

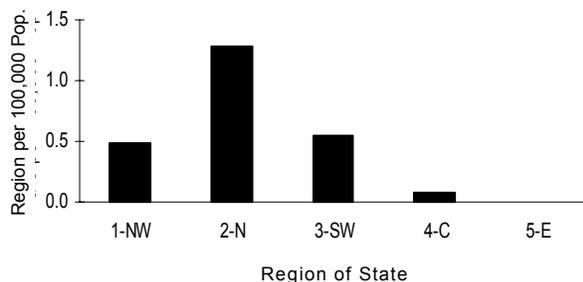
Acquired Immunodeficiency Syndrome (AIDS)

See HIV/AIDS.

Amebiasis

Thirty-seven cases of amebiasis were reported in 2001 compared to 24 in 2000 and 34 in 1999. The distribution of cases by onset of illness was fairly evenly distributed throughout the year. The 10-19 year age group had the highest incidence rate (6 cases, 0.8 per 100,000). Race was reported for only 15 of the 37 cases. Of these, eight were white, six were black, and one was of the other race category. Males were two and one half times as likely to be reported as females (26 cases, 0.7 per 100,000 males compared to 11 cases, 0.3 per 100,000 females). The northern health planning region had the highest number of cases and incidence rate (24 cases, 1.3 per 100,000) as shown in Figure 1.

Figure 1. Amebiasis: Rate by Region Virginia, 2001



Anthrax

During the fall of 2001, two Virginia residents were identified with bioterrorism-related inhalation anthrax. These cases were caused by intentional release of *Bacillus anthracis* spores through the US postal system. Both individuals were exposed at

their respective work places. They both survived. These cases were the first cases of anthrax reported in Virginia since 1970.

Arboviral Infection

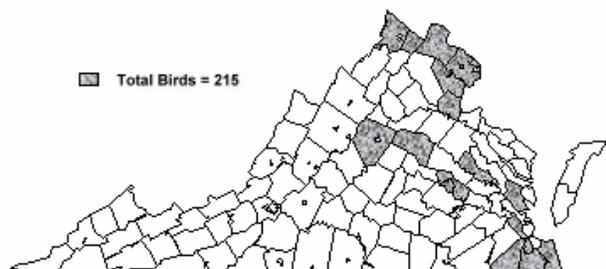
Human

Two laboratory confirmed human cases of arboviral infection were reported in Virginia in 2001. Both were cases of LaCrosse encephalitis and occurred in children with onset of illness in September. Exposure for one of the cases mostly likely occurred in West Virginia. The last reported cases of human arboviral infection in Virginia had occurred in 1998, and included one case of eastern equine encephalitis (EEE) and three cases of LaCrosse encephalitis.

Animal

In 2001, EEE was confirmed in six horses; no human cases were reported. Two hundred-fifteen birds tested positive for West Nile virus (WNV). Crows (211, 98%) and blue jays (4, 2%) were the only species that tested positive. The majority (80%) of the positive birds were reported from the extreme northern most part of Virginia (Figure 2). One sentinel chicken also tested positive for WNV.

Figure 2. Localities Reporting WNV Positive Birds Virginia, 2001



Botulism

Infant

Four cases of infant botulism were reported in 2001. Two cases were reported from the northwest health planning region, one from the central health planning region and one from the eastern health planning region. Race was reported as black for two infants, white for one and unknown for the other. Using the mouse neutralization test, *Clostridium botulinum* toxin type B was demonstrated in the stool specimen from each infant. None of the infants died.

Food

No cases of foodborne botulism were reported in 2001.

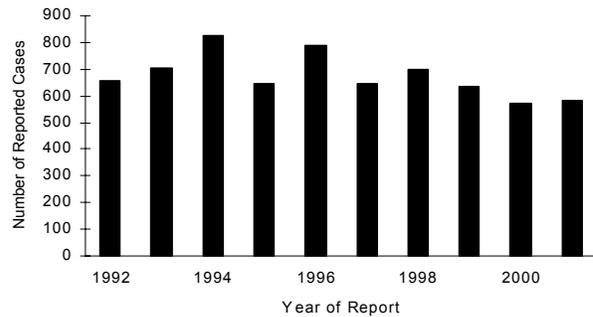
Brucellosis

One confirmed case of brucellosis was reported in 2001. This case was reported from the central health planning region in an adult male. Exposure most likely occurred while traveling in the Middle East.

Campylobacteriosis

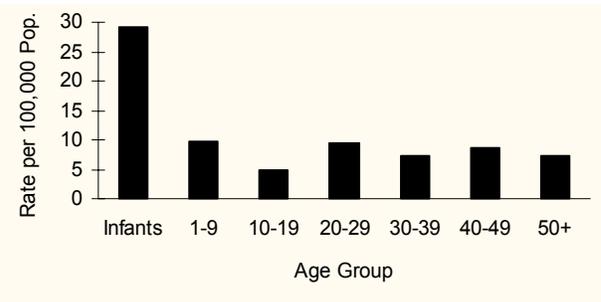
The 583 reported cases of campylobacteriosis represent an increase of 2% in 2001 when compared to the 574 cases reported in 2000. The annual number of cases, however, has shown a general decline over the past few years (Figure 3). *Campylobacter jejuni* species was reported for 54% of the cases. Other species accounted for 1%. The species was recorded as unknown for 45% of the cases. Peak activity was observed during the third quarter when 198 (34%) cases occurred.

Figure 3. Campylobacteriosis: Ten Year Trend Virginia, 1992 - 2001



The age group with the highest incidence rate was infants (29.1 cases per 100,000 population). The 1-9 year age group followed with a rate of 9.8 per 100,000. The lowest incidence rate (4.8 cases per 100,000 population) was in the 10-19 year age group (Figure 4).

Figure 4. Campylobacteriosis: Rate by Age Group Virginia, 2001



The white race category had the highest incidence rate at 6.3 cases per 100,000 population. The incidence rate in the black race category was 2.8 per 100,000 and 1.7 per 100,000 in the other race category. Race was reported as unknown for 208 cases. The number of cases and incidence rate reported was greater in males (314 cases, 8.9 per 100,000) than in females (257 cases, 7.0 per 100,000). Gender was recorded as unknown for 12 cases.

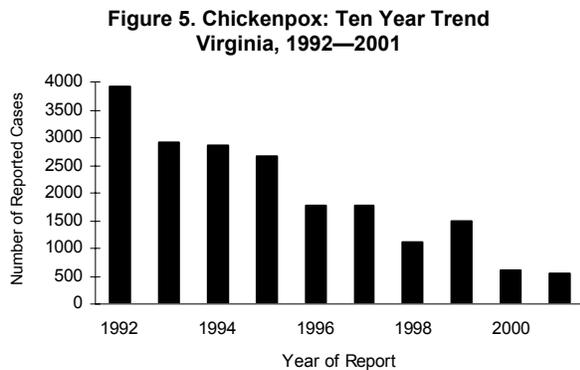
By health planning region, the highest incidence rate was in the northwest region (12.5 cases per 100,000 population), followed by the southwest region (11.1 per 100,000). The lowest incidence rate (4.2 cases per 100,000 population) was reported from the central region.

Chancroid

No cases of chancroid were reported in 2001 compared to two cases in 2000.

Chickenpox (Varicella)

The annual number of reported cases of chickenpox decreased for the second consecutive year. Five hundred sixty-three cases were reported in 2001 compared to 592 cases in 2000. The incidence of chickenpox has declined since the varicella virus vaccine was licensed in 1995 (Figure 5).



The highest number (294) of cases and the highest incidence rate (17.0 per 100,000) occurred in the eastern health planning region. Incidence rates in the other health planning regions ranged from 2.2 to 7.9 cases per 100,000 population.

In 2001, two chickenpox outbreaks were reported. One outbreak occurred in a hospital in the central health planning region and accounted for three cases and the other in the northern

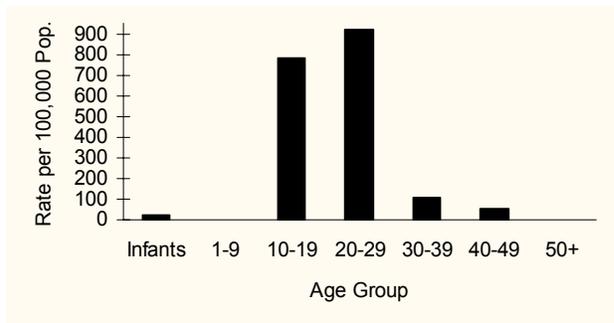
health planning region. The investigation of the latter outbreak, which began in the fall of 2001 and continued into 2002, identified 72 cases. The outbreak, which peaked in October 2000, occurred predominately among elementary school aged children. Cases were identified among vaccinated and unvaccinated children; however, it could not be determined if vaccine failure was a contributing factor.

Chlamydia trachomatis Infection

Chlamydia trachomatis infection is the most commonly reported disease in Virginia. During 2001, 18,322 cases of *C. trachomatis* infection were reported. This was a 19% increase over the 15,366 cases reported in 2000 and represents the largest number of cases since 1991.

Incidence rates were highest in the 10-19 and 20-29 year age groups (782.0 per 100,000 and 916.8 per 100,000, respectively) (Figure 6). Race was recorded as unknown for 2,024 persons. Where race was reported, the highest number (10,761) of cases occurred in blacks who also had the highest incidence rate (762.3 per 100,000). The other race category had the second highest incidence rate (215.3 per 100,000), followed by whites (82.6 per 100,000). The female to male ratio was 4.7 to 1. This difference is more likely due to screening practices than a reflection of true disease incidence.

Figure 6. *Chlamydia trachomatis*: Rate by Age Group Virginia, 2001



Cases were heavily distributed in the eastern (395.2 per 100,000) and central (346.1 per 100,000) health planning regions. The incidence rates in the northwest, southwest and northern health planning regions were 206.6 per 100,000, 206.7 per 100,000 and 125.7 per 100,000, respectively.

The data are expected to underestimate the incidence of *C. trachomatis* infections because (1) screening has been limited to high risk females attending certain public health clinics and the male partners of positive females, (2) as many as 75% of women and 25% of men with uncomplicated *C. trachomatis* infection are asymptomatic, and (3) persons with gonorrhea presumptively treated for *C. trachomatis* infection are not included in the case counts. The Centers for Disease Control and Prevention (CDC) estimate the morbidity due to this organism to be twice that of gonorrhea. There were 11,082 cases of gonorrhea reported in Virginia in 2001, suggesting that there were more than 22,100 *C. trachomatis* infections in 2001, using the CDC method to estimate cases.

Cholera

See Vibrio Infection.

Congenital Rubella Syndrome

See Rubella.

Cryptosporidiosis

This disease became officially reportable in 1999. In 2001, 27 cases were reported compared to 21 cases in 2000. Cases occurred throughout the year but almost half (48%) of the cases occurred during the third quarter. The southwest health planning region reported 11 cases followed by the northern region with 7

cases reported. Between two and four cases were reported from each of the other health planning regions. Fourteen males and 11 females and were reported. Sex was not specified for two cases. Forty-four percent of cases were in whites, 11% in blacks, and 4% in the other race category. No race was reported in 11 cases.

Cyclosporiasis

Cyclosporiasis became officially reportable in 1999. One case was reported in 2001 compared to no cases in 2000.

Diphtheria

The last case of this vaccine preventable disease in Virginia was reported in 1989.

Ehrlichiosis, Human

Ehrlichiosis is an acute disease of humans and animals caused by the bacteria *Ehrlichia*. There are two clinically similar but serologically distinct forms of ehrlichiosis: human granulocytic ehrlichiosis (HGE) caused by infection with an *Ehrlichia equi*-like agent and human monocytic ehrlichiosis (HME) caused by *E. chaffeensis* infection. The organisms, which are transmitted by ticks, can infect two different types of white blood cells.

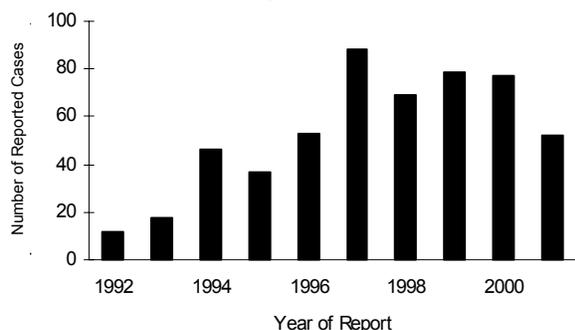
Two confirmed cases of human ehrlichiosis were recorded in Virginia in 2001 compared to one case in 2000. One type was human monocytic ehrlichiosis and one type was unspecified. Onsets of illness occurred in June and July for the one male and one female who were reported from the central and eastern health planning regions. Race was reported as white for one and black for the other. Ehrlichiosis was added to the reportable

disease list effective January 1999; however, reports have been recorded since 1986.

***Escherichia coli* O157:H7**

Escherichia coli O157:H7 infection became a notifiable condition in Virginia in January 1999; however, the Office of Epidemiology has been maintaining statistical data from voluntary reporting of this disease since 1992. Fifty-two cases were reported in 2001, compared to 77 in 2000 and 79 cases in 1999 (Figure 7).

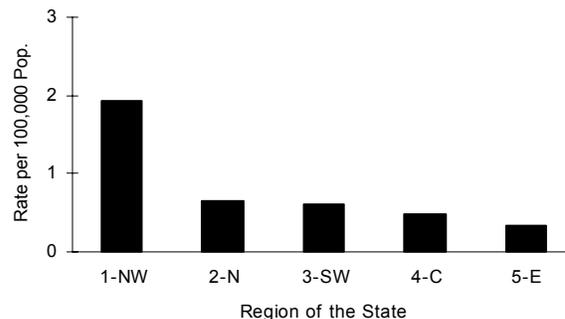
Figure 7. *Escherichia coli* O157:H7: Ten Year Trend Virginia, 2001



Historically, cases are reported throughout the year but increase beginning in the warmer months. In 2001, activity peaked during the third quarter when 24 (46%) cases occurred. Persons 1-9 years of age were at the greatest risk for *E. coli* O157:H7 infection (1.2 cases per 100,000 population). The incidence rate was 1.1 cases per 100,000 population or less for each of the other age groups. Race was reported for 65% of the cases. Of these, 33 were in whites (0.6 per 100,000) and 1 was in blacks (0.1 per 100,000). Females and males were at equal risk for this infection (0.7 per 100,000 each).

The northwest health planning region had the highest incidence rate (20 cases, 1.9 cases per 100,000 population), followed by the northern region (12 cases, 0.6 per 100,000) and the southwest region (8 cases, 0.6 per 100,000), as shown in Figure 8.

Figure 8. *Escherichia coli* O157:H7: Rate by Region Virginia, 2001



One of the most serious complications of *E. coli* O157:H7 infection is hemolytic uremic syndrome (HUS). In 2001, one person with laboratory confirmed *E. coli* O157:H7 infection was diagnosed with HUS. HUS became a notifiable condition in Virginia in December of this reporting year.

One foodborne outbreak of *E. coli* O157:H7 was reported in 2001. Consumption of hamburgers was the suspected source of illness. (See Foodborne Outbreak Section for more information.)

Foodborne Outbreaks

Eighteen foodborne outbreaks were recorded in 2001. These outbreaks are summarized in Table 8 on the following page. The number of ill persons per outbreak ranged from 7 to more than 250. The etiologic agent was confirmed or suspected as viral for eight outbreaks and bacterial for six. The etiologic agent for four outbreaks was unknown.

A specific food item or menu was implicated in eight (44%) outbreaks. The most common food handling practices that contributed to these outbreaks included the presence of an infected food handler and temperature abuse (i.e., inadequate cooking and improper storage or holding temperatures).

Table 8. Foodborne Outbreaks Confirmed in Virginia, 2001

Onset Date	Locality	Number of Cases	Etiologic Agent	Vehicle	Place Where Outbreak Occurred	Factors Contributing to Outbreak
1/19/2001	Fairfax	24	unknown	unknown	restaurant	unknown
2/8/2001	Loudoun	19	Norovirus	unknown	assisted living	infected food handler
2/23/2001	Bristol	27	Norovirus (suspected)	unknown	restaurant	infected food handler (suspected)
2/28/2001	Newport News	26	<i>Clostridium perfringens</i>	unknown	food fair	temperature abuse
3/26/2001	Fairfax	80	Norovirus	deli sandwiches	restaurant	infected food handler
4/6/2001	Henrico	250+	<i>Salmonella enteritidis</i>	home made mayonnaise	deli	contaminated raw eggs cross contamination inadequate cooking
5/19/2001	Gloucester	75	Norovirus	raw fruits & vegetables	wedding reception	infected food handler
6/16/2001	Lynchburg	28	<i>Salmonella enteritidis</i>	unknown	restaurant	infected food handler (suspected)
7/27/2001	Scott	74	<i>Salmonella enteritidis</i>	unknown	camp	inadequate or improper cooking
8/27/2001	Madison	8	<i>Escherichia coli O157:H7</i>	hamburger (suspected)	picnic	inadequate or improper cooking
9/17/2001	Alexandria	51	unknown	salad (suspected)	private home	temperature abuse (suspected)
11/14/2001	Grayson	91	Norovirus	unknown	school dinner	unknown
11/25/2001	Fairfax	23	unknown	unknown	restaurant	unknown
11/29/2001	Scott	28	Norovirus	unknown	restaurant	infected food handler
11/30/2001	Buchanan	34	Norovirus	turkey	company party	infected food handler
12/17/2001	Charles City	22	Norovirus (suspected)	salad	restaurant	infected food handler (suspected)
12/17/2001	Fauquier	7	unknown	unknown	conference	unknown
12/20/2001	Williamsburg	33	<i>Clostridium perfringens</i>	creamed spinach	restaurant	temperature abuse

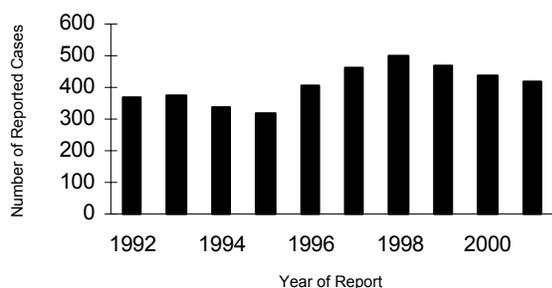
Fungal Diseases

Fungal diseases are not notifiable in Virginia; however, selected fungal diseases are recorded when reports are received. In 2001, recorded fungal infections included 30 cases of aspergillosis, 1 case of coccidioidomycosis and 1 case of cryptococcosis. Eighty-one percent (26 cases) occurred in the age group 50 years and older and the majority (22) of cases were in males.

Giardiasis

The annual number of reported cases of giardiasis decreased for the third consecutive year. The 417 cases of giardiasis reported in 2001 were 5% less than the 437 cases reported in 2000 and 11% less than the 471 cases reported in 1999 (Figure 9). Almost a third of the cases occurred during the third quarter.

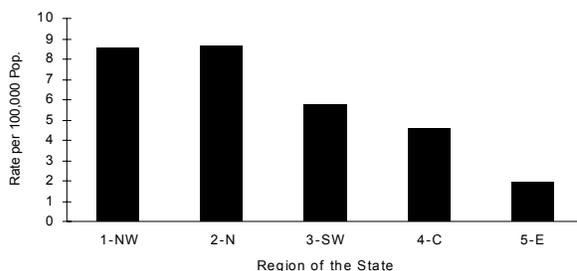
Figure 9. Giardiasis: Ten Year Trend Virginia, 2001



By age, the highest incidence rate (15.0 cases per 100,000 population) occurred in children aged 1-9 years, followed by adults aged 30-39 years (6.3 per 100,000). Race was recorded as unknown for 137 (33%) cases. Of the cases for which race was reported, the other race category had the highest incidence rate (6.2 cases per 100,000 population), followed by blacks (5.0 per 100,000), and whites (3.3 per 100,000). Males were more likely than females to be reported with this disease (6.9 vs. 4.5 cases per 100,000 population, respectively).

The northwest and northern health planning regions reported the highest number of cases and had the highest incidence rates (8.7 cases and 8.5 cases per 100,000 population, respectively). The eastern region had the lowest incidence rate (2.0 per 100,000) (Figure 10).

Figure 10. Giardiasis: Rate by Region Virginia, 2001

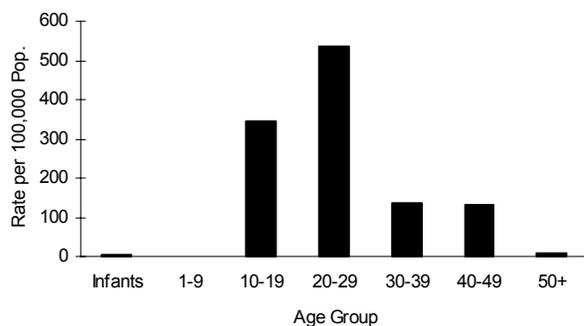


Gonorrhea

In 2001, 11,082 cases of gonorrhea were reported in Virginia. This is a 9% increase from the 10,166 cases reported in 2000 and represents the fourth consecutive annual increase in Virginia.

Young adults (aged 20-29 years) were most likely to be reported with gonorrhea. They had the highest number (5,235) of cases reported and incidence rate (535.4 per 100,000), followed by the 10 to 19 year age group (343.4 per 100,000) as shown in Figure 11.

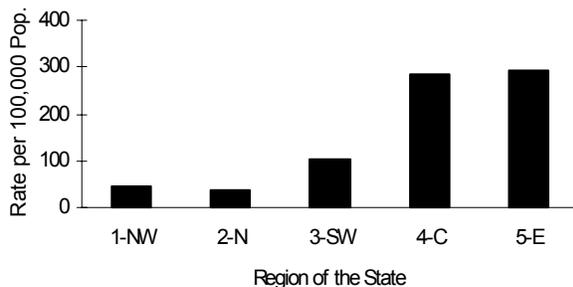
Figure 11. Gonorrhea: Rate by Age Group Virginia, 2001



Seventy-eight percent of the cases were in blacks (8,672 cases, 614.3 per 100,000), 10% were in whites (1,155 cases, 22.2 per 100,000), and 2% were in the other race category (238 cases, 41.3 per 100,000). Race was not specified for 9%. By gender, 5,565 cases were reported in males (157.9 per 100,000) compared to 5,481 cases in females (149.7 per 100,000). Gender was not reported for 36 cases.

The eastern health planning region reported the most cases (5,079 cases, 291.6 per 100,000), followed by the central (3,483 cases, 282.9 per 100,000), southwest (1,351 cases, 103.6 per 100,000), northern (706 cases, 37.8 per 100,000) and northwest (463 cases, 44.5 per 100,000) regions (Figure 12).

Figure 12. Gonorrhea: Rate by Region Virginia, 2001



Granuloma Inguinale

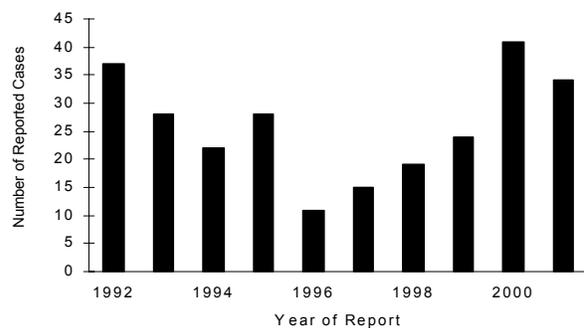
One case of granuloma inguinale was reported in Virginia in 2001.

Haemophilus influenzae Infection, Invasive

The annual number of reported cases of invasive infections due to all types of *Haemophilus influenzae* decreased from 41 cases in 2000 to 34 cases in 2001. The decrease in the number of cases reported in

2001 reverses four consecutive years of increase in the annual number of reported cases (Figure 13). Fifty-nine percent of cases were in adults aged 50 and older. Eight (24%) of the 34 cases reported in 2001 were in persons less than 5 years of age and only one of those was less than 1 year of age. Infants and adults aged 50 and older were at the greatest risk with an incidence rate of 1.1 cases per 100,000 population.

Figure 13. Invasive *Haemophilus influenzae*: Ten Year Trend, Virginia, 1992 - 2001



Cases occurred throughout the year with fewest cases being reported during the first quarter of the reporting year when three of the 34 cases occurred. Seven cases occurred in blacks for an incidence rate of 0.5 cases per 100,000 population and 19 cases were in whites (0.4 cases per 100,000 population). No cases were reported among persons in the other race category and race was recorded as unknown for 8 cases. By sex, the risk for disease was slightly higher in females than males (0.5 vs. 0.4 per 100,000).

The central health planning region had the highest incidence rate (0.8 cases per 100,000 population). The incidence rate was 0.3 to 0.6 cases per 100,000 population in each of the other health planning regions.

The organism was isolated from blood in 29 cases and from cerebrospinal fluid in 5 cases. Only five of the *H. influenzae* cases were serotype b and one of those occurred in

a child less than 5 years of age. The serotype was reported as not typeable for 7 cases, other type for 7 cases, and not tested or unknown for 15 cases. Two deaths due to invasive *H. influenzae* infection were reported in 2001. Both were adults over 50 years of age.

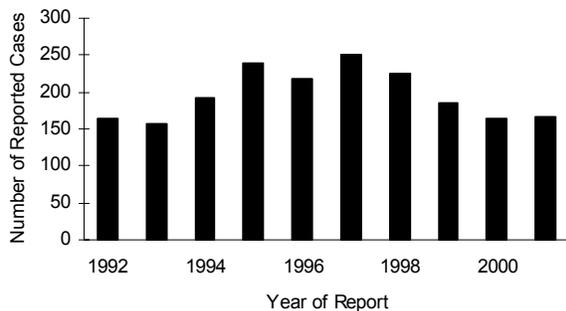
Hansen Disease (Leprosy)

One case of this disease of low frequency was reported in Virginia in 2001. The case was diagnosed in an immigrant from a country where the disease is endemic.

Hepatitis A

The number of reported cases of hepatitis A increased slightly in 2001. The 167 cases reported in 2001 were 2% more than the 164 cases reported in 2000 but overall the annual number of reported cases has been declining since 1977 (Figure 14).

Figure 14. Hepatitis A: Ten Year Trend Virginia 1992 - 2001



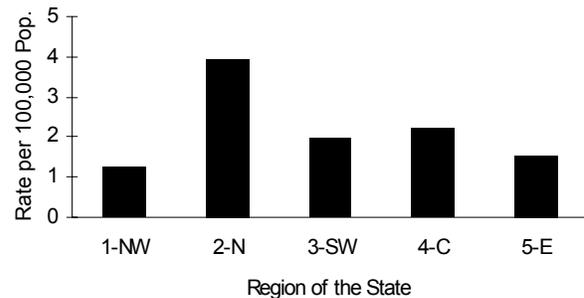
Adults in the 50 year and older age group were most at risk for hepatitis A (3.0 cases per 100,000 population), followed by children in the 1-9 year age group (2.8 per 100,000). The incidence rate for hepatitis A for the three race groups was comparable; however, was not reported for 44 (26%) cases. The incidence rate for males (108 cases, 3.1 per 100,000) was almost two times the rate for

females (61 cases, 1.6 per 100,000).

The northern health planning region reported the most cases and had the highest incidence rate (74 cases, 4.0 per 100,000) of all regions. Incidence rates by region are illustrated in Figure 15.

Risk factor data were reported for 63%

Figure 15. Hepatitis A: Rate by Region Virginia, 2001



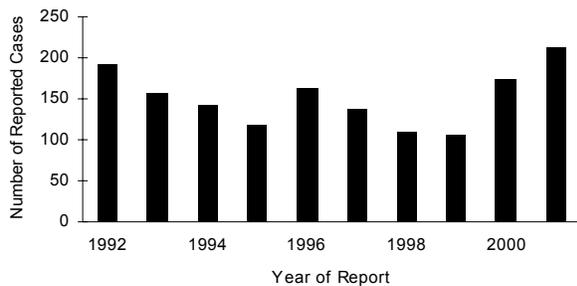
percent of the hepatitis A cases. International travel (31 cases) and personal contact with a person with hepatitis A (12 cases) were the predominant potential sources of infection reported. Of those who reported international travel, countries in Central and/or South America (13) and the Middle East (7) were the most traveled.

No deaths due to hepatitis A infection were reported in 2001.

Hepatitis B

The 213 cases of acute hepatitis B reported in 2001 represented the second consecutive increase in the annual number of reported cases (Figure 16). Also, the 213 cases reported in 2001 represented the highest annual number of cases since IgM antibody to hepatitis B core antigen (IgM anti-HBc) became a reportable condition by directors of laboratories in 1999.

**Figure 16. Hepatitis B: Ten Year Trend
Virginia, 1992 - 2001**



The higher number of cases and incidence rates were reported in the adult age groups. Risk was greatest for adults less than 50 years of age. The 30-39 year age group had the highest incidence rate of 6.4 cases per 100,000 population compared to 1.4 per 100,000 for adults aged 50 and older. By race, blacks were at the greatest risk for hepatitis B. The incidence rate for blacks was 5.9 cases per 100,000 population compared to 1.2 per 100,000 for the other race category and 1.0 per 100,000 for whites. Like hepatitis A, males had a higher incidence rate than females (3.5 per 100,000 males vs. 2.5 per 100,000 females).

The central health planning region had the highest number of cases reported and the highest incidence rate (73 cases, 5.9 per 100,000), followed by the eastern and southwest regions (3.3 and 2.8 cases per 100,000 population, respectively).

Based on analysis of reported information regarding risk factors, multiple sex partners was the most frequently reported potential source of infection for hepatitis B. One death due to acute hepatitis B was reported in 2001.

For several recent years, the test for acute hepatitis B (IgM anti-HBc) was omitted from the Current Procedural Terminology (CPT) codes. As a result, this test was not done when physicians ordered the laboratory panel for hepatitis. Therefore, acute cases may not have

been laboratory confirmed. This was corrected in 2000 and likely accounts for some of the increase in cases.

Hepatitis C

Three cases of acute viral hepatitis C were reported in 2001 compared to the same number of cases reported in 2000. All three cases tested positive for antibodies to hepatitis C. Disease onset for the cases occurred during the second half of the reporting year.

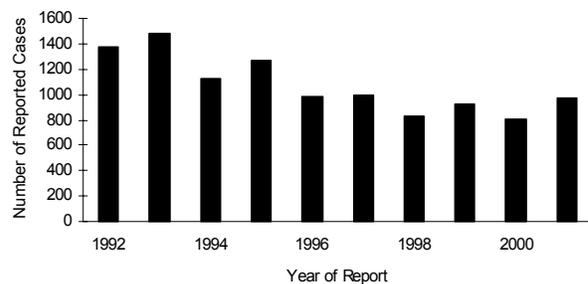
Cases ranged in age from 31 to 37 years. All the cases were in white males. One case was reported from each of three health planning regions. No deaths due to acute hepatitis C were reported in 2001.

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

HIV

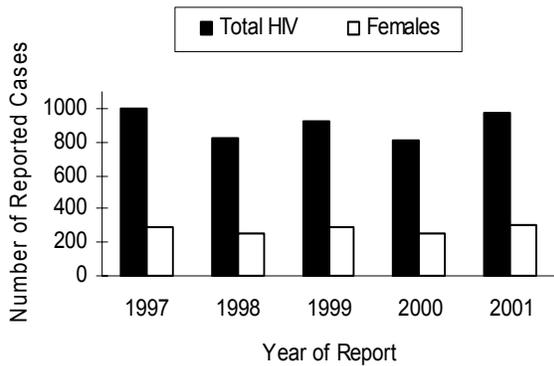
During 2001, 977 new infections of HIV were reported, bringing the cumulative total of cases reported since 1989 to 13,897. The number of new cases increased by 22% from the 804 cases reported in 2000 (Figure 17).

**Figure 17. HIV Infection: Ten Year Trend
Virginia, 1992 - 2001**



Males continue to represent the majority (671 cases, 69%) of HIV infection case reports. The incidence rate for males was 19.0 per 100,000 population compared to 8.5 per 100,000 in females. Though the number of cases in females remains much lower than the number of cases in males, the proportion of HIV infection in females has been increasing (Figure 18).

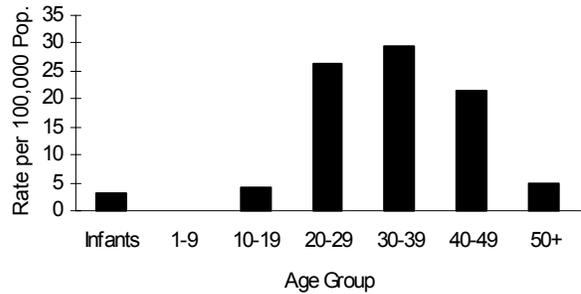
Figure 18. Proportion of HIV Cases in Females, Five Year Trend, Virginia, 1997 - 2001



During 2001, the majority of cases were in blacks (64%, 641 cases), followed by whites (27%, 261 cases) and the other race category (7%, 63 cases). Blacks were more than nine times more likely than whites to be infected, having an incidence rate of 45.4 per 100,000 compared to 5.0 per 100,000 for whites. The rate for the other race category was 10.9 per 100,000.

Persons in the 30-39 year age group had the highest incidence rate (339 cases, 29.5 per 100,000), followed by the 20-29 year age group (257 cases, 26.3 per 100,000), and the 40-49 year age group (240 cases, 21.5 per 100,000) as shown in Figure 19. Three pediatric (0-12 years) HIV infections were reported in 2001. All of the children were infected through maternal transmission.

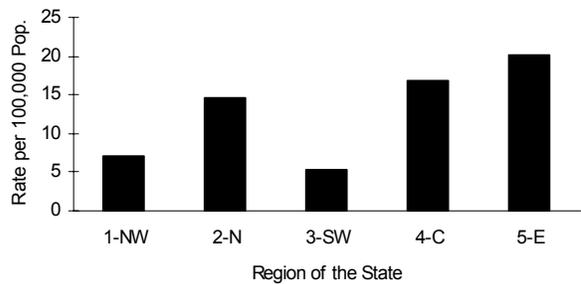
Figure 19. HIV Infection: Rate by Age Group Virginia, 2001



Compared to AIDS in 2001, persons with HIV infection were more likely to have become infected through heterosexual contact (22% HIV infection vs. 19% AIDS) and less likely to attribute their infection to men having sex with men (34% HIV infection vs. 35% AIDS).

The highest HIV infection incidence rate occurred in the eastern health planning region (20.3 cases per 100,000 population), followed by the central (16.8 per 100,000), northern (14.7 per 100,000), northwest (7.0 per 100,000) and southwest (5.4 per 100,000) health planning regions (Figure 20).

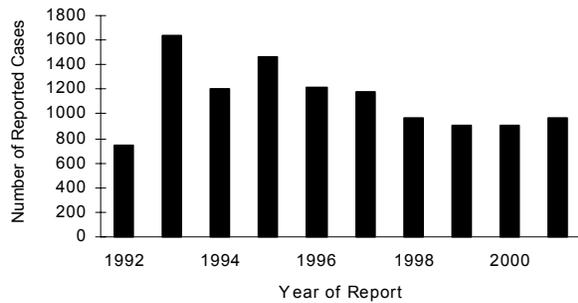
Figure 20. HIV Infection: Rate by Region Virginia, 2001



AIDS

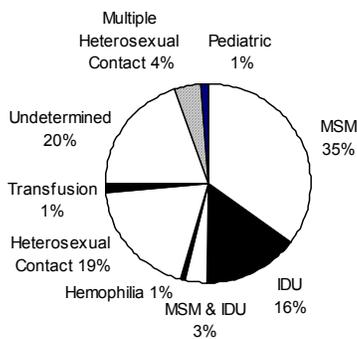
Since the first AIDS cases were reported in 1982, the cumulative number of cases reported through the end of 2001 is 14,046, with 7,264 deaths (52%). In 2001, 970 cases were reported, representing a 7% increase from 2000 (Figure 21).

**Figure 21. AIDS: Ten Year Trend
Virginia, 1992 - 2001**



AIDS is caused by the human immunodeficiency virus (HIV). Common modes of transmission are through unprotected sexual intercourse (especially anal intercourse) and injecting drug use (IDU). During 2001, men having sex with men (MSM) accounted for the greatest percentage of AIDS cases (35%), followed by heterosexual contact (19%) as shown in Figure 22.

**Figure 22. AIDS: Mode of Transmission
Virginia, 2001**



The majority of cases (704 cases, 73%) were in adults between the ages of 30 and 49. The 30-39 year age group had the highest incidence rate with 27.3 cases per 100,000 population. Five pediatric (0-12 years) AIDS cases were reported in 2001. All five were infected via maternal transmission.

This is the eighth consecutive year that the majority (643, 66%) of reported AIDS cases were in blacks. Two hundred sixty-eight

(28%) cases occurred in whites and 59 (6%) cases occurred in the other race category. Blacks were more than 8 times more likely than whites to be reported with AIDS, having an incidence rate of 45.6 per 100,000 compared to 5.2 per 100,000 in whites. The rate per 100,000 for the other race category was 10.2. Males also represented a disproportionate share of AIDS cases, with an incidence rate almost three times higher than females (20.3 vs. 7.0 per 100,000, respectively).

The eastern health planning region experienced the highest incidence rate (21.0 per 100,000), followed by the northern region (14.6 per 100,000), the central region (13.3 per 100,000), the northwest region (8.4 per 100,000) and the southwest region (6.1 per 100,000).

Persons with AIDS develop a variety of life-threatening opportunistic infections due to immunosuppression. The most commonly diagnosed disease was *Pneumocystis carinii* pneumonia (PCP). Fourteen percent of the cases reported during 2001 developed PCP during the course of the illness. Other frequently diagnosed conditions included HIV wasting syndrome (7%), esophageal candidiasis (5%), extrapulmonary cryptococcosis (5%), pulmonary *M. tuberculosis* (2%), and HIV encephalopathy (2%). Over half (67%) of the reported cases were reported as immunologic (low CD4 counts) using the 1993 expanded definition of AIDS.

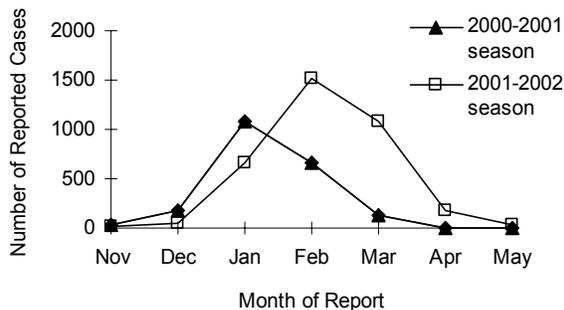
Influenza

The influenza season in Virginia typically runs from the fourth quarter (October - December) of one year through the first quarter (January - March) of the following year. During this period, the health department conducts active influenza surveillance using sentinel physicians from around the state who report cases of

influenza-like illness on a weekly basis. Cases are tabulated weekly and the information, along with laboratory identification of viral agents, is used to monitor and define influenza activity in Virginia. Activity is characterized as sporadic, regional or widespread. In addition, sporadic cases of influenza-like illness are reported throughout the calendar year through our passive disease reporting system.

During the 2000-2001 flu season, influenza type A and type B were isolated in Virginia. Widespread activity occurred from early January through mid February, with peak activity during late January (Figure 23). Three outbreaks of influenza-like illness were reported in nursing homes in Virginia this season. Two facilities had serologically confirmed influenza; the third was culture confirmed as respiratory syncytial virus (RSV). Influenza A (H3N2) was confirmed in one of the facilities and influenza B in the other.

Figure 23. Influenza-like Illness Reported in Two "Flu Seasons"



During the 2001-2002 flu season, influenza type A and type B were isolated in Virginia. Widespread activity occurred from mid-January through mid-March, with peak activity during mid-to-late February. An influenza A (H3N2) outbreak in a hospital neonatal intensive care unit in the central region occurred in January. Reports of

influenza activity in Virginia extended into May with an influenza B outbreak among school children reported at that time. This outbreak also occurred in the central health planning region.

Nationally, influenza A (H3N2) virus predominated but influenza B viruses were reported more frequently than influenza A viruses toward the end of the 2001-2002 season. Worldwide, of the 4,507 influenza A viruses subtyped, 4,420 (98%) were H3 viruses and 87 (2%) were H1 viruses.

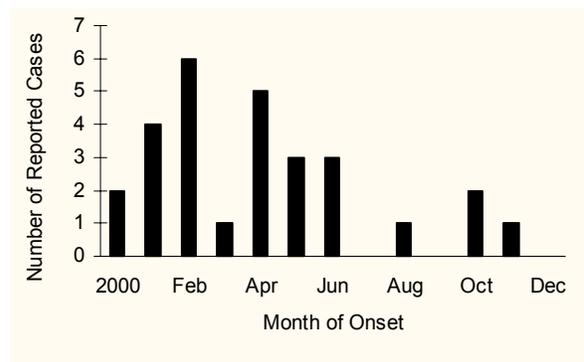
Through the passive surveillance system, 1,963 cases of influenza were reported during calendar year 2001, compared to 1,909 cases in 2000 and 2,558 cases in 1999.

Kawasaki Syndrome

Kawasaki syndrome is an uncommon illness characterized by a high fever and rash. The cause of the illness is unknown. Young children, particularly under the age of two, are at highest risk.

Twenty-eight reported cases of Kawasaki syndrome were confirmed in 2001 compared to 29 in 2000 and 33 in 1999. The cases reported in 2001 occurred mostly during the first half of the calendar year (Figure 24).

Figure 24. Kawasaki Syndrome: Month of Onset Virginia, 2001



All 28 cases reported in 2001 occurred in children less than 10 years of age. Infants accounted for 9 (32%) cases and were at greater risk (9.7 cases per 100,000 population) for acquiring this syndrome than children in the 1-9 age group (2.2 cases per 100,000 population). Blacks had the highest number of cases and the highest incidence rate (14 cases, 1.0 per 100,000), followed by the other race category (0.5 per 100,000) and whites (0.2 per 100,000). Males were at a slightly higher risk for this syndrome than females (0.4 cases per 100,000 population vs. 0.3 cases per 100,000 population, respectively).

The eastern health planning region reported the highest number of cases and had the highest incidence rate (19 cases, 1.1 per 100,000). Incidence rates in the other health planning regions were comparable at 0.2 cases per 100,000.

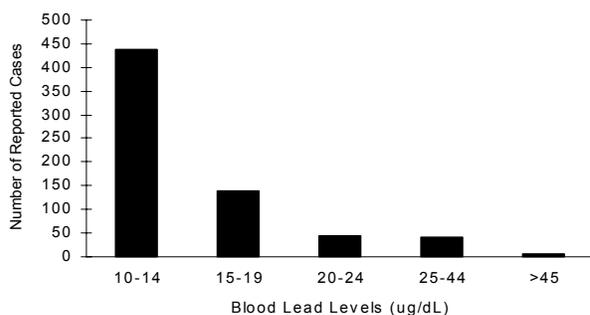
Lead Elevated Levels in Children

In 2001, 666 children were newly reported with an elevated blood lead level. Virginia law requires reporting to the health department of any child age ≤ 15 years with a venous blood lead level ≥ 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$). (Note: the reportable level changed from ≥ 15 $\mu\text{g}/\text{dL}$ to ≥ 10 $\mu\text{g}/\text{dL}$ in 1999.)

Four hundred thirty-seven (66%) of the children reported in 2001 had blood lead levels in the 10-14 $\mu\text{g}/\text{dL}$ range (Figure 25). Lead levels in this range are above normal but no treatment is needed. Education is provided and a new test should be done in 3 months. One hundred thirty-eight (21%) had levels in the 15-19 $\mu\text{g}/\text{dL}$ range, the category for which the CDC recommends nutritional and educational interventions and more frequent

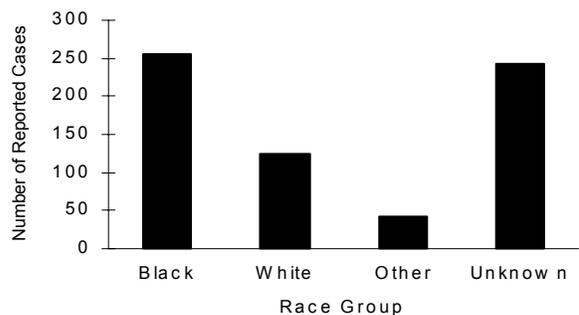
screening. Forty-five (7%) had levels in the 20-24 $\mu\text{g}/\text{dL}$ range, for which the CDC recommends medical evaluation, environmental evaluation, and environmental remediation. Forty (6%) had levels in the 25-44 $\mu\text{g}/\text{dL}$ range and 6 (<1%) had levels 45 and higher. These high levels require both medical and environmental interventions.

Figure 25. Elevated Blood Lead Levels: Age 0 - 15 years
Virginia, 2001



Children aged 5 years and younger comprised 95% (632 cases) of the reported cases with one and two years being the most common ages at diagnosis (31% and 26% of reported cases, respectively). Race was reported for 422 (63%) cases. Of these, 256 (61%) were black, 124 (29%) were white and 42 (10%) were in the other race category (Figure 26). Males comprised 57% of all cases.

Figure 26. Race of Children w/ Elevated Blood Lead Levels
Virginia, 2001

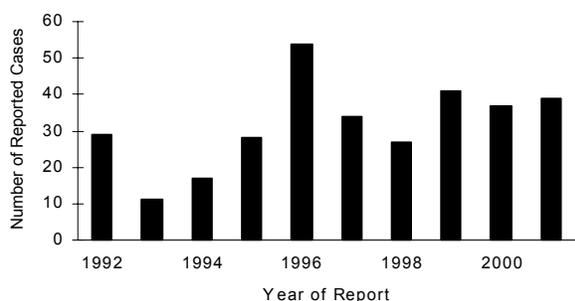


Cases were reported from all health planning regions: central, which includes the federally-funded lead prevention programs in Petersburg and Richmond, 236 cases; eastern, which includes the funded programs in Norfolk and Portsmouth, 190 cases; southwest, which includes the funded program in Lynchburg, 124 cases; northern 72 cases; and northwest 44 cases.

Legionellosis

Legionellosis is a disease caused by *Legionella* bacteria. Most cases occur as single isolated events but outbreaks have occurred. Thirty-nine laboratory-confirmed cases of legionellosis were reported in 2001 compared to 37 cases in 2000 (Figure 27). Age ranged from 33 to 85 years (median=56). Adults aged 50 and older were at greatest risk for legionellosis (26 cases, 1.4 per 100,000). Males were twice as likely as females to be reported with this disease (26 cases, 0.7 cases per 100,000 population vs. 13 cases, 0.4 per 100,000, respectively). Twenty-five reported cases were in whites (0.5 cases per 100,000 population), but blacks had a higher incidence rate (8 cases, 0.6 per 100,000). One case was in the other race category and race was unknown for five cases.

Figure 27. Legionellosis: Ten Year Trend Virginia, 1992 - 2001



Information about risk factors for illness was available for 38 persons. At least one of the following risk factors was reported for

most cases: cancer, organ transplant, diabetes mellitus, use of systemic corticosteroids or other immunosuppressants, or cigarette smoking. Cigarette smoking, however, was the most frequently reported risk factor. Seventeen (45%) persons for whom risk factor data was available reported smoking ten or more cigarettes per day.

No outbreaks of legionellosis were reported in 2001. The southwest health planning region reported the highest incidence rate (1.1 cases per 100,000 population). Each of the other health planning regions had an incidence rate of <1.0 per 100,000. Four deaths due to legionellosis were reported in persons ranging in age from 48 to 82 years.

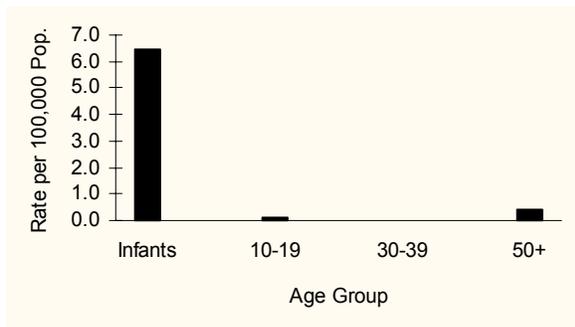
Listeriosis

Listeriosis, an infection caused by eating food contaminated with the bacterium *Listeria monocytogenes*, affects primarily pregnant women, newborns, and adults with weakened immune systems. Fifteen cases of listeriosis were reported in 2001 compared to nine cases in 2000. Cases occurred throughout the year with 47% of cases having onset in the third quarter of the year.

L. monocytogenes was isolated from the blood in 12 of the cases and both blood and cerebrospinal fluid in 2 patients. One death due to listeriosis was reported in an adult male diagnosed with bacteremia.

Persons with listeriosis ranged in age from 1 day to 92 years. Six cases were in infants and eight cases were in adults aged 50 and older (Figure 28). By race, seven were white (0.1 cases per 100,000 population) and four were black (0.3 per 100,000), two were in the other race category (0.4 per 100,000), and two were reported as race unknown. Females were as likely to be reported with listeriosis as males (0.2 case per 100,000 population, each).

**Figure 28. Listeriosis: Rate by Age Group
Virginia, 2001**

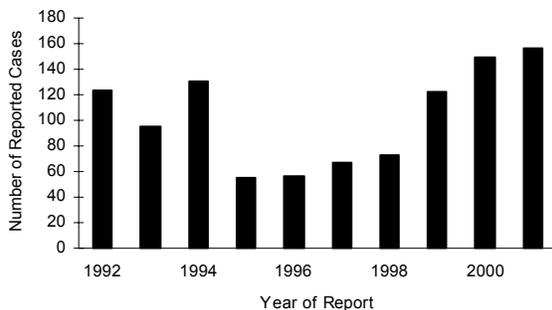


Five cases were reported from the eastern health planning region compared to four from the southwest region and three from the northwest and northern regions. No cases were reported from the central health planning region.

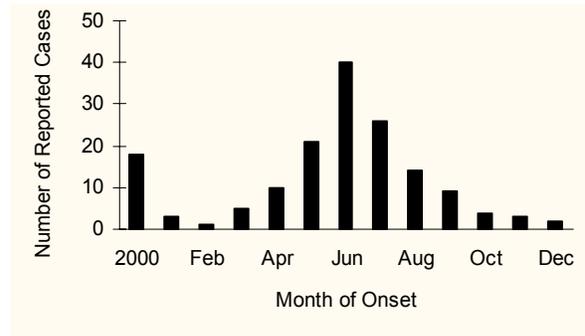
Lyme Disease

Since becoming a notifiable disease, Lyme disease is the most frequently reported tickborne illness in Virginia. The 156 cases reported in 2001 represented a 5% increase above the 149 cases reported in 2000 and the sixth consecutive annual increase (Figure 29). Cases were most likely to be reported from the northern region of the state where approximately 70% of the cases resided. The majority (87%) of cases occurred between April and September (Figure 30) and ranged in age from 1 to 81 years. No deaths due to Lyme disease were reported.

**Figure 29. Lyme Disease: Ten Year Trend
Virginia, 1992 - 2001**



**Figure 30. Lyme Disease: Month of Onset
Virginia, 2001**



The highest incidence rate occurred in the 1-9 year age group (31 cases, 3.6 cases per 100,000 population), followed by the 10-19 year age group (25 cases, 2.6 per 100,000). Cases were evenly distributed among females (79 cases) and males (77 cases). The incidence rate among whites (129 cases, 2.5 per 100,000) was higher than in blacks (6 cases, 0.4 per 100,000) and in the other race category (1 case, 0.2 per 100,000). Race was not reported for 20 persons.

The predominant clinical sign reported was erythema migrans (99 cases, 63%). Other conditions reported were arthritis (58 cases, 37%), Bell's palsy (8 cases, 5%), radiculoneuropathy (6 cases, 4%), lymphocytic meningitis (1 case, <1%), and encephalitis (1 case, <1%). The counties of exposure reported most frequently were Loudoun (51 cases, 33%) and Fairfax (28 cases, 18%).

Cases of Lyme disease were reported from all health planning regions with the highest number of cases and the highest incidence rate reported from the northern region (108 cases, 5.8 per 100,000).

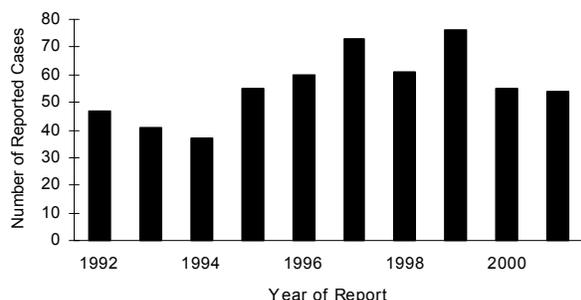
Lymphogranuloma Venereum

No cases of lymphogranuloma venereum were reported in 2001. One case was reported in 2000.

Malaria

In 2001, 54 cases of malaria were reported compared with 55 cases in 2000 (Figure 31).

**Figure 31. Malaria: Ten Year Trend
Virginia, 1992 - 2001**



The 20-29 year age group had the highest (17) number of cases reported and the highest incidence rate of 1.7 cases per 100,000 population. Race was reported as unknown for 15 (28%) cases. Where race was reported, blacks had the highest incidence rate (1.6 cases per 100,000 population), followed by the other race category (1.0 per 100,000) and whites (0.2 per 100,000). Males were twice as likely to be reported with malaria as females (1.1 vs. 0.5 per 100,000).

The majority (59%) of cases were reported from the northern health planning region. Each of the other health planning regions reported from 2 to 10 cases.

All of the persons reported with malaria are believed to have acquired the disease while in another country. Of those reported, Africa was the probable source of malaria for 32 cases, Central America 8 cases, and Asia 6 cases. The probable source of malaria was not reported for eight persons.

Only nine cases reported taking any chemoprophylaxis. Of these nine cases, two

did not complete the entire course of their medication.

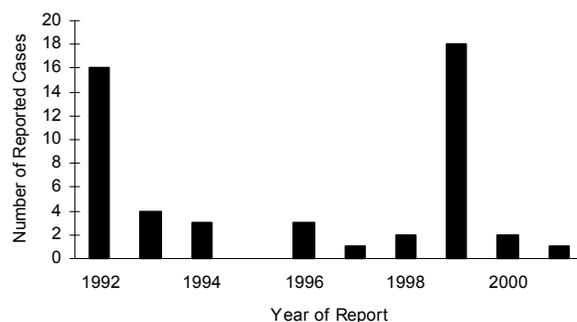
The *Plasmodium* species was reported for 48 (89%) of cases. *P. falciparum* was reported in 27 cases, 23 of whom had known travel histories to Africa. *P. vivax* accounted for 17 cases and travel was divided between Central America (5 cases), Africa (4 cases), Asia (4 cases), and unknown (4 cases). *P. malariae* was reported in three cases, two of whom had traveled to Africa and one who had traveled to Asia. *P. ovale* was reported in one case with travel to South Africa. No cases were reported in U.S. military personnel. The status of the remaining cases was reported as U.S. civilians (21 cases), civilians of other countries (13 cases), and status unknown (20 cases).

One fatal case of malaria was reported in an adult male who was diagnosed with *P. falciparum*, the most serious malarial infection.

Measles

The annual number of reported measles cases decreased to one in Virginia in 2001 compared to two cases in 2000. The one case reported in 2001 is well below the five-year mean of five cases per year (Figure 32).

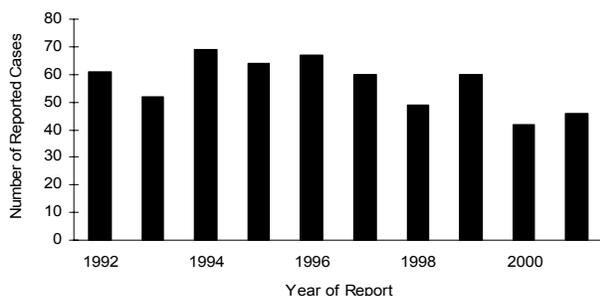
**Figure 32. Measles: Ten Year Trend
Virginia, 1992 - 2001**



Meningococcal Infection

The number of cases of meningococcal infection reported in 2001 was 46, which is 10% more than the 42 cases reported in 2000 (Figure 33). Onset of illness was distributed throughout the year with the peak number of cases occurring in the first quarter of the year.

Figure 33. Meningococcal Infection: Ten Year Trend Virginia, 1992 - 2001

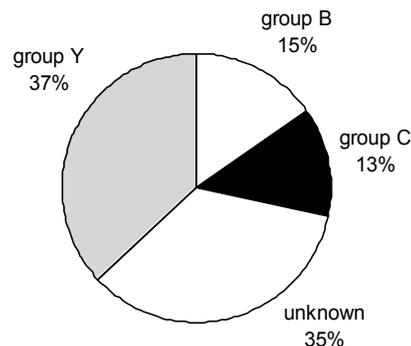


Infants had the highest incidence rate of all age groups (2.2 cases per 100,000 population). The incidence rate was less than 1.0 per 100,000 for each of the other age groups. Blacks had highest incidence rate by race (1.4 cases per 100,000 population), followed by whites (0.5 per 100,000) and the other race category (0.2 per 100,000). Females were equally likely to be reported with meningococcal infection as males.

Six to 13 cases were reported from each of the health planning regions. The highest incidence rate was reported from the central health planning region (13 cases, 1.1 per 100,000), followed by the southwest region (9 cases, 0.7 per 100,000).

Serogroup was identified for 30 (65%) of the reported cases: 17 group Y, 7 group B, and 6 group C (Figure 34). *N. meningitidis* was isolated from cerebrospinal fluid in 10 cases, blood in 34 cases and pleural fluid from 1 case. The organism was not isolated from one of the reported cases.

Figure 34. Meningococcal Serogroups Virginia, 2001



Two cases of meningococcal disease occurred in college students in 2001. Statistics show that those living in more crowded environments, such as campus dormitories, are at least three times more likely to contract the disease. A new Virginia law states students enrolling in any four-year Virginia public college or university for the first time shall be immunized against the potentially fatal meningococcal disease. However, if the institution of higher education provides the student or a minor student's parent information about the risks associated with meningococcal disease and the availability of the vaccine, the student or the minor student's parent may decide against the vaccination by signing a waiver.

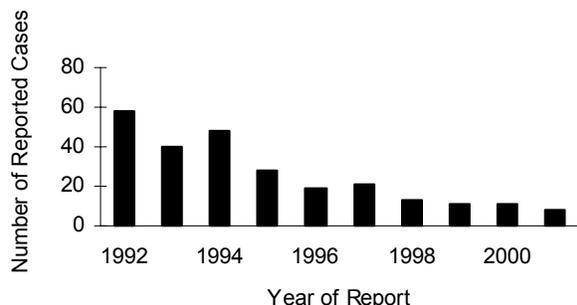
Three males, ranging in age from 24 to 57 years, died from meningococcal infection in 2001. Two of the three deaths were associated with serogroup Y disease and one serogroup C.

Mumps

Reported mumps cases continue to decline. The number (8) of cases reported in 2001 is the lowest number of mumps cases reported in the last ten years (Figure 35). Cases occurred throughout the year with most cases reported in the second and third quarter

of the year. Children in the 1-9 year age group had the highest incidence rate for mumps (0.4 per 100,000). Adults in the 40-49 year age groups had the next highest rate (0.3 cases per 100,000 population). No cases were reported for infants, children in the 10-19 year age group or the 50 and older age group.

Figure 35. Mumps: Ten Year Trend Virginia, 1992 - 2001



Race was reported as white for six cases (0.12 cases per 100,000 population). Race was recorded as unknown for two cases. Males were at more risk than females (0.2 vs. 0.1 cases per 100,000 population, respectively).

The risk for mumps was greater in the eastern and southwest health planning regions that had the highest and similar incidence rates (0.2 cases per 100,000 population).

Nosocomial Outbreaks

A nosocomial outbreak refers to any group of illnesses of common etiology occurring in patients in hospitals or nursing homes acquired while confined in such facilities. Nine nosocomial outbreaks were reported in 2001 (Table 9 on the following page). Two outbreaks of respiratory illness in nursing homes were reported during the influenza season. One was laboratory confirmed influenza type B and the other was laboratory confirmed parainfluenza virus.

Three outbreaks were characterized by symptoms of gastroenteritis. Norovirus was laboratory confirmed as the cause of each of these outbreaks. Two outbreaks of invasive group A streptococcal disease in nursing homes were reported. Two cases of invasive group A streptococcal disease were reported in one of these outbreaks and three cases in the other. An outbreak of chickenpox (3 cases) in a hospital also was reported.

Ophthalmia Neonatorum

One case of ophthalmia neonatorum caused by *Chlamydia trachomatis* infection was reported in 2001. Three cases of ophthalmia neonatorum caused by *C. trachomatis* infection were reported in 2000.

Other Outbreaks

This section includes thirteen outbreaks that occurred in 2001 that are not described in other sections of this report (Table 10 on the following page). Norovirus virus was confirmed as the cause of five outbreaks and suspected as the cause of three others. In most of these outbreaks, the mode of transmission was not determined.

Mycoplasma pneumonia was laboratory confirmed in an investigation of respiratory illness at a school. A viral agent was suspected for an outbreak of rash illness among school-aged children. Similar outbreaks were reported in at least seven other states among school-aged children. Bed bugs were suspected in one outbreak in an adult home. Two outbreaks of unknown etiology were reported. One of these outbreaks was characterized by respiratory illness and the other by gastrointestinal symptoms.

Table 9. Nosocomial Outbreaks Confirmed in Virginia, 2001

Onset Date	Locality	Number of Cases	Etiologic Agent	Mode of Transmission	Place Where Outbreak Occurred
1/2/2001	Giles	3	group A streptococci	person-to-person	nursing home
1/12/2001	Tazewell	15	influenza B virus	person-to-person	nursing home
1/16/2001	Hampton	52	Norovirus	person-to-person	nursing home
1/26/2001	Roanoke City	2	group A streptococci	person-to-person	nursing home
1/28/2001	Fairfax	28	Norovirus	person-to-person	nursing home
2/12/2001	Richmond City	3	chickenpox	person-to-person	hospital
7/18/2001	Williamsburg	44	parainfluenza	person-to-person	nursing home
12/16/2001	Alexandria	58	Norovirus	person-to-person	nursing home

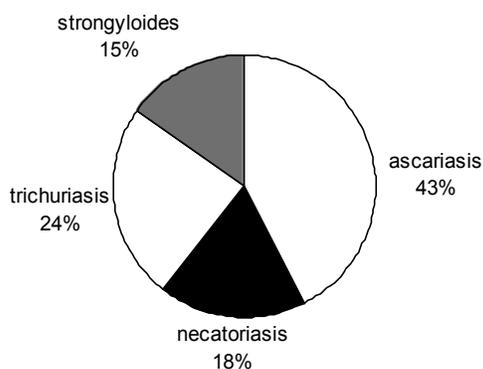
Table 10. Other Outbreaks Confirmed in Virginia, 2001

Onset Date	Locality	Number of Cases	Etiologic Agent	Mode of Transmission	Place Where Outbreak Occurred
1/14/2001	Dinwiddie	10	unknown	person-to-person	adult home
1/15/2001	Williamsburg	53	Norovirus (suspected)	unknown	restaurant
1/25/2001	Henrico	56	unknown	person-to-person	apartment complex
2/27/2001	Norfolk	8	bed bugs	person-to-person	adult home
4/13/2001	Fairfax	10	Norovirus	unknown	camping trip
4/16/2001	Roanoke City	25	Norovirus	unknown	assisted living
5/10/2001	Albemarle	17	Norovirus (suspected)	unknown	luncheon
6/17/2001	Richmond City	12	Norovirus	person-to-person	wedding reception
7/23/2001	Caroline	56	Norovirus	unknown	camp
10/5/2001	Richmond City	13	<i>Mycoplasma pneumonia</i>	person-to-person	college
10/12/2001	Roanoke City	10	Norovirus	unknown	restaurant
10/23/2001	Henry	14	Norovirus (suspected)	unknown	school
11/28/2001	Prince William	274	viral (suspected)	unknown	school

Parasites, Intestinal

In addition to amebiasis, cryptosporidiosis, cyclosporiasis, and giardiasis, selected reports of other parasitic intestinal diseases are recorded. In 2001, 33 laboratory confirmed cases of intestinal parasites were recorded: 14 cases of ascariasis (roundworm), 8 cases of trichuriasis (whipworm), 6 cases of necatoriasis (hookworm), and 5 cases of strongyloidiasis (Figure 36). Cases were fairly evenly distributed during the first three quarters of the year but decreased in occurrence during the fourth quarter of the year. The 10-19 year age group accounted for the highest number of cases (8 cases, 24%). Ten (30%) cases were in the other race category. Race was not reported for 8 (24%) cases. Sixteen (48%) of cases were in females compared to 14 (42%) in males. Sex was recorded as unknown for the remaining case.

Figure 36. Intestinal Parasites
Virginia, 2001



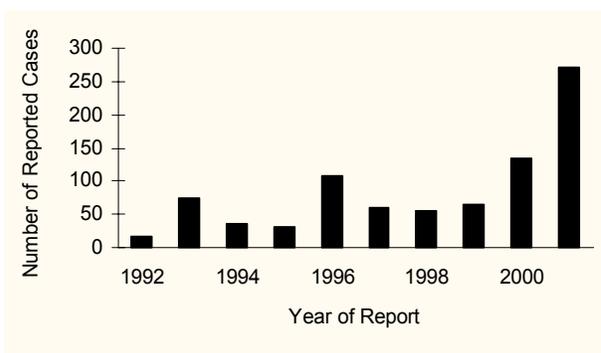
The southwest health planning region had the highest number (12) of cases followed by the northwest region with eight cases.

Pertussis

In 2001, 272 cases of pertussis were reported. This is a 103% increase over the 134 cases reported in 2000, and four times the number of cases reported in 1999 when 65

cases were reported (Figure 37). Pertussis has been the most frequently reported childhood vaccine-preventable disease in Virginia in recent years. Cases occurred throughout the year, but peaked during the fourth quarter when 164 (60%) cases had onset of symptoms. An outbreak of pertussis occurred in the northwest region of the state during this period in which 97 laboratory-confirmed cases were identified.

Figure 37. Pertussis: Ten Year Trend
Virginia, 1992 - 2001



Statewide, infants had the highest incidence rate at 29.1 cases per 100,000 population, followed by the 10-19 year age group (116 cases, 11.8 per 100,000). Incidence rates in the other age groups were 6.6 or less per 100,000.

Two hundred twenty-four (82%) pertussis cases were in whites; the incidence rate for whites was 4.3 cases per 100,000 population. The incidence rate for blacks was 2.1 per 100,000 and 1.0 per 100,000 for the other race category. Females were at slightly higher risk for pertussis than males (4.2 vs. 3.3 cases per 100,000 population, respectively).

The majority of cases were reported from the northwest health planning region (235 cases, 22.4 per 100,000), compared to 15 or fewer cases reported from each of the other health planning regions (Figure 38). No deaths due to pertussis were reported in 2001. One pertussis related death in an infant was reported in 2000.

Figure 38. Pertussis: Rate by Region Virginia, 2001

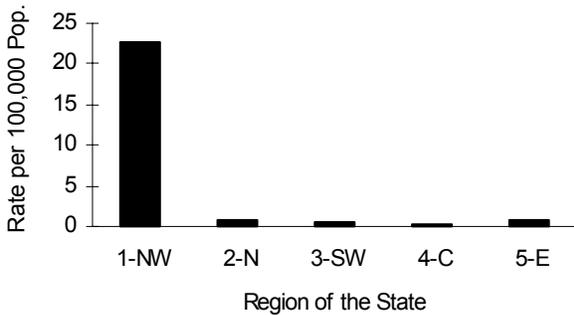
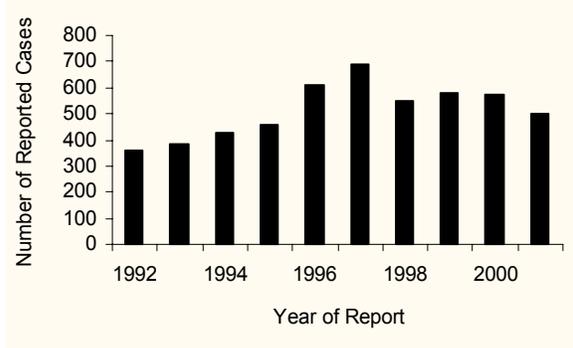


Figure 39. Rabies in Animals: Ten Year Trend Virginia, 1992 - 2001



Plague

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

Poliomyelitis

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

Psittacosis

Psittacosis is a disease of low frequency in Virginia. No cases were reported in 2001. One case was reported in 1998.

Q Fever

No cases were reported in 2001. One case of Q fever was reported in 1999.

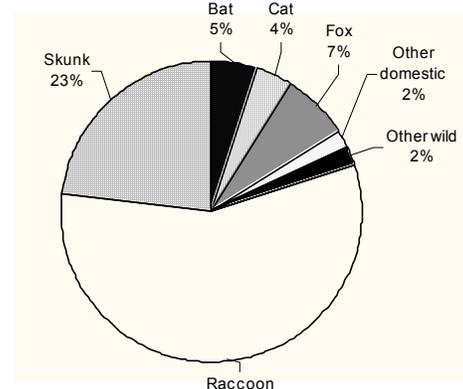
Rabies in Animals

The number of animals confirmed with rabies decreased from 574 cases in 2000 to 502 cases in 2001 (Figure 39).

The locality reporting the most cases (45 cases, 9%) was Fairfax County (including the cities of Fairfax and Falls Church). Virginia Beach had the second highest number of cases (25 cases, 5%). The remaining localities contributed 4% or fewer cases each to the total number of rabid animals.

For the twentieth consecutive year, raccoons were the most commonly reported species reported with rabies, accounting for 288 cases or 57% of the total number of animals reported. Skunks were the second most frequently reported species, accounting for 116 (23%) cases (Figure 40). The other wildlife reported with rabies were 34 foxes, 23 bats, 5 bobcats, 3 groundhogs, and 1 deer.

Figure 40. Species of Animals Positive for Rabies Virginia, 2001

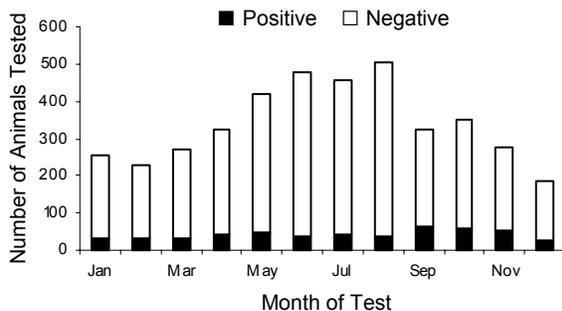


Cats were the most commonly reported domestic animal with rabies. Twenty-one rabid cats were reported, followed by 5 cows, 4 dogs, and 2 horses.

Animals Tested

The number of animals tested rose from 4,025 in 2000 to 4,070 tested in 2001. Cats were the most commonly tested domestic animal, accounting for 24% of all animals tested. Raccoons accounted for 17% of animals tested, followed by dogs and bats (15% each); opossums (7%); skunks (4%); and foxes, squirrels and groundhogs (3% each). Overall, 12% of all animals tested were positive for rabies. Although skunks accounted for only 4% of all animals tested, 67% of those tested were positive. While only 7 bobcats were tested, 6 (86%) were positive. Twenty-five percent of tested foxes were positive for rabies. Figure 41 compares the total number of animals tested with the number positive.

Figure 41. Animal Rabies Tests by Month and Result Virginia, 2001



Human Exposure

Human exposure was reported for 11 animal species. The ratio of human exposure to the number of rabid animals by species is as follows: 11/23 rabid bats, 3/6 rabid bobcats, 16/20 rabid cats, 5/5 rabid cows, 1/1 rabid deer, 3/4 rabid dogs, 9/34 rabid foxes, 2/3 rabid groundhogs, 2/2 rabid horses, 23/288 rabid raccoons, and 9/116 rabid skunks.

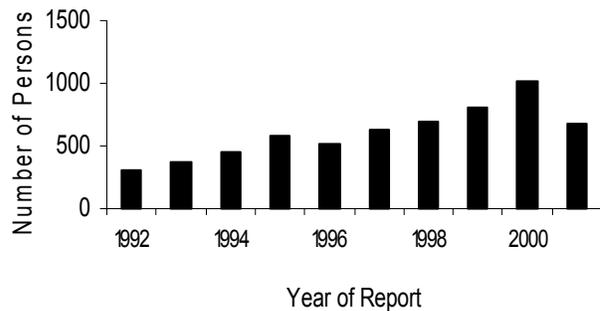
Rabies in Humans

No cases of rabies in humans were reported in Virginia in 2001. In 1998, the first

case of human rabies in 45 years was reported in Virginia.

During 2001, 670 persons were reported to have received post-exposure prophylaxis, a 34% decrease from the 1,013 persons reported in 2000 (Figure 42). In addition, 389 persons received pre-exposure prophylaxis compared to 662 in 2000 and 428 in 1999.

Figure 42. Rabies Post-Exposure Prophylaxis Received Ten Year Trend, Virginia, 1992 - 2001



Rocky Mountain Spotted Fever

The 40 cases of Rocky Mountain spotted fever reported in 2001 represent a 471% increase from the 7 cases reported in 2000. Figure 43 shows the ten-year trend in the number of reported cases in Virginia. Onset of cases occurred from April through December with a peak in July as shown in Figure 44 on the following page.

Figure 43. Rocky Mountain Spotted Fever: Ten Year Trend Virginia, 1992 - 2001

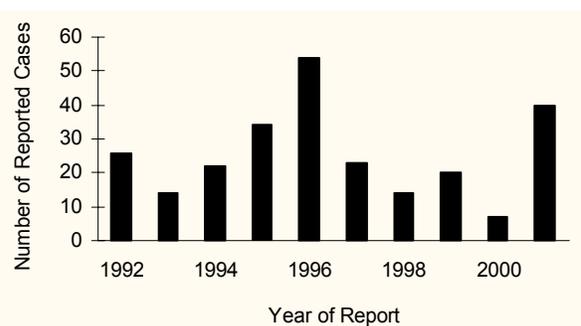
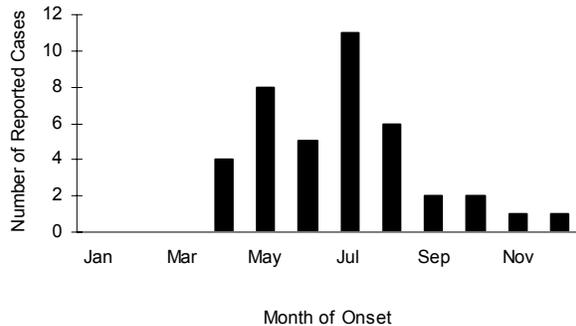


Figure 44. Rocky Mountain Spotted Fever: Month of Onset Virginia, 2001



Children aged 10 to 19 years had the highest incidence rate (11 cases, 1.1 per 100,000), followed by adults aged 40 to 49 years (7 cases, 0.6 per 100,000).

Whites had a higher incidence rate than blacks (0.6 per 100,000 vs. 0.3 per 100,000, respectively). One case was reported in the other race category and race was recorded as unknown for two cases. Twenty-three cases were reported in males (0.7 per 100,000) compared to seventeen cases in females (0.5 per 100,000).

Incidence rates were highest in the central health planning region (1.2 per 100,000) followed by 0.7 per 100,000 in the northwest region, 0.5 per 100,000 in the southwest region, <5 per 100,000 in the northern and eastern health planning regions.

A rash was reported in 6 cases. Ten (25%) persons had a known tick bite. No deaths due to Rocky Mountain spotted fever were reported in 2001.

Rubella

No cases of rubella were reported in 2001. One case was reported in 1998.

Congenital Rubella Syndrome

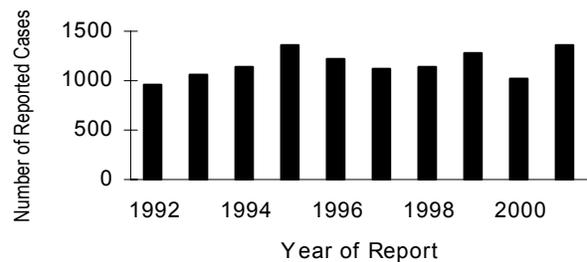
A case of congenital rubella syndrome

(CRS) was reported whose mother was an immigrant from South America. This was the first reported CRS case in Virginia since 1981.

Salmonellosis

Salmonellosis continues to be the most frequently reported enteric pathogen in Virginia. In 2001, 1,368 *Salmonella* infections were reported compared to 1,020 in 2000 (Figure 45).

Figure 45. Salmonellosis: Ten Year Trend Virginia, 1992 - 2001



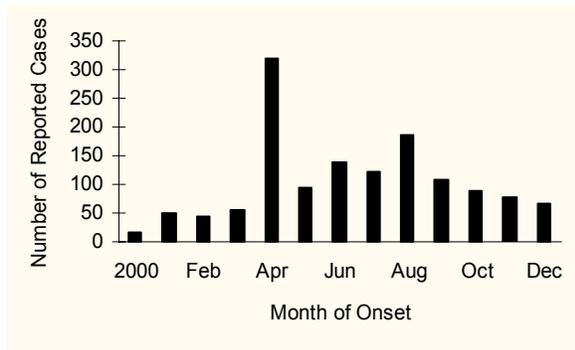
The most commonly reported serotypes were *S. enteritidis* (501 cases), *S. typhimurium* (244 cases), *S. newport* (81 cases), and *S. hiedelburg* (44 cases). These four serotypes accounted for 64% of the 69 different serotypes reported in 2001 (Table 11 on the following page).

Regionally, the highest incidence rate was in the central health planning region (37.3 cases per 100,000 population), followed by the southwest health planning region (18.4 per 100,000). The lowest rate was in the eastern health planning region (12.4 cases per 100,000 population). The incidence of *Salmonella* infections peaked during the second quarter when 40% of the cases occurred (Figure 46 on the following page).

Table 11. Number and Percent of *Salmonella* Infections by Species, Virginia, 2001

Species Causing Infection	Number of Cases	Percent of Cases
<i>S. enteritidis</i>	501	36.62
<i>S. typhimurium</i>	244	17.84
<i>S. newport</i>	81	5.92
<i>S. heidelberg</i>	44	3.22
<i>S. braenderup</i>	32	2.34
<i>S. java</i>	19	1.39
<i>S. infantis</i>	17	1.24
<i>S. javiana</i>	17	1.24
<i>S. saint paul</i>	17	1.24
<i>S. bareilly</i>	16	1.17
<i>S. berta</i>	16	1.17
Unspecified	216	15.79
All others	148	10.82
TOTAL	1368	100.00

Figure 46. Salmonellosis: Month of Onset Virginia, 2001



Infants were at greatest risk for *Salmonella* infection (105.7 cases per 100,000 population), followed by children aged 1-9 years (36.0 per 100,000). The age group 30-39 years had the lowest rate at 14.0 per 100,000. Persons in the other race category had the highest incidence rate (18.4 per 100,000). Whites had a rate of 10.0 per 100,000 and blacks a rate of 9.9 per 100,000. The risk for *Salmonella* infection was

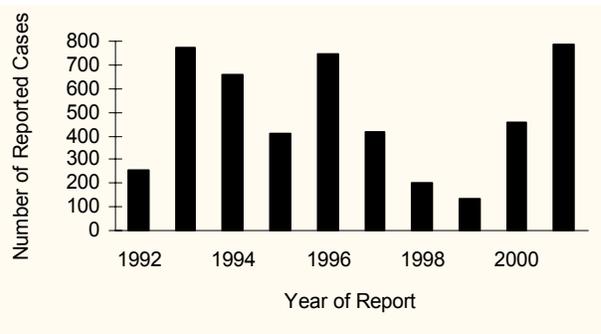
slightly higher for females (19.1 per 100,000) than for males (18.3 per 100,000).

Three *Salmonella* outbreaks were reported in 2001. All three outbreaks were due to *Salmonella enteritidis*. Two of the outbreaks were restaurant associated, one of which accounted for approximately 250 cases. In that outbreak and another that was related to an outdoor camp, the use of raw or undercooked eggs was a contributing factor. Homemade mayonnaise was linked to one of the restaurant outbreaks but a food source was not determined for the other two reported outbreaks. (See Foodborne Outbreak Section for more information.)

Shigellosis

The number of reported cases of shigellosis increased 70% in 2001. There were 784 cases reported in 2001 compared to 460 cases reported in 2000 (Figure 47). Outbreaks of shigellosis involving child care centers in the central and eastern health planning regions of the state were responsible for the increase. Although the spread of this disease can occur through contamination of food and water, the predominant mode of transmission is by direct contact with an infected person. Personal hygiene (i.e., hand washing) remains the most effective method of prevention.

Figure 47. Shigellosis: Ten Year Trend Virginia, 1992 - 2001

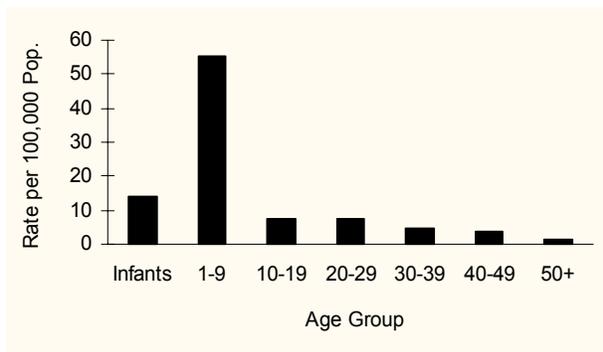


Sixty-five percent of *Shigella* infections occurred during the fourth quarter of the reporting year. Eighty-nine percent (697) of

the infections reported were caused by *S. sonnei*; 33 infections were due to *S. flexneri*, 6 to *S. boydii*, and 3 to *S. dysenteriae*. The species was not identified for 45 infections.

Children aged 1-9 years had the highest incidence rate (55.3 cases per 100,000 population), followed by infants (14.0 per 100,000) as shown in Figure 48. Race was recorded as unknown for 282 (36%) cases. When race was reported, the black race category had an incidence rate of 24.9 cases per 100,000 population compared to 2.6 for whites. Females (11.2 per 100,000) were slightly more at risk than males (10.0 per 100,000).

Figure 48. Shigellosis: Rate by Age Group Virginia, 2001



The eastern health planning region had the highest incidence rate (23.2 per 100,000 population), followed by the central (20.6 per 100,000), northern (4.6 per 100,000), southwest (2.8 per 100,000) and northwest (0.7 per 100,000) regions.

Streptococcal Disease, Group A, Invasive

In 1999, invasive streptococcal Group A disease became a reportable condition. In 2001, 85 cases were reported from 45 cities and counties in the state. In 2000, 57 cases were reported. The southwest health planning region reported 30 cases and had the highest incidence rate (2.3 per 100,000 population), followed by 26 cases (2.1

per 100,000) in the central region and 17 cases (1.6 per 100,000) in the northwest region. Eight cases were reported in the eastern region and four cases in the northern region.

Most (35 cases, 41%) infections occurred in the first quarter of the year. The 50 year and older age group accounted for 52% of cases, with the rest distributed throughout all the other age groups. Infants had the highest incidence rate (3.2 per 100,000 population) followed by the 50 year and older age group (2.3 per 100,000). Incidence rates for blacks and whites were the same (1.1 per 100,000, each). Females (1.3 per 100,000) were slightly more at risk than males (1.0 per 100,000).

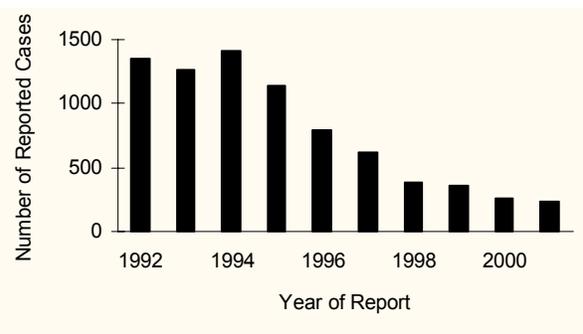
The organism was isolated from blood in 62 cases, from a wound in 11 cases, from pleural fluid in 4 cases, and from other or unspecified sites in 8 cases. Thirteen deaths occurred in 2001 due to this infection for a case fatality rate of 15%.

Syphilis

Early Syphilis

Early syphilis includes the primary, secondary and early latent stages of syphilis. The number of cases of early syphilis reported decreased 12%, from 266 cases in 2000 to 235 cases in 2001 (Figure 49), continuing a downward trend that began in 1995. The 235 cases reported in 2001 were the lowest annual number reported on record.

Figure 49. Early Syphilis: Ten Year Trend

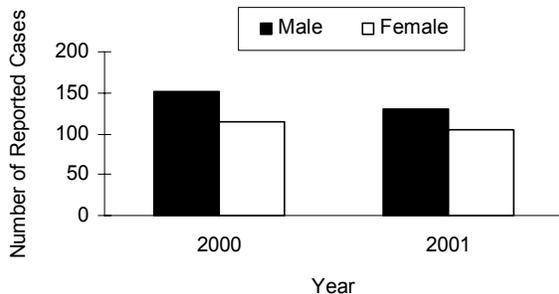


The 40-49 year age group had the highest incidence rate (13.1 cases per 100,000 population), followed by the 30-39 age group (7.8 per 100,000), the 20-29 year age group (5.7 per 100,000), the 10-19 age group (1.0 per 100,000) and the 50 year and older age group (0.9 per 100,000).

Blacks were reported most frequently and had the highest incidence rate (183 cases, 13.0 per 100,000). The incidence rate for blacks was 20 times higher than the rate for whites (0.6 per 100,000) and more than five times higher than the rate for the other race category (2.3 per 100,000).

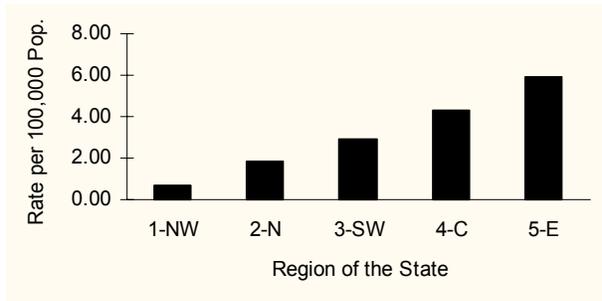
The number of cases decreased in females and males in 2001 (Figure 50). The 2001 incidence rate per 100,000 population was 2.8 for females and 3.7 for males.

Figure 50. Early Syphilis: Cases by Sex Virginia, 2000 - 2001



The eastern health planning region had the highest rate (102 cases, 5.9 per 100,000), followed by the central region (53 cases, 4.3 per 100,000), southwest region (38 cases, 2.9 per 100,000), northern region (35 cases, 1.9 per 100,000), and northwest region (7 cases, 0.7 per 100,000), as shown in Figure 51.

Figure 51. Early Syphilis: Rate by Region Virginia, 2001



Congenital Syphilis

In 2001, five cases of congenital syphilis were reported. Four cases occurred in blacks and one in the other race category. Two cases were reported from the eastern health planning region, one from the central region, one from the northern region and one from the southwest region.

The mothers' average age was 30 years, with a range of 21 to 46 years. All five mothers were single parents. Only three sought prenatal care, all during the third trimester.

The five congenital syphilis cases in 2001 represented a decrease from the six cases reported in 2000. Due to the nine-month gestation period, there is usually a lag between an increase or decrease in early syphilis and a corresponding change in congenital syphilis. Thus, the decrease in early syphilis in females in 2001 should be associated with a continued decrease in congenital syphilis.

Tetanus

No cases of tetanus were reported in 2001. One case of tetanus was reported in Virginia in 1998.

Toxic Shock Syndrome

Two cases of toxic shock syndrome were reported in Virginia in 2001. The condition occurred in two adult females, one of which was positive for *Staphylococcus aureus*. One case occurred in the northern health planning region and one case occurred in the southwest region. Prior to 2001, the last case was reported in 1997.

Toxic Substance Related Illnesses

During 2001, 429 cases of the following toxic substance related illnesses were reported to the health department: asbestosis (301 cases, 70%), adult lead poisoning (121 cases, 28%), pneumoconiosis (4 cases, 1%), cadmium poisoning (2 cases, <1%), and nitrogen dioxide poisoning (1 case, <1%). The remainder of this section will present further information on the cases of asbestosis.

Of the 301 persons reported with asbestosis, all but one were male. Cases ranged in age from 44 to 92 years (mean = 64 years). Race was not reported for 97% of the cases.

Cases were reported from three of the health planning regions. The eastern region had 299 cases (99%) and the northern and central regions had 1 case each. The other two regions had no cases reported. The industries employing the most persons reported with asbestosis were shipbuilding (279 cases, 93%) and the military (9 cases, 3%).

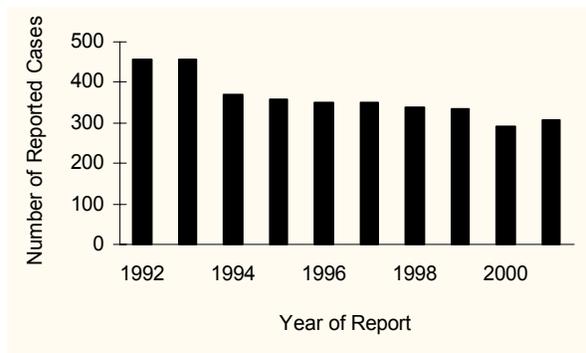
Trichinosis

No cases of trichinosis were reported in Virginia in 2001. The last case was reported in 1993.

Tuberculosis (TB)

In 2001, 306 TB cases were reported, an increase of 5% compared to the 292 cases reported in 2000. Despite the increase in 2001, there has been a general decline in the annual number of reported cases over the past 10 years (Figure 52). The annual incidence rate for Virginia was 4.1 cases per 100,000 population, compared to 5.8 cases per 100,000 population for the nation.

Figure 52. Tuberculosis: Ten Year Trend
Virginia, 1992 - 2001



Cases of TB occurred in all age groups. One case was reported in an infant and eight cases occurred in children in the 1-9 age group. The highest incidence rate was in the 20-29 year age group (62 cases, 6.3 per 100,000 population). The next highest rate was in persons age 50 years and older (108 cases, 5.7 per 100,000), followed by the 30-39 year age group (62 cases, 5.4 per 100,000). Persons in the other race category had the highest incidence rate (86 cases, 15.0 per 100,000), followed by blacks (103 cases, 7.3 per 100,000), and whites (117 cases, 2.3 per 100,000). Males were more likely to be reported with tuberculosis than females (182 cases, 5.2 per 100,000 vs. 124 cases, 3.4 per 100,000).

The northern health planning region reported the highest number of cases and the highest incidence rate (174 cases, 9.3 per 100,000), followed by the central (50 cases,

4.1 per 100,000) and eastern regions (50 cases, 2.9 per 100,000), as shown in Figure 53. Persons born in countries outside the United States accounted for the majority (63%) of cases. Foreign-born persons made up 89% of the cases in the northern health planning region, 36% in the central region, 33% in the northwest region, 29% in the southwest region, and 24% in the eastern region.

**Figure 53. Tuberculosis: Rate by Region
Virginia, 2001**



Of the 266 culture-confirmed cases, 223 (84%) had drug susceptibility testing performed. Of those isolates tested, 33 (15%) were resistance to at least one anti-tuberculosis medication. This represents a 23% decrease from the 43 resistant cases reported in 2000. Ten were resistant to multiple drugs. Resistance to multiple drugs occurred in 10 (5%) cases. This represents a 43% increase from 7 cases reported in 2000 and is the highest number since 12 were reported in 1993.

Eighty-one percent of persons reported with tuberculosis were offered HIV testing; results were available for 192 persons, of whom 29 were HIV positive. This represents a 93% increase over the 15 reported in 2000.

Utilization of directly observed therapy (DOT) in Virginia increased again in 2001. In 1992, only 10% of Virginia's TB cases were on DOT. In 2001, 73% percent of all TB cases starting therapy were placed on DOT. Of the pulmonary TB cases, 78% were placed on DOT.

The goal for completion of therapy within 12 months is 90%. After allowing for drug-resistant disease and those who moved or died during their course of therapy, Virginia achieved this goal. For cases reported during 2000, 95% finished within 12 months. Twenty-four patients died during the treatment period.

Tularemia

No cases of tularemia were reported in Virginia in 2001. One case was reported in 2000.

Typhoid Fever

Fifteen cases of typhoid fever (*Salmonella typhi*) were reported in 2001 compared to 22 in 2000. Of the eight cases reporting recent travel, five traveled to Asia, one to the Middle East, one to Central America and one to Europe. The travel history was not reported for five cases. None of the cases was related to an outbreak; however, two cases that had not traveled outside of the United States had exposure to known cases within 30 days of illness.

The cases ranged from 3 to 78 years of age (mean = 29 years). Nine females and six males were reported. The other race category had the highest incidence rate at 0.7 cases per 100,000 population. The black race category had two cases and the white race category had one case; race was unreported for eight cases.

Twelve cases were reported from the northern health planning region, two cases from the southwest region and one case from the eastern region.

Typhus

The last reported case of typhus in Virginia occurred in 1993.

Vibrio Infection

Twenty-two cases of vibriosis were reported in 2001. *Vibrio parahaemolyticus* was the cause of fourteen infections. *V. vulnificus* caused four infections, and *Vibrio* serotype was unspecified for four infections.

All cases except three occurred between May and September. Persons with *Vibrio* infection ranged in age from 10 to 82 years. Sixteen cases were in whites, two in blacks, and one in a person in the other race category. Race was recorded as unknown for three cases. Nine females and twelve males were reported.

The eastern health planning region reported eight cases, the central and northern regions each reported four cases, and the northwest and southwest regions each reported three cases. No deaths due to this infection were reported in 2001.

Cholera

No cases of cholera were reported in Virginia in 2001. The last case was reported in 1994.

Waterborne Outbreaks

No waterborne outbreaks were reported in 2001. One possible waterborne outbreak due to campylobacteriosis was reported in 2000.

Yersiniosis

Although not officially reportable in Virginia, three reports of yersiniosis were received in 2001. Species was reported as *Yersinia enterocolitica* for all three cases. Cases occurred in the first and fourth quarters of the year.

The cases ranged in age from a few months to 51 years. All three cases were in females. Race was reported as white for one case and not specified for two cases. Cases were reported from the southwest and eastern health planning regions.