

## Acquired Immunodeficiency Syndrome (AIDS)

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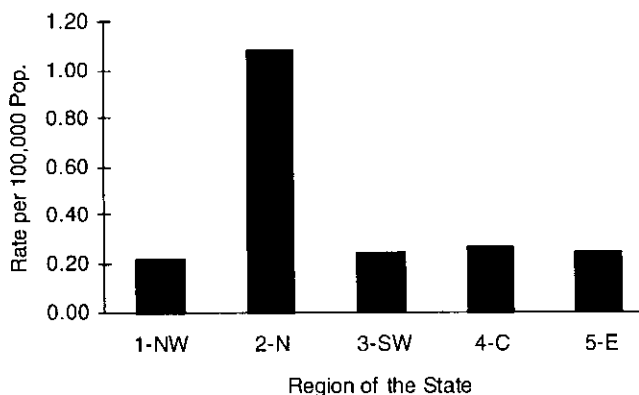
See HIV/AIDS.

## Amebiasis

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Thirty cases of amebiasis were reported in 1997 compared to 28 in 1996 and 16 in 1995. The distribution of cases by onset of illness was highest during July when nine (30%) of the cases occurred. The 20-29 year age group had the highest incidence rate (7 cases, 0.7 per 100,000). Race was reported for only 13 of the 30 cases. Of these, seven were white, three were black and three were in the other race category. Males were twice as likely to be reported with amebiasis as females (19 cases, 0.6 per 100,000 males compared to 9 cases, 0.3 per 100,000 females). The northern health planning region had the highest number of cases and incidence rate (18 cases, 1.1 per 100,000) as shown in Figure 1.

**Figure 1**  
**Amebiasis: Rate by Region**  
**Virginia, 1997**



## Anthrax

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The last case of anthrax in Virginia was reported in 1970.

## Arboviral Infection

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Seven cases of arboviral infection were reported in 1997. Arboviral infections are caused by any of a number of viruses transmitted by arthropods such as mosquitoes and ticks. These infections generally occur during the warm weather months when mosquitoes and ticks are most active. Six cases were reported from the southwest health planning region of the state and one from the central region. Five of the six cases from the southwest region were part of a cluster of LaCrosse encephalitis in children from Wise County. The children ranged in age from six to 14 years. An additional unrelated case of LaCrosse encephalitis in a 4-year-old was reported from the southwest region. A single case of St. Louis encephalitis was reported in an adult from the central region who had traveled to Florida. All of these cases of arboviral infection occurred between August and September. No deaths were reported.

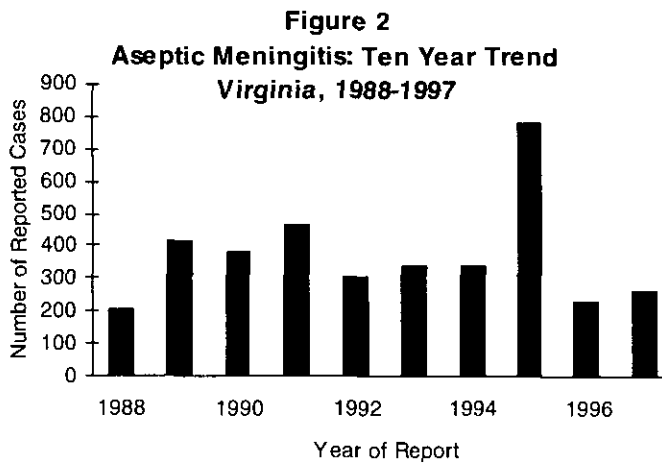
Arboviral infection is also included under the heading Encephalitis, Primary.

## Aseptic Meningitis

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In 1997, 262 aseptic meningitis cases were reported. This number is comparable to the 234 cases reported in 1996 but much lower than the 780 cases in 1995 (Figure 2). The onset of disease was highest during the third quarter when 38% of the cases occurred.

Infants were at the greatest risk for this disease (38 cases, 42.9 per 100,000), followed by the age group 1-9 years (38 cases, 4.6 per 100,000). By race,



blacks had a higher incidence rate (5.4 cases per 100,000 population) than whites (3.2 per 100,000) and the other race category (0.8 per 100,000). The risk for males and females for this disease was comparable (3.9 cases per 100,000 population, respectively).

The eastern health planning region had the highest number of cases (114) and the highest incidence rate (6.7 cases per 100,000 population). Incidence rates in the other health planning regions ranged from 0.6 per 100,000 in the central region to 4.2 per 100,000 in the northern region.

## Bacterial Meningitis

The number of reported cases of bacterial meningitis increased from the 77 cases reported in 1996 to 97 in 1997. The number of reported cases of this condition has been declining in recent years due to a decline in the number of reported cases of *Haemophilus influenzae* disease. As a result of the decline in the incidence of *H. influenzae* disease, pneumococcal disease has emerged as the predominant form of this reportable condition in Virginia. A list of the bacterial agents and the frequency with which they were reported in 1997 is presented in Table 8. Cases occurred throughout the year but peaked in February when twelve cases were reported.

**Table 8. Etiology of Bacterial Meningitis Cases Reported in Virginia, 1997**

Organism	Number of Percent of	
	Cases	Cases
<i>Enterobacter</i>	6	6.19
<i>Escherichia coli</i>	3	3.09
<i>Haemophilus influenzae</i>	5	5.15
<i>Listeria monocytogenes</i>	5	5.15
<i>Staphylococcus:</i>		
<i>S. aureus</i>	4	4.12
<i>Streptococcus:</i>		
<i>S. pneumoniae</i>	48	49.48
Group A	3	3.09
Group B	5	5.15
Group D	1	1.03
unspecified	5	5.15
Unspecified	12	12.40
<b>TOTAL</b>	<b>97</b>	<b>100.00</b>

Infants were at the greatest risk for this disease. They had an incidence rate of 21.5 cases per 100,000 population. Incidence rates in the other age groups ranged from 0.4 to 2.0 cases per 100,000 population. Blacks were at slightly greater risk for bacterial meningitis (1.5 cases per 100,000 population) than whites (1.3 per 100,000) and the other race category (0.8 per 100,000). Females and males were equally likely to be infected with this condition (1.4 per 100,000 each).

By health planning region, the northwest region had the highest incidence rate (2.5 cases per 100,000 population). Incidence rates in the other health planning regions ranged from 0.9 to 1.5 cases per 100,000 population. Ten deaths related to bacterial meningitis were reported in 1997. The ages of persons who died ranged from two to 89 years (mean = 42 years).

Meningitis caused by *Neisseria meningitidis* is included under the heading Meningococcal Infection.

## Botulism

No cases of infant, wound or foodborne botulism were reported in 1997 compared to three cases of infant botulism in 1996.

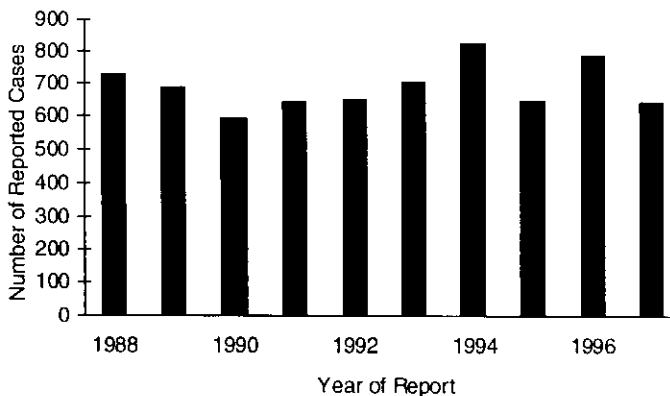
## Brucellosis

One case of brucellosis was reported in 1997. Brucellosis is a zoonotic disease that has been infrequently reported in Virginia in recent years. Reported cases in Virginia usually occur in persons associated with the meat-processing industry. The one case reported in 1997 was the first in Virginia since 1994. This person worked in a meat-processing facility where exposure to an infected animal most likely occurred.

## Campylobacteriosis

In 1997, reported *Campylobacter* infections decreased by 18%. The 644 cases reported in 1997 are the fewest number of cases reported since 1991 (Figure 3). *C. jejuni* species was reported 63% of the time. The species was recorded as unknown for 36% of the cases. Campylobacteriosis is the second most frequently reported enteric infection in

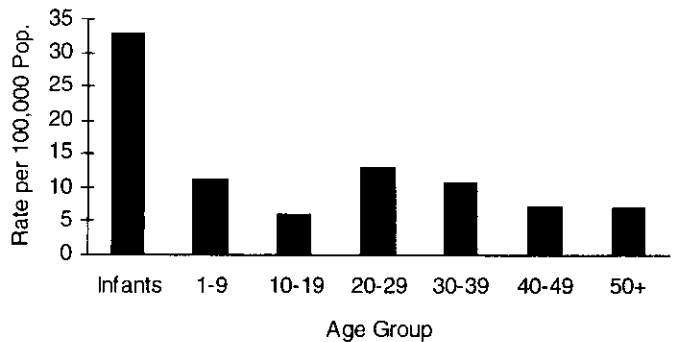
**Figure 3**  
Campylobacteriosis: Ten Year Trend  
Virginia, 1988-1997



Virginia. One-half of the cases occurred during the months of May through August. Peak activity was observed in July when 99 (15%) of the cases occurred.

The age group with the highest incidence rate was infants (32.7 cases per 100,000 population). The 20-29 year age group followed with a rate of 13.1 per 100,000. The lowest incidence rate (6.0 cases per 100,000 population) was in the 10-19 year age group (Figure 4).

**Figure 4**  
Campylobacteriosis: Rate by Age Group  
Virginia, 1997



Race was recorded as unknown in 348 (54%) of the cases. Where race was reported, whites and the other race category had the highest and similar rates of 5.0 and 4.6 cases per 100,000 population, respectively. The incidence rate for blacks was 2.4 cases per 100,000 population. Males were slightly more at risk than females (9.9 vs. 8.8 per 100,000).

The highest incidence rate was in the northwest health planning region (17.0 cases per 100,000 population), followed by the central region (12.4 per 100,000). The lowest incidence rate (4.1 cases per 100,000 population) was in the eastern region.

## Chancroid

One case of chancroid was reported in 1997.

## Chickenpox (Varicella)

The number of reported cases of chickenpox decreased for the fifth consecutive year. The 1,760 cases of chickenpox reported in 1997 were only 18 cases less than the 1,778 cases in 1996 but were 2,151 cases less than the 3,911 cases that were reported in 1992.

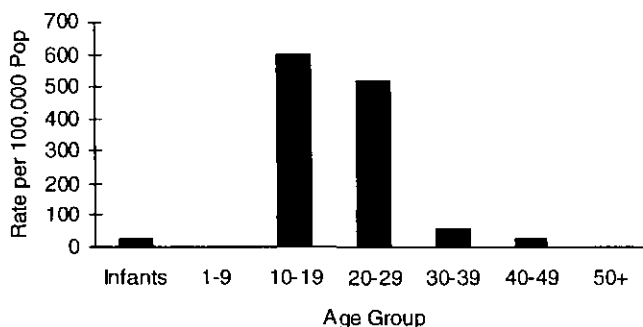
The highest number of cases (1,136) and the highest incidence rate (66.3 per 100,000) occurred in the eastern health planning region. Incidence rates in the other health planning regions ranged from 4.8 to 20.1 cases per 100,000 population.

A varicella virus vaccine has been licensed for use in all children over the age of twelve months and for adults who are susceptible to chickenpox.

## Chlamydia trachomatis Infection

Despite a three-year decline in the number of reported cases, *Chlamydia trachomatis* infection continues to be the most commonly reported disease under surveillance in Virginia. During 1997, 11,604 cases of *C. trachomatis* infection were reported. Incidence rates were higher in the 10-19 and 20-29 year age groups (595.1 per 100,000 and 520.8 per 100,000, respectively) as shown in Figure 5. Race was recorded as unknown for 2,662 persons.

Figure 5  
Chlamydia trachomatis: Rate by Age Group  
Virginia, 1997



Where race was reported, the highest number (6,300) of cases occurred in blacks who also had the highest incidence rate (476.3 per 100,000). Whites had the second highest incidence rate (49.7 per 100,000), followed by the other race category (41.9 per 100,000). The female to male ratio was 8.1:1. It should be noted that health department screening is limited to females.

Onsets of cases were fairly evenly distributed throughout the year. The central health planning region had the highest incidence rate for *C. trachomatis* infection (320.7 cases per 100,000 population), followed by the eastern region with 195.5 cases per 100,000 population.

The data are expected to underestimate the incidence of *C. trachomatis* infections because (1) screening in public health clinics has been limited to high risk 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 8,731 cases of gonorrhea reported in Virginia in 1997, suggesting that there were more than 17,500 *C. trachomatis* infections, using the CDC method to estimate cases.

## Congenital Rubella Syndrome

No cases of this condition have been reported in Virginia since 1981.

## 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 bacteria named *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 *Ehrlichia chaffeensis* infection. The organisms, which are transmitted by ticks, can infect two different types of white blood cells.

Three confirmed cases of human ehrlichiosis were reported in Virginia in 1997 compared to twelve cases in 1996. All three cases were HME. The onset of illness for these three persons occurred between April and July. Race was reported as white for two of the three cases and unknown for one. These three persons were adults ranging in age from 45 to 76 years.

The eastern, southwest and central health planning regions each had one case reported. Ehrlichiosis is not officially reportable in Virginia; however, reports are recorded when they are received.

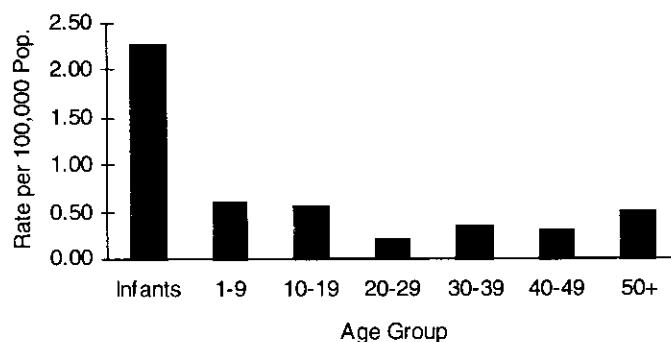
## Encephalitis, Primary

Thirty cases of primary encephalitis were reported in 1997 compared to 26 cases in 1996. The etiologic agents were reported as viral for 25 of these cases and unspecified for the remaining five. Of the 25 reported as viral, six were further specified as LaCrosse virus, four as herpes virus, one as St. Louis encephalitis virus and one as cytomegalovirus. Infection caused by the LaCrosse virus and St. Louis encephalitis virus are also included under the heading Arboviral Infection in this report.

Cases occurred more frequently during the second half of the calendar year with peak activity occurring in August when eight persons had onset of illness. Infants were at the greatest risk for this dis-

ease (2.3 cases per 100,000 population). Incidence rates for the other age groups ranged from 0.2 to 0.6 cases per 100,000 population (Figure 6). By race, whites had the highest incidence rate (0.4 cases per 100,000 population). The risk for males for acquiring this disease was twice that for females (0.6 per 100,000 vs. 0.3 per 100,000, respectively).

**Figure 6**  
**Primary Encephalitis: Rate by Age Group**  
**Virginia, 1997**



The incidence rate was highest in the southwest health planning region (0.6 cases per 100,000 population), and the central region had the lowest rate (0.3 cases per 100,000 population). Three adult males died of primary encephalitis.

## Encephalitis, Post-Infectious

Three cases of post-infectious encephalitis were reported in 1997 compared to none in 1996 and six cases in 1995. All three of the cases reported in 1997 were among children ranging in age from two to 16 years. Race was recorded as white for the two females and one male that were reported. Chickenpox was reported as the antecedent illness for one case and an unspecified viral illness was reported for the other two cases.

One case was reported from each of the northern, southwest and eastern health planning regions. No deaths were reported.

## ***Escherichia coli* O157:H7**

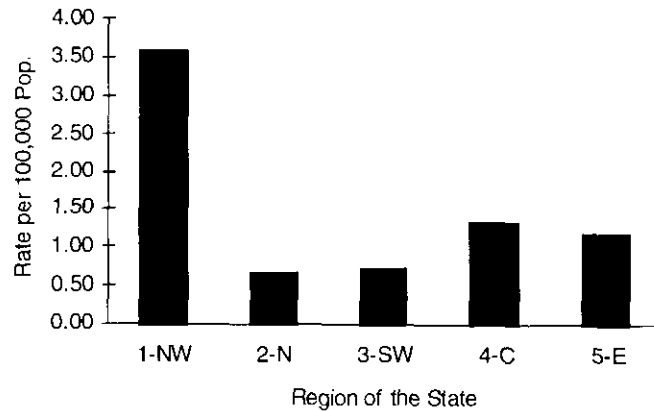
*Escherichia coli* O157:H7 has emerged as an important pathogen that has the potential to cause serious illness. Symptoms include diarrhea, which may become bloody several days after onset, associated with severe abdominal cramping. The most important complication of *E. coli* O157:H7 infection is hemolytic uremic syndrome (HUS). Since 1992, the health department has maintained a database of all voluntarily reported cases of *E. coli* O157:H7 infection. Eighty-eight cases were reported in 1997, compared to 53 in 1996. Historically, cases are reported throughout the year, but increase abruptly beginning in the month of June. In 1997, the majority (76%) of cases occurred between the months of June and September.

Infants were at the greatest risk for *E. coli* O157:H7 infection (3.4 cases per 100,000 population), followed by the 1-9 year age group (3.0 per 100,000). The incidence rate was 1.5 cases per 100,000 population or less for each of the other age groups. Race was reported for 68% of cases. Of these, 54 were in whites (1.1 per 100,000), four were in blacks (0.3 per 100,000) and two were in the other race category (0.8 per 100,000). By sex, females were slightly more at risk than males.

The northwest health planning region had the highest incidence rate of 3.6 cases per 100,000 population which was three times the rate of any other region (Figure 7).

A sharp increase in the number of reported cases of *E. coli* O157:H7 infection during June-July 1997 prompted an investigation by the health department to determine if there was a common exposure among cases. Consumption of alfalfa sprouts was statistically significant. This outbreak, along with a concurrent outbreak in Michigan, represented the first *E. coli* O157:H7 outbreaks linked to alfalfa sprouts.

**Figure 7**  
***E. coli* O157:H7: Rate by Region**  
**Virginia, 1997**



## **Fifth Disease**

Fifth disease is not an officially reportable disease in Virginia; however, reports are recorded when they are received. Although fifth disease usually produces a mild self-limited illness, severe complications of infection can occur. One case of fifth disease was reported in 1997.

## **Foodborne Outbreaks**

Eighteen foodborne outbreaks were recorded in 1997. These outbreaks are summarized in Table 9. The number of ill persons per outbreak ranged from six to 290. The etiologic agent was confirmed or suspected as bacterial for ten outbreaks, viral for three, parasitic for two and chemical for two. The suspected etiologic agent was not reported for one outbreak.

A specific food item or menu was implicated in 11 of the outbreaks. The most common food handling practices which contributed to these outbreaks included poor hygienic practices, inadequate cooking, and improper storage or holding temperatures.

## Fungal Diseases

Fungal diseases other than histoplasmosis are not officially reportable in Virginia; however, selected fungal diseases are recorded when they are received. In 1997, recorded fungal diseases other than histoplasmosis included two cases of aspergillosis and one case each of blastomycosis and cryptococcosis.

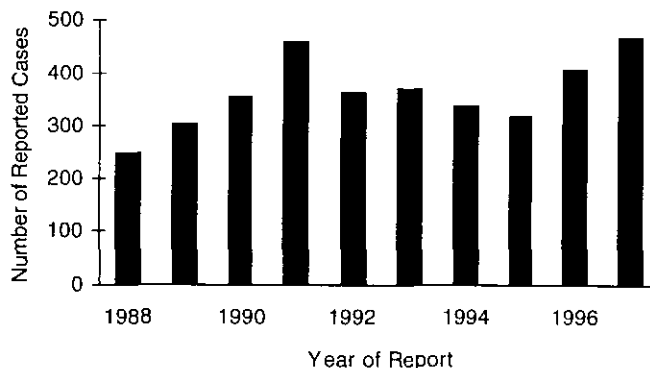
Two deaths were associated with these opportunistic infections.

Meningitis caused by *Cryptococcus neoformans* is included under the heading Other Meningitis.

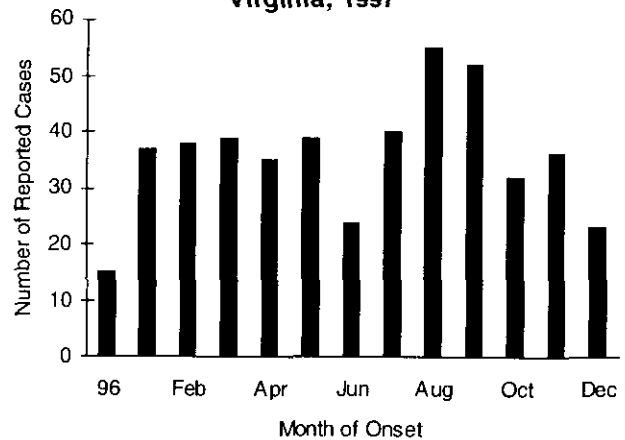
## Giardiasis

The number of cases of giardiasis increased to 465 for 1997 and represented the highest annual number of cases ever reported (Figure 8). The occurrence of cases ranged from 24 to 55 each month and was more likely to be reported during the months of July through September. Thirty-two percent of the cases occurred during this time period (Figure 9).

**Figure 8**  
**Giardiasis: Ten Year Trend**  
**Virginia, 1988-1997**



**Figure 9**  
**Giardiasis by Month of Onset,**  
**Virginia, 1997**



Children in the age group 1-9 years had the highest incidence rate (18.1 cases per 100,000 population) for giardiasis, followed by infants (12.4 per 100,000). Race was not reported for 236 (51%) of the cases. Of the cases for whom race was reported, the other race category had the highest incidence rate (6.2 cases per 100,000 population), followed by whites (3.6 per 100,000) and blacks (2.3 per 100,000). By sex, the risk for females and males was similar.

The northern health planning region reported the highest number of cases (171) and had the highest incidence rate (10.3 cases per 100,000 population). The eastern health planning region had the lowest incidence rate (5.3 cases per 100,000 population).

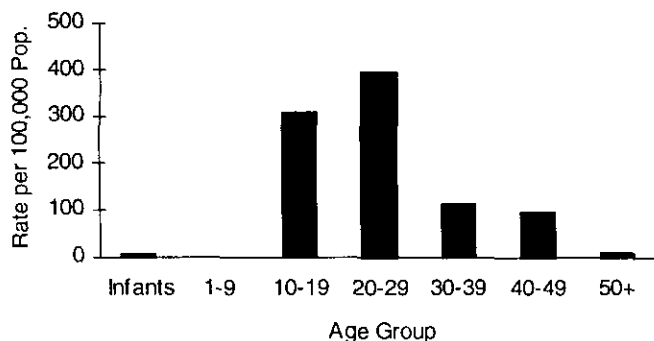
## Gonorrhea

In 1997, 8,731 cases of gonorrhea were reported. This is a six percent decrease from the 9,292 cases reported in 1996. Incidence was highest during the last quarter of the reporting year when 29% of the cases occurred.

Young adults (aged 20-29) were more likely to be reported with gonorrhea than any other age group. They had the highest number of cases (3,922)

reported and the highest incidence rate (395.5 per 100,000) as shown in (Figure 10).

**Figure 10  
Gonorrhea: Rate by Age Group  
Virginia, 1997**



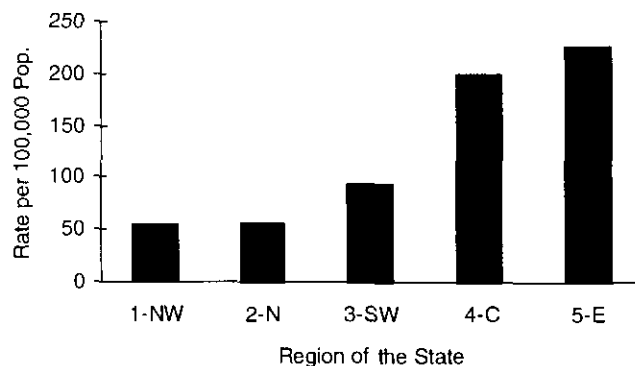
Seventy-eight percent of the cases occurred in blacks (6,823 cases, 515.8 per 100,000), 9% were in whites (810 cases, 15.9 per 100,000) and less than 1% was in the other race category (33 cases, 13.7 per 100,000); race was unspecified for 11% (1,065 cases). The incidence rate for males was 136.7 per 100,000 compared to 124.9 per 100,000 for females.

The eastern health planning region reported the most cases (3,873 cases, 225.9 per 100,000), followed by the central (2,253 cases, 198.7 per 100,000), southwest (1,165 cases, 93.1 per 100,000), northern (933 cases, 56.1 per 100,000), and northwest (507 cases, 54.8 per 100,000) regions (Figure 11).

## Granuloma Inguinale

No cases of this sexually transmitted disease have been reported in Virginia since 1990.

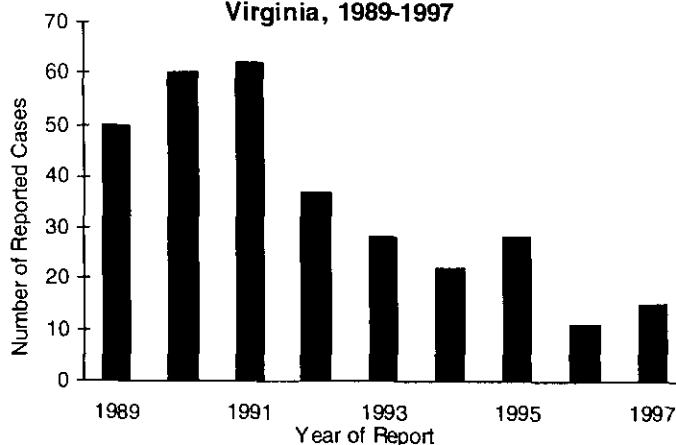
**Figure 11  
Gonorrhea : Rate by Region  
Virginia, 1997**



## *Haemophilus influenzae* Infection, Invasive

Fifteen cases of invasive *Haemophilus influenzae* infection were reported in 1997 compared to eleven cases in 1996. Despite the increase, the 15 cases reported in 1997 were considerably fewer than the number of cases reported in previous years (Figure 12). The decline in cases can be attributed to the use of *Haemophilus influenzae* type b conjugate vaccines. None of the cases were reported to be due to serotype b; however, the serotype was not reported for 13 cases. Four of the 15 cases reported in 1997 were children less than five years of age compared to three of the eleven reported in 1996.

**Figure 12  
Invasive *H. influenzae*: Trend  
Virginia, 1989-1997**





Peak activity occurred during the third quarter of the reporting year when five of the 15 cases occurred. Infants were at the greatest risk with an incidence rate of 1.1 cases per 100,000 population. Eight cases occurred in whites (0.2 per 100,000) and four cases were in blacks (0.3 per 100,000). Only one case was reported among persons in the other race category but this population had the highest incidence rate (0.4 per 100,000). Race was recorded as unknown for two cases. Females were slightly more at risk for invasive *H. influenzae* infection disease than males (0.3 per vs. 0.2 per 100,000).

Five cases were reported from the central health planning region which also had the highest incidence rate (0.4 cases per 100,000 population). The incidence rate in the other health planning regions ranged from 0.1 to 0.2 cases per 100,000 population.

No deaths due to invasive *H. influenzae* infection were reported in 1997.

Meningitis caused by *H. influenzae* is also included under the heading Bacterial Meningitis.

## Hansen Disease (Leprosy)

One case of this disease of low frequency in Virginia was reported in 1997. The patient was an elderly female immigrant whose exposure included a family member who had been previously diagnosed with Hansen disease.

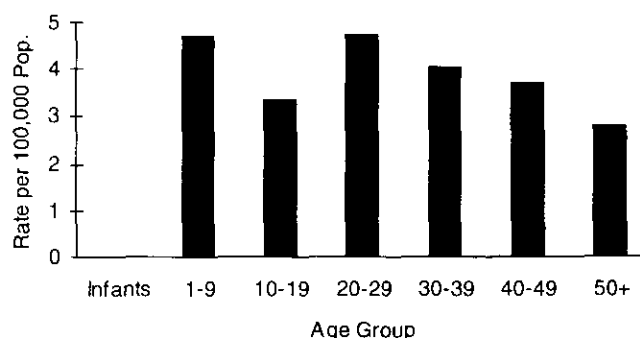
## Hepatitis A

The annual number of reported cases of hepatitis increased by 15% to 250 in 1997 from the 218 cases reported in 1996. The increase in the number of reported cases in 1997 occurred in all but the eastern health planning region. The largest increases

by health planning region occurred in the northwest and southwest regions (50% and 67%, respectively). The increase in cases in these two regions can be attributed to an outbreak of hepatitis A in each.

Children in the 1-9 year age group and adults in the 20-29 age group were most at risk for hepatitis A (4.7 cases per 100,000 population each), followed by adults in the 30-39 year age group (4.0 per 100,000) as shown in Figure 13. Persons in the other race category (7.1 cases per 100,000 population) were at greater risk for hepatitis A than whites (2.8 per 100,000) and blacks (1.9 per 100,000). The incidence rate for males (150 cases, 4.6 per 100,000) was 1.6 times the rate for females (97 cases, 2.9 per 100,000). Gender was not recorded for three cases.

**Figure 13**  
**Hepatitis A: Rate by Age Group**  
**Virginia, 1997**

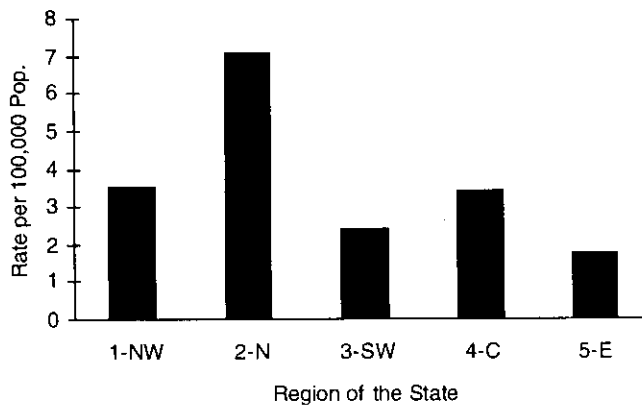


Despite hepatitis A outbreaks in two other regions, the northern health planning region reported the most cases and had the highest incidence rate (118 cases, 7.1 per 100,000) of all regions. Incidence rates by region are illustrated in Figure 14.

Risk factor data was reported for 76% of the hepatitis A cases. International travel (45 cases) and personal contact with a person with hepatitis A (27 cases) were the predominant potential sources of infection among these persons with hepatitis A.

One death due to acute hepatitis A infection was reported in 1997.

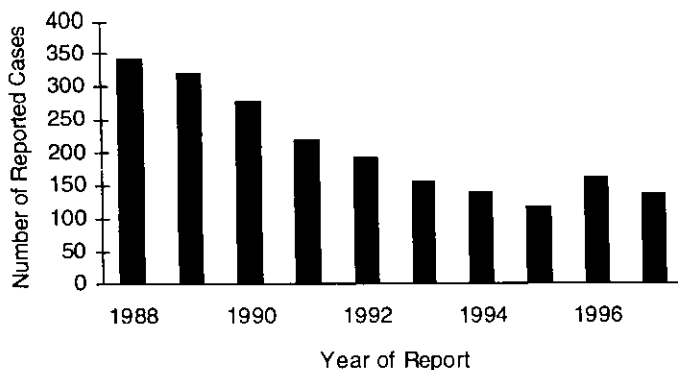
**Figure 14**  
**Hepatitis A: Rate by Region**  
**Virginia, 1997**



## Hepatitis B

The annual number of reported cases of this vaccine preventable disease decreased in 1997, following an increase in 1996 (Figure 15). The total of 137 cases reported in 1997 was 16% less than the 163 cases reported in 1996. Cases occurred throughout the year such that no seasonal trend was noted.

**Figure 15**  
**Hepatitis B: Ten Year Trend**  
**Virginia, 1988-1997**



The higher number of cases and incidence rates were reported in adults. Adults in the 20-29 year age group had the highest incidence rate (36 cases, 3.6 per 100,000). This age group was followed by adults aged 30-39 (37 cases, 3.1 per 100,000) and adults aged 40-49 (29 cases, 2.8 per 100,000). Inci-

dence rates for the other age groups ranged from 0.4 cases per 100,000 population in infants to 1.3 per 100,000 in the 10-19 year age group.

Blacks were at the greatest risk for hepatitis B. The incidence rate for blacks was 4.6 cases per 100,000 population compared to 2.1 per 100,000 for the other race category and 0.9 per 100,000 for whites. Cases were fairly evenly distributed between the sexes (69 males and 63 females) who also had comparable incidence rates (2.1 cases and 1.9 cases per 100,000, respectively). Gender was not reported for five cases.

The northern and eastern health planning regions had the highest number of cases (44 and 45, respectively) reported and the highest incidence rates (2.6 per 100,000 each). Incidence rates in the other health planning regions ranged from 1.0 cases per 100,000 population in the northwest region to 1.8 in the southwest region.

Information regarding various risk factors for persons reported with hepatitis B was available for 90 (66%) of the cases. Having multiple sex partners was the most frequently reported potential source of infection for hepatitis B.

Two deaths due to acute hepatitis B infection were reported in 1997.

## Hepatitis Non-A Non-B

Twenty-seven cases of acute viral hepatitis non-A non-B were reported in 1997 compared to 17 cases in 1996. Disease onset for the majority (67%) of the cases occurred during the first half of the reporting year.

Cases ranged in age from 27 to 73 years with a mean age of 43 years. Adults aged 40-49 (1.2 cases per 100,000 population) were more likely to be reported with this disease than the other age groups. Blacks had an incidence rate (0.8 cases per 100,000

population) that was almost three times higher than whites. No cases were reported for the other race category. Males outnumbered females by a ratio of 3.5:1.

Incidence rates by health planning region ranged from 0.2 cases per 100,000 population in the north-west region to 0.5 per 100,000 in the northern and eastern regions.

Hepatitis C virus (HCV) has been identified as the primary etiologic agent of hepatitis non-A non-B in the United States. Fourteen (52%) of the hepatitis non-A non-B cases reported in Virginia in 1997 were reported to have tested positive for antibodies to HCV in addition to having symptoms of acute hepatitis.

No deaths due to acute viral hepatitis non-A non-B were reported in 1997.

## Hepatitis Unspecified

Three cases of viral hepatitis unspecified were reported in 1997 compared to one case in 1996 which was the all time low. The decline in the number of reports of this notifiable condition can be attributed to an increase in the use of laboratory tests to confirm clinically diagnosed hepatitis patients. No deaths were reported.

## Histoplasmosis

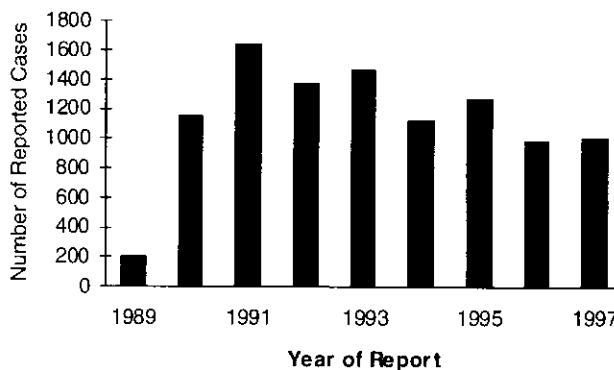
Four cases of histoplasmosis were reported in 1997 compared to one in 1996. The four cases reported in 1997 were all adult males who ranged in age from 31 to 61 years (mean=48 years). Race was reported as white for one person and recorded as unknown for the remaining three.

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

### HIV

During 1997, 998 new HIV infections were reported, bringing the cumulative total of cases reported since 1989 to 10,202. Almost ten percent of the cumulative HIV infections were reported in 1997 (Figure 16).

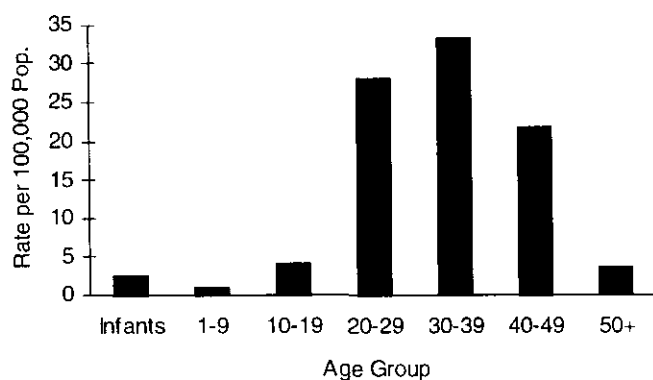
**Figure 16**  
**HIV Infection: Trend**  
**Virginia, 1989-1997**



Males represented the majority (703 cases, 70%) of HIV infection reports and were two and one-half times more likely to be reported with the infection than females (21.5 per 100,000 males vs. 8.7 per 100,000 females). During 1997, the majority of HIV cases were in blacks (712 cases, 71%), followed by whites (241 cases, 24%) and the other race category (8 cases, <1%). Race was recorded as unknown for 37 cases. Nonwhites were almost ten times more likely than whites to be infected, having an incidence rate of 46.0 cases per 100,000 population compared to 4.7 per 100,000 in whites.

Persons in the 30-39 year age group were at the greatest risk for HIV infection (396 cases, 33.3 per 100,000), followed by the 20-29 year age group (276 cases, 27.8 per 100,000) and the 40-49 year age group (222 cases, 21.5 per 100,000) as shown in Figure 17. Eleven pediatric HIV infections were reported in 1997.

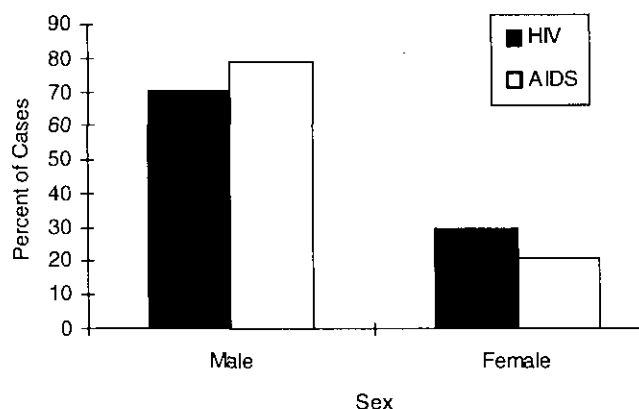
**Figure 17**  
**HIV Infection: Rate by Age Group**  
**Virginia, 1997**



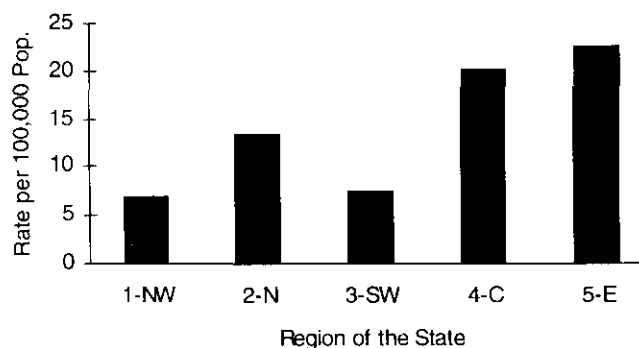
Compared to AIDS, persons with HIV infection were more likely to have become infected through heterosexual contact (23% of reported HIV cases vs. 20% of reported AIDS cases) and less likely to attribute their infection to men having sex with men (30% of reported HIV cases vs. 42% of reported AIDS cases). Females comprised a larger proportion of HIV infections (30%) than AIDS cases (21%), as shown in Figure 18.

The highest HIV infection incidence rate was calculated for the eastern health planning region (22.6 cases per 100,000 population), followed by the central (20.3 per 100,000), northern (13.5 per 100,000), southwest (7.5 per 100,000), and northwest (6.7 per 100,000) regions (Figure 19).

**Figure 18**  
**A Comparison of AIDS and HIV**  
**Infections by Sex, Virginia, 1997**



**Figure 19**  
**HIV Infection: Rate by Region**  
**Virginia, 1997**

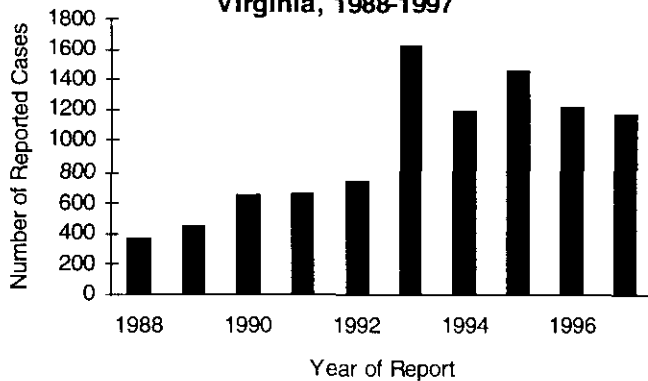


## AIDS

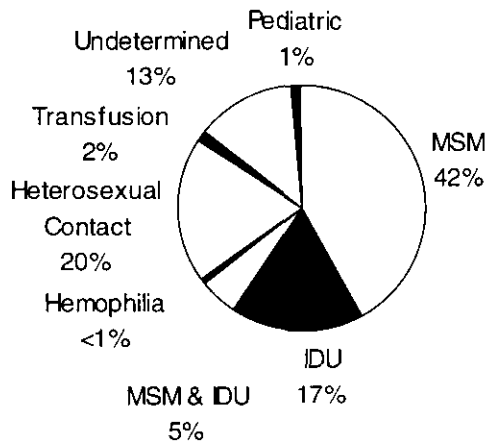
Since the first AIDS cases were reported in 1982, the cumulative number of cases reported through the end of 1997 is 10,150, with 5,918 deaths (58%). In 1997, 1,177 cases were reported, representing a 3% decrease from 1996 (Figure 20).

AIDS is caused by the human immunodeficiency virus (HIV). The most common modes of transmission are through unprotected sexual intercourse (especially anal intercourse) and injecting drug use (IDU). During 1997, men having sex with men (MSM) accounted for the greatest percentage of AIDS cases (42%), followed by heterosexual contact (20%) as shown in Figure 21.

**Figure 20**  
**AIDS: Ten Year Trend**  
**Virginia, 1988-1997**



**Figure 21**  
**AIDS: Mode of Transmission**  
**Virginia, 1997**



Of the reported AIDS cases, 73% (858 cases) were between the ages of 30 and 49. The age group 30-39 had the highest incidence rate (45.1 cases per 100,000 population), followed by the 40-49 age group (31.1 per 100,000). Ten pediatric AIDS cases were reported in 1997.

This is the fifth consecutive year that the majority of reported AIDS cases occurred in blacks (736 cases, 63%). An additional 386 (33%) cases occurred in whites and 9 (<1%) cases occurred in the other race category. Blacks had an incidence rate of 55.6 cases per 100,000 population which was

seven times higher than whites (7.6 per 100,000) and 15 times higher than the other race category (3.7 per 100,000). Males were also at greater risk for AIDS, with an incidence rate four times higher than females (28.6 vs. 7.1 cases per 100,000 population).

The eastern health planning region had the highest incidence rate (26.2 cases per 100,000 population), followed by the central (24.6 per 100,000), northern (15.3 per 100,000), northwest (7.7 per 100,000), and southwest (9.8 per 100,000) regions.

Persons with AIDS develop a variety of life-threatening opportunistic infections due to immunosuppression. The most commonly diagnosed disease was *Pneumocystis carinii* pneumonia (PCP). One-fifth (20%) of the cases reported during 1997 developed PCP during the course of their illness. Other frequently diagnosed conditions included HIV wasting syndrome (9%), esophageal candidiasis (7%), *Mycobacterium avium* complex (4%), Kaposi's sarcoma (4%), and HIV encephalopathy (3%). More than half (54%) of the cases were reported as immunologic (low CD4 counts) under the 1993 expanded case definition of AIDS.

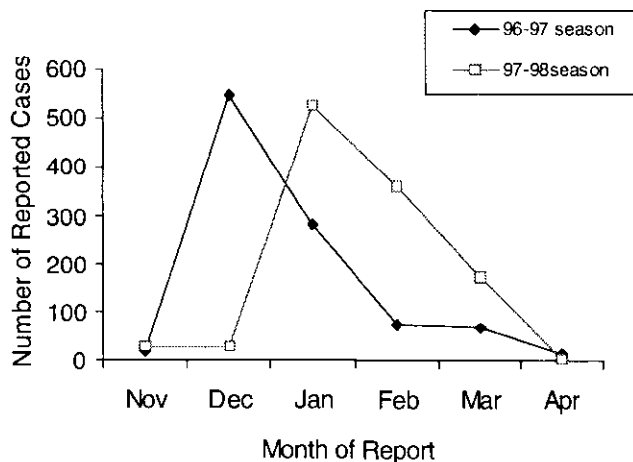
## Influenza

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 1996-97 season, influenza type A and influenza type B were isolated in Virginia, with widespread activity occurring from mid-December through mid-January. Peak activity occurred during mid-December 1996. During the 1997-98 season, influenza type A and type B were isolated in Virginia. Widespread activity occurred from mid-January through early March, with peak activity at the end of January 1998 (Figure 22). The 1997-98 season was notable because the predominant circulating strain, A/Sydney/H3N2, was an antigenic drift variant of the H3N2 strain that was in the 1997-98 vaccine. Forty-three adult residential facilities, including 32 licensed nursing homes, reported outbreaks of influenza-like illness compared to no reports during the past five influenza seasons.

Through the passive surveillance system, 517 cases of influenza were reported during calendar

**Figure 22**  
Influenza-like Illness Reported by Sentinel Physicians in 2 "Flu Seasons"



year 1997, compared to 957 cases in 1996 and 1,484 cases in 1995.

The highest regional influenza incidence rate occurred in the southwest health planning region (24.8 cases per 100,000 population) and the lowest rate was reported from the central region (0.1 per

100,000 population). Rates are based on passive reporting.

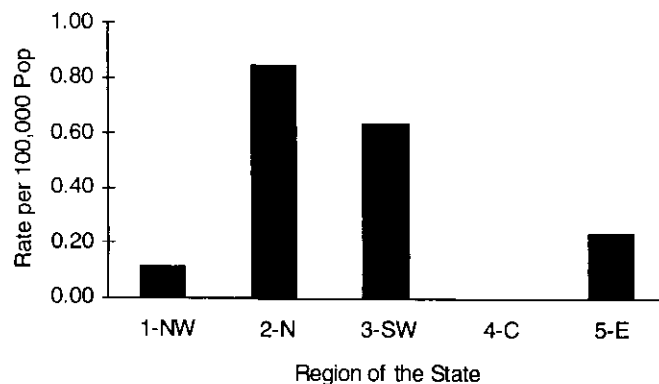
## Kawasaki Syndrome

Twenty-seven reported cases of Kawasaki syndrome were confirmed in 1997 compared to 19 in 1996 and 32 in 1995. The cases reported in 1997 occurred throughout the year but peaked during the last quarter.

All but one of the 27 cases of this early childhood condition occurred in children five years of age or younger. Blacks had the highest incidence rate (0.5 cases per 100,000 population), followed by the other race category (0.4 per 100,000) and whites (0.3 per 100,000). Males were slightly more likely than females to be reported with Kawasaki syndrome (0.5 cases per 100,000 population vs. 0.4 per 100,000).

The northern health planning region reported the highest number of cases and had the highest incidence rate (14 cases, 0.8 per 100,000). Incidence rates in the other health planning regions ranged from 0.1 cases per 100,000 population in the northwest region to 0.6 per 100,000 in the southwest region. No cases were reported from the central region (Figure 23).

**Figure 23**  
Kawasaki Syndrome: Rate by Region Virginia, 1997

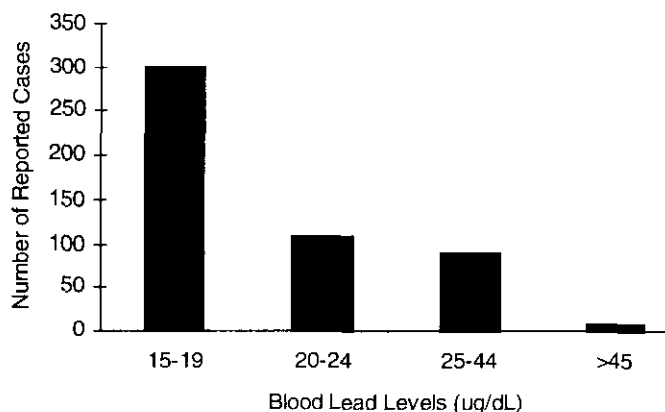


## Lead - Elevated Levels in Children

Because this condition became reportable in Virginia in mid-1993, 1997 marks the fourth full year of reporting. Any child age 15 years or younger, with a venous blood lead level greater than or equal to 15 µg/dL, is reportable to the health department.

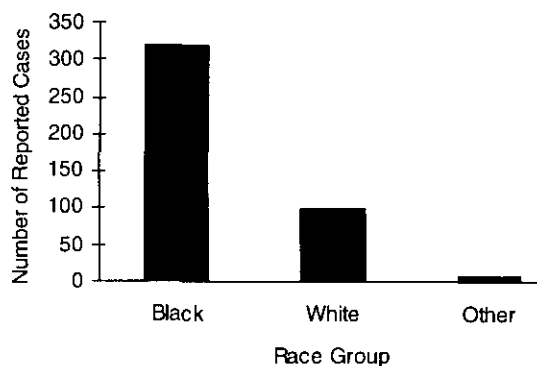
Three hundred (59%) of the 505 children reported in 1997 had levels in the 15-19 µg/dL range, the category for which the Centers for Disease Control and Prevention (CDC) recommends nutritional and educational interventions and more frequent screening; 197 (39%) had levels in the 20-44 µg/dL range, for which CDC recommends medical evaluation and environmental evaluation and remediation; 8 (2%) had levels 45 µg/dL and higher, requiring both medical and environmental interventions (Figure 24).

**Figure 24**  
Elevated Blood Lead Levels:  
Age 0-15 years, Virginia, 1997



Children aged five years and younger comprised 94% of the reported cases with one and two years being the most common ages at diagnosis (30% and 26% of reported cases, respectively). Race was reported for 428 (85%) of the cases. Of these, 320 (63%) were black, 99 (20%) were white and 9 (2%) were in the other race category (Figure 25). Males outnumbered females 1.3:1.

**Figure 25**  
Race of Children with Elevated  
Blood Lead Levels, Virginia, 1997

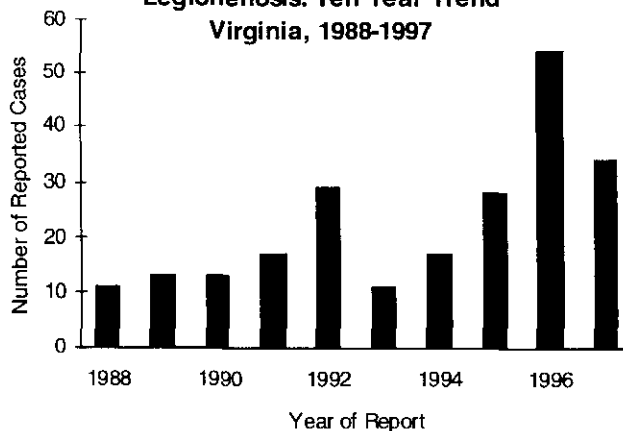


Cases were reported from all health planning regions: northwest 21 cases; northern 27 cases; southwest, which includes the federally funded lead prevention program in Lynchburg, 119 cases; central, which includes the funded programs in Petersburg and Richmond, 191 cases; and eastern, which includes the funded programs in Norfolk and Portsmouth, 147 cases.

## Legionellosis

Thirty-four laboratory-confirmed cases of legionellosis were reported in 1997 compared to 54 cases in 1996. In spite of the decrease compared to 1996, the 34 cases reported in 1997 exceeds the ten year average of 21 cases per year (Figure 26). Males

**Figure 26**  
Legionellosis: Ten Year Trend  
Virginia, 1988-1997



were more than twice as likely to be reported with this disease as females (24 cases, 0.7 cases per 100,000 males vs. 10 cases, 0.3 per 100,000 females). Age ranged from 8 to 85 years (median=57 years). Thirty (88%) persons reported with legionellosis were white and four (12%) were black.

Information about risk factors for illness was available for 32 persons, 21 (66%) of whom had at least one of the following risk factors: immunocompromised status, diabetes mellitus, or cigarette smoking. Cigarette smoking was the primary risk factor reported; 18 persons reported smoking ten or more cigarettes per day.

Cases were reported from each health planning region. Ten cases were reported from each of the following health planning regions: northwest (incidence rate 1.1 per 100,000), southwest (0.8 per 100,000), and eastern (0.6 per 100,000). Four men and one woman died of legionellosis; they ranged in age from 44 to 70 years.

## Leptospirosis

No cases of leptospirosis were reported in 1997 compared to two cases in 1996.

## Listeriosis

Twelve cases of listeriosis were reported in 1997 (including five cases of meningitis). Cases occurred sporadically throughout the year with no clustering of cases reported.

Persons with listeriosis ranged in age from infants to 79 years. Infants, however, were at the greatest risk for this disease (4 cases, 4.5 per 100,000), followed by adults aged 50 years and older (6 cases, 0.4 per 100,000). By race, seven were white (0.1 cases per 100,000 population) and five were black (0.4 per 100,000). Males were at greater risk for

listeriosis than females (0.3 cases vs. 0.1 cases per 100,000 population).

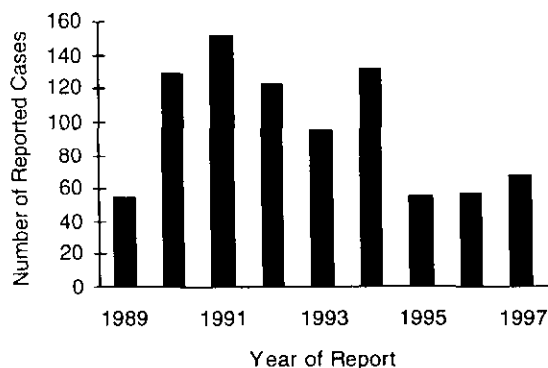
One to three cases were reported from each health planning region. Incidence rates ranged from a low of 0.1 case per 100,000 population in the central health planning region to a high of 0.3 per 100,000 in the northwest region. One adult male died due to *Listeria* infection.

Meningitis due to listeriosis is also included under the heading Bacterial Meningitis.

## Lyme Disease

Sixty-seven cases of Lyme Disease were reported in 1997, compared to 57 cases in 1996. Figure 27 shows the annual trend since Lyme disease became a reportable condition in mid-1989.

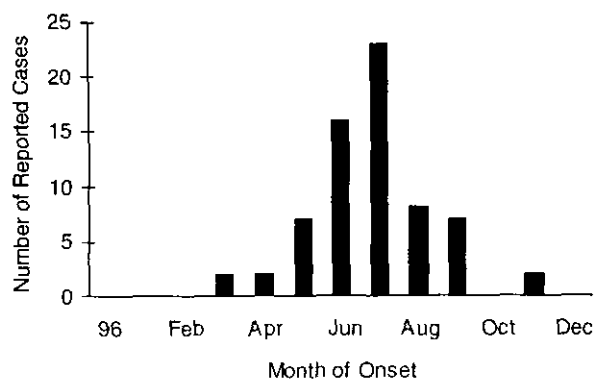
Figure 27  
Lyme Disease: Trend  
Virginia, 1989-1997



Sixty-one (91%) cases occurred during May through September. (Figure 28). Persons with Lyme disease ranged in age from 2 to 75 years (median=31 years). The highest number of cases and highest incidence rate occurred in the 1-9 year age group (14 cases, 1.7 cases per 100,000). Males accounted for 61% of reported cases (incidence rate of 1.3 per 100,000 males vs. 0.7 per 100,000 females). The rate among whites (52 cases, 1.0 per 100,000) was



**Figure 28**  
**Lyme Disease: Month of Onset**  
**Virginia, 1997**



higher than in blacks (2 cases, 0.2 per 100,000) or in persons in the other race category (1 case, 0.4 per 100,000). Race was not reported for 12 persons.

The predominant symptom reported was erythema migrans (49/64, 77%). Other symptoms reported were arthritis (15/60, 25%), radiculoneuropathy (4/57, 7%), Bell's palsy (2/59, 3%), encephalitis (2/58, 3%), and lymphocytic meningitis (1/56, 2%). Serologic testing was positive for 49% of cases, negative for 13% of cases, equivocal for 2% of cases, and not reported for the remainder. For early disease, serologic test results are usually negative.

Cases of Lyme disease were reported from all health planning regions with the highest rate (1.3 cases per 100,000 population) reported from both the northwest and northern regions. *Borrelia burgdorferi*, the causative organism for Lyme disease in this country, has been isolated from rodents and ticks in several counties in Virginia. There have been no human isolates of this organism in Virginia to date.

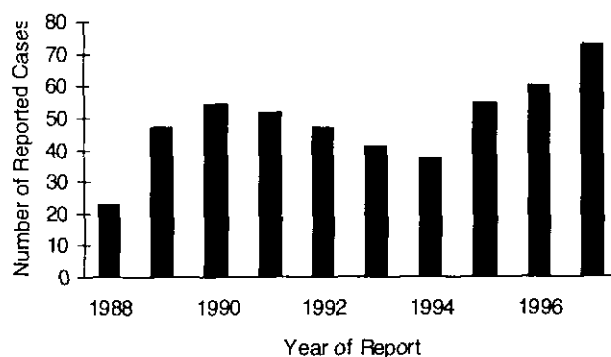
## **Lymphogranuloma Venereum**

Two cases of lymphogranuloma venereum were reported in 1997. Both cases were reported from the eastern health planning region.

## **Malaria**

Seventy-three cases of malaria were reported in 1997; the highest number reported since 1970 when 91 cases were recorded. The ten year trend is shown in Figure 29.

**Figure 29**  
**Malaria: Ten Year Trend**  
**Virginia, 1988-1997**



The 10-19 year age group had the highest incidence rate of 1.8 cases per 100,000 population, followed by the 40-49 year age group with a rate of 1.6 per 100,000. Race was recorded as unknown for 12 (16%) of the cases. Where race was reported, the other race category had the highest incidence rate (5.4 cases per 100,000), followed by blacks (2.3 per 100,000). Males were twice as likely to be reported with malaria as females (1.5 vs. 0.6 per 100,000).

The majority of the cases (70%) were reported from the northern health planning region. The percentage of cases reported from the other health planning regions ranged from one to twelve.

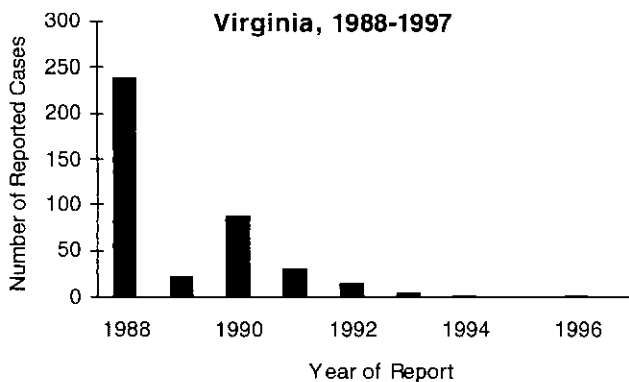
All cases are believed to have acquired infection while in another county. Africa was the probable source of malaria for 40 (55%) cases, Asia 15 (21%) cases, Central and South America 6 (8%) cases, and Oceania 5(7%) cases. The probable source of malaria was not reported for seven persons.

The *Plasmodium* species was reported for 63 (86%) of the 73 cases. *P. falciparum* was reported in 35 cases; 34 of whom had travel histories to Africa. *P. vivax* accounted for 25 of the cases and travel was divided between Asia (9), Africa (4), South and Central America (4), and Oceania (4); the travel history was not reported for four of these cases. *P. malariae* was reported in 2 cases, *P. ovale* in 1 case, and the species was recorded as unknown for ten cases. Only one reported case occurred in U.S. military personnel. The status of the remaining cases was reported as U.S. civilians (30 cases), citizens of various foreign countries (16) or status unknown (26 cases).

## Measles

One case of imported measles was reported in Virginia in 1997 compared to three cases in 1996 and zero cases in 1995. Virginia, like the rest of country, has seen a significant decrease in the number of measles cases reported in recent years (Figure 30). In 1997, the United States recorded its lowest annual number of measles cases ever.

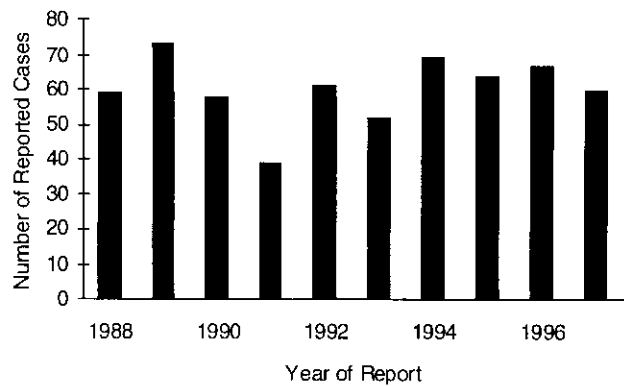
**Figure 30**  
**Measles: Ten Year Trend**  
**Virginia, 1988-1997**



## Meningococcal Infection

The number of reported cases of meningococcal infection decreased from the 67 cases reported in 1996 to 60 cases reported in 1997 (Figure 31).

**Figure 31**  
**Meningococcal Infection: Ten Year Trend**  
**Virginia, 1988-1997**



Onset of illness was distributed throughout the year. The highest number of cases occurred during the first quarter (19 cases, 32%) and the lowest number of cases occurred in the third quarter (9 cases, 15%).

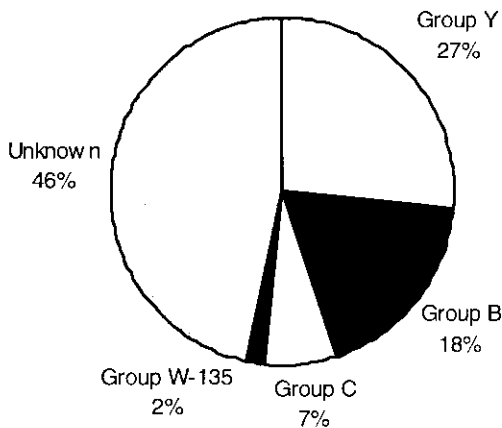
Infants had the highest incidence rate (11.3 cases per 100,000), followed by persons in the 1-9 year age group (1.2 per 100,000) and the 10-19 year age group (1.0 per 100,000).

Blacks had a higher incidence rate (1.4 cases per 100,000 population) than whites (0.7 per 100,000) or persons in the other race category (0.4 per 100,000). Slightly more cases were reported in males than in females (32 cases, 1.0 per 100,000 males vs. 27 cases, 0.8 per 100,000 females).

The highest incidence rate was reported from the northwest health planning region (11 cases, 1.2 per 100,000) followed by the southwest region (13 cases, 1.0 per 100,000), and the eastern region (15 cases, 0.9 per 100,000).

Serogroup was reported for 32 (53%) of the reported cases: 16 group Y, 11 group B, 4 group C, and 1 group W-135 (Figure 32). The organism was isolated from pericardial fluid in 1 case, from cerebrospinal fluid in 8 cases, from blood in 38 cases, and from both cerebrospinal fluid and blood in 8 cases. The source of the organism was not reported for five cases.

**Figure 32**  
**Meningococcal Serogroups**  
**Virginia, 1997**

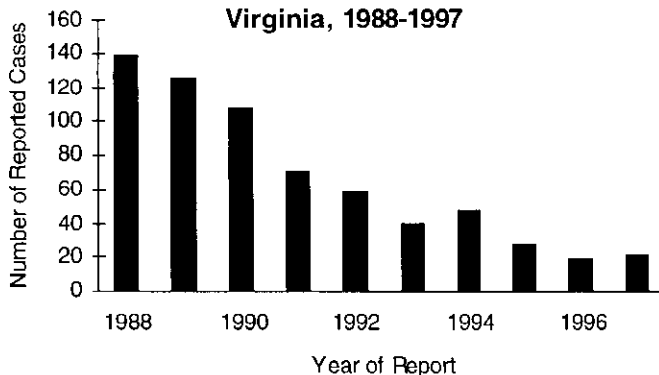


Three females and three males, ranging in age from 14 to 94 years, died from meningococcal infection.

## Mumps

The 21 cases of mumps that were reported in 1997 is two cases more than the 19 cases reported in 1996. The incidence of mumps has clearly declined over the past decade as shown in Figure 33. Cases occurred throughout the year with a minimum of three or a maximum of eight cases occurring quarterly. Children in the 1-9 year age group had the highest incidence rate for mumps (0.7 cases

**Figure 33**  
**Mumps: Ten Year Trend**  
**Virginia, 1988-1997**



per 100,000). Adults in the 30-39 year age group had the second highest incidence rate (0.6 per 100,000), followed by the 10-19 year and 20-29 year age groups (0.3 per 100,000 each) and the 40-49 year age group (0.2 per 100,000). No cases were reported for infants or the 50 year and older age group. By race, the other race category (0.4 cases per 100,000) was at greater risk for acquiring mumps than blacks and whites (0.2 per 100,000 each). Race was recorded as unknown for six cases. Females and males had comparable incidence rates (0.3 cases per 100,000, each).

The risk for mumps was greater in the central (0.5 cases per 100,000) and the northern health planning regions (0.4 per 100,000). Incidence rates in the other three health planning regions were less than 0.3 cases per 100,000 population. No deaths were reported.

## Nosocomial Outbreaks

A nosocomial outbreak refers to any group of illnesses of common etiology occurring in patients in hospitals or nursing homes acquired by exposure of those patients to the disease agent while confined in such facilities. Eight nosocomial outbreaks were reported in 1997. Five outbreaks were characterized by symptoms of gastroenteritis. A virus (Norwalk or Norwalk-like agent) was laboratory confirmed as the cause of each outbreak. Two outbreaks of pneumonia were reported. One outbreak was caused by *Streptococcus pneumoniae* and a cause for the second outbreak was not determined. Also, one outbreak of scabies was reported. Each of the reported outbreaks occurred in a long-term care facility.

## Occupational Illnesses

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During 1997, 237 cases of the following occupational illnesses were reported to the health department: asbestosis (172 cases, 73%), lead poisoning (54 cases, 23%), mercury poisoning (5 cases, 2%), arsenic poisoning (3 cases, 1%), and cadmium poisoning (3 cases, 1%). The remainder of this section will present further information on the cases of asbestosis and lead poisoning.

Of the 172 persons reported with asbestosis, only one was female. Cases ranged in age from 34 to 86 years (mean = 64 years). Race was not reported for any of the cases.

Cases were reported from the eastern (87%), central (12%) and northwest (<1%) health planning regions. The industries employing the most persons reported with asbestosis were shipbuilding (104 cases, 60%), the tire industry (14 cases, 8%), the railroad industry (14 cases, 8%), and the U.S. Navy (11 cases, 6%).

The 53 adults (51 males and 2 females) reported with elevated blood lead levels ranged in age from 19 to 75 years (mean = 37 years). Only persons with blood lead levels greater than or equal to 40 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) are included in these numbers. The average blood lead level reported was 43  $\mu\text{g}/\text{dL}$ . Cases were reported from all five of the health planning regions. Nineteen cases were reported from the northern region, 16 from the eastern region, and ten from the southwest region. The central and northwest health planning regions each reported four cases. Two workers with lead poisoning were employed in the construction industry, one was in the lead abatement industry and another was in the steel mill industry. The industry was not reported for the remaining workers.

## Ophthalmia Neonatorum

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Thirteen cases of ophthalmia neonatorum were reported in 1997; all were due to *Chlamydia trachomatis* infection. By race, seven infants were black compared to one white. Race was recorded as unknown for five cases. Eight cases of ophthalmia neonatorum had been reported in 1996.

## Other Meningitis

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Forty-five cases of meningitis caused by organisms other than bacteria and viruses were recorded in 1997. Eighteen (40%) cases were caused by *Cryptococcus neoformans*. The organism was not specified for the remaining 27 cases. Meningitis caused by *C. neoformans* was reported exclusively in adults who ranged in age from 26 to 82 years (mean = 46). Five were also reported with human immunodeficiency virus (HIV) infection.

Persons with other meningitis for which an organism was not reported ranged in age from infants to 69 years (mean = 22). None of these persons were reported with HIV infection.

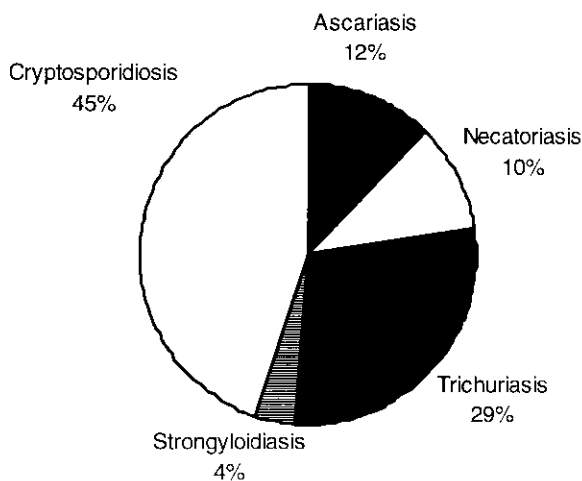
As with bacterial and aseptic meningitis, blacks were also at the greatest risk for this disease (10 cases, 0.8 per 100,000). Males had the highest number of cases (28) reported and the highest incidence rate (0.9 cases per 100,000 population) compared to females (17 cases, 0.5 per 100,000).

Seven deaths occurred among persons reported with this category of meningitis; four females and three males. Three of the four females who died also had HIV infection compared to only one of the three males. The persons who died ranged in age from 29 to 71 years.

## Parasites, Intestinal

In addition to amebiasis and giardiasis, selected reports of other parasitic intestinal diseases are recorded. In 1997, 49 laboratory confirmed cases of intestinal parasites were reported: 22 cases of cryptosporidiosis, 14 cases of trichuriasis (whipworm), 6 cases of ascariasis (roundworm), 5 cases of necatoriasis (hookworm), 2 cases of strongyloidiasis. (Figure 34).

**Figure 34**  
**Intestinal Parasites**  
**Virginia, 1997**



The majority (62%) of cases occurred in the third quarter of the year. The 20-29 and the 30-39 year age groups accounted for the highest number of cases (11 and 16, respectively) and had the highest incidence rates (1.3 cases per 100,000 each). Incidence rates in the other age groups ranged from 0.6 per 100,000 in children aged 1-9 years and adults aged 50 years and older to 1.1 cases per 100,000 in infants and adults aged 40-49 years. Race was not reported for 39% of the cases. Where race was reported, 21 (47%) cases were in whites. Females were reported almost as frequently as males (31 females vs. 34 males). Gender was recorded as unknown for the remaining nine cases.

Forty-five (61%) cases were reported from the northern health planning region, which had an incidence rate of 2.7 cases per 100,000. Incidence rates in the other health planning regions ranged from less than 1.0 per 100,000 in the eastern region to 1.8 per 100,000 in the central region. No cases were reported from the southwest health planning region.

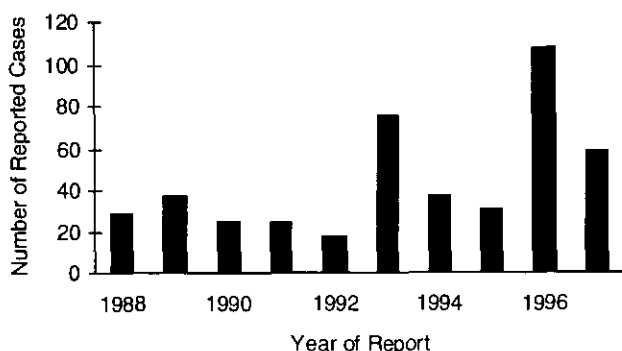
In addition to the parasitic diseases reported above, two outbreaks of cyclosporiasis were reported in Virginia in 1997. The first outbreak occurred during the summer of 1997 and included residents of Virginia, and the District of Columbia/Baltimore, Maryland metropolitan area. Almost 300 case-patients were identified in this outbreak which was linked to food items that contained fresh basil prepared by a single food distributor. Sixty-nine cases were laboratory confirmed. The second outbreak of cyclosporiasis also occurred in northern Virginia. This outbreak occurred in the fall and was associated with eating fresh fruit from a single establishment. Twenty-one case-patients were identified in this outbreak that included Virginia and non-Virginia residents; fourteen of whose illnesses were laboratory confirmed. See the Foodborne Outbreak section of this report for more information.

## Pertussis

Pertussis has reemerged as one of the most frequently reported vaccine preventable diseases in Virginia. Fifty-nine cases of pertussis were reported in 1997 compared to 108 in 1996 and 31 cases in 1995 (Figure 35). Cases occurred throughout the year, but peaked during the month of January when 13 (22%) cases had onset of symptoms.

Infants had the highest incidence rate at 23.7 cases per 100,000 population, followed by the 1-9 year age group (20 cases, 2.4 per 100,000) and the 10-19 year age group (9 cases, 1.0 per 100,000). Incidence rates in the other age groups were less than 0.5 cases per 100,000.

**Figure 35**  
**Pertussis: Ten Year Trend**  
**Virginia, 1988-1997**



Forty-nine (83%) pertussis cases were in whites, the race group that also had the highest incidence rate (1.0 cases per 100,000). Blacks had an incidence rate of 0.5 per 100,000 and the other race category had an incidence rate of 0.4 per 100,000. Females (1.0 case per 100,000) were slightly more at risk for pertussis than males (0.8 per 100,000).

The northwest health planning region reported the highest number of cases and had the highest incidence rate (30 cases, 3.2 per 100,000). Incidence rates in the other health planning regions ranged from 0.2 cases per 100,000 population in the southwest health planning region to 0.7 in the northern region. No deaths due to pertussis were reported.

## Phenylketonuria (PKU)

One infant was identified as having PKU through newborn screening programs in 1997 compared to two in 1996.

## Plague

No cases of plague have been reported in Virginia during the twentieth century.

## Poliomyelitis

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

## Psittacosis

No cases of psittacosis were reported in 1997. Psittacosis is a disease of low frequency in Virginia. One case had been reported in 1996.

## Q Fever

One case of Q fever was reported in Virginia in 1997. No cases of Q fever were reported in 1996.

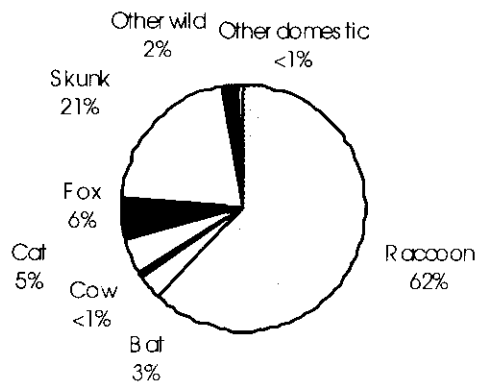
## Rabies in Animals

The total number of laboratory confirmed rabid animals for 1997 was 690, an increase of 11% from the 1996 total of 612. Raccoon rabies was reported in two localities that had not previously reported it: Clifton Forge and Danville.

For the sixteenth consecutive year, raccoons were the most commonly reported species with rabies. The 429 rabid raccoons accounted for 62% of all rabid animals, with 142 rabid skunks accounting for another 21% (Figure 36). The other wildlife reported as rabid in 1997 were 46 foxes, 22 bats, 5 groundhogs, 1 beaver, 1 bobcat and 1 otter. Thirty-three rabid cats were reported in 1997, compared to 29 in 1996 and 27 in 1995. The other rabid domestic animals in 1997 were five cows, two dogs, two horses and one sheep.

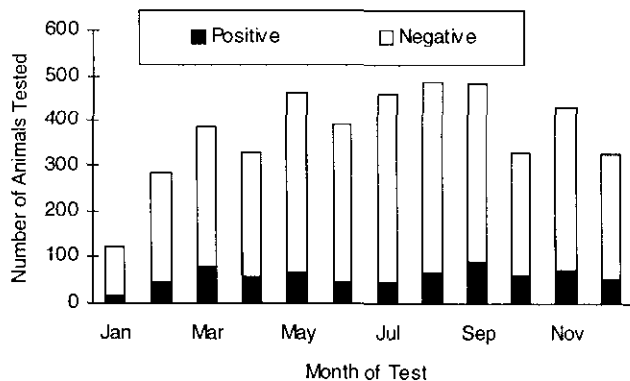
The number of animals tested in 1997 was 4,483 compared to 4,224 tested in 1996. Cats were the most commonly tested animal, accounting for 27% of all animals tested. Raccoons accounted for 21%

**Figure 36**  
**Species of Animals Positive for Rabies, Virginia, 1997**



of animals tested, followed by dogs (14%), opossums (6%), bats (7%), foxes (5%) and skunks (5%). Overall, 15% of all animals tested were positive for rabies. Although skunks only accounted for five percent of all animals tested, 71% of those tested were positive. Forty-five percent of tested raccoons were positive, compared with three percent of cats and less than one percent of dogs. Figure 37 compares the total number of animals tested with the number positive for each month.

**Figure 37**  
**Animal Rabies Tests by Month and Test Result, Virginia, 1997**



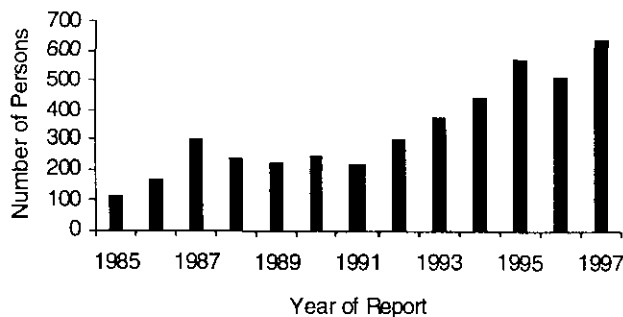
Human exposure was reported for the rabid sheep; 1 of the 5 rabid groundhogs; both rabid dogs; both rabid horses; 4 of the 5 rabid cows; 7 of the 22 rabid bats; 12 of the 142 rabid skunks; 16 of the 46 rabid foxes; 30 of the 33 rabid cats; 44 of the 429 rabid raccoons.

The localities with the highest numbers of rabid animals in 1997 were Fairfax County (including the cities of Fairfax and Falls Church) with 93 rabid animals (13% of reported cases), Loudoun County with 41 (6% of reported cases), and the city of Alexandria with 34 (5% of reported cases). The remaining localities contributed three percent or fewer cases each to the total number of rabid animals.

## Rabies in Humans

No human rabies cases were reported in 1997. The last reported case in Virginia occurred in 1953. During 1997, 637 persons received post-exposure prophylaxis. This is the highest number reported since 1985 when records were first kept (Figure 38). In addition, 712 persons received pre-exposure prophylaxis compared to 439 reported in 1996 and 587 in 1995.

**Figure 38**  
**Rabies Post-Exposure Prophylaxis Received, Virginia, 1985-1997**



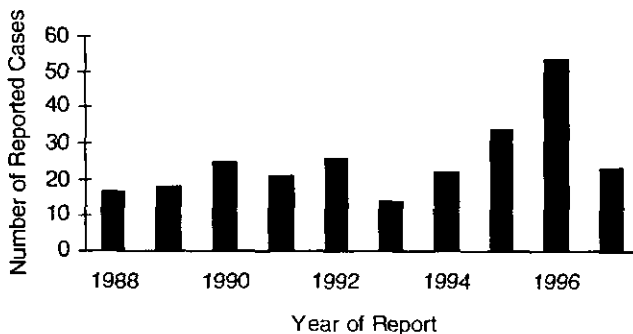
## Reye Syndrome

No cases of Reye syndrome were reported in Virginia in 1997. One confirmed case was reported in 1994.

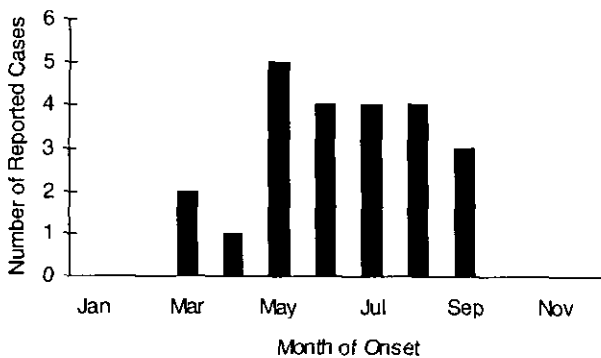
## Rocky Mountain Spotted Fever

The 23 cases of Rocky Mountain spotted fever reported in 1997 represent a 57% decrease from the 54 cases reported in 1996 but are consistent with the ten year average of 25 cases per year. Figure 39 shows the ten-year trend in the number of reported cases in Virginia. Onset of cases occurred from March through September with a peak in May as shown in Figure 40.

**Figure 39**  
Rocky Mountain Spotted Fever:  
Ten Year Trend, Virginia, 1988-1997



**Figure 40**  
Rocky Mountain Spotted Fever:  
Month of Onset, Virginia, 1997



Adults aged 50 years and over had the highest number of cases and the highest incidence rate (10 cases, 0.6 per 100,000), followed by adults in the 40-49 year age group (0.5 per 100,000).

Whites and persons in the other race category were at greater risk for acquiring Rocky Mountain spotted fever than blacks. They had an incidence rate of 0.4 cases per 100,000 population each compared to 0.2 per 100,000 for blacks. Race was recorded as unknown for two cases. Males had an incidence rate of 0.4 cases per 100,000 population which was slightly higher than the incidence rate of 0.3 per 100,000 for females.

Incidence rates ranged from 0.1 per 100,000 in the central health planning region to 0.5 per 100,000 in the northwest and eastern regions.

Thirteen (57%) patients had a known tick bite, four (17%) had been in a tick infested area, and no exposure status information was available for the remaining six (26%) patients.

One death in an adult male from the eastern health planning region was reported.

## Rubella

One adult female from the northern health planning region was reported with rubella in 1997. Two cases had been reported in 1996.

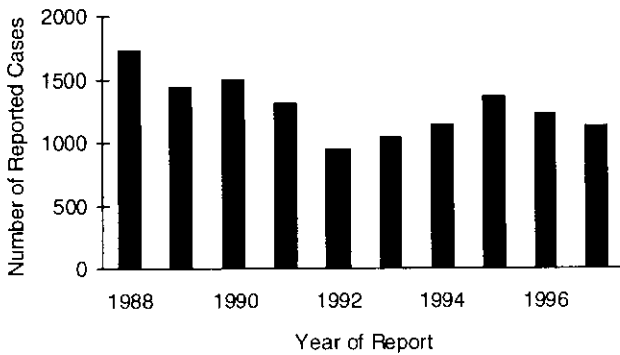
Before that, no cases had been reported since 1990, when one case was reported.

## Salmonellosis

Salmonellosis continues to be the most frequently reported enteric pathogen in Virginia. In 1997, 1,120 *Salmonella* infections were reported compared to 1,229 in 1996 (Figure 41). *Salmonella*



**Figure 41**  
**Salmonellosis: Ten Year Trend**  
**Virginia, 1988-1997**



*typhimurium* was the most commonly reported species in 1997 (30%), followed by *S. enteritidis* (16%), as shown in Table 10. In 1996, the proportion of reported cases for these two species was the same at 23% each. In 1997, *S. heidelberg* was the third most commonly reported species at 6%, whereas in 1996 this species ranked fourth at 4%.

Infants had the highest rate of infection (118.5 cases per 100,000 population), followed by children aged 1-9 years (38.0 per 100,000). The 10-19 and 40-49 year age groups had the lowest and similar incidence rates (9.0 and 9.1 cases per 100,000 population, respectively). Blacks (8.4 per 100,000) were at a greater risk than whites (6.1 per 100,000) and the other race category (3.7 per 100,000). The risk of infection was very similar in males and females. One death due to *Salmonella* infection was reported in 1997.

By region, the highest incidence rate was in the northwest health planning region (20.6 cases per 100,000), followed by the central health planning region (20.2 per 100,000). The risk for *Salmonella* infection was the least in the northern and the southwest health planning regions (14.6 cases per 100,000 each). The incidence of *Salmonella* infections peaked during the third quarter when 40% of the cases occurred (Figure 42).

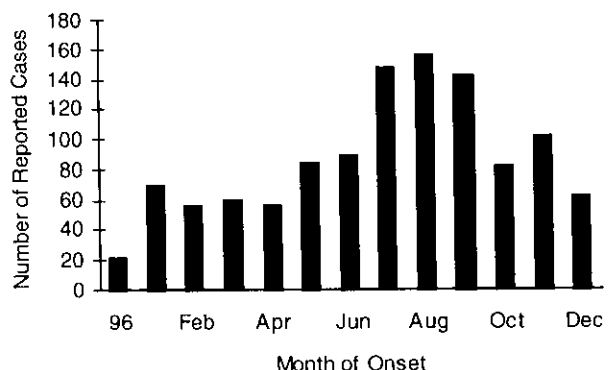
Three salmonellosis outbreaks were identified in 1997. *S. hadar* and *S. thompson* were identified

**Table 10. Number and Percent of *Salmonella* Infections by Species, Virginia, 1997**

Species Causing Infection	Number of Cases	Percent of Cases
<i>S. typhimurium</i>	341	30.45
<i>S. enteritidis</i>	178	15.89
<i>S. heidelberg</i>	67	5.98
<i>S. newport</i>	53	4.73
<i>S. hadar</i>	44	3.93
<i>S. muenchen</i>	15	1.34
<i>S. thompson</i>	14	1.25
<i>S. braenderup</i>	12	1.07
<i>S. saint paul</i>	10	0.89
<i>S. bareilly</i>	9	0.80
<i>S. litchfield</i>	9	0.80
Unspecified	237	21.16
All Others	131	11.70
<b>TOTAL</b>	<b>1120</b>	<b>100.00</b>

as the cause of illness in two of the outbreaks. In the third outbreak, *Salmonella* was the suspect organism but was not laboratory confirmed. See the Foodborne Outbreak section of this report for more information.

**Figure 42**  
**Salmonellosis: Month of Onset**  
**Virginia, 1997**



lis may be associated with the decrease in early syphilis among women during the previous year, especially those of childbearing age. 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. It is expected, therefore, that congenital syphilis for 1998 may decrease, as there was a decrease in female early syphilis cases from 1996 to 1997.

## Tetanus

No cases of tetanus were reported in Virginia in 1997. The last two cases were reported in 1994.

## Toxic Shock Syndrome

One confirmed case of toxic shock syndrome was reported in Virginia in 1997. This condition occurred in an adult female from the northern health planning region.

## Toxic Substance Related Illnesses

No illness in this category was reported in 1997 to the Office of Epidemiology.

## Toxoplasmosis

One case of toxoplasmosis was reported in 1997. One case had been reported in 1996. Toxoplasmosis, a common protozoan infection in man and animals, is not a reportable disease in Virginia; however, cases are recorded when reports are received.

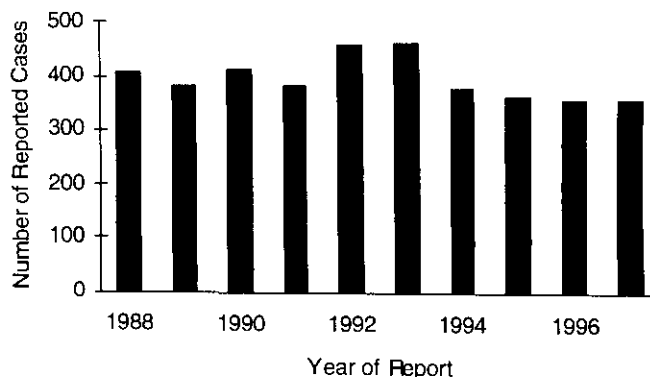
## Trichinosis

The last case of trichinosis in Virginia occurred in 1993.

## Tuberculosis

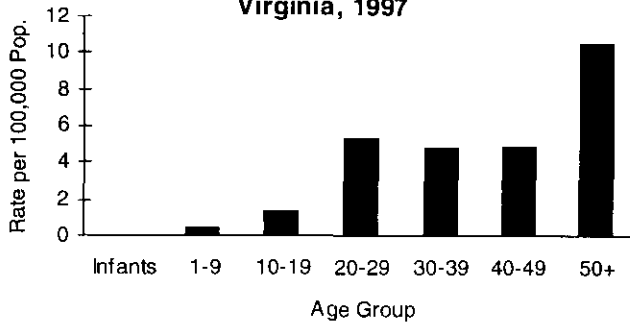
In 1997, 349 tuberculosis cases were reported, the same number as was reported in 1996. Fifteen cases (4%) were reactivations of previously diagnosed and treated disease. The annual incidence rate for Virginia was 5.2 cases per 100,000 population, compared to 7.4 cases per 100,000 population for the nation. Figure 48 shows the ten year trend for tuberculosis in Virginia.

**Figure 48**  
**Tuberculosis: Ten Year Trend**  
**Virginia, 1988-1997**



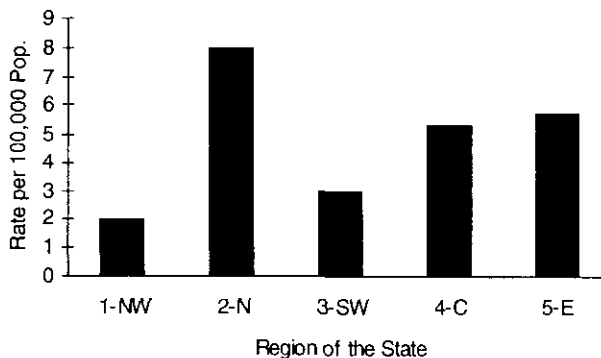
Cases of tuberculosis occurred in all age groups except infants. Almost 50% of the reported cases were in persons age 50 years and older (172 cases, 10.4 per 100,000). Four cases (0.5 per 100,000) occurred in children under age ten (Figure 49). Persons in the other race category had the highest incidence rate (76 cases, 31.5 per 100,000), followed by blacks (148 cases, 11.2 per 100,000) and whites (125 cases, 2.4 per 100,000). Males were more likely to be reported with tuberculosis than females (209 cases, 6.4 per 100,000 vs. 140 cases, 4.1 per 100,000, respectively).

**Figure 49**  
**Tuberculosis: Rate by Age Group**  
**Virginia, 1997**



The northern health planning region reported the highest number of cases and the highest incidence rate (133 cases, 8.0 per 100,000), followed by the eastern region (99 cases, 5.8 per 100,000), as shown in Figure 50. Persons born in countries outside the United States accounted for 149 cases (43%), 115 of which were reported from the northern health planning region. The mean age of persons born in a foreign country (40 years) was 19 years less than the mean age of persons born in the United States (59 years).

**Figure 50**  
**Tuberculosis: Rate by Region**  
**Virginia, 1997**



Of 302 isolates tested, 9 (3%) were resistant to one anti-tuberculosis medication. Eleven (4%) were resistant to multiple drugs, four of which were resistant to both isoniazid and rifampin.

Fifty-one (15%) persons reported with tuberculosis in 1997 died: 23 were diagnosed at death and 28 died during the course of their treatment.

## Tularemia

No cases of tularemia were reported in Virginia in 1997.

## Typhoid Fever

Five cases of typhoid fever (*Salmonella typhi*) were reported in 1997 compared to eleven in 1996. The cases ranged in age from five to 27 years (mean = 16 years). Two females and three males were reported.

Four of the five cases had traveled to or lived in a developing country during the month preceding their onset of illness. No travel history was reported for one case.

Three cases were reported from the northern health planning region, one from the central region and one from the southwest region.

## Typhus, Flea-borne

The last reported case of flea-borne typhus in Virginia occurred in 1993.

## Vibrio Infection

Twelve cases of vibriosis were reported in 1997. *Vibrio parahaemolyticus* was the cause of six infections. Two infections were caused by *V. vulnificus*. *V. alginolyticus*, *V. cholerae* non-01, *V.*

*fluvialis*, and *V. mimicus* each caused one infection. One person with *V. vulnificus* infection died.

All cases occurred between May and October; six (50%) in July. All twelve persons were adults who ranged in age from 18 to 79 years (mean = 45 years). Race was reported for only four cases; one was black and three were white. Seven females and five males were reported.

The northern health planning region reported seven cases, the eastern region reported four cases and the southwest region reported one case.

Ten cases were reported from the central health planning region compared to two to six cases from each of the other regions.

## **Cholera**

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No cases of cholera were reported in Virginia in 1997. The last case was reported in 1994.

## **Waterborne Outbreaks**

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No waterborne outbreaks were reported in 1997. Three had been reported in Virginia during 1996.

## **Yersiniosis**

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Although not officially reportable in Virginia, twenty-eight reports of yersiniosis were received in 1997. Species was reported as *Y. enterocolitica* for 22 cases, *Y. intermedia* for two cases, and as unknown for the remaining four cases. Cases occurred more frequently during the first half of the reporting year.

Twelve (43%) of the cases were reported in infants. Cases were fairly evenly distributed between males (15) and females (12). Gender was not reported for one case. Race was reported as white for seven cases, black for five cases, and race was not specified for the remaining 16 cases.