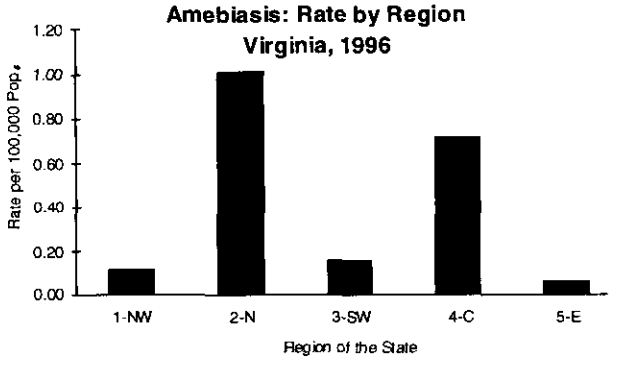
Acquired Immunodeficiency Syndrome (AIDS)

See HIV/AIDS.

Amebiasis

Twenty-eight cases of amebiasis were reported in 1996 compared to 16 in 1995 and 39 in 1994. The distribution of cases by onset of illness was highest during the month of December when six (21%) cases occurred. The highest number of cases and incidence rate occurred in the 20-29 year age group (8 cases, 0.8 per 100,000). Race was reported for only eight of the cases. Of these, four were white, two were black and two were in the other race category. Males and females were at equal risk for infection with amebiasis. The northern health planning region had the highest number of cases and incidence rate (16 cases, 1.0 per 100,000) as shown in Figure 1.

Figure 1



Anthrax

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

Arboviral Infection

Two cases of arboviral infection were reported in 1996. 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. The two cases reported in Virginia in 1996 occurred during the summer months and were caused by the LaCrosse virus. One person was a five year old female and the other was a five year old male. They were both residents of Tazewell County.

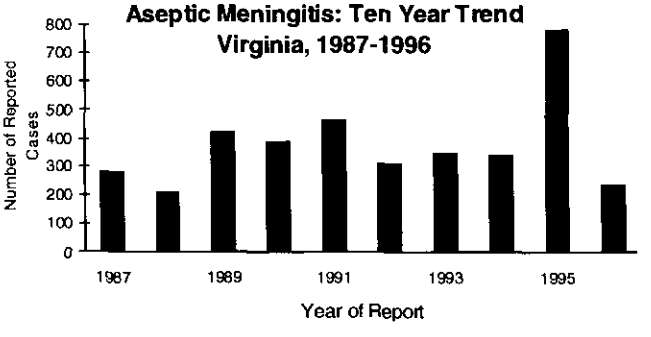
Infection caused by the LaCrosse virus is also included under the heading Encephalitis, Primary.

Aseptic Meningitis

In 1996, 234 aseptic meningitis cases were reported. This compares to the 780 cases reported in 1995 when an unusually high number of cases were reported due to a community-wide outbreak in the Tidewater area of the state (Figure 2).

The etiologic agents were reported for only three of the 234 reported cases. All three were enteroviruses (one coxsackievirus and two unspecified). The onset of disease was highest during the third quarter when 92 (39%) cases occurred.

Figure 2



Infants were at the greatest risk for this disease (34 cases, 36.6 per 100,000), followed by the age group 30-39 years (54 cases, 4.6 per 100,000). Blacks had a higher incidence rate (5.3 cases per 100,000 population) than whites (2.4 per 100,000) and the other race category (1.4 per 100,000). Males were slightly more at risk for this disease than females (3.8 vs. 3.4 cases per 100,000 population).

The eastern health planning region had the highest incidence rate (6.2 cases per 100,000 population). Incidence rates in the other health planning regions ranged from 0.8 per 100,000 in the central region to 4.5 per 100,000 in the northern region.

Bacterial Meningitis

The number of reported cases of bacterial meningitis decreased from the 130 cases reported in 1995 to 77 in 1996. 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 etiologic agent associated with this reportable condition. A list of the bacterial agents and the frequency with which they were reported in 1996 is presented in Table 8. Cases occurred throughout the year but peaked during the first quarter.

Infants were at the greatest risk for this disease. They had an incidence rate of 25.8 cases per 100,000 population. Incidence rates in the other age groups ranged from 0.2 to 1.3 cases per 100,000 population. By race, blacks were at the greatest risk for bacterial meningitis (2.0 cases per 100,000 population) compared to whites (0.9 per 100,000) and the other race category (0.5 per 100,000). Females and males were equally likely to be reported with this condition (1.2 per 100,000).

By health planning region, the eastern region had the highest number of cases and the highest incidence rate (29 cases, 1.7 per 100,000 population). Incidence rates in the other health planning regions ranged from 0.9 to 1.3 cases per 100,000 population.

Seven deaths caused by bacterial meningitis were reported in 1996. The ages of persons who died ranged from newborn to 89 years (mean = 37 years).

Table 8. Etiology of Bacterial Meningitis Cases Reported in Virginia, 1996

Organism	Number of Cases	Percent of Cases
Acinetobacter	1	1.30
Citrobacter diversus	1	1.30
Enterobacter		
E. faecium	1	1.30
Escherichia coli	2	2.60
Haemophilus influenzae	2	2.60
Listeria monocytogenes	4	5.19
Staphylococcus:		
S. aureus	4	5.19
S. unspecified	1	1.30
Streptococcus:		
S. pneumoniae	41	53.25
Group A	1	1.30
Group B	6	7.79
unspecified	3	3.90
Unspecified	10	12.99
TOTAL	77	100.00

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

Botulism

Three cases of infant botulism occurred in 1996, one each from the northwest, northern and southwest health planning regions. Two of the infants were male and one was female. Two of the infants were white; race was not reported for the third child. Using the mouse neutralization test, *Clostridium botulinum* toxin type B was demonstrated in stool

specimens from the three infants. None of the infants died. No cases of wound or foodborne botulism were reported.

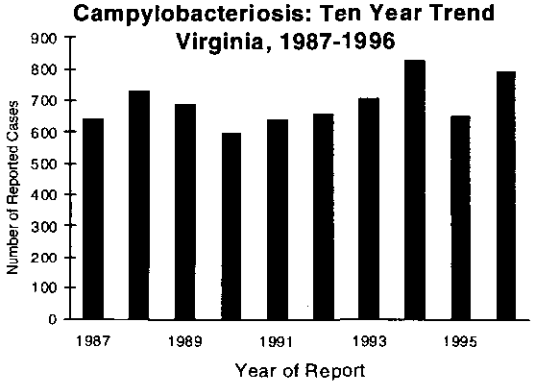
Brucellosis

No cases of brucellosis were reported in Virginia in 1996. The last cases in Virginia were reported in 1994.

Campylobacteriosis

Campylobacteriosis was the second most frequently reported enteric infection in Virginia in 1996. The 790 cases reported in 1996 represented a 22% increase compared to the 648 cases reported in 1995 (Figure 3). Like salmonellosis and shigellosis, cases occurred more frequently during the third quarter of the reporting year.

Figure 3

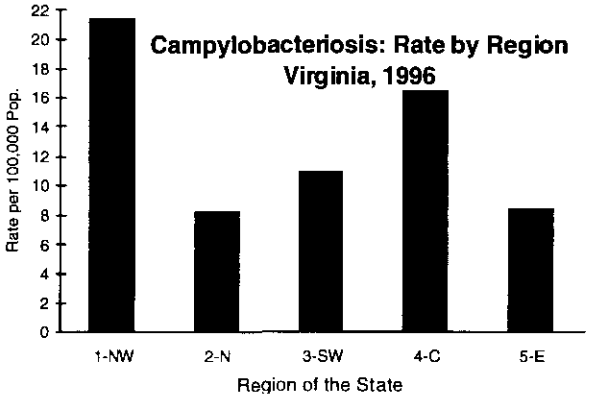


The age group with the highest incidence rate was infants (20.4 cases per 100,000 population). The 20-29 year age group followed with a rate of 16.0 per 100,000. The lowest incidence rate (5.7 per 100,000) was in the 10-19 year age group.

Whites and the other race category had the highest and similar incidence rates (7.6 and 7.3 cases per 100,000 population, respectively). The incidence rate for blacks was 4.9 cases per 100,000 population. Race was reported as unknown for 326 (41%) of the cases. Males were slightly more at risk than females (12.5 vs. 11.2 per 100,000).

The highest incidence rate was in the northwest health planning region (21.4 cases per 100,000 population), followed by the central (16.5 per 100,000) and southwest (11.0 per 100,000) regions (Figure 4).

Figure 4



Chancroid

One case of chancroid was reported in 1996 compared to two cases in 1995.

Chickenpox (Varicella)

The number of reported cases of chickenpox decreased for the fourth consecutive year. The 1,778 cases of chickenpox reported in 1996 represented a 33% decrease compared to the 2,667 cases in 1995.

As in the past, the highest number of cases (1,298) and incidence rate (77.9 per 100,000) occurred in the eastern health planning region. Incidence rates in the other health planning regions range from 2.1 to 16.8 cases per 100,000 population.

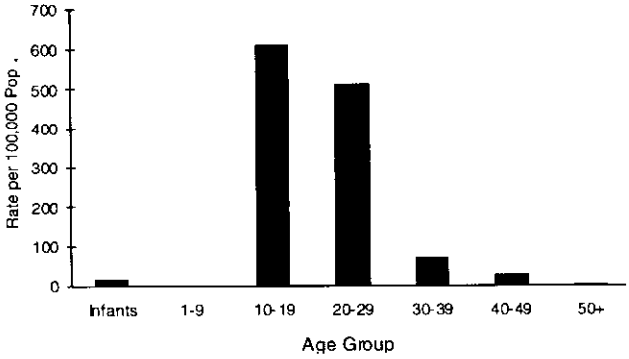
A varicella virus vaccine has been licensed for use in all children over the age of twelve months and for adults who are susceptible to chickenpox.

Chlamydia trachomatis Infection

Chlamydia trachomatis infection is the most common disease under surveillance in Virginia. During 1996, 11,755 cases of *C. trachomatis* infection were reported. The highest number of cases occurred in blacks (6,282 cases) who also had the highest incidence rate (492.0 per 100,000). The other race category had the second highest incidence rate (235.2 per 100,000), followed by whites (61.4 per 100,000). Incidence rates were highest in the 10-19 and 20-20 year age groups (605.7 per 100,000 and 511.6 per 100,000, respectively) as shown in Figure 5. The female to male ratio was 9.5:1. It should be noted that health department screening is limited to females.

Figure 5

***Chlamydia trachomatis*: Rate by Age Group**
Virginia, 1996



The fewest cases were reported in the second quarter (21%) and the most in the fourth quarter (28%). The central health planning region had the highest incidence rate of *C. trachomatis* infections (283.9 cases per 100,000 population), followed by the eastern region with 218.5 cases per 100,000 population.

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, (2) as many as 75% of women and 25% of men with uncomplicated *C. trachomatis* infections are asymptomatic, and (3) persons with gonorrhea presumptively treated for *C. trachomatis* infections 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 9,292 cases of gonorrhea reported in Virginia in 1996, suggesting that there were more than 18,000 *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.

Twelve confirmed cases of human monocytic ehrlichiosis were reported in Virginia in 1996. The onset of these cases occurred between May and September. The cases ranged in age from 30 to 69 years. Seven cases were male and five were female.

Four cases were reported from the eastern health planning region, three cases were reported from the southwest region, two cases each were reported from the northwest and central regions, and one case was reported from the northern region. Ehrlichiosis is not officially reportable in Virginia; however, reports are recorded when they are received.

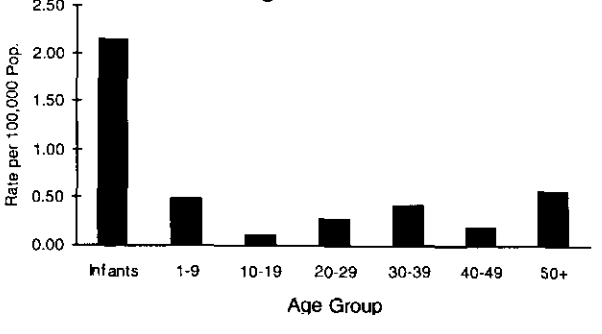
Encephalitis, Primary

Twenty-six cases of primary encephalitis were reported in 1996 compared to 40 cases in 1995. The etiologic agents were reported as viral for 15 of these cases, cryptococcal for two and unspecified for the remaining nine. Of the 15 reported as viral, four were further specified as herpes virus and two as LaCrosse virus. Infection caused by the LaCrosse virus is also included under the heading Arboviral Infection.

Cases occurred more frequently during the second half of the calendar year when 65% of the cases occurred. Infants were at the greatest risk for this disease, having an incidence rate of 2.2 cases per 100,000 population. Incidence rates for the other age groups ranged from 0.1 to 0.6 cases per 100,000 population (Figure 6). By race, blacks had the highest incidence rate (0.5 cases per 100,000 population). The incidence rate in both females and males was 0.4 per 100,000.

Figure 6

Primary Encephalitis: Rate by Age Group
Virginia, 1996



By health planning region, the incidence rate was highest in the eastern and northwest regions (0.6 cases per 100,000 population), and the central region had the lowest rate (0.1 cases per 100,000 population). One infant female and one 70 year old male died of primary encephalitis.

Encephalitis, Post-Infectious

No cases of post-infectious encephalitis were reported in 1996 compared to six cases in 1995.

Escherichia coli O157:H7

Escherichia coli O157:H7 is an important emerging pathogen with the potential to cause serious illness. Symptoms include diarrhea, which usually becomes 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. Fifty-three cases were reported in 1996 compared to 37 in 1995. Historically, cases are reported throughout the year, but increase abruptly beginning in the month of June. The majority of cases occur between the months of June through September. Infants were at greatest risk for *E. coli* O157:H7 infection (3.2 cases per 100,000 population), followed by the 1-9 and 10-19 age groups (2.4 per 100,000, each). The incidence rate was less than 1 per 100,000 for each of the other age groups. Race was reported for only 45% of cases. Of these, 20 were in whites (0.4 per 100,000), two were in blacks (0.2 per 100,000) and two were in the other race category (0.9 per 100,000). By sex, the risk among males and females was the same (0.8 cases per 100,000 population).

The northwest health planning region had the highest incidence rate (1.8 cases per 100,000 popu-

lation), followed by the northern and southwest regions (0.9 per 100,000 each).

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 1996.

Foodborne Outbreaks

Twelve confirmed foodborne outbreaks were reported in 1996. These outbreaks are summarized in Table 9. The number of ill persons per outbreak ranged from two to 42. The etiologic agent was reported as bacterial for six outbreaks, viral for three, parasitic for one and chemical for one. The etiologic agent was not reported for one outbreak.

A specific food item was implicated in ten of the outbreaks. The most common food handling practice which contributed to these outbreaks was 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 1996, recorded fungal diseases other than histoplasmosis included four cases of aspergillosis and one case each of blastomycosis, coccidioidomycosis and cryptococcosis.

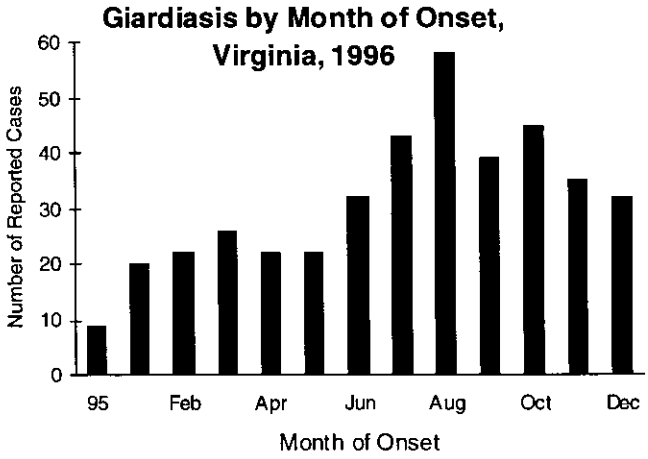
One death was associated with these opportunistic infections.

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

Giardiasis

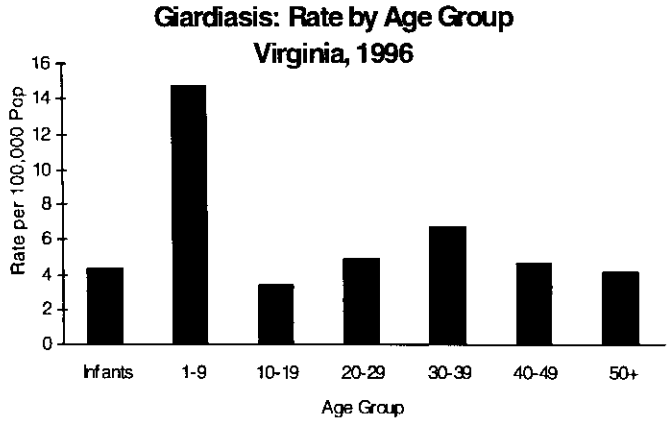
Reported cases of giardiasis increased in 1996 for the first time in two years. The total of 405 cases reported in 1996 was 27% higher than the 318 cases reported in 1995. Cases occurred throughout the year but peaked during the third quarter when 140 (35%) of the cases occurred (Figure 7).

Figure 7



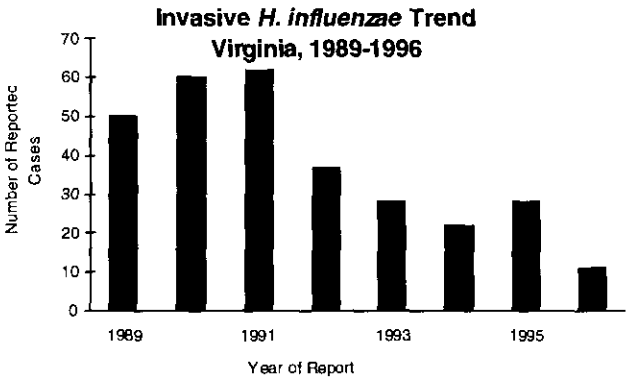
Children aged 1-9 years had the highest incidence rate (14.7 cases per 100,000 population) for giardiais, followed by adults aged 30-39 years (6.7 per 100,000). Incidence rates by age group are illustrated in Figure 8. Race was not reported for 178

Figure 8



became reportable in 1989 (Figure 11). The decline in cases can be attributed to the decrease in the incidence of *H. influenzae* infection among infants and children less than five years of age. Vaccines for *H. influenzae* type b (Hib) have been available for infants and children since 1988.

Figure 11



Cases occurred throughout the year but peaked during the third quarter when four of the eleven cases had onset of illness. Infants were at the greatest risk for this disease with an incidence rate of 2.2 cases per 100,000 population. Eight cases occurred in whites (0.2 cases per 100,000 population) and one case was in blacks (0.1 per 100,000). Race was not reported for two cases. The risk for females was twice that for males (0.2 vs 0.1 per 100,000).

Five cases were reported from the northwest health planning region which also had the highest incidence rate (0.6 cases per 100,000 population). The number of cases reported from the other four health planning regions ranged from zero to three.

No deaths due to *H. influenzae* infection were reported in 1996.

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

Hansen Disease (Leprosy)

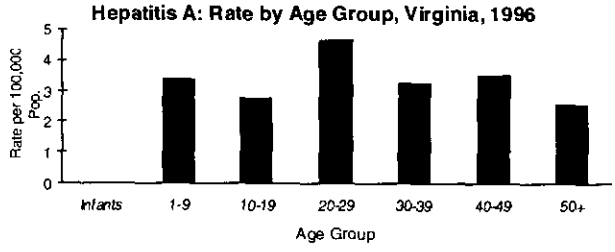
One case of this disease of low frequency in Virginia was reported in 1996. The patient was a 70 year old white male who had a history of travel to a country where the disease is endemic.

Hepatitis A

The annual number of reported cases of hepatitis A (218 cases) decreased in 1996 by 8% from the 238 cases reported in 1995. The number of reported cases declined in four of the five health planning regions. The largest decrease occurred in the southwest region (18 cases in 1996 compared to 47 cases in 1995).

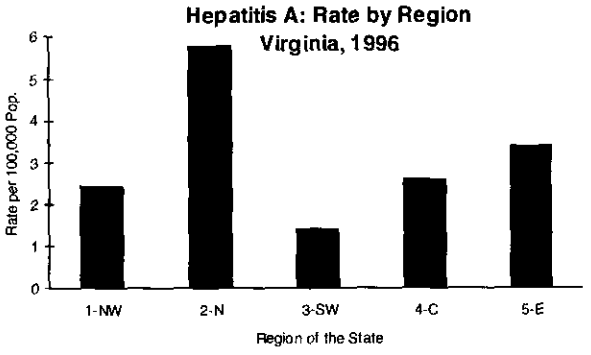
Adults between the ages of 20 and 29 were most at risk for hepatitis A (4.7 cases per 100,000 population), followed by adults between the ages of 40 and 49 (3.5 per 100,000) as shown in Figure 12. Persons in the other race category (6.4 cases per 100,000 population) were at greater risk for hepatitis A than blacks and whites. The incidence rate for males (152 cases, 4.7 per 100,000) was 2.5 times the rate for females (62 cases, 1.9 per 100,000). Risk factor data was reported for 68% percent of the hepatitis A cases. International travel (31 cases) and personal contact with a patient with hepatitis A (27 cases) were the predominant potential sources of infection among these persons with hepatitis A.

Figure 12



The northern health planning region reported the most cases and had the highest incidence rate of all regions (92 cases, 5.8 per 100,000). Incidence rates by region are illustrated in Figure 13.

Figure 13



An outbreak of hepatitis A among migrants on the Eastern Shore was identified in 1996. A total of thirteen cases was reported for the Eastern Shore in 1996 compared to one case in 1995. The majority of cases occurred in young children. The earliest reported onset of illness was in August. Person-to-person transmission, rather than a common source exposure, contributed to this outbreak. Also in 1996, a cluster of hepatitis A cases in southwest Virginia was reported. Between December 1996 and February 1997, nine cases of hepatitis A occurred in an extended family. Two of the cases required hospitalization and one of these cases died.

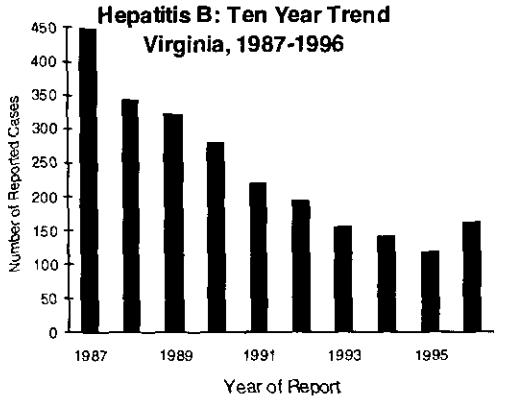
Hepatitis B

The annual number of reported cases of this vaccine preventable disease increased for the first time in ten years in 1996 (Figure 14). The total of 163 cases reported in 1996 was 38% more than the 118 cases reported in 1995. Cases occurred throughout the year such that no seasonal trend was noted.

Adults in the 20-29 year age group continued to have the highest number of cases and the highest incidence rate (50 cases, 4.9 per 100,000), followed by adults aged 30-39 (43 cases, 3.6 per 100,000) and adults aged 40-49 (31 cases, 3.2 per 100,000). Incidence rates for the other age groups were less than 2.0 cases per 100,000 population. Blacks were at the greatest risk for hepatitis B. The incidence rate for blacks was 5.5 cases per 100,000 population compared to 3.2 per 100,000 for the other race category and 1.3 per 100,000 for whites. Sixty-two percent of cases were male. The incidence rate for males was 3.1 per 100,000 compared to 1.9 per 100,000 for females.

Information regarding various risk factors for persons reported with hepatitis B was available for 122 (75%) of the cases. Having multiple sex partners was the most frequently reported potential source of infection for hepatitis B.

Figure 14



The eastern health planning region had the highest number of cases (56) reported and the highest incidence rate (3.4 per 100,000). Incidence rates in the other health planning regions ranged from 1.1 cases per 100,000 population in the northwest region to 2.8 per 100,000 in the central region.

One death due to hepatitis B infection was reported in 1996.

Hepatitis Non-A Non-B

Seventeen cases of acute viral hepatitis non-A non-B were reported in 1996 compared to 21 cases

in 1995. Disease onset occurred sporadically throughout the year.

Cases ranged in age from 25 to 64 years with a mean age of 39 years. Adults aged 30-39 (0.6 cases per 100,000 population) were more likely to be reported with this disease than the other age groups. Blacks had an incidence rate (0.5 cases per 100,000 population) that was three times as high as whites. No cases were reported for the other race category.

Incidence rates by region ranged from 0.1 cases per 100,000 population in the northwest health planning region to 0.4 per 100,000 in the northern region.

Hepatitis C virus (HCV) has been identified as the primary etiologic agent of hepatitis non-A non-B in the United States. Four (24%) of the hepatitis non-A non-B cases reported in Virginia in 1996 were reported to have tested positive for antibodies to HCV.

No deaths due to acute viral hepatitis non-A non-B were reported in 1996.

Hepatitis Unspecified

Only one case of hepatitis unspecified was reported in 1996. 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.

Histoplasmosis

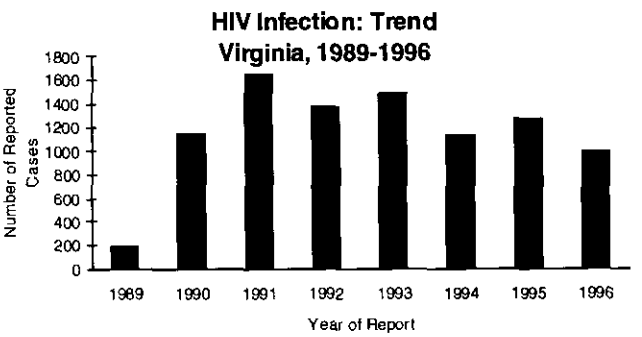
One case of histoplasmosis was reported in 1996 compared to four cases in 1995.

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

HIV

During 1996, 987 HIV new infections were reported, bringing the cumulative total of cases reported since 1989 to 9,201. Eleven percent of the cumulative HIV infections were reported in 1996 (Figure 15).

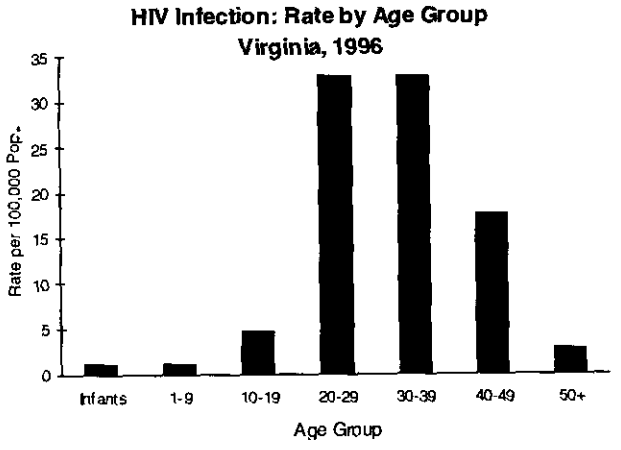
Figure 15



Males represented the majority (695 cases, 71%) of HIV infection reports and were two and one-half times more likely to be reported with the infection than females (21.7 per 100,000 vs. 8.7 per 100,000). During 1996, the majority of HIV cases were in blacks (690 cases, 70%), followed by whites (26%) and the other race category (3%). Race was not reported for four cases. Nonwhites were eight times more likely than whites to be infected, having an incidence rate of 48.3 per 100,000 compared to 5.3 per 100,000 in whites.

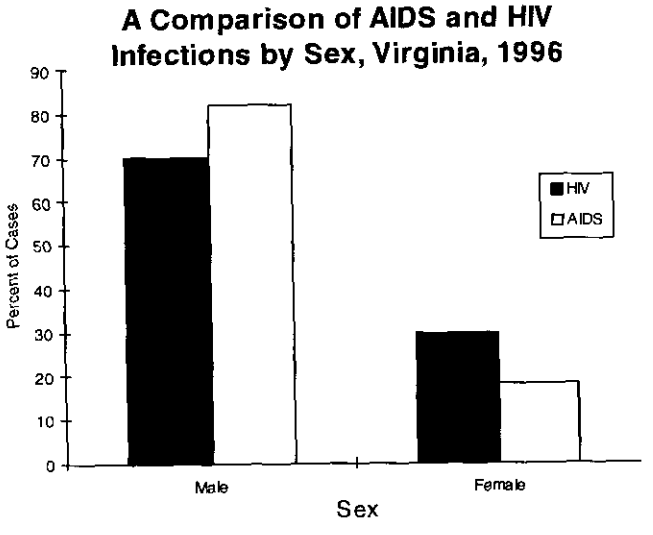
Persons in the 20-29 year and 30-39 year age groups were at the greatest risk for HIV infection (337 cases, 32.8 per 100,000 and 387 cases, 32.7 per 100,000, respectively), followed by the 40-49 year age group (17.4 per 100,000), as shown in Figure 16. Ten pediatric HIV infections were reported in 1996. All of these children were infected through maternal transmission. Six pediatric cases had been reported in 1995.

Figure 16



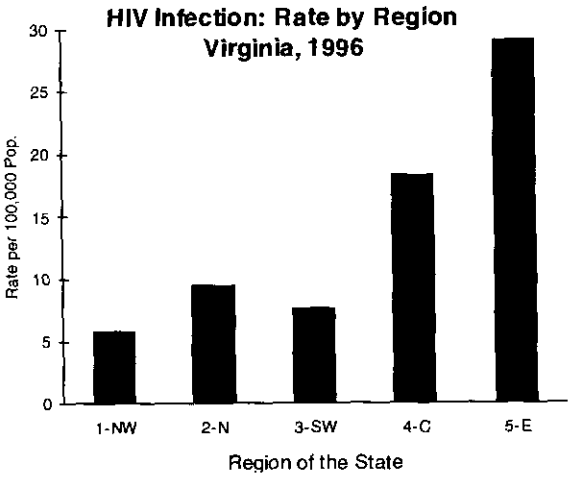
Compared to AIDS, persons with HIV infection were more likely to have become infected through heterosexual contact (19% of reported HIV cases vs. 16% of reported AIDS cases) and less likely to attribute their infection to men having sex with men (33% of reported HIV cases vs. 45% of reported AIDS cases). Females comprised a much larger proportion of HIV infections (30%) than AIDS cases (18%), as shown in Figure 17.

Figure 17



The highest HIV infection incidence rate was calculated for the eastern health planning region (28.9 cases per 100,000 population), followed by the central (18.3 per 100,000), northern (9.4 per 100,000), southwest (7.6 per 100,000), and northwest (5.8 per 100,000) regions (Figure 18).

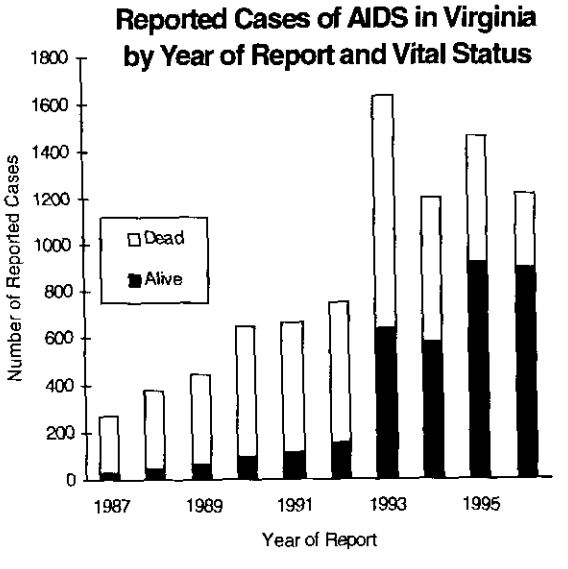
Figure 18



AIDS

Since the first AIDS cases were reported in 1982, the cumulative number of cases reported through the end of 1996 is 8,975, with 5,439 deaths (61%). In 1996, 1,211 cases were reported, representing a 17.1% decrease from 1995 (Figure 19).

Figure 19

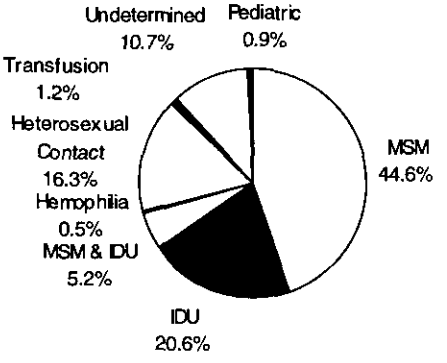


AIDS is caused by the human immunodeficiency virus (HIV). The most common modes of transmission are through unprotected sexual intercourse (especially anal intercourse) and injecting drug use

(IDU). During 1996, men having sex with men (MSM) accounted for the greatest percentage of AIDS cases (45%), followed by IDU (21%). An additional 5% had both of these risk factors (Figure 20).

Figure 20

AIDS: Mode of Transmission
Virginia, 1996



Of the reported AIDS cases, 70% (847 cases) were between the ages of 30 and 49. The age group with the highest incidence rate was the 30-39 year olds (44.0 cases per 100,000 population), followed by the 40-49 age group (33.6 per 100,000). Ten pediatric AIDS cases were reported in 1996 compared to 17 cases in 1995. The majority (90%) of these children were infected via perinatal transmission.

This is the fourth consecutive year that the majority of reported AIDS cases occurred in blacks (726 cases, 60%). An additional 431 (36%) cases were in whites and 54 (4%) cases occurred in the other race category. Blacks had an incidence rate of 56.9 cases per 100,000 population which was almost seven times higher than whites (8.5 per 100,000) and two times higher than the other race category (24.6 per 100,000). Males were also at greater risk for AIDS, with an incidence rate almost five times higher than females (31.0 vs. 6.5 cases per 100,000 population).

The eastern health planning region had the highest incidence rate (27.8 cases per 100,000 population), followed by the central (25.8 per 100,000), northern (17.4 per 100,000), northwest (8.9 per 100,000), and southwest (8.0 per 100,000) regions.

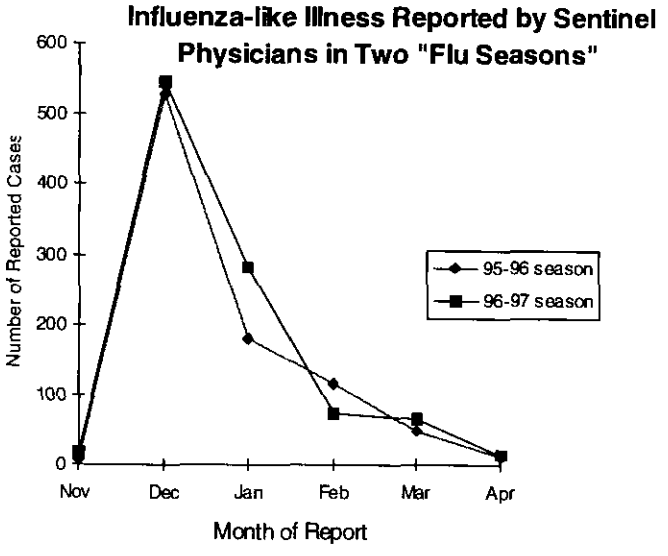
Persons with AIDS develop a variety of life-threatening opportunistic infections due to immunosuppression. The most commonly diagnosed disease was *Pneumocystis carinii* pneumonia (PCP). One-fifth (19%) of the cases reported during 1996 developed PCP during the course of their illness. Other frequently 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 of the reported cases (52%) 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 1995-96 influenza season, influenza type A and influenza type B were isolated in Virginia. Widespread activity occurred from late December through mid-January, with peak activity occurring during the last week of December 1995. 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 (Figure 21). During both influenza seasons, influenza type A was predominate.

Figure 21



Through the passive surveillance system, 957 cases of influenza were reported during calendar year 1996 compared to 1,484 cases in 1995 and 957 cases in 1994.

The highest regional influenza incidence rate occurred in the southwest health planning region (45.6 cases per 100,000) and the lowest rate was reported from the northern region (0.1 per 100,000). Rates are based on the passive surveillance data.

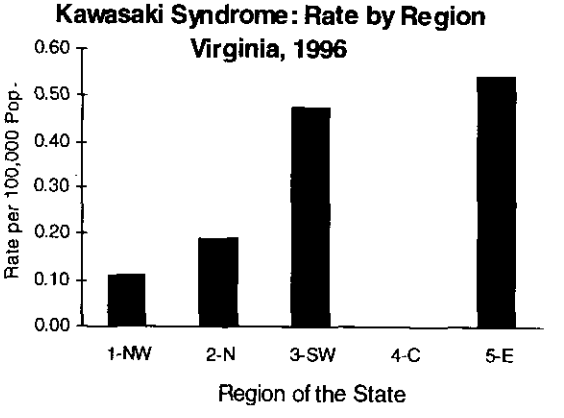
Kawasaki Syndrome

Nineteen reported cases of Kawasaki syndrome were confirmed in 1996 compared to 32 in 1995 and 27 in 1994. The cases reported in 1996 occurred throughout the year but peaked during the first quarter.

All nineteen cases of this early childhood condition occurred in children five years of age or younger. Blacks had the highest incidence rate (0.6 cases per 100,000 population), followed by the other race category (0.5 per 100,000) and whites (0.2 per 100,000). Males were more likely than females to be reported with Kawasaki syndrome (0.4 cases per 100,000 population vs. 0.2 cases per 100,000 population).

The eastern health planning reported the highest number of cases and had the highest incidence rate (9 cases, 0.5 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 0.5 per 100,000 in the southwest region. No cases were reported from the central region (Figure 22).

Figure 22



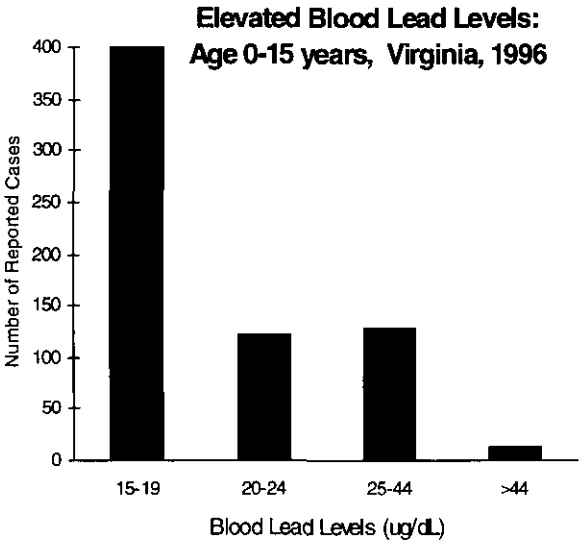
Lead - Elevated Levels in Children

Because this condition became reportable in Virginia in mid-1993, 1996 marks the third 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.

Four hundred (60%) of the 665 children reported in 1996 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; 251 (38%) had levels in the 20-44 µg/dL range, for which CDC recommends medical evaluation and environmental evaluation and remediation; 14 (2%) had levels higher than 44µg/dL, requiring both medical and environmental interventions (Figure 23).

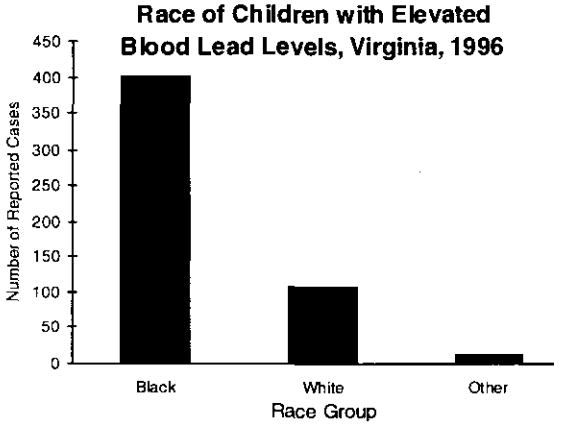
Children aged five years and younger comprised 95% of the reported cases with one and two years

Figure 23



being the most common ages at diagnosis (33% and 20% of reported cases, respectively). Race was reported for 536 (81%) cases. Of these, 402 (75%) were black, 109 (20%) were white and 25 (5%) were in the other race category (Figure 24). Males outnumbered females 1.2:1.

Figure 24



Cases were reported from all health planning regions: northwest 26 cases; northern 30 cases; southwest, which includes the federally funded lead prevention program in Lynchburg, 166 cases; central, which includes the programs in Petersburg and Richmond, 234 cases; and eastern which includes the programs in Norfolk and Portsmouth, 209 cases.

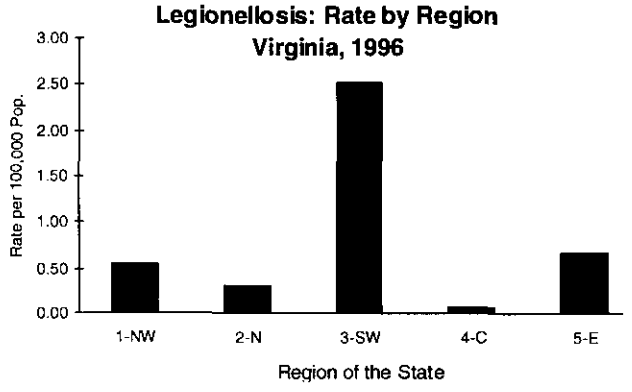
Legionellosis

Fifty-four confirmed cases of legionellosis were reported in 1996 compared to 28 in 1995. Males were more than twice as likely to be reported with this disease as females (39 cases, 1.2 per 100,000 vs. 15 cases, 0.5 per 100,000). Age ranged from 20 to 84 years (mean=59 years). Forty-three (80%) persons reported with legionellosis were white and nine (17%) were black. Race was not reported for two cases.

Information on underlying risk factors that increased susceptibility for illness was available for 51 persons, 34 of whom had at least one of the following risk factors: immunocompromised status, diabetes mellitus, or cigarette smoking.

Cases were reported from each health planning region, ranging from one case in the central health planning region (0.1 per 100,000) to 32 cases in the southwest (2.5 per 100,000) (Figure 25).

Figure 25



Four males and one female, ranging in age from 50 to 72 years, died of legionellosis in 1996.

An outbreak of legionellosis in southwestern Virginia in the fall of 1996 accounted for 23 of the reported cases. See the Waterborne Outbreak section of this report for more information.

Leptospirosis

Two cases of leptospirosis were reported in 1996 compared to none being reported since 1992. Both cases occurred in adult females. No information regarding exposure was reported.

Listeriosis

Twenty cases of listeriosis were reported in 1996 (including four cases of meningitis). Cases occurred sporadically throughout the year with no clustering of cases reported.

Persons with listeriosis ranged in age from infants to 89 years (mean = 37 years). Infants were at the greatest risk for this disease, with an incidence rate of 3.2 cases per 100,000 population. Of the 16 persons for whom race was reported, eleven were white (0.2 cases per 100,000 population) and five were black (0.4 per 100,000). Females were at greater risk for listeriosis than males (0.4 cases vs. 0.2 cases per 100,000 population).

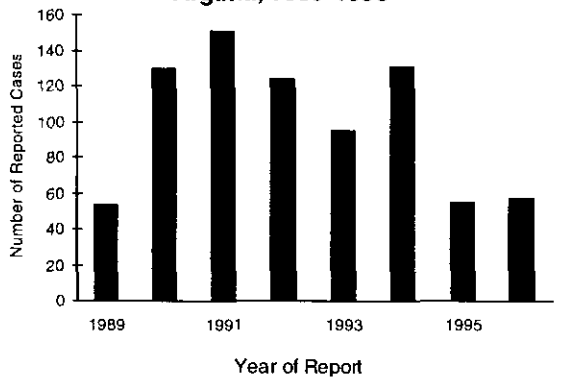
Two to seven cases were reported from each health planning region. Incidence rates ranged from a low of 0.2 cases per 100,000 population in the northwest and southwest regions to a high of 0.4 per 100,000 in the northern region. Two adults and one infant died due to *Listeria* infection.

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

Lyme Disease

Fifty-seven cases of Lyme disease were reported in 1996, compared to 55 cases in 1995 and 131 cases in 1994. The decline in the number of reported cases appears to be leveling off for what has become the most frequently reported tickborne illness in Virginia. Figure 26 shows the eight-year trend since Lyme disease became a reportable condition in mid-1989.

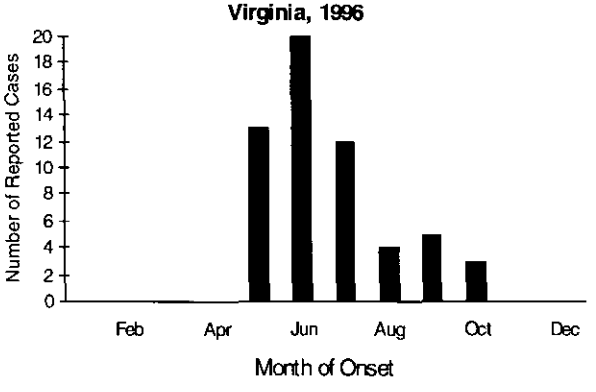
Figure 26
Lyme Disease: Trend
Virginia, 1989-1996



Seventy-nine percent of reported Lyme disease cases occurred between May and July, peaking in June, with the remaining cases occurring during three other months of the year (Figure 27). Persons with Lyme disease ranged in age from 1 to 68 years (mean=27 years). Males accounted for 58% of reported cases and had an incidence rate of 1.0 per 100,000 vs. 0.7 per 100,000 in females. The incidence rate among whites (52 cases, 1.0 per 100,000) was ten times higher than in blacks (1 case, 0.1 per 100,000). No cases were reported in the other race category. Race was not reported for four persons.

Figure 27

Lyme Disease by Month of Onset
Virginia, 1996



The predominant symptom reported was erythema migrans (81%). Other symptoms reported were arthritis (9%), Bell's palsy (5%), encephalitis/encephalomyelitis (5%), and lymphocytic meningitis (5%). Serologic testing was positive for 40% of cases, negative for 25% 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 incidence rate (1.7 cases per 100,000 population) reported from the northern region. The incidence rates for the other health planning regions were less than 1.0 cases per 100,000 population.

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

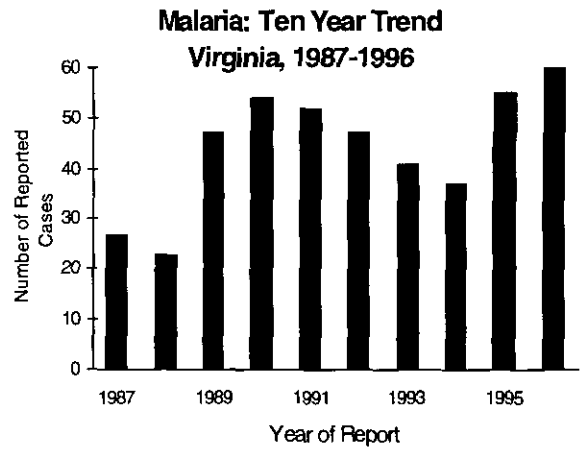
No cases of this sexually transmitted disease were reported in 1996. One case had been reported in 1995.

Malaria

Sixty cases of malaria were reported in 1996, the highest number recorded since 1980 when 65 cases were reported (Figure 28).

The 10-19 year age group had the highest incidence rate of 1.4 cases per 100,000 population, followed by the 20-29 year age group with a rate of 1.2 per 100,000. Race was reported as unknown for 19 (32%) of the 60 cases recorded in 1996. Where race was reported, the other race category had the highest incidence rate (5.5 cases per 100,000 population), followed by blacks (1.4 per 100,000). Males were slightly more at risk than females (1.0 vs. 0.8 cases per 100,000 population).

Figure 28



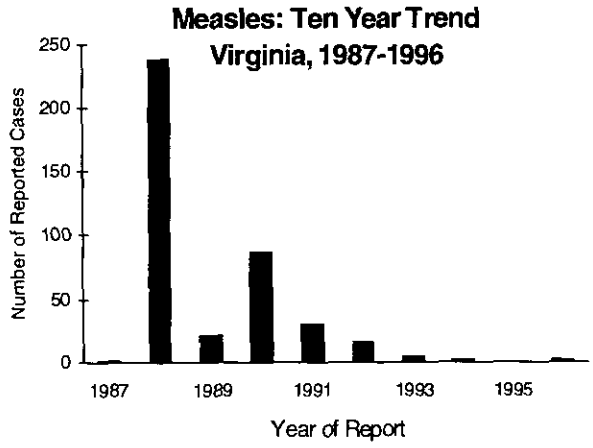
All of the cases were exposed while in another country. Africa was the probable source of malaria for 26 cases, Central and South America 16 cases, Asia 7 cases, and Oceania 1 case. The probable source of malaria was not reported for ten persons.

The *Plasmodium* species was reported for 49 of the 60 cases. *P. falciparum* was identified in 23 cases, 21 of which had travel histories to Africa. *P. vivax* was identified in 20 cases for which travel was divided between Asia, Africa, and South and Central America. *P. malariae* was reported in four cases, *P. ovale* in two cases, and the species was not reported for eleven cases. Only one reported case occurred in U.S. military personnel. The status of the remaining cases was reported as U.S. civilians (17 cases), citizens of various foreign countries (26 cases) or status unknown (16 cases).

Measles

Three cases of measles were reported in Virginia in 1996 compared to zero cases in 1995 (Figure 29). All three cases (2,14 and 50 years of age) were linked to an exposure to measles while in another country. One case each was reported from the northwest, northern and central health planning regions.

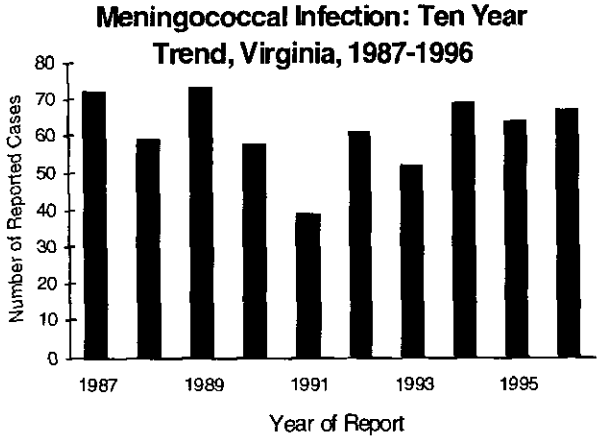
Figure 29



Meningococcal Infection

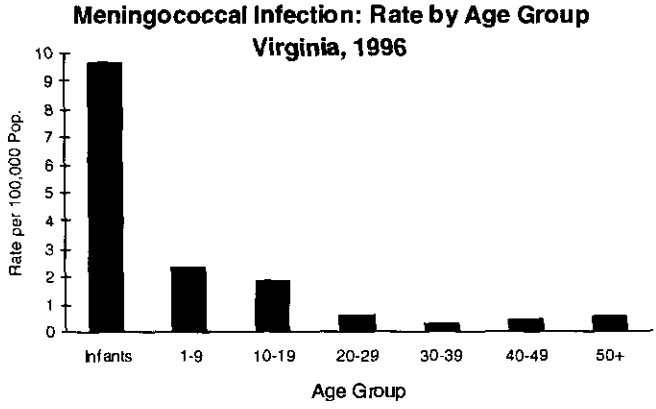
The annual number of reported cases of meningococcal disease has remained relatively constant for the past three years, with 67 cases reported in 1996, 64 cases in 1995 and 69 cases in 1994 (Figure 30). Cases occurred throughout the year in 1996 but the incidence was slightly higher during the fall and winter.

Figure 30



Infants were at the greatest risk for meningococcal disease (9.7 cases per 100,000 population), followed by persons in the 1-9 year age group (2.3 per 100,000) and the 10-19 year age group (1.9 per 100,000) as shown in Figure 31. The incidence rate for all other age groups was less than 1.0 per 100,000. Whites had an incidence rate of 1.0 per 100,000 compared to 0.7 per 100,000 for blacks and 0.5 per 100,000 for the other race category. The risk of disease for males and females was almost equal (1.1 and 1.0 per 100,000, respectively).

Figure 31



The incidence rate by health planning region ranged from 0.7 cases per 100,000 population in the eastern region to 1.5 per 100,000 in the northwest and central regions.

The serogroup was reported for 47 (70%) of the cases: 17 were group Y, 15 group B, and 15 group C. The organism was isolated from cerebrospinal fluid in 15 cases, from blood in 38 cases, and from both in ten cases.

Two epidemiologically linked cases of serogroup B disease occurred in children who had attended the same day care center. Dates of onset were within one day of each other. One of the children died.

Also, two cases of serogroup Y disease occurred in the same nursing home within 11 days of each other. The two cases occurred in elderly women who lived on the same unit at the nursing home. Transmission from an asymptomatic nursing home staff member was suspected; to prevent further cases of illness from occurring, all staff were prophylaxed to eliminate nasopharngyeal carriage.

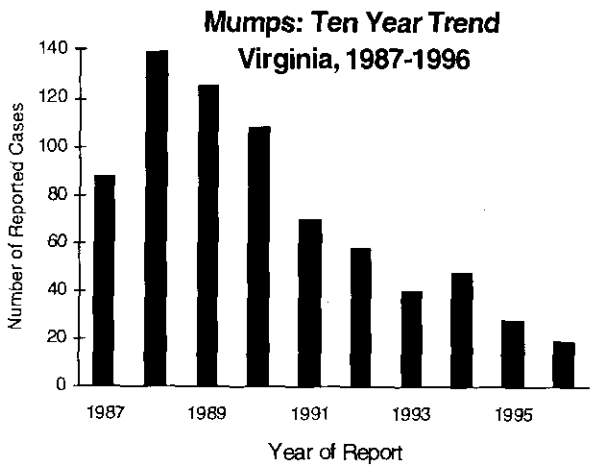
Five males and two females, ranging in age from two to 44 years, died of meningococcal disease. Three of the seven deaths were associated with

serogroup Y disease, two serogroup B and two serogroup C.

Mumps

The 19 cases of mumps that were reported in 1996 is the lowest number of cases recorded since 1984 as shown in Figure 32. Cases occurred throughout the year with a minimum of three or a maximum of eight cases occurring quarterly. Twelve (63%) cases were in the 1-9 year age group which had an incidence rate of 1.5 per 100,000, followed by the 10-19 year age group (0.5 per 100,000), the 40-49 year age group (0.2 per 100,000) and the 30-39 year age group (0.1 per 100,000. No cases where reported for infants, the 20-29 year age group or the 50 year and older age group. By race, blacks and the other race category were at equal risk for mumps and at a greater risk than whites (0.5 vs. 0.1 cases per 100,000 population). Males were twice as likely to be reported with this disease as females (0.4 vs. 0.2 per 100,000).

Figure 32



The northern and eastern health planning regions reported the highest number of cases (six and seven cases, respectively) and had the highest incidence rates (0.4 per 100,000 each). The southwest and central regions each reported three cases. No cases were reported from the northwest region.

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 (7 nursing homes and 1 hospital) nosocomial outbreaks were reported in 1996. A virus (Norwalk or Norwalk-like) was confirmed as the cause of three outbreaks and was suspected as the cause for three others. These outbreaks were characterized by symptoms of gastrointestinal illness. A laboratory confirmed (*Clostridium perfringens*) foodborne outbreak and a scabies outbreak were also reported.

Occupational Illnesses

During 1996, 267 cases of the following occupational illnesses were reported to the health department: asbestosis (238 cases, 89%), lead poisoning (18 cases, 7%), cadmium exposure (9 cases, 3%), and mercury exposure (2 cases, 1%). The remainder of this section will present further information on the cases of asbestosis and lead poisoning.

Of the 238 persons reported with asbestosis, only eight (3%) were female. Cases ranged in age from 42 to 93 years (mean = 64 years). Race was reported for only one of the cases.

Cases were reported from the eastern (77%), central (22%) and southwest (<1%) health planning regions. The industries employing the most persons reported with asbestosis were shipbuilding (109 cases, 46%), the tire industry (45 cases, 19%) and the railroad industry (27 cases, 11%).

The 18 adults (17 males and 1 female) reported with elevated blood lead levels ranged in age from 23 to 55 years (mean = 39 years). Only persons with blood lead levels greater than or equal to 40 micrograms per deciliter (μg/dL) are included. The average blood lead level reported was 50 µg/dL. Cases

were reported from four of the five health planning regions. Thirteen cases were reported from the eastern region, three from the northwest region and one case each from the southwest and central regions. One worker with lead poisoning was employed in the construction industry. The industry was not reported for the remaining workers.

Ophthalmia Neonatorum

Eight cases of ophthalmia neonatorum were reported in 1996; all were due to *Chlamydia trachomatis* infection. Six cases had been reported the previous year.

Other Meningitis

Thirty-four cases of meningitis caused by organisms other than bacteria and viruses were recorded in 1996. Eighteen (53%) cases were caused by *Cryptococcus neoformans*. The organism was not specified for the remaining 16 cases. Meningitis caused by *C. neoformans* was exclusively reported in adults. These cases ranged in age from 23 to 53 years (mean = 36). Five were also reported with human immunodeficiency virus infection (HIV).

Cases of meningitis in which an organism was not reported ranged in age from less than 1 to 88 years (mean = 37). None of these persons was reported with HIV infection.

As with bacterial and aseptic meningitis, blacks were at the greatest risk for this disease (14 cases, 1.1 per 100,000). Almost three times as many males as females were reported (25 males vs. 9 females).

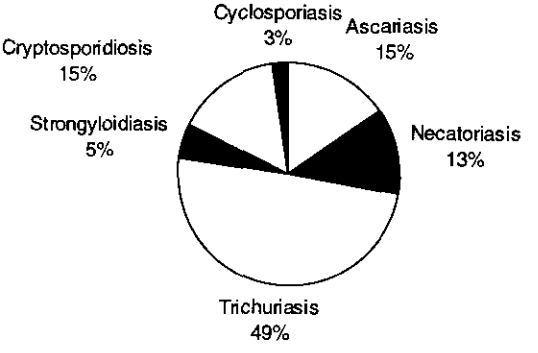
Five deaths occurred among persons reported with this category of meningitis; all were male. Each of the five males who died also had HIV infection and ranged in age from 33 to 43 years.

Parasites, Intestinal

In addition to amebiasis and giardiasis, selected reports of other parasitic intestinal diseases are recorded. In 1996, 79 laboratory confirmed cases of intestinal parasites were reported: 39 cases of trichuriasis (whipworm), 12 cases of ascariasis (roundworm), 12 cases of cryptosporidiosis, 10 cases of necatoriasis (hookworm), 4 cases of strongyloidiasis and 2 cases of cyclosporiasis (Figure 33).

Figure 33

Intestinal Parasites
Virginia, 1996



The majority (71%) of cases occurred in the second and third quarters of the year. The 10-19 year age group accounted for the highest number of cases (26 cases) and had the highest incidence rate (3.0 per 100,000). Incidence rates in the other age groups ranged from 0.4 per 100,000 in adults aged 50 years and older to 1.3 per 100,000 in children aged 1-9 years. Race was not reported for over half of the cases. Where race was reported, 20 (61%) cases were in the other race category. Males were reported twice as often as females.

Fifty-six cases (71%) were reported from the central health planning region, which had an incidence rate of 5.0 cases per 100,000 population. Incidence rates in the other health planning regions were less than 1.0 per 100,000.

The investigation of one of the reported cyclosporiasis case led to the identification of an outbreak of compatible illness linked to the consump-

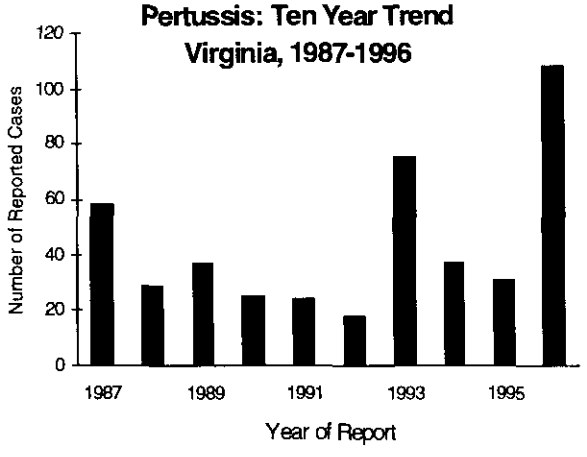
tion of imported berries (see Foodborne Outbreaks section).

Pertussis

Pertussis has re-emerged as one of the most frequently reported vaccine preventable diseases in Virginia. Pertussis has been a reportable disease in Virginia since 1923, when 5,451 cases were reported. The introduction of a vaccine has led to a substantial decline in pertussis which reached a low of ten reported cases in Virginia for 1981. However, despite high vaccination coverage among young children who are at the greatest risk, reported cases of pertussis have increased. Technical barriers such as lack of a simple and easily accessible laboratory test, nonspecificity of symptoms during the early course of illness, lower than expected vaccine efficacy, and growing evidence of waning immunity have all been cited as reasons for continued disease transmission.

The 108 cases of pertussis reported in 1996 was the highest number of cases reported since 1970 when 163 cases were reported (Figure 34). The majority (61%) of cases reported onset between June and September. Infants had the highest incidence rate at 50.5 cases per 100,000 population, followed by the 1-9 year age group (3.2 per 100,000) and 10-19 year age group (2.6 per 100,000).

Figure 34



By race, blacks and whites had similar incidence rates (1.7 and 1.4 cases per 100,000 population, respectively); however, the other race category was at the greatest risk for pertussis (2.8 per 100,000). Females (1.9 cases per 100,000 population) were slightly more at risk for pertussis than males (1.4 per 100,000).

The northwest health planning region reported the highest number of cases and incidence rate (52 cases, 5.7 per 100,000). The eastern and central regions had rates of 1.4 and 1.2 per 100,000 respectively. The northern and southwest regions had incidence rates which were less than 1.0 per 100,000.

Phenylketonuria (PKU)

Two male infants were identified as having PKU through newborn screening programs 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

One laboratory confirmed case of psittacosis was reported from the southwest health planning region in 1996. Psittacosis is a disease of low frequency in Virginia.

Q Fever

No cases of Q fever were reported in Virginia in 1996. One had been reported in 1995.

Rabies in Animals

The total number of laboratory confirmed rabid animals for 1996 was 612, up 33% from last year's total of 459. Raccoon rabies was reported in three localities that had not previously reported it: Lynchburg, Northampton and Portsmouth.

For the fifteenth consecutive year, raccoons were the most commonly reported species with rabies. The 383 rabid raccoons accounted for 63% of all rabid animals, with 124 rabid skunks accounting for another 20% (Figure 35). The other wildlife reported as rabid in 1996 were 38 foxes, 17 bats, 6 groundhogs, 1 bobcat, 1 mink, 1 opossum and 1 otter. Twenty-nine rabid cats were reported in 1996, compared to 27 in 1995 and 25 in 1994. The other rabid domestic animals in 1996 were five dogs, four cows and two horses.

The number of animals tested in 1996 was 4,224 compared to 3,585 tested in 1995. Cats were the most commonly tested animal, accounting for 28% of all animals tested. Raccoons accounted for 21% of animals tested, followed by dogs (15%), opossums (7%), bats (6%) and skunks (5%). Overall, 15% of all animals tested were positive for rabies. Although skunks only accounted for 5% percent of all animals tested, 63% of those tested were positive. Forty-three percent of tested raccoons were positive, compared with 3% of cats and 1% of dogs. Figure 36 compares the number of animals tested with the number positive for each month.

Figure 35

Species of Animals Positive for Rabies, Virginia, 1996

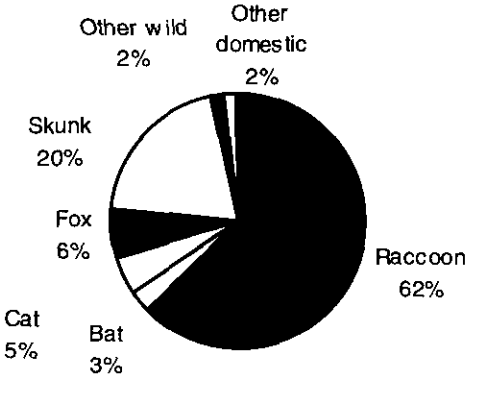
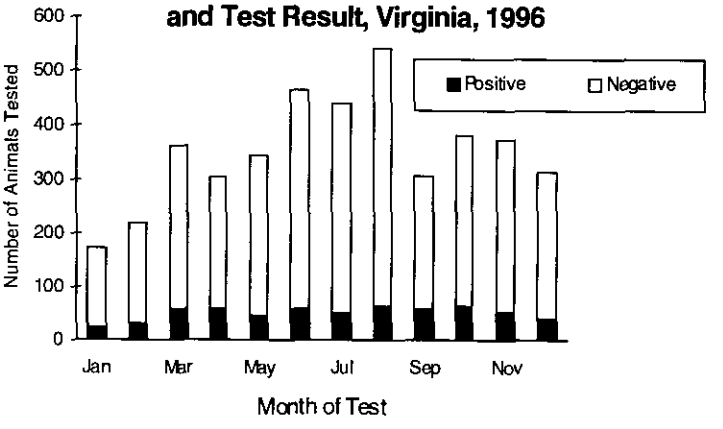


Figure 36

Animal Rabies Tests by Month and Test Result, Virginia, 1996



Human exposure was reported for the rabid bobcat, mink, and otter; the 2 rabid horses; 2/4 rabid cows; 3/17 rabid bats; 4/5 rabid dogs; 7/124 rabid skunks; 11/38 rabid foxes; 23/29 rabid cats; and 30/383 rabid racoons.

The localities with the highest number of rabid animals in 1996 were Northampton with 62 rabid animals (10% of reported cases) and Fairfax County (including the cities of Fairfax and Falls Church) with 55 rabid animals (9% of reported cases). The other localities contributed 3% or fewer cases each to the total number of rabid animals.

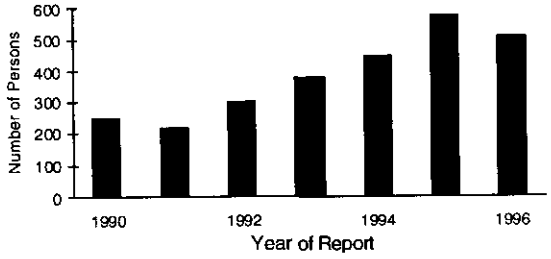
Rabies in Humans

No human rabies cases were reported in 1996. The last reported case in Virginia occurred in 1953. During 1996, 510 persons received post-exposure prophylaxis. This is the second highest number re-

ported since we began keeping records in 1985 (Figure 37). Pre-exposure vaccinations were reported for 439 persons compared to 587 reported in 1995.

Figure 37

Rabies Post-Exposure Prophylaxis Received, Virginia, 1990-1996



Reye Syndrome

No cases of Reye syndrome were reported in Virginia in 1996. One case was reported in 1994.

Rocky Mountain Spotted Fever

The 54 cases of Rocky Mountain spotted fever reported in 1996 represented a 59% increase from the 34 cases reported in 1995, making 1996 the third consecutive year in which the number of reported cases has increased in Virginia. Figure 38 shows the ten-year trend in the number of reported cases in Virginia. Onset of cases occurred from March through September, with 81% occurring between May and July (Figure 39).

Children in the 1-9 year age group and adults in the 50 and older age group had the highest incidence rates (1.2 and 1.1 cases per 100,000 population, respectively), followed by adults in the 20-29 and 30-39 year age groups (0.7 and 0.8 per 100,000, respectively).

Rocky Mountain spotted fever was more likely to be reported in whites (43 cases, 0.9 per 100,000) than in blacks (8 cases, 0.6 per 100,000). No cases were reported for the other race category, and race

Figure 38

Rocky Mountain Spotted Fever: Ten Year Trend, Virginia, 1987-1996

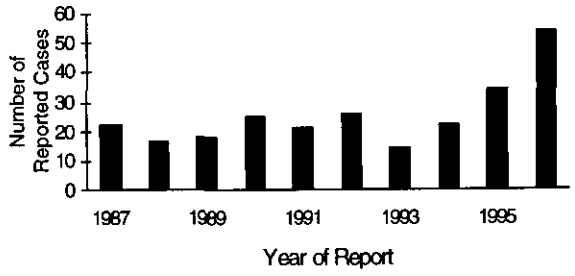
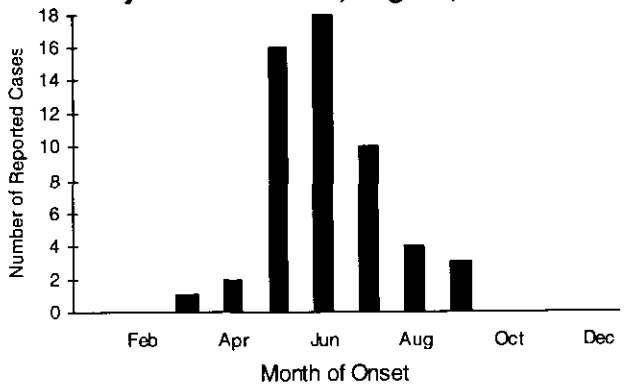


Figure 39

Rocky Mountain Spotted Fever by Month of Onset, Virginia, 1996



was not reported for three cases. The number of cases and incidence rate were the same for males and females (27 cases, 0.8 per 100,000 each).

Incidence rates ranged from a high of 1.7 cases per 100,000 population in the central health planning region to a low of 0.4 per 100,000 population in the eastern region.

Thirty-one (57%) patients had a known tick bite, nine (17%) had been in a tick infested area, eight (15%) did not recall any tick exposure, and no exposure status information was available for the remaining six (11%) patients.

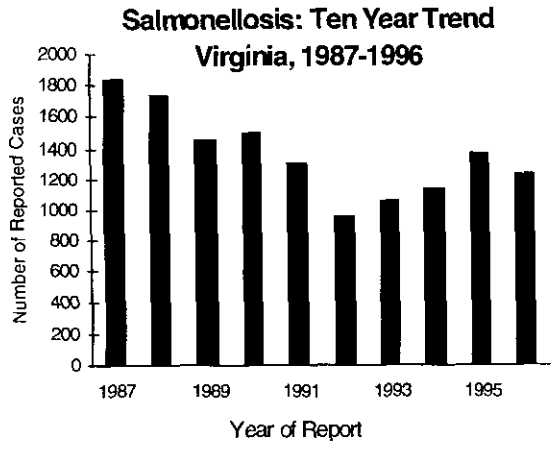
Rubella

One adult male and female were reported with rubella in Virginia in 1996. One person was reported from the northern health planning region and the other from the northwest region. These were the first cases of rubella reported in Virginia since 1990.

Salmonellosis

Salmonellosis continues to be the most frequently reported enteric pathogen in Virginia. In 1996, 1,229 *Salmonella* infections were reported compared to 1,358 in 1995. The decrease in the number of reported cases in 1996 reverses a trend of increased disease incidence that began in 1993 (Figure 40). The occurrence of illness was higher during the latter half of the reporting year with peak activity occurring in the third quarter.

Figure 40



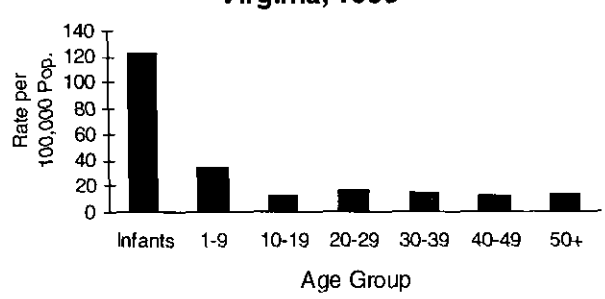
The most commonly reported serotypes were *S. enteritidis* and *S. typhimurium* (286 cases each), followed by *S. heidelburg* (51 cases) and *S. newport* (116 cases), as shown in Table 10. These four serotypes accounted for 76% of the 52 different serotypes identified in Virginia in 1996.

Table 10. Number and Percent of *Salmonella* Infections by Species, Virginia, 1996

Species Causing Infection	Number of Cases	Percent of Cases
S. enteritidis	286	23.27
S. typhimurium	286	23.27
S. newport	116	9.44
S. heidelberg	51	4.15
S. hadar	19	1.55
S. stanley	18	1.46
S. muenchen	16	1.30
S. thompson	16	1.30
S. braenderup	14	1.14
S. montevideo	14	1.14
S. agona	11	0.90
S. oranienburg	11	0.90
Unspecified	260	21.16
All Others	111	9.03
TOTAL	1229	100.00

Infants were at much greater risk for *Salmonella* infection than any other age group. The incidence rate for infants was 121.5 cases per 100,000 population, followed by children aged 1-9 years (34.6 per 100,000). Incidence rates in the other age groups ranged from 12.0 to 16.7 per 100,000 (Figure 41). The other race category had the highest incidence rate (12.3 cases per 100,000 population), followed by blacks (11.0 per 100,000) and whites (9.9 per 100,000). The risk of infection was slightly higher in females (19.4 per 100,000) compared to males (17.3 per 100,000).

Figure 41



By region, the highest incidence rate was in the central health planning region (24.6 per 100,000 population), followed by the northern region (19.2 per 100,000).

Four confirmed salmonellosis outbreaks were identified in 1996; two associated with restaurants, one with a cafeteria, and one with a mobile food service truck. See the Foodborne Outbreak section of this report for more information.

Shigellosis

The 746 reported cases of shigellosis in 1996 represented an 81% increase over the 412 cases reported in 1995. The 746 cases reported in 1996 is the second highest number reported in the last ten years (Figure 42). The increase in the number of reported cases in 1996 occurred in three of the five health planning regions (Figure 43). The increase was most noticeable in the northwest and northern health planning regions which reported 62% of the cases (213 and 249 cases, respectively) in 1996 compared to 37% in 1995. The increase in the number of reported cases in Virginia in 1996 can be attributed to person-to-person spread of *Shigella* in child-care centers among attendees and staff, and in household contacts.

Figure 42

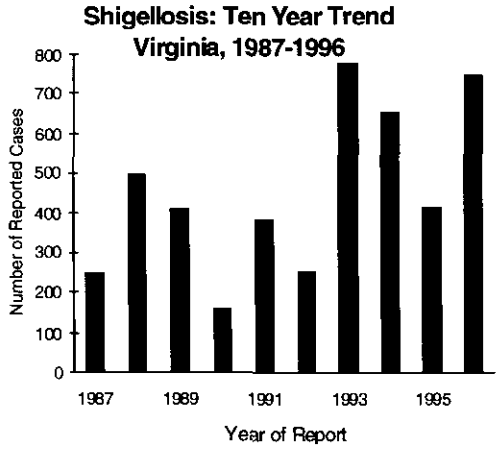
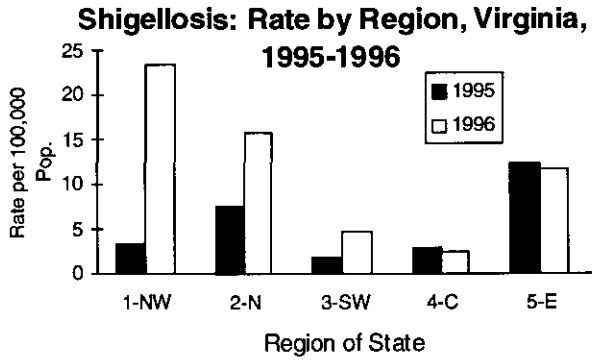


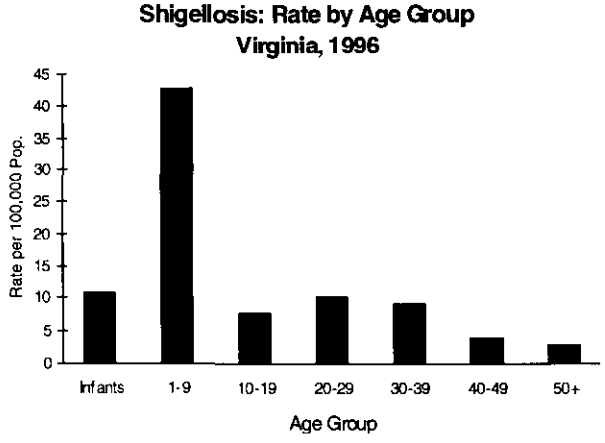
Figure 43



Peak incidence for this disease occurred during the third quarter as did the other major enteric diseases (i.e., campylobacteriosis, giardiasis, and salmonellosis). Eighty-six percent (644 cases) of *Shigella* infections reported were caused by *Shigella sonnei*; 27 infections were due to *S. flexneri*; 3 to *S. boydii*; 2 to *S. dysenteriae*; and species was not reported for 70 infections.

Children aged 1-9 years accounted for almost half (351 cases, 47%) of the reported cases and were at the greatest risk for *Shigella* infection (42.6 per 100,000). Infants had the second highest incidence rate (10.8 cases per 100,000 population) and adults aged 50 and older were least at risk for shigellosis (2.7 per 100,000). Incidence rates by age group are shown in Figure 44.

Figure 44



Race was not reported for 325 (44%) cases. Where race was reported, blacks had the highest incidence rate (11.4 cases per 100,000 population),

followed by the other race category (6.4 per 100,000). Females were more at risk than males (12.6 vs. 9.5 cases per 100,000 population).

The incidence rate of *Shigella* infection was the highest in the northwest health planning region (23.5 cases per 100,000 population), followed by the northern (15.7 per 100,000), eastern (11.8 per 100,000), southwest (4.8 per 100,000) and central (2.4 per 100,000) regions.

Smallpox

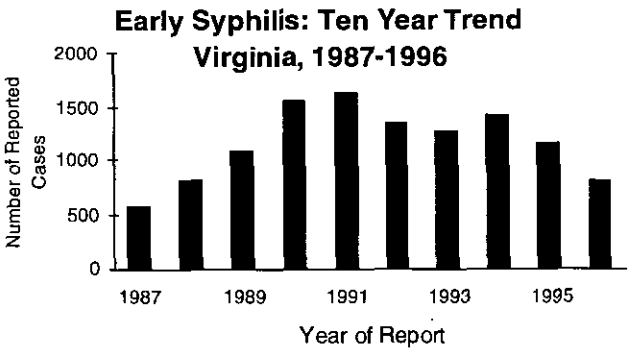
The last reported case of smallpox in Virginia occurred in 1944.

Syphilis

Early Syphilis

Early syphilis includes the primary, secondary and early latent stages of syphilis. The number of reported cases of early syphilis decreased 30%, from 1,144 cases in 1995 to 798 cases in 1996 (Figure 45).

Figure 45

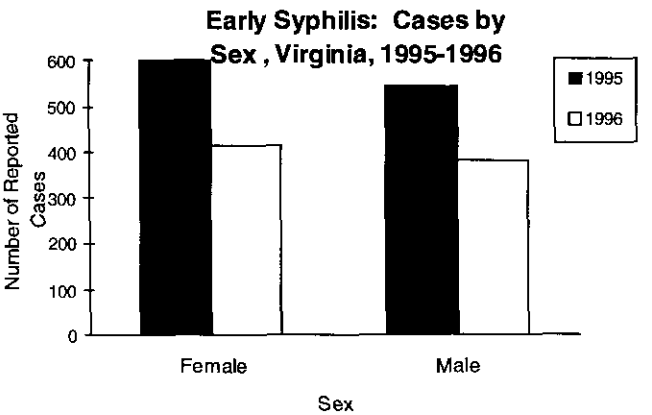


The 40-49 year age group had the highest incidence rate (28.7 cases per 100,000 population), followed by the 20-29 year age group (26.2 per 100,000), the 39-39 year age group (22.1 per 100,000), the 10-19 year age group (10.1 per 100,000), and the 50 year and older age group (2.5 per 100,000).

Blacks had an incidence rate of 56.8 cases per 100,000 population, which was 52 times higher than the rate for whites (1.1 per 100,000) and eight times higher than that of the other race category (6.8 per 100,000).

The number of cases in females decreased 31%, from 600 cases in 1995 to 415 cases in 1996. The corresponding decrease in the number of cases in males was 30%, from 544 cases in 1995 to 383 cases in 1996 (Figure 46). The 1996 incidence rate per 100,000 population was 12.4 for females and 11.9 for males.

Figure 46

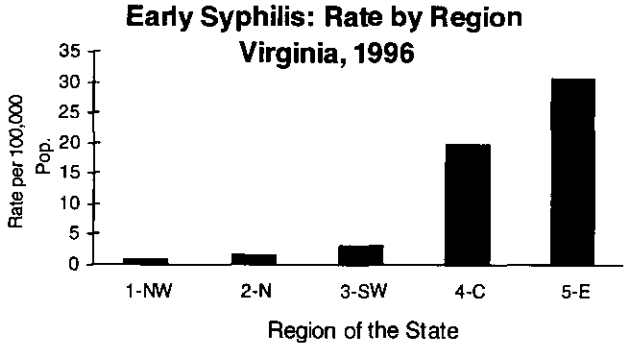


The eastern health planning region reported the most cases (507 cases, 30.4 per 100,000), followed by the central (220 cases, 19.6 per 100,000), southwest (38 cases, 3.0 per 100,000), northern (24 cases, 1.5 per 100,000), and northwest (9 cases, 1.0 per 100,000) regions. Incidence rates by health planning region are shown in Figure 47. Onset of disease was more frequent during the first quarter of the year when 31% of the cases occurred.

Congenital Syphilis

In 1996, nineteen cases of congenital syphilis were reported. Sixteen cases were reported from the eastern health planning region, and one each from the central, southwest and northwest regions. Seventeen of the infants were black and two were white.

Figure 47



The mother's average age was 24 years, with a range of 15 to 34 years. This was the second year since 1991 that the mother's average age had decreased in comparison to the prior year. Most (84%) were single parents. Eight (42%) mothers did not receive prenatal care. Four sought prenatal care during their first trimester, four during the second trimester, and three during the third trimester.

The 19 congenital syphilis cases reported in 1996 represent a 14% decrease from the 22 cases reported in 1995. The decrease in congenital syphilis may be associated with the 19% 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 1997 may decrease, as there was a decrease in female early syphilis cases from 1995 to 1996.

Tetanus

No cases of tetanus were reported in Virginia in 1996. The last two cases were reported in 1994.

Toxic Shock Syndrome

One confirmed case of toxic shock syndrome was reported in Virginia in 1996 compared to three cases in 1995. This condition occurred in an adult female from the northwest health planning region.

Toxic Substance Related Illnesses

No illness in this category was reported in 1996 to the Office of Epidemiology.

Toxoplasmosis

One case of toxoplasmosis was 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

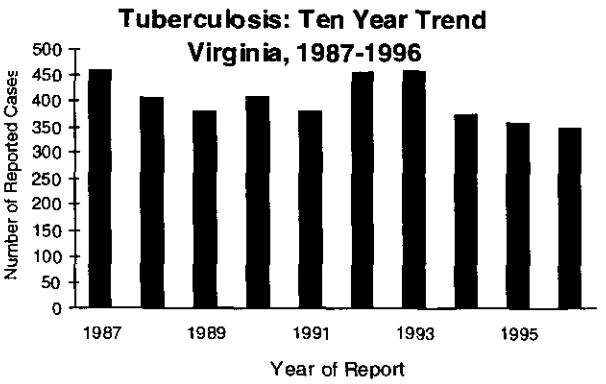
The last case of trichinosis in Virginia occurred in 1993.

Tuberculosis

In 1996, 349 tuberculosis cases were reported compared to 359 cases in 1995. Thirty-two (9%) cases were reactivations of previously diagnosed and treated disease. The annual incidence rate for Virginia was 5.3 cases per 100,000 population, compared to 8.0 cases per 100,000 population for the nation. Figure 48 shows the ten-year trend for tuberculosis in Virginia.

Cases of tuberculosis occurred in all age groups. Fifty-four percent of reported cases were in persons aged 50 years and older (187 cases, 11.7 per 100,000). Seven cases (0.9 per 100,000) occurred

Figure 48



in children under ten years of age (Figure 49). The other race category had the highest incidence rate (86 cases, 39.2 per 100,000), followed by blacks (111 cases, 8.7 per 100,000) and whites (152 cases, 3.0 per 100,000). Males were more likely to be reported with tuberculosis than females (226 cases, 7.1 per 100,000 vs. 123 cases, 3.7 per 100,000).

Forty-one percent of the cases were reported from the northern health planning region (143 cases, 9.0 per 100,000), followed by the eastern and central regions (82 cases, 4.9 per 100,000 and 54 cases, 4.8 per 100,000, respectively) as shown in Figure 50. Persons born in countries outside the United States accounted for 155 (44%) cases, 119 of which were reported from the northern health planning region.

Figure 49

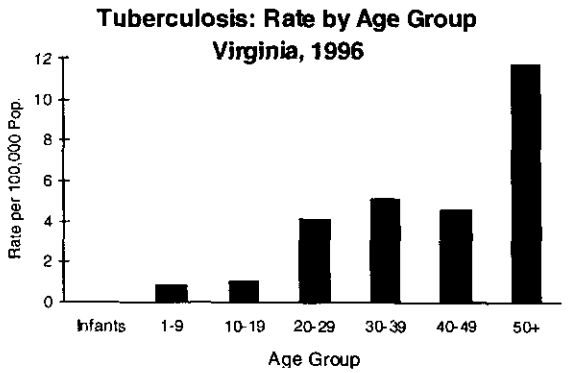
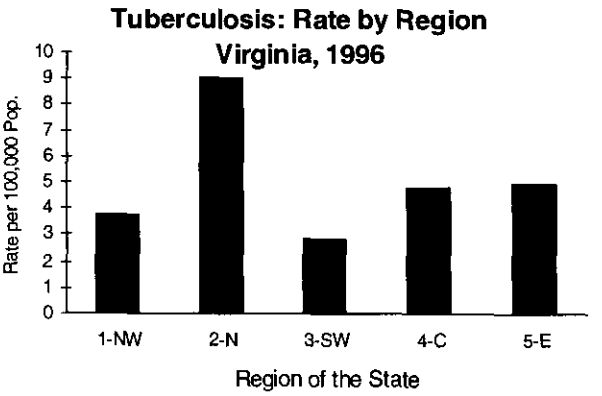


Figure 50



Of 312 isolates tested, 31 (10%) were drug resistant. Seventeen (5%) were resistant to one antituberculosis medication; 14 (4%) were resistant to multiple drugs, three of which were resistant to both isoniazid and rifampin.

Forty-six (13%) persons reported with tuberculosis in 1996 died. Their ages ranged from 27 to 94 years (mean = 75 years); more than 67% were aged 65 or older at the time of death. Ten of those who died were diagnosed at death and the other 36 died during the course of treatment.

Tularemia

No cases of tularemia were reported in Virginia in 1996. One case had been reported in 1995.

Typhoid Fever

Eleven cases of typhoid fever (*Salmonella typhi*) were reported in 1996 compared to ten in 1995. The cases ranged in age from five to 82 years (mean = 36 years). The male to female ratio was 4.5:1.

Six of the ten cases had traveled to or lived in Asia and Central America during the month preceding their onset of illness. Two cases reported no travel history in the six weeks prior to onset of ill-

ness and the travel history was not reported for three cases.

Nine cases were reported from the northern health planning region and one case each was reported from the northwest and eastern regions.

Typhus, Flea-borne

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

Vibrio Infection

Nine *Vibrio* infections were reported in Virginia in 1996. *Vibrio parahaemolyticus* was the cause of four infections. Two *Vibrio* infections were caused by *V. hollisae*, *V. mimicus*, *V. cholerae* non-01, and *V. vulnificus* each caused one infection. One death due to *V. vulnificus* infection was reported. This death occurred following consumption of raw oysters.

All cases occurred between May and September. Over one-half of the cases were aged 40 years or older. Race was reported for six of the cases; three of whom were black and three were of the other race category. Eight males and one female were reported. The northern and eastern health planning regions each reported three cases, followed by the southwest region with two cases, and the central region with one case.

Cholera

No cases of cholera were reported in Virginia in 1996. The last case was reported in 1994.

Waterborne Outbreaks

Three confirmed waterborne outbreaks were reported in Virginia during 1996. In June of 1996, two outbreaks of cercarial dermatitis ("swimmer's itch") occurred in two different regions of the state. The first outbreak involved 19 children who had symptoms of papular and vesicular lesions and intense itching within 24 hours after swimming in a lake in Frederick County. The second outbreak was among eight persons who had similar symptoms after exposure to a lake in Suffolk. Cercarial dermatitis is a cutaneous inflammatory response caused by penetration of the skin by cercariae, the free-swimming larval forms of bird schistosomes. Snails, which serve as an intermediate host during the life cycle of avian schistosomes, were collected from both lakes and examined. Snails from the Suffolk location were infected with a species of *Trichobilharzia*, an avian schitosome.

A third waterborne outbreak occurred in southwest Virginia in the fall of 1996. Twenty-three cases of legionellosis were reported in this outbreak, including two deaths. The source of infection was traced to a hot tub displayed in a home improvement center. This outbreak is believed to be the first documented outbreak of legionellosis associated with a hot tub used for display purposes only.

Yellow Fever

No cases of yellow fever have been reported in Virginia in this century.

Yersiniosis

Although not officially reportable, 25 laboratory confirmed cases of *Yersinia* infection were recorded in 1996, which is the same number that was reported in 1995 and 1994. *Enterocolitica* was the only *Yersinia* species recorded in 1996. Cases occurred