furnissii)* and two (7%) cases with no species identified. One case was infected with multiple species of *Vibrio*. Illnesses included 10 gastrointestinal infections, nine wound infections, four septicemic infections, three ear infections, one other type of infection (i.e., specimen collected from earlobe) and one case with multiple infection sites (wound and septicemic). Among the 9 infections in which *V. parahaemolyticus* was identified, 6 were gastrointestinal infections, 2 were wound infections, and 1 was an ear infection. Among the 7 infections in which *V. alginolyticus* was identified, three were wound infections, 2 were ear infections, 1 was classified as other infection and 1 was an unknown source of infection. Among the 5 infections in which *V. vulnificus* was identified, 3 were septicemic infections and 2 were wound infections. For *V. cholera* non 01, non 0139, all 3 cases were associated with gastrointestinal infections. For V. *fluvialis*, both cases were associated with gastrointestinal infections.

Thirty-one percent of reported cases occurred in the 60 year and older age group and the incidence rate was the highest in this age group (0.7 per 100,000). The second highest incidence rate was in the 1-9 and 30-39 age groups (0.4 per 100,000), with each age group representing 14 percent of all cases. Incidence was the same (0.3 per 100,000) among whites (16 cases reported) and blacks (4 cases reported).



Among the 29 cases reported in Virginia in 2009, *Vibrio* infection predominantly affected males. Seventy-two percent of infections occurred among males and the incidence rate was three times the rate for females (0.6 and 0.2 per 100,000). Geographically, the eastern region had the largest proportion of cases and the highest incidence rate (48%, 0.8 per 100,000), followed by the central region (21%, 0.5 per 100,000). Fifty-five percent of cases occurred during the third quarter, and onset peaked during the summer month of July (Figure 76). Among cases reported in 2009, no deaths were attributed to *Vibrio* infections.

Viral Hemorrhagic Fever

Agent(s): Multiple, including *Arenaviruses* (Argentine Bolivian, Venezuelan, and Brazilian hemorrhagic fevers, and Lassa fever), *Filoviruses* (Ebola and Marburg hemorrhagic fevers), *Bunyaviruses* (Crimean-Congo hemorrhagic fever [CCHF] and Rift Valley fever [RVF]), and *Flaviviruses* (Omsk hemorrhagic fever [OHF] and dengue hemorrhagic fever [DHF]).
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. Hemorrhagic fevers caused by *Flaviviruses* are typically transmitted by the bites of arthropods. Among the viral hemorrhagic fevers, only DHF has been found to occur naturally in North America.
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% (DHV) 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 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.

Since viral hemorrhagic fever became a reportable condition in Virginia in 2003, no cases have ever been reported.

Yellow Fever

Agent: Yellow fever virus
Mode of Transmission: Through the bite 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 uncommon 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 very common and is similar in behavior and appearance to the yellow fever mosquito. 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, and vomiting. Jaundice is usually mild in early disease but intensifies later. Among cases with jaundice, fatality is 20% to 50%.
Prevention: Vaccination against the yellow fever virus before traveling to yellow fever endemic regions of the world and avoiding mosquito bites while traveling in these regions.

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, or 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 their young infant, the infant's 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 predominance is believed to be related to the preparation of chitterlings for the holidays, and not to outdoor temperatures.

Eleven cases of yersiniosis were reported in Virginia during 2009. This is 21% fewer cases than the 14 reported in 2008, and slightly less than the five-year average of 12.4 cases per year. The highest incidence among age groups was reported in infants (2.9 per 100,000), followed by the 30-39 year age group (0.3 per 100,000). Race was not reported for 36% of the cases. Among those with a reported race, rates were slightly higher in the black population than the white population (0.3 and 0.1 per 100,000, respectively). Incidence among males and females was comparable (0.1 and 0.2 per 100,000, respectively). Cases occurred in all regions, and incidence rates by region ranged from 0.1 to 0.2 per 100,000. Although cases are expected to be concentrated during the winter months, only four (36%) of the 11 cases occurred during the November through January period.

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: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	AIDS REPORTED CASES	AIDS RATE PER 100,000	Amebiasis REPORTED CASES	Amebiasis RATE PER 100,000	Campylobacteriosis REPORTED CASES	Campylobacteriosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	819	10.5	20	0.3	770	9.9
LOCALITY							
Accomack County	38,180	6	15.7	0	0.0	3	7.9
Albemarle Co., Charlottesville	135,562	6	4.4	0	0.0	12	8.9
Alleghany Co., Clifton Forge, Covington	22,322	2	9.0	0	0.0	3	13.4
Amelia County	12,808	1	7.8	0	0.0	0	0.0
Amherst County	32,539	2	6.1	0	0.0	7	21.5
Appomattox County	14,501	0	0.0	0	0.0	1	6.9
Arlington County	209,969	29	13.8	1	0.5	26	12.4
Augusta Co., Staunton	95,217	7	7.4	0	0.0	29	30.5
Bath County	4,544	0	0.0	0	0.0	4	88.0
Bedford County and City	73,143	1	1.4	0	0.0	6	8.2
Bland County	6,918	1	14.5	0	0.0	0	0.0
Botetourt County	32,261	4	12.4	0	0.0	5	15.5
Brunswick County	17,580	1	5.7	0	0.0	0	0.0
Buchanan County	23,521	0	0.0	0	0.0	0	0.0
Buckingham County	15,977	2	12.5	0	0.0	0	0.0
Campbell County	53,030	4	7.5	0	0.0	13	24.5
Caroline County	27,632	2	7.2	0	0.0	1	3.6
Carroll County	29,158	0	0.0	0	0.0	1	3.4
Charles City County	7,212	0	0.0	0	0.0	2	27.7
Charlotte County	12,248	0	0.0	0	0.0	0	0.0
Chesterfield County	303,469	21	6.9	0	0.0	20	6.6
Clarke County	14,458	0	0.0	0	0.0	3	20.7
Craig County	5,087	0	0.0	0	0.0	1	19.7
Culpeper County	46,203	2	4.3	0	0.0	3	6.5
Cumberland County	9,670	1	10.3	0	0.0	2	20.7
Dickenson County	16,405	0	0.0	0	0.0	0	0.0
Dinwiddie County	26,082	2	7.7	0	0.0	2	7.7
Essex County	11,091	3	27.0	0	0.0	3	27.0
Fairfax Co./City/Falls Church	1,050,315	88	8.4	7	0.7	121	11.5
Fauquier County	66,839	1	1.5	0	0.0	5	7.5
Floyd County	14,821	2	13.5	0	0.0	3	20.2
Fluvanna County	25,544	1	3.9	0	0.0	3	11.7
Franklin County	51,477	4	7.8	0	0.0	6	11.7
Frederick Co., Winchester	99,795	5	5.0	0	0.0	20	20.0
Giles County	17,249	0	0.0	0	0.0	4	23.2
Gloucester County	38,656	1	2.6	0	0.0	2	5.2
Goochland County	20,956	1	4.8	0	0.0	4	19.1
Grayson County	15,969	0	0.0	0	0.0	2	12.5
Greene County	17,964	1	5.6	0	0.0	3	16.7
Greensville Co., Emporia	17,598	1	5.7	0	0.0	0	0.0
Halifax County	35,412	6	16.9	0	0.0	1	2.8
Hanover County	99,716	3	3.0	2	2.0	11	11.0
Henrico County	292,599	39	13.3	0	0.0	25	8.5
Henry Co., Martinsville	69,859	5	7.2	0	0.0	4	5.7
Highland County	2,426	0	0.0	0	0.0	1	41.2
Isle of Wight County	35,472	2	5.6	0	0.0	1	2.8
James City County	62,414	2	3.2	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	AIDS REPORTED CASES	AIDS RATE PER 100,000	Amebiasis REPORTED CASES	Amebiasis RATE PER 100,000	Campylobacteriosis REPORTED CASES	Campylobacteriosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	819	10.5	20	0.3	770	9.9
LOCALITY							
King and Queen County	6,830	2	29.3	0	0.0	0	0.0
King George County	23,170	1	4.3	0	0.0	1	4.3
King William County	16,040	0	0.0	0	0.0	3	18.7
Lancaster County	11,466	2	17.4	0	0.0	0	0.0
Lee County	23,448	1	4.3	0	0.0	0	0.0
Loudoun County	289,995	16	5.5	3	1.0	33	11.4
Louisa County	32,716	2	6.1	1	3.1	6	18.3
Lunenburg County	12,941	2	15.5	0	0.0	0	0.0
Madison County	13,639	2	14.7	0	0.0	0	0.0
Mathews County	9,038	0	0.0	0	0.0	0	0.0
Mecklenburg County	32,162	7	21.8	0	0.0	5	15.5
Middlesex County	10,585	2	18.9	0	0.0	0	0.0
Montgomery County	89,967	3	3.3	0	0.0	6	6.7
Nelson County	15,321	1	6.5	0	0.0	6	39.2
New Kent County	17,825	2	11.2	0	0.0	1	5.6
Northampton County	13,415	1	7.5	0	0.0	2	14.9
Northumberland County	12,915	0	0.0	0	0.0	0	0.0
Nottoway County	15,892	2	12.6	0	0.0	1	6.3
Orange County	33,139	1	3.0	0	0.0	6	18.1
Page County	24,164	4	16.6	0	0.0	4	16.6
Patrick County	18,844	0	0.0	0	0.0	0	0.0
Pittsylvania County	61,123	6	9.8	0	0.0	11	18.0
Powhatan County	28,006	4	14.3	0	0.0	12	42.8
Prince Edward County	21,823	2	9.2	0	0.0	0	0.0
Prince George County	36,089	1	2.8	0	0.0	3	8.3
Pr. William Co./Manassas/M. Park	411,258	46	11.2	1	0.2	27	6.6
Pulaski County	34,987	0	0.0	0	0.0	2	5.7
Rappahannock County	7,158	0	0.0	0	0.0	1	14.0
Richmond County	9,144	1	10.9	0	0.0	1	10.9
Roanoke County	90,867	3	3.3	0	0.0	8	8.8
Rockbridge Co., Lexington	28,573	0	0.0	0	0.0	4	14.0
Rockingham Co., Harrisonburg	118,409	5	4.2	0	0.0	10	8.4
Russell County	28,831	0	0.0	1	3.5	5	17.3
Scott County	22,850	0	0.0	0	0.0	5	21.9
Shenandoah County	40,777	1	2.5	1	2.5	10	24.5
Smyth County	31,905	2	6.3	0	0.0	4	12.5
Southampton County	18,480	0	0.0	0	0.0	1	5.4
Spotsylvania County	120,031	3	2.5	0	0.0	16	13.3
Stafford County	121,736	11	9.0	0	0.0	12	9.9
Surry County	7,128	0	0.0	0	0.0	1	14.0
Sussex County	12,148	4	32.9	0	0.0	0	0.0
Tazewell County	43,787	3	6.9	0	0.0	4	9.1
Warren County	36,663	2	5.5	0	0.0	2	5.5
Washington County	53,038	0	0.0	0	0.0	5	9.4
Westmoreland County	17,462	0	0.0	0	0.0	3	17.2
Wise Co., Norton	45,405	0	0.0	0	0.0	5	11.0
Wythe County	28,769	2	7.0	0	0.0	3	10.4
York Co., Poquoson	72,856	2	2.7	0	0.0	3	4.1

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	AIDS REPORTED CASES	AIDS RATE PER 100,000	Amebiasis REPORTED CASES	Amebiasis RATE PER 100,000	Campylobacteriosis REPORTED CASES	Campylobacteriosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	819	10.5	20	0.3	770	9.9
LOCALITY							
Alexandria	143,885	56	38.9	1	0.7	30	20.8
Bristol	17,424	1	5.7	0	0.0	2	11.5
Buena Vista	6,471	0	0.0	0	0.0	1	15.5
Chesapeake	220,111	30	13.6	0	0.0	15	6.8
Colonial Heights	17,768	1	5.6	0	0.0	0	0.0
Danville	44,660	9	20.2	0	0.0	6	13.4
Franklin City	8,877	0	0.0	0	0.0	2	22.5
Fredericksburg	22,818	4	17.5	1	4.4	1	4.4
Galax	6,808	0	0.0	0	0.0	0	0.0
Hampton	145,494	22	15.1	0	0.0	11	7.6
Hopewell	23,142	9	38.9	0	0.0	4	17.3
Lynchburg	72,596	5	6.9	0	0.0	8	11.0
Newport News	179,614	32	17.8	0	0.0	10	5.6
Norfolk	234,220	69	29.5	0	0.0	11	4.7
Petersburg	32,916	10	30.4	0	0.0	3	9.1
Portsmouth	100,577	22	21.9	0	0.0	4	4.0
Radford	16,125	0	0.0	0	0.0	4	24.8
Richmond City	202,002	68	33.7	0	0.0	12	5.9
Roanoke City	92,967	33	35.5	0	0.0	3	3.2
Salem	25,449	5	19.6	0	0.0	1	3.9
Suffolk	82,302	8	9.7	0	0.0	1	1.2
Virginia Beach	433,746	26	6.0	1	0.2	35	8.1
Waynesboro	21,953	1	4.6	0	0.0	4	18.2
Williamsburg	12,481	0	0.0	0	0.0	7	56.1

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	AIDS REPORTED CASES	AIDS RATE PER 100,000	Amebiasis REPORTED CASES	Amebiasis RATE PER 100,000	Campylobacteriosis REPORTED CASES	Campylobacteriosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	819	10.5	20	0.3	770	9.9
DISTRICT/REGION							

Central Shenandoah	277,593	13	4.7	0	0.0	53	19.1
Lord Fairfax	215,857	12	5.6	1	0.5	39	18.1
Rappahannock	315,387	21	6.7	1	0.3	31	9.8
Rappahannock/Rapidan	166,978	6	3.6	0	0.0	15	9.0
Thomas Jefferson	227,107	11	4.8	1	0.4	30	13.2
Northwest Region	1,202,922	63	5.2	3	0.2	168	14.0

Alexandria	143,885	56	38.9	1	0.7	30	20.8
Arlington	209,969	29	13.8	1	0.5	26	12.4
Fairfax	1,050,315	88	8.4	7	0.7	121	11.5
Loudoun	289,995	16	5.5	3	1.0	33	11.4
Prince William	411,258	46	11.2	1	0.2	27	6.6
Northern Region	2,105,422	235	11.2	13	0.6	237	11.3

Alleghany	175,986	14	8.0	0	0.0	18	10.2
Central Virginia	245,809	12	4.9	0	0.0	35	14.2
Cumberland Plateau	112,544	3	2.7	1	0.9	9	8.0
Lenowisco	91,703	1	1.1	0	0.0	10	10.9
Mount Rogers	189,989	6	3.2	0	0.0	17	8.9
New River	173,149	5	2.9	0	0.0	19	11.0
Pittsylvania/Danville	105,783	15	14.2	0	0.0	17	16.1
Roanoke City	92,967	33	35.5	0	0.0	3	3.2
West Piedmont	140,180	9	6.4	0	0.0	10	7.1
Southwest Region	1,328,110	98	7.4	1	0.1	138	10.4

Chesterfield	349,243	26	7.4	0	0.0	32	9.2
Chickahominy	145,709	6	4.1	2	1.4	18	12.4
Crater	155,103	27	17.4	0	0.0	13	8.4
Henrico	292,599	39	13.3	0	0.0	25	8.5
Piedmont	101,359	10	9.9	0	0.0	3	3.0
Richmond City	202,002	68	33.7	0	0.0	12	5.9
Southside	85,154	14	16.4	0	0.0	6	7.0
Central Region	1,331,169	190	14.3	2	0.2	109	8.2

Chesapeake	220,111	30	13.6	0	0.0	15	6.8
Eastern Shore	51,595	7	13.6	0	0.0	5	9.7
Hampton	145,494	22	15.1	0	0.0	11	7.6
Norfolk	234,220	69	29.5	0	0.0	11	4.7
Peninsula	327,365	36	11.0	0	0.0	20	6.1
Portsmouth	100,577	22	21.9	0	0.0	4	4.0
Three Rivers	143,227	11	7.7	0	0.0	12	8.4
Virginia Beach	433,746	26	6.0	1	0.2	35	8.1
Western Tidewater	145,131	10	6.9	0	0.0	5	3.4
Eastern Region	1,801,466	233	12.9	1	0.1	118	6.6

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Chickenpox REPORTED CASES	Chickenpox RATE PER 100,000	*Chlamydia trachomatis* Infection REPORTED CASES	*Chlamydia trachomatis* Infection RATE PER 100,000	*Escherichia coli* Infection, Shiga Toxin-Producing REPORTED CASES	*Escherichia coli* Infection, Shiga Toxin-Producing RATE PER 100,000
VIRGINIA TOTAL	7,769,089	773	9.95	30,904	397.8	156	2.0
LOCALITY							
Accomack County	38,180	4	10.5	195	510.7	0	0.0
Albemarle Co., Charlottesville	135,562	37	27.3	479	353.3	7	5.2
Alleghany Co., Clifton Forge, Covington	22,322	1	4.5	30	134.4	0	0.0
Amelia County	12,808	0	0.0	31	242.0	0	0.0
Amherst County	32,539	1	3.1	124	381.1	0	0.0
Appomattox County	14,501	0	0.0	29	200.0	0	0.0
Arlington County	209,969	14	6.7	513	244.3	3	1.4
Augusta Co., Staunton	95,217	7	7.4	233	244.7	6	6.3
Bath County	4,544	0	0.0	11	242.1	0	0.0
Bedford County and City	73,143	3	4.1	103	140.8	0	0.0
Bland County	6,918	0	0.0	3	43.4	0	0.0
Botetourt County	32,261	0	0.0	33	102.3	1	3.1
Brunswick County	17,580	4	22.8	117	665.5	0	0.0
Buchanan County	23,521	3	12.8	36	153.1	2	8.5
Buckingham County	15,977	0	0.0	46	287.9	0	0.0
Campbell County	53,030	0	0.0	98	184.8	1	1.9
Caroline County	27,632	2	7.2	100	361.9	0	0.0
Carroll County	29,158	14	48.0	40	137.2	0	0.0
Charles City County	7,212	3	41.6	33	457.6	0	0.0
Charlotte County	12,248	0	0.0	43	351.1	0	0.0
Chesterfield County	303,469	34	11.2	998	328.9	5	1.6
Clarke County	14,458	0	0.0	18	124.5	0	0.0
Craig County	5,087	0	0.0	5	98.3	0	0.0
Culpeper County	46,203	2	4.3	154	333.3	1	2.2
Cumberland County	9,670	0	0.0	38	393.0	0	0.0
Dickenson County	16,405	1	6.1	16	97.5	0	0.0
Dinwiddie County	26,082	6	23.0	107	410.2	0	0.0
Essex County	11,091	1	9.0	63	568.0	0	0.0
Fairfax Co./City/Falls Church	1,050,315	64	6.1	1576	150.1	27	2.6
Fauquier County	66,839	1	1.5	121	181.0	3	4.5
Floyd County	14,821	1	6.7	16	108.0	0	0.0
Fluvanna County	25,544	2	7.8	29	113.5	0	0.0
Franklin County	51,477	0	0.0	112	217.6	0	0.0
Frederick Co., Winchester	99,795	13	13.0	245	245.5	1	1.0
Giles County	17,249	1	5.8	19	110.2	0	0.0
Gloucester County	38,656	0	0.0	80	207.0	0	0.0
Goochland County	20,956	4	19.1	41	195.6	0	0.0
Grayson County	15,969	4	25.0	15	93.9	3	18.8
Greene County	17,964	4	22.3	32	178.1	0	0.0
Greensville Co., Emporia	17,598	2	11.4	136	772.8	0	0.0
Halifax County	35,412	0	0.0	172	485.7	1	2.8
Hanover County	99,716	4	4.0	176	176.5	3	3.0
Henrico County	292,599	19	6.5	1276	436.1	3	1.0
Henry Co., Martinsville	69,859	0	0.0	239	342.1	0	0.0
Highland County	2,426	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,472	1	2.8	163	459.5	0	0.0
James City County	62,414	1	1.6	108	173.0	3	4.8

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Chickenpox REPORTED CASES	Chickenpox RATE PER 100,000	*Chlamydia trachomatis* Infection REPORTED CASES	*Chlamydia trachomatis* Infection RATE PER 100,000	*Escherichia coli* Infection, Shiga Toxin-Producing REPORTED CASES	*Escherichia coli* Infection, Shiga Toxin-Producing RATE PER 100,000
VIRGINIA TOTAL	7,769,089	773	9.95	30,904	397.8	156	2.0
LOCALITY							
King and Queen County	6,830	0	0.0	26	380.7	0	0.0
King George County	23,170	3	12.9	46	198.5	1	4.3
King William County	16,040	4	24.9	48	299.3	0	0.0
Lancaster County	11,466	0	0.0	40	348.9	0	0.0
Lee County	23,448	2	8.5	30	127.9	0	0.0
Loudoun County	289,995	49	16.9	325	112.1	12	4.1
Louisa County	32,716	10	30.6	74	226.2	1	3.1
Lunenburg County	12,941	0	0.0	54	417.3	1	7.7
Madison County	13,639	0	0.0	24	176.0	2	14.7
Mathews County	9,038	0	0.0	20	221.3	0	0.0
Mecklenburg County	32,162	0	0.0	161	500.6	0	0.0
Middlesex County	10,585	4	37.8	26	245.6	0	0.0
Montgomery County	89,967	5	5.6	184	204.5	3	3.3
Nelson County	15,321	1	6.5	25	163.2	0	0.0
New Kent County	17,825	3	16.8	39	218.8	1	5.6
Northampton County	13,415	0	0.0	69	514.3	0	0.0
Northumberland County	12,915	0	0.0	34	263.3	0	0.0
Nottoway County	15,892	2	12.6	70	440.5	0	0.0
Orange County	33,139	0	0.0	69	208.2	0	0.0
Page County	24,164	60	248.3	17	70.4	0	0.0
Patrick County	18,844	1	5.3	20	106.1	0	0.0
Pittsylvania County	61,123	2	3.3	203	332.1	0	0.0
Powhatan County	28,006	4	14.3	42	150.0	0	0.0
Prince Edward County	21,823	0	0.0	121	554.5	1	4.6
Prince George County	36,089	3	8.3	582	1612.7	0	0.0
Pr. William Co./Manassas/M. Park	411,258	32	7.8	1185	288.1	15	3.6
Pulaski County	34,987	3	8.6	69	197.2	0	0.0
Rappahannock County	7,158	0	0.0	7	97.8	0	0.0
Richmond County	9,144	1	10.9	31	339.0	0	0.0
Roanoke County	90,867	14	15.4	135	148.6	1	1.1
Rockbridge Co., Lexington	28,573	0	0.0	33	115.5	0	0.0
Rockingham Co., Harrisonburg	118,409	31	26.2	224	189.2	9	7.6
Russell County	28,831	4	13.9	23	79.8	0	0.0
Scott County	22,850	0	0.0	20	87.5	1	4.4
Shenandoah County	40,777	11	27.0	72	176.6	2	4.9
Smyth County	31,905	4	12.5	62	194.3	0	0.0
Southampton County	18,480	0	0.0	93	503.2	0	0.0
Spotsylvania County	120,031	6	5.0	312	259.9	4	3.3
Stafford County	121,736	2	1.6	281	230.8	0	0.0
Surry County	7,128	0	0.0	27	378.8	1	14.0
Sussex County	12,148	0	0.0	73	600.9	0	0.0
Tazewell County	43,787	5	11.4	52	118.8	1	2.3
Warren County	36,663	5	13.6	83	226.4	0	0.0
Washington County	53,038	23	43.4	62	116.9	0	0.0
Westmoreland County	17,462	0	0.0	67	383.7	1	5.7
Wise Co., Norton	45,405	1	2.2	134	295.1	2	4.4
Wythe County	28,769	8	27.8	28	97.3	1	3.5
York Co., Poquoson	72,856	0	0.0	166	227.8	1	1.4

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Chickenpox REPORTED CASES	Chickenpox RATE PER 100,000	*Chlamydia trachomatis* Infection REPORTED CASES	*Chlamydia trachomatis* Infection RATE PER 100,000	*Escherichia coli* Infection, Shiga Toxin-Producing REPORTED CASES	*Escherichia coli* Infection, Shiga Toxin-Producing RATE PER 100,000
VIRGINIA TOTAL	7,769,089	773	9.95	30,904	397.8	156	2.0
LOCALITY							
Alexandria	143,885	6	4.2	532	369.7	2	1.4
Bristol	17,424	2	11.5	36	206.6	2	11.5
Buena Vista	6,471	0	0.0	14	216.3	0	0.0
Chesapeake	220,111	23	10.4	1242	564.3	2	0.9
Colonial Heights	17,768	1	5.6	103	579.7	1	5.6
Danville	44,660	2	4.5	430	962.8	1	2.2
Franklin City	8,877	0	0.0	89	1002.6	0	0.0
Fredericksburg	22,818	0	0.0	186	815.1	0	0.0
Galax	6,808	7	102.8	24	352.5	0	0.0
Hampton	145,494	8	5.5	1329	913.4	1	0.7
Hopewell	23,142	2	8.6	169	730.3	0	0.0
Lynchburg	72,596	3	4.1	329	453.2	0	0.0
Newport News	179,614	10	5.6	2053	1143.0	1	0.6
Norfolk	234,220	13	5.6	2949	1259.1	1	0.4
Petersburg	32,916	2	6.1	511	1552.4	0	0.0
Portsmouth	100,577	4	4.0	1064	1057.9	0	0.0
Radford	16,125	0	0.0	78	483.7	0	0.0
Richmond City	202,002	10	5.0	2216	1097.0	2	1.0
Roanoke City	92,967	3	3.2	823	885.3	4	4.3
Salem	25,449	2	7.9	66	259.3	0	0.0
Suffolk	82,302	0	0.0	619	752.1	0	0.0
Virginia Beach	433,746	101	23.3	2011	463.6	4	0.9
Waynesboro	21,953	13	59.2	104	473.7	1	4.6
Williamsburg	12,481	0	0.0	87	697.1	3	24.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Chickenpox REPORTED CASES	Chickenpox RATE PER 100,000	*Chlamydia trachomatis* Infection REPORTED CASES	*Chlamydia trachomatis* Infection RATE PER 100,000	*Escherichia coli* Infection, Shiga Toxin-Producing REPORTED CASES	*Escherichia coli* Infection, Shiga Toxin-Producing RATE PER 100,000
VIRGINIA TOTAL	7,769,089	773	9.95	30,904	397.8	156	2.0
DISTRICT/REGION							

Central Shenandoah	277,593	51	18.4	619	223.0	16	5.8
Lord Fairfax	215,857	89	41.2	435	201.5	3	1.4
Rappahannock	315,387	13	4.1	925	293.3	5	1.6
Rappahannock/Rapidan	166,978	3	1.8	375	224.6	6	3.6
Thomas Jefferson	227,107	54	23.8	639	281.4	8	3.5
Northwest Region	1,202,922	210	17.5	2,993	248.8	38	3.2

Alexandria	143,885	6	4.2	532	369.7	2	1.4
Arlington	209,969	14	6.7	513	244.3	3	1.4
Fairfax	1,050,315	64	6.1	1576	150.1	27	2.6
Loudoun	289,995	49	16.9	325	112.1	12	4.1
Prince William	411,258	32	7.8	1185	288.1	15	3.6
Northern Region	2,105,422	165	7.8	4,131	196.2	59	2.8

Alleghany	175,986	17	9.7	269	152.9	2	1.1
Central Virginia	245,809	7	2.8	683	277.9	1	0.4
Cumberland Plateau	112,544	13	11.6	127	112.8	3	2.7
Lenowisco	91,703	3	3.3	184	200.6	3	3.3
Mount Rogers	189,989	62	32.6	270	142.1	6	3.2
New River	173,149	10	5.8	366	211.4	3	1.7
Pittsylvania/Danville	105,783	4	3.8	633	598.4	1	0.9
Roanoke City	92,967	3	3.2	823	885.3	4	4.3
West Piedmont	140,180	1	0.7	371	264.7	0	0.0
Southwest Region	1,328,110	120	9.0	3,726	280.5	23	1.7

Chesterfield	349,243	39	11.2	1143	327.3	6	1.7
Chickahominy	145,709	14	9.6	289	198.3	4	2.7
Crater	155,103	15	9.7	1605	1034.8	1	0.6
Henrico	292,599	19	6.5	1276	436.1	3	1.0
Piedmont	101,359	2	2.0	403	397.6	2	2.0
Richmond City	202,002	10	5.0	2216	1097.0	2	1.0
Southside	85,154	4	4.7	450	528.5	1	1.2
Central Region	1,331,169	103	7.7	7,382	554.6	19	1.4

Chesapeake	220,111	23	10.4	1242	564.3	2	0.9
Eastern Shore	51,595	4	7.8	264	511.7	0	0.0
Hampton	145,494	8	5.5	1329	913.4	1	0.7
Norfolk	234,220	13	5.6	2949	1259.1	1	0.4
Peninsula	327,365	11	3.4	2414	737.4	8	2.4
Portsmouth	100,577	4	4.0	1064	1057.9	0	0.0
Three Rivers	143,227	10	7.0	435	303.7	1	0.7
Virginia Beach	433,746	101	23.3	2011	463.6	4	0.9
Western Tidewater	145,131	1	0.7	964	664.2	0	0.0
Eastern Region	1,801,466	175	9.7	12,672	703.4	17	0.9

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Giardiasis REPORTED CASES	Giardiasis RATE PER 100,000	Gonorrhea REPORTED CASES	Gonorrhea RATE PER 100,000	*H. influenzae* Infection, Invasive REPORTED CASES	*H. influenzae* Infection, Invasive RATE PER 100,000
VIRGINIA TOTAL	7,769,089	503	6.5	7,791	100.3	88	1.1
LOCALITY							
Accomack County	38,180	2	5.2	42	110.0	0	0.0
Albemarle Co., Charlottesville	135,562	31	22.9	128	94.4	2	1.5
Alleghany Co., Clifton Forge, Covington	22,322	0	0.0	4	17.9	0	0.0
Amelia County	12,808	0	0.0	5	39.0	0	0.0
Amherst County	32,539	2	6.1	18	55.3	1	3.1
Appomattox County	14,501	1	6.9	3	20.7	0	0.0
Arlington County	209,969	35	16.7	85	40.5	2	1.0
Augusta Co., Staunton	95,217	9	9.5	27	28.4	5	5.3
Bath County	4,544	0	0.0	3	66.0	0	0.0
Bedford County and City	73,143	0	0.0	19	26.0	3	4.1
Bland County	6,918	0	0.0	1	14.5	0	0.0
Botetourt County	32,261	4	12.4	9	27.9	0	0.0
Brunswick County	17,580	0	0.0	46	261.7	0	0.0
Buchanan County	23,521	0	0.0	1	4.3	0	0.0
Buckingham County	15,977	0	0.0	8	50.1	0	0.0
Campbell County	53,030	1	1.9	10	18.9	0	0.0
Caroline County	27,632	1	3.6	16	57.9	0	0.0
Carroll County	29,158	0	0.0	6	20.6	0	0.0
Charles City County	7,212	0	0.0	8	110.9	0	0.0
Charlotte County	12,248	0	0.0	2	16.3	0	0.0
Chesterfield County	303,469	10	3.3	233	76.8	2	0.7
Clarke County	14,458	1	6.9	2	13.8	0	0.0
Craig County	5,087	0	0.0	1	19.7	0	0.0
Culpeper County	46,203	2	4.3	11	23.8	0	0.0
Cumberland County	9,670	0	0.0	10	103.4	0	0.0
Dickenson County	16,405	2	12.2	0	0.0	0	0.0
Dinwiddie County	26,082	1	3.8	20	76.7	0	0.0
Essex County	11,091	0	0.0	10	90.2	0	0.0
Fairfax Co./City/Falls Church	1,050,315	93	8.9	216	20.6	9	0.9
Fauquier County	66,839	0	0.0	8	12.0	2	3.0
Floyd County	14,821	0	0.0	2	13.5	2	13.5
Fluvanna County	25,544	0	0.0	1	3.9	0	0.0
Franklin County	51,477	2	3.9	20	38.9	1	1.9
Frederick Co., Winchester	99,795	1	1.0	30	30.1	3	3.0
Giles County	17,249	1	5.8	2	11.6	1	5.8
Gloucester County	38,656	2	5.2	16	41.4	0	0.0
Goochland County	20,956	1	4.8	8	38.2	0	0.0
Grayson County	15,969	1	6.3	1	6.3	0	0.0
Greene County	17,964	1	5.6	3	16.7	0	0.0
Greensville Co., Emporia	17,598	0	0.0	58	329.6	0	0.0
Halifax County	35,412	1	2.8	39	110.1	0	0.0
Hanover County	99,716	10	10.0	26	26.1	1	1.0
Henrico County	292,599	41	14.0	346	118.3	1	0.3
Henry Co., Martinsville	69,859	2	2.9	82	117.4	0	0.0
Highland County	2,426	2	82.4	0	0.0	1	41.2
Isle of Wight County	35,472	1	2.8	19	53.6	0	0.0
James City County	62,414	2	3.2	11	17.6	1	1.6

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Giardiasis REPORTED CASES	Giardiasis RATE PER 100,000	Gonorrhea REPORTED CASES	Gonorrhea RATE PER 100,000	*H. influenzae* Infection, Invasive REPORTED CASES	*H. influenzae* Infection, Invasive RATE PER 100,000
VIRGINIA TOTAL	7,769,089	503	6.5	7,791	100.3	88	1.1
LOCALITY							
King and Queen County	6,830	0	0.0	11	161.1	0	0.0
King George County	23,170	2	8.6	6	25.9	0	0.0
King William County	16,040	1	6.2	12	74.8	0	0.0
Lancaster County	11,466	0	0.0	10	87.2	0	0.0
Lee County	23,448	3	12.8	2	8.5	0	0.0
Loudoun County	289,995	21	7.2	34	11.7	1	0.3
Louisa County	32,716	4	12.2	13	39.7	1	3.1
Lunenburg County	12,941	0	0.0	15	115.9	0	0.0
Madison County	13,639	0	0.0	2	14.7	0	0.0
Mathews County	9,038	0	0.0	1	11.1	0	0.0
Mecklenburg County	32,162	0	0.0	85	264.3	0	0.0
Middlesex County	10,585	1	9.4	5	47.2	0	0.0
Montgomery County	89,967	3	3.3	15	16.7	1	1.1
Nelson County	15,321	0	0.0	3	19.6	0	0.0
New Kent County	17,825	2	11.2	8	44.9	1	5.6
Northampton County	13,415	1	7.5	19	141.6	0	0.0
Northumberland County	12,915	0	0.0	6	46.5	0	0.0
Nottoway County	15,892	1	6.3	21	132.1	1	6.3
Orange County	33,139	1	3.0	7	21.1	0	0.0
Page County	24,164	0	0.0	1	4.1	1	4.1
Patrick County	18,844	1	5.3	5	26.5	0	0.0
Pittsylvania County	61,123	1	1.6	28	45.8	0	0.0
Powhatan County	28,006	1	3.6	6	21.4	0	0.0
Prince Edward County	21,823	2	9.2	24	110.0	0	0.0
Prince George County	36,089	1	2.8	61	169.0	0	0.0
Pr. William Co./Manassas/M. Park	411,258	16	3.9	189	46.0	2	0.5
Pulaski County	34,987	0	0.0	7	20.0	0	0.0
Rappahannock County	7,158	0	0.0	2	27.9	0	0.0
Richmond County	9,144	0	0.0	2	21.9	0	0.0
Roanoke County	90,867	2	2.2	35	38.5	4	4.4
Rockbridge Co., Lexington	28,573	0	0.0	5	17.5	0	0.0
Rockingham Co., Harrisonburg	118,409	7	5.9	25	21.1	3	2.5
Russell County	28,831	0	0.0	4	13.9	0	0.0
Scott County	22,850	0	0.0	4	17.5	0	0.0
Shenandoah County	40,777	2	4.9	10	24.5	0	0.0
Smyth County	31,905	0	0.0	4	12.5	1	3.1
Southampton County	18,480	0	0.0	14	75.8	0	0.0
Spotsylvania County	120,031	11	9.2	51	42.5	4	3.3
Stafford County	121,736	9	7.4	44	36.1	1	0.8
Surry County	7,128	0	0.0	7	98.2	0	0.0
Sussex County	12,148	1	8.2	12	98.8	0	0.0
Tazewell County	43,787	1	2.3	8	18.3	1	2.3
Warren County	36,663	2	5.5	9	24.5	0	0.0
Washington County	53,038	1	1.9	9	17.0	1	1.9
Westmoreland County	17,462	1	5.7	9	51.5	2	11.5
Wise Co., Norton	45,405	0	0.0	5	11.0	0	0.0
Wythe County	28,769	1	3.5	9	31.3	1	3.5
York Co., Poquoson	72,856	4	5.5	25	34.3	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Giardiasis REPORTED CASES	Giardiasis RATE PER 100,000	Gonorrhea REPORTED CASES	Gonorrhea RATE PER 100,000	*H. influenzae* Infection, Invasive REPORTED CASES	*H. influenzae* Infection, Invasive RATE PER 100,000
VIRGINIA TOTAL	7,769,089	503	6.5	7,791	100.3	88	1.1
LOCALITY							
Alexandria	143,885	15	10.4	112	77.8	1	0.7
Bristol	17,424	1	5.7	4	23.0	0	0.0
Buena Vista	6,471	0	0.0	2	30.9	0	0.0
Chesapeake	220,111	7	3.2	356	161.7	4	1.8
Colonial Heights	17,768	0	0.0	18	101.3	1	5.6
Danville	44,660	3	6.7	135	302.3	1	2.2
Franklin City	8,877	0	0.0	17	191.5	0	0.0
Fredericksburg	22,818	10	43.8	37	162.2	1	4.4
Galax	6,808	0	0.0	1	14.7	0	0.0
Hampton	145,494	11	7.6	383	263.2	0	0.0
Hopewell	23,142	0	0.0	37	159.9	1	4.3
Lynchburg	72,596	1	1.4	42	57.9	2	2.8
Newport News	179,614	16	8.9	564	314.0	0	0.0
Norfolk	234,220	10	4.3	1086	463.7	4	1.7
Petersburg	32,916	0	0.0	156	473.9	1	3.0
Portsmouth	100,577	1	1.0	481	478.2	1	1.0
Radford	16,125	1	6.2	1	6.2	0	0.0
Richmond City	202,002	13	6.4	893	442.1	2	1.0
Roanoke City	92,967	18	19.4	258	277.5	1	1.1
Salem	25,449	0	0.0	13	51.1	0	0.0
Suffolk	82,302	3	3.6	124	150.7	0	0.0
Virginia Beach	433,746	20	4.6	542	125.0	4	0.9
Waynesboro	21,953	2	9.1	10	45.6	0	0.0
Williamsburg	12,481	4	32.0	14	112.2	1	8.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Giardiasis REPORTED CASES	Giardiasis RATE PER 100,000	Gonorrhea REPORTED CASES	Gonorrhea RATE PER 100,000	*H. influenzae* Infection, Invasive REPORTED CASES	*H. influenzae* Infection, Invasive RATE PER 100,000
VIRGINIA TOTAL	7,769,089	503	6.5	7,791	100.3	88	1.1
DISTRICT/REGION							

Central Shenandoah	277,593	20	7.2	72	25.9	9	3.2
Lord Fairfax	215,857	6	2.8	52	24.1	4	1.9
Rappahannock	315,387	33	10.5	154	48.8	6	1.9
Rappahannock/Rapidan	166,978	3	1.8	30	18.0	2	1.2
Thomas Jefferson	227,107	36	15.9	148	65.2	3	1.3
Northwest Region	1,202,922	98	8.1	456	37.9	24	2.0

Alexandria	143,885	15	10.4	112	77.8	1	0.7
Arlington	209,969	35	16.7	85	40.5	2	1.0
Fairfax	1,050,315	93	8.9	216	20.6	9	0.9
Loudoun	289,995	21	7.2	34	11.7	1	0.3
Prince William	411,258	16	3.9	189	46.0	2	0.5
Northern Region	2,105,422	180	8.5	636	30.2	15	0.7

Alleghany	175,986	6	3.4	62	35.2	4	2.3
Central Virginia	245,809	5	2.0	92	37.4	6	2.4
Cumberland Plateau	112,544	3	2.7	13	11.6	1	0.9
Lenowisco	91,703	3	3.3	11	12.0	0	0.0
Mount Rogers	189,989	4	2.1	35	18.4	3	1.6
New River	173,149	5	2.9	27	15.6	4	2.3
Pittsylvania/Danville	105,783	4	3.8	163	154.1	1	0.9
Roanoke City	92,967	18	19.4	258	277.5	1	1.1
West Piedmont	140,180	5	3.6	107	76.3	1	0.7
Southwest Region	1,328,110	53	4.0	768	57.8	21	1.6

Chesterfield	349,243	11	3.1	257	73.6	3	0.9
Chickahominy	145,709	13	8.9	50	34.3	2	1.4
Crater	155,103	3	1.9	351	226.3	2	1.3
Henrico	292,599	41	14.0	346	118.3	1	0.3
Piedmont	101,359	3	3.0	85	83.9	1	1.0
Richmond City	202,002	13	6.4	893	442.1	2	1.0
Southside	85,154	1	1.2	170	199.6	0	0.0
Central Region	1,331,169	85	6.4	2,152	161.7	11	0.8

Chesapeake	220,111	7	3.2	356	161.7	4	1.8
Eastern Shore	51,595	3	5.8	61	118.2	0	0.0
Hampton	145,494	11	7.6	383	263.2	0	0.0
Norfolk	234,220	10	4.3	1,086	463.7	4	1.7
Peninsula	327,365	26	7.9	614	187.6	2	0.6
Portsmouth	100,577	1	1.0	481	478.2	1	1.0
Three Rivers	143,227	5	3.5	82	57.3	2	1.4
Virginia Beach	433,746	20	4.6	542	125.0	4	0.9
Western Tidewater	145,131	4	2.8	174	119.9	0	0.0
Eastern Region	1,801,466	87	4.8	3,779	209.8	17	0.9

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Hepatitis A REPORTED CASES	Hepatitis A RATE PER 100,000	Hepatitis B, Acute REPORTED CASES	Hepatitis B, Acute RATE PER 100,000	Hepatitis C, Acute REPORTED CASES	Hepatitis C, Acute RATE PER 100,000
VIRGINIA TOTAL	7,769,089	42	0.5	110	1.4	10	0.1
LOCALITY							
Accomack County	38,180	1	2.6	1	2.6	0	0.0
Albemarle Co., Charlottesville	135,562	2	1.5	2	1.5	0	0.0
Alleghany Co., Clifton Forge, Covington	22,322	0	0.0	0	0.0	0	0.0
Amelia County	12,808	0	0.0	0	0.0	0	0.0
Amherst County	32,539	0	0.0	0	0.0	0	0.0
Appomattox County	14,501	0	0.0	0	0.0	0	0.0
Arlington County	209,969	2	1.0	6	2.9	0	0.0
Augusta Co., Staunton	95,217	0	0.0	0	0.0	0	0.0
Bath County	4,544	0	0.0	0	0.0	0	0.0
Bedford County and City	73,143	0	0.0	0	0.0	0	0.0
Bland County	6,918	0	0.0	1	14.5	0	0.0
Botetourt County	32,261	0	0.0	0	0.0	0	0.0
Brunswick County	17,580	0	0.0	0	0.0	0	0.0
Buchanan County	23,521	0	0.0	0	0.0	0	0.0
Buckingham County	15,977	0	0.0	0	0.0	0	0.0
Campbell County	53,030	0	0.0	0	0.0	0	0.0
Caroline County	27,632	0	0.0	0	0.0	0	0.0
Carroll County	29,158	0	0.0	2	6.9	1	3.4
Charles City County	7,212	0	0.0	0	0.0	0	0.0
Charlotte County	12,248	0	0.0	0	0.0	0	0.0
Chesterfield County	303,469	3	1.0	7	2.3	0	0.0
Clarke County	14,458	0	0.0	1	6.9	0	0.0
Craig County	5,087	0	0.0	0	0.0	0	0.0
Culpeper County	46,203	0	0.0	0	0.0	0	0.0
Cumberland County	9,670	0	0.0	0	0.0	0	0.0
Dickenson County	16,405	0	0.0	1	6.1	0	0.0
Dinwiddie County	26,082	0	0.0	0	0.0	0	0.0
Essex County	11,091	0	0.0	0	0.0	0	0.0
Fairfax Co./City/Falls Church	1,050,315	10	1.0	4	0.4	1	0.1
Fauquier County	66,839	0	0.0	0	0.0	0	0.0
Floyd County	14,821	0	0.0	1	6.7	0	0.0
Fluvanna County	25,544	0	0.0	0	0.0	0	0.0
Franklin County	51,477	0	0.0	0	0.0	0	0.0
Frederick Co., Winchester	99,795	0	0.0	5	5.0	0	0.0
Giles County	17,249	0	0.0	0	0.0	0	0.0
Gloucester County	38,656	0	0.0	0	0.0	0	0.0
Goochland County	20,956	0	0.0	0	0.0	0	0.0
Grayson County	15,969	0	0.0	0	0.0	0	0.0
Greene County	17,964	0	0.0	0	0.0	0	0.0
Greensville Co., Emporia	17,598	0	0.0	1	5.7	0	0.0
Halifax County	35,412	0	0.0	0	0.0	0	0.0
Hanover County	99,716	2	2.0	2	2.0	0	0.0
Henrico County	292,599	3	1.0	9	3.1	2	0.7
Henry Co., Martinsville	69,859	0	0.0	0	0.0	0	0.0
Highland County	2,426	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,472	0	0.0	0	0.0	0	0.0
James City County	62,414	0	0.0	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Hepatitis A REPORTED CASES	Hepatitis A RATE PER 100,000	Hepatitis B, Acute REPORTED CASES	Hepatitis B, Acute RATE PER 100,000	Hepatitis C, Acute REPORTED CASES	Hepatitis C, Acute RATE PER 100,000
VIRGINIA TOTAL	7,769,089	42	0.5	110	1.4	10	0.1
LOCALITY							
King and Queen County	6,830	0	0.0	0	0.0	0	0.0
King George County	23,170	0	0.0	0	0.0	0	0.0
King William County	16,040	0	0.0	0	0.0	0	0.0
Lancaster County	11,466	0	0.0	0	0.0	0	0.0
Lee County	23,448	0	0.0	1	4.3	0	0.0
Loudoun County	289,995	4	1.4	2	0.7	0	0.0
Louisa County	32,716	0	0.0	0	0.0	0	0.0
Lunenburg County	12,941	0	0.0	0	0.0	0	0.0
Madison County	13,639	0	0.0	0	0.0	0	0.0
Mathews County	9,038	0	0.0	0	0.0	0	0.0
Mecklenburg County	32,162	0	0.0	0	0.0	0	0.0
Middlesex County	10,585	0	0.0	0	0.0	0	0.0
Montgomery County	89,967	0	0.0	2	2.2	1	1.1
Nelson County	15,321	0	0.0	0	0.0	0	0.0
New Kent County	17,825	0	0.0	0	0.0	0	0.0
Northampton County	13,415	0	0.0	0	0.0	0	0.0
Northumberland County	12,915	0	0.0	0	0.0	0	0.0
Nottoway County	15,892	0	0.0	0	0.0	0	0.0
Orange County	33,139	0	0.0	0	0.0	0	0.0
Page County	24,164	0	0.0	0	0.0	0	0.0
Patrick County	18,844	0	0.0	0	0.0	0	0.0
Pittsylvania County	61,123	0	0.0	0	0.0	0	0.0
Powhatan County	28,006	0	0.0	0	0.0	0	0.0
Prince Edward County	21,823	0	0.0	0	0.0	0	0.0
Prince George County	36,089	0	0.0	1	2.8	0	0.0
Pr. William Co./Manassas/M. Park	411,258	5	1.2	4	1.0	1	0.2
Pulaski County	34,987	0	0.0	4	11.4	1	2.9
Rappahannock County	7,158	0	0.0	0	0.0	0	0.0
Richmond County	9,144	0	0.0	0	0.0	0	0.0
Roanoke County	90,867	0	0.0	0	0.0	0	0.0
Rockbridge Co., Lexington	28,573	0	0.0	0	0.0	0	0.0
Rockingham Co., Harrisonburg	118,409	0	0.0	0	0.0	0	0.0
Russell County	28,831	0	0.0	1	3.5	0	0.0
Scott County	22,850	0	0.0	0	0.0	0	0.0
Shenandoah County	40,777	0	0.0	0	0.0	0	0.0
Smyth County	31,905	0	0.0	0	0.0	0	0.0
Southampton County	18,480	0	0.0	0	0.0	0	0.0
Spotsylvania County	120,031	1	0.8	0	0.0	0	0.0
Stafford County	121,736	2	1.6	1	0.8	0	0.0
Surry County	7,128	0	0.0	0	0.0	0	0.0
Sussex County	12,148	0	0.0	0	0.0	0	0.0
Tazewell County	43,787	1	2.3	0	0.0	0	0.0
Warren County	36,663	0	0.0	0	0.0	0	0.0
Washington County	53,038	1	1.9	1	1.9	0	0.0
Westmoreland County	17,462	1	5.7	0	0.0	0	0.0
Wise Co., Norton	45,405	0	0.0	0	0.0	0	0.0
Wythe County	28,769	0	0.0	0	0.0	0	0.0
York Co., Poquoson	72,856	0	0.0	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Hepatitis A REPORTED CASES	Hepatitis A RATE PER 100,000	Hepatitis B, Acute REPORTED CASES	Hepatitis B, Acute RATE PER 100,000	Hepatitis C, Acute REPORTED CASES	Hepatitis C, Acute RATE PER 100,000
VIRGINIA TOTAL	7,769,089	42	0.5	110	1.4	10	0.1
LOCALITY							
Alexandria	143,885	2	1.4	1	0.7	0	0.0
Bristol	17,424	1	5.7	1	5.7	0	0.0
Buena Vista	6,471	0	0.0	0	0.0	0	0.0
Chesapeake	220,111	0	0.0	3	1.4	1	0.5
Colonial Heights	17,768	0	0.0	0	0.0	0	0.0
Danville	44,660	0	0.0	1	2.2	1	2.2
Franklin City	8,877	0	0.0	0	0.0	0	0.0
Fredericksburg	22,818	0	0.0	0	0.0	1	4.4
Galax	6,808	0	0.0	0	0.0	0	0.0
Hampton	145,494	0	0.0	2	1.4	0	0.0
Hopewell	23,142	0	0.0	1	4.3	0	0.0
Lynchburg	72,596	1	1.4	0	0.0	0	0.0
Newport News	179,614	0	0.0	4	2.2	0	0.0
Norfolk	234,220	0	0.0	4	1.7	0	0.0
Petersburg	32,916	0	0.0	1	3.0	0	0.0
Portsmouth	100,577	0	0.0	3	3.0	0	0.0
Radford	16,125	0	0.0	1	6.2	0	0.0
Richmond City	202,002	0	0.0	19	9.4	0	0.0
Roanoke City	92,967	0	0.0	1	1.1	0	0.0
Salem	25,449	0	0.0	1	3.9	0	0.0
Suffolk	82,302	0	0.0	2	2.4	0	0.0
Virginia Beach	433,746	0	0.0	4	0.9	0	0.0
Waynesboro	21,953	0	0.0	0	0.0	0	0.0
Williamsburg	12,481	0	0.0	1	8.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Hepatitis A REPORTED CASES	Hepatitis A RATE PER 100,000	Hepatitis B, Acute REPORTED CASES	Hepatitis B, Acute RATE PER 100,000	Hepatitis C, Acute REPORTED CASES	Hepatitis C, Acute RATE PER 100,000
VIRGINIA TOTAL	7,769,089	42	0.5	110	1.4	10	0.1
DISTRICT/REGION							

Central Shenandoah	277,593	0	0.0	0	0.0	0	0.0
Lord Fairfax	215,857	0	0.0	6	2.8	0	0.0
Rappahannock	315,387	3	1.0	1	0.3	1	0.3
Rappahannock/Rapidan	166,978	0	0.0	0	0.0	0	0.0
Thomas Jefferson	227,107	2	0.9	2	0.9	0	0.0
Northwest Region	1,202,922	5	0.4	9	0.7	1	0.1

Alexandria	143,885	2	1.4	1	0.7	0	0.0
Arlington	209,969	2	1.0	6	2.9	0	0.0
Fairfax	1,050,315	10	1.0	4	0.4	1	0.1
Loudoun	289,995	4	1.4	2	0.7	0	0.0
Prince William	411,258	5	1.2	4	1.0	1	0.2
Northern Region	2,105,422	23	1.1	17	0.8	2	0.1

Alleghany	175,986	0	0.0	1	0.6	0	0.0
Central Virginia	245,809	1	0.4	0	0.0	0	0.0
Cumberland Plateau	112,544	1	0.9	2	1.8	0	0.0
Lenowisco	91,703	0	0.0	1	1.1	0	0.0
Mount Rogers	189,989	2	1.1	5	2.6	1	0.5
New River	173,149	0	0.0	8	4.6	2	1.2
Pittsylvania/Danville	105,783	0	0.0	1	0.9	1	0.9
Roanoke City	92,967	0	0.0	1	1.1	0	0.0
West Piedmont	140,180	0	0.0	0	0.0	0	0.0
Southwest Region	1,328,110	4	0.3	19	1.4	4	0.3

Chesterfield	349,243	3	0.9	7	2.0	0	0.0
Chickahominy	145,709	2	1.4	2	1.4	0	0.0
Crater	155,103	0	0.0	4	2.6	0	0.0
Henrico	292,599	3	1.0	9	3.1	2	0.7
Piedmont	101,359	0	0.0	0	0.0	0	0.0
Richmond City	202,002	0	0.0	19	9.4	0	0.0
Southside	85,154	0	0.0	0	0.0	0	0.0
Central Region	1,331,169	8	0.6	41	3.1	2	0.2

Chesapeake	220,111	0	0.0	3	1.4	1	0.5
Eastern Shore	51,595	1	1.9	1	1.9	0	0.0
Hampton	145,494	0	0.0	2	1.4	0	0.0
Norfolk	234,220	0	0.0	4	1.7	0	0.0
Peninsula	327,365	0	0.0	5	1.5	0	0.0
Portsmouth	100,577	0	0.0	3	3.0	0	0.0
Three Rivers	143,227	1	0.7	0	0.0	0	0.0
Virginia Beach	433,746	0	0.0	4	0.9	0	0.0
Western Tidewater	145,131	0	0.0	2	1.4	0	0.0
Eastern Region	1,801,466	2	0.1	24	1.3	1	0.1

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	HIV Disease REPORTED CASES	HIV Disease RATE PER 100,000	Influenza REPORTED CASES	Influenza RATE PER 100,000	Kawasaki Syndrome REPORTED CASES	Kawasaki Syndrome RATE PER 100,000
VIRGINIA TOTAL	7,769,089	1429	18.4	40,614	522.8	3	0.0
LOCALITY							
Accomack County	38,180	2	5.2	66	172.9	0	0.0
Albemarle Co., Charlottesville	135,562	17	12.5	1271	937.6	0	0.0
Alleghany Co., Clifton Forge, Covington	22,322	4	17.9	56	250.9	0	0.0
Amelia County	12,808	0	0.0	3	23.4	0	0.0
Amherst County	32,539	1	3.1	60	184.4	0	0.0
Appomattox County	14,501	0	0.0	2	13.8	0	0.0
Arlington County	209,969	118	56.2	211	100.5	0	0.0
Augusta Co., Staunton	95,217	8	8.4	83	87.2	0	0.0
Bath County	4,544	0	0.0	27	594.2	0	0.0
Bedford County and City	73,143	3	4.1	399	545.5	0	0.0
Bland County	6,918	0	0.0	0	0.0	0	0.0
Botetourt County	32,261	4	12.4	0	0.0	0	0.0
Brunswick County	17,580	3	17.1	0	0.0	0	0.0
Buchanan County	23,521	0	0.0	54	229.6	0	0.0
Buckingham County	15,977	1	6.3	5	31.3	0	0.0
Campbell County	53,030	4	7.5	5	9.4	0	0.0
Caroline County	27,632	8	29.0	0	0.0	0	0.0
Carroll County	29,158	0	0.0	75	257.2	0	0.0
Charles City County	7,212	2	27.7	0	0.0	0	0.0
Charlotte County	12,248	0	0.0	0	0.0	0	0.0
Chesterfield County	303,469	45	14.8	2063	679.8	1	0.3
Clarke County	14,458	0	0.0	172	1189.7	0	0.0
Craig County	5,087	0	0.0	7	137.6	0	0.0
Culpeper County	46,203	1	2.2	248	536.8	0	0.0
Cumberland County	9,670	1	10.3	26	268.9	0	0.0
Dickenson County	16,405	1	6.1	4	24.4	0	0.0
Dinwiddie County	26,082	2	7.7	466	1786.7	0	0.0
Essex County	11,091	2	18.0	0	0.0	0	0.0
Fairfax Co./City/Falls Church	1,050,315	208	19.8	4977	473.9	0	0.0
Fauquier County	66,839	2	3.0	14	20.9	0	0.0
Floyd County	14,821	1	6.7	13	87.7	0	0.0
Fluvanna County	25,544	1	3.9	6	23.5	0	0.0
Franklin County	51,477	1	1.9	28	54.4	0	0.0
Frederick Co., Winchester	99,795	6	6.0	1847	1850.8	0	0.0
Giles County	17,249	0	0.0	0	0.0	0	0.0
Gloucester County	38,656	1	2.6	3	7.8	0	0.0
Goochland County	20,956	1	4.8	2	9.5	0	0.0
Grayson County	15,969	1	6.3	0	0.0	0	0.0
Greene County	17,964	1	5.6	48	267.2	0	0.0
Greensville Co., Emporia	17,598	6	34.1	156	886.5	0	0.0
Halifax County	35,412	7	19.8	140	395.3	0	0.0
Hanover County	99,716	5	5.0	1141	1144.2	0	0.0
Henrico County	292,599	53	18.1	1819	621.7	0	0.0
Henry Co., Martinsville	69,859	9	12.9	58	83.0	0	0.0
Highland County	2,426	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,472	3	8.5	2	5.6	0	0.0
James City County	62,414	7	11.2	6	9.6	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	HIV Disease REPORTED CASES	HIV Disease RATE PER 100,000	Influenza REPORTED CASES	Influenza RATE PER 100,000	Kawasaki Syndrome REPORTED CASES	Kawasaki Syndrome RATE PER 100,000
VIRGINIA TOTAL	7,769,089	1429	18.4	40,614	522.8	3	0.0
LOCALITY							
King and Queen County	6,830	1	14.6	0	0.0	0	0.0
King George County	23,170	0	0.0	1	4.3	0	0.0
King William County	16,040	1	6.2	0	0.0	0	0.0
Lancaster County	11,466	0	0.0	1	8.7	0	0.0
Lee County	23,448	0	0.0	1	4.3	0	0.0
Loudoun County	289,995	28	9.7	3003	1035.5	0	0.0
Louisa County	32,716	4	12.2	207	632.7	0	0.0
Lunenburg County	12,941	2	15.5	21	162.3	0	0.0
Madison County	13,639	2	14.7	2	14.7	0	0.0
Mathews County	9,038	1	11.1	0	0.0	0	0.0
Mecklenburg County	32,162	6	18.7	4	12.4	0	0.0
Middlesex County	10,585	2	18.9	2	18.9	0	0.0
Montgomery County	89,967	4	4.4	178	197.9	0	0.0
Nelson County	15,321	1	6.5	27	176.2	0	0.0
New Kent County	17,825	1	5.6	2	11.2	0	0.0
Northampton County	13,415	2	14.9	1153	8594.9	0	0.0
Northumberland County	12,915	1	7.7	17	131.6	0	0.0
Nottoway County	15,892	1	6.3	10	62.9	0	0.0
Orange County	33,139	1	3.0	3	9.1	0	0.0
Page County	24,164	3	12.4	872	3608.7	0	0.0
Patrick County	18,844	0	0.0	66	350.2	0	0.0
Pittsylvania County	61,123	6	9.8	52	85.1	0	0.0
Powhatan County	28,006	8	28.6	3	10.7	0	0.0
Prince Edward County	21,823	4	18.3	350	1603.8	0	0.0
Prince George County	36,089	1	2.8	440	1219.2	0	0.0
Pr. William Co./Manassas/M. Park	411,258	65	15.8	1406	341.9	0	0.0
Pulaski County	34,987	1	2.9	0	0.0	0	0.0
Rappahannock County	7,158	1	14.0	0	0.0	0	0.0
Richmond County	9,144	3	32.8	5	54.7	0	0.0
Roanoke County	90,867	2	2.2	109	120.0	0	0.0
Rockbridge Co., Lexington	28,573	2	7.0	6	21.0	0	0.0
Rockingham Co., Harrisonburg	118,409	8	6.8	733	619.0	0	0.0
Russell County	28,831	0	0.0	4	13.9	0	0.0
Scott County	22,850	0	0.0	4	17.5	0	0.0
Shenandoah County	40,777	0	0.0	76	186.4	0	0.0
Smyth County	31,905	4	12.5	275	861.9	0	0.0
Southampton County	18,480	1	5.4	1	5.4	0	0.0
Spotsylvania County	120,031	8	6.7	0	0.0	0	0.0
Stafford County	121,736	15	12.3	3	2.5	0	0.0
Surry County	7,128	2	28.1	201	2819.9	0	0.0
Sussex County	12,148	5	41.2	44	362.2	0	0.0
Tazewell County	43,787	3	6.9	35	79.9	0	0.0
Warren County	36,663	2	5.5	437	1191.9	0	0.0
Washington County	53,038	1	1.9	526	991.7	0	0.0
Westmoreland County	17,462	2	11.5	0	0.0	0	0.0
Wise Co., Norton	45,405	2	4.4	234	515.4	0	0.0
Wythe County	28,769	6	20.9	55	191.2	0	0.0
York Co., Poquoson	72,856	4	5.5	706	969.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	HIV Disease REPORTED CASES	HIV Disease RATE PER 100,000	Influenza REPORTED CASES	Influenza RATE PER 100,000	Kawasaki Syndrome REPORTED CASES	Kawasaki Syndrome RATE PER 100,000
VIRGINIA TOTAL	7,769,089	1429	18.4	40,614	522.8	3	0.0
LOCALITY							
Alexandria	143,885	96	66.7	180	125.1	0	0.0
Bristol	17,424	0	0.0	34	195.1	0	0.0
Buena Vista	6,471	0	0.0	0	0.0	0	0.0
Chesapeake	220,111	45	20.4	1482	673.3	0	0.0
Colonial Heights	17,768	2	11.3	9	50.7	0	0.0
Danville	44,660	17	38.1	169	378.4	0	0.0
Franklin City	8,877	2	22.5	0	0.0	0	0.0
Fredericksburg	22,818	4	17.5	4	17.5	0	0.0
Galax	6,808	0	0.0	282	4142.2	0	0.0
Hampton	145,494	24	16.5	1078	740.9	0	0.0
Hopewell	23,142	12	51.9	333	1438.9	0	0.0
Lynchburg	72,596	13	17.9	854	1176.4	0	0.0
Newport News	179,614	40	22.3	787	438.2	0	0.0
Norfolk	234,220	113	48.2	1225	523.0	0	0.0
Petersburg	32,916	31	94.2	2860	8688.8	0	0.0
Portsmouth	100,577	32	31.8	175	174.0	0	0.0
Radford	16,125	0	0.0	32	198.4	0	0.0
Richmond City	202,002	122	60.4	512	253.5	0	0.0
Roanoke City	92,967	35	37.6	83	89.3	1	1.1
Salem	25,449	6	23.6	27	106.1	0	0.0
Suffolk	82,302	18	21.9	1	1.2	0	0.0
Virginia Beach	433,746	59	13.6	2804	646.5	1	0.2
Waynesboro	21,953	1	4.6	2	9.1	0	0.0
Williamsburg	12,481	0	0.0	843	6754.3	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	HIV Disease REPORTED CASES	HIV Disease RATE PER 100,000	Influenza REPORTED CASES	Influenza RATE PER 100,000	Kawasaki Syndrome REPORTED CASES	Kawasaki Syndrome RATE PER 100,000
VIRGINIA TOTAL	7,769,089	1429	18.4	40,614	522.8	3	0.0
DISTRICT/REGION							

Central Shenandoah	277,593	19	6.8	851	306.6	0	0.0
Lord Fairfax	215,857	11	5.1	3404	1577.0	0	0.0
Rappahannock	315,387	35	11.1	8	2.5	0	0.0
Rappahannock/Rapidan	166,978	7	4.2	267	159.9	0	0.0
Thomas Jefferson	227,107	24	10.6	1559	686.5	0	0.0
Northwest Region	1,202,922	96	8.0	6,089	506.2	0	0.0

Alexandria	143,885	96	66.7	180	125.1	0	0.0
Arlington	209,969	118	56.2	211	100.5	0	0.0
Fairfax	1,050,315	208	19.8	4977	473.9	0	0.0
Loudoun	289,995	28	9.7	3003	1035.5	0	0.0
Prince William	411,258	65	15.8	1406	341.9	0	0.0
Northern Region	2,105,422	515	24.5	9,777	464.4	0	0.0

Alleghany	175,986	16	9.1	199	113.1	0	0.0
Central Virginia	245,809	21	8.5	1320	537.0	0	0.0
Cumberland Plateau	112,544	4	3.6	97	86.2	0	0.0
Lenowisco	91,703	2	2.2	239	260.6	0	0.0
Mount Rogers	189,989	12	6.3	1247	656.4	0	0.0
New River	173,149	6	3.5	223	128.8	0	0.0
Pittsylvania/Danville	105,783	23	21.7	221	208.9	0	0.0
Roanoke City	92,967	35	37.6	83	89.3	1	1.1
West Piedmont	140,180	10	7.1	152	108.4	0	0.0
Southwest Region	1,328,110	129	9.7	3,781	284.7	1	0.1

Chesterfield	349,243	55	15.7	2075	594.1	1	0.3
Chickahominy	145,709	9	6.2	1145	785.8	0	0.0
Crater	155,103	59	38.0	4500	2901.3	0	0.0
Henrico	292,599	53	18.1	1819	621.7	0	0.0
Piedmont	101,359	9	8.9	415	409.4	0	0.0
Richmond City	202,002	122	60.4	512	253.5	0	0.0
Southside	85,154	16	18.8	144	169.1	0	0.0
Central Region	1,331,169	323	24.3	10,610	797.0	1	0.1

Chesapeake	220,111	45	20.4	1482	673.3	0	0.0
Eastern Shore	51,595	4	7.8	1219	2362.6	0	0.0
Hampton	145,494	24	16.5	1078	740.9	0	0.0
Norfolk	234,220	113	48.2	1225	523.0	0	0.0
Peninsula	327,365	51	15.6	2342	715.4	0	0.0
Portsmouth	100,577	32	31.8	175	174.0	0	0.0
Three Rivers	143,227	14	9.8	28	19.5	0	0.0
Virginia Beach	433,746	59	13.6	2804	646.5	1	0.2
Western Tidewater	145,131	24	16.5	4	2.8	0	0.0
Eastern Region	1,801,466	366	20.3	10,357	574.9	1	0.1

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	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	Legionellosis REPORTED CASES	Legionellosis RATE PER 100,000	Listeriosis REPORTED CASES	Listeriosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	389	24.0	67	0.9	16	0.2
LOCALITY							
Accomack County	38,180	7	94.7	0	0.0	2	5.2
Albemarle Co., Charlottesville	135,562	9	36.4	3	2.2	0	0.0
Alleghany Co, Clifton Forge, Covington	22,322	5	123.1	3	13.4	0	0.0
Amelia County	12,808	0	0.0	0	0.0	0	0.0
Amherst County	32,539	0	0.0	2	6.1	0	0.0
Appomattox County	14,501	1	35.9	0	0.0	0	0.0
Arlington County	209,969	9	25.6	1	0.5	0	0.0
Augusta Co., Staunton	95,217	2	11.5	0	0.0	1	1.1
Bath County	4,544	0	0.0	0	0.0	0	0.0
Bedford County and City	73,143	1	7.5	2	2.7	0	0.0
Bland County	6,918	0	0.0	0	0.0	0	0.0
Botetourt County	32,261	0	0.0	1	3.1	0	0.0
Brunswick County	17,580	1	36.0	0	0.0	0	0.0
Buchanan County	23,521	1	27.0	0	0.0	0	0.0
Buckingham County	15,977	0	0.0	0	0.0	0	0.0
Campbell County	53,030	2	20.1	0	0.0	1	1.9
Caroline County	27,632	2	34.0	1	3.6	0	0.0
Carroll County	29,158	0	0.0	0	0.0	0	0.0
Charles City County	7,212	0	0.0	0	0.0	0	0.0
Charlotte County	12,248	2	87.6	0	0.0	0	0.0
Chesterfield County	303,469	5	7.6	2	0.7	1	0.3
Clarke County	14,458	2	78.4	0	0.0	0	0.0
Craig County	5,087	0	0.0	0	0.0	0	0.0
Culpeper County	46,203	2	19.9	0	0.0	0	0.0
Cumberland County	9,670	1	52.8	0	0.0	0	0.0
Dickenson County	16,405	0	0.0	0	0.0	0	0.0
Dinwiddie County	26,082	3	61.2	0	0.0	0	0.0
Essex County	11,091	0	0.0	0	0.0	0	0.0
Fairfax Co./City/Falls Church	1,050,315	33	14.7	7	0.7	0	0.0
Fauquier County	66,839	4	28.7	0	0.0	0	0.0
Floyd County	14,821	0	0.0	0	0.0	0	0.0
Fluvanna County	25,544	0	0.0	0	0.0	0	0.0
Franklin County	51,477	2	21.4	0	0.0	0	0.0
Frederick Co., Winchester	99,795	6	28.4	0	0.0	0	0.0
Giles County	17,249	0	0.0	0	0.0	0	0.0
Gloucester County	38,656	2	27.2	0	0.0	0	0.0
Goochland County	20,956	0	0.0	0	0.0	0	0.0
Grayson County	15,969	0	0.0	0	0.0	0	0.0
Greene County	17,964	0	0.0	0	0.0	0	0.0
Greensville Co., Emporia	17,598	2	68.7	0	0.0	0	0.0
Halifax County	35,412	1	15.1	0	0.0	0	0.0
Hanover County	99,716	1	4.9	0	0.0	0	0.0
Henrico County	292,599	14	22.4	1	0.3	2	0.7
Henry Co., Martinsville	69,859	6	48.6	1	1.4	0	0.0
Highland County	2,426	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,472	0	0.0	0	0.0	0	0.0
James City County	62,414	0	0.0	1	1.6	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	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	Legionellosis REPORTED CASES	Legionellosis RATE PER 100,000	Listeriosis REPORTED CASES	Listeriosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	389	24.0	67	0.9	16	0.2
LOCALITY							
King and Queen County	6,830	0	0.0	0	0.0	0	0.0
King George County	23,170	1	18.3	0	0.0	0	0.0
King William County	16,040	1	28.9	0	0.0	1	6.2
Lancaster County	11,466	0	0.0	0	0.0	0	0.0
Lee County	23,448	1	23.7	0	0.0	1	4.3
Loudoun County	289,995	3	3.8	3	1.0	0	0.0
Louisa County	32,716	2	31.1	1	3.1	0	0.0
Lunenburg County	12,941	3	148.2	0	0.0	0	0.0
Madison County	13,639	0	0.0	0	0.0	0	0.0
Mathews County	9,038	1	75.0	0	0.0	0	0.0
Mecklenburg County	32,162	3	54.1	0	0.0	0	0.0
Middlesex County	10,585	0	0.0	0	0.0	0	0.0
Montgomery County	89,967	1	6.9	0	0.0	0	0.0
Nelson County	15,321	1	38.3	0	0.0	0	0.0
New Kent County	17,825	1	29.2	0	0.0	0	0.0
Northampton County	13,415	2	77.5	0	0.0	0	0.0
Northumberland County	12,915	6	304.0	0	0.0	0	0.0
Nottoway County	15,892	6	212.3	0	0.0	0	0.0
Orange County	33,139	0	0.0	0	0.0	0	0.0
Page County	24,164	0	0.0	0	0.0	0	0.0
Patrick County	18,844	0	0.0	0	0.0	0	0.0
Pittsylvania County	61,123	2	18.0	1	1.6	0	0.0
Powhatan County	28,006	0	0.0	0	0.0	0	0.0
Prince Edward County	21,823	2	53.1	0	0.0	0	0.0
Prince George County	36,089	0	0.0	0	0.0	0	0.0
Pr. William Co./Manassas/M. Park	411,258	10	9.3	1	0.2	1	0.2
Pulaski County	34,987	1	17.0	0	0.0	0	0.0
Rappahannock County	7,158	2	161.3	0	0.0	0	0.0
Richmond County	9,144	2	151.5	0	0.0	0	0.0
Roanoke County	90,867	1	5.7	1	1.1	1	1.1
Rockbridge Co., Lexington	28,573	0	0.0	0	0.0	0	0.0
Rockingham Co., Harrisonburg	118,409	8	35.2	7	5.9	0	0.0
Russell County	28,831	1	20.0	0	0.0	0	0.0
Scott County	22,850	0	0.0	1	4.4	0	0.0
Shenandoah County	40,777	0	0.0	0	0.0	0	0.0
Smyth County	31,905	0	0.0	1	3.1	0	0.0
Southampton County	18,480	0	0.0	0	0.0	0	0.0
Spotsylvania County	120,031	5	17.6	3	2.5	0	0.0
Stafford County	121,736	4	13.8	2	1.6	0	0.0
Surry County	7,128	0	0.0	0	0.0	0	0.0
Sussex County	12,148	2	110.6	0	0.0	0	0.0
Tazewell County	43,787	1	13.1	0	0.0	0	0.0
Warren County	36,663	2	25.1	0	0.0	0	0.0
Washington County	53,038	0	0.0	1	1.9	0	0.0
Westmoreland County	17,462	1	31.6	0	0.0	0	0.0
Wise Co., Norton	45,405	1	12.1	2	4.4	1	2.2
Wythe County	28,769	1	19.1	1	3.5	0	0.0
York Co., Poquoson	72,856	0	0.0	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	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	Legionellosis REPORTED CASES	Legionellosis RATE PER 100,000	Listeriosis REPORTED CASES	Listeriosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	389	24.0	67	0.9	16	0.2
LOCALITY							
Alexandria	143,885	8	28.8	1	0.7	0	0.0
Bristol	17,424	2	66.3	0	0.0	0	0.0
Buena Vista	6,471	0	0.0	0	0.0	0	0.0
Chesapeake	220,111	6	12.3	1	0.5	0	0.0
Colonial Heights	17,768	0	0.0	0	0.0	0	0.0
Danville	44,660	7	82.4	1	2.2	0	0.0
Franklin City	8,877	1	50.4	0	0.0	0	0.0
Fredericksburg	22,818	3	60.7	1	4.4	0	0.0
Galax	6,808	0	0.0	2	29.4	0	0.0
Hampton	145,494	3	10.1	2	1.4	0	0.0
Hopewell	23,142	0	0.0	0	0.0	0	0.0
Lynchburg	72,596	2	14.2	2	2.8	0	0.0
Newport News	179,614	11	24.5	0	0.0	0	0.0
Norfolk	234,220	21	38.1	2	0.9	0	0.0
Petersburg	32,916	18	244.1	1	3.0	0	0.0
Portsmouth	100,577	6	25.7	1	1.0	0	0.0
Radford	16,125	0	0.0	0	0.0	0	0.0
Richmond City	202,002	59	142.4	2	1.0	2	1.0
Roanoke City	92,967	22	118.7	1	1.1	1	1.1
Salem	25,449	0	0.0	0	0.0	0	0.0
Suffolk	82,302	10	52.0	0	0.0	0	0.0
Virginia Beach	433,746	1	1.0	0	0.0	0	0.0
Waynesboro	21,953	3	65.4	0	0.0	0	0.0
Williamsburg	12,481	2	100.2	0	0.0	1	8.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	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	Legionellosis REPORTED CASES	Legionellosis RATE PER 100,000	Listeriosis REPORTED CASES	Listeriosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	389	24.0	67	0.9	16	0.2
DISTRICT/REGION							

Central Shenandoah	277,593	13	25.3	7	2.5	1	0.4
Lord Fairfax	215,857	10	22.7	0	0.0	0	0.0
Rappahannock	315,387	15	20.4	7	2.2	0	0.0
Rappahannock/Rapidan	166,978	8	23.4	0	0.0	0	0.0
Thomas Jefferson	227,107	12	27.7	4	1.8	0	0.0
Northwest Region	1,202,922	58	23.5	18	1.5	1	0.1

Alexandria	143,885	8	28.8	1	0.7	0	0.0
Arlington	209,969	9	25.6	1	0.5	0	0.0
Fairfax	1,050,315	33	14.7	7	0.7	0	0.0
Loudoun	289,995	3	3.8	3	1.0	0	0.0
Prince William	411,258	10	9.3	1	0.2	1	0.2
Northern Region	2,105,422	63	13.3	13	0.6	1	0.0

Alleghany	175,986	6	18.7	5	2.8	1	0.6
Central Virginia	245,809	6	13.0	6	2.4	1	0.4
Cumberland Plateau	112,544	3	15.7	0	0.0	0	0.0
Lenowisco	91,703	2	12.3	3	3.3	2	2.2
Mount Rogers	189,989	3	9.2	5	2.6	0	0.0
New River	173,149	2	7.0	0	0.0	0	0.0
Pittsylvania/Danville	105,783	9	45.9	2	1.9	0	0.0
Roanoke City	92,967	22	118.7	1	1.1	1	1.1
West Piedmont	140,180	8	32.2	1	0.7	0	0.0
Southwest Region	1,328,110	61	25.7	23	1.7	5	0.4

Chesterfield	349,243	5	6.7	2	0.6	1	0.3
Chickahominy	145,709	2	7.0	0	0.0	0	0.0
Crater	155,103	25	82.6	1	0.6	0	0.0
Henrico	292,599	14	22.4	1	0.3	2	0.7
Piedmont	101,359	14	78.3	0	0.0	0	0.0
Richmond City	202,002	59	142.4	2	1.0	2	1.0
Southside	85,154	5	33.4	0	0.0	0	0.0
Central Region	1,331,169	124	45.8	6	0.5	5	0.4

Chesapeake	220,111	6	12.3	1	0.5	0	0.0
Eastern Shore	51,595	9	90.2	0	0.0	2	3.9
Hampton	145,494	3	10.1	2	1.4	0	0.0
Norfolk	234,220	21	38.1	2	0.9	0	0.0
Peninsula	327,365	13	18.2	1	0.3	1	0.3
Portsmouth	100,577	6	25.7	1	1.0	0	0.0
Three Rivers	143,227	13	51.9	0	0.0	1	0.7
Virginia Beach	433,746	1	1.0	0	0.0	0	0.0
Western Tidewater	145,131	11	35.2	0	0.0	0	0.0
Eastern Region	1,801,466	83	21.3	7	0.4	4	0.2

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Lyme Disease REPORTED CASES	Lyme Disease RATE PER 100,000	Malaria REPORTED CASES	Malaria RATE PER 100,000	Meningococcal Disease REPORTED CASES	Meningococcal Disease RATE PER 100,000
VIRGINIA TOTAL	7,769,089	908	11.7	61	0.8	18	0.2
LOCALITY							
Accomack County	38,180	13	34.0	0	0.0	0	0.0
Albemarle Co., Charlottesville	135,562	43	31.7	2	1.5	1	0.7
Alleghany Co, Clifton Forge, Covington	22,322	0	0.0	0	0.0	1	4.5
Amelia County	12,808	0	0.0	0	0.0	0	0.0
Amherst County	32,539	1	3.1	0	0.0	1	3.1
Appomattox County	14,501	0	0.0	0	0.0	0	0.0
Arlington County	209,969	31	14.8	5	2.4	0	0.0
Augusta Co., Staunton	95,217	15	15.8	0	0.0	0	0.0
Bath County	4,544	0	0.0	0	0.0	0	0.0
Bedford County and City	73,143	1	1.4	0	0.0	0	0.0
Bland County	6,918	0	0.0	0	0.0	0	0.0
Botetourt County	32,261	0	0.0	0	0.0	0	0.0
Brunswick County	17,580	0	0.0	0	0.0	0	0.0
Buchanan County	23,521	0	0.0	0	0.0	0	0.0
Buckingham County	15,977	0	0.0	0	0.0	0	0.0
Campbell County	53,030	0	0.0	1	1.9	0	0.0
Caroline County	27,632	0	0.0	0	0.0	0	0.0
Carroll County	29,158	0	0.0	0	0.0	1	3.4
Charles City County	7,212	1	13.9	0	0.0	0	0.0
Charlotte County	12,248	0	0.0	0	0.0	0	0.0
Chesterfield County	303,469	15	4.9	3	1.0	1	0.3
Clarke County	14,458	9	62.2	0	0.0	0	0.0
Craig County	5,087	0	0.0	0	0.0	0	0.0
Culpeper County	46,203	9	19.5	0	0.0	0	0.0
Cumberland County	9,670	0	0.0	0	0.0	0	0.0
Dickenson County	16,405	0	0.0	0	0.0	0	0.0
Dinwiddie County	26,082	0	0.0	0	0.0	0	0.0
Essex County	11,091	1	9.0	0	0.0	0	0.0
Fairfax Co./City/Falls Church	1,050,315	260	24.8	16	1.5	1	0.1
Fauquier County	66,839	28	41.9	0	0.0	0	0.0
Floyd County	14,821	13	87.7	0	0.0	0	0.0
Fluvanna County	25,544	5	19.6	0	0.0	0	0.0
Franklin County	51,477	0	0.0	0	0.0	0	0.0
Frederick Co., Winchester	99,795	16	16.0	0	0.0	0	0.0
Giles County	17,249	0	0.0	0	0.0	0	0.0
Gloucester County	38,656	0	0.0	0	0.0	0	0.0
Goochland County	20,956	0	0.0	0	0.0	0	0.0
Grayson County	15,969	0	0.0	0	0.0	0	0.0
Greene County	17,964	10	55.7	0	0.0	0	0.0
Greensville Co., Emporia	17,598	0	0.0	0	0.0	0	0.0
Halifax County	35,412	0	0.0	0	0.0	0	0.0
Hanover County	99,716	8	8.0	0	0.0	0	0.0
Henrico County	292,599	5	1.7	2	0.7	2	0.7
Henry Co., Martinsville	69,859	0	0.0	0	0.0	1	1.4
Highland County	2,426	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,472	0	0.0	0	0.0	0	0.0
James City County	62,414	6	9.6	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Lyme Disease REPORTED CASES	Lyme Disease RATE PER 100,000	Malaria REPORTED CASES	Malaria RATE PER 100,000	Meningococcal Disease REPORTED CASES	Meningococcal Disease RATE PER 100,000
VIRGINIA TOTAL	7,769,089	908	11.7	61	0.8	18	0.2
LOCALITY							
King and Queen County	6,830	0	0.0	0	0.0	0	0.0
King George County	23,170	0	0.0	0	0.0	0	0.0
King William County	16,040	0	0.0	1	6.2	0	0.0
Lancaster County	11,466	0	0.0	0	0.0	0	0.0
Lee County	23,448	0	0.0	0	0.0	0	0.0
Loudoun County	289,995	201	69.3	4	1.4	0	0.0
Louisa County	32,716	0	0.0	0	0.0	0	0.0
Lunenburg County	12,941	0	0.0	0	0.0	0	0.0
Madison County	13,639	3	22.0	0	0.0	0	0.0
Mathews County	9,038	0	0.0	0	0.0	0	0.0
Mecklenburg County	32,162	1	3.1	1	3.1	0	0.0
Middlesex County	10,585	0	0.0	0	0.0	0	0.0
Montgomery County	89,967	18	20.0	0	0.0	0	0.0
Nelson County	15,321	7	45.7	0	0.0	0	0.0
New Kent County	17,825	0	0.0	0	0.0	1	5.6
Northampton County	13,415	8	59.6	0	0.0	0	0.0
Northumberland County	12,915	4	31.0	0	0.0	0	0.0
Nottoway County	15,892	1	6.3	0	0.0	0	0.0
Orange County	33,139	2	6.0	0	0.0	0	0.0
Page County	24,164	5	20.7	0	0.0	0	0.0
Patrick County	18,844	0	0.0	0	0.0	0	0.0
Pittsylvania County	61,123	3	4.9	0	0.0	0	0.0
Powhatan County	28,006	1	3.6	0	0.0	0	0.0
Prince Edward County	21,823	0	0.0	0	0.0	0	0.0
Prince George County	36,089	2	5.5	0	0.0	0	0.0
Pr. William Co./Manassas/M. Park	411,258	54	13.1	13	3.2	1	0.2
Pulaski County	34,987	6	17.1	0	0.0	0	0.0
Rappahannock County	7,158	5	69.9	0	0.0	0	0.0
Richmond County	9,144	1	10.9	0	0.0	0	0.0
Roanoke County	90,867	1	1.1	0	0.0	1	1.1
Rockbridge Co., Lexington	28,573	7	24.5	0	0.0	0	0.0
Rockingham Co., Harrisonburg	118,409	18	15.2	0	0.0	0	0.0
Russell County	28,831	0	0.0	0	0.0	0	0.0
Scott County	22,850	0	0.0	0	0.0	0	0.0
Shenandoah County	40,777	11	27.0	0	0.0	0	0.0
Smyth County	31,905	0	0.0	0	0.0	0	0.0
Southampton County	18,480	0	0.0	0	0.0	0	0.0
Spotsylvania County	120,031	7	5.8	1	0.8	1	0.8
Stafford County	121,736	4	3.3	0	0.0	0	0.0
Surry County	7,128	0	0.0	0	0.0	0	0.0
Sussex County	12,148	0	0.0	0	0.0	0	0.0
Tazewell County	43,787	0	0.0	0	0.0	1	2.3
Warren County	36,663	5	13.6	0	0.0	0	0.0
Washington County	53,038	0	0.0	0	0.0	0	0.0
Westmoreland County	17,462	0	0.0	0	0.0	0	0.0
Wise Co., Norton	45,405	0	0.0	0	0.0	0	0.0
Wythe County	28,769	2	7.0	0	0.0	0	0.0
York Co., Poquoson	72,856	3	4.1	1	1.4	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Lyme Disease REPORTED CASES	Lyme Disease RATE PER 100,000	Malaria REPORTED CASES	Malaria RATE PER 100,000	Meningococcal Disease REPORTED CASES	Meningococcal Disease RATE PER 100,000
VIRGINIA TOTAL	7,769,089	908	11.7	61	0.8	18	0.2
LOCALITY							
Alexandria	143,885	9	6.3	4	2.8	0	0.0
Bristol	17,424	0	0.0	0	0.0	0	0.0
Buena Vista	6,471	0	0.0	0	0.0	0	0.0
Chesapeake	220,111	5	2.3	2	0.9	0	0.0
Colonial Heights	17,768	0	0.0	0	0.0	0	0.0
Danville	44,660	2	4.5	0	0.0	0	0.0
Franklin City	8,877	0	0.0	0	0.0	0	0.0
Fredericksburg	22,818	0	0.0	0	0.0	0	0.0
Galax	6,808	0	0.0	0	0.0	0	0.0
Hampton	145,494	3	2.1	1	0.7	0	0.0
Hopewell	23,142	0	0.0	1	4.3	0	0.0
Lynchburg	72,596	0	0.0	1	1.4	0	0.0
Newport News	179,614	4	2.2	0	0.0	1	0.6
Norfolk	234,220	1	0.4	1	0.4	1	0.4
Petersburg	32,916	1	3.0	0	0.0	0	0.0
Portsmouth	100,577	1	1.0	0	0.0	0	0.0
Radford	16,125	2	12.4	0	0.0	0	0.0
Richmond City	202,002	6	3.0	1	0.5	0	0.0
Roanoke City	92,967	0	0.0	0	0.0	1	1.1
Salem	25,449	0	0.0	0	0.0	0	0.0
Suffolk	82,302	0	0.0	0	0.0	0	0.0
Virginia Beach	433,746	0	0.0	0	0.0	1	0.2
Waynesboro	21,953	1	4.6	0	0.0	0	0.0
Williamsburg	12,481	3	24.0	0	0.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Lyme Disease REPORTED CASES	Lyme Disease RATE PER 100,000	Malaria REPORTED CASES	Malaria RATE PER 100,000	Meningococcal Disease REPORTED CASES	Meningococcal Disease RATE PER 100,000
VIRGINIA TOTAL	7,769,089	908	11.7	61	0.8	18	0.2
DISTRICT/REGION							

Central Shenandoah	277,593	41	14.8	0	0.0	0	0.0
Lord Fairfax	215,857	46	21.3	0	0.0	0	0.0
Rappahannock	315,387	11	3.5	1	0.3	1	0.3
Rappahannock/Rapidan	166,978	47	28.1	0	0.0	0	0.0
Thomas Jefferson	227,107	65	28.6	2	0.9	1	0.4
Northwest Region	1,202,922	210	17.5	3	0.2	2	0.2

Alexandria	143,885	9	6.3	4	2.8	0	0.0
Arlington	209,969	31	14.8	5	2.4	0	0.0
Fairfax	1,050,315	260	24.8	16	1.5	1	0.1
Loudoun	289,995	201	69.3	4	1.4	0	0.0
Prince William	411,258	54	13.1	13	3.2	1	0.2
Northern Region	2,105,422	555	26.4	42	2.0	2	0.1

Alleghany	175,986	1	0.6	0	0.0	2	1.1
Central Virginia	245,809	2	0.8	2	0.8	1	0.4
Cumberland Plateau	112,544	0	0.0	0	0.0	1	0.9
Lenowisco	91,703	0	0.0	0	0.0	0	0.0
Mount Rogers	189,989	2	1.1	0	0.0	1	0.5
New River	173,149	39	22.5	0	0.0	0	0.0
Pittsylvania/Danville	105,783	5	4.7	0	0.0	0	0.0
Roanoke City	92,967	0	0.0	0	0.0	1	1.1
West Piedmont	140,180	0	0.0	0	0.0	1	0.7
Southwest Region	1,328,110	49	3.7	2	0.2	7	0.5

Chesterfield	349,243	16	4.6	3	0.9	1	0.3
Chickahominy	145,709	9	6.2	0	0.0	1	0.7
Crater	155,103	3	1.9	1	0.6	0	0.0
Henrico	292,599	5	1.7	2	0.7	2	0.7
Piedmont	101,359	1	1.0	0	0.0	0	0.0
Richmond City	202,002	6	3.0	1	0.5	0	0.0
Southside	85,154	1	1.2	1	1.2	0	0.0
Central Region	1,331,169	41	3.1	8	0.6	4	0.3

Chesapeake	220,111	5	2.3	2	0.9	0	0.0
Eastern Shore	51,595	21	40.7	0	0.0	0	0.0
Hampton	145,494	3	2.1	1	0.7	0	0.0
Norfolk	234,220	1	0.4	1	0.4	1	0.4
Peninsula	327,365	16	4.9	1	0.3	1	0.3
Portsmouth	100,577	1	1.0	0	0.0	0	0.0
Three Rivers	143,227	6	4.2	1	0.7	0	0.0
Virginia Beach	433,746	0	0.0	0	0.0	1	0.2
Western Tidewater	145,131	0	0.0	0	0.0	0	0.0
Eastern Region	1,801,466	53	2.9	6	0.3	3	0.2

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Mumps REPORTED CASES	Mumps RATE PER 100,000	Pertussis REPORTED CASES	Pertussis RATE PER 100,000	Rabies in Animals REPORTED CASES	Rabies in Animals PERCENT OF TOTAL
VIRGINIA TOTAL	7,769,089	9	0.1	222	2.9	564	7.3
LOCALITY							
Accomack County	38,180	0	0.0	2	5.2	10	1.8
Albemarle Co., Charlottesville	135,562	2	1.5	14	10.3	4	0.7
Alleghany Co, Clifton Forge, Covington	22,322	0	0.0	0	0.0	5	0.9
Amelia County	12,808	0	0.0	0	0.0	2	0.4
Amherst County	32,539	0	0.0	1	3.1	2	0.4
Appomattox County	14,501	0	0.0	0	0.0	3	0.5
Arlington County	209,969	1	0.5	9	4.3	3	0.5
Augusta Co., Staunton	95,217	0	0.0	3	3.2	17	3.0
Bath County	4,544	0	0.0	0	0.0	5	0.9
Bedford County and City	73,143	0	0.0	1	1.4	6	1.1
Bland County	6,918	0	0.0	0	0.0	2	0.4
Botetourt County	32,261	0	0.0	1	3.1	4	0.7
Brunswick County	17,580	0	0.0	0	0.0	0	0.0
Buchanan County	23,521	0	0.0	0	0.0	0	0.0
Buckingham County	15,977	0	0.0	0	0.0	1	0.2
Campbell County	53,030	0	0.0	1	1.9	9	1.6
Caroline County	27,632	0	0.0	0	0.0	0	0.0
Carroll County	29,158	0	0.0	1	3.4	2	0.4
Charles City County	7,212	0	0.0	0	0.0	2	0.4
Charlotte County	12,248	0	0.0	0	0.0	10	1.8
Chesterfield County	303,469	0	0.0	18	5.9	7	1.2
Clarke County	14,458	0	0.0	1	6.9	3	0.5
Craig County	5,087	0	0.0	0	0.0	4	0.7
Culpeper County	46,203	0	0.0	0	0.0	4	0.7
Cumberland County	9,670	0	0.0	0	0.0	3	0.5
Dickenson County	16,405	0	0.0	0	0.0	0	0.0
Dinwiddie County	26,082	0	0.0	1	3.8	5	0.9
Essex County	11,091	0	0.0	0	0.0	2	0.4
Fairfax Co./City/Falls Church	1,050,315	0	0.0	31	3.0	44	7.8
Fauquier County	66,839	0	0.0	1	1.5	30	5.3
Floyd County	14,821	0	0.0	0	0.0	2	0.4
Fluvanna County	25,544	0	0.0	2	7.8	2	0.4
Franklin County	51,477	0	0.0	0	0.0	2	0.4
Frederick Co., Winchester	99,795	0	0.0	0	0.0	13	2.3
Giles County	17,249	0	0.0	0	0.0	2	0.4
Gloucester County	38,656	0	0.0	0	0.0	5	0.9
Goochland County	20,956	0	0.0	1	4.8	1	0.2
Grayson County	15,969	0	0.0	2	12.5	2	0.4
Greene County	17,964	0	0.0	3	16.7	1	0.2
Greensville Co., Emporia	17,598	0	0.0	0	0.0	0	0.0
Halifax County	35,412	0	0.0	0	0.0	9	1.6
Hanover County	99,716	1	1.0	10	10.0	34	6.0
Henrico County	292,599	0	0.0	17	5.8	18	3.2
Henry Co., Martinsville	69,859	0	0.0	0	0.0	5	0.9
Highland County	2,426	0	0.0	0	0.0	2	0.4
Isle of Wight County	35,472	0	0.0	0	0.0	9	1.6
James City County	62,414	0	0.0	1	1.6	11	2.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Mumps REPORTED CASES	Mumps RATE PER 100,000	Pertussis REPORTED CASES	Pertussis RATE PER 100,000	Rabies in Animals REPORTED CASES	Rabies in Animals PERCENT OF TOTAL
VIRGINIA TOTAL	7,769,089	9	0.1	222	2.9	564	7.3
LOCALITY							
King and Queen County	6,830	0	0.0	0	0.0	3	0.5
King George County	23,170	0	0.0	0	0.0	3	0.5
King William County	16,040	0	0.0	1	6.2	2	0.4
Lancaster County	11,466	0	0.0	0	0.0	3	0.5
Lee County	23,448	0	0.0	0	0.0	0	0.0
Loudoun County	289,995	0	0.0	6	2.1	24	4.3
Louisa County	32,716	0	0.0	0	0.0	5	0.9
Lunenburg County	12,941	0	0.0	0	0.0	4	0.7
Madison County	13,639	0	0.0	1	7.3	1	0.2
Mathews County	9,038	0	0.0	0	0.0	3	0.5
Mecklenburg County	32,162	0	0.0	0	0.0	6	1.1
Middlesex County	10,585	0	0.0	0	0.0	6	1.1
Montgomery County	89,967	1	1.1	3	3.3	5	0.9
Nelson County	15,321	1	6.5	0	0.0	2	0.4
New Kent County	17,825	0	0.0	0	0.0	5	0.9
Northampton County	13,415	0	0.0	0	0.0	6	1.1
Northumberland County	12,915	0	0.0	0	0.0	4	0.7
Nottoway County	15,892	0	0.0	0	0.0	0	0.0
Orange County	33,139	0	0.0	1	3.0	0	0.0
Page County	24,164	0	0.0	1	4.1	1	0.2
Patrick County	18,844	0	0.0	1	5.3	8	1.4
Pittsylvania County	61,123	0	0.0	6	9.8	9	1.6
Powhatan County	28,006	0	0.0	3	10.7	2	0.4
Prince Edward County	21,823	0	0.0	1	4.6	2	0.4
Prince George County	36,089	0	0.0	0	0.0	1	0.2
Pr. William Co./Manassas/M. Park	411,258	0	0.0	7	1.7	6	1.1
Pulaski County	34,987	0	0.0	2	5.7	5	0.9
Rappahannock County	7,158	0	0.0	0	0.0	2	0.4
Richmond County	9,144	0	0.0	0	0.0	0	0.0
Roanoke County	90,867	0	0.0	4	4.4	9	1.6
Rockbridge Co., Lexington	28,573	0	0.0	3	10.5	4	0.7
Rockingham Co., Harrisonburg	118,409	0	0.0	1	0.8	12	2.1
Russell County	28,831	0	0.0	0	0.0	0	0.0
Scott County	22,850	0	0.0	0	0.0	1	0.2
Shenandoah County	40,777	0	0.0	1	2.5	9	1.6
Smyth County	31,905	0	0.0	0	0.0	6	1.1
Southampton County	18,480	0	0.0	0	0.0	3	0.5
Spotsylvania County	120,031	0	0.0	3	2.5	11	2.0
Stafford County	121,736	0	0.0	3	2.5	8	1.4
Surry County	7,128	0	0.0	0	0.0	1	0.2
Sussex County	12,148	0	0.0	0	0.0	0	0.0
Tazewell County	43,787	0	0.0	0	0.0	3	0.5
Warren County	36,663	0	0.0	0	0.0	6	1.1
Washington County	53,038	0	0.0	0	0.0	2	0.4
Westmoreland County	17,462	0	0.0	0	0.0	1	0.2
Wise Co., Norton	45,405	0	0.0	1	2.2	0	0.0
Wythe County	28,769	0	0.0	0	0.0	5	0.9
York Co., Poquoson	72,856	0	0.0	3	4.1	2	0.4

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Mumps REPORTED CASES	Mumps RATE PER 100,000	Pertussis REPORTED CASES	Pertussis RATE PER 100,000	Rabies in Animals REPORTED CASES	Rabies in Animals PERCENT OF TOTAL
VIRGINIA TOTAL	7,769,089	9	0.1	222	2.9	564	7.3
LOCALITY							
Alexandria	143,885	0	0.0	6	4.2	11	2.0
Bristol	17,424	0	0.0	2	11.5	0	0.0
Buena Vista	6,471	0	0.0	0	0.0	0	0.0
Chesapeake	220,111	0	0.0	6	2.7	7	1.2
Colonial Heights	17,768	0	0.0	0	0.0	0	0.0
Danville	44,660	0	0.0	1	2.2	0	0.0
Franklin City	8,877	0	0.0	0	0.0	0	0.0
Fredericksburg	22,818	0	0.0	0	0.0	1	0.2
Galax	6,808	0	0.0	0	0.0	1	0.2
Hampton	145,494	2	1.4	0	0.0	2	0.4
Hopewell	23,142	0	0.0	1	4.3	1	0.2
Lynchburg	72,596	0	0.0	1	1.4	4	0.7
Newport News	179,614	0	0.0	1	0.6	5	0.9
Norfolk	234,220	0	0.0	2	0.9	3	0.5
Petersburg	32,916	0	0.0	1	3.0	1	0.2
Portsmouth	100,577	0	0.0	4	4.0	1	0.2
Radford	16,125	0	0.0	1	6.2	0	0.0
Richmond City	202,002	1	0.5	6	3.0	5	0.9
Roanoke City	92,967	0	0.0	1	1.1	0	0.0
Salem	25,449	0	0.0	1	3.9	0	0.0
Suffolk	82,302	0	0.0	2	2.4	6	1.1
Virginia Beach	433,746	0	0.0	12	2.8	7	1.2
Waynesboro	21,953	0	0.0	1	4.6	0	0.0
Williamsburg	12,481	0	0.0	0	0.0	1	0.2

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Mumps REPORTED CASES	Mumps RATE PER 100,000	Pertussis REPORTED CASES	Pertussis RATE PER 100,000	Rabies in Animals REPORTED CASES	Rabies in Animals PERCENT OF TOTAL
VIRGINIA TOTAL	7,769,089	9	0.1	222	2.9	564	7.3
DISTRICT/REGION							

Central Shenandoah	277,593	0	0.0	8	2.9	40	10.7
Lord Fairfax	215,857	0	0.0	3	1.4	32	7.4
Rappahannock	315,387	0	0.0	6	1.9	23	3.9
Rappahannock/Rapidan	166,978	0	0.0	3	1.8	37	3.3
Thomas Jefferson	227,107	3	1.3	19	8.4	14	3.1
Northwest Region	1,202,922	3	0.2	39	3.2	146	12.1

Alexandria	143,885	0	0.0	6	4.2	11	2.2
Arlington	209,969	1	0.5	9	4.3	3	3.1
Fairfax	1,050,315	0	0.0	31	3.0	44	9.2
Loudoun	289,995	0	0.0	6	2.1	24	3.5
Prince William	411,258	0	0.0	7	1.7	6	3.1
Northern Region	2,105,422	1	0.0	59	2.8	88	4.2

Alleghany	175,986	0	0.0	6	3.4	22	1.8
Central Virginia	245,809	0	0.0	4	1.6	24	7.4
Cumberland Plateau	112,544	0	0.0	0	0.0	3	1.3
Lenowisco	91,703	0	0.0	1	1.1	1	0.2
Mount Rogers	189,989	0	0.0	5	2.6	20	3.5
New River	173,149	1	0.6	6	3.5	14	1.7
Pittsylvania/Danville	105,783	0	0.0	7	6.6	9	0.6
Roanoke City	92,967	0	0.0	1	1.1	0	0.2
West Piedmont	140,180	0	0.0	1	0.7	15	1.7
Southwest Region	1,328,110	1	0.1	31	2.3	108	8.1

Chesterfield	349,243	0	0.0	21	6.0	9	2.4
Chickahominy	145,709	1	0.7	11	7.5	42	3.1
Crater	155,103	0	0.0	3	1.9	9	2.6
Henrico	292,599	0	0.0	17	5.8	18	1.7
Piedmont	101,359	0	0.0	1	1.0	22	2.6
Richmond City	202,002	1	0.5	6	3.0	5	0.2
Southside	85,154	0	0.0	0	0.0	15	1.8
Central Region	1,331,169	2	0.2	59	4.4	120	9.0

Chesapeake	220,111	0	0.0	6	2.7	7	0.2
Eastern Shore	51,595	0	0.0	2	3.9	16	5.4
Hampton	145,494	2	1.4	0	0.0	2	0.7
Norfolk	234,220	0	0.0	2	0.9	3	2.0
Peninsula	327,365	0	0.0	5	1.5	19	2.2
Portsmouth	100,577	0	0.0	4	4.0	1	0.0
Three Rivers	143,227	0	0.0	1	0.7	29	5.0
Virginia Beach	433,746	0	0.0	12	2.8	7	1.1
Western Tidewater	145,131	0	0.0	2	1.4	18	1.1
Eastern Region	1,801,466	2	0.1	34	1.9	102	5.7

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Rocky Mountain Spotted Fever REPORTED CASES	Rocky Mountain Spotted Fever RATE PER 100,000	Salmonellosis REPORTED CASES	Salmonellosis RATE PER 100,000	Shigellosis REPORTED CASES	Shigellosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	53	0.7	1,095	14.1	198	2.5
LOCALITY							
Accomack County	38,180	0	0.0	17	44.5	1	2.6
Albemarle Co., Charlottesville	135,562	3	2.2	24	17.7	6	4.4
Alleghany Co, Clifton Forge, Covington	22,322	0	0.0	4	17.9	0	0.0
Amelia County	12,808	0	0.0	3	23.4	0	0.0
Amherst County	32,539	0	0.0	5	15.4	1	3.1
Appomattox County	14,501	0	0.0	3	20.7	1	6.9
Arlington County	209,969	0	0.0	27	12.9	10	4.8
Augusta Co., Staunton	95,217	0	0.0	17	17.9	1	1.1
Bath County	4,544	0	0.0	0	0.0	0	0.0
Bedford County and City	73,143	1	1.4	13	17.8	2	2.7
Bland County	6,918	0	0.0	0	0.0	0	0.0
Botetourt County	32,261	0	0.0	2	6.2	0	0.0
Brunswick County	17,580	0	0.0	3	17.1	0	0.0
Buchanan County	23,521	0	0.0	2	8.5	0	0.0
Buckingham County	15,977	0	0.0	0	0.0	0	0.0
Campbell County	53,030	0	0.0	8	15.1	5	9.4
Caroline County	27,632	1	3.6	3	10.9	1	3.6
Carroll County	29,158	0	0.0	2	6.9	0	0.0
Charles City County	7,212	0	0.0	6	83.2	0	0.0
Charlotte County	12,248	0	0.0	4	32.7	0	0.0
Chesterfield County	303,469	5	1.6	26	8.6	4	1.3
Clarke County	14,458	0	0.0	2	13.8	0	0.0
Craig County	5,087	0	0.0	1	19.7	0	0.0
Culpeper County	46,203	0	0.0	7	15.2	2	4.3
Cumberland County	9,670	0	0.0	2	20.7	0	0.0
Dickenson County	16,405	0	0.0	2	12.2	0	0.0
Dinwiddie County	26,082	1	3.8	6	23.0	3	11.5
Essex County	11,091	0	0.0	1	9.0	0	0.0
Fairfax Co./City/Falls Church	1,050,315	6	0.6	111	10.6	26	2.5
Fauquier County	66,839	1	1.5	15	22.4	3	4.5
Floyd County	14,821	0	0.0	1	6.7	0	0.0
Fluvanna County	25,544	0	0.0	22	86.1	0	0.0
Franklin County	51,477	0	0.0	11	21.4	5	9.7
Frederick Co., Winchester	99,795	2	2.0	23	23.0	5	5.0
Giles County	17,249	0	0.0	2	11.6	0	0.0
Gloucester County	38,656	1	2.6	8	20.7	0	0.0
Goochland County	20,956	0	0.0	7	33.4	0	0.0
Grayson County	15,969	0	0.0	1	6.3	0	0.0
Greene County	17,964	1	5.6	0	0.0	0	0.0
Greensville Co., Emporia	17,598	1	5.7	2	11.4	0	0.0
Halifax County	35,412	0	0.0	4	11.3	0	0.0
Hanover County	99,716	1	1.0	13	13.0	2	2.0
Henrico County	292,599	0	0.0	34	11.6	8	2.7
Henry Co., Martinsville	69,859	0	0.0	10	14.3	0	0.0
Highland County	2,426	0	0.0	1	41.2	0	0.0
Isle of Wight County	35,472	0	0.0	9	25.4	0	0.0
James City County	62,414	1	1.6	8	12.8	2	3.2

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Rocky Mountain Spotted Fever REPORTED CASES	Rocky Mountain Spotted Fever RATE PER 100,000	Salmonellosis REPORTED CASES	Salmonellosis RATE PER 100,000	Shigellosis REPORTED CASES	Shigellosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	53	0.7	1,095	14.1	198	2.5
LOCALITY							
King and Queen County	6,830	0	0.0	2	29.3	0	0.0
King George County	23,170	0	0.0	1	4.3	0	0.0
King William County	16,040	0	0.0	4	24.9	2	12.5
Lancaster County	11,466	0	0.0	0	0.0	0	0.0
Lee County	23,448	1	4.3	3	12.8	0	0.0
Loudoun County	289,995	0	0.0	59	20.3	5	1.7
Louisa County	32,716	1	3.1	7	21.4	1	3.1
Lunenburg County	12,941	0	0.0	1	7.7	0	0.0
Madison County	13,639	0	0.0	2	14.7	0	0.0
Mathews County	9,038	0	0.0	3	33.2	0	0.0
Mecklenburg County	32,162	0	0.0	4	12.4	0	0.0
Middlesex County	10,585	0	0.0	0	0.0	0	0.0
Montgomery County	89,967	0	0.0	12	13.3	1	1.1
Nelson County	15,321	1	6.5	2	13.1	0	0.0
New Kent County	17,825	0	0.0	2	11.2	0	0.0
Northampton County	13,415	0	0.0	3	22.4	0	0.0
Northumberland County	12,915	0	0.0	3	23.2	1	7.7
Nottoway County	15,892	0	0.0	3	18.9	0	0.0
Orange County	33,139	1	3.0	6	18.1	0	0.0
Page County	24,164	0	0.0	4	16.6	0	0.0
Patrick County	18,844	0	0.0	1	5.3	0	0.0
Pittsylvania County	61,123	2	3.3	6	9.8	0	0.0
Powhatan County	28,006	2	7.1	5	17.9	0	0.0
Prince Edward County	21,823	0	0.0	5	22.9	2	9.2
Prince George County	36,089	3	8.3	1	2.8	0	0.0
Pr. William Co./Manassas/M. Park	411,258	3	0.7	69	16.8	17	4.1
Pulaski County	34,987	0	0.0	6	17.1	0	0.0
Rappahannock County	7,158	1	14.0	0	0.0	0	0.0
Richmond County	9,144	0	0.0	1	10.9	0	0.0
Roanoke County	90,867	0	0.0	8	8.8	5	5.5
Rockbridge Co., Lexington	28,573	0	0.0	4	14.0	0	0.0
Rockingham Co., Harrisonburg	118,409	1	0.8	9	7.6	9	7.6
Russell County	28,831	0	0.0	3	10.4	0	0.0
Scott County	22,850	0	0.0	3	13.1	0	0.0
Shenandoah County	40,777	2	4.9	8	19.6	0	0.0
Smyth County	31,905	0	0.0	5	15.7	2	6.3
Southampton County	18,480	0	0.0	2	10.8	0	0.0
Spotsylvania County	120,031	1	0.8	16	13.3	5	4.2
Stafford County	121,736	0	0.0	16	13.1	7	5.8
Surry County	7,128	0	0.0	1	14.0	0	0.0
Sussex County	12,148	0	0.0	3	24.7	0	0.0
Tazewell County	43,787	0	0.0	6	13.7	1	2.3
Warren County	36,663	0	0.0	5	13.6	1	2.7
Washington County	53,038	0	0.0	12	22.6	0	0.0
Westmoreland County	17,462	0	0.0	7	40.1	0	0.0
Wise Co., Norton	45,405	0	0.0	13	28.6	0	0.0
Wythe County	28,769	0	0.0	0	0.0	1	3.5
York Co., Poquoson	72,856	1	1.4	11	15.1	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Rocky Mountain Spotted Fever REPORTED CASES	Rocky Mountain Spotted Fever RATE PER 100,000	Salmonellosis REPORTED CASES	Salmonellosis RATE PER 100,000	Shigellosis REPORTED CASES	Shigellosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	53	0.7	1,095	14.1	198	2.5
LOCALITY							
Alexandria	143,885	1	0.7	10	6.9	4	2.8
Bristol	17,424	0	0.0	2	11.5	0	0.0
Buena Vista	6,471	0	0.0	2	30.9	0	0.0
Chesapeake	220,111	0	0.0	37	16.8	0	0.0
Colonial Heights	17,768	0	0.0	3	16.9	0	0.0
Danville	44,660	1	2.2	3	6.7	1	2.2
Franklin City	8,877	0	0.0	4	45.1	1	11.3
Fredericksburg	22,818	0	0.0	3	13.1	0	0.0
Galax	6,808	0	0.0	0	0.0	0	0.0
Hampton	145,494	0	0.0	10	6.9	0	0.0
Hopewell	23,142	0	0.0	2	8.6	0	0.0
Lynchburg	72,596	0	0.0	12	16.5	0	0.0
Newport News	179,614	0	0.0	18	10.0	2	1.1
Norfolk	234,220	1	0.4	22	9.4	2	0.9
Petersburg	32,916	0	0.0	4	12.2	1	3.0
Portsmouth	100,577	1	1.0	10	9.9	2	2.0
Radford	16,125	0	0.0	0	0.0	1	6.2
Richmond City	202,002	1	0.5	29	14.4	19	9.4
Roanoke City	92,967	0	0.0	7	7.5	9	9.7
Salem	25,449	0	0.0	2	7.9	1	3.9
Suffolk	82,302	0	0.0	16	19.4	1	1.2
Virginia Beach	433,746	1	0.2	67	15.4	3	0.7
Waynesboro	21,953	0	0.0	2	9.1	3	13.7
Williamsburg	12,481	2	16.0	11	88.1	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	Rocky Mountain Spotted Fever REPORTED CASES	Rocky Mountain Spotted Fever RATE PER 100,000	Salmonellosis REPORTED CASES	Salmonellosis RATE PER 100,000	Shigellosis REPORTED CASES	Shigellosis RATE PER 100,000
VIRGINIA TOTAL	7,769,089	53	0.7	1,095	14.1	198	2.5
DISTRICT/REGION							
Central Shenandoah	277,593	1	0.4	35	12.6	13	4.7
Lord Fairfax	215,857	4	1.9	42	19.5	6	2.8
Rappahannock	315,387	2	0.6	39	12.4	13	4.1
Rappahannock/Rapidan	166,978	3	1.8	30	18.0	5	3.0
Thomas Jefferson	227,107	6	2.6	55	24.2	7	3.1
Northwest Region	1,202,922	16	1.3	201	16.7	44	3.7
Alexandria	143,885	1	0.7	10	6.9	4	2.8
Arlington	209,969	0	0.0	27	12.9	10	4.8
Fairfax	1,050,315	6	0.6	111	10.6	26	2.5
Loudoun	289,995	0	0.0	59	20.3	5	1.7
Prince William	411,258	3	0.7	69	16.8	17	4.1
Northern Region	2,105,422	10	0.5	276	13.1	62	2.9
Alleghany	175,986	0	0.0	17	9.7	6	3.4
Central Virginia	245,809	1	0.4	41	16.7	9	3.7
Cumberland Plateau	112,544	0	0.0	13	11.6	1	0.9
Lenowisco	91,703	1	1.1	19	20.7	0	0.0
Mount Rogers	189,989	0	0.0	22	11.6	3	1.6
New River	173,149	0	0.0	21	12.1	2	1.2
Pittsylvania/Danville	105,783	3	2.8	9	8.5	1	0.9
Roanoke City	92,967	0	0.0	7	7.5	9	9.7
West Piedmont	140,180	0	0.0	22	15.7	5	3.6
Southwest Region	1,328,110	5	0.4	171	12.9	36	2.7
Chesterfield	349,243	7	2.0	34	9.7	4	1.1
Chickahominy	145,709	1	0.7	28	19.2	2	1.4
Crater	155,103	5	3.2	19	12.2	4	2.6
Henrico	292,599	0	0.0	34	11.6	8	2.7
Piedmont	101,359	0	0.0	18	17.8	2	2.0
Richmond City	202,002	1	0.5	29	14.4	19	9.4
Southside	85,154	0	0.0	11	12.9	0	0.0
Central Region	1,331,169	14	1.1	173	13.0	39	2.9
Chesapeake	220,111	0	0.0	37	16.8	0	0.0
Eastern Shore	51,595	0	0.0	20	38.8	1	1.9
Hampton	145,494	0	0.0	10	6.9	0	0.0
Norfolk	234,220	1	0.4	22	9.4	2	0.9
Peninsula	327,365	4	1.2	48	14.7	4	1.2
Portsmouth	100,577	1	1.0	10	9.9	2	2.0
Three Rivers	143,227	1	0.7	29	20.2	3	2.1
Virginia Beach	433,746	1	0.2	67	15.4	3	0.7
Western Tidewater	145,131	0	0.0	31	21.4	2	1.4
Eastern Region	1,801,466	8	0.4	274	15.2	17	0.9

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	***Staphylococcus aureus* Infection, Invasive (MRSA)** REPORTED CASES	RATE PER 100,000	**Syphilis, Early** REPORTED CASES	RATE PER 100,000	**Tuberculosis** REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	7,769,089	1,124	14.5	529	6.8	273	3.5
LOCALITY							
Accomack County	38,180	2	5.2	0	0.0	0	0.0
Albemarle Co., Charlottesville	135,562	20	14.8	6	4.4	6	4.4
Alleghany Co, Clifton Forge, Covington	22,322	4	17.9	0	0.0	0	0.0
Amelia County	12,808	0	0.0	0	0.0	0	0.0
Amherst County	32,539	11	33.8	0	0.0	1	3.1
Appomattox County	14,501	4	27.6	1	6.9	0	0.0
Arlington County	209,969	25	11.9	21	10.0	19	9.0
Augusta Co., Staunton	95,217	12	12.6	1	1.1	0	0.0
Bath County	4,544	0	0.0	0	0.0	0	0.0
Bedford County and City	73,143	11	15.0	0	0.0	0	0.0
Bland County	6,918	0	0.0	0	0.0	0	0.0
Botetourt County	32,261	5	15.5	2	6.2	1	3.1
Brunswick County	17,580	0	0.0	1	5.7	0	0.0
Buchanan County	23,521	4	17.0	0	0.0	0	0.0
Buckingham County	15,977	2	12.5	0	0.0	0	0.0
Campbell County	53,030	10	18.9	7	13.2	0	0.0
Caroline County	27,632	8	29.0	0	0.0	0	0.0
Carroll County	29,158	2	6.9	2	6.9	0	0.0
Charles City County	7,212	2	27.7	0	0.0	0	0.0
Charlotte County	12,248	1	8.2	2	16.3	1	8.2
Chesterfield County	303,469	48	15.8	23	7.6	3	1.0
Clarke County	14,458	4	27.7	0	0.0	0	0.0
Craig County	5,087	0	0.0	1	19.7	0	0.0
Culpeper County	46,203	6	13.0	0	0.0	0	0.0
Cumberland County	9,670	1	10.3	1	10.3	0	0.0
Dickenson County	16,405	2	12.2	0	0.0	0	0.0
Dinwiddie County	26,082	5	19.2	0	0.0	1	3.8
Essex County	11,091	0	0.0	0	0.0	0	0.0
Fairfax Co./City/Falls Church	1,050,315	52	5.0	37	3.5	86	8.2
Fauquier County	66,839	10	15.0	0	0.0	1	1.5
Floyd County	14,821	1	6.7	1	6.7	0	0.0
Fluvanna County	25,544	5	19.6	0	0.0	2	7.8
Franklin County	51,477	11	21.4	1	1.9	0	0.0
Frederick Co., Winchester	99,795	5	5.0	0	0.0	0	0.0
Giles County	17,249	1	5.8	0	0.0	0	0.0
Gloucester County	38,656	0	0.0	1	2.6	1	2.6
Goochland County	20,956	5	23.9	1	4.8	0	0.0
Grayson County	15,969	3	18.8	0	0.0	0	0.0
Greene County	17,964	1	5.6	0	0.0	0	0.0
Greensville Co., Emporia	17,598	28	159.1	1	5.7	0	0.0
Halifax County	35,412	2	5.6	2	5.6	0	0.0
Hanover County	99,716	19	19.1	1	1.0	3	3.0
Henrico County	292,599	93	31.8	46	15.7	5	1.7
Henry Co., Martinsville	69,859	14	20.0	0	0.0	1	1.4
Highland County	2,426	0	0.0	0	0.0	0	0.0
Isle of Wight County	35,472	2	5.6	4	11.3	1	2.8
James City County	62,414	5	8.0	1	1.6	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	***Staphylococcus aureus* Infection, Invasive (MRSA)** REPORTED CASES	RATE PER 100,000	**Syphilis, Early** REPORTED CASES	RATE PER 100,000	**Tuberculosis** REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	7,769,089	1,124	14.5	529	6.8	273	3.5
LOCALITY							
King and Queen County	6,830	0	0.0	0	0.0	0	0.0
King George County	23,170	5	21.6	0	0.0	0	0.0
King William County	16,040	2	12.5	5	31.2	0	0.0
Lancaster County	11,466	0	0.0	0	0.0	0	0.0
Lee County	23,448	6	25.6	0	0.0	0	0.0
Loudoun County	289,995	15	5.2	7	2.4	15	5.2
Louisa County	32,716	6	18.3	1	3.1	0	0.0
Lunenburg County	12,941	1	7.7	0	0.0	0	0.0
Madison County	13,639	0	0.0	0	0.0	0	0.0
Mathews County	9,038	0	0.0	1	11.1	0	0.0
Mecklenburg County	32,162	2	6.2	3	9.3	0	0.0
Middlesex County	10,585	2	18.9	0	0.0	0	0.0
Montgomery County	89,967	17	18.9	2	2.2	0	0.0
Nelson County	15,321	3	19.6	0	0.0	0	0.0
New Kent County	17,825	6	33.7	0	0.0	0	0.0
Northampton County	13,415	6	44.7	0	0.0	0	0.0
Northumberland County	12,915	0	0.0	1	7.7	0	0.0
Nottoway County	15,892	2	12.6	2	12.6	1	6.3
Orange County	33,139	0	0.0	1	3.0	0	0.0
Page County	24,164	2	8.3	0	0.0	0	0.0
Patrick County	18,844	4	21.2	1	5.3	1	5.3
Pittsylvania County	61,123	16	26.2	7	11.5	1	1.6
Powhatan County	28,006	4	14.3	1	3.6	1	3.6
Prince Edward County	21,823	0	0.0	4	18.3	0	0.0
Prince George County	36,089	3	8.3	1	2.8	0	0.0
Pr. William Co./Manassas/M. Park	411,258	22	5.3	19	4.6	25	6.1
Pulaski County	34,987	5	14.3	0	0.0	0	0.0
Rappahannock County	7,158	2	27.9	0	0.0	0	0.0
Richmond County	9,144	0	0.0	0	0.0	0	0.0
Roanoke County	90,867	17	18.7	3	3.3	1	1.1
Rockbridge Co., Lexington	28,573	3	10.5	0	0.0	1	3.5
Rockingham Co., Harrisonburg	118,409	23	19.4	2	1.7	7	5.9
Russell County	28,831	11	38.2	0	0.0	0	0.0
Scott County	22,850	10	43.8	1	4.4	1	4.4
Shenandoah County	40,777	5	12.3	0	0.0	0	0.0
Smyth County	31,905	1	3.1	0	0.0	0	0.0
Southampton County	18,480	3	16.2	0	0.0	1	5.4
Spotsylvania County	120,031	18	15.0	6	5.0	2	1.7
Stafford County	121,736	14	11.5	4	3.3	3	2.5
Surry County	7,128	2	28.1	1	14.0	0	0.0
Sussex County	12,148	1	8.2	1	8.2	0	0.0
Tazewell County	43,787	9	20.6	0	0.0	0	0.0
Warren County	36,663	6	16.4	0	0.0	0	0.0
Washington County	53,038	10	18.9	0	0.0	1	1.9
Westmoreland County	17,462	1	5.7	0	0.0	0	0.0
Wise Co., Norton	45,405	12	26.4	0	0.0	0	0.0
Wythe County	28,769	5	17.4	0	0.0	0	0.0
York Co., Poquoson	72,856	7	9.6	1	1.4	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	***Staphylococcus aureus* Infection, Invasive (MRSA)** REPORTED CASES	RATE PER 100,000	**Syphilis, Early** REPORTED CASES	RATE PER 100,000	**Tuberculosis** REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	7,769,089	1,124	14.5	529	6.8	273	3.5
LOCALITY							
Alexandria	143,885	15	10.4	16	11.1	13	9.0
Bristol	17,424	4	23.0	0	0.0	0	0.0
Buena Vista	6,471	2	30.9	0	0.0	0	0.0
Chesapeake	220,111	38	17.3	16	7.3	6	2.7
Colonial Heights	17,768	6	33.8	0	0.0	0	0.0
Danville	44,660	18	40.3	10	22.4	1	2.2
Franklin City	8,877	2	22.5	0	0.0	0	0.0
Fredericksburg	22,818	5	21.9	0	0.0	1	4.4
Galax	6,808	2	29.4	0	0.0	0	0.0
Hampton	145,494	14	9.6	14	9.6	3	2.1
Hopewell	23,142	14	60.5	8	34.6	0	0.0
Lynchburg	72,596	10	13.8	9	12.4	1	1.4
Newport News	179,614	23	12.8	27	15.0	5	2.8
Norfolk	234,220	24	10.2	54	23.1	5	2.1
Petersburg	32,916	11	33.4	4	12.2	5	15.2
Portsmouth	100,577	33	32.8	20	19.9	2	2.0
Radford	16,125	1	6.2	0	0.0	0	0.0
Richmond City	202,002	87	43.1	64	31.7	13	6.4
Roanoke City	92,967	34	36.6	8	8.6	10	10.8
Salem	25,449	4	15.7	1	3.9	0	0.0
Suffolk	82,302	6	7.3	4	4.9	1	1.2
Virginia Beach	433,746	33	7.6	34	7.8	13	3.0
Waynesboro	21,953	2	9.1	0	0.0	1	4.6
Williamsburg	12,481	1	8.0	1	8.0	0	0.0

Number of Cases and Rate for each Locality, District, and Region for these Diseases: 2009

LOCALITY/DISTRICT/REGION	2008 POPULATION	***Staphylococcus aureus* Infection, Invasive (MRSA)** REPORTED CASES	RATE PER 100,000	**Syphilis, Early** REPORTED CASES	RATE PER 100,000	**Tuberculosis** REPORTED CASES	RATE PER 100,000
VIRGINIA TOTAL	7,769,089	1,124	14.5	529	6.8	273	3.5
DISTRICT/REGION							

Central Shenandoah	277,593	42	15.1	3	1.1	9	3.2
Lord Fairfax	215,857	22	10.2	0	0.0	0	0.0
Rappahannock	315,387	50	15.9	10	3.2	6	1.9
Rappahannock/Rapidan	166,978	18	10.8	1	0.6	1	0.6
Thomas Jefferson	227,107	35	15.4	7	3.1	8	3.5
Northwest Region	1,202,922	167	13.9	21	1.7	24	2.0

Alexandria	143,885	15	10.4	16	11.1	13	9.0
Arlington	209,969	25	11.9	21	10.0	19	9.0
Fairfax	1,050,315	52	5.0	37	3.5	86	8.2
Loudoun	289,995	15	5.2	7	2.4	15	5.2
Prince William	411,258	22	5.3	19	4.6	25	6.1
Northern Region	2,105,422	129	6.1	100	4.7	158	7.5

Alleghany	175,986	30	17.0	7	4.0	2	1.1
Central Virginia	245,809	46	18.7	17	6.9	2	0.8
Cumberland Plateau	112,544	26	23.1	0	0.0	0	0.0
Lenowisco	91,703	28	30.5	1	1.1	1	1.1
Mount Rogers	189,989	27	14.2	2	1.1	1	0.5
New River	173,149	25	14.4	3	1.7	0	0.0
Pittsylvania/Danville	105,783	34	32.1	17	16.1	2	1.9
Roanoke City	92,967	34	36.6	8	8.6	10	10.8
West Piedmont	140,180	29	20.7	2	1.4	2	1.4
Southwest Region	1,328,110	279	21.0	57	4.3	20	1.5

Chesterfield	349,243	58	16.6	24	6.9	4	1.1
Chickahominy	145,709	32	22.0	2	1.4	3	2.1
Crater	155,103	64	41.3	16	10.3	6	3.9
Henrico	292,599	93	31.8	46	15.7	5	1.7
Piedmont	101,359	7	6.9	9	8.9	2	2.0
Richmond City	202,002	87	43.1	64	31.7	13	6.4
Southside	85,154	4	4.7	6	7.0	0	0.0
Central Region	1,331,169	345	25.9	167	12.5	33	2.5

Chesapeake	220,111	38	17.3	16	7.3	6	2.7
Eastern Shore	51,595	8	15.5	0	0.0	0	0.0
Hampton	145,494	14	9.6	14	9.6	3	2.1
Norfolk	234,220	24	10.2	54	23.1	5	2.1
Peninsula	327,365	36	11.0	30	9.2	5	1.5
Portsmouth	100,577	33	32.8	20	19.9	2	2.0
Three Rivers	143,227	5	3.5	8	5.6	1	0.7
Virginia Beach	433,746	33	7.6	34	7.8	13	3.0
Western Tidewater	145,131	13	9.0	8	5.5	3	2.1
Eastern Region	1,801,466	204	11.3	184	10.2	38	2.1

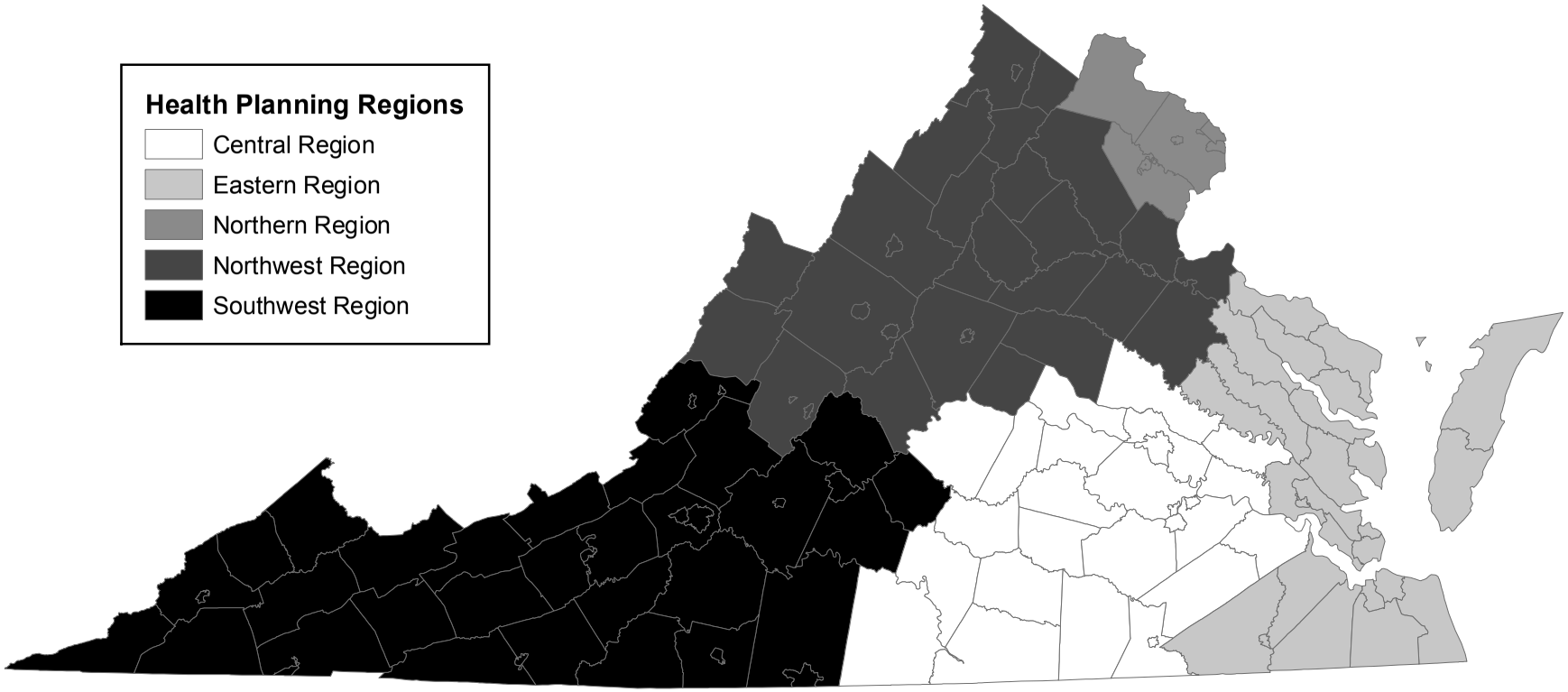
MAPS OF INCIDENCE RATES

OF

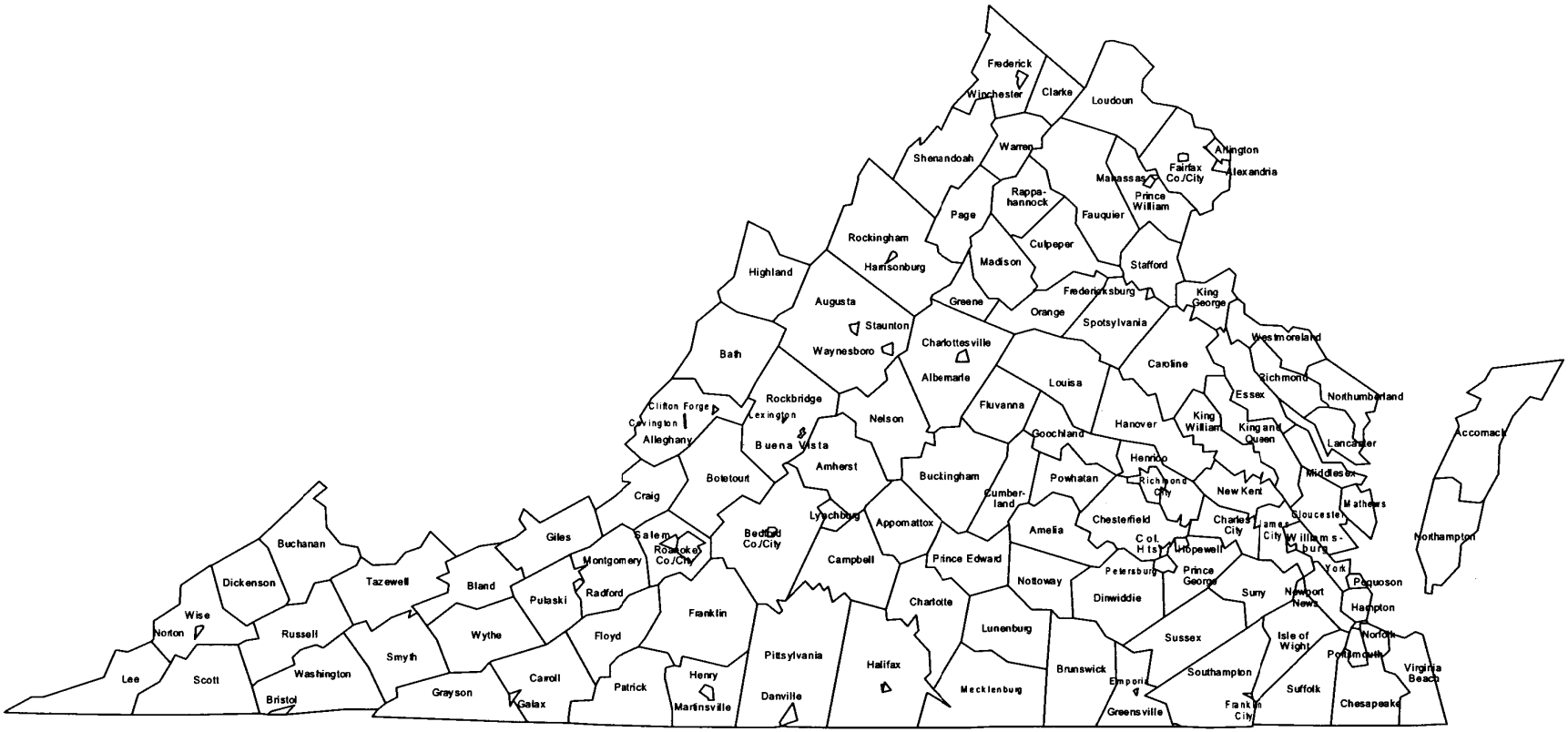
SELECTED DISEASES

BY LOCALITY

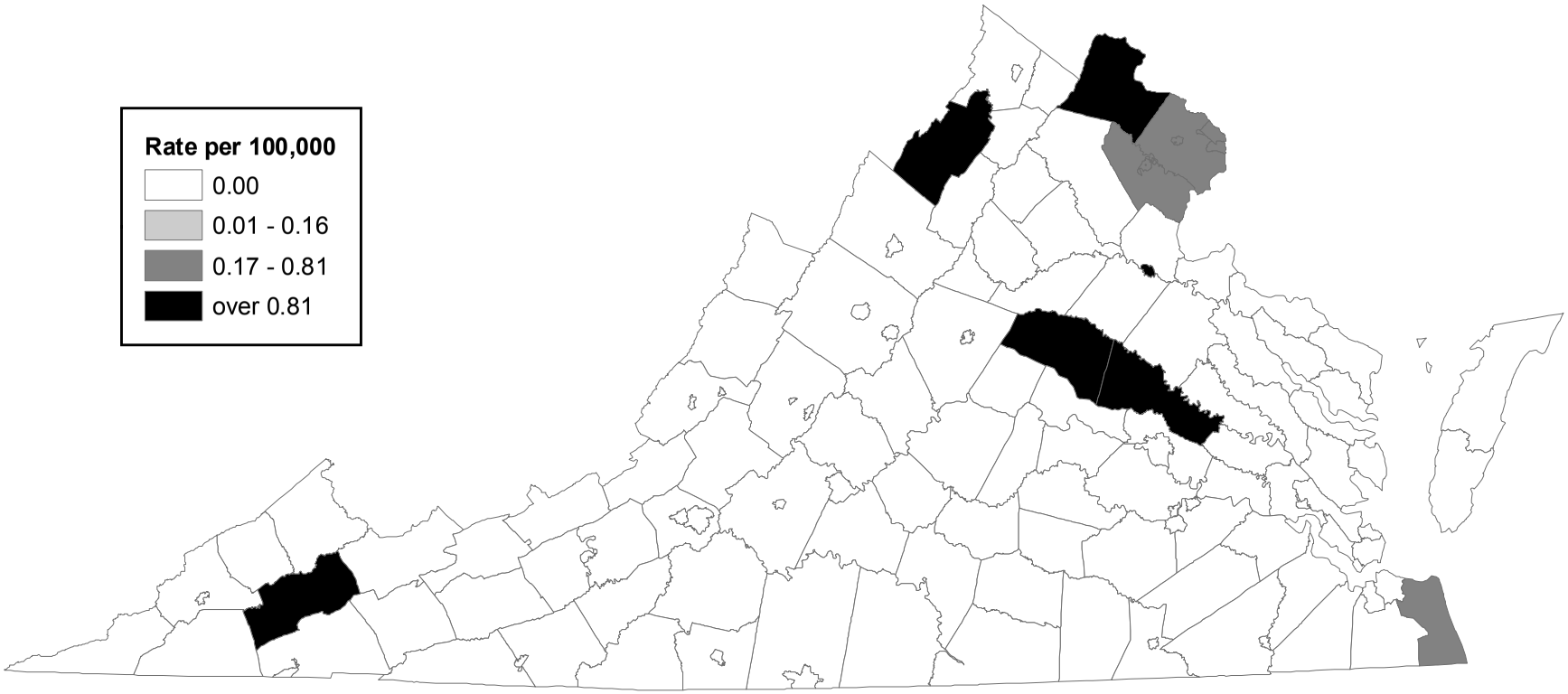
Health Planning Regions in Virginia



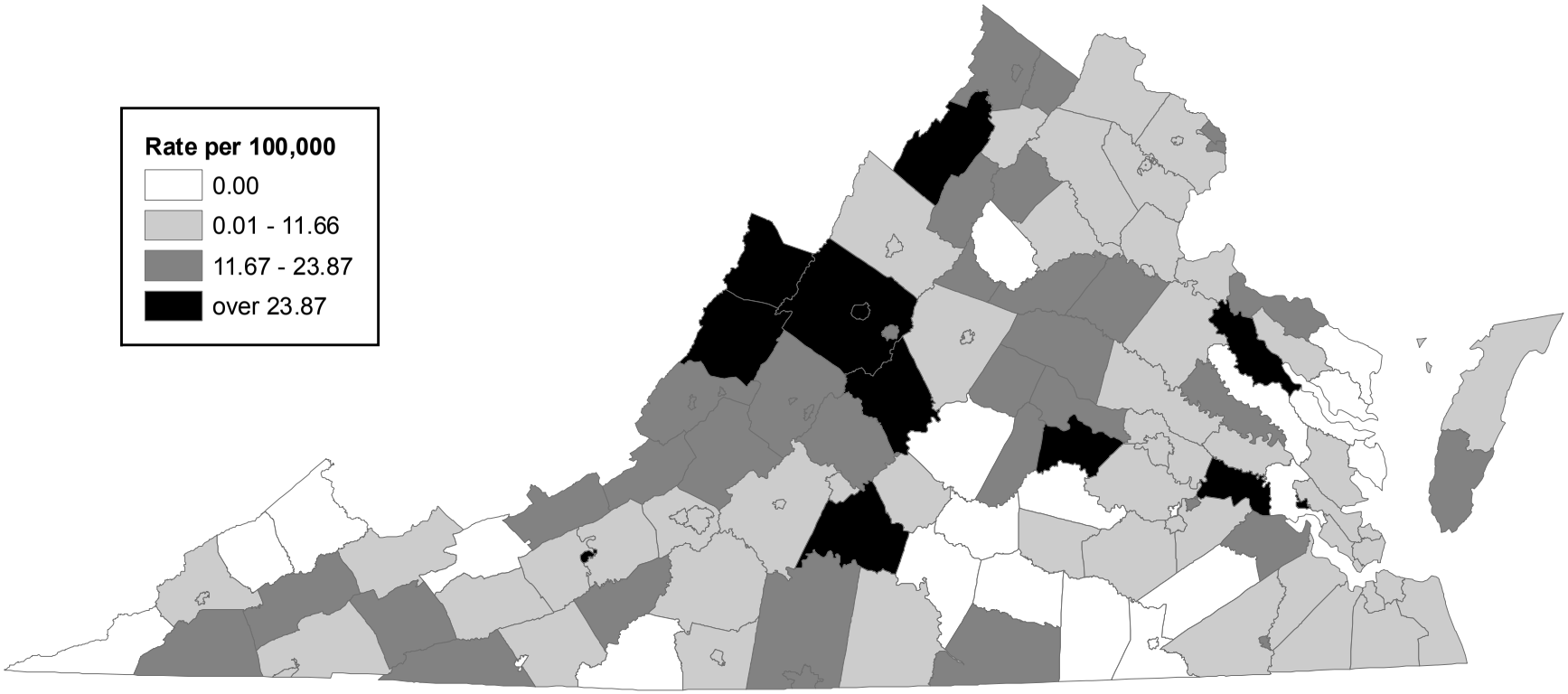
Location of Counties and Selected Cities in Virginia



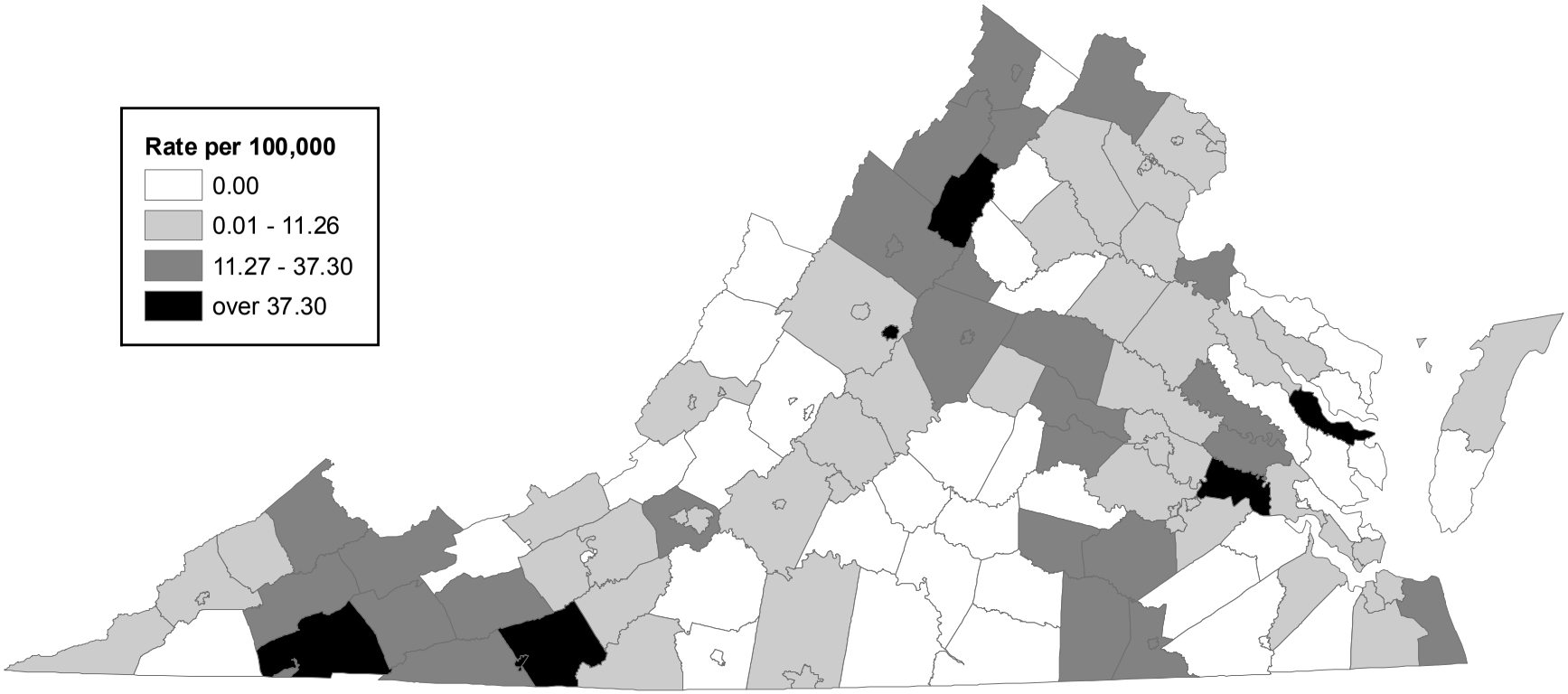
Amebiasis Incidence Rate by Locality
Virginia, 2009



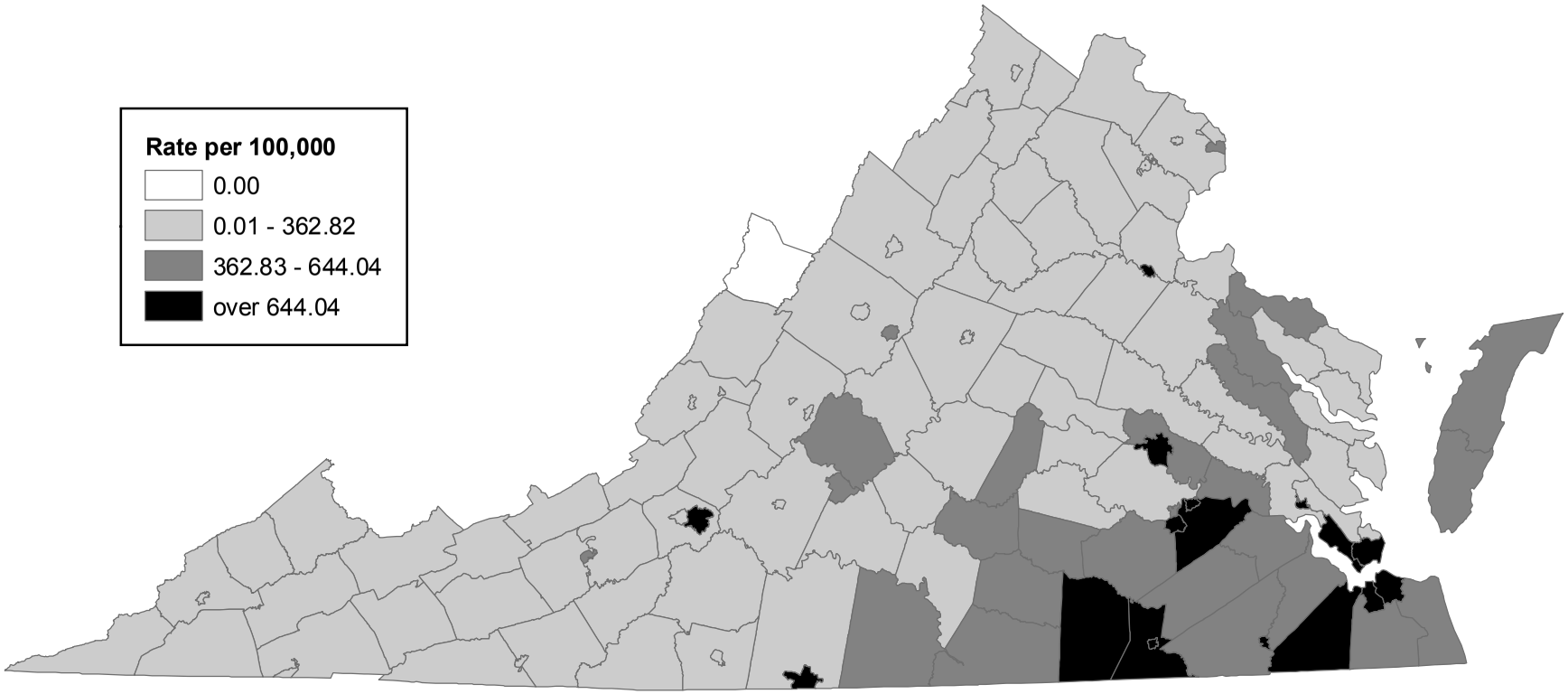
Campylobacteriosis Incidence Rate by Locality
Virginia, 2009



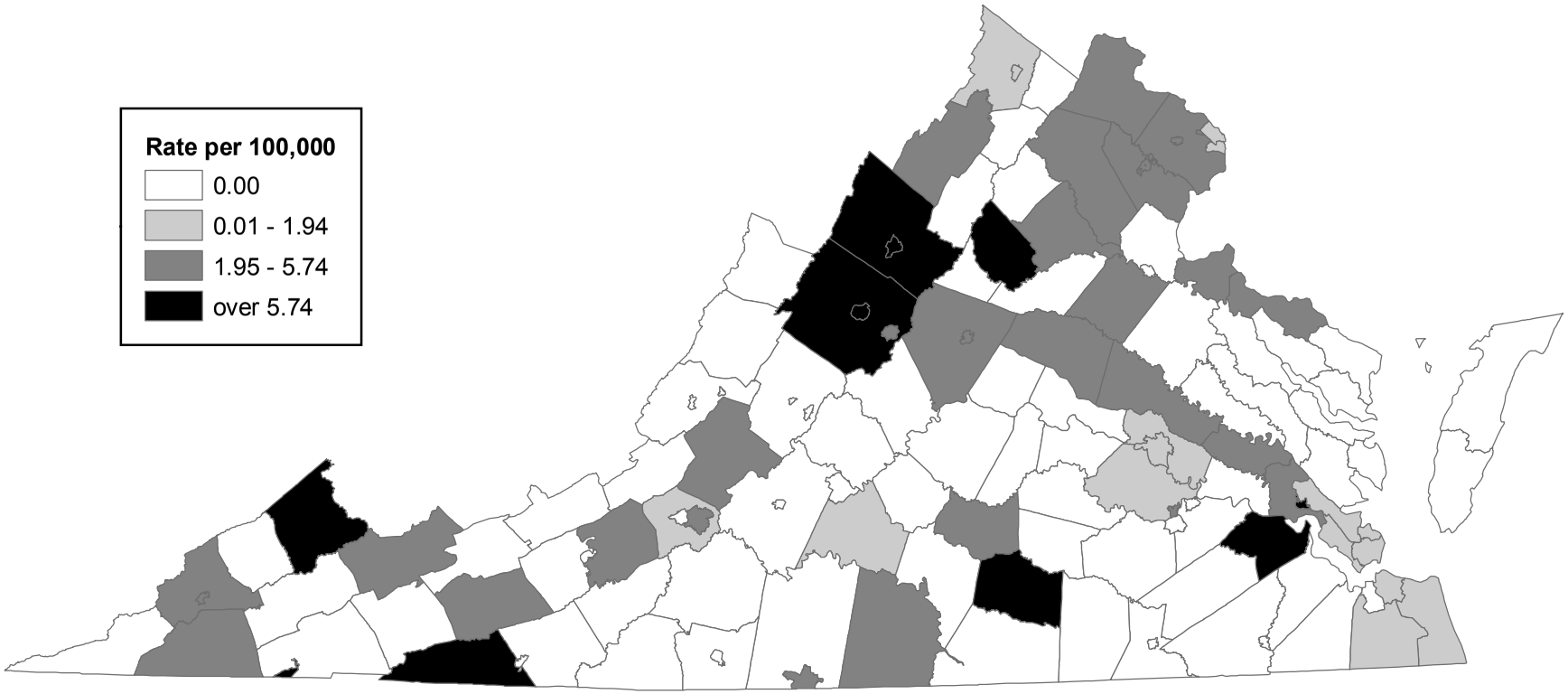
Chickenpox Incidence Rate by Locality
Virginia, 2009



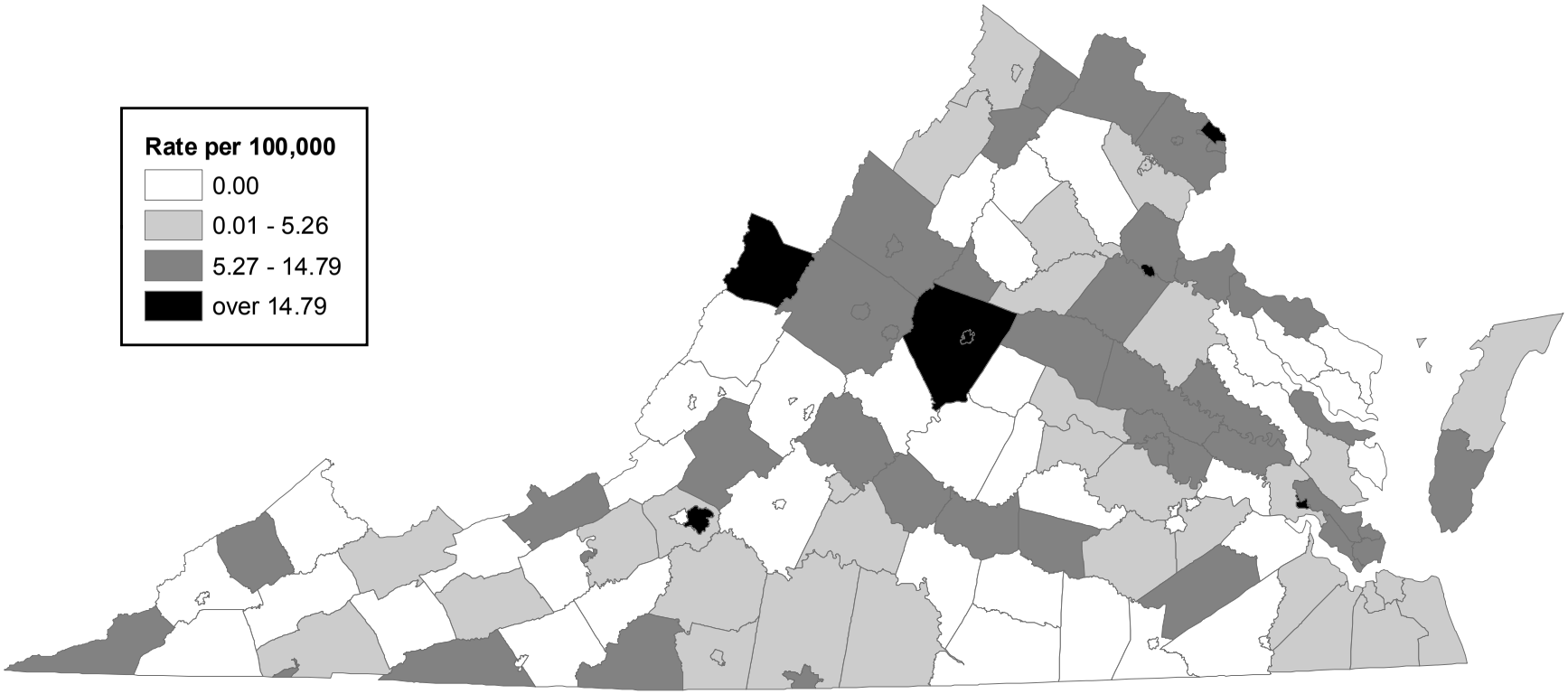
Chlamydia trachomatis Infection Incidence Rate by Locality Virginia, 2009



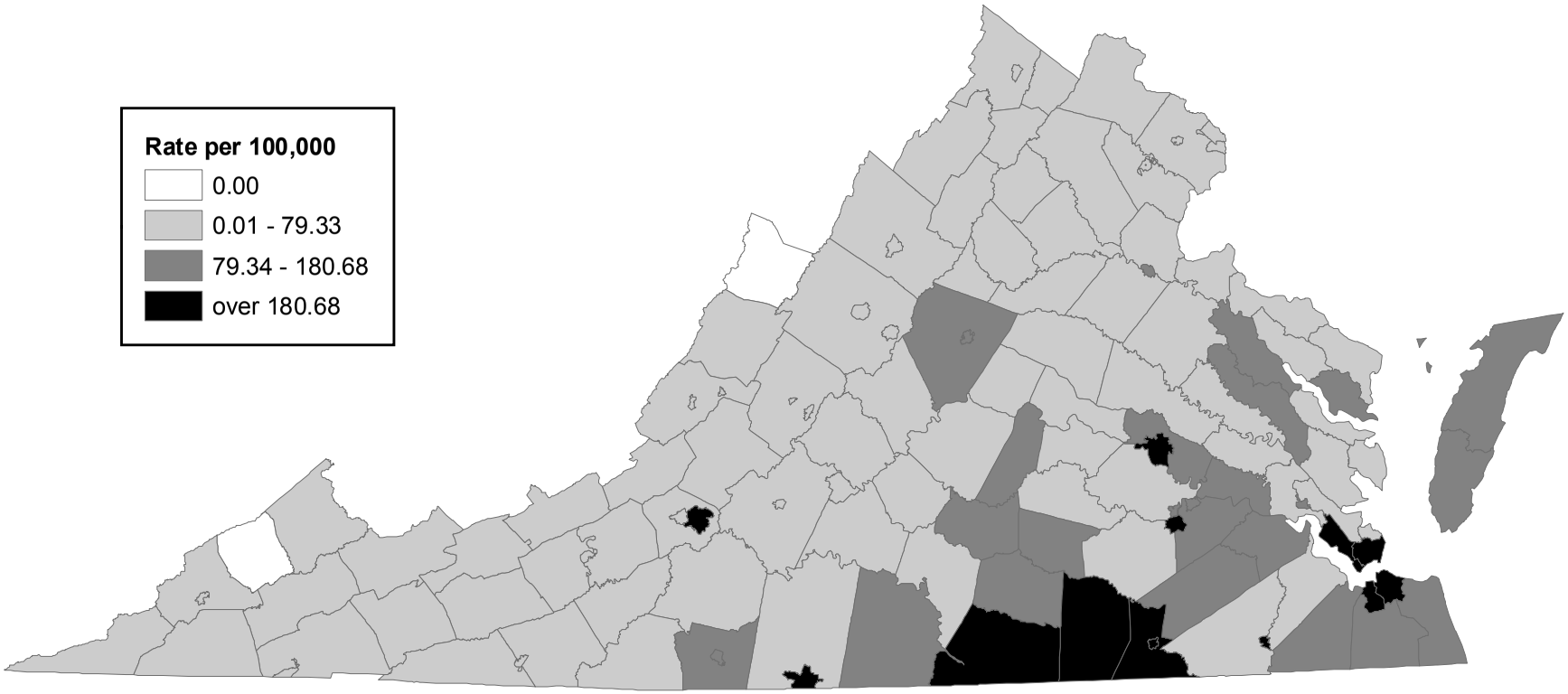
Escherichia coli Infection, Shiga Toxin-Producing, Incidence Rate by Locality, Virginia, 2009



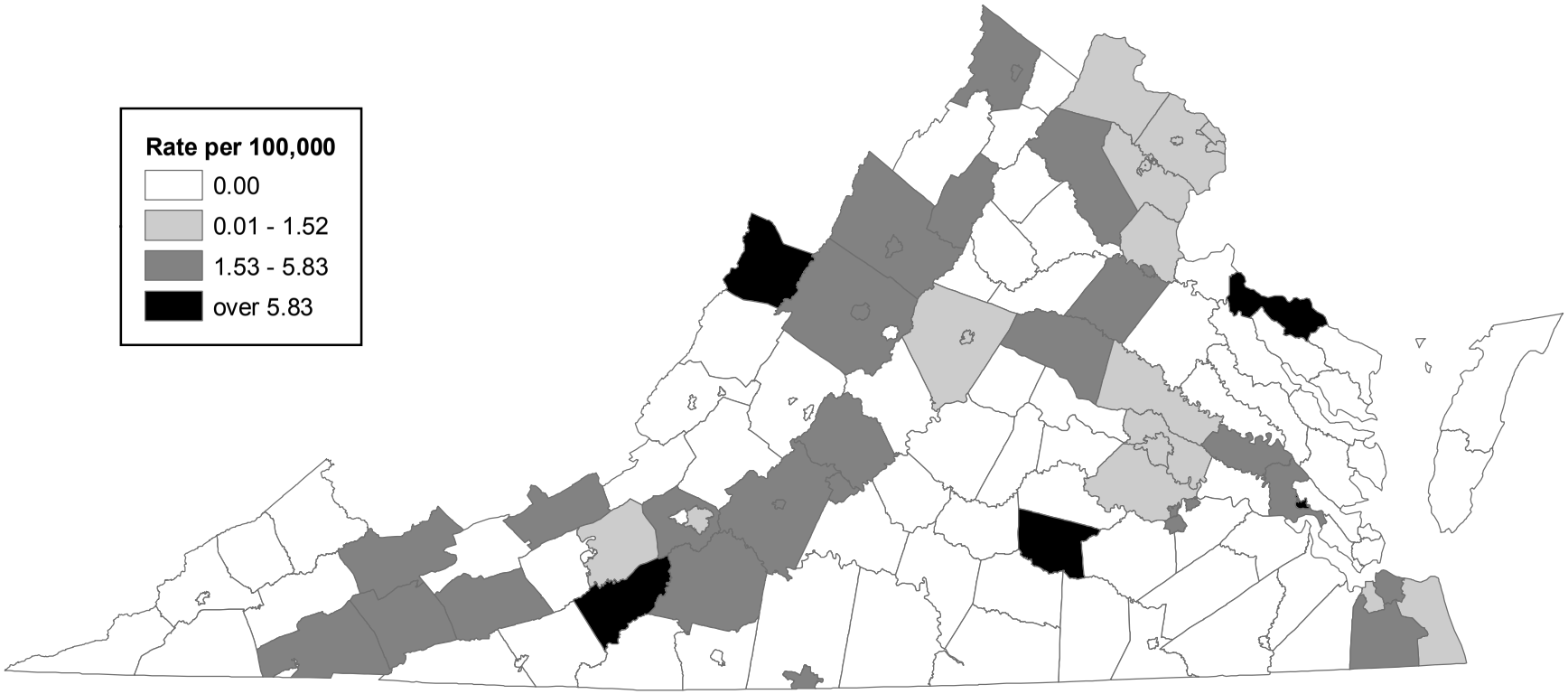
Giardiasis Incidence Rate by Locality
Virginia, 2009



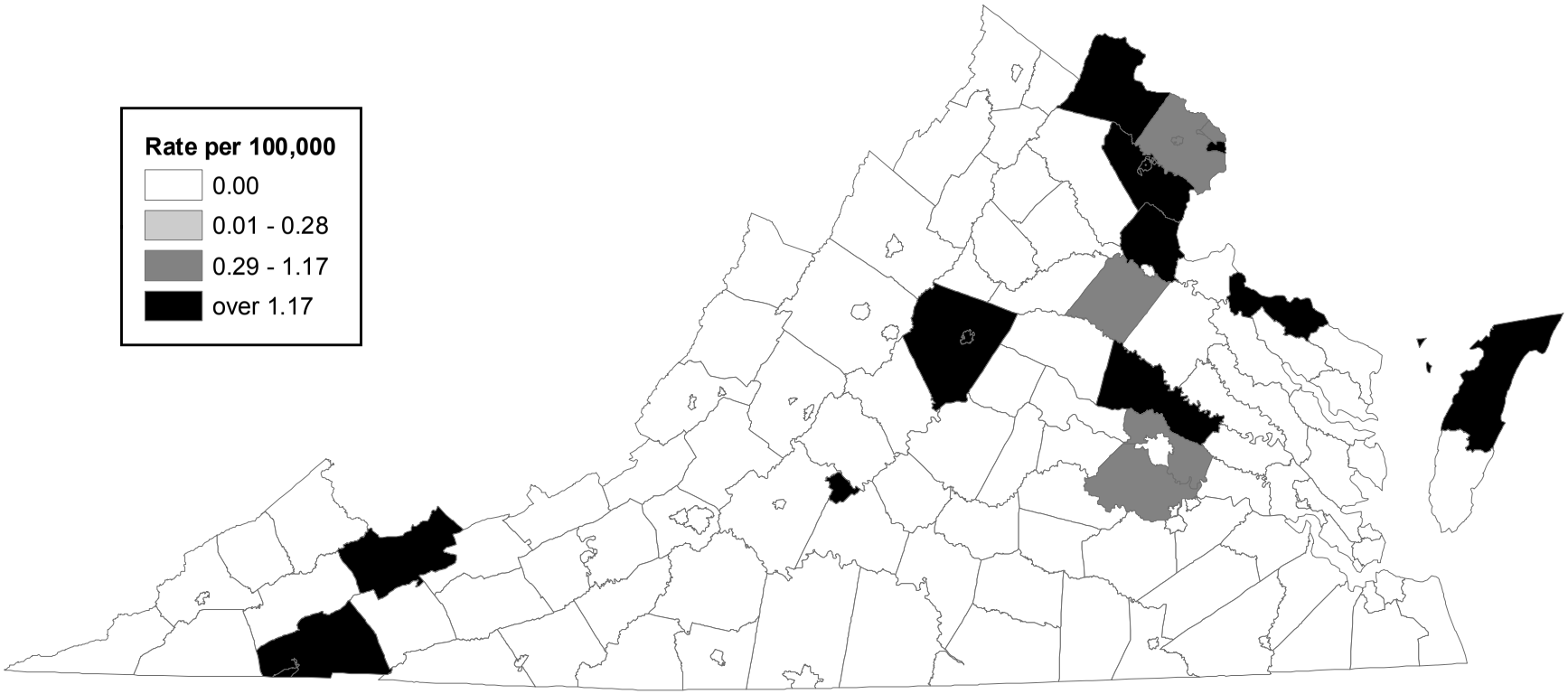
Gonorrhea Incidence Rate by Locality
Virginia, 2009



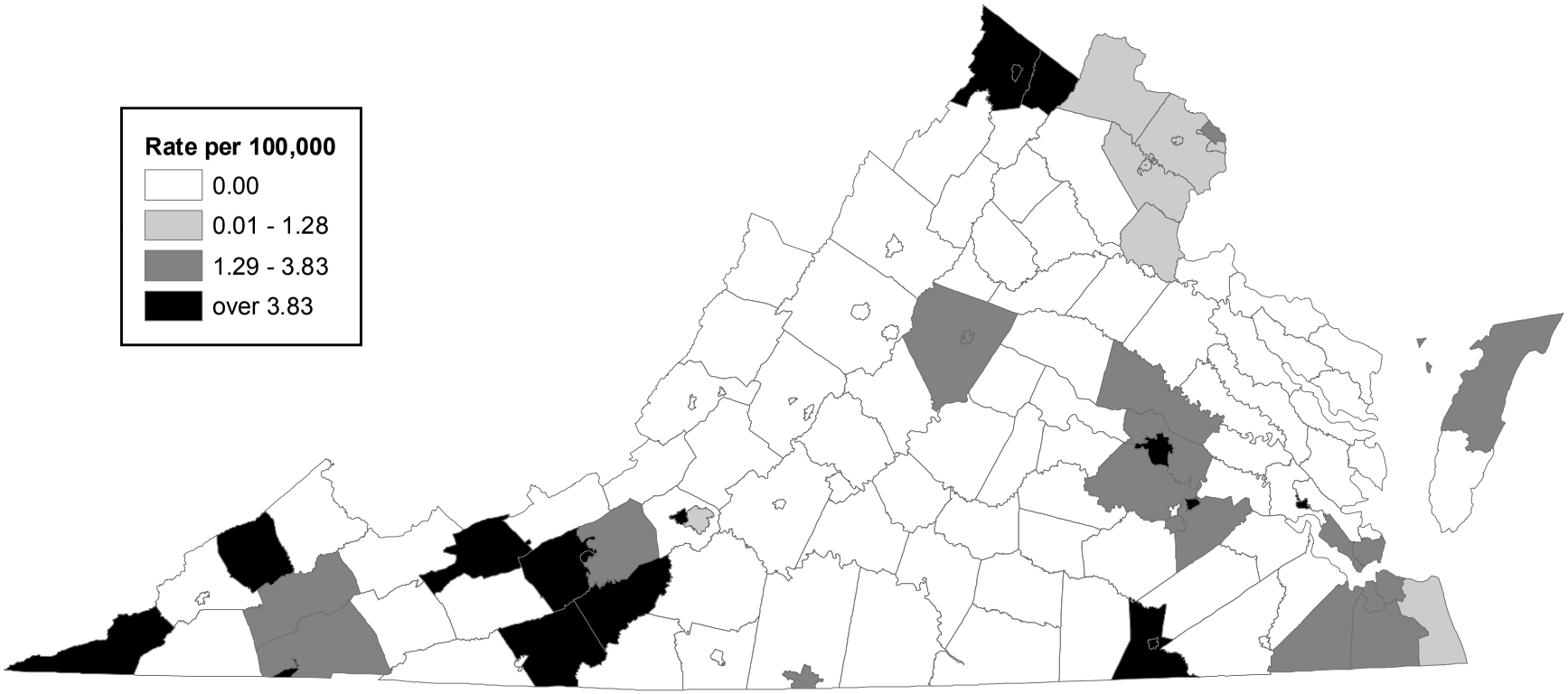
Haemophilus influenzae Infection, Invasive Incidence Rate by Locality, Virginia, 2009



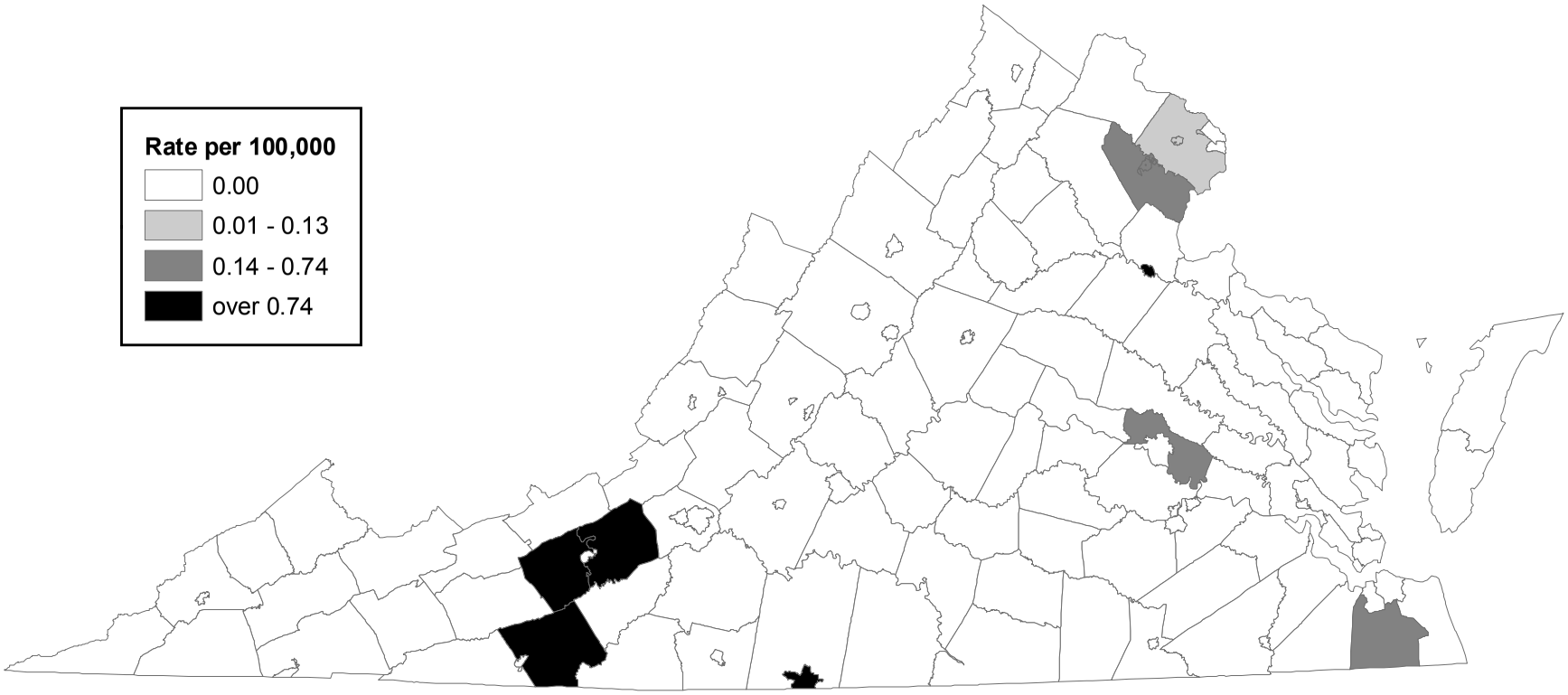
Hepatitis A Incidence Rate by Locality
Virginia, 2009



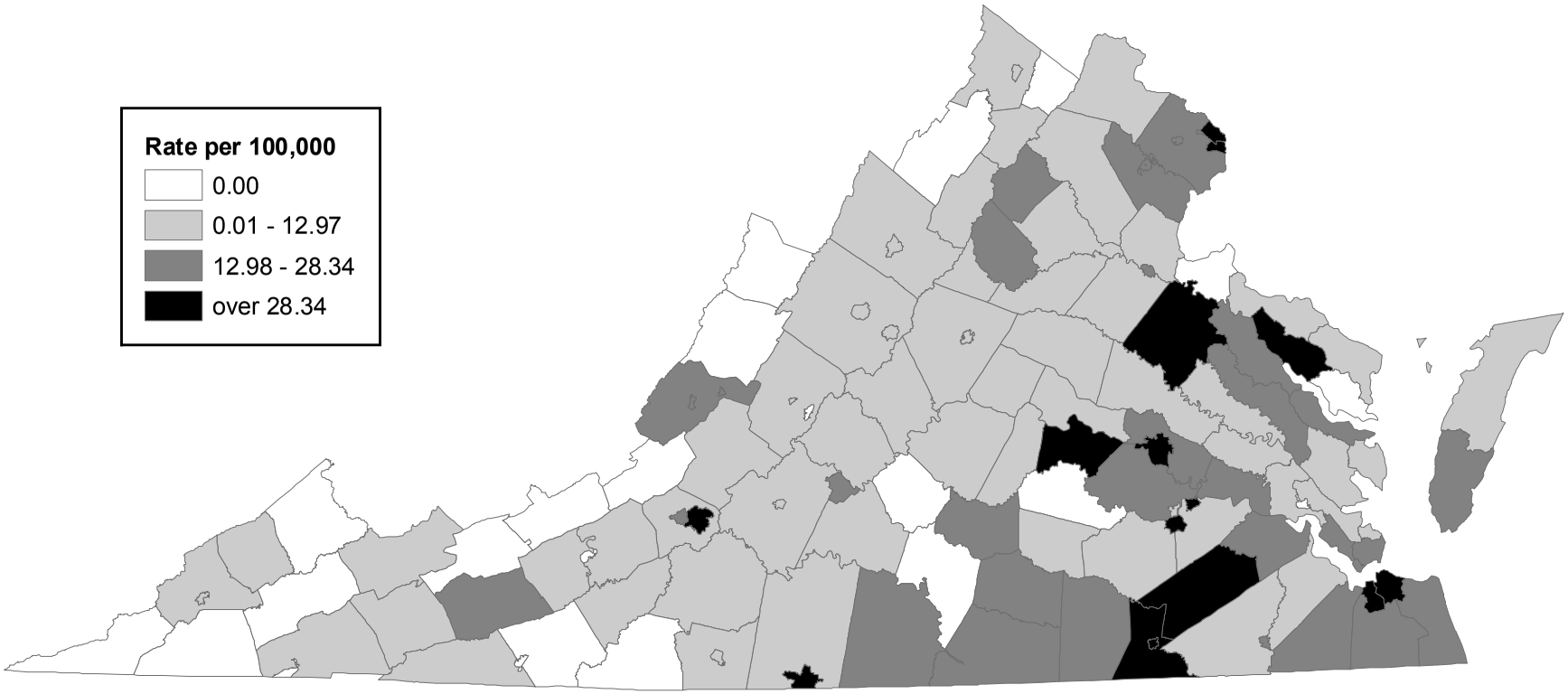
Hepatitis B, Acute, Incidence Rate by Locality
Virginia, 2009



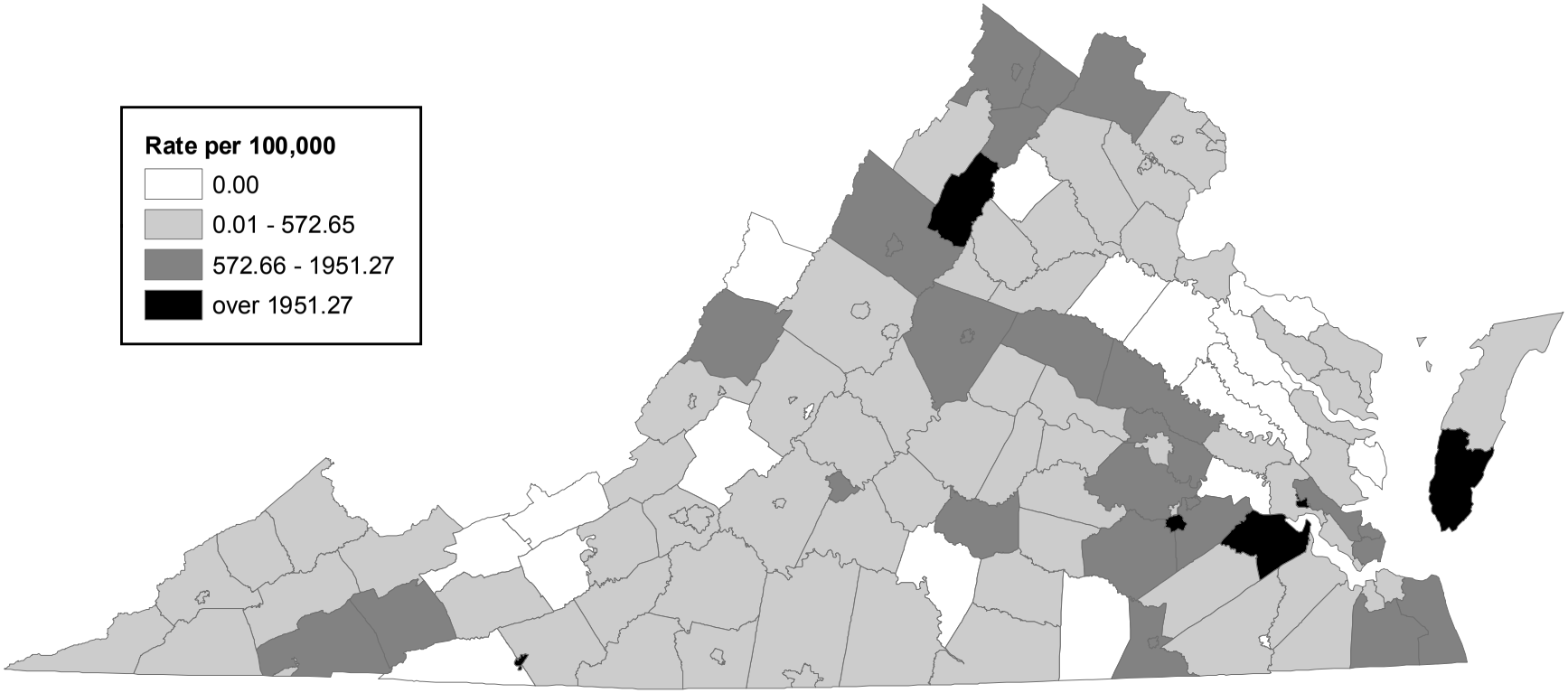
Hepatitis C, Acute, Incidence Rate by Locality
Virginia, 2009



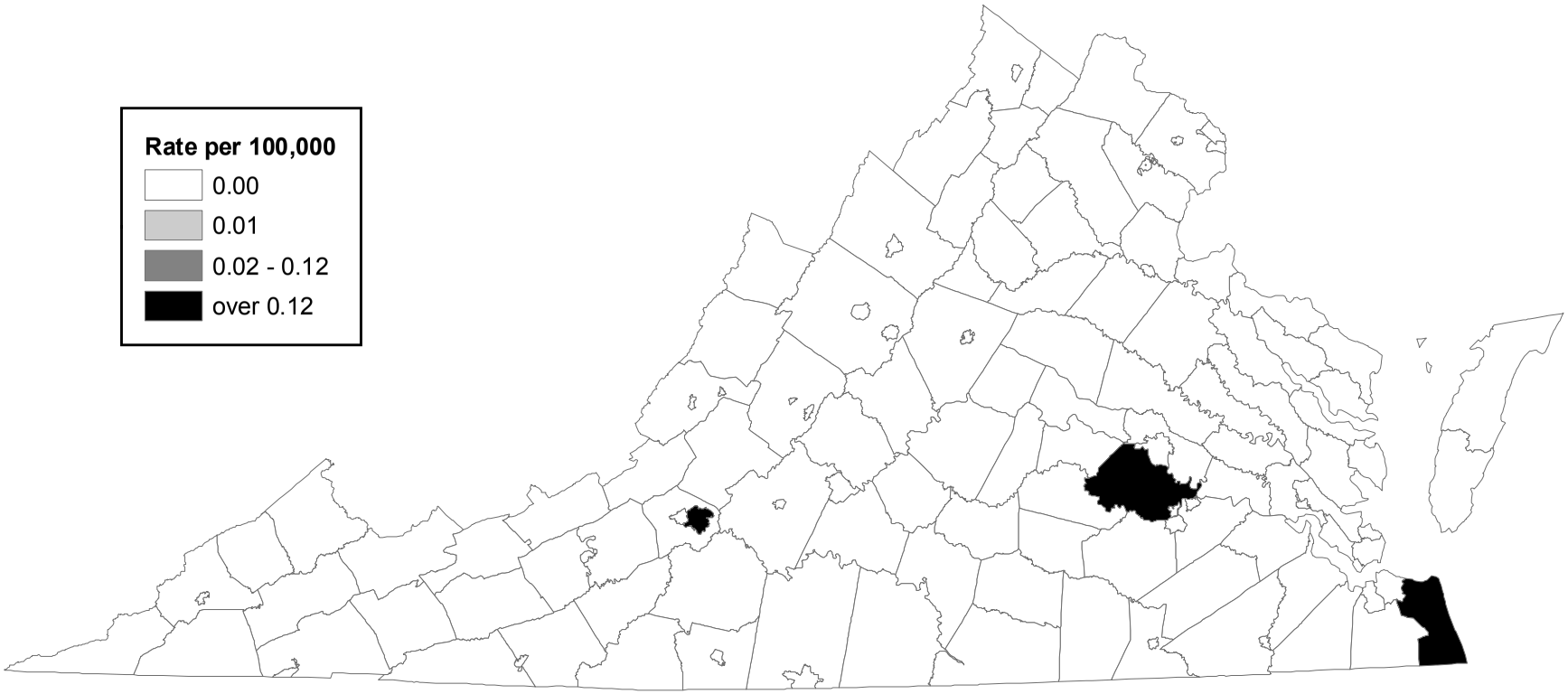
HIV Infection Incidence Rate by Locality
Virginia, 2009



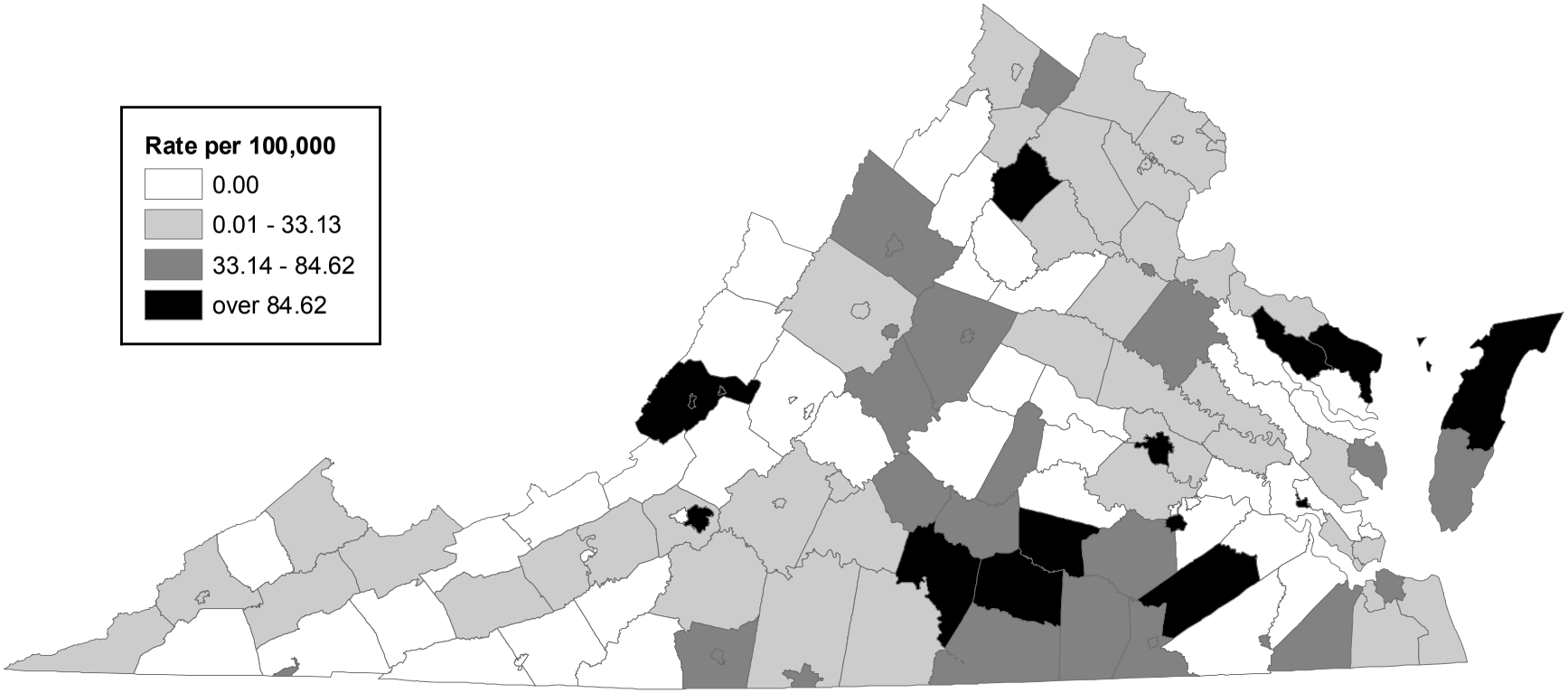
Influenza Incidence Rate by Locality
Virginia, 2009



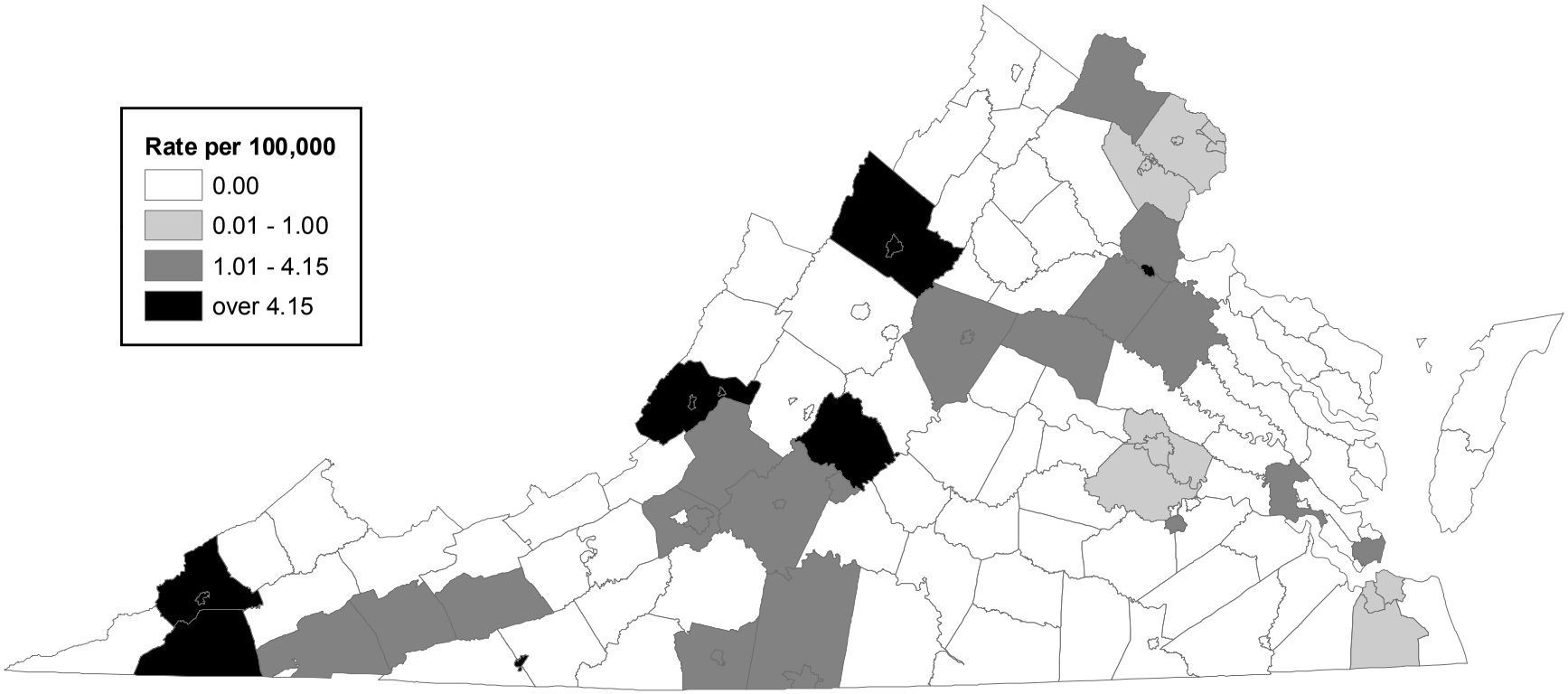
Kawasaki Syndrome Incidence Rate by Locality
Virginia, 2009



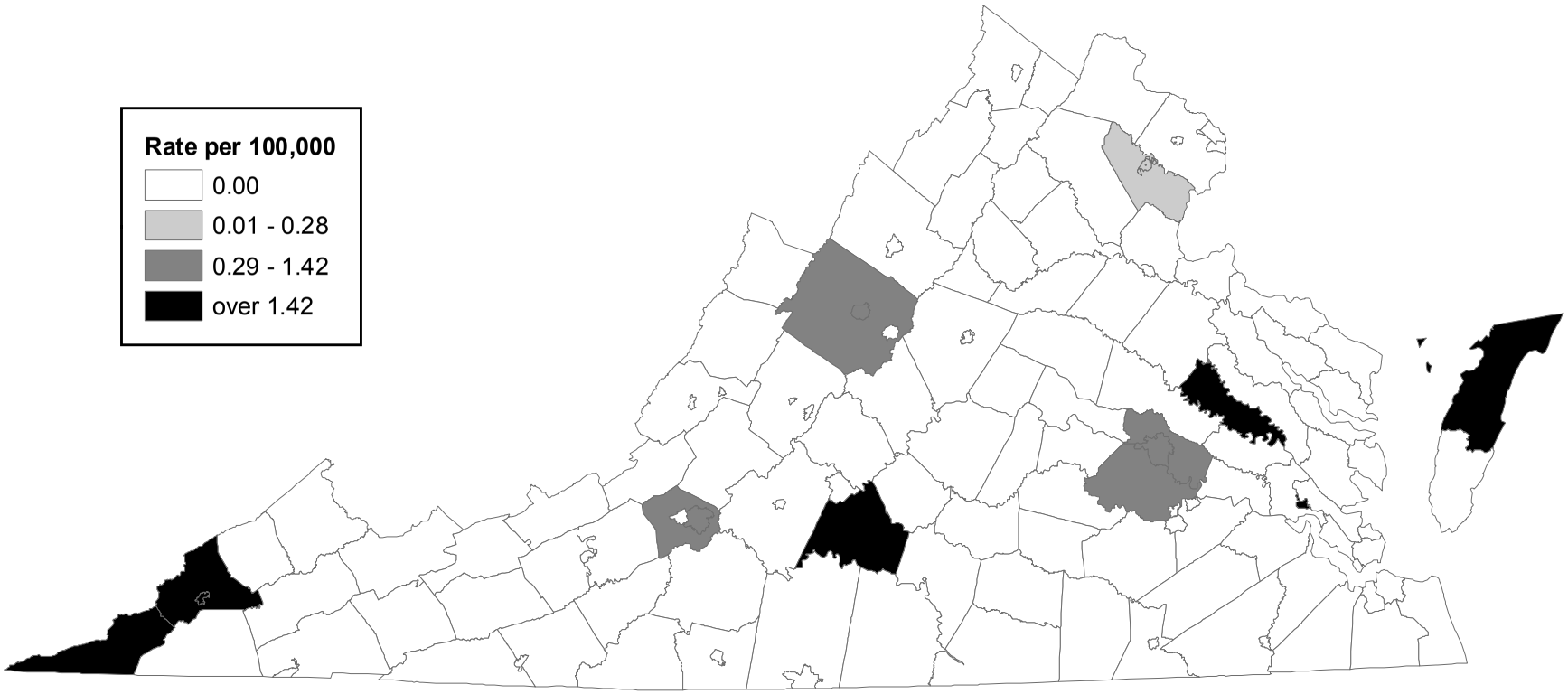
Lead - Elevated Blood Levels in Children
Incidence Rate by Locality, Virginia, 2009



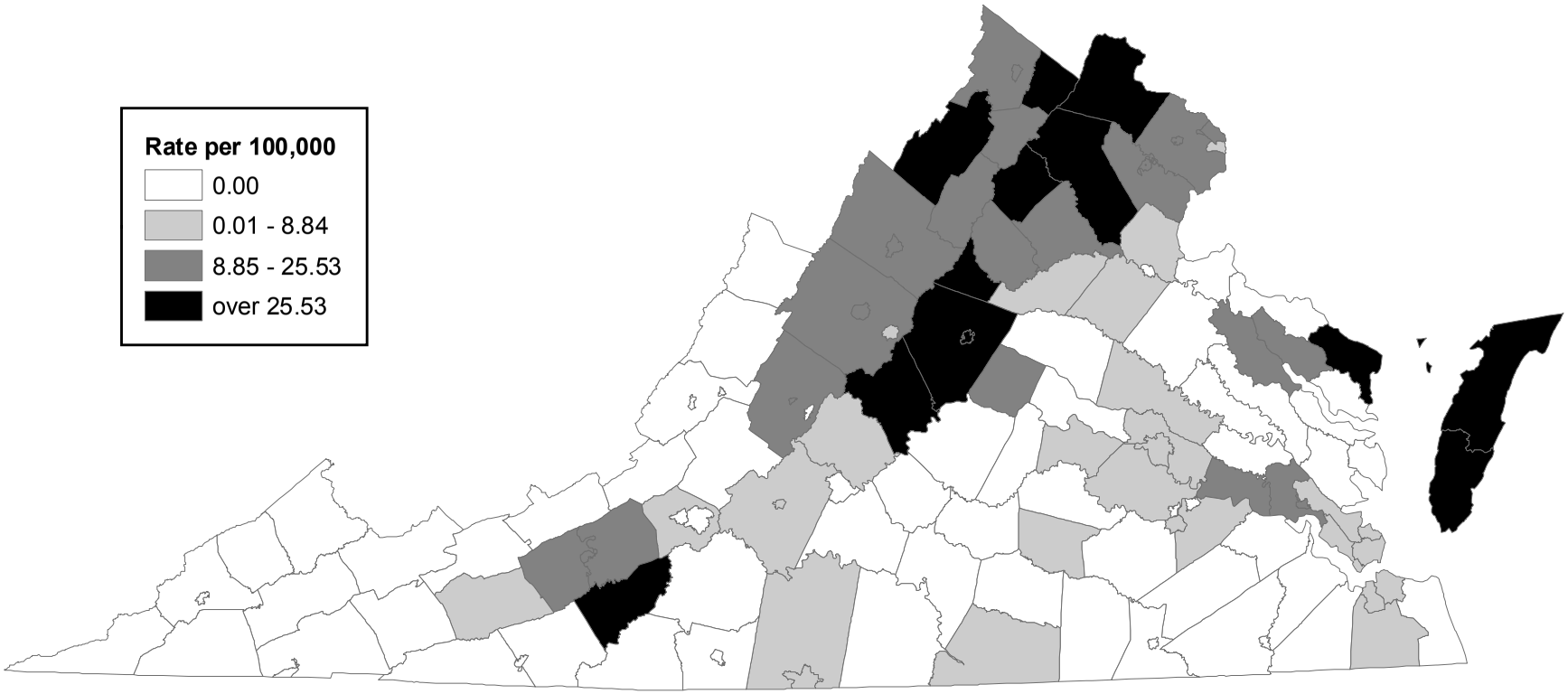
Legionellosis Incidence Rate by Locality
Virginia, 2009



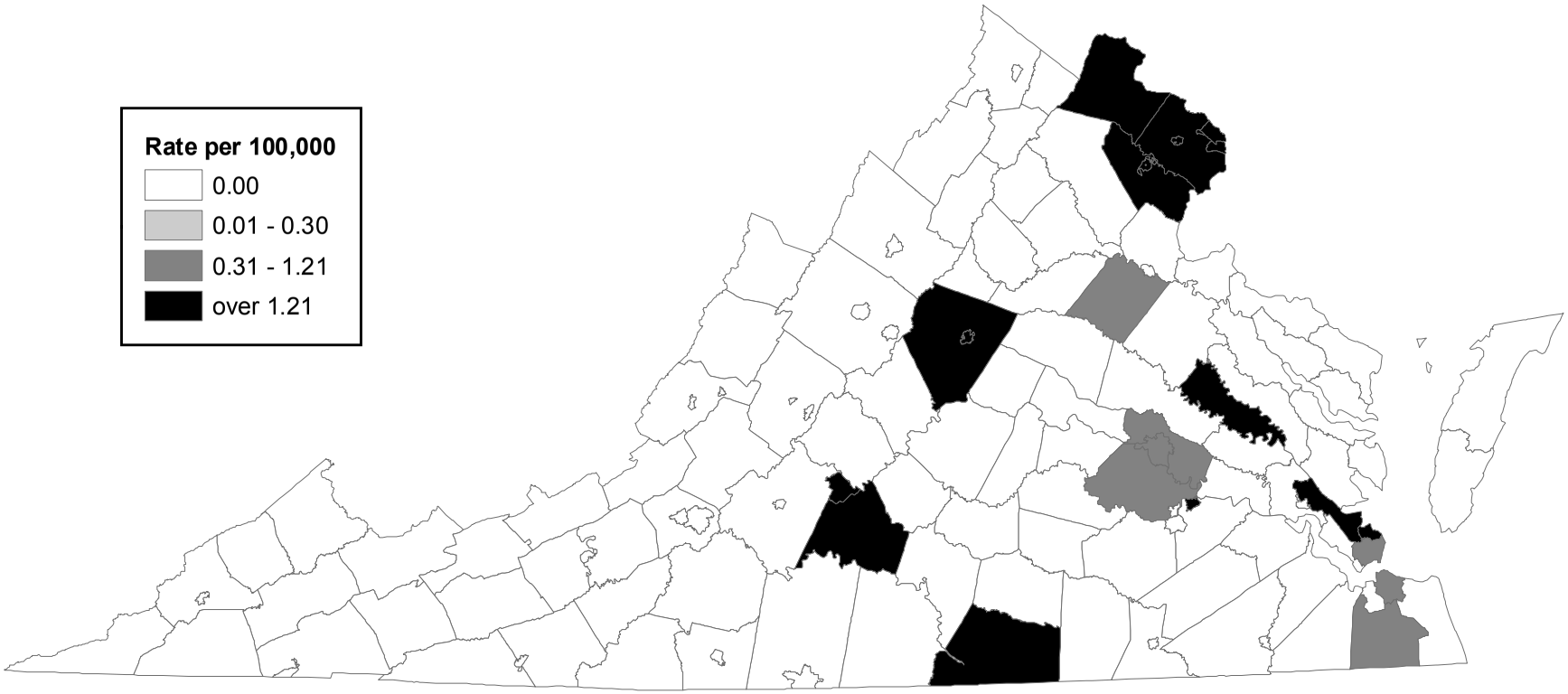
Listeriosis Incidence Rate by Locality
Virginia, 2009



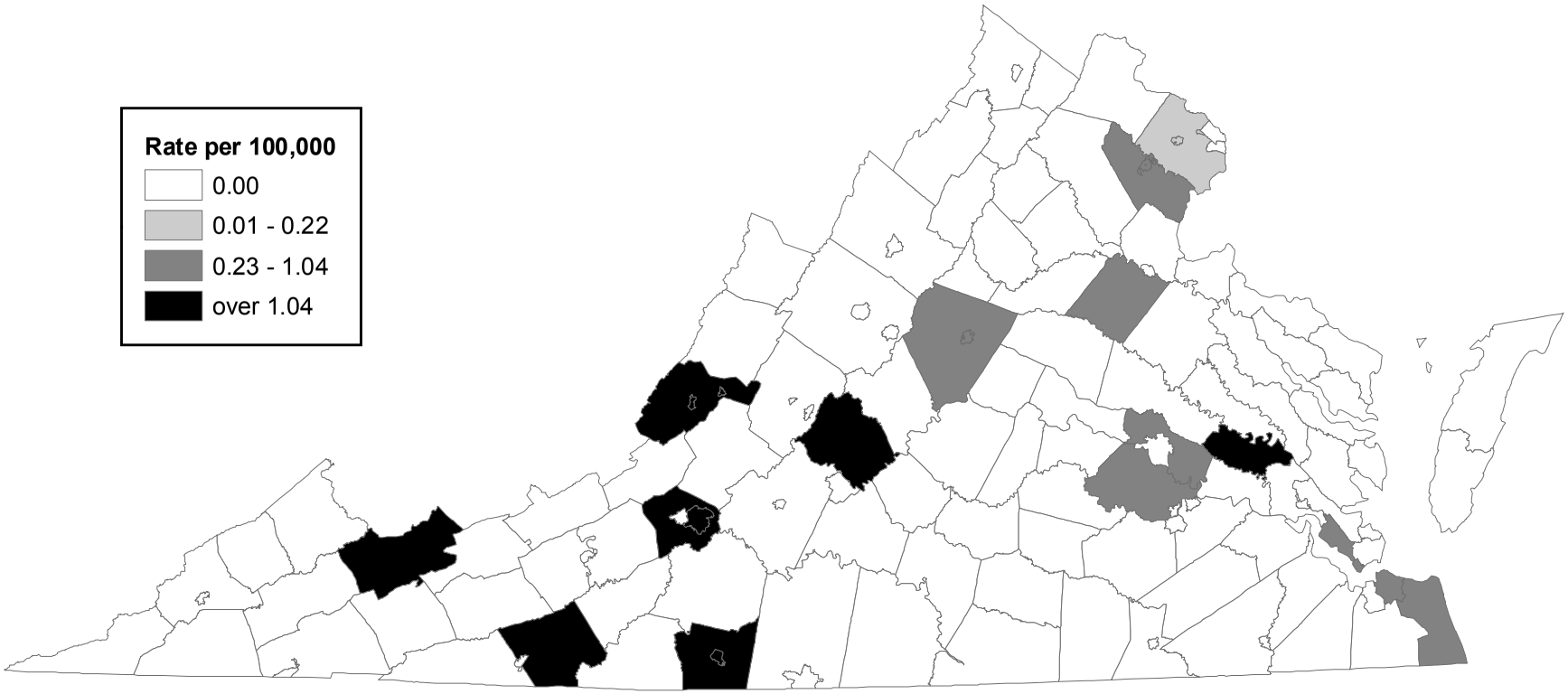
Lyme Disease Incidence Rate by Locality
Virginia, 2009



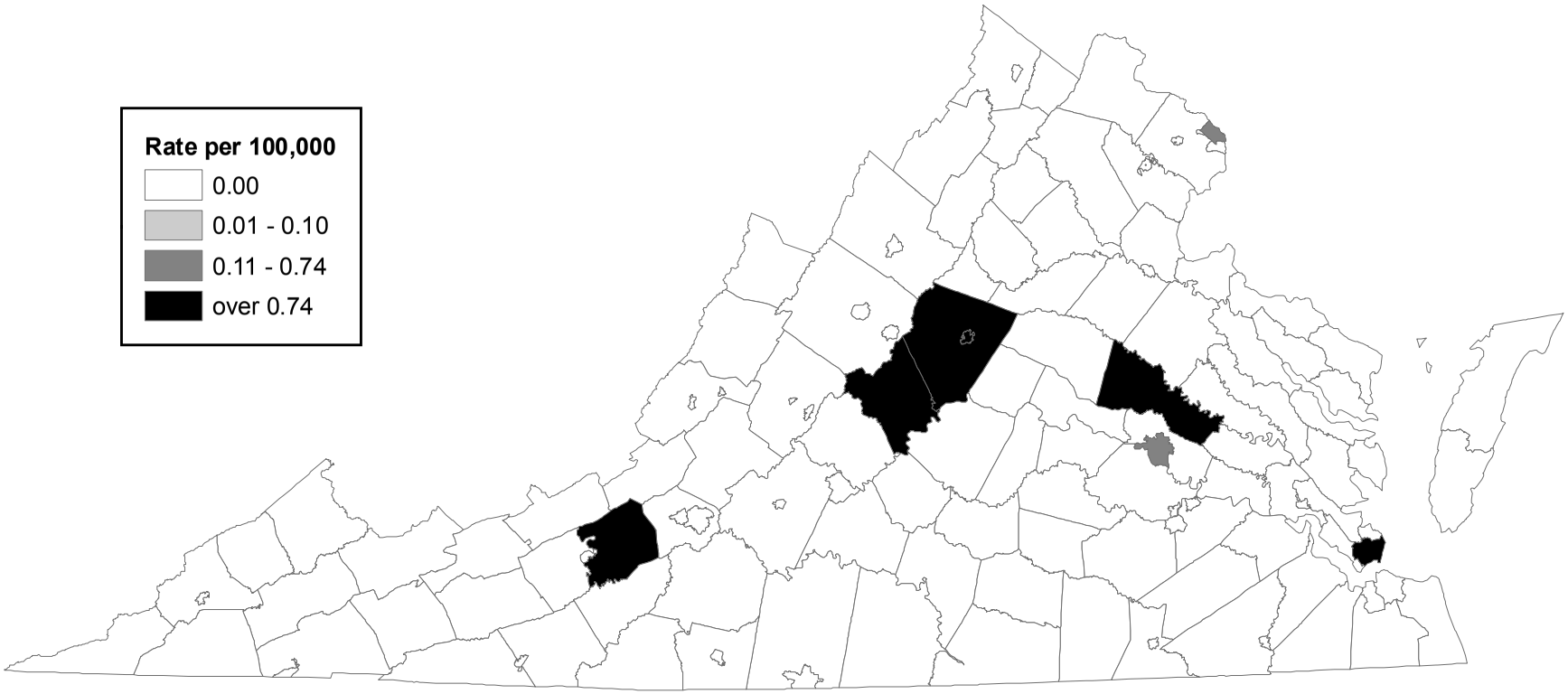
Malaria Incidence Rate by Locality
Virginia, 2009



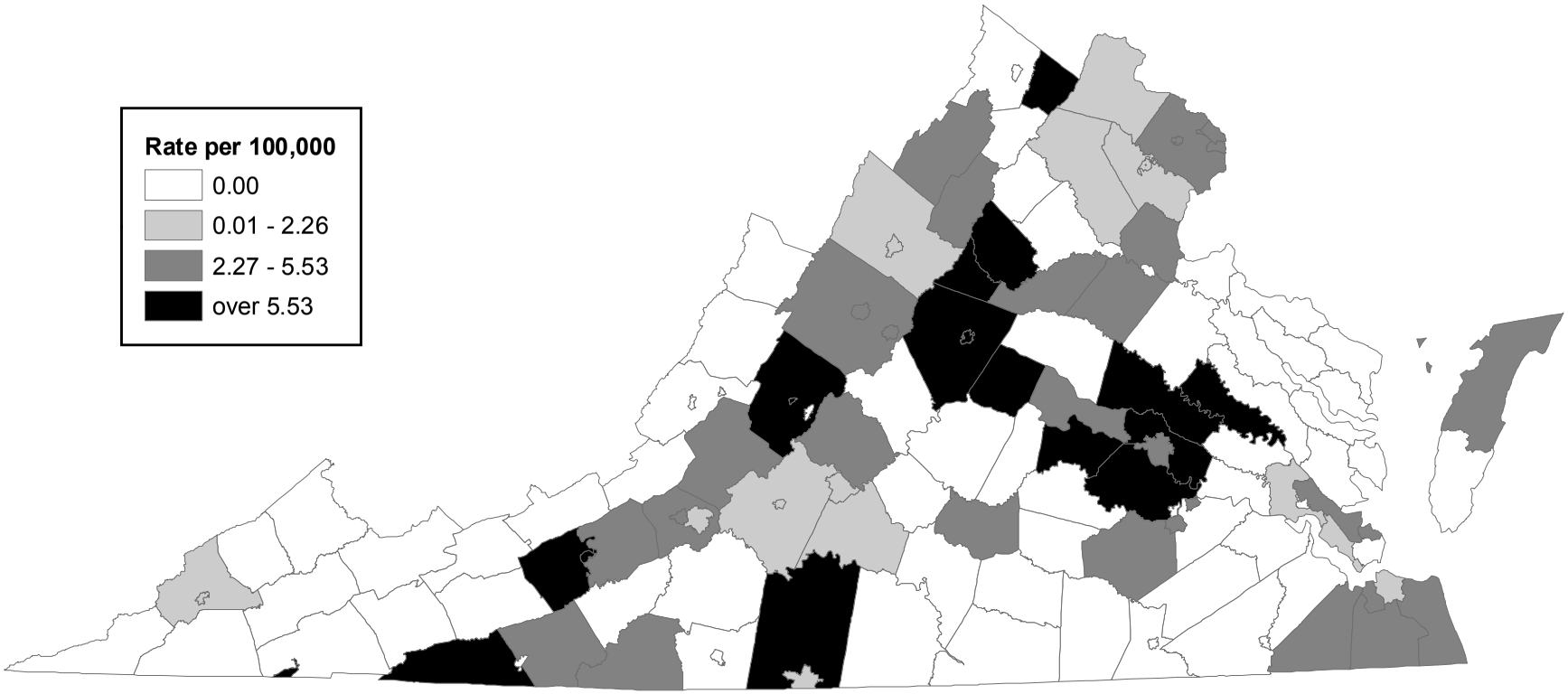
Meningococcal Disease Incidence Rate by Locality
Virginia, 2009



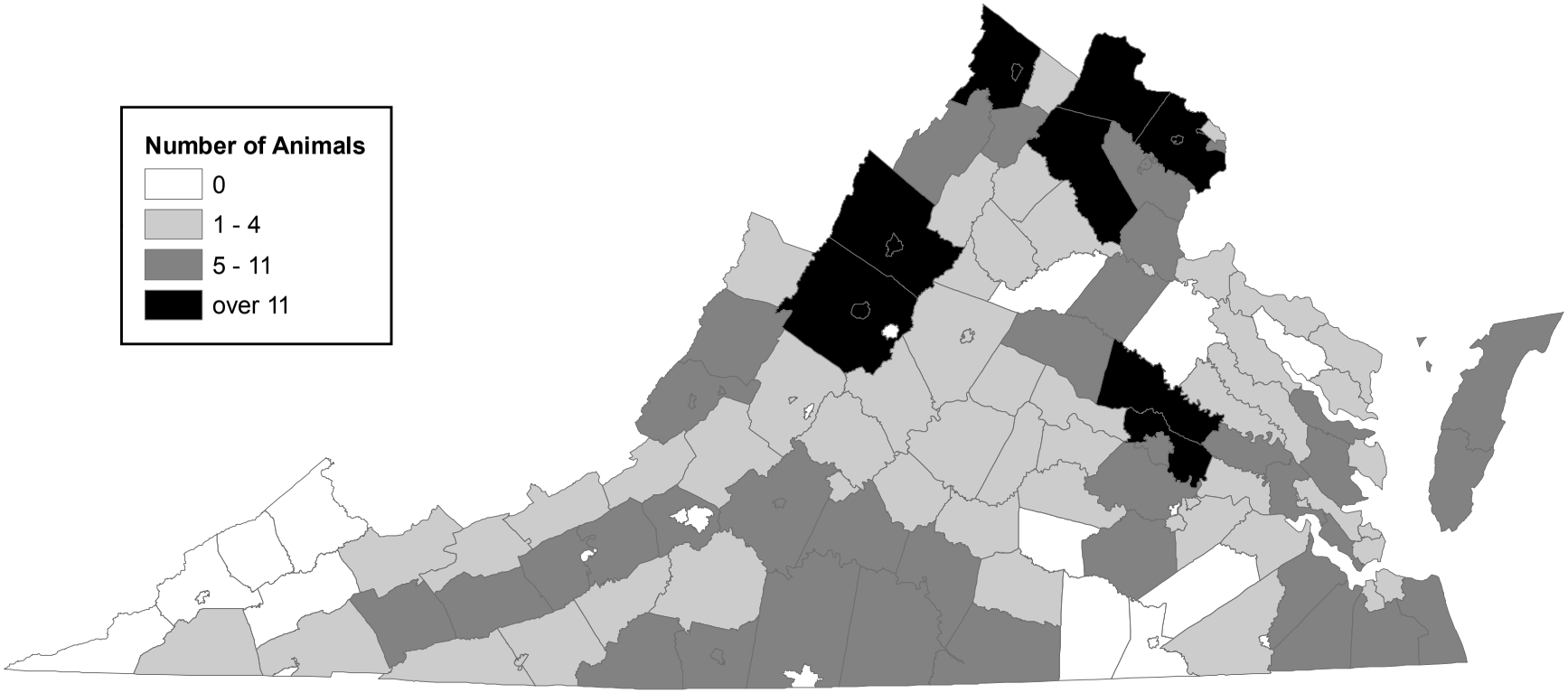
Mumps Incidence Rate by Locality
Virginia, 2009



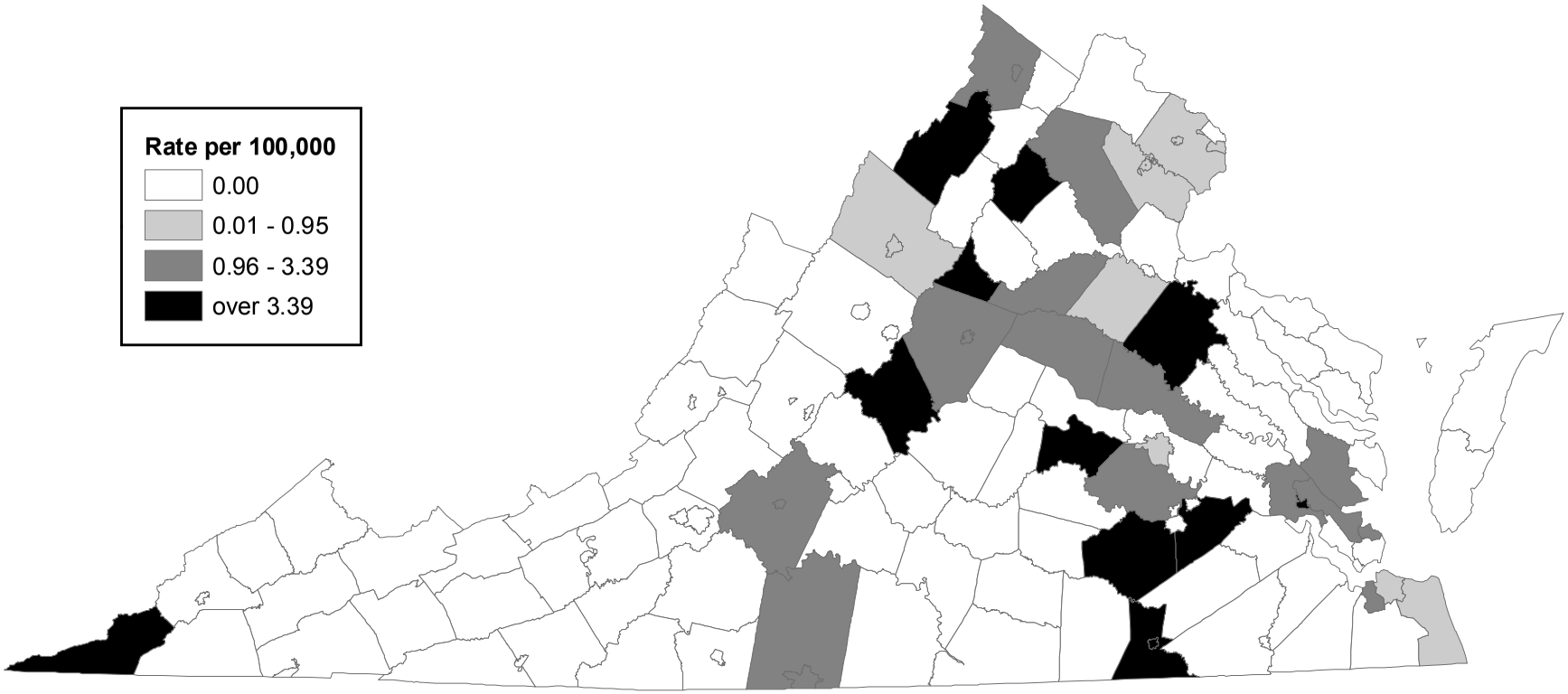
Pertussis Incidence Rate by Locality
Virginia, 2009



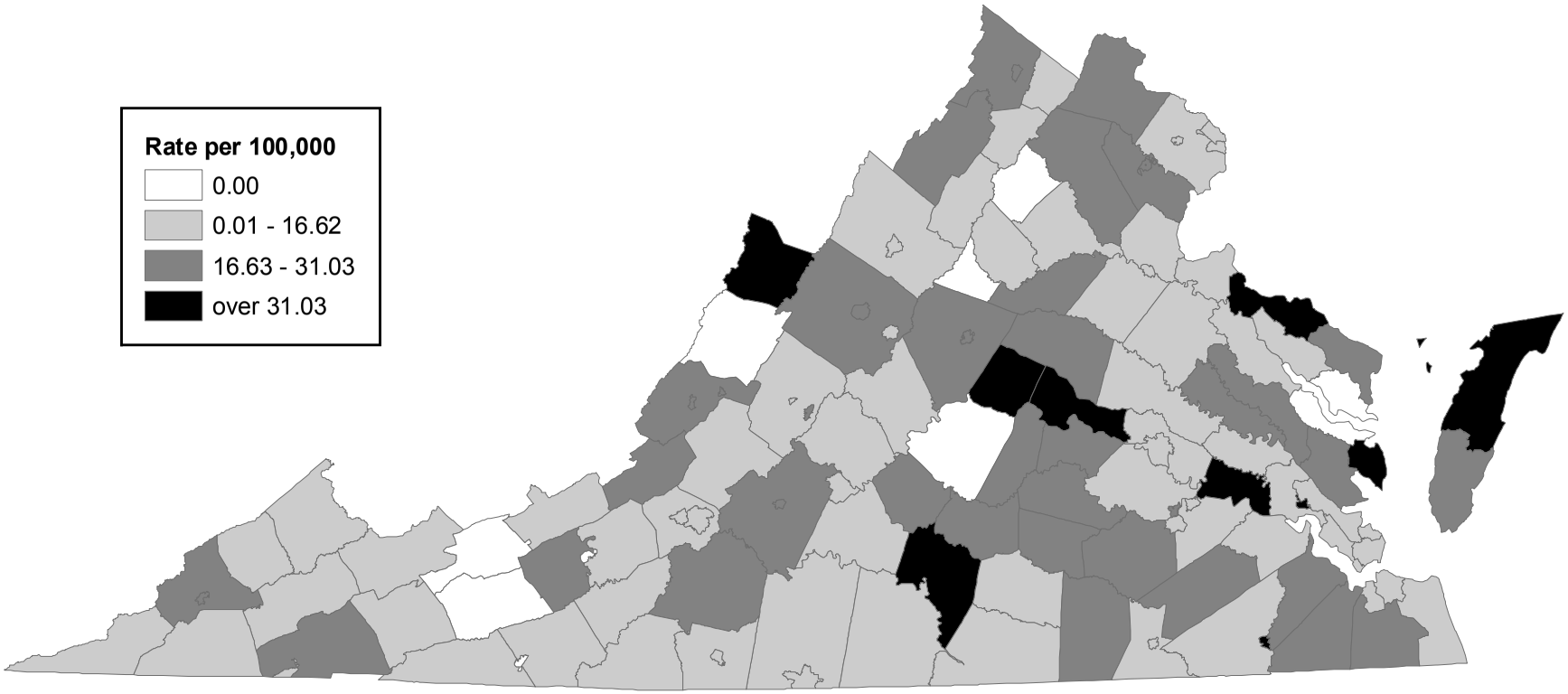
Rabies - Number of Animals Testing Positive by Locality, Virginia, 2009



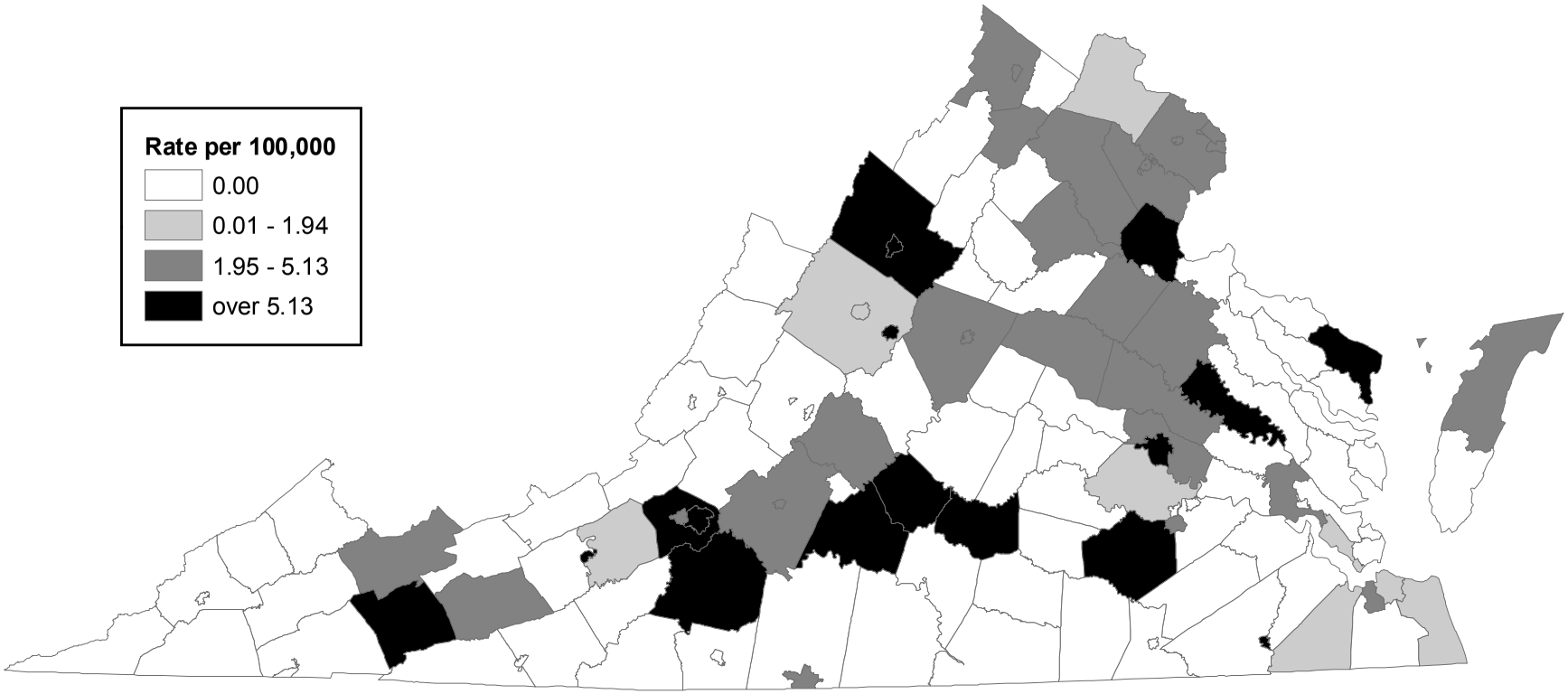
Rocky Mountain Spotted Fever Incidence Rate by Locality, Virginia, 2009



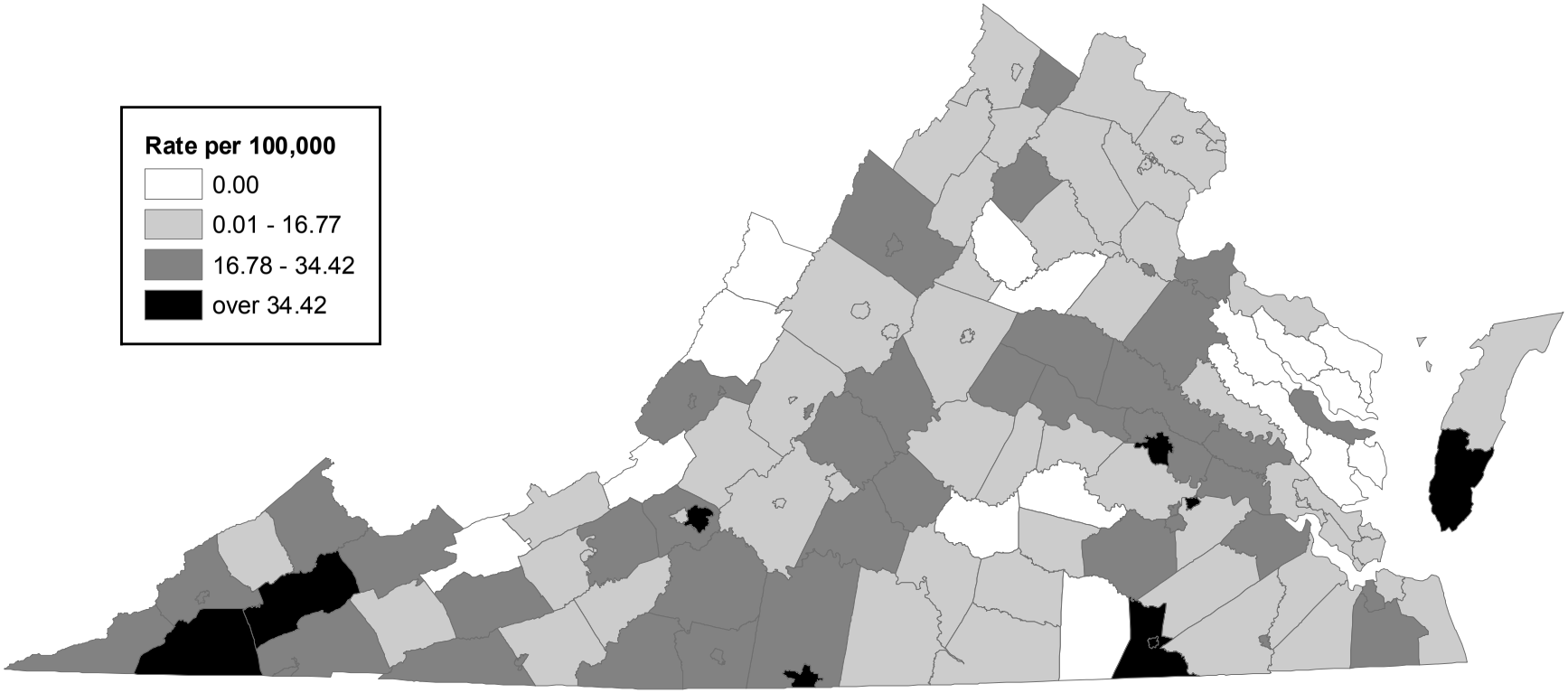
Salmonellosis Incidence Rate by Locality
Virginia, 2009



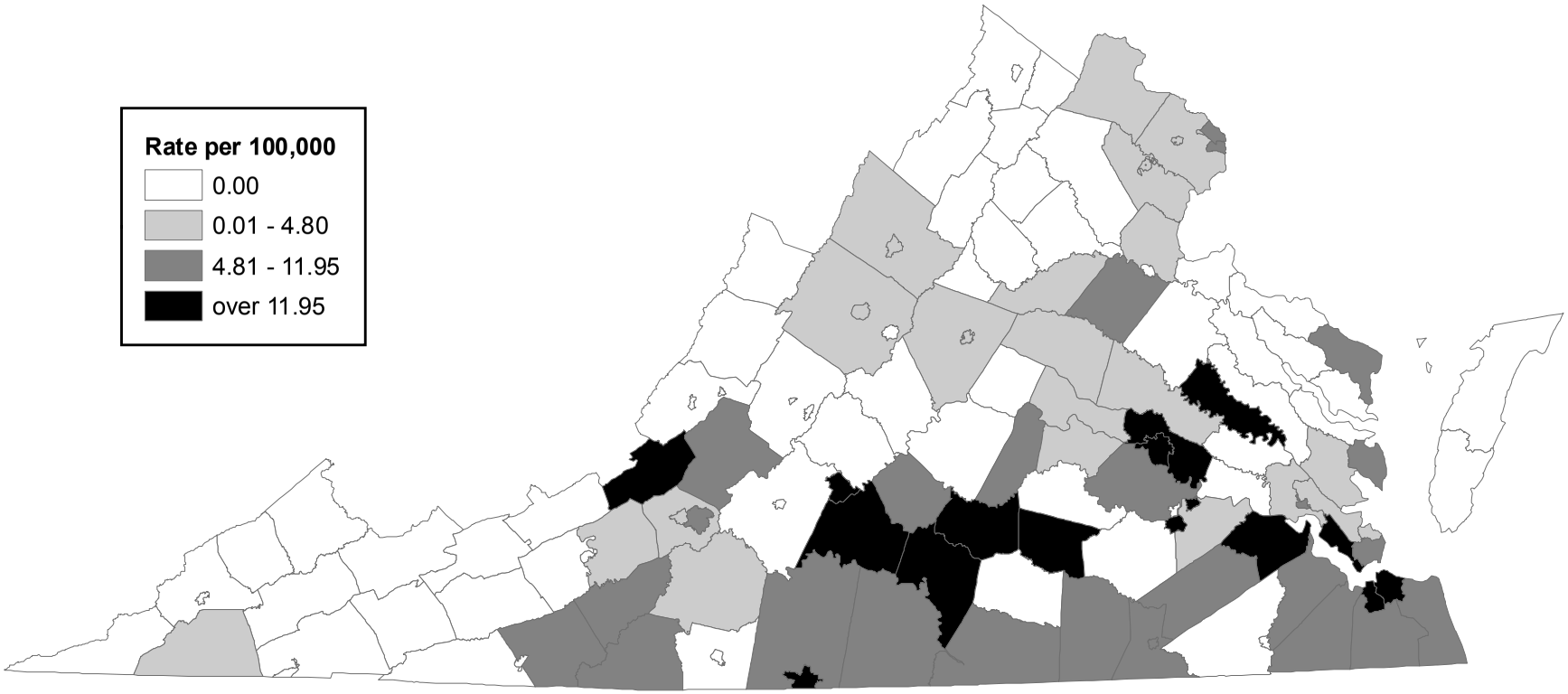
Shigellosis Incidence Rate by Locality
Virginia, 2009



Staphylococcus aureus Infection, Invasive (MRSA) Incidence Rate by Locality, Virginia, 2009



Syphilis, Early Stage, Incidence Rate by Locality
Virginia, 2009



Tuberculosis Incidence Rate by Locality
Virginia, 2009