

DESCRIPTIVE EPIDEMIOLOGY

OF REPORTABLE DISEASES

Acquired Immunodeficiency

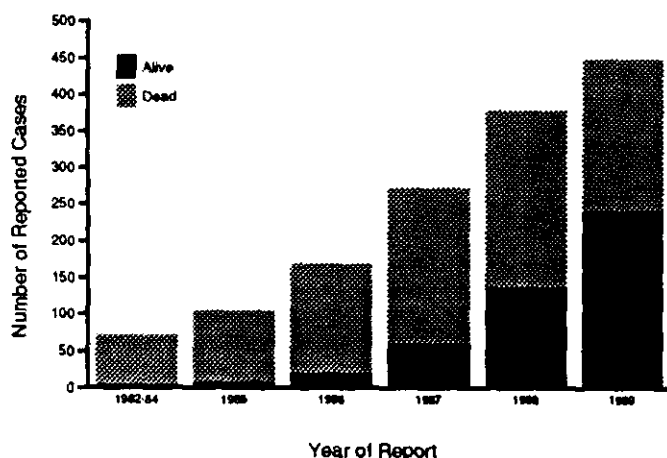
Syndrome (AIDS)

Since reporting began in 1982, the cumulative number of AIDS cases reported is 1,429 with 971 (67.9%) of these cases known to have died. (Figure 1)

The annual number of cases continues to increase; in 1989, 446 cases were reported, representing an 18.6% increase over 1988 (376 cases).

Figure 1

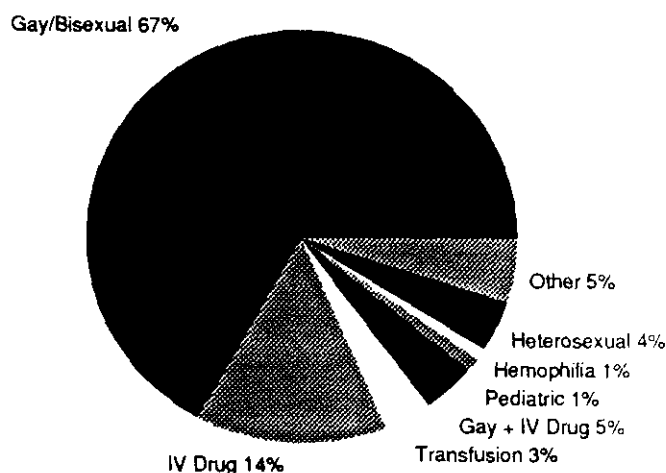
Reported Cases of AIDS in Virginia
by Year of Report and Vital Status



AIDS is a bloodborne disease caused by the human immunodeficiency virus (HIV). The most common modes of transmission are through unprotected sexual intercourse (especially anal intercourse) and intravenous (IV) drug use. During 1989, homosexual activity accounted for the greatest percentage of AIDS cases (67.0%), followed by IV drug use (14.4%). An additional 4.0% of cases had both of the above risk factors. (Figure 2)

Figure 2

AIDS: Mode of Transmission
Virginia, 1989



The screening of blood and blood products for HIV began in March of 1985. As a result, it is expected that the number of new cases attributed to blood or blood products will decline. Comparing 1989 with 1988, the percentage of cases due to blood transfusions or blood products associated with hemophilia dropped from 6.2% to 4.5%.

The majority of the AIDS cases reported in 1989 were between the ages of 20 and 49 (408 cases, 91.5%). The age group with the highest morbidity rate was the 30-39 year olds (19.8 per 100,000). Five pediatric AIDS cases were reported in 1989. The majority of these children were infected via perinatal transmission (4 cases, 80%). One child was infected through a blood transfusion.

During 1989, the majority of AIDS cases were white (264 cases, 59.2%). Blacks, however, were 2.5 times more likely than whites to be affected by this disease, having a disease rate of 13.9 per 100,000 compared to 5.6 in whites. Males also represented a disproportionate share, with a

disease rate 14 times higher than females (14.1 vs. 1.0 per 100,000).

All regions experienced an increase in reported AIDS morbidity in 1989 compared to 1988. Continuing to experience the highest morbidity rate was the Northern Region (12.7 per 100,000) followed by the Central Region (10.7 per 100,000) and the Eastern Region (6.6 per 100,000). The Northwest and Southwest Regions each reported less than five cases per 100,000 population.

Persons with AIDS develop a variety of life-threatening opportunistic infections due to immunosuppression. The most commonly diagnosed infection is Pneumocystis carinii pneumonia (PCP). Over half (56.7%) of the cases reported during 1989 developed PCP during the course of their illness. Other frequently diagnosed conditions include Kaposi's sarcoma, HIV wasting syndrome, esophageal candidiasis, and HIV encephalopathy.

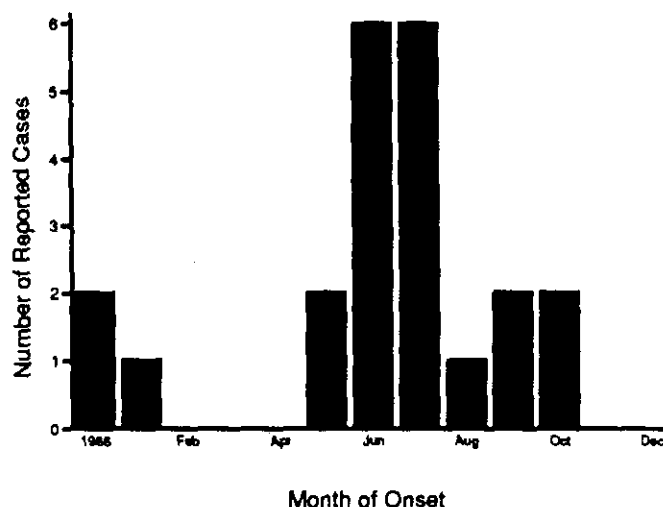
Amebiasis

Twenty-four Virginians were reported to be infected with Entamoeba histolytica in 1989. While this represents an increase over the 19 cases reported in 1988, the general trend over the past ten years has been a decrease in reports of this disease (ten year average = 51 cases per year).

Seventy percent of the cases were age 10-39. Only three cases (12.5%) were age 40 or older; only one case was less than five years old. Over one-half (13 cases, 54.2%) of the persons with amebiasis were of the other race group. Three cases were black and three were white. Race was unreported for the remaining five cases.

Figure 3

Cases of Amebiasis by Date of Onset
Virginia, 1989



The disease rate in nonwhites was 1.2 per 100,000 compared to 0.06 in whites. Cases were fairly evenly distributed between the sexes, with 12 male (0.4 per 100,000), 10 female (0.3 per 100,000), and two sex unknown cases. Half of the cases had onset during the months of June or July. (Figure 3)

Cases occurred in each region of the state. No region experienced a rate of amebiasis greater than 0.5 per 100,000 population.

Anthrax

No cases of anthrax were reported in 1989. In fact, no cases of anthrax have been reported in Virginia since 1970.

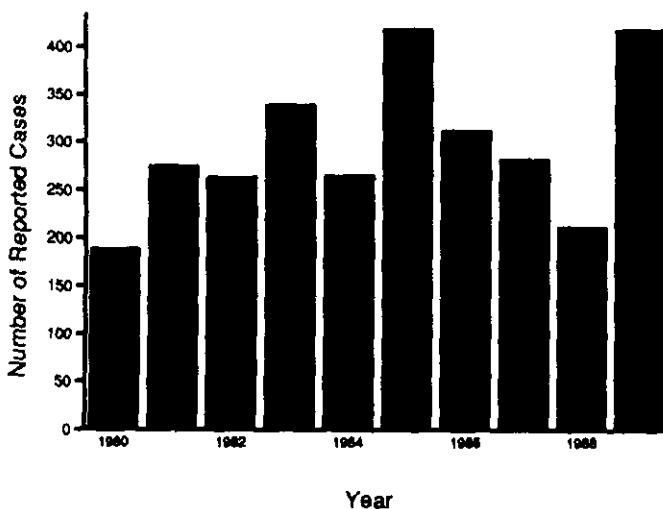
Arboviral Infections

No cases of any of these diseases were reported in 1989. The last arboviral infection reported was a case of LaCrosse encephalitis, with exposure occurring out of state, in 1987.

Aseptic Meningitis

Figure 4

Aseptic Meningitis: 10 Year Trend
Virginia, 1980-1989



The 417 cases of aseptic meningitis reported in 1989 is almost twice the 210 reported in 1988. (Figure 4) The virus was identified as an unspecified enterovirus for eight cases, coxsackie B5 for two cases, and echovirus 4 for one case. No information on the virus was given for the remaining cases.

The age group with the greatest number of cases was 20-29 year olds (116 cases, 27.8%). Four

other age groups, however, had over 60 cases each (infants 68 cases, 1-9 year olds 61 cases, 10-19 year olds 65 cases, 30-39 year olds 63 cases). Infants had the highest rate of aseptic meningitis (74.0 per 100,000).

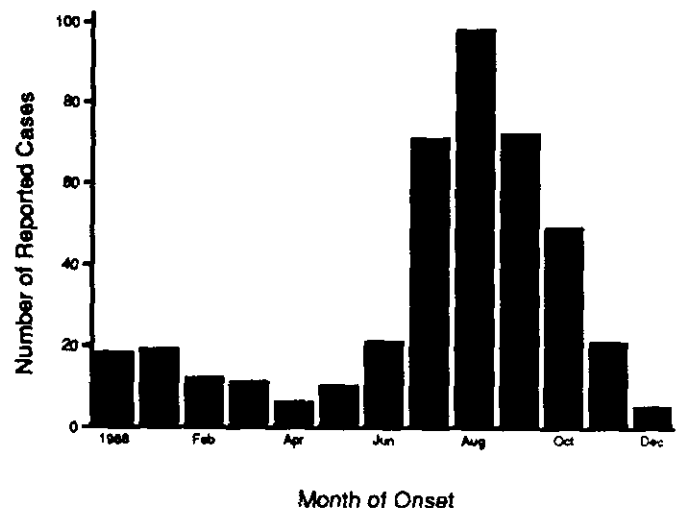
Nonwhites experienced a greater rate of disease than whites (6.7 vs. 4.7 per 100,000). Race was unreported for 25.4% of the cases. The likelihood of disease was similar for males (7.2 per 100,000) and females (6.7 per 100,000).

Over one-half (57.8%) of the cases experienced onset during the months of July, August, and September, with the largest number occurring in August. (Figure 5) Disease rates ranged from 4.8 per 100,000 in the Southwest Region to 8.2 in the Northern Region. Although the Eastern Region had almost as many cases as the Northern Region (106 versus 107), the rate in the Eastern Region was lower, 6.9 per 100,000.

Four persons with aseptic meningitis died, including a ten year old and three cases over age 65.

Figure 5

Aseptic Meningitis by Date of Onset
Virginia, 1989



Bacterial Meningitis

The 191 cases of bacterial meningitis reported in 1989 is higher than the 187 reported the previous year but lower than the ten year average of 219 cases per year. The types of bacterial meningitis reported are listed in Table 8. The most commonly reported cause of bacterial meningitis was Haemophilus influenzae, followed by S. pneumoniae.

Infants had a much higher rate of disease than any of the other age groups, 87.1 per 100,000, followed by 7.1 per 100,000 for 1-9 year olds. The next most commonly affected age group was the fifty and older group, with a rate of 2.4 per 100,000 population. (Figure 6) Nonwhites were almost twice as likely as whites (4.4 vs. 2.4 cases per 100,000) to be reported with bacterial meningitis.

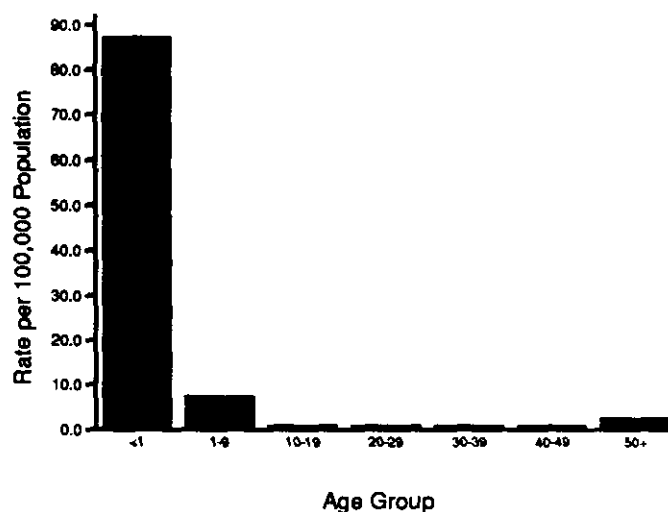
Table 8. Etiology of Bacterial Meningitis Reported in Virginia, 1989

Organism	Number of Cases	Percent of Cases
Bacteroides fragilis	1	0.52
Escherichia coli	5	2.62
Haemophilus influenza	81	42.41
Listeria monocytogene	8	4.19
Pseudomonas aeruginos	2	1.05
Salmonella	1	0.52
Staphylococcus	4	2.09
S. aureus	(1)	0.52
S. epidermidis	(1)	0.52
unspecified	(2)	1.05
Streptococcus	57	29.84
Group B	(11)	5.76
Group D	(1)	0.52
S. pneumoniae	(44)	23.04
unspecified	(1)	0.52
Unspecified	32	16.75
TOTAL	191	100.00

14

Figure 6

**Bacterial Meningitis: Rate by Age Group
Virginia, 1989**

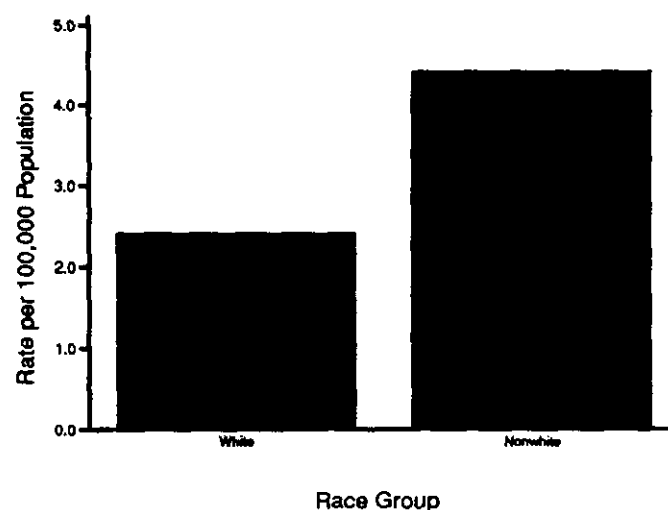


(Figure 7) Cases were almost equally likely to be female (3.1 per 100,000) as male (3.2 per 100,000).

More cases were reported to have onset during the first quarter of the year than any other quarter.

Figure 7

**Bacterial Meningitis: Rate by Race Group
Virginia, 1989**



Seventy-seven cases were reported from the Eastern Region (5.0 per 100,000), 43 from the Southwest (3.2 per 100,000), and 20 to 27 each from the other three regions.

Twenty-one deaths were attributed to bacterial meningitis, for a case fatality ratio of 11.0%. Eleven (52.4%) of the deaths were in cases with meningitis caused by S. pneumoniae. The average age at death was 47.2 years. Six children age five or younger died.

Botulism

One case of infant botulism was reported in 1989. The case occurred in November in the Southwest Region of the state.

Brucellosis

All six cases of brucellosis reported in 1989 occurred during the four months of April-July. Four of the cases (66.7%) were residents of the Eastern Region. All were between the ages of 20 and 49, with half in the 30-39 year age group. Five cases were black, one was white. Four were male and two were female.

Campylobacteriosis

The number of reported cases of Campylobacter infections has been consistently hovering around 600-700 per year since 1983: 689 were reported in 1989, 731 in 1988, and 639 in 1987, for example. Sixty percent (416) of the cases reported in 1989 were specified as C. jejuni, 15 were C. pylori, 12 were C. coli, seven were C. fetus, two were C.

laridis, one C. fecalis, and the remainder were species unspecified.

Nearly one-half (45.4%) of the cases were in the 20-29 and 30-39 age groups. Infants, however, had the highest morbidity rate of all age groups (28.3 per 100,000). Over one-half (374 cases, 54.3%) of the cases were missing information on race, 38.7% were reported to be white and 7.0% nonwhite. The sex distribution of cases was as follows: 357 males (12.2 per 100,000), 326 females (10.6 per 100,000), and 0.9% (6 cases) unknown.

Cases clustered in the warmer months, with onset peaking in June and July. (Figure 8) The morbidity rate was highest in the Northwest Region (18.6 per 100,000, 148 cases), although the Northern Region reported the most cases (183 cases, 14.0 per 100,000). (Figure 9)

Figure 8

Campylobacteriosis by Date of Onset
Virginia, 1989

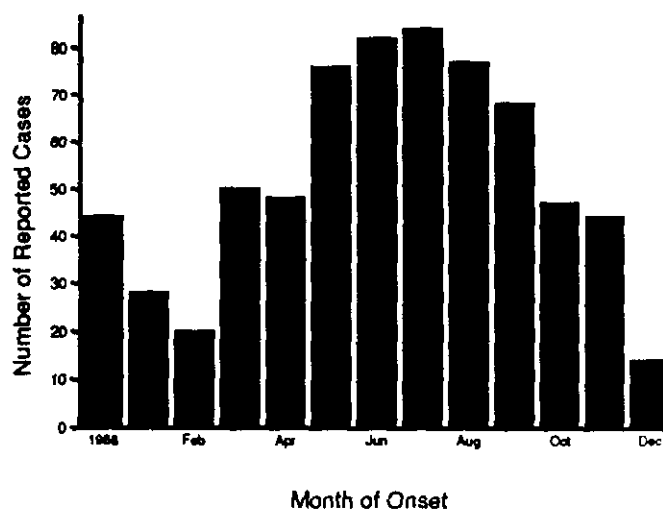
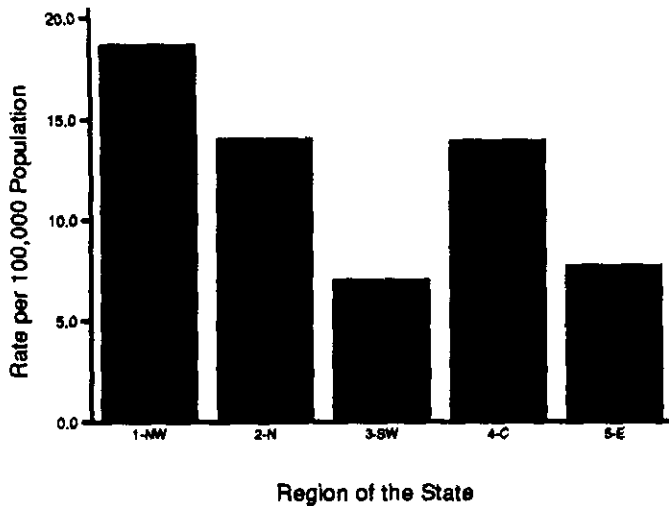


Figure 9

Campylobacteriosis: Rate by Region Virginia, 1989



and Williamsburg (20 cases, 177.2 per 100,000). Just under 80 percent (2770 cases, 79.3%) of the cases were reported from the Eastern Region.

Chlamydia trachomatis Infections

In 1989, Chlamydia trachomatis infection became officially reportable in Virginia, becoming one of 33 states with such a reporting requirement.

From July through December 1989, 6,002 cases of C. trachomatis infections were reported. Twenty-nine percent of the cases were white, 51% nonwhite, and 20% of the cases were race unspecified. The majority of the cases (88%) were between the ages of 10-29 with forty-seven percent of the cases in the 10-19 age category. (Figure 10)

Chancroid

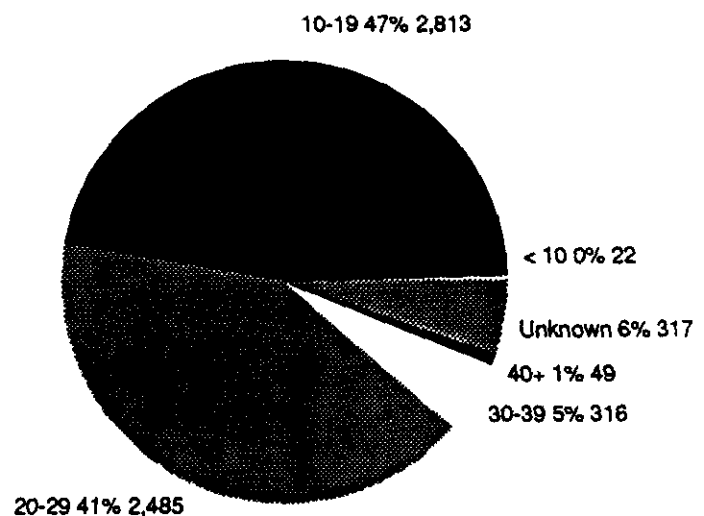
Ten cases of chancroid were reported in 1989, which is double the number reported in 1988. All ten cases were nonwhite. Eight were male and two female. Eighty percent of the cases were in the 15-39 year age range.

Chickenpox

Reports of cases of chickenpox in 1989 (3,492) were almost double those received in 1988 (1,733). The following five localities reported rates greater than 100 cases per 100,000 population: Alexandria (122 cases, 111.9 per 100,000), Franklin City (8 cases, 100.1 per 100,000), Norfolk (669 cases, 244.2 per 100,000), Virginia Beach (1,735 cases, 492.1 per 100,000),

Figure 10

C. trachomatis Infections by Age Group Virginia, 1989



These data are expected to be an underestimate of the incidence of C. trachomatis infections because (1) screening has been limited to high risk females attending sexually transmitted disease (STD), family planning or prenatal clinics, (2) as many as 75% of women and 25% of men with uncomplicated infections are asymptomatic, and (3) persons with gonorrhea presumptively treated for C. trachomatis are not included in the case counts. The Centers for Disease Control estimates the morbidity of Chlamydia trachomatis to be twice that of gonorrhea. By using this method, approximately 32,000 C. trachomatis infections are expected in Virginia each year.

The policy of restricting C. trachomatis screening to high risk females has resulted in a male to female ratio of 0.04 to 1.

Congenital Rubella Syndrome

No cases of this condition were reported in 1989. The last reported case occurred in 1981.

Diphtheria

One case of diphtheria was reported in 1989. The case occurred in June in the Southwest Region of the state.

Ehrlichiosis, Human

Ehrlichiosis is not an officially reportable disease, however, the health department has been notified of 20 cases occurring in Virginia between 1986 and 1989. Ten had onset in 1989. Of these, four had exposure in the Eastern Region, four in

the Central Region, one in the Northwest, and one in the Southwest.

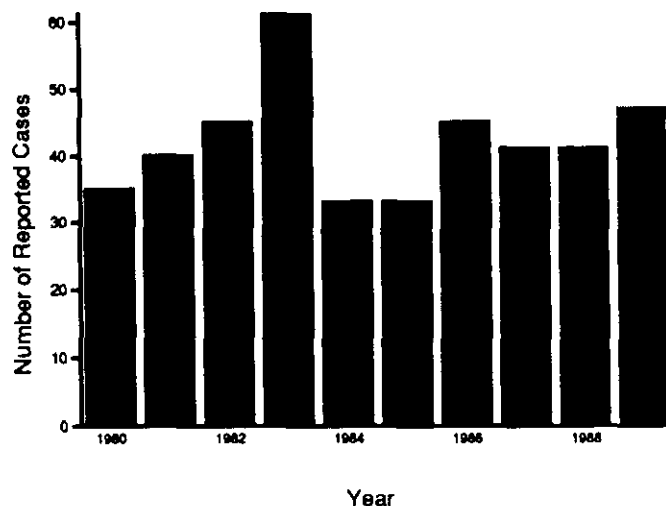
Encephalitis, Primary

Reports of primary encephalitis have remained stable over the last ten years, averaging 42.1 cases reported each year. The 47 reported in 1989 was higher than this average, but was not the most reported for any year within the past decade (61 cases were reported in 1983). (Figure 11) The cause of the encephalitis was unspecified for 31 cases. The other 16 cases were viral, with nine specified as *herpesvirus* and one as *cytomegalovirus*. Thirteen cases were specified to be *meningoencephalitis*.

Although a larger proportion of cases were reported in adults (13 in 30-39 year olds, 12 in persons age 50 and older), the age group with the highest morbidity rate was infants (3.3 per 100,000). The majority of cases (38 cases, 80.9%,

Figure 11

Encephalitis, primary: 10 Year Trend
Virginia, 1980-1989



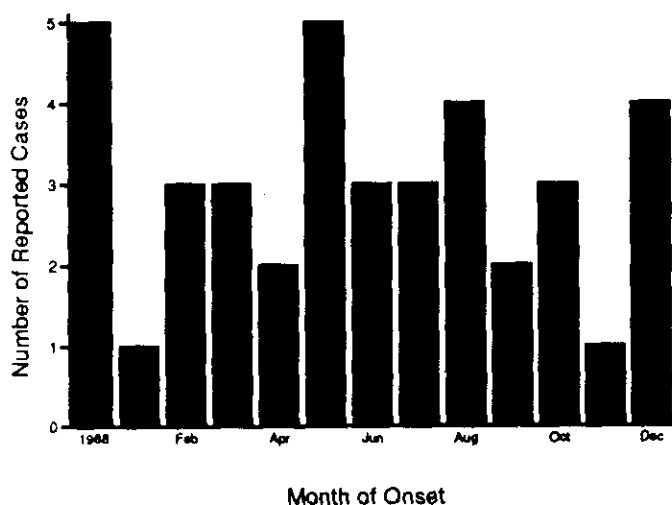
0.8 per 100,000) were white, 10.6% (5 cases, 0.4 per 100,000) were black, and 8.5% (4 cases) had race unspecified. Males had a slightly higher rate of disease (0.8) than females (0.7 per 100,000).

Onset occurred throughout the year, ranging from a low of one case per month in January and November to five in May. (Figure 12) The Northwest Region experienced the highest morbidity rate (2.0 per 100,000, 16 cases), followed by the Eastern Region (0.7 per 100,000, 11 cases).

Eleven deaths were attributed to primary encephalitis. Age at death ranged from infancy through age 83, with a mean of 41.4 years.

Figure 12

Encephalitis, primary by Date of Onset Virginia, 1989



Encephalitis, Post-Infectious

Three cases of post-infectious encephalitis were reported. The disease preceding encephalitis was listed as chickenpox for two cases and was unspecified for the third.

Foodborne Outbreaks

Seven outbreaks of foodborne disease were brought to the attention of the Office of Epidemiology in 1989. These are summarized in Table 9. The number of persons becoming ill ranged from three to 51 per outbreak. The causative organism and/or the vehicle of transmission were often unidentified. December was the month in which the most outbreaks occurred.

Fungal Diseases

Fungal diseases other than histoplasmosis are not officially reportable in Virginia. When reports of these diseases are received, however, they are recorded. In 1989, 123 fungal infections were reported. Included in this group were 62 cases of aspergillosis, 50 cases of torulopsosis and 11 cases of cryptococcosis. Cryptococcal meningitis is addressed in the Other Meningitis section.

Older adults were the most likely age group to be reported with fungal diseases. Two-thirds of the reported cases were in the 50 and older age group.

Eight persons with fungal diseases died, including three with aspergillosis, four with cryptococcosis, and one with torulopsosis.

Giardiasis

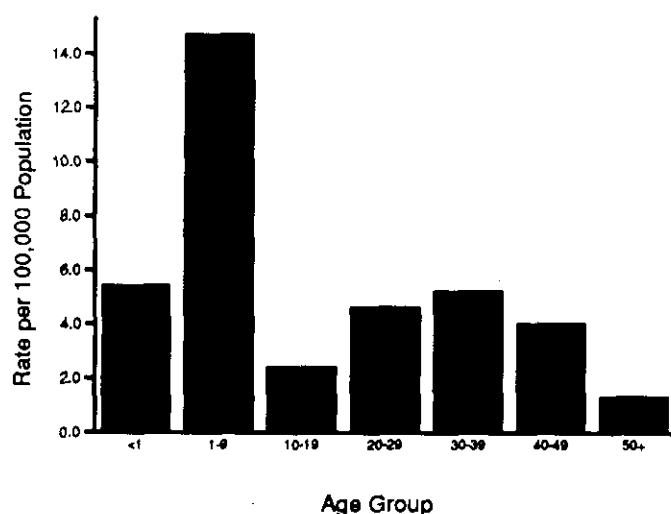
The 304 cases of giardiasis reported in 1989 represents a 21.6% increase in cases compared to

1988, but is consistent with the 305.4 cases per year average reported during the last five years.

Children age 1-9 were the most likely to have giardiasis (14.7 per 100,000), followed by infants (5.4 per 100,000) and persons age 30-39 (5.2 per 100,000). (Figure 13) Whites and nonwhites were almost equally likely to be reported with giardiasis

Figure 13

Giardiasis: Rate by Age Group Virginia, 1989

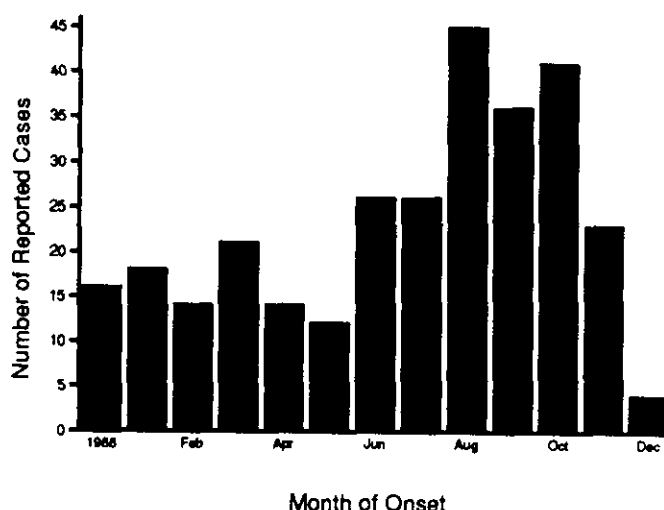


(3.6 and 3.3 per 100,000, respectively). Of the nonwhites, nine cases were black and 34 were another race. One-half of the cases (50.0%, 152 cases, 5.2 per 100,000) were male, 48% (146 cases, 4.7 per 100,000) were female, and 2% (6 cases) were of unspecified sex.

Cases clustered in the months of August through October, with a peak occurring in August. (Figure 14) Morbidity rates ranged from 3.25 in the Eastern Region to 6.74 in the Northern Region.

Figure 14

Cases of Giardiasis by Date of Onset Virginia, 1989



Gonorrhea

Gonorrhea continues to be the most frequently reported reportable disease in Virginia. In 1989, 15,993 cases of gonorrhea were reported in Virginia. This 10.6% increase from 1988 is a dramatic reversal of the downward trend observed over the last decade. (Figure 15)

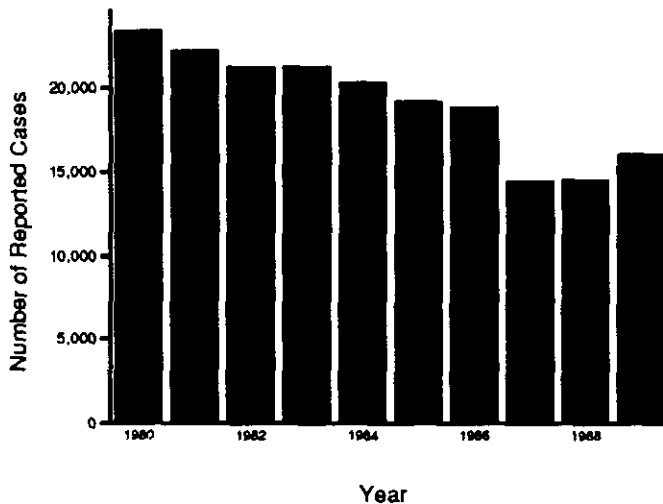
Over three-quarters (75.3%) of all gonorrhea in Virginia occurred in the 15-29 (12,048 cases) age group, with the highest rate (757.4 per 100,000) occurring in the 20-29 age group. Persons age 10-19 had a gonorrhea rate of 525.7 per 100,000 population.

Eight percent of the cases were white (27.9 per 100,000), 87% were non-white (1060.6 per 100,000) and 5% were race unspecified. (Figure 16) The male to female ratio was 1.4 to 1.

Figure 15

Gonorrhea: 10 Year Trend

Virginia, 1980-1989

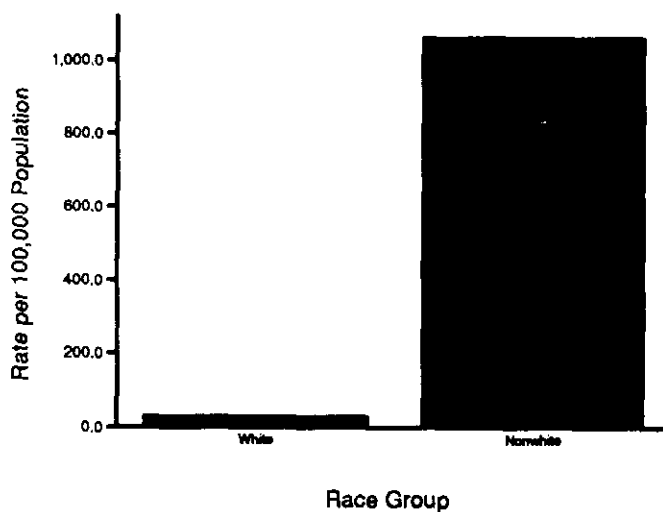


The Eastern Region reported the most cases (8,245 cases, 536.1 per 100,000), followed by the Central (3,196 cases, 301.9 per 100,000), Northern (2,114 cases, 161.9 per 100,000), Southwest (1,699 cases, 128.3 per 100,000), and the Northwest (739 cases, 92.8 per 100,000) Regions.

Figure 16

Gonorrhea: Rate by Race Group

Virginia, 1989



Penicillinase-Producing Neisseria Gonorrhoeae (PPNG)

This gonococcal organism produces the penicillinase enzyme, which alters the structure of penicillin, making it ineffective against this strain of gonorrhea. Since 1980, this form of resistant gonorrhea has experienced a steady increase in the number of cases reported. In 1989, there were 1,160 cases of PPNG reported in Virginia, representing a 111% increase over 1988. PPNG now comprises 7.3% of the state's gonorrhea morbidity.

The male to female ratio of cases was 1.6 to 1. Ninety-one percent of the cases were black, 6% white, and 3% unspecified. Nearly three quarters (72.4%) of PPNG occurred in the 15-29 age group (840 cases), with the largest percentage observed in 20-24 year olds.

The Eastern Region reported the most cases (534 cases, 47%) of PPNG. The Northern Region reported 42% (487) of the cases, followed by the Central (97 cases, 8%), Southwest (25 cases, 2%), and the Northwest Regions (17 cases, 1%).

Granuloma Inguinale

One case of granuloma inguinale was reported in 1989, compared to four in 1988.

Haemophilus Influenzae Infections, Invasive

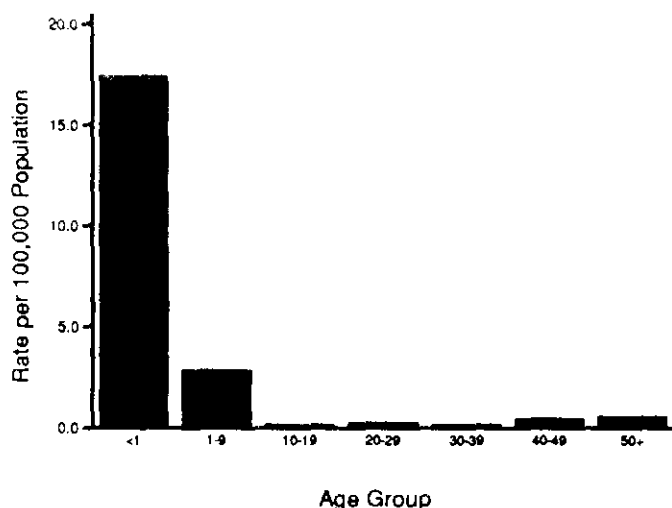
Invasive H. influenzae infections became reportable in February, 1989. Included in this category are infections of normally sterile sites, such as blood, joint fluid, lung tissue, pericardium, and peritoneum. Infections involving the

cerebrospinal fluid are included in the discussion of bacterial meningitis. Otitis media and conjunctivitis caused by H. influenzae are not recorded.

Fifty cases of invasive H. influenzae infections were reported in 1989. Nearly three-fourths of the cases (36 cases, 72%) were under five years of age. Of these, 16 cases were infants. Infants had the highest morbidity rate (17.4 per 100,000), followed by children age 1-9 (2.8 per 100,000). (Figure 17)

Figure 17

H. influenzae infections: Rate by Age Virginia, 1989



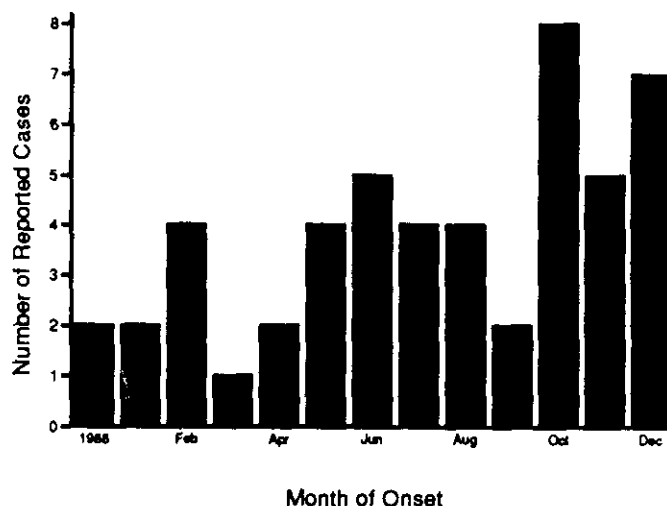
Although over one-half of the cases were white, the rate of disease was higher in nonwhites (0.9 per 100,000) than whites (0.6 per 100,000). Sixteen percent (8 cases) had race unreported. The male-to-female ratio of reported cases was 1.3 to 1.

Twenty (40.0%) cases experienced onset during the last quarter of the year. (Figure 18) The region with the most cases and the highest

morbidity rate was the Eastern Region (20 cases, 1.3 per 100,000), followed by the Southwest (12 cases, 0.9 per 100,000), Northwest (7 cases, 0.88 per 100,000), Northern (8 cases, 0.6 per 100,000), and finally the Central Region (3 cases, 0.3 per 100,000).

Figure 18

H.influenzae infections by Date of Onset Virginia, 1989



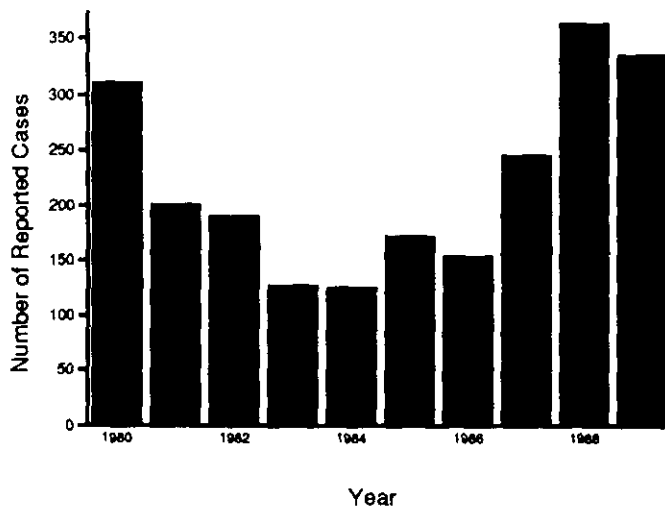
Hepatitis A

Although fewer cases of Hepatitis A were reported in 1989 than in 1988 (334 compared to 362), the general trend over the past several years has been an increase in the incidence of this disease. (Figure 19)

Young adults were most often reported with hepatitis A in 1989. The highest rate was reported in the 20-29 year age group (9.0 per 100,000), followed by 30-39 year olds (7.0 per 100,000). (Figure 20) The white-to-nonwhite ratio of cases was 3.2 to 1. Nonwhites, however, had a higher morbidity rate (4.9 per 100,000) than whites (4.3 per 100,000). Cases were more likely to be male

Figure 19

Hepatitis A: 10 Year Trend Virginia, 1980-1989



(6.0 per 100,000) than female (4.4 per 100,000). Sex was not reported for 6.9% of the cases.

Disease onset occurred throughout the year. The greatest number of cases had onset during the

second quarter of the year, with a peak in April. Two persons with hepatitis A died.

The Central Region accounted for 65.0% of the cases (217 cases, 20.5 per 100,000). Each of the other four regions experienced a morbidity rate of 3.1 per 100,000 or less. The Central Region, particularly Henrico County, Richmond City, Chesterfield County, and Hanover County, experienced a community-wide outbreak of hepatitis A. Although the causes of several clusters of cases were found, no common source was identified to explain the excess morbidity throughout the region.

Hepatitis B

The decline in reported cases of confirmed hepatitis B continued in 1989; 321 cases were reported in 1989, compared to 343 in 1988 and 448 in 1987.

Figure 20

Hepatitis A: Rate by Age Group Virginia, 1989

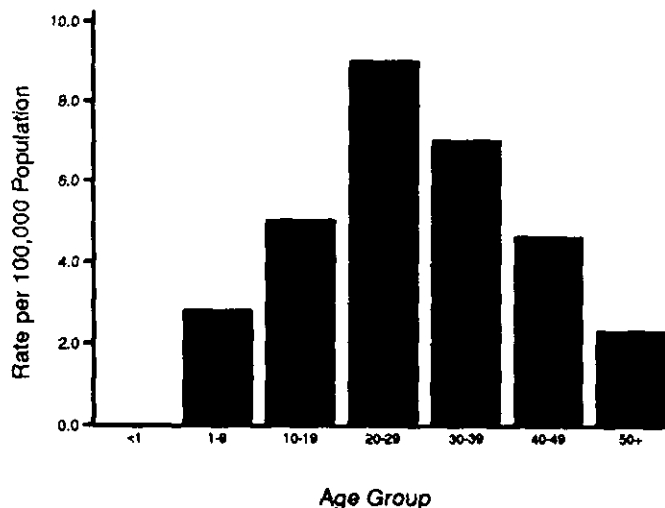
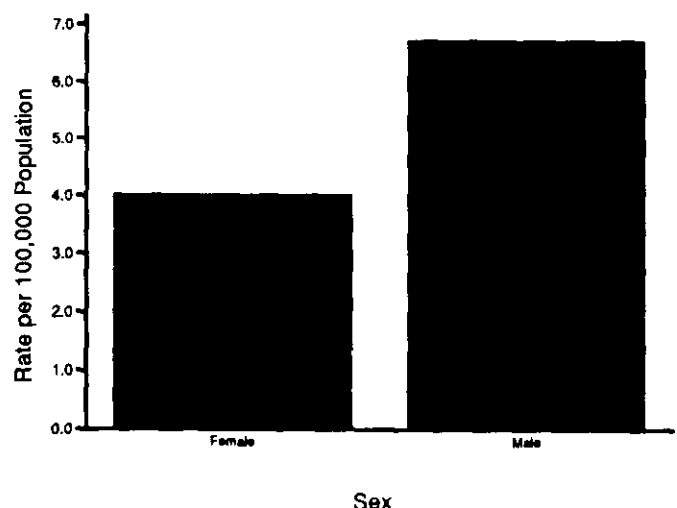


Figure 21

Hepatitis B: Rate by Sex Virginia, 1989



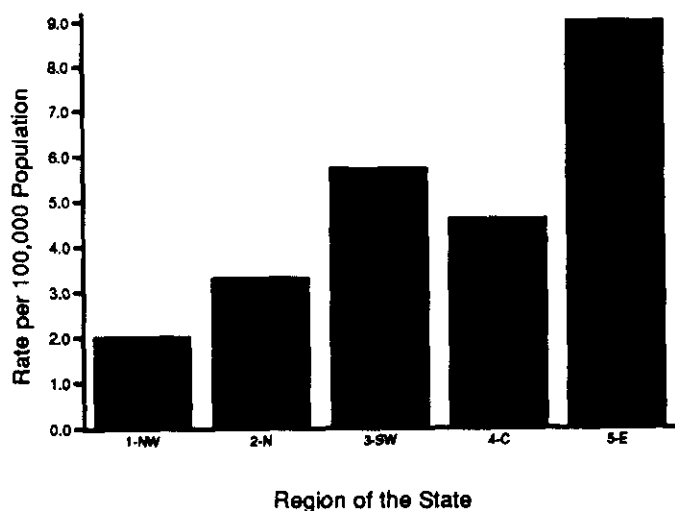
Young adults accounted for 75% of the cases, with 145 cases aged 20-29 (45.2%, 14.1 per 100,000) and 97 cases aged 30-39 (30.2%, 9.3 per 100,000). No cases were younger than ten years old.

Although whites represented 58.3% of the cases, the hepatitis B rate in nonwhites (8.7 per 100,000) was more than twice that of whites (4.0 per 100,000). Race was not reported for 6.2% of the cases. The male-to-female case ratio was 1.6 to 1 (197 male, 123 female). The rate in males was 6.7 per 100,000 compared to 4.0 in females. (Figure 21)

Cases occurred throughout the year. More cases had onset during the second quarter of the year than any other quarter. The Eastern Region reported 43.0% of the cases (138 cases, 9.0 per 100,000), followed by the Southwest (5.7 per 100,000), Central (4.6 per 100,000), Northern (3.3 per 100,000), and Northwest (2.0 per 100,000). (Figure 22)

Figure 22

Hepatitis B: Rate by Region Virginia, 1989



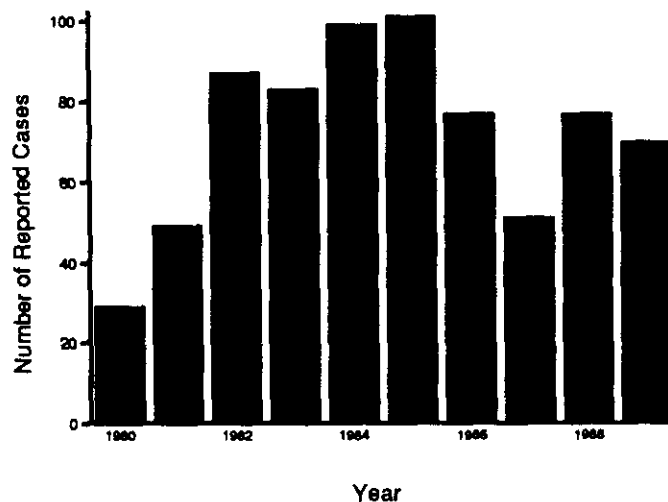
Eight deaths were attributed to hepatitis B. One-half of the persons who died were from the Eastern Region. Three-fourths were age 50 and older. Six were male and two female.

Hepatitis Non-A Non-B

The number of cases of hepatitis non-A non-B continued to decline to 70 cases in 1989, compared to a high of 101 cases reported in 1985. (Figure 23)

Figure 23

Hepatitis Non-A Non-B: 10 Year Trend Virginia, 1980-1989



Similar to hepatitis A and hepatitis B, the age groups most affected by hepatitis non-A non-B were 20-29 year olds (23 cases, 2.2 per 100,000) and 30-39 year olds (16 cases, 1.5 per 100,000). Compared to hepatitis A and B, however, a larger proportion of reported cases of hepatitis non-A non-B were in the fifty years and older age group (18 cases, 25.7%).

Two-thirds of the cases were white (47 cases, 67.1%), and 18.5% (13 cases) were nonwhite. Ten cases did not have race reported. The morbidity rates for whites and nonwhites were equal. Contrary to the other types of viral hepatitis, females were more often reported with hepatitis non-A non-B (39 cases, 1.3 per 100,000) than males (31 cases, 1.1 per 100,000).

Date of onset was often unreported (35.7%). When onset was noted, cases were reported to occur throughout the first three quarters of the year. Only two cases were reported to have onset during the fourth quarter. No region experienced a morbidity rate greater than 1.7 cases per 100,000 population.

Nine persons with this condition died. Six were female, and three were male. Their ages ranged from 22 to 88, with an average of 60.6 years.

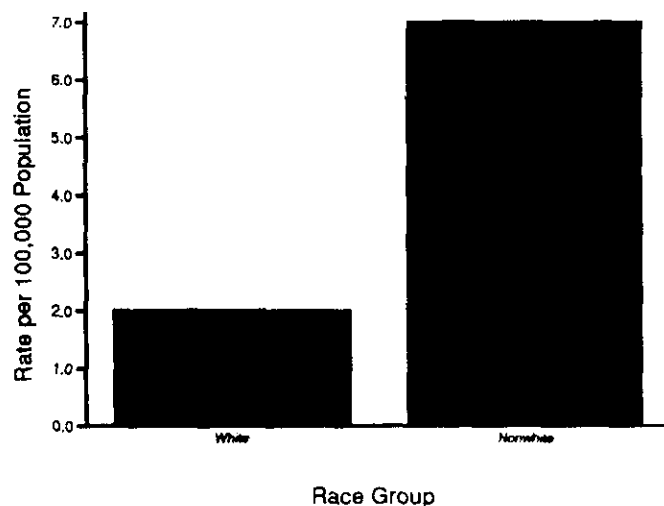
Hepatitis Unspecified

Reported cases of hepatitis unspecified totaled 237 in 1989. Only 9.3% of the cases were under age 20, including two infants. The morbidity rate for nonwhites (91 cases, 7.0 per 100,000) was higher than for whites (95 cases, 2.0 per 100,000). Of the nonwhites, 75 were black and 16 were another race. (Figure 24) More than twice as many males were reported with hepatitis unspecified as females (168 males, 68 females).

Date of onset was reported for 61 cases. Of those, eleven had onset during the first quarter of the year, nine during the second quarter, 26 during the third, and six during the fourth. Nine cases reported in 1989 had onset in 1988. July was the month with the most disease activity (17 cases).

Figure 24

Hepatitis Unspecified: Rate by Race Virginia, 1989

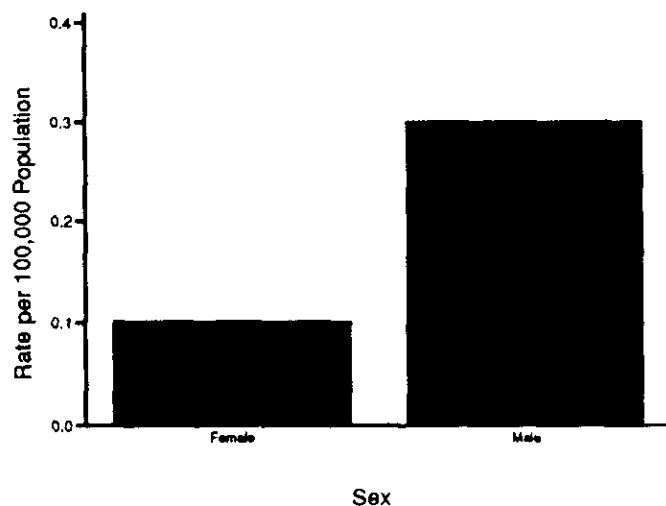


Histoplasmosis

Eleven cases of histoplasmosis were reported in 1989. Over one-third of the cases were in the

Figure 25

Histoplasmosis: Rate by Sex Virginia, 1989



30-39 age group (4 cases, 0.4 per 100,000). Only two cases were less than age 30. Race was often unreported; two cases were white, two were black, and seven were race unknown. Cases were predominately male (81.8%). Males were five times more likely to have histoplasmosis than females (0.3 vs. 0.06 per 100,000, respectively). (Figure 25)

Date of onset was distributed as follows: three cases in each of the first two quarters, five cases in the third quarter, and zero in the fourth. The Southwest Region accounted for six cases (0.45 per 100,000). Two cases were reported from the Central Region, two from the Eastern, and one from the Northwest. No cases resided in the Northern Region.

Human Immunodeficiency Virus (HIV) Infections

In 1989, HIV infections became officially reportable. Trends associated with HIV will continue to evolve as more data are collected. Already, differences are evident between AIDS and HIV statistics. Given the long incubation period of HIV, these trends will most likely be a predictor of future AIDS morbidity statistics.

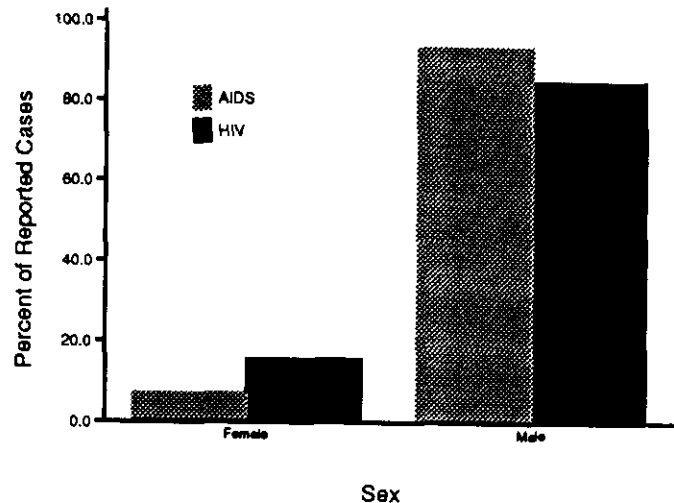
From July through December 1989, a total of 304 HIV infections were reported. Half of the HIV morbidity was found in the 20-29 age group. Although males represented 84.5% of those reported, females comprised 15.5% of HIV cases, more than twice the percentage of AIDS cases which were female (7.0%). (Figure 26)

The majority of the cases reported were black (56.9%), 38.5% white and 4.6% other. As with AIDS, blacks were disproportionately affected by HIV but the 56.9% is dramatically higher than the

percentage of AIDS cases which were black (37.2%).

Figure 26

A Comparison of AIDS and HIV Infections by Sex, Virginia, 1989



The Eastern Region reported the greatest percentage of HIV infections (77.0%), with Norfolk reporting 39.8% of this region's morbidity. The high morbidity in the Eastern Region may be attributed to a mandatory HIV testing policy implemented by the military, a group concentrated in the Eastern Region.

The most notable difference between AIDS and HIV morbidity is found with the mode of transmission. In contrast to the high percentage of AIDS cases reporting gay/bisexual transmission (67.0%), heterosexual transmission is more evident among HIV infections. Multiple heterosexual contact is the most frequently reported mode of transmission (31.6%), while gay/bisexual transmission (20.4%) is second. (Figure 27)

Figure 27

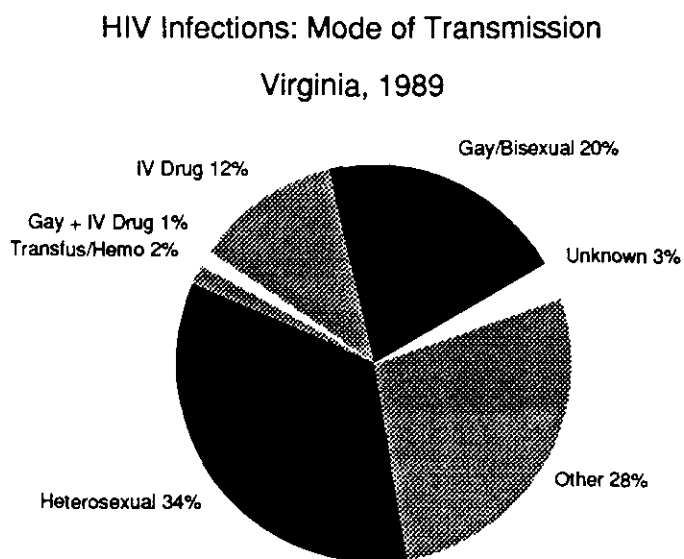
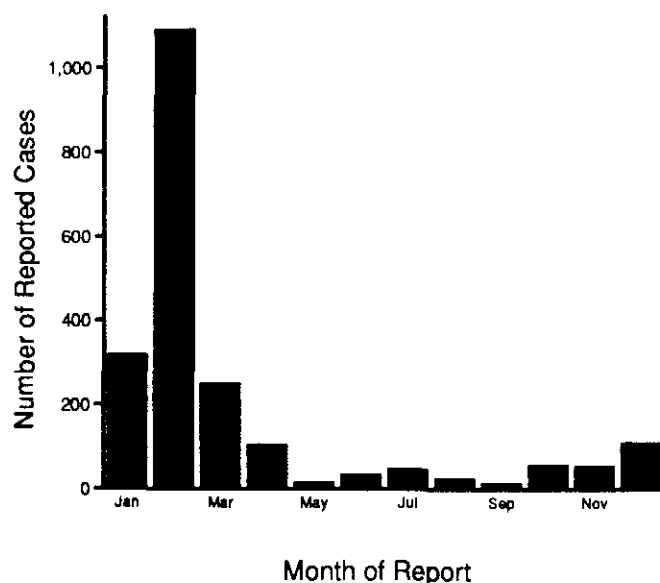


Figure 28

Cases of Influenza by Date of Report
Virginia, 1989



Influenza

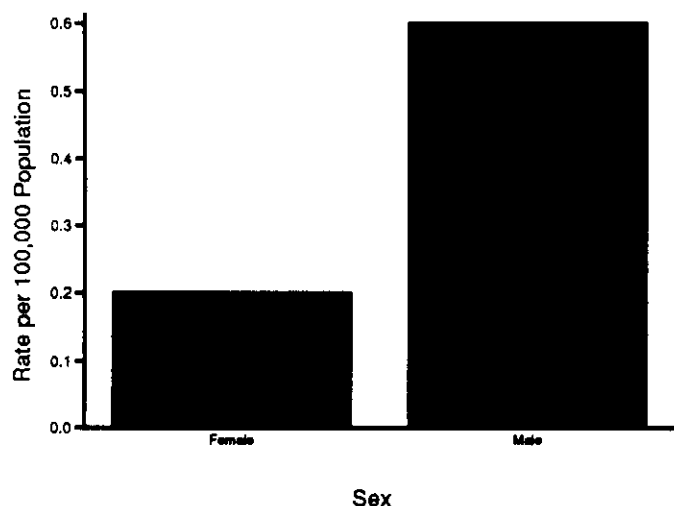
Over two thousand (2,108) cases of influenza were reported in 1989. Over one-half (1,091 cases, 51.8%) were reported in February. (Figure 28) The Southwest Region had the highest disease rate (64.9 per 100,000), followed by the Northwest (40.1), Central (39.5), Eastern (26.4), and finally the Northern Region (8.0 per 100,000).

Kawasaki Syndrome

Twenty-three cases of Kawasaki syndrome were confirmed in Virginia residents in 1989, in comparison with 14 in 1988 and 31 in 1987. All cases were younger than ten years of age: one was an infant, three were one year old, five were two years old, six were three years old, three were three years old, and five were age 5-9.

Figure 29

Kawasaki Syndrome: Rate by Sex
Virginia, 1989



Seventeen cases were white (73.9%). Of the six nonwhites, two were black and four were another race. The morbidity rate in the race groups was similar (0.5 per 100,000 in nonwhites and 0.4 in whites). Males (0.6 per 100,000) experienced more morbidity than females (0.2 per 100,000). (Figure 29) Seventeen cases were male and six were female.

Three cases reported this year had onset in 1988, five had onset in the first quarter of 1989, seven in the second quarter, six in the third and one in the fourth. The region reporting the most cases was the Northern Region (9 cases, 0.7 per 100,000). The rates in the other regions were 0.5 in the Central, 0.4 in the Eastern, 0.15 in the Southwest, and 0.13 in the Northwest.

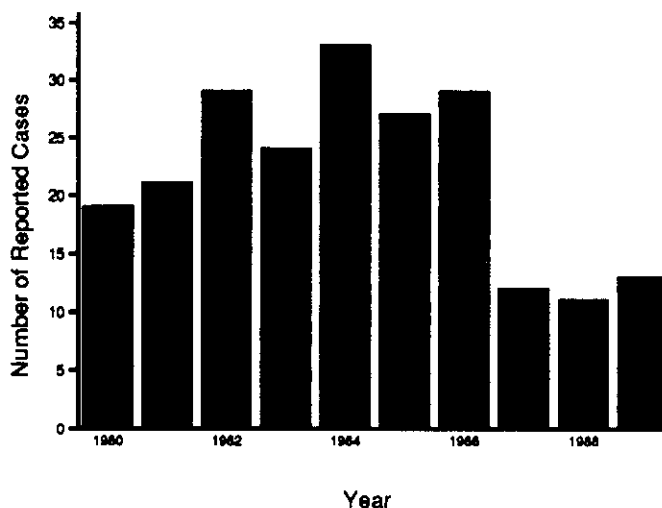
Legionellosis

More cases of legionellosis were reported in 1989 (13 cases) than in 1988 (11 cases) or 1987 (12 cases). Incidence of this disease was lower in the last three years compared to the earlier years of the decade. (Figure 30)

No cases were younger than age 20. Almost one-half (46.2%) of the 1989 cases were in the fifty and older age group, for a morbidity rate of 0.4 per 100,000 in that population. (Figure 31) All except one case were white. Males were more likely than

Figure 30

Legionellosis: 10 Year Trend
Virginia, 1980-1989

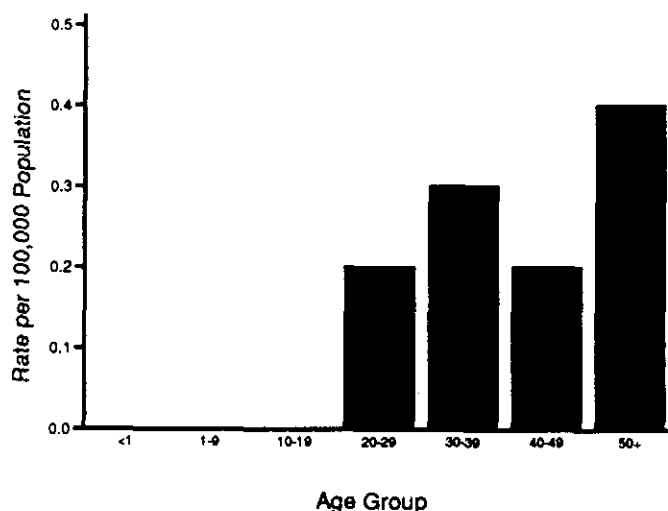


females to have legionellosis (0.3 per 100,000 vs. 0.2).

Three cases experienced onset during the first quarter of the year, six during the second quarter, three during the third quarter, and zero during the fourth. One case had onset during 1988.

Figure 31

Legionellosis: Rate by Age Group
Virginia, 1989



Most of the cases were from the Southwest Region (7 cases, 0.5 per 100,000). The Northwest Region reported 4 cases (0.5 per 100,000). One case resided in each of the Northern and Central Regions, none in the Eastern Region.

The two persons who died from legionellosis were both white females. Both died in the second quarter of the year.

Leprosy

No cases of leprosy were reported in 1989. The last reported case occurred in 1986.

Leptospirosis

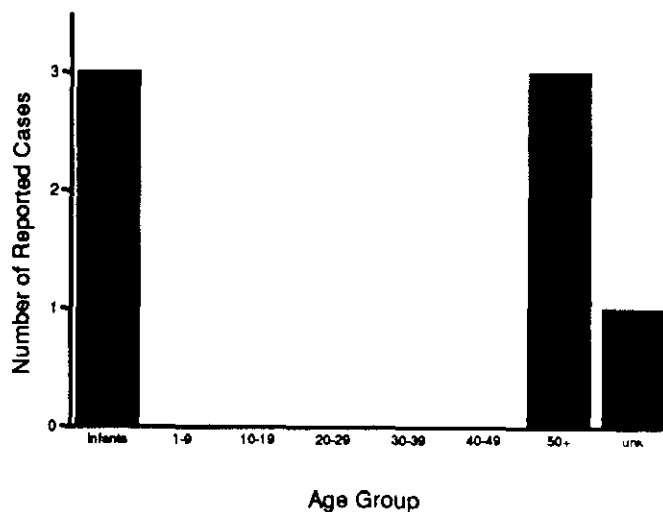
One case of leptospirosis was reported, from the Southwest Region with onset in June. This person did not survive.

Listeriosis

Listeriosis became officially reportable in February, 1989. Seven cases of listeriosis, manifest in forms other than meningitis, were reported in 1989. Cases of meningitis caused by L. monocytogenes are included under bacterial meningitis.

Figure 32

Listeriosis: Number of Cases by Age
Virginia, 1989



Three of the cases were infants, three were in the age 50 and older age group, and one had age unreported. (Figure 32) Four cases were female and three were male.

No cases were reported to have onset during the last quarter of the year. Three cases were reported from the Central Region and one from each of the other four regions.

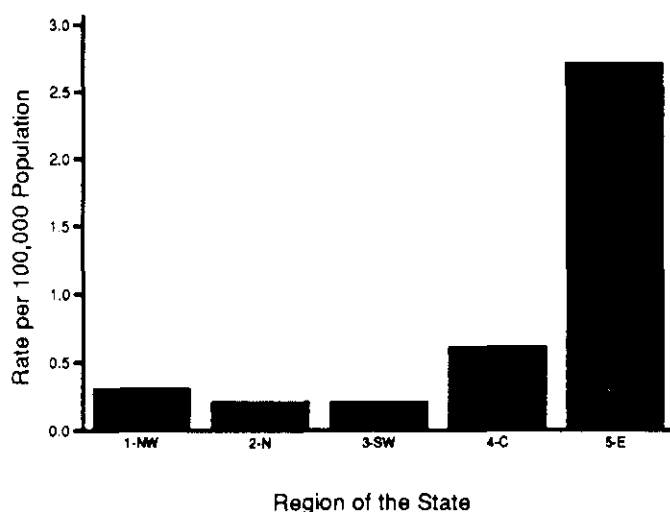
Lyme Disease

Fifty-four cases of Lyme disease were confirmed in 1989, the year this disease became officially reportable in Virginia. Most cases were adults, with 18 (33.3%) being age 50 or older. Only ten cases (18.5%) were younger than age 20.

Cases were more likely to be white (47 cases, 87.0%) than black (4 cases). The distribution of cases between the sexes was fairly even (28 females, 26 males).

Figure 33

Lyme Disease: Rate by Region
Virginia, 1989



Most of the disease activity occurred in the second and third quarters of the year (22 cases in quarter two and 16 in quarter three). Nine cases reported this year had onset prior to 1989.

Three-quarters of the cases (41 cases, 2.7 per 100,000) were reported from the Eastern Region. The rate in the other four regions ranged from 0.1 to 0.6 per 100,000. (Figure 33)

Lymphogranuloma Venereum

Two cases of lymphogranuloma venereum were reported in 1989. Both were nonwhite males.

Malaria

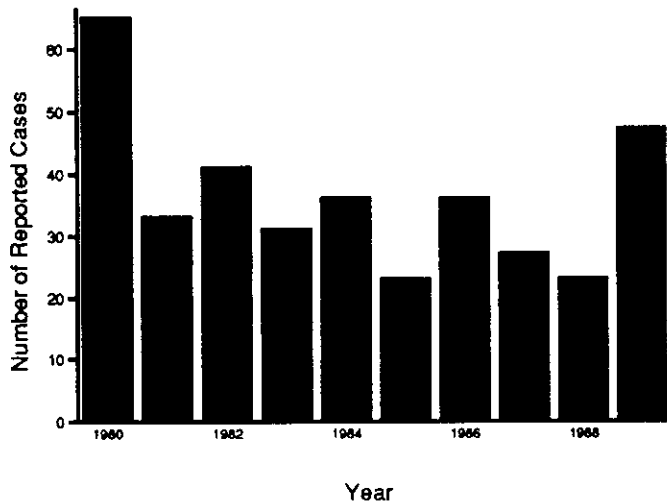
Twice as many cases of malaria were reported in 1989 (47 cases) than in 1988 (23 cases). In fact, more cases were reported in 1989 than in any other year since 1980. (Figure 34)

Twenty-one cases were caused by Plasmodium vivax, 15 by P. falciparum, three by P. malariae, and eight by unspecified species. Sixteen cases were reported to have received malaria prophylaxis prior to onset. Twenty-six cases had a history of travel to Africa, 13 to Asia, and four to Central America.

Persons in their twenties were the most likely to have malaria (13 cases, 1.3 per 100,000), followed by persons in their thirties (11 cases, 1.1 per 100,000). The malaria rate for nonwhites was eight times more than that for whites (2.0 per 100,000 vs. 0.25). Blacks accounted for 31.9% of the cases (15 cases), other nonwhites for 27.7% (13 cases), and whites for another 27.7% (13 cases). Race was unreported for the rest of the

Figure 34

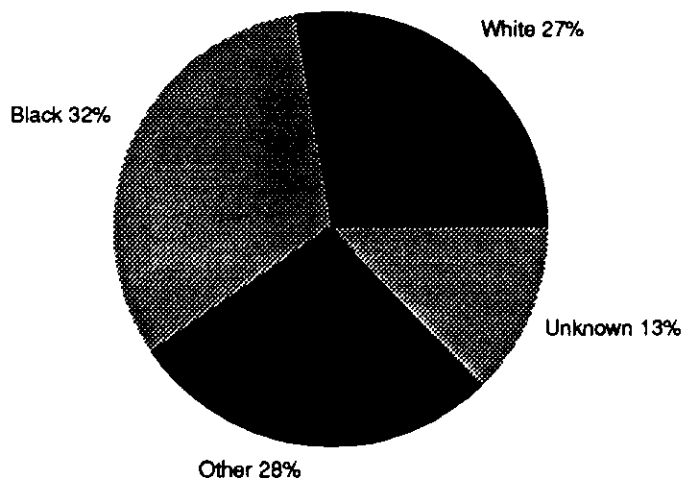
Malaria: 10 Year Trend
Virginia, 1980-1989



cases. (Figure 35) Males were more likely than females to have malaria (29 male cases and 18 female cases). The morbidity rate was 1.0 per 100,000 for males and 0.6 for females.

Figure 35

Reported Cases of Malaria by Race
Virginia, 1989



Cases occurred throughout the year. August was the month with the most cases (9 cases). The Northern Region reported the most cases (32 cases, 2.5 per 100,000). The Southwest Region had six cases, the Northwest had five, the Eastern had four, and the Central Region had zero.

Measles

Twenty-two cases of measles, of which three were imported and 19 indigenous, were reported in 1989. This represents a substantial drop from the 239 reported in 1988 and is also less than the ten year average annual number of cases of 74.9.

The age group with the most reported cases was 1-9 year olds (13 cases, 1.8 per 100,000). Three infants had measles, leading to the highest morbidity rate in any age group (3.3 per 100,000). Four cases were in the 10-19 age group (0.5 per 100,000) and two were age 20-29 (0.2 per 100,000). No cases were older than 29 years. (Figure 36)

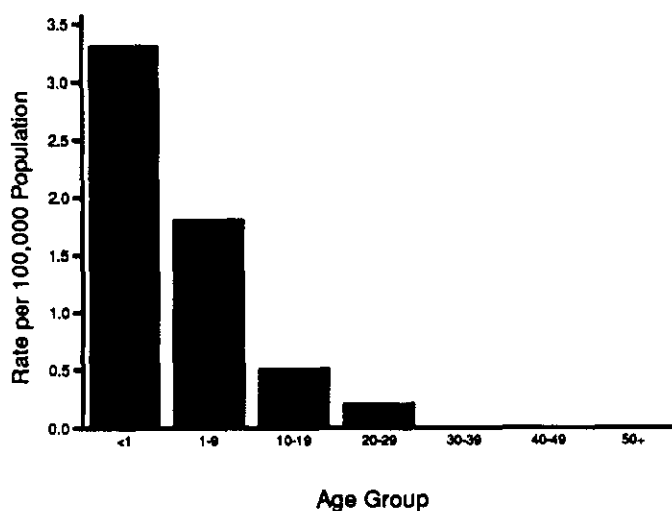
Appropriately vaccinated persons (i.e., those vaccinated for measles on or after their first birthday) accounted for six cases. In nine cases, the patients were unvaccinated persons for whom vaccine was not routinely indicated (eg., those less than 15 months of age). Five cases were unvaccinated persons for whom vaccine was indicated, but never administered. Vaccine history was unknown in two cases.

The incidence rate in nonwhites (0.5 per 100,000) was twice as high as that in whites (0.25 per 100,000). Twelve cases were white, three were black, four were another race, and three had no reported race. The cases were evenly divided between males and females.

Two cases occurred in April, eleven in May, six in June, and one in August. Ten of the cases resided in the Eastern Region (0.7 per 100,000), five in the Central (0.5 per 100,000), four in the Northwest (0.5 per 100,000), two in the Southwest (0.2 per 100,000), and one in the Northern Region (0.1 per 100,000).

Figure 36

Measles: Rate by Age Group Virginia, 1989



The most significant outbreak of measles occurred in a day care center at a military base in the Eastern Region. The index case was a 15 month old unvaccinated military dependent who had contracted measles while visiting Texas. Nine cases, ages three months to three years, originated from the index case.

Meningococcal Infections

For the last several years, the number of reported cases of infections caused by *N. meningitidis* has remained fairly stable. The average annual

number of cases reported during the last ten years is 72.9. Seventy-three were reported in 1989. Thirty-two of the cases had the group of the organism specified. Fourteen were Group B, 13 were Group C, one was Group W-135, and four were Group Y.

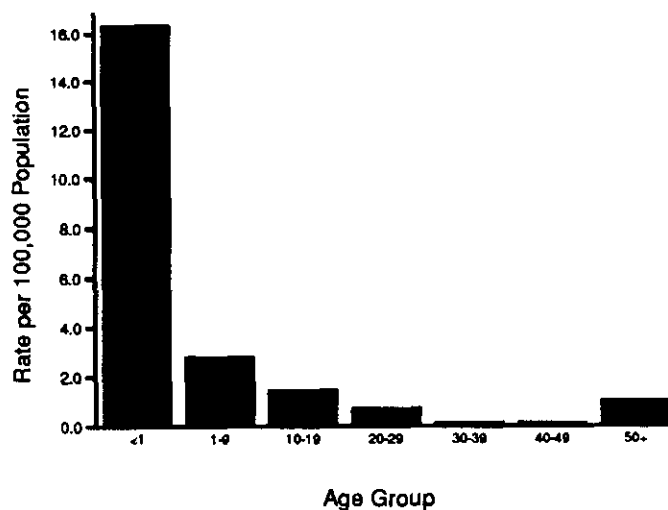
Almost two-thirds of the cases were under the age of twenty: 15 cases (16.3 per 100,000) were infants, 20 cases (2.8 per 100,000) were age 1-9, and 12 cases (1.4 per 100,000) were age 10-19. Only nine cases were in their twenties, thirties, or forties. The fifty and older age group had as many cases as infants, but a much lower rate (15 cases, 1.0 per 100,000). (Figure 37)

Whites accounted for 41 cases (0.9 per 100,000) and nonwhites for 19 (1.4 per 100,000). Race was not reported for 13 cases. Forty cases (1.4 per 100,000) were male and 33 (1.1 per 100,000) were female.

Onset was fairly evenly distributed throughout the year, ranging from 14 to 20 cases per quarter.

Figure 37

Meningococcal Infections: Rate by Age, Virginia, 1989



The number of cases and mortality rates were also fairly evenly distributed between the regions of the state. Morbidity rates by region ranged from 0.8 per 100,000 in the Northern Region to 1.9 in the Northwest.

Nine person with meningococcal infections died. Age at death ranged from less than one to 89, with a mean of 44.9 years.

Miscellaneous Conditions

Several conditions that are not officially reportable were reported in 1989. Those that were reported fewer than five times are noted here, rather than under separate headings.

Two cases of actinomycosis were reported in 1989. Both occurred in June. One was from the Northern Region and the other from the Southwest.

Four cases of Guillian-Barre syndrome were reported. All were from the Northern Region. Three were male and one female. All four were white.

Four cases of Jakob-Creutzfeldt disease were reported, all of whom died. Three of these persons were female and one was male. All were over the age of 65. Three were white and one was black. Three were from the Eastern Region and one from the Central.

Four cases of toxoplasmosis were reported, all of whom were white males in their thirties. Two were from the Northern Region and two from the Eastern Region. All four died.

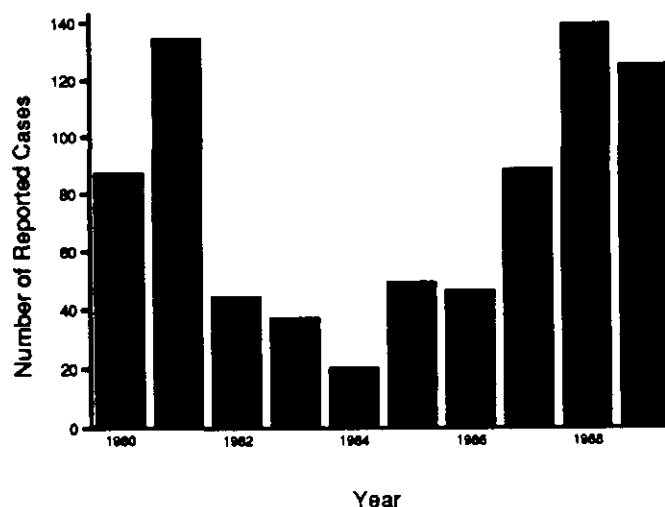
Mumps

While the 125 cases of mumps reported in 1989 represented a decrease from the 139 reported in 1988, it is above the 76.9 annual average reported during the last ten years. During 1982 through 1987, fewer than 100 cases of mumps were reported each year. Case reports for the past two years, however, have exceeded 100. (Figure 38)

The 10-19 year age group was the most likely to be affected (63 cases, 7.4 per 100,000), followed by the 1-9 year old group (39 cases, 5.4 per 100,000). Nine cases were in the 20-29 year age group and nine were age 30 or older. No infants had mumps. Nonwhites were more than twice as likely as whites to be reported with mumps. The morbidity rate in nonwhites was 2.9 per 100,000 (38 cases) compared to 1.2 in whites (57 cases). Thirty case reports (24.0%) were missing race. More cases were male (74 cases, 2.5 per 100,000) than female (49 cases, 1.6 per 100,000). Sex was not reported for two cases.

Figure 38

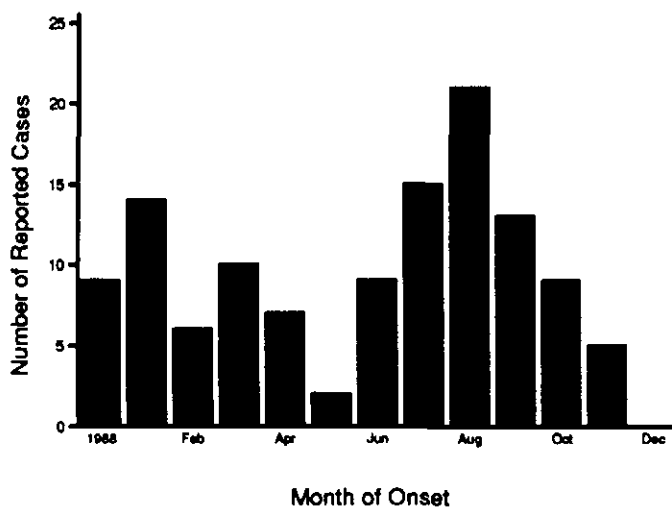
Mumps: 10 Year Trend
Virginia, 1980-1989



Onset of disease clustered in the third quarter, with 15 cases occurring in July, 21 in August, and 13 in September. Cases occurred in every month except December. (Figure 39) Fifty-three cases (4.1 per 100,000) were from the Northern Region, 46 (3.5 per 100,000) from the Southwest, 16 (1.0 per 100,000) from the Eastern, six (0.6 per 100,000) from the Central, and four (0.5 per 100,000) from the Northwest Region.

Figure 39

Cases of Mumps by Date of Onset Virginia, 1989



the Eastern Region, three in the Central, and one in each of the Northern and Southwest Regions.

Nosocomial Outbreaks

One nosocomial outbreak was confirmed in 1989. The report was investigated by epidemiologists from the Centers for Disease Control. Between July and November, 1989, nine patients experienced acute allergic reactions during hemodialysis treatments at a dialysis center. "The reactions occurred within ten minutes of the initiation of dialysis and were characterized by symptoms including a sensation of warmth (75%), especially in the hands; fullness in the mouth or throat (58%); tingling paresthesias (50%); nausea/vomiting (33%); and tightness in the chest (33%). Two patients developed angioedema of the lips and tongue; one these patients required hospitalization." (MMWR, December 22, 1989)

The reactions were found to be related to the use of mechanically reprocessed dialyzers which had been rinsed with hydrogen peroxide and filled with a disinfectant before reuse. Investigations are continuing to identify the cause of the reactions.

Nocardiosis

Nine cases of nocardiosis were reported in 1989. Eight were caused by *N. asteroides* and one by *N. brasiliensis*. All cases with age reported were adults age 25 or older. Six cases were male and three female.

One case occurred during the first quarter of the year, six during the second quarter, zero in the third, and two in the fourth. Four cases resided in

Occupational Illnesses

Physicians reported 218 cases of occupational illnesses in 1989, including 212 cases of asbestosis, two cases of lead poisoning, two cases of carpal tunnel syndrome, and one each of benzene exposure and mesothelioma.

Over two-thirds (148 cases, 69.8%) of the persons with asbestosis were in their fifties or

sixties. The age distribution is shown in Figure 40. Cases were predominately male. Only one woman was reported to have asbestosis. Whites were more likely than nonwhites to have the disease (145 cases, 3.1 per 100,000 for whites vs. 30 cases, 2.3 per 100,000 for nonwhites). Thirty-seven cases did not have race reported.

Cases of asbestosis were more likely to be reported in the latter half of the year; 34 cases (16.0%) were reported in the first quarter, 36 (17.0%) in the second quarter, 81 (38.2%) in the third, and 61 (28.8%) in the fourth. (Figure 41)

Asbestosis was reported to occur in the Eastern (190 cases) and Central (21 cases) Regions. One person was an out-of-state resident. The majority of cases (144 cases, 67.9%) were reported from the shipbuilding industry. Occupations most likely to be affected included pipefitters/plumbers (26 cases), insulators (14 cases), electricians (14

cases), machinists (13 cases), and welders (13 cases).

Figure 41

Cases of Asbestosis by Date of Report Virginia, 1989

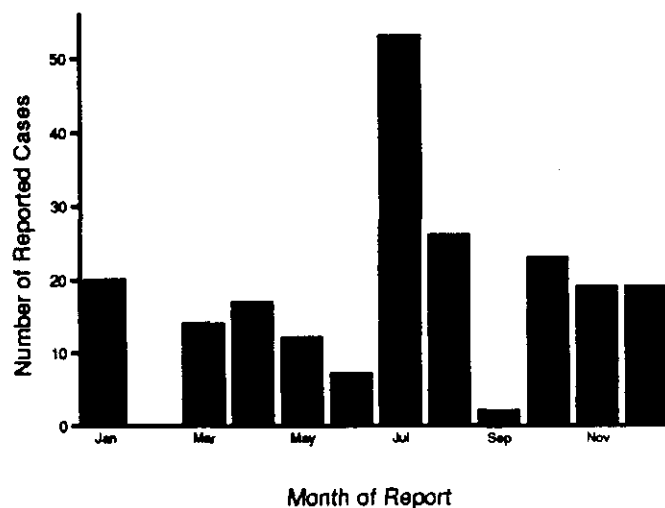
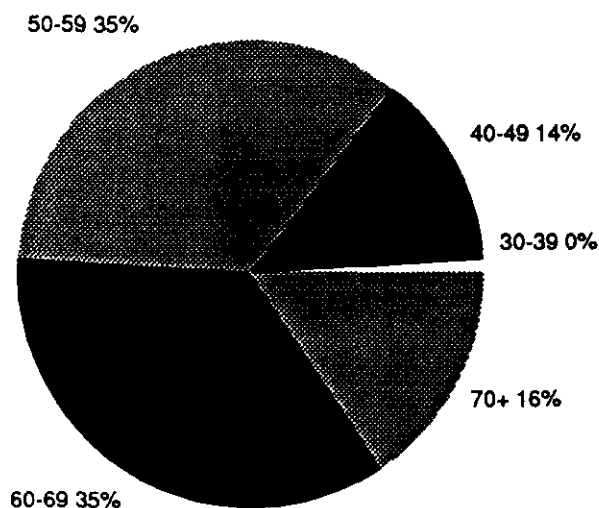


Figure 40

Cases of Asbestosis by Age Group Virginia, 1989



Other Meningitis

Eighty-four cases of meningitis caused by organisms other than bacteria or viruses were reported in 1989. This group of diseases is not officially reportable. The cause of the meningitis was unspecified for 41 cases, was cryptococcal for 36, and carcinomatous for seven cases. More than twice as many males as females were reported with these conditions (56 males, 27 females).

Thirty-three persons with these meningitides died, including 19 with cryptococcal meningitis, seven with carcinomatous meningitis, and seven with meningitis caused by an unspecified organism.

Parasitic Diseases

Although parasitic diseases are not officially reportable, reports are recorded when they are received. In 1989, 184 cases of intestinal parasites were reported. This included 49 cases of hookworm, 37 cases of Blastocystis hominis, 34 cases of Ascaris (roundworm), 30 cases of Trichuris trichiura (whipworm), 12 of Enterobius vermicularis (pinworm), eight of Strongyloides stercoralis, four of Clonorchis sinensis (Chinese liver fluke), four of Cryptosporidium, three of Hafnia alvei, and one each of Edwardsiella, Plesiomonas shigelloides, and Toxocara.

Most of the cases (130 cases, 70.6%) were of the "other" race group. The Eastern Region reported the most cases (66), followed by the Central (48 cases), Southwest (30 cases), Northwest (29 cases), and Northern (11 cases) Regions.

Pertussis

Thirty-seven cases of pertussis were reported in 1989. This is an increase of eight cases over the 1988 pertussis morbidity and is above the annual average of 31.9 cases reported during the last ten years.

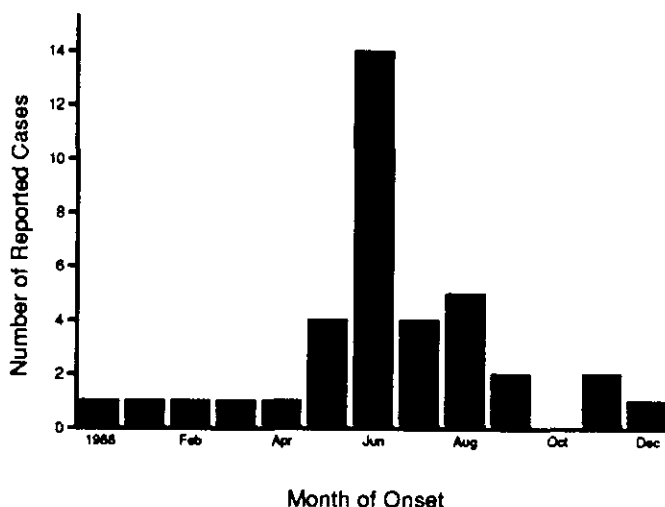
Over one-half of the cases were infants (20 cases, 21.8 per 100,000). Another 15 cases (2.1 per 100,000) were age 1-9. Two cases were reported in adults in their thirties. Eighteen cases were white, one was black, and eighteen cases had no reported race. Twenty-two cases were female and fifteen were male.

Fourteen cases (37.8%) experienced onset in June. May through August were the months of onset for the majority (73.0%) of cases. (Figure

42) The Northwest Region accounted for close to one-half of the cases (18 cases, 2.3 per 100,000), the Southwest for eight cases (0.6 per 100,000), the Northern and Central Region for four each (0.3 and 0.4 per 100,000, respectively), and the Eastern Region for three cases (0.2 per 100,000).

Figure 42

Cases of Pertussis by Date of Onset
Virginia, 1989



Phenylketonuria (PKU)

Three cases of PKU were reported in 1989. All three were white infants identified through newborn screening programs.

Plague

No cases of plague were reported in 1989. In fact, no cases of plague have been reported in Virginia in the twentieth century.

Poliomyelitis

No cases of poliomyelitis were reported in 1989. The last reported case of poliomyelitis occurred in 1978.

Psittacosis

Six cases of psittacosis were reported in 1989. The four cases whose age was reported were between 25 and 59 years old. All four cases whose race was reported were white. Five cases were female and one was male. Four cases had onset in March and one in September. The other case reported in 1989 had onset in October 1988. The distribution of cases by region was as follows: two Northwest, two Eastern, one Northern, and one Central.

Q Fever

No cases of Q fever were reported in 1989. The last reported case occurred in 1987.

Rabies in Animals

The total number of laboratory confirmed rabid animals for 1989 was 262, a decrease of 104 from 1988. Despite the decrease in rabid animals, the number of counties or cities reporting rabid animals increased from 42 in 1988 to 55 in 1989. This reflected an expansion of the raccoon rabies outbreak area into seven counties and cities which had not previously reported rabies; Dinwiddie, Chesapeake, Gloucester, Newport News, Petersburg, Prince Edward, and Prince George.

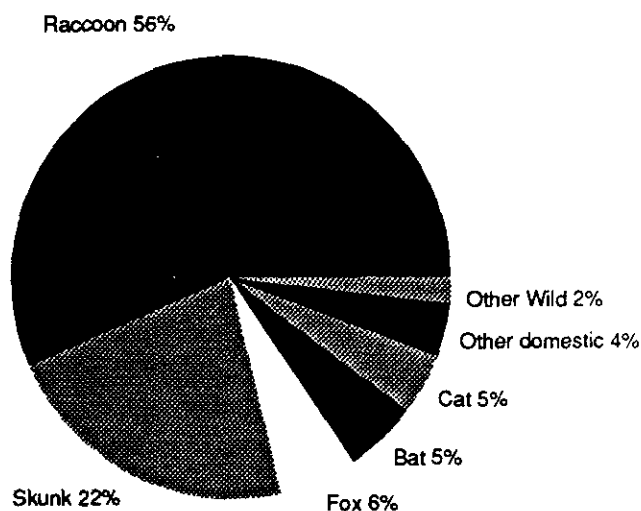
The 148 rabid raccoons accounted for 57% of the rabid animals. (Figure 43) Of the 58 (22%)

skunks reported, 17 (29%) were reported from 6 counties in the skunk rabies endemic area of Southwest Virginia. The rest occurred in the raccoon outbreak area. Although many of these animals probably acquired their illness as a result of "spillover" from rabid raccoons, there is some evidence that rabies has become established in the skunk population after many years of endemic raccoon rabies. During 1989 the counties of Madison, Page, Rockbridge, Rockingham, and Shenandoah reported more rabid skunks than raccoons, a total of 20 skunks and only 6 raccoons.

Other wildlife reported as rabid in 1989 included 15 foxes, 14 bats, 3 opossums, 1 groundhog and 1 beaver. These figures were similar to data from 1988 with the exception of opossums which have rarely been reported as rabid.

Figure 43

Species of Animals Positive for Rabies Virginia, 1989



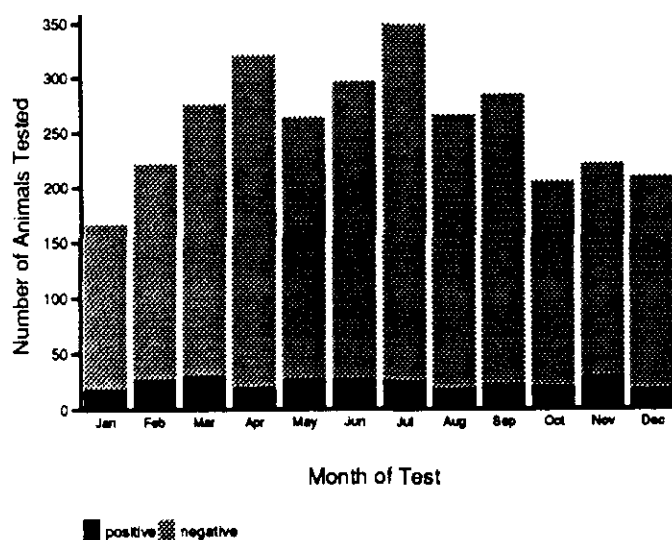
In 1989, 8.5% of the 3066 animals that were tested for rabies were positive. The most commonly tested animals were cats (28%),

raccoons (17%) and dogs (16%). This represented an increase in the proportion of cats tested and a decrease in the proportion of raccoons compared to 1988. Although skunks only accounted for 3% of the animals tested, 64% of these were rabid. The proportion of tested raccoons with rabies was 17% while 1% of the cats and less than 1% of the dogs were positive. Nine percent of the animals tested came from Prince William County, 8% each from Chesterfield and Fairfax Counties and 6% from Loudoun. The rest of the localities contributed between 0 and 3% of the animals tested. The number of animals tested is compared to the number positive for each month in Figure 44.

Human exposure was reported for 92% of the cats, 91% of the dogs, 30% of the bats, 23% each of the raccoons and foxes, and 10% of the skunks that were tested.

Figure 44

Animal Rabies Tests by Month and Test Result, Virginia, 1989



Rabies in Man

No human rabies cases were reported in 1989. The last reported case occurred in 1953.

Reye Syndrome

Two confirmed cases of Reye syndrome were reported in 1989. One case was age three and the other age four. One was black and the other white. Both were females. One case died.

Rocky Mountain Spotted Fever

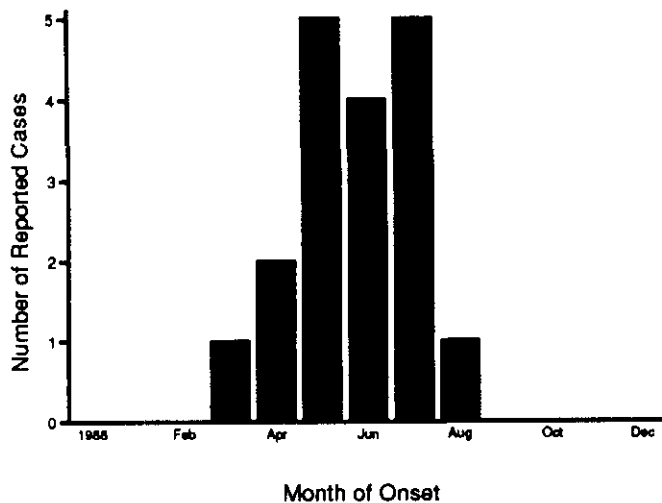
Eighteen cases of Rocky Mountain spotted fever were confirmed in 1989. Cases were reported from each age group. All of the cases were white. Eleven were male (0.4 per 100,000), for a rate twice as high as females (0.2 per 100,000).

One person (5.6%) experienced disease onset in the first quarter of the year, eleven (61.1%) in the second quarter, and six (33.3%) in the third. (Figure 45) The Central Region reported six cases, the Northwest five, Northern and Southwest three each, and the Eastern Region one case.

All 18 cases were confirmed with an indirect fluorescent antibody (IFA) test. Eleven were reported as having had a rash. Twelve had a history of a tick bite and two had been in a tick infested area. Two cases were not known to have had any tick exposure. The exposure status of the other two cases was unknown.

Figure 45

Rocky Mtn Spotted Fever by Date of Onset, Virginia, 1989



Rubella

Reports of cases of rubella dropped from 11 in 1988 to zero in 1989.

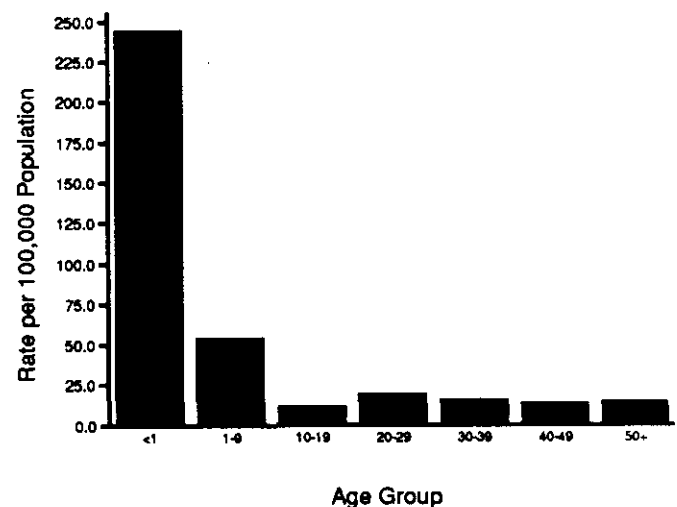
Salmonellosis

The number of reported cases of salmonellosis dropped 16.2% between 1988 (1,733 cases) and 1989 (1,452 cases). This decrease was not due to a single species, but rather to a decrease in the number of reported cases of several of the most common species. The distribution of species reported in 1989 is presented in Table 10. Compared to 1988, the number of cases of *S. typhimurium*, *S. enteritidis*, *S. hadar*, *S. ohio*, *S. montevideo*, *S. berta*, and *S. braenderup* decreased and *S. heidelberg*, *S. newport*, and *S. agona* increased.

Cases occurred in each age group. (Figure 46) Over 41% (608 cases) of the cases were children under age 10, including 224 infants (243.9 per 100,000). The 50 and older age group included individuals in their fifties, sixties, seventies, eighties, and nineties.

Figure 46

Salmonellosis: Rate by Age Group Virginia, 1989



Race was unreported for almost one-half (46.0%) of the cases. Of the remaining cases, the morbidity rate in nonwhites was 20.0 and 11.1 in whites. More females (746 cases, 24.2 per 100,000) than males (671 cases, 22.9 per 100,000) were reported with salmonellosis.

Cases were most likely to occur during the summer months. Forty percent of the cases experienced onset during the July-August-September quarter of the year. (Figure 47) Morbidity rates by region ranged from 18.1 per 100,000 population in the Southwest Region to 32.4 in the Central Region. The rates in the other three regions were all close to 24 cases per 100,000 population.

Figure 47

Cases of Salmonellosis by Date of Onset

Virginia, 1989

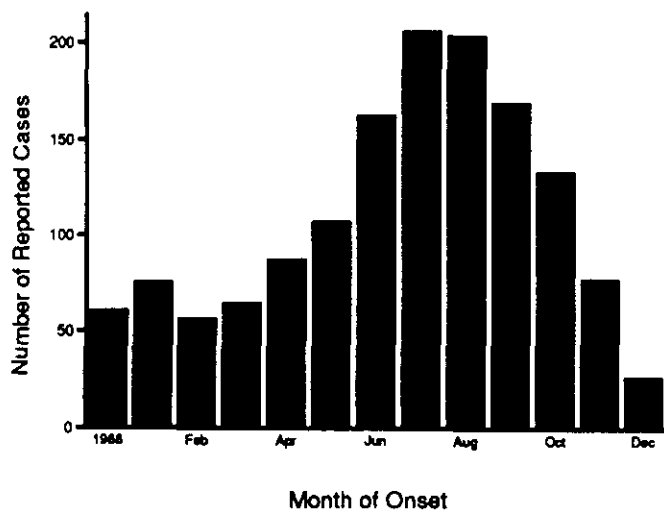


Table 10. Number and Percent of Salmonella Infections by Species, Virginia, 1989

Species Causing Infection	Number	Percent
<i>S. typhimurium</i>	355	24.4
<i>S. enteritidis</i>	236	16.3
<i>S. heidelberg</i>	145	10.0
<i>S. newport</i>	95	6.5
<i>S. hadar</i>	62	4.3
<i>S. thompson</i>	34	2.3
<i>S. agona</i>	24	1.7
<i>S. berta</i>	20	1.4
<i>S. infantis</i>	16	1.1
<i>S. arizona</i>	13	0.9
<i>S. muenchen</i>	13	0.9
unspecified	223	15.4
all others	215	14.8
TOTAL	1452	100.0

Five persons with salmonellosis died. Four were over the age of 65 and the other was in his twenties.

Shigellosis

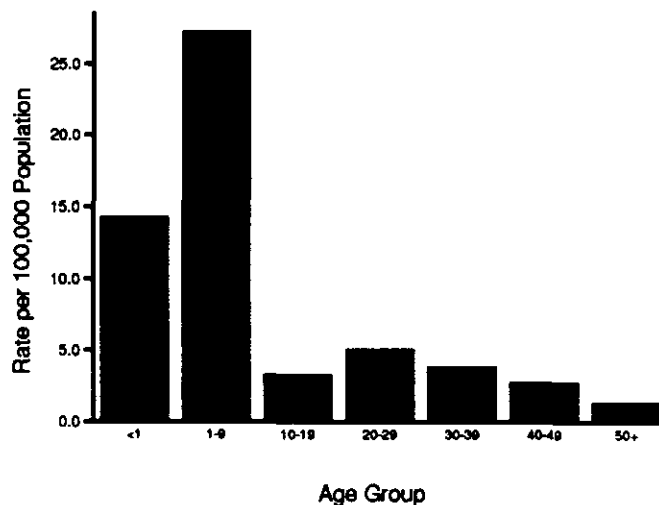
While the number of cases of shigellosis reported in 1989 (410 cases) was lower than that of 1988 (497 cases), it remained above the average number reported during the last ten years (339.7 cases). *S. sonnei* accounted for 338 cases (82.4%), *S. flexneri* for 33 cases (8.0%), *S. dysenteriae* for 3 cases, and *S. boydii* for two cases. The species was not identified for 34 cases (8.3%).

Children age 1-9 were the most likely to have shigellosis (196 cases, 27.2 per 100,000), followed by infants (13 cases, 14.1 per 100,000). (Figure 48) Race was not reported for 48.8% of cases. Of the cases in which race was reported, the rate in nonwhites was 7.9 per 100,000 compared to 2.3 in whites. Females were slightly more likely than

Figure 48

Shigellosis: Rate by Age Group

Virginia, 1989



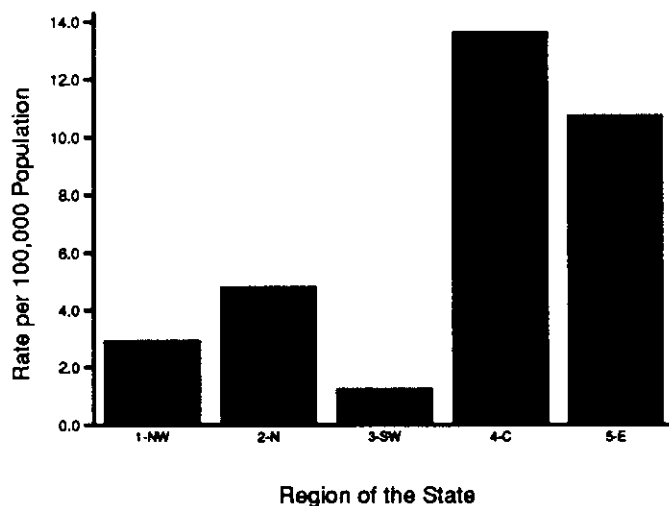
males (6.9 vs. 6.4 per 100,000) to be reported with shigellosis.

Of the cases for which a 1989 date of onset was reported, 64.7% experienced onset before July, with January being the month with the most cases occurring.

Morbidity rates varied by region, with the Southwest, Northwest, and Northern Regions experiencing fewer than five cases per 100,000 population (1.2, 2.9, and 4.8, respectively) and the Eastern and Central Regions experiencing more than ten cases per 100,000 population (10.7 and 13.6, respectively). (Figure 49) Fifty-eight percent of Virginia's localities did not report any cases of shigellosis in 1989.

Figure 49

Shigellosis: Rate by Region Virginia, 1989



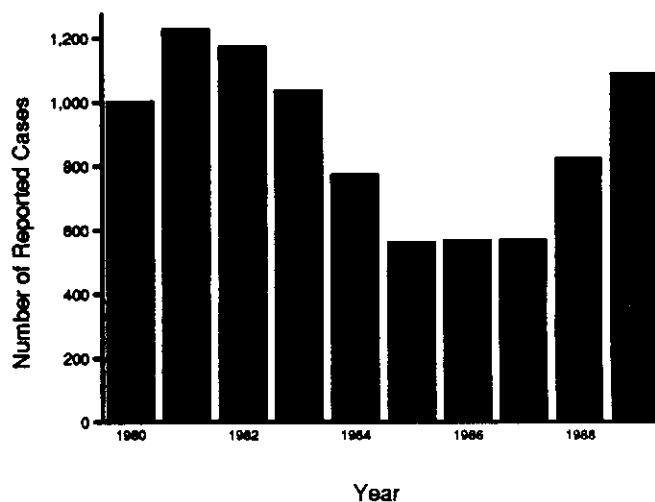
Syphilis

Early Syphilis

Primary, secondary, and latent syphilis increased 32.4% from 822 cases in 1988 to 1,088 cases in 1989. This is the second consecutive year that the number of early syphilis cases has increased, reversing a downward trend observed in the early 1980's. (Figure 50)

Figure 50

Syphilis, early: 10 Year Trend Virginia, 1980-1989



The majority of early syphilis cases (67%) were between the ages of 20-34, with just over a quarter (26%) of the morbidity found in the 20-24 age group. Ten percent of the cases were white (2.3 per 100,000) and 90% nonwhite (74.8 per 100,000). (Figure 51)

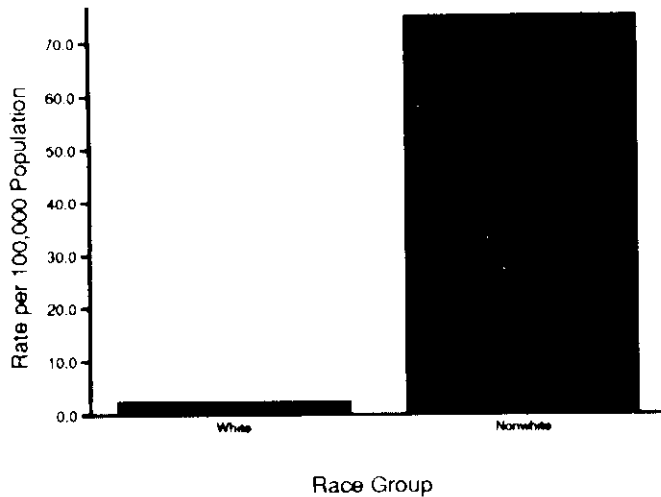
The number of female cases increased 41% from 357 cases in 1988 to 505 cases in 1989. The corresponding increase in males was 26% from 464 cases in 1988 to 581 cases in 1989. The rate in

Smallpox

No cases of this reportable disease were reported in 1989. The last reported case occurred in 1944.

Figure 51

Syphilis, early: Rate by Race Group
Virginia, 1989

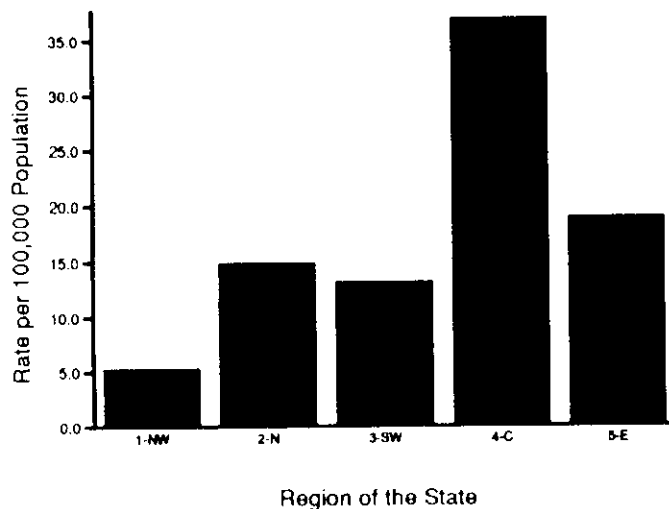


males was 19.8 per 100,000, higher than the 16.3 in females.

The Central Region reported the most cases (391 cases, 36.9 per 100,000), followed by the Eastern

Figure 52

Syphilis, early: Rate by Region
Virginia, 1989



(289, 18.8 per 100,000), Northern, (193, 14.8 per 100,000), Southwest (174, 13.1 per 100,000), and Northwest (41, 5.1 per 100,000) Regions. (Figure 52)

Congenital Syphilis

In 1989 there were 13 cases of early congenital syphilis; 8 in the Central Region, 2 in the Southwest, 2 in the Eastern, and 1 in the Northwest. Twelve of the infants were black and 1 was Hispanic. Four of the infants were born with clinical signs and there was one death and one stillbirth.

The mothers' average age was 22 (ranging from 16-28). Ten were single (77%) and three had a prior history of syphilis. Six of the ten mothers who received prenatal care had nonreactive serological tests for syphilis during the first trimester of their pregnancies.

The 13 cases in 1989 marks the highest number of cases this decade and a 225% increase over the 4 cases in 1988. The dramatic rise in cases is partly attributed to a change in the surveillance definition of early congenital syphilis that was implemented during the last quarter of 1988. The current case definition is more sensitive, expanding beyond infants born with clinical signs and symptoms to include syphilitic stillbirths; defined as fetal death occurring after a 20 week gestation or weighing over 500 grams, in which the mother had untreated syphilis.

The increase in congenital syphilis is also a reflection of the high incidence of early syphilis in women of childbearing age. Due to the nine month gestation period, there is usually a one year lag that exists between increases of early syphilis and congenital syphilis. The 45% increase in the number of early syphilis cases experienced by females in 1989 can be expected to result in a

greater number of congenital syphilis cases for 1990.

Tetanus

Although two cases of tetanus were reported in 1988, none was reported in 1989.

Toxic Shock Syndrome

Six cases of toxic shock syndrome were confirmed in 1989, compared to two in 1988. The cases ranged in age from 10 to 29. Four were white, one was nonwhite, and one had race unreported. All six were female. Five cases were from the Northern Region, and one was from the Northwest.

Toxic Substance Related Illnesses

One case of residential mercury exposure was investigated in 1989 and found to be related to a device a citizen had taken home from work.

Trichinosis

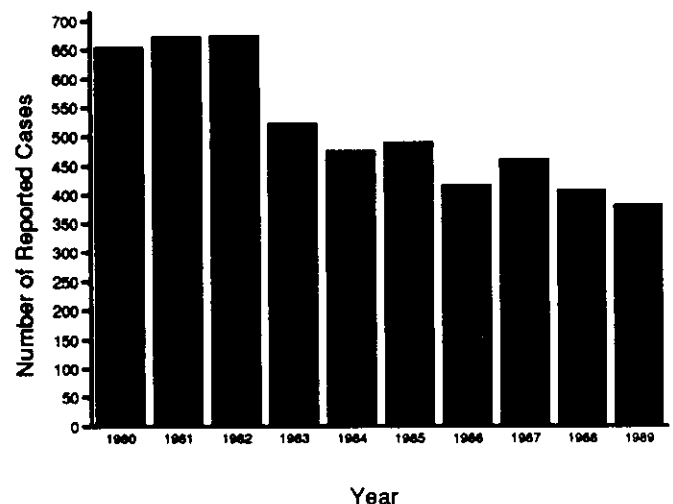
No cases of trichinosis have been reported in Virginia since 1987.

Tuberculosis

In 1989, 380 cases of tuberculosis were reported in Virginia for a case rate of 6.3 per 100,000 population, compared with the national rate of 9.5. This is the fewest cases ever reported in Virginia. The ten year trend showing a 49 percent reduction is presented in Figure 53. The case rate per 100,000 population decreased 56% during the same period. In 1979, 12 of 95 counties reported no tuberculosis cases as did one of 41 cities. In 1989, 37 counties and 15 cities were tuberculosis free.

Figure 53

Tuberculosis: 10 Year Trend
Virginia, 1980-1989



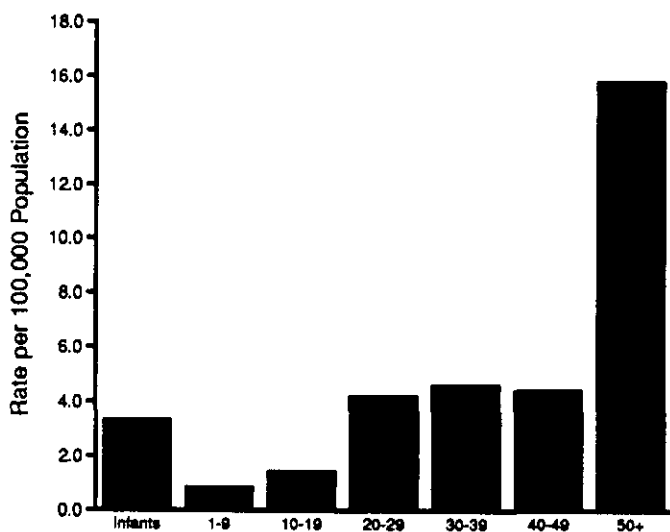
Tuberculosis continues to be more prevalent in urban areas. Eight cities and four counties produced 59% of the 1989 morbidity. The Eastern Region reported 112 cases with 93, 85, 50, and 40 reported respectively by the Northern, Central, Southwest, and Northwest Regions. The morbidity rate was the highest in the Central

Region (8.0 per 100,000), followed by the Eastern Region (7.28) and the Northern (7.12).

Persons 65 and older accounted for 42 percent of all 1989 cases. Conversely, three percent of the cases occurred in children under 15 years of age.

Figure 54

Tuberculosis: Rate by Age Group Virginia, 1989



(Figure 54) Two-thirds of the 1989 cases were male.

The 1989 case rate for whites was 3.4 per 100,000, while that of nonwhites was 16.7. Foreign-born persons contributed 25% of the 1989 tuberculosis morbidity.

Infection with tubercle bacilli supercedes disease by years in most cases. Therefore, the onset of tuberculosis is not documented.

No deaths due to tuberculosis were reported. Since the advent of effective chemotherapy, tuberculosis is rarely the cause of death in developed countries.

Tularemia

Four cases of tularemia were reported 1989. All four cases were white and age forty and older. Three were female and one was male. The cases resided in four different health districts. Two lived in the Southwest Region, one in the Northwest, and one in the Eastern Region of the state.

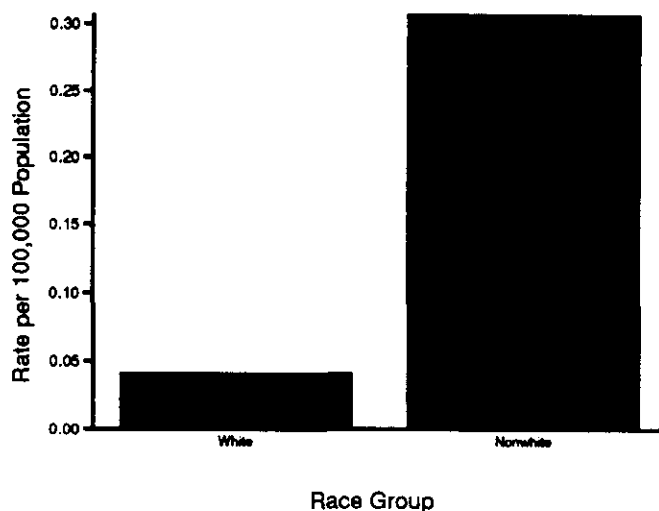
Typhoid Fever

Typhoid fever activity was lower in 1989 than it has been since 1985. Seven cases were reported in 1989, compared to 13 in 1988, 10 in 1987, 11 in 1986, and three in 1985.

No young children (under age 10) were affected by this disease. Four cases were in the 10-19 age

Figure 55

Typhoid Fever: Rate by Race Group Virginia, 1989



group, two were 20-29 and one was 40-49. One-half (four cases) of the cases were in the other nonwhite race group, two were white, and one had unreported race. (Figure 55) Three of the cases were female and four were male.

Cases were more likely to occur in the second and third quarters of the year. Only one case was reported with onset in the first quarter, and zero in the fourth.

Six of the cases were from the Northern Region and one was from the Central Region. Three cases had a history of travel in Asia and one had travelled to Central America.

Typhus, Fleaborne

No cases of this disease were reported in 1989. The last year a case was reported was 1986.

Vibrio Infections

Seven cases of *Vibrio* infections were reported in 1989. Three cases were *V. parahaemolyticus*, two were *V. alginolyticus*, one *V. vulnificus*, and one *V. hollisae*. All cases were adults over the age of 20. Four were white, one nonwhite, and two race unknown. Five were male and two were female. Three cases occurred during the third quarter of the year, two during the fourth quarter, and one in each of the first two quarters.

Three cases were from the Eastern Region, two from the Northern, and one from each of the Northwest and Southwest Regions. The site of isolation was the stool for three cases, wounds for two, a leg for one, and an arm for one.

Waterborne Outbreaks

No waterborne outbreaks were reported in 1989. The last waterborne outbreak investigation was conducted in 1986.

Yellow Fever

No cases of yellow fever were reported in 1989. In fact, no indigenous cases of yellow fever have been reported anywhere in the United States since 1911.

Yersiniosis

Yersiniosis is not an officially reportable disease in Virginia. When reports of this disease are received, however, they are recorded. Sixty-seven cases of yersiniosis were reported in 1989. Most of the cases were children: 27 (40.3%) were infants and 14 (21.0%) were age 1-9. Twenty-three cases were reported from the Southwest Region, 21 from the Central Region, nine from the Eastern, eight from the Northern, and four from the Northwest Region.

