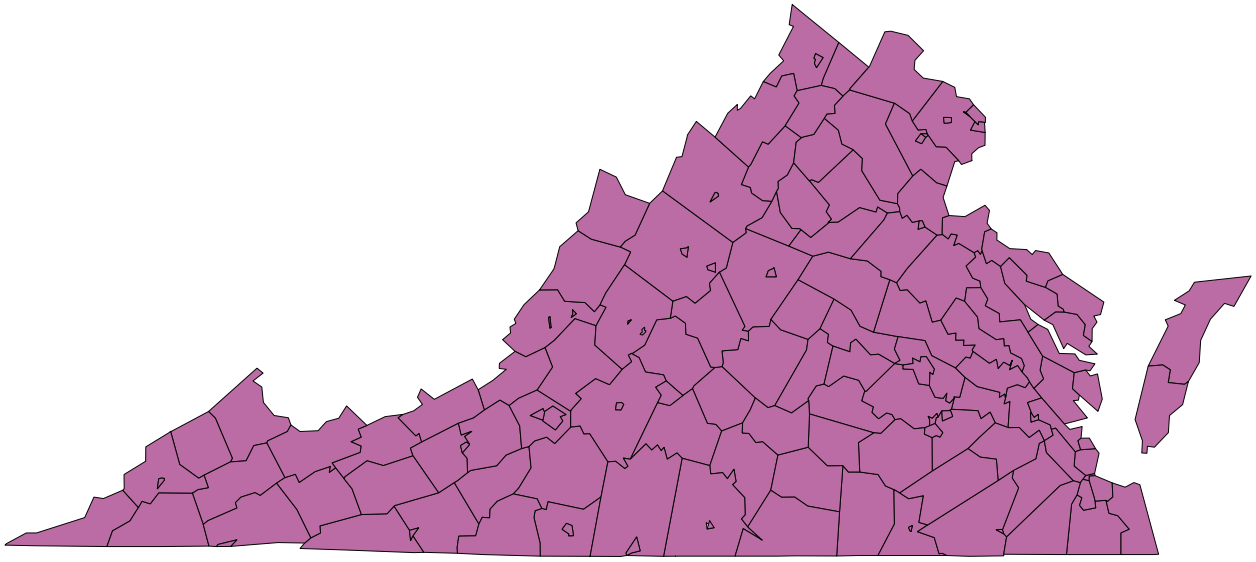
Reportable Disease Surveillance in Virginia, 2004



VIRGINIA DEPARTMENT OF HEALTH

Protecting You and Your Environment

Office of Epidemiology

Reportable Disease Surveillance in Virginia, 2004

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INTRODUCTION

AND

DATA SUMMARY

Introduction

The Virginia Department of Health, Office of Epidemiology is pleased to present its sixteenth 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 2004.

The Office of Epidemiology, in conjunction with health departments in districts throughout Virginia, is responsible for the ongoing statewide surveillance of diseases 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. These data provide the foundation for public health activities to reduce morbidity.

Diseases must first be diagnosed and reported to the health department before case investigations can occur and disease control activities can begin. Physicians, personnel in medical care facilities, laboratories, and other health care providers are therefore key to the surveillance process. By reporting diseases, health care personnel aid the health department in identifying unusual disease patterns occurring in the community. The health department notifies physicians of these unusual disease patterns, which helps physicians provide a more rapid diagnosis and treatment of individuals who present with compatible symptoms.

This report summarizes those diseases and conditions that are either listed as officially reportable in the *Regulations for Disease Reporting and Control* or that represent other communicable diseases of public health interest that were reported to the Virginia Department of Health. The report is divided into four sections as described below.

Introduction and Data Summary: Tables summarizing 2004 morbidity are included in this introductory section. These tables include the list of reportable diseases; ten year trends; number of reports and incidence rate per 100,000 population for selected diseases by health planning region, age group, race, and sex; and number and percent of reports by quarter of onset.

Descriptive Epidemiology of Reportable Diseases: This section consists of narrative and graphics summarizing the populations reported with each disease or condition. Included is information about 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 also are presented when applicable.

Population-based rates are often presented to provide a measure of disease frequency in the population and to allow for comparisons to be made between different groups. In calculating rates, population estimates for 2004 prepared by the United States Census Bureau for the state's cities and counties and total population were used. Some additional notes on coding are listed below.

Race is usually presented as black, white, or other. The "other" race category includes Asian/Pacific Islanders, American Indians, and Alaskan Natives.

Date of onset is used whenever it is available. Onset is the time at which symptoms first occurred. Some cases reported in 2004 experienced onset prior to the year of report. In some situations information is only available on the date of report, the date the information was furnished to the CDC, or the date the report was first received in the Office of Epidemiology, and these dates are used in place of date of onset. Date of specimen collection or date of hospital admission may also be used to estimate date of onset.

To the extent possible, rates are calculated based on residence of the patient. When the address of the patient is neither reported by the health care provider nor ascertained by the health department, then the location of the reporting source, i.e., the physician, hospital, or laboratory, is used.

Number of Cases and Rate by Locality: This section of the report presents the number of cases and incidence rate 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 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: The first map in this section illustrates the location of the various cities and counties in Virginia. This is followed by a map of the health planning regions in Virginia. Following that, disease-specific maps are presented which depict the incidence rates 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 Julie Plagenhoef, Virginia Department of Health, Office of Epidemiology, P.O. Box 2448, 109 Governor St., 4th Floor, Richmond, Virginia 23218. Phone number 804-864-8141.

Data Summary

Following this section are pages containing tables of statewide summary data for selected diseases. Table 1 is a list of reportable conditions in Virginia in 2004. Table 2 presents the number of cases of selected diseases reported annually during the past ten years. Table 3 delineates the number of cases of selected diseases reported for 2004 by age group, Table 4 by race group, and Table 5 by sex. Table 6 shows number of cases and rate per 100,000 population by region. Table 7 provides the number and percent of cases with onset by quarter of the year. A brief summary of the major findings presented in these tables follows.

TREND – Notable increases in numbers of cases (>5%) were observed for the following diseases in 2004 compared to 2003: amebiasis, infant botulism, chickenpox, *Chlamydia trachomatis* infection, cryptosporidiosis, other enterohemorrhagic *Escherichia coli* infections, giardiasis, acute hepatitis B, HIV infection, listeriosis, Lyme disease, mumps, pertussis, Rocky Mountain spotted fever (RMSF), invasive *Streptococcus pneumoniae* in children less than 5 years old, and early syphilis. Notable decreases occurred for the number of cases of arboviral infections, brucellosis, campylobacteriosis, cyclosporiasis, ehrlichiosis, *Escherichia coli* O157:H7 infection, gonorrhea, invasive *Haemophilus influenzae* infection, legionellosis, meningococcal infection, psittacosis, rabies in humans, rabies in animals, shigellosis, invasive group A streptococcal disease, toxic shock syndrome, tularemia, typhoid fever, and *Vibrio* infection.

REGION – The northwest health planning region had the highest incidence rates of campylobacteriosis, giardiasis, invasive *Haemophilus influenzae* infection, pertussis, and invasive group A streptococcal disease compared to the other regions of the state. That region had the lowest rates of hepatitis A and HIV infection. No cases of infant botulism, brucellosis, cyclosporiasis, hemolytic uremic syndrome, Kawasaki syndrome, typhoid fever or *Vibrio* infection were reported from the northwest region.

The northern health planning region experienced the highest incidence rates of amebiasis, other enterohemorrhagic *Escherichia coli* infections, hepatitis A, Lyme disease, malaria, tuberculosis, and typhoid fever. The lowest incidence rates of chickenpox, *Chlamydia trachomatis* infection, gonorrhea, invasive *Haemophilus influenza*e infection, acute hepatitis B, elevated blood lead levels in children, and invasive group A streptococcal disease were reported from the northern region. No cases of infant botulism, ehrlichiosis, or toxic shock syndrome were reported in this region. The highest number of cases of rabies in animals and the only cases of brucellosis and cyclosporiasis were reported from the northern region.

The southwest health planning region had the highest incidence rates for acute hepatitis C, cryptosporidiosis, *Escherichia coli* O157:H7 infection, legionellosis, and mumps. It had the lowest rates for AIDS, other enterohemorrhagic *Escherichia coli* infections, Lyme disease, malaria, pertussis, RMSF, shigellosis, and tuberculosis. There were no cases of infant botulism, brucellosis, cyclosporiasis, toxic shock syndrome, or typhoid fever reported from the southwest. This region reported the only case of hemolytic uremic syndrome.

The central health planning region experienced the highest rates of AIDS, acute hepatitis B, elevated blood levels in children, listeriosis, salmonellosis and shigellosis. The lowest rates of

legionellosis, meningococcal infection, and reportable invasive *Streptococcus pneumoniae* infection were seen in this region. No cases of infant botulism, brucellosis, cyclosporiasis, hemolytic uremic syndrome, mumps, or toxic shock syndrome were reported from the central region.

The eastern health planning region had the highest incidence rates of chickenpox, *Chlamydia trachomatis* infection, gonorrhea, HIV infection, Kawasaki syndrome, meningococcal infection, reportable invasive *Streptococcus pneumoniae* infection, early syphilis, and *Vibrio* infection. That region also experienced the lowest rate of campylobacteriosis, cryptosporidiosis, giardiasis, listeriosis, and salmonellosis. No cases of infant botulism, brucellosis, cyclosporiasis, hemolytic uremic syndrome, or typhoid fever were reported from the eastern region.

AGE – Infants (age <1 year) had the greatest incidence rates for campylobacteriosis, cryptosporidiosis, *Escherichia coli* O157:H7, other enterohemorrhagic *Escherichia coli* infections, giardia, invasive *Haemophilus influenzae* infection, Kawasaki syndrome, listeriosis, pertussis, salmonellosis, invasive group A streptococcal disease, and reportable invasive *Streptococcus pneumoniae*. No cases of amebiasis, arboviral infection, acute hepatitis B, Lyme disease, malaria, meningococcal infection, tuberculosis, typhoid fever, and *Vibrio* infection were reported in infants.

Children aged 1-9 years had the highest incidence rates for chickenpox, elevated blood lead levels in children, mumps, shigellosis, and typhoid fever. No cases of AIDS, brucellosis, cyclosporiasis, legionellosis, early syphilis or toxic shock syndrome were reported among children in this age group. This age group reported the lowest rates of *Chlamydia trachomatis* infection, gonorrhea, and HIV infection. The single case of hemolytic uremic syndrome was reported in the 1-9 year old age group.

The 10-19 year age group had the lowest rates for campylobacteriosis, elevated blood lead levels in children, salmonellosis, and invasive group A streptococcal disease. No cases of arboviral infection, brucellosis, cyclosporiasis, ehrlichiosis, hemolytic uremic syndrome, acute hepatitis C, or legionellosis were reported in this age group.

Persons in their twenties were reported with higher rates of *Chlamydia trachomatis* infection, gonorrhea, acute hepatitis C, and malaria than persons in other age groups. Persons in their thirties had the highest incidence rates for AIDS, amebiasis, HIV infection, early syphilis, and tuberculosis. Persons in their forties had the highest rates of ehrlichiosis, acute hepatitis B, and Lyme disease. This age group also had the only case of brucellosis. The fifty years and older age group had the highest rates of hepatitis A and legionellosis. The only case of cyclosporiasis was also reported from this age group.

RACE – Among conditions for which race was known for at least 80% of cases, the black population had the highest incidence rates for AIDS, infant botulism, *Chlamydia trachomatis* infection, gonorrhea, HIV infection, Kawasaki disease, malaria, invasive *Streptococcus pneumoniae* in children less than 5 years old, early syphilis, and tuberculosis. The white population had the highest incidence rates for chickenpox, ehrlichiosis, actue hepatitis C, legionellosis, listeriosis, pertussis, RMSF, invasive group A streptococcal disease, and toxic shock syndrome.

SEX – In general, the incidence rates of reportable diseases tend to be higher in males than females. The following lists some exceptions seen in the 2004 data. Females were reported to have the following diseases more often than males: *Chlamydia trachomatis* infection, cryptosporidiosis, gonorrhea, invasive *Haemophilus influenzae* infection, listeriosis, and salmonellosis. The incidence rates were very similar or the same for males and females for amebiasis, arboviral infections, infant botulism, ehrlichiosis, *Escherichia coli* O157:H7, other enterohemorrhagic *Escherichia coli* infections, acute hepatitis C, meningococcal infection, mumps, pertussis, invasive group A streptococcal disease, toxic shock syndrome and typhoid fever.

ONSET – A few diseases showed distinct seasonal incidence. Forty-eight percent of amebiasis cases and 47% of acute hepatitis C infections occurred during the first quarter of the year. A large percentage of arboviral infections, campylobacteriosis, chickenpox, ehrlichiosis, *Escherichia coli* O157:H7, other enterohemorrhagic *Escherichia coli* infections, giardiasis, hepatitis A, legionellosis, Lyme disease, rabies in animals, Rocky Mountain spotted fever, salmonellosis, shigellosis, typhoid fever, and *Vibrio* infection were reported during the second and third quarters of the year. A large portion of invasive *Haemophilus influenzae* infection (32%), listeriosis (33%), and pertussis (46%) had reported onset dates during the fourth quarter.

Table 1. Reportable Diseases in Virginia, 2004

Acquired immunodeficiency syndrome (AIDS)
Ambebiasis
Anthrax
Arboviral infection (e.g., EEE, LAC, SLV, WNV)
Botulism
Brucellosis
Campylobacter infection
Chancroid
Chickenpox
Chlamydia trachomatis infection
Cholera
Creutzfieldt-Jakob disease if <55 years of age
Cryptosporidiosis
Cyclosporiasis
Diphtheria
Ehrlichiosis
Escherichia coli O157:H7 and other enterohemorrhagic *E. coli* infections
Giardiasis
Gonorrhea
Granuloma inguinale
Haemophilus influenzae infection, invasive
Hantavirus pulmonary syndrome
Hemolytic uremic syndrome (HUS)
Hepatitis A (IgM+)
Hepatitis B (acute and chronic)
Hepatitis C (acute and chronic)
Hepatitis, other acute viral
Human immunodeficiency virus (HIV) infection
Influenza
Kawasaki syndrome
Lead - elevated blood levels
Legionellosis
Leprosy (Hansen disease)
Listeriosis
Lyme disease
Lymphogranuloma venereum
Malaria
Measles (Rubeola)
Meningococcal infection
Monkeypox
Mumps
Ophthalmia neonatorum
Outbreaks, All (including foodborne, nosocomial, occupational, toxic substance-related, waterborne, and other outbreaks)
Perussis (Whooping cough)
Plague
Poliomyelitis
Psittacosis
Q fever
Rabies, human and animal
Rabies treatment, post exposure
Rocky Mountain spotted fever
Rubella (German measles), including congenital rubella syndrome
Salmonellosis
Severe acute respiratory syndrome (SARS)
Shigellosis
Smallpox
Streptococcal disease, Group A, invasive
Streptococcus pneumoniae, invasive if <5 years of age
Syphilis
Tetanus
Toxic shock syndrome
Toxic substance-related illness
Trichinosis
Tuberculosis disease (Mycobacteria)
Tuberculosis infection in children <4 years
Tularemia
Typhoid fever
Typhus
Unusual occurrence of disease of public health concern
Vaccina, disease or adverse event
Vancomycin-resistant *Staphylococcus aureus*
Vibrio infection
Viral hemorrhagic fever
Yellow fever