Reportable Disease Surveillance in Virginia, 1994

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Office of Epidemiology

Reportable Disease Surveillance in Virginia, 1994

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Introduction

The Virginia Department of Health, Office of Epidemiology is pleased to present its seventh annual report of disease surveillance activities. This report summarizes morbidity data reported by the Virginia Department of Health, Office of Epidemiology to the federal Centers for Disease Control and Prevention (CDC) during calendar year 1994.

The Office of Epidemiology is responsible for the ongoing statewide surveillance of diseases reported according to the provisions of the *Regulations for Disease Reporting and Control.* Disease surveillance involves the collection of pertinent data, the tabulation and evaluation of the data, and the dissemination of the information to all who need to know. This process is a very important aspect of public health because the purpose of surveillance is to reduce morbidity.

Diseases must first be diagnosed and reported to the health department before case investigations and disease control can occur. Physicians, personnel in medical care facilities, laboratorians, and other health care providers, therefore, are key to the surveillance process. Those who report can also benefit because they will be notified when the health department detects unusual disease patterns occurring in the community, thus raising the index of suspicion when individuals present with compatible symptoms and facilitating more rapid diagnosis and treatment.

This report is divided into four sections, as described below. Past reports have included a section on chronic disease surveillance in Virginia based on data reported in the Virginia Cancer Registry and the Alzheimer's Disease and Related Disorders Registry. This year's report summarizes only those diseases that are either listed as officially reportable in the *Regulations for Disease Reporting and Control* or other communicable diseases of public health interest.

Introduction and Data Summary: Tables summarizing 1994 morbidity are included in this introductory section. These tables include the list of reportable diseases, ten year trend of disease reports, number of reports and rate per 100,000 population for selected diseases by region, age, race, sex, and number and percent of reports by quarter of onset. A brief summary of some emerging infectious diseases is also included in this section.

Descriptive Epidemiology of Reportable Diseases: This section consists of narrative and graphics summarizing the populations reported with each reportable condition. Included is information on the total number of cases reported, the ten year trend in reported cases, the demographics of cases in terms of their age, race, and sex, and the distribution of cases by date of onset and health planning region of the state. Mortality, microbial species, and other attributes of diseases are also presented when applicable.

Population-based rates are often presented to provide a measure of disease risk and allow for comparisons to be made. In the calculation of rates, the 1993 population estimates for the state and localities were used. Age, race, and sex population data were extrapolated by applying proportions from the 1990 Census to the 1993 population estimates. Some additional notes on coding are listed below.

Race is usually coded as black, white or other. The "other" race category refers to Hispanics, Asian/Pacific Islanders, American Indians, and Alaskan Natives. To ensure consistency of the numerator (cases) and denominator (population) in the calculation of rates, white and black

Hispanics were removed from the white and black population totals and added to the "other" race population.

Date of onset is used whenever it is available. Onset is defined as either month or quarter of the year in which symptoms first occurred. Some cases reported in 1994 experienced onset prior to the year of report. Statistics on some diseases are only available by date of report, meaning date the information was furnished to the CDC or first received in the Office of Epidemiology, rather than date of onset of symptoms.

Numbers and Rates by Locality: In this section of the report are tables containing the number of cases and rates per 100,000 population for selected diseases by locality, district, and health planning region. Cities and counties that have separate health departments are listed individually. Those that share one health department are combined. Caution is urged in interpreting the data listed in this section as well as in the following section. Localities with small populations may have large disease rates but only a few reported cases of disease. Both number of cases and incidence rates should be weighed when using these tables to rank morbidity by city or county.

Maps of Incidence Rates: Maps are presented which depict the information listed in the previous section. For each map, the rates have been divided into four categories using the following process:

Category 1 - Localities reporting zero cases of the disease.

Category 2 - Localities with an incidence rate greater than zero and up to the mean for the state.

Category 3 - Localities with an incidence rate greater than the mean and up to one standard deviation above the mean for the state.

Category 4 - Localities with an incidence rate greater than one standard deviation above the mean for the state.

The Office of Epidemiology hopes that the readers of this report will find it to be a valuable resource for understanding the epidemiology of reportable diseases in Virginia. Any questions or suggestions about this report may be directed to Leslie Branch, Virginia Department of Health, Office of Epidemiology, P.O. Box 2448, Room 113, Richmond, Virginia 23218.

Data Summary

Tables 1-7, on the following pages, present a summary of the primary epidemiologic data elements for selected diseases. Table 1 is a list of the reportable conditions in Virginia. Table 2 presents the number of cases of selected diseases reported annually during the past ten years. Table 3 presents number of cases and rate per 100,000 population by region. Table 4 presents the same data by age; Table 5 by race; and Table 6 by sex. In Table 7, number and percent of cases by quarter of the year in which onset occurred is provided. A brief description of the major findings presented in these tables follows.

TREND - Compared to 1993, the following diseases increased in incidence in 1994: Amebiasis, campylobacteriosis, *Chlamydia trachomatis* infection, gonorrhea, hepatitis A, histoplasmosis, legionellosis, Lyme disease, meningococcal infection, mumps, rabies in animals, Rocky Mountain spotted fever (RMSF), salmonellosis, early syphilis, and typhoid fever.

Decreases were observed for AIDS, aseptic meningitis, bacterial meningitis, chickenpox, primary encephalitis, giardiasis, invasive *Haemophilus influenzae* infection, hepatitis B, hepatitis non-A non-B, HIV infection, influenza, Kawasaki syndrome, malaria, measles, occupational illnesses, pertussis, shigellosis, and tuberculosis.

REGION - The eastern health planning region had the highest incidence rates overall and the southwest the lowest. The eastern health planning region had the highest incidence rates for aseptic meningitis, chickenpox, *Chlamydia trachomatis* infection, primary encephalitis, gonorrhea, hepatitis B, meningococcal infection, mumps, and early syphilis.

The northern health planning region had the highest incidence rates for giardiasis, hepatitis A, Kawasaki syndrome, malaria, pertussis, tuberculosis, and typhoid fever.

Hepatitis non-A non-B, histoplasmosis, HIV infection, salmonellosis, and shigellosis were more likely to be reported from the central health planning region.

The highest incidence rates for campylobacteriosis, *Haemophilus influenzae* infection, and measles were observed in the northwest health planning region.

The southwest health planning region had the highest incidence rates for amebiasis and influenza.

The central and eastern health planning regions had the highest and similar incidence rates for AIDS; the northwest and eastern health planning regions had the highest and similar incidence rates for bacterial meningitis; the northwest and southwest health planning regions had the highest incidence rates for legionellosis; the northern and eastern health planning regions had the highest incidence rates for Lyme disease; and the northwest and central health planning regions had the highest incidence rates for Rocky Mountain spotted fever.

AGE - Infants were at the greatest risk for aseptic meningitis, bacterial meningitis, campylobacteriosis, primary encephalitis, invasive *H. influenzae* infection, Kawasaki syndrome, malaria, meningococcal infection, pertussis, and salmonellosis. Young children (age 1-9) experienced the highest incidence rates of giardiasis, mumps, and shigellosis. Older children (age 10-19) were most likely to be reported with *C. trachomatis* infection and measles.

Young adults (age 20-29) experienced the highest incidence rates for gonorrhea, hepatitis B, early syphilis, and typhoid fever. The 30-39 year olds had the highest incidence rates for AIDS, amebiasis, HIV infection, and Lyme disease. Legionellosis and tuberculosis were most often reported in adults age 50 or older. The 20-29 and 30-39 age groups had the highest and similar incidence rates for hepatitis A; the 30-39 and 40-49 age groups had the highest and similar incidence rates for hepatitis non-A non-B.

RACE - The higher incidence rates were generally more likely to be in blacks and persons in the other race category, as shown in Table 5. Whites, however, did have higher rates for campylobacteriosis, Lyme disease, and measles.

SEX - Compared to females, males were at a greater risk for more diseases (see Table 6). Noticeably higher incidence rates for males included the following diseases: AIDS, gonorrhea, hepatitis A, histoplasmosis, HIV infection, Kawasaki syndrome, legionellosis, malaria, Rocky Mountain spotted fever, and tuberculosis. Incidence rates were much higher for females than for males for *C. trachomatis* infection and Lyme disease.

ONSET - Hepatitis non-A non-B, influenza and Kawasaki syndrome occurred most often during the first quarter of the reporting year, as shown in Table 7. Histoplasmosis, Lyme disease, measles, shigellosis, and typhoid fever occurred more frequently during the second quarter of the year. Amebiasis, aseptic meningitis, primary encephalitis, giardiasis, hepatitis A, malaria, pertussis, and salmonellosis occurred more during the third quarter of the reporting year. More rabid animals were identified in the fourth quarter than any other quarter. Meningococcal infection and mumps occurred more often during the first half of the reporting year; campylobacteriosis and Rocky Mountain spotted fever occurred more often during the second and third quarters of the reporting year; and legionellosis occurred more often during the latter half of the reporting year.

The following diseases were not found to demonstrate a clear seasonal trend: bacterial meningitis, *C. trachomatis* infection, gonorrhea, *H. influenza* infection, hepatitis B, and early syphilis.

Emerging Infectious Diseases

Escherichia coli O157:H7

Escherichia coli O157:H7 is recognized as an important emerging pathogen, causing an estimated 10,000-20,000 infections in the United States each year. People at the extremes of age are especially susceptible to *E. coli* O157:H7 associated illness, but individuals of all ages have been affected. The most important complication of *E. coli* O157:H7 infection is hemolytic-uremic syndrome (HUS). An increase in screening stool samples for *E. coli* O157:H7 by laboratories in Virginia has resulted in the identification of more cases and an earlier detection of clusters of illness.

In 1994, an outbreak of *E. coli* O157:H7 in a summer camp was reported. One case was diagnosed with HUS. Consumption of rare (red or pink) beef during the camp session was associated with an increased risk for illness.

Group A Streptococcal Disease

Changes in the epidemiology of Group A streptococcal (GAS) infections have included outbreaks of rheumatic fever, the emergence of streptococcal toxic shock syndrome (STSS), and a general increase in the rate of invasive disease. These changes have been associated with changes in the serotype distribution, with an increasing proportion of invasive infections caused by more virulent strains (M-types), and an increase in the proportion of organisms producing pyrogenic exotoxin A, which has been linked to STSS. Although not officially reportable, the health department is interested in all cases of invasive GAS infections.

Hantavirus Pulmonary Syndrome

Hantavirus pulmonary syndrome (HPS), characterized by an influenza-like prodrome followed by the acute onset of respiratory failure, was first identified in June 1993 during an investigation of an outbreak of illness associated with hantavirus infection in the southwestern United States. Hantavirus is carried by infected wild rodents, primarily deer mice (*Peromyscus maniculatus*). Humans are thought to be at risk for infection after exposure to rodent excreta, either through the aerosol route or by direct inoculation. Late in 1994, laboratory tests conducted by the Centers for Disease Control and Prevention confirmed the diagnosis of HPS in a man who was hospitalized for acute respiratory distress syndrome (ARDS) following a hiking trip that began in April 1993. The hiker started his trip in Georgia, northbound through the Virginia portion of the Appalachian Trail, and had become ill by the time he reached Pennsylvania. The hiker fully recovered from his illness, which is believed to have been acquired in Virginia.

Table 1. Reportable Diseases in Virginia

Acquired immunodeficiency syndrome (AIDS)
Amebiasis
Anthrax
Arboviral infection
Aseptic meningitis
Bacterial meningitis
Botulism
Brucellosis
Campylobacter infection
Chancroid
Chickenpox
Chlamydia trachomatis infection
Congenital rubella syndrome
Diphtheria
Encephalitis - primary and post-infectious
Foodborne outbreak
Giardiasis
Gonorrhea
Granuloma inguinale
Haemophilus influenzae infection, invasive
Hepatitis A
    B
    Non-A, Non-B
    Unspecified
Histoplasmosis
Human immunodeficiency virus (HIV) infection
Influenza
Kawasaki syndrome
Lead - elevated levels in children
Legionellosis
Leprosy (Hansen's disease)
Leptospirosis
Listeriosis
Lyme disease
Lymphogranuloma venereum
Malaria
Measles (Rubeola)
Meningococcal infection
Mumps
Nosocomial outbreak
Occupational illness
Ophthalmia neonatorum
Pertussis (Whooping cough)
Phenylketonuria (PKU)
Plague
Poliomyelitis
Psittacosis
Q fever
Rabies in animals
Rabies in man
Rabies treatment, post-exposure
Reye syndrome
Rocky Mountain spotted fever
Rubella (German measles)
Salmonellosis
Shigellosis
Smallpox
Syphilis
Tetanus
Toxic shock syndrome
Toxic substance related illness
Trichinosis
Tuberculosis
Tularemia
Typhoid fever
Typhus, flea-borne
Vibrio infection, including cholera
Waterborne outbreak
Yellow fever