5 COMMUNICABLE DISEASES

In the mid-19th and early 20th centuries public health gained the public's trust through effective communicable disease investigation and control. Although communicable diseases are now often overshadowed by other causes of disease, disability and death in the U.S., reemerging and drug-resistant infections are a cause for concern. Additionally, in many developing countries they remain leading health threats.

Communicable diseases, also known as infectious diseases, will always pose challenges to public health and produce significant direct and indirect costs to society. New infectious agents, termed "emerging diseases," are being detected, and some diseases previously considered under control are reemerging. Resistance to antibiotics is a growing problem. With increases in international travel, importation of foods and inappropriate use of antibiotics, the potential for worldwide epidemics of all types of infectious diseases has also increased.

Section Contents	**Figures**
5.1 Vaccine Preventable Diseases	5.1 Incidence of reported *Haemophilus influenzae* disease, by age group, Jefferson County, 1997 – 2003 5.2 Number of reported cases of hepatitis A in Jefferson County, by year, 1996 – 2003 5.3 Incidence of reported acute hepatitis B infection in Jefferson County, by age group, 1997 – 2003 5.4 Number of cases of reported pertussis syndrome in Jefferson County, by year, 1996 – 2002 5.5 Number of cases and incidence rate of reported pertussis syndrome, by age group, Jefferson County, 1997 – 2003 5.6 Incidence of reported invasive pneumoccocal disease, by age group, Jefferson County, 2002 – 2003
5.2 Sexually Transmitted Diseases	5.7 Reported cases of *Chlamydia* in Jefferson County, by year, 1996 – 2003 5.8 Reported cases of *Chlamydia* in Jefferson County, by gender and year, 1996 – 2003 5.9 Reported number of cases and age-specific infection rates of chlamydial disease, by age group, Jefferson County, 1996 – 2003 5.10 Reported cases of gonorrhea in Jefferson County, by year, 1996 – 2003 5.11 Reported cases of gonorrhea, by gender and year, Jefferson County, 1996 – 2003

Section Contents	Figures
	5.12 Reported number of cases and age-specific infection rates of gonorrhea, by age group, Jefferson County, 1996 – 2003 5.13 Reported cases of syphilis in Jefferson County, by year, 1996 – 2003 5.14 Reported number of cases and age-specific infection rates of syphilis, by age group, Jefferson County, 1996 – 2003
5.3 HIV and AIDS	5.15 New diagnoses of HIV infection in Jefferson County, by year, 1993 – 2003 5.16 New cases of AIDS among adolescents and adults, by gender and year, Jefferson County, 1993 – 2003 5.17 Age-adjusted HIV-disease mortality, by gender and year, Jefferson County, 1990 – 2002
5.4 Other Communicable Diseases	

5.1 VACCINE PREVENTABLE DISEASES

HP 2010 Objective 14-1: Reduce or eliminate indigenous cases of vaccine-preventable diseases.

Specific HP 2010 objectives exist for the reduction or elimination of numerous vaccine-preventable diseases. For many diseases, including indigenous cases of congenital rubella syndrome, diphtheria, *Haemophilus influenzae*, measles, mumps, polio, rubella and tetanus the target is elimination. For others – hepatitis B, pertussis and varicella – targets have been established for major reductions in the number of reported cases.

No indigenous cases of congenital rubella syndrome, diphtheria, measles, polio or tetanus, were reported among Jefferson County residents in 1997 – 2003. Reporting of varicella (chicken pox) in Colorado began in 2004.

The diseases described below were reported among county residents in 1997 – 2003. Comparison data for Colorado and the U.S. were taken from *Vaccine Preventable Disease in Colorado, Surveillance Report: 2002*[9] and from data published online by the National Center for Infectious Diseases, Centers for Disease Control and Prevention[10] (CDC).

5.1.1 *Haemophilus influenzae*

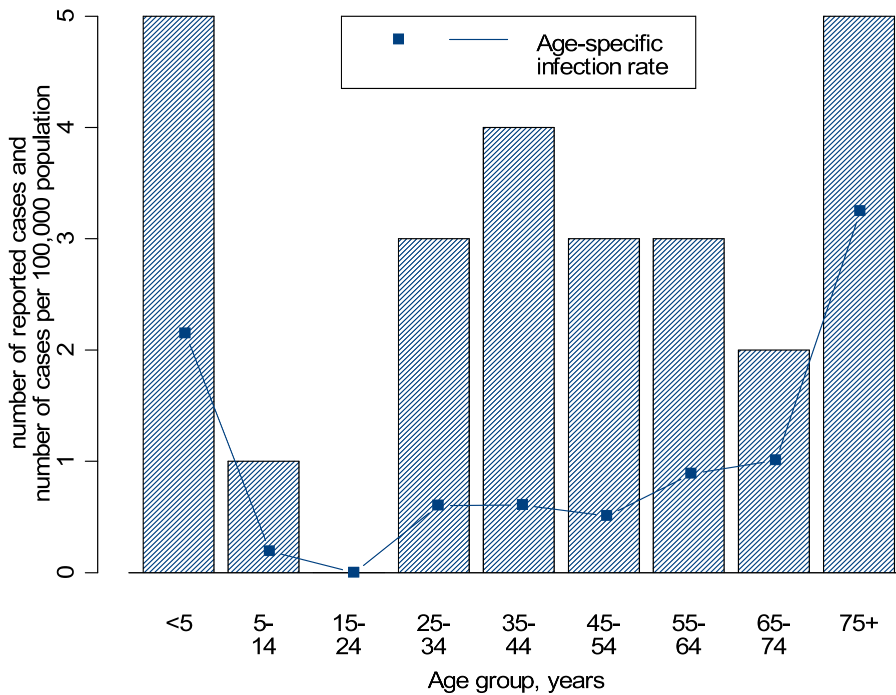
The **HP 2010 target** for *Haemophilus influenzae* disease is to eliminate all cases of serotype b and unknown serotypes in children under age 5 years.

Haemophilus influenzae disease is bacterial in origin and has a range of clinical symptoms. Disease caused by serotype b (Hib) can present as neuroinvasive disease, with meningitis, fever, headache, and stiff neck, or as cellulitis, arthritis, or sepsis. During 1980 – 1990, the nationwide incidence of Hib disease was 40 to 100 cases per 100,000 children aged 5 years or younger. With the availability and routine use of a Hib conjugate vaccine since 1990, the incidence of invasive Hib disease has decreased to 1.3 per 100,000 children in the United States.

In 2002 in the U.S. there were 1,743 *Haemophilus influenzae* cases, for an incidence of 0.6 cases per 100,000 population. Nationally, there were 163 cases of Hib disease among children aged 5 years and under in 1998.

In 2002 in Colorado, there were 36 *Haemophilus influenzae* cases, only two of which were of serotype b. Colorado's *Haemophilus influenzae* incidence in 2002 was 0.8 cases per 100,000 population. The highest rate occurred among adults aged 65 years and older, with 3.0 cases per 100,000 population. (Currently, Hib vaccine is not generally recommended for persons older than 59 months, except in selected high-risk persons).

Figure 5.1 Incidence of reported *Haemophilus influenzae* disease, by age group, Jefferson County, 1997 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

Jefferson County Findings

- There were 26 *Haemophilus influenzae* cases (all serotypes) reported among county residents from 1997 – 2003. The incidence rate of *Haemophilus influenzae* was 0.7 cases per 100,000 population.
- Incidence varied by age (Figure 5.1), with the highest rates among children younger than 5 years of age and adults older than 75 years.

5.1.2 Hepatitis A

The **HP 2010 target** for new cases of hepatitis A is 4.5 cases per 100,000 population.

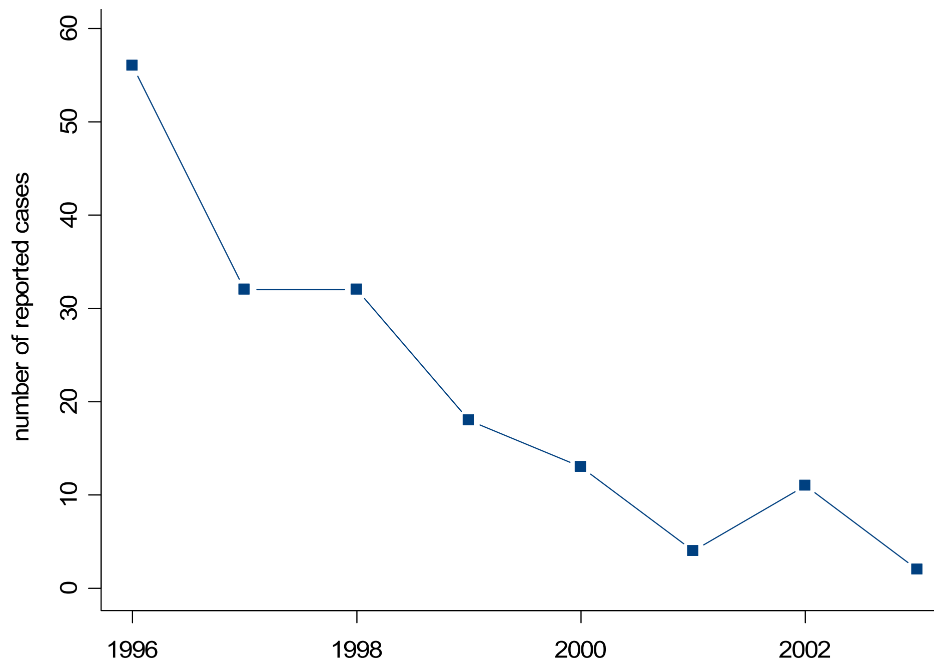
Hepatitis A is a disease caused by hepatitis A virus (HAV) that creates inflammation of the liver. Unlike hepatitis B and C viruses, HAV does not cause long-term infection leading to liver failure, although some infected persons may develop complications over a 6-9 month period. HAV is transmitted between persons via stool and objects or food contaminated with stool that contains the virus.

There has been a steady decrease in the number of cases of hepatitis A in Colorado since 1993 when there were over 800 cases. This had decreased to 75 cases in 2002. The incidence rate for the state in 2002 was 1.7 cases per 100,000 population.

Jefferson County Findings

- The number of reported cases has declined significantly since 1996 (Figure 5.2).
- The incidence based on the most recent two years of reporting, 2002 – 2003, was 1.2 cases per 100,000 population. This is significantly lower than the HP 2010 target.

Figure 5.2 Number of reported cases of hepatitis A in Jefferson County, by year, 1996 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

5.1.3 Hepatitis B

The **HP 2010 targets** for hepatitis B are 2.4, 5.1 and 3.8 cases per 100,000 population among adults aged 19 – 24, 25 – 39 and 40+ years, respectively.

Hepatitis B is a disease caused by a virus that attacks the liver. Infection with hepatitis B virus (HBV) can cause liver inflammation, liver cancer, scarring of the liver (cirrhosis), liver failure and death. HBV is transmitted through intimate contact with an infected person, or by exposure to infected blood or body fluids. Modes of transmission include sexual contact without a protective barrier, such as a condom, sharing drugs or needles with intravenous drug users, needle sticks or other “sharps” exposure in health care workers, and birth to an infected mother. Chronic infection with HBV occurs in 90% of infants who are infected at birth, 30% of children who are infected between ages 1 and 5 years, and six (6) percent of persons infected after 5 years of age. Death from HBV-associated chronic liver disease occurs in 15-25% of persons with

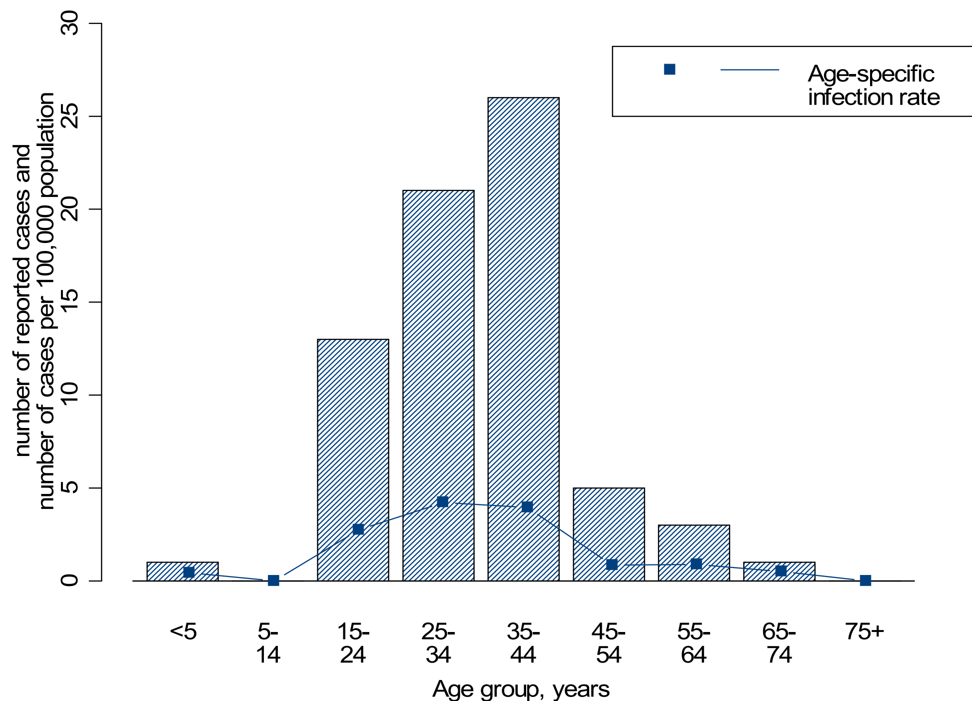
chronic HBV. There is an effective vaccine for preventing HBV infection that has been available since 1982.

In 2002 there were 81 cases of acute hepatitis B infection in Colorado, with an incidence of 1.8 cases per 100,000 population. The U.S. incidence was 2.8 cases per 100,000 population. In Colorado, the highest incidence occurred among adults aged 20 – 39 years.

Jefferson County Findings

- For the 7-year period 1997 – 2003, the county averaged 10 cases of acute HBV infection per year and had an incidence of 1.9 cases per 100,000 population. This is lower than Colorado's incidence rate for the period 1998 – 2002 of 2.2 cases per 100,000 population.
- The number of cases and incidences varied by age (Figure 5.3). Incidence was highest among adults aged 25 – 44 years, with rates reaching 4 cases per 100,000 population.

Figure 5.3 Incidence of reported acute hepatitis B infection, by age group, Jefferson County, 1997 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

5.1.4 Meningococcal Disease

The **HP 2010 target** for meningococcal disease is a reduction to 1.0 case per 100,000 population.

Meningococcal disease is a bacterial disease caused by *Neisseria meningitidis* characterized by a sudden onset of fever, stiff neck, headache (indicative of meningitis) and sepsis and rash (in meningococcemia). Long-term sequellae can be severe, including hearing loss, loss of limbs and mental retardation. Up to 10-15% of cases are fatal. Transmission generally occurs from an infected person or carrier through contact with respiratory secretions.

There were 23 cases of invasive meningococcal disease in Colorado in 2002, and 1,814 cases in the U.S. The Colorado and U.S. incidence rates were 0.5 and 0.6 cases per 100,000 population, respectively.

Jefferson County Findings

- Meningococcal disease has occurred sporadically in the county, from no cases in 1998 to a high of 5 cases in 1997. There were 17 cases reported among county residents in the 7-year period 1997 – 2003, for an incidence of 0.5 cases per 100,000 population.

5.1.5 Mumps

The **HP 2010 target** is to eliminate all cases of mumps in the U.S. by 2010 among persons of all ages.

Mumps is a viral disease that can cause fever, headache, muscle aches and enlarged lymph nodes throughout the body. Complications are meningitis (inflammation of the lining of the brain and spinal cord), inflammation of the testis and ovaries, and deafness, which is usually permanent.

In Colorado in 2002 there were two (2) cases of mumps, for an incidence of 0.04 cases per 100,000 population. The U.S. incidence for 2002 was 0.1 cases per 100,000 population.

Jefferson County Findings

- There were three (3) cases of mumps among residents in the 7-year period 1997 – 2003. The incidence rate for the period was 0.08 cases per 100,000 population, which is not statistically different from the Colorado rate for 2002.

5.1.6 Pertussis Syndrome

The **HP 2010 target** for pertussis is a reduction to 2000 cases among children younger than 7 years of age nationwide.

Pertussis, or whooping cough, is caused by a bacterium, *Bordetella pertussis*, which is highly transmissible. The disease can last for many weeks and is characterized by paroxysmal spasms of severe coughing, an inspiratory “whoop,” and post-cough vomiting. Transmission occurs by

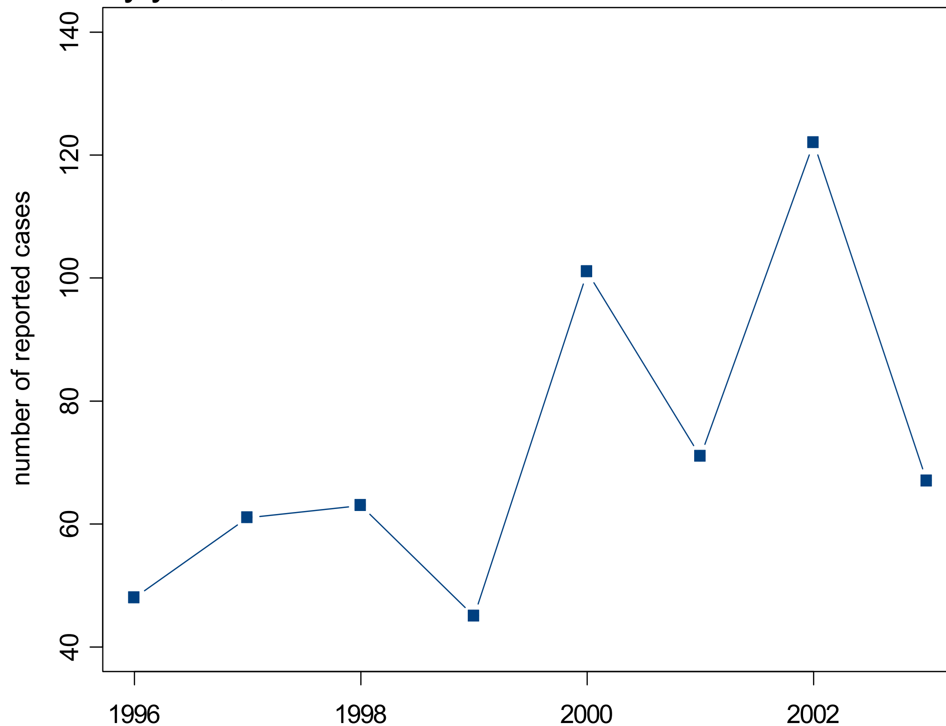
close contact via aerosolized droplets from infected persons. Pertussis is most severe when it occurs in infants 6 months of age or younger, having potential complications of pneumonia, seizures and encephalopathy.

The number of cases of pertussis climbed in Colorado starting in 1996, and the 2002 incidence rate for the state, 10.3 cases per 100,000 population, was sixth highest among all states. The 2002 U.S. rate was 3.01 cases per 100,000 population, which is less than one-third of Colorado's rate. According to the CDPHE Disease Control and Environmental Epidemiology Division (October, 2003), Colorado's higher reported rate may be due to true higher disease incidence or more complete case detection and followup in Colorado compared with the nation.

Jefferson County Findings

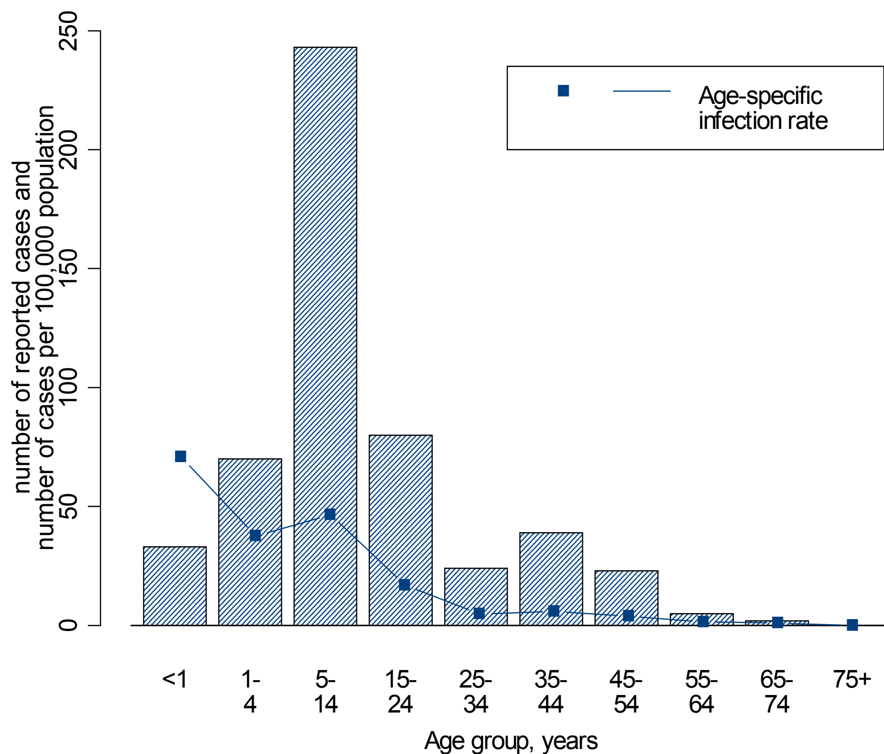
- For the 5-year period 1998 – 2002, Jefferson County's incidence, 15.3 cases per 100,000 population, was second only to Boulder County (25.9 cases per 100,000).
- The number of reported cases of pertussis peaked in 2002 at 122 (Figure 5.4).
- Incidence varied by age. The highest incidence occurred among infants (Figure 5.5), with 70.8 cases per 100,000, and there were no cases reported among older adults (ages 75 years and up).

Figure 5.4 Number of cases of reported pertussis syndrome in Jefferson County, by year, 1996 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

Figure 5.5 Number of cases and incidence rate of reported pertussis syndrome, by age group, Jefferson County, 1997 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

5.1.7 Invasive Pneumococcal Disease

The **HP 2010 targets** for pneumococcal disease are 46 cases per 100,000 population for young children aged less than 5 years and 42 cases per 100,000 population for adults aged 65 years and older.

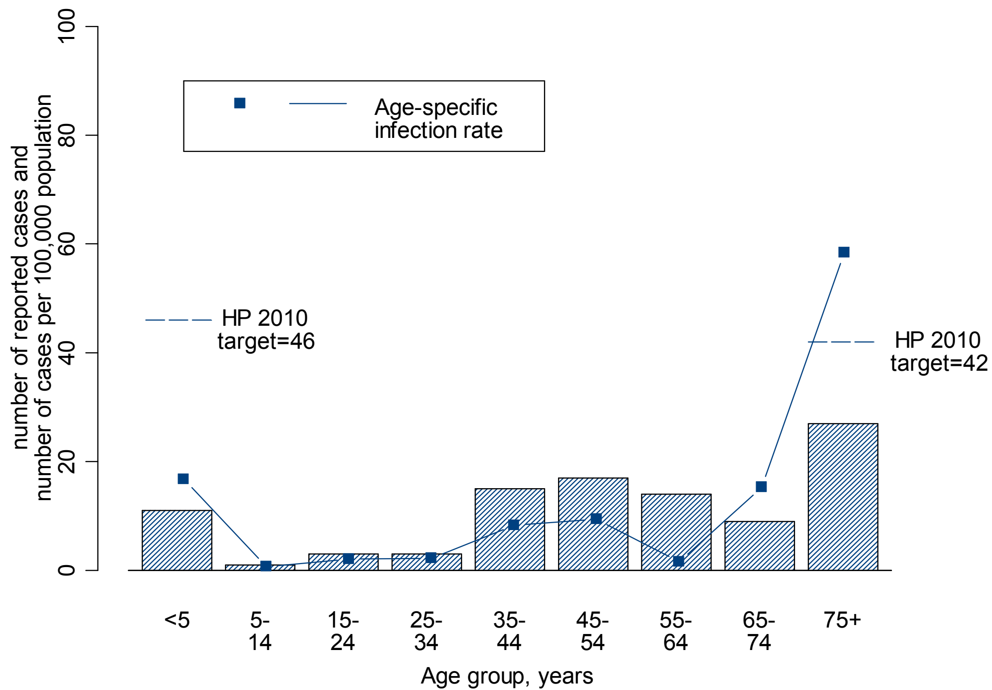
Pneumococcal diseases are infections with the bacteria *Streptococcus pneumoniae*, also called pneumococcus. Pneumococcal bacteria may cause middle ear infections, pneumonia, bacteremia (infection of the blood stream), sinus infections and meningitis. Pneumococcal disease is very serious in young children and in older adults. Infection with pneumococcus is the most common cause of invasive bacterial infection in children in the U.S. These infections cause an estimated 200 deaths, 700 cases of meningitis, 17,000 cases of bacteremia and 4.9 million cases of ear infections in children under age 5 every year in the U.S.

Invasive pneumococcal disease has been reportable in the 5-county Denver metro area as part of the Emerging Infections Program (EIP) since July 2000, and statewide in Colorado since November 30, 2001. In the 5-county EIP area in 2002, the incidence of pneumococcal disease was 13.5 cases per 100,000. The statewide incidence was lower, at 8.7 cases per 100,000 population.

Jefferson County Findings

- Jefferson County participates in the 5-county EIP program. The county incidence for 2002 – 2003 was 9.4 cases per 100,000 population, which was lower than the 5-county EIP rate.
- Incidence varied by age (Figure 5.6.). The highest age-specific rate was among adults older than 75 years, and the incidence in this age group was 58 cases per 100,000 population.

Figure 5.6 Incidence of reported invasive pneumococcal disease, by age group, Jefferson County, 2002 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

5.2 SEXUALLY TRANSMITTED DISEASES

Sexually transmitted diseases (STDs) are those diseases caused by more than two dozen infectious organisms that can be transmitted primarily through sexual activity. Prevention of STDs is an essential strategy for improving general and reproductive health. These infections cause many harmful, sometime irreversible, clinical complications, such as sterility, fetal and perinatal health problems and cancer. Furthermore, the studies of the worldwide pandemic of human immunodeficiency virus (HIV) show that HIV transmission is 2-5 times higher when another STD is present.

Sexually transmitted diseases result from unprotected sexual activity with an infected partner. Several factors contribute to their spread, including the asymptomatic nature of some diseases, the lag time – often years – between infection and complications of disease, and the gender and age differentials in risk of acquiring an STD. Social and behavioral factors contribute to their continued presence in populations. Sexually transmitted diseases disproportionately affect persons in certain sexual networks or who engage in high-risk behavior, such as commercial sex workers, adolescents, persons in detention and persons who abuse substances, particularly intravenous drug users. Persons in poverty who have limited or no access to health care, such as migrant workers, are also at high risk for acquiring and transmitting STDs.

Agents that can be transmitted via sexual activity include: viruses, such as HIV, human papilloma virus (HPV), hepatitis B and C viruses, and herpes viruses; bacteria, such as *Chlamydia trachomatis, Treponema pallidum* (syphilis) and *Neisseria gonorrhoeae* (gonorrhea); and protozoa, such as *Trichomonas*. Pelvic inflammatory disease (PID) is a spectrum of inflammatory disorders of the female upper genital tract and abdomen that can be caused by a variety of microorganisms.

5.2.1 *Chlamydia trachomatis*

There is no population-based HP 2010 target for reduction in chlamydial infections, however, a clinic-based target has been set to reduce to three (3) percent the proportion of adolescents and young adults aged 15 – 24 years who present with chlamydial infections in family planning or STD clinics.

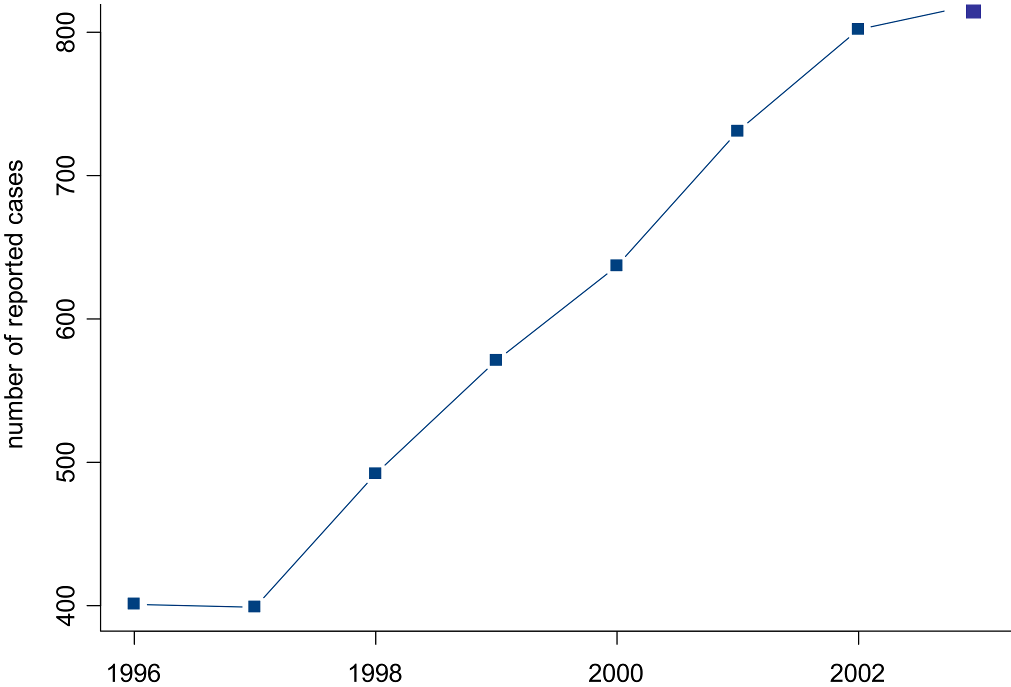
Chlamydia trachomatis infections are the most common reportable STD in the U.S., with high rates among sexually active adolescents and adults. The organism is an intracellular bacteria associated with a range of clinical conditions, including neonatal conjunctivitis and pneumonia, genital tract infections in females and epididymitis in males. Infection can be asymptomatic and persist for months or years.

Reports of chlamydial disease have grown each year since the inception of its reporting in 1995.

Jefferson County Findings

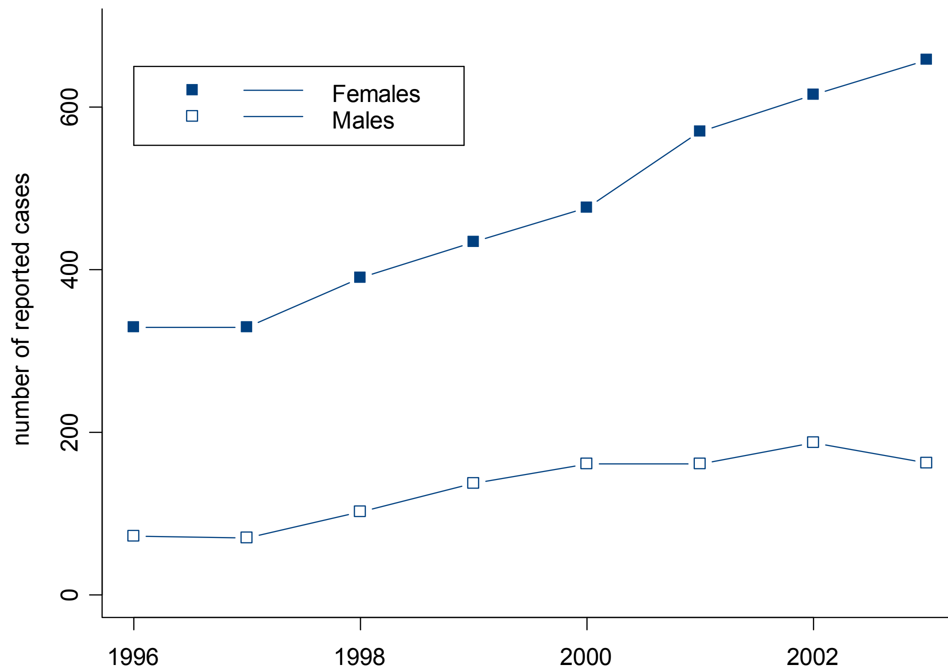
- *Chlamydia* was the most common reportable STD among county residents. The number of reported cases grew each year since 1997 (Figure 5.7), and in 2003 was greater than 800.
- The majority of symptomatic *Chlamydia* cases (78%) occurred in females. The increase in reporting over the period 1996 – 2003 occurred in both females and males (Figure 5.8). Proportionately, there was an 100% increase in number of female cases and 125% increase in the number of male cases reported in the eight-year period.
- The highest number of cases occurred in adolescents aged 15 – 19 years, and the highest infection rate (the number of cases per 100,000 population) occurred among adults aged 20 – 24 years (Figure 5.9).
- Age-specific infection rates in 2000 among adolescents aged 15 – 19 years and 20 – 24 years were 582.5 and 761.8 per 100,000 population, respectively. For comparison, in Colorado in 2000, the age-specific rates were approximately twice as high: 1,283 and 1,379 per 100,000 population in adults aged 15 – 19 and 20 – 24 years, respectively.

Figure 5.7 Reported cases of *Chlamydia* in Jefferson County, by year, 1996 - 2003



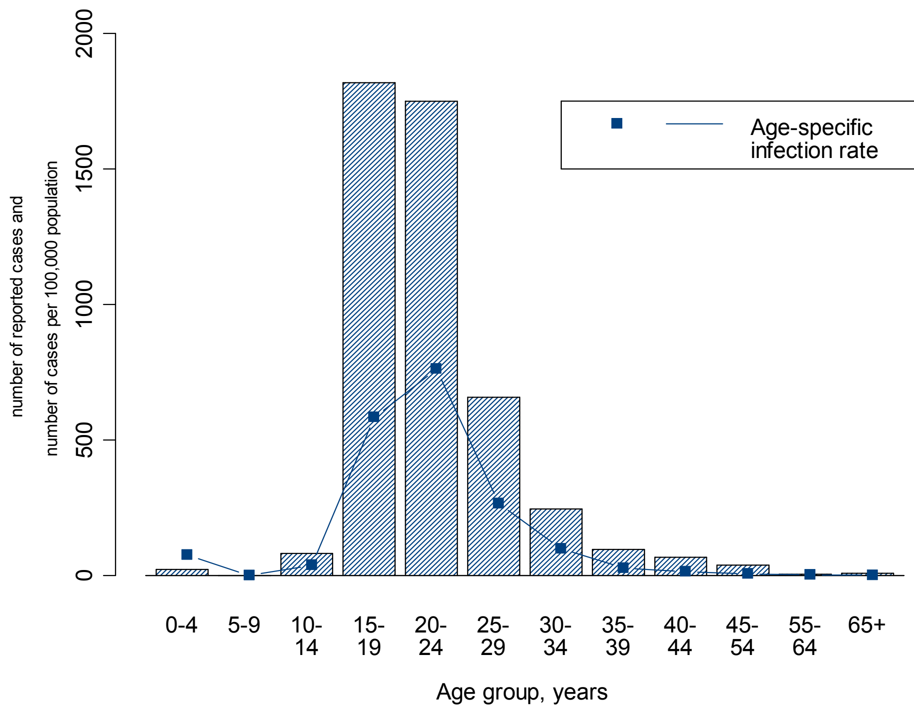
Source: JCDHE Epidemiology and CDPHE-DCEED

Figure 5.8 Reported cases of *Chlamydia* in Jefferson County, by gender and year, 1996 – 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

Figure 5.9 Reported number of cases and age-specific infection rates for chlamydial diseases, by age group, Jefferson County, 1996 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

5.2.2 Gonorrhea

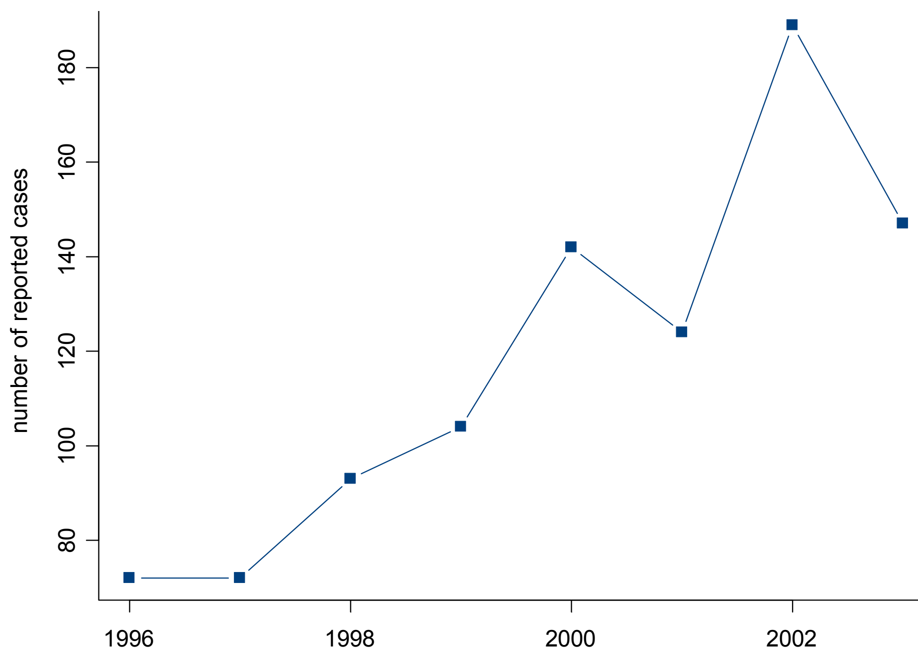
HP 2010 Objective 25-2: Reduce gonorrhea to 19 new cases per 100,000 population.

Gonorrhea, also known as gonococcal infection, is specific for humans and is caused by the organism, *Neisseria gonorrhoeae*. The organism is transmitted via secretions from infected mucosal surfaces, and results from intimate contact such as sexual acts, childbirth and, rarely, from household contact in prepubertal children. Gonococcal infection of the genital tract in females is often asymptomatic, but is usually symptomatic in males, causing urethritis, with painful urination.

Jefferson County Findings

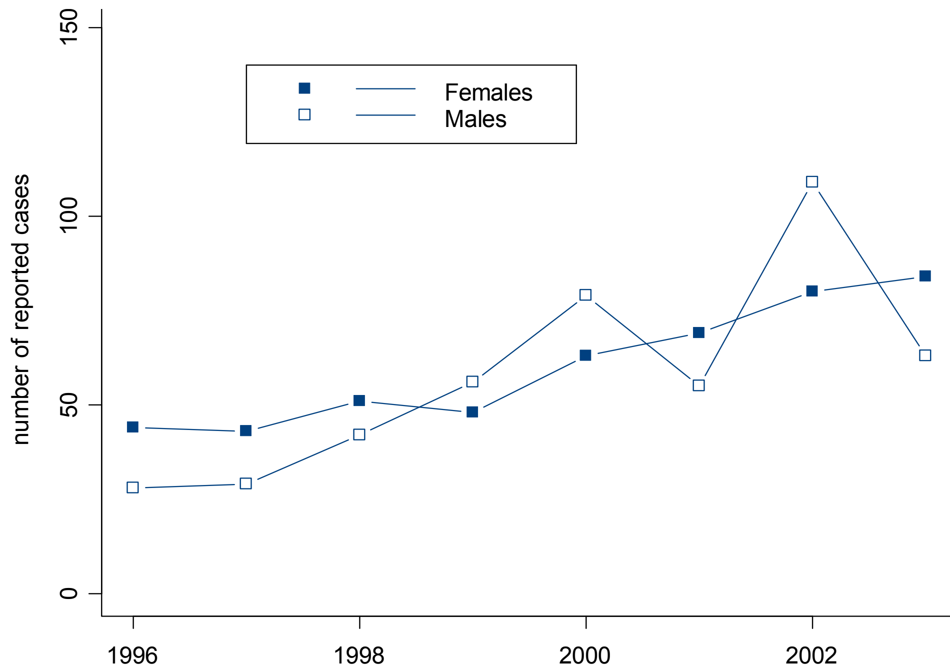
- The number of reported cases of gonococcal infection grew over the period 8-year period 1996 – 2003 (Figure 5.10).
- The proportion of cases was approximately equivalent by gender (Figure 5.11) and the increase in the number of cases occurred in both males and females.
- For all age groups combined, the gonococcal infection rate for 1996 – 2003 was 21.9 per 100,000 population. This is very close to the HP 2010 target of 19 per 100,000 population and significantly lower than Colorado's 2000 rate of 71.8 cases per 100,000. However, by 2000, the county's infection rate had climbed to 26.9 cases per 100,000 population.
- The highest number of cases and infection rate occurred among adults aged 20 – 24 years (Figure 5.12).

Figure 5.10 Reported cases of gonorrhea in Jefferson County, by year, 1996 - 2003



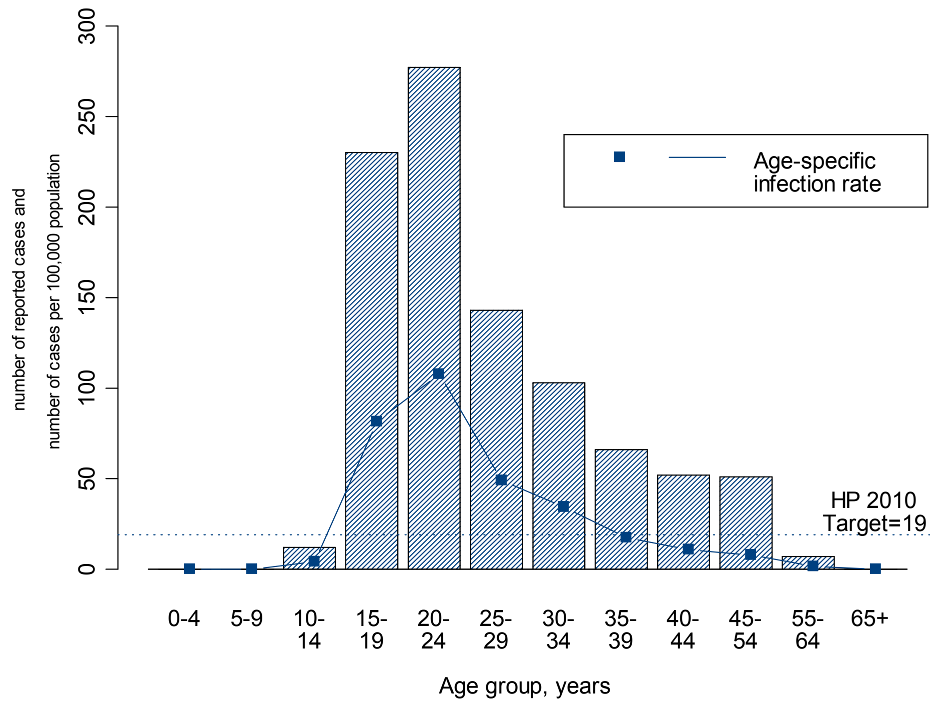
Source: JCDHE Epidemiology and CDPHE-DCEED

Figure 5.11 Reported cases of gonorrhea, by gender and year, Jefferson County, 1996 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

Figure 5.12 Reported number of cases and age-specific infection rates of gonorrhea, by age group, Jefferson County, 1996 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

5.2.3 Syphilis

HP 2010 Objective 25-2: Eliminate sustained domestic transmission of primary and secondary syphilis and reduce incidence to 0.2 cases per 100,000.

Syphilis is caused by the bacterium, *Treponema pallidum*, and is passed from person to person via contact with a usually painless syphilitic ulcer (chancre). Transmission may occur during vaginal, anal or oral sex and by an infected pregnant mother to her offspring. Persons who are infected with syphilis may be asymptomatic for years and remain at risk for severe, late complications if they are not treated. The primary stage of syphilis occurs with initial infection, and sore(s) lasting 3 to 6 weeks may clear without treatment. The secondary stage of the disease involves a mild to severe rash and may produce a range of other symptoms (such as swollen lymph nodes, hair loss and fatigue). The latent, or late stage of disease, begins at the end of the secondary stage and may last years, causing damage to internal organs, including the brain, blood vessels, nerves, liver, bones and joints. Infected persons usually transmit the disease during the first year of infection while in primary, secondary and early latent stages.

Genital chancres caused by syphilis make it easier to transmit and acquire HIV infection. According to the Centers for Disease Control and Prevention, there is an estimated 2- to 5-fold increased risk of acquiring HIV infection when a sexual partner has syphilis. The presence of ulcerative sexually transmitted diseases, such as syphilis, cause breaks in the skin or mucous membranes and disrupt protective barriers against infections.

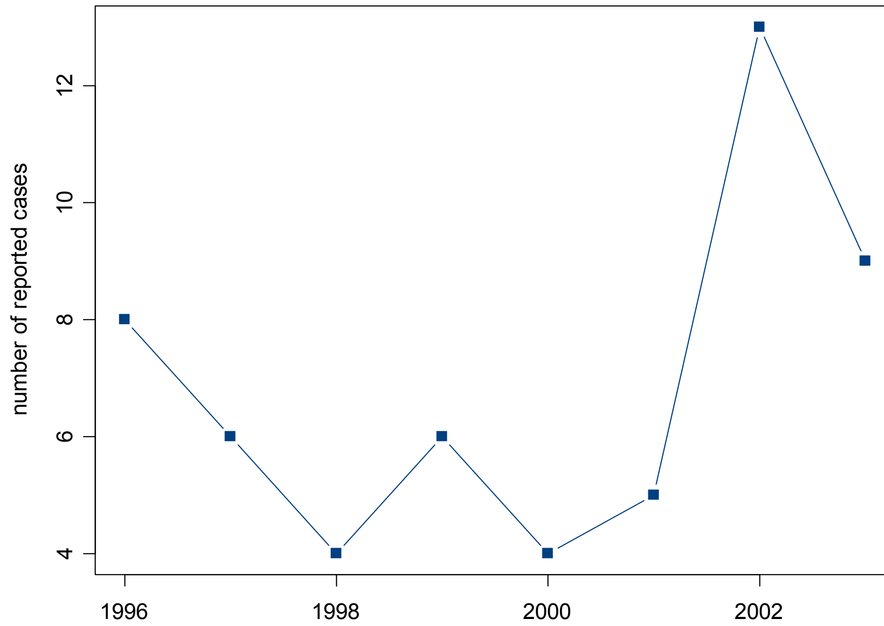
In the U.S., there were over 32,000 cases of syphilis reported in 2002, including 6,862 cases of primary and secondary syphilis. The incidence of infectious syphilis was highest in women aged 20 – 24 years and in men aged 35 – 39 years. The rate of reported primary and secondary syphilis declined in the U.S. in the 1990s, and in 2000 was the lowest since reporting began in 1941. However, overall rates increased 2.1% between 2000 and 2001, and 12.4% from 2001 to 2002. Rates in women, however, continued to decrease, and the rate in men was 3.5 times that in women. Outbreaks of syphilis have occurred in men who have sex with men, and data suggest that rates of syphilis among this subgroup are increasing.

In Colorado in 2000, the rate of infection of primary and secondary syphilis was 0.3 per 100,000 population.

Jefferson County Findings

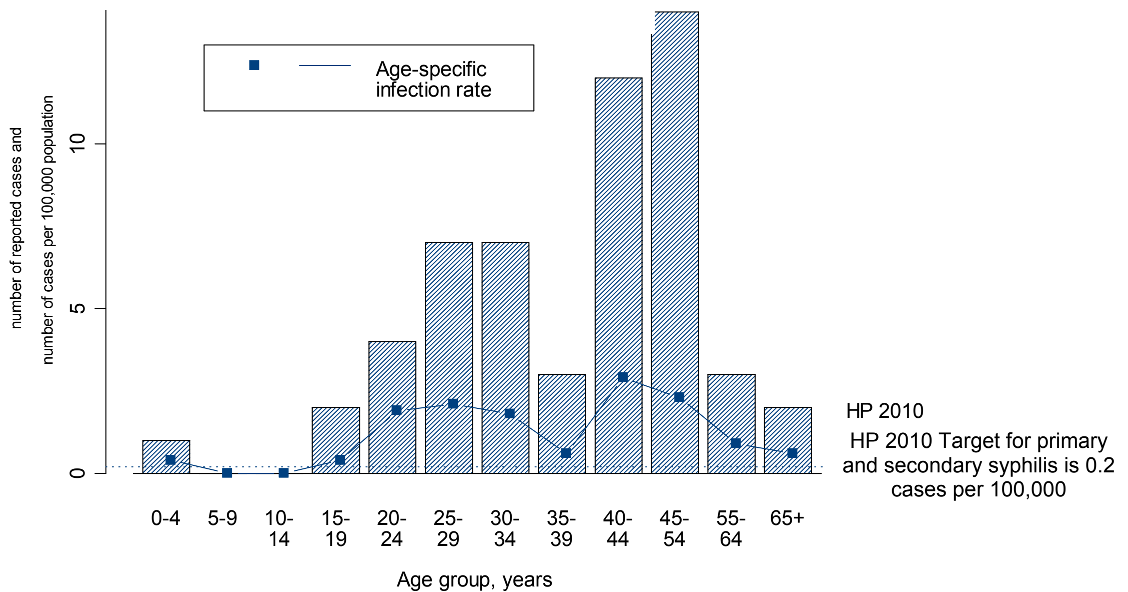
- The rate of infection of primary and secondary syphilis for 2000 – 2002 was 0.3 per 100,000. This is identical to the rate for Colorado for 2000.
- Cases of primary, secondary and latent syphilis dropped throughout the 1990s and then rose in the early 2000s (Figure 5.13).
- 65% of all syphilis cases were in males.
- Infection rates were highest among adults aged 20 – 34 years and 40 – 54 years (Figure 5.14). Infections in older adults may be latent and may be less likely to be transmissible within the population.

Figure 5.13 Reported cases of syphilis in Jefferson County, by year, 1996 – 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

Figure 5.14 Reported number of cases and age-specific infection rates of syphilis, by age group, Jefferson County, 1996 – 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

5.3 HIV AND AIDS

HP 2010 Objectives
13-1: Reduce AIDS among adolescents and adults to 1.0 new case per 100,000 persons.
13-14: Reduce deaths from HIV infection to 0.7 deaths per 100,000 population.
13-5 (Developmental): Reduce the number of cases of HIV infection among adolescents and adults.

Jefferson County Status

- In 2003, there were 5.5 new cases of AIDS per 100,000 population among males, and 1.2 new cases of AIDS per 100,000 population among females.
- In 2002, the death rate due to HIV was 1.5 deaths per 100,000 population.

The acquired immunodeficiency syndrome (AIDS) was first recognized in 1981 and has since become a worldwide pandemic. The virus that causes AIDS, human immunodeficiency virus (HIV) was identified several years later. HIV infection progressively destroys the body's ability to fight infections and certain cancers by destroying or impairing cells in the immune system, notably CD4+ T-cells.

In the US, HIV/AIDS is a significant cause of illness, disability and death. Four distinct populations are considered to have the highest risk for HIV infection and are the focus of prevention efforts to reduce transmission and spread of HIV:

- Men who have sex with men, especially those with multiple partners and high-risk sex practices.
- Injection drug users who share needles and syringes.
- Heterosexuals with sexual or injection drug use exposures with persons in the aforementioned populations.
- Infants exposed perinatally to mothers with undetected or untreated HIV infection.

One of the national HIV prevention goals of the Centers for Disease Control and Prevention (CDC) for 2005 is to increase the proportion of HIV-infected persons in the United States who know they are infected from an estimated 70 – 95%[11]. Another goal is to ensure that every HIV-infected person has the opportunity to be tested and has access to state-of-the-art medical care and prevention services needed to prevent HIV transmission.

Results from the 2001 Behavioral Risk Factor Surveillance System (BRFSS) demonstrate variability in HIV testing prevalence by area and by sex within areas across the nation. In Colorado in 2001, 49.2% of survey respondents aged 18 – 64 reported that they had been tested for HIV.

The incidence of AIDS increased in the U.S. throughout the 1980s, declined from the mid-1990s through 2001, and then increased by about 2% in 2002. After the use of highly active antiretroviral therapy (HAART) became widespread during 1996, AIDS incidence became less indicative of underlying trends in HIV transmission. Historically, AIDS incidence data had served as the basis for assessing needs for prevention and treatment programs, in particular among areas in the U.S. that did not have active HIV surveillance programs. According to the

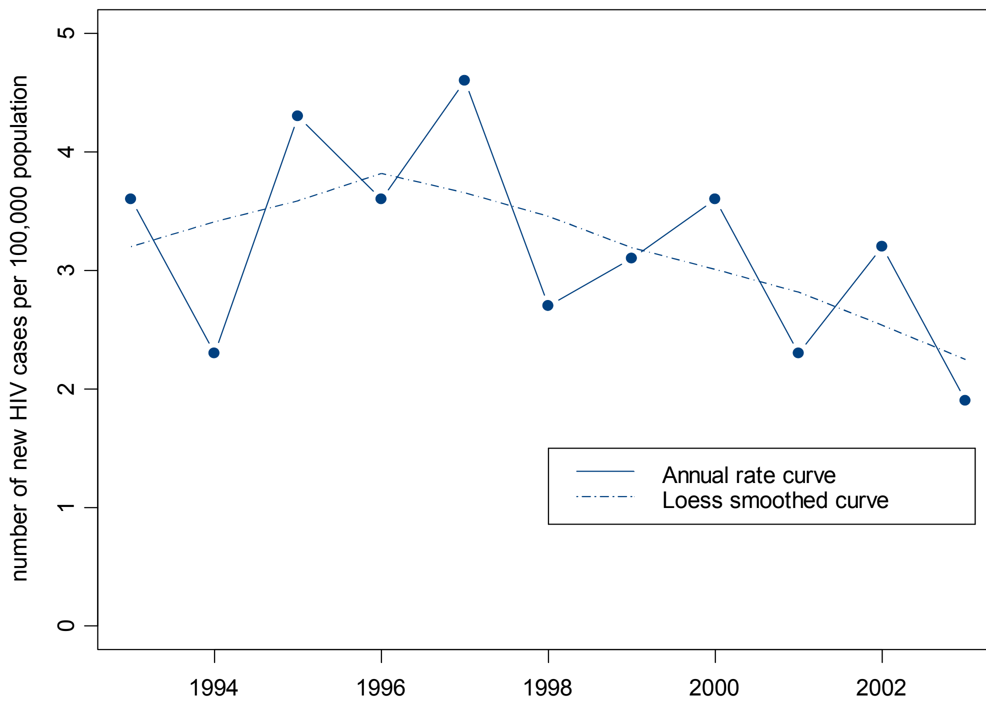
CDC, AIDS incidence will increasingly represent persons who were diagnosed too late for them to benefit from treatment, persons who did not seek or have access to care, or persons who failed treatment.

New therapies introduced in the mid- and late-1990s have significantly reduced mortality from HIV/AIDS. However, access to testing and care remains a serious problem among some subpopulations. Data suggest that not only are the new therapies delaying progression from AIDS to death, but with early diagnosis and treatment, therapies are also helping delay the progression from HIV infection to the diagnosis of AIDS.

Jefferson County Findings

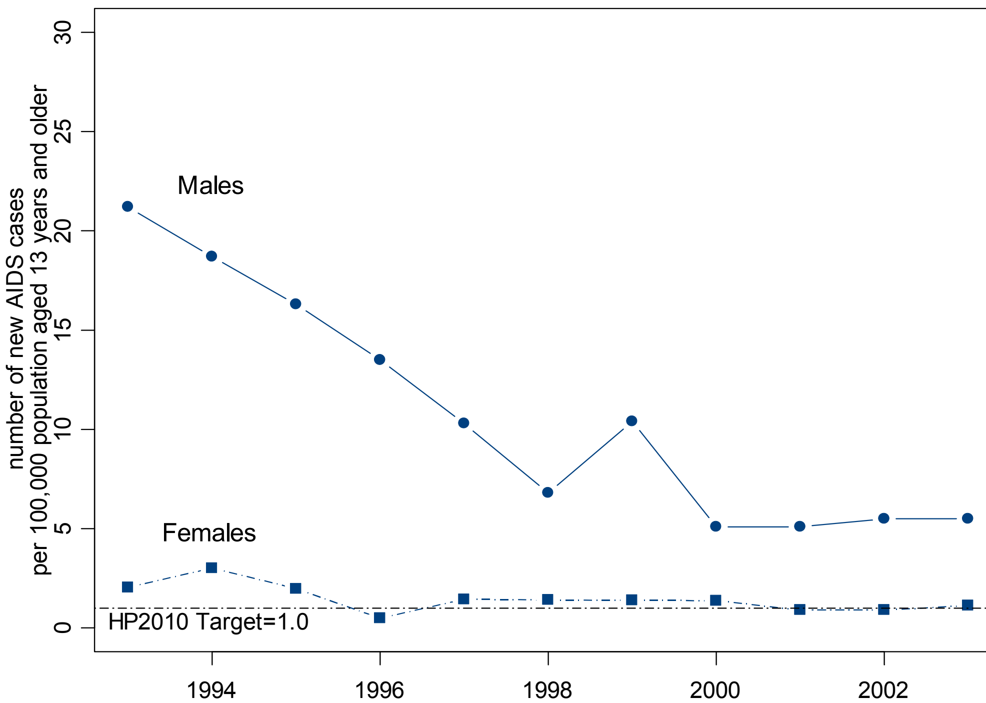
- From the inception of HIV and AIDS reporting in the 1980's through December 31, 2003, there were a cumulative 494 persons with AIDS and an additional 311 persons with HIV infection (non-AIDS) among county residents, including 278 total deaths from AIDS/HIV. During the same time period, there were 7,998 persons with AIDS and 6,250 persons with HIV infection (non-AIDS) recorded in Colorado, including a total 4,714 deaths from AIDS/HIV.
- New diagnoses of HIV infection among county residents peaked in 1997 and appear to be declining since (Figure 5.15) (See Technical Notes, Section 10.2, for a description of the loess method of smoothing). Data on HIV infection not linked to AIDS should be interpreted with caution. HIV surveillance reports may not be representative of all persons infected with HIV because not all infected persons have been tested.
- AIDS incidence declined throughout the 1990s among males, and has remained constant since 2000 (Figure 5.16). Among females, AIDS incidence has remained at or near the HP 2010 target of 1 new case per 100,000 population since the mid-1990s.
- Mortality rates declined significantly after 1995 (Figure 5.17), and by 2000, the county achieved the HP 2010 goal for reduction in HIV/AIDS mortality.
- Reflecting the gender differential in HIV/AIDS incidence, HIV-related mortality among males has always been greater than among females (Figure 5.17). By 2000 the gender-specific rates were not significantly different. Rates among males began to rise after 2000. (Note: Because there were so few deaths among females, mortality rates among females tended to be unstable. Therefore, rates in Figure 5.17 for females were averaged over 3 years and the mid-year for each 3-year period was plotted, i.e., the point shown for 1991 corresponds to the period 1990 – 1992).

Figure 5.15 New diagnoses of HIV infection in Jefferson County, by year, 1993 - 2003



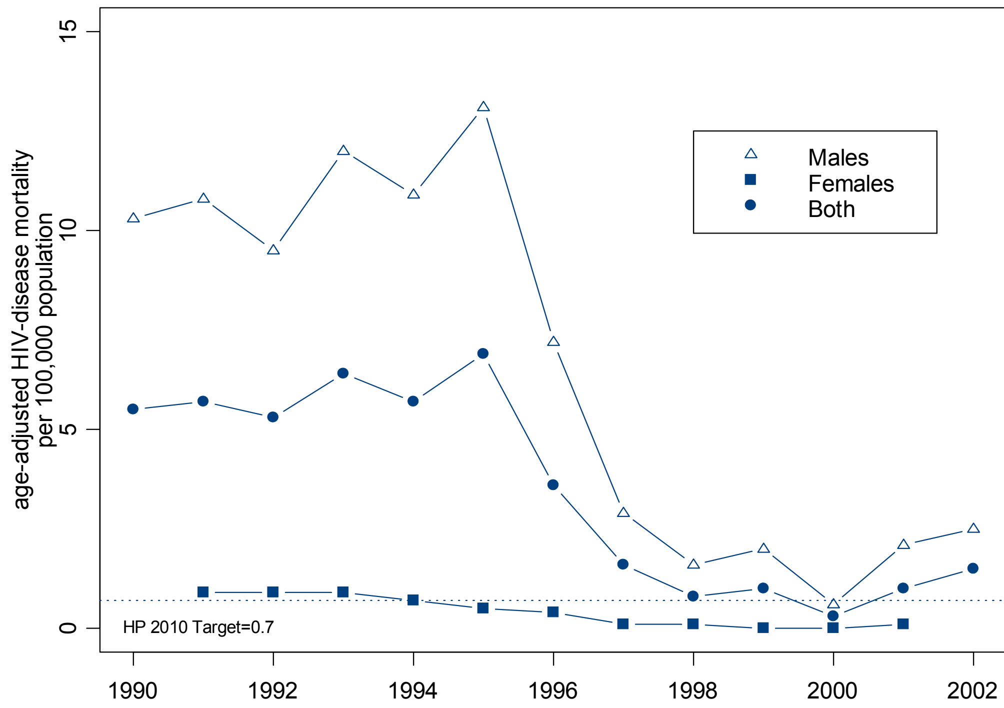
Source: JCDHE Epidemiology and CDPHE-DCEED

Figure 5.16 New cases of AIDS among adolescents and adults, by gender and year, Jefferson County, 1993 - 2003



Source: JCDHE Epidemiology and CDPHE-DCEED

Figure 5.17 Age-adjusted HIV-disease mortality, by gender and year, Jefferson County, 1990 - 2002



Source: JCDHE Epidemiology and CDPHE-HSVRD

5.4 OTHER COMMUNICABLE DISEASES

The HP 2010 program has established targets for other communicable diseases that are not currently preventable by vaccination. Two of these, hepatitis C and tuberculosis, have occurred among Jefferson County residents.

5.4.1 Hepatitis C

HP 2010 Objective 14-9: Reduce hepatitis C to 1.0 new case per 100,000 population.

Jefferson County status: In the 7-year period 1997 – 2003, the incidence was 0.35 cases per 100,000 population.

Hepatitis C is a liver disease caused by hepatitis C virus (HCV), carried in the blood of infected persons. Infection with HCV becomes chronic in 75-85% of persons who are infected with the virus, and 70% of these persons develop chronic liver disease. Up to 5% of persons who are infected with HCV die from chronic liver disease. HCV infection is the leading indication for liver transplantation among adults in the U.S.

Transmission of HCV is via intimate contact, needle sharing, from an infected mother to infant at childbirth, or from the blood or body fluids of an infected person. Persons at risk for HCV infection also may be at risk for infection with hepatitis B virus (HBV) and human immunodeficiency virus (HIV).

There are an estimated 2.7 million persons living in the U.S. chronically infected with HCV. HCV was estimated to have infected 242,000 persons annually throughout the 1980s. This declined to 41,000 in 1998. However, these estimates are considered conservative, as they did not include incarcerated and homeless persons, populations that have a higher prevalence of HCV infection.

Jefferson County Findings

- Acute HCV infection occurred sporadically among residents in 1997 – 2003. Thirteen new cases were diagnosed in the 7-year period, for an estimated incidence of 0.35 new cases per 100,000 population.
- In the same period, chronic HCV was diagnosed in 1,260 county residents. This indicates an approximate prevalence rate in the county of 34 cases per 100,000 population.

5.4.2 Tuberculosis

HP 2010 Objective 14-11: Reduce tuberculosis to 1.0 new case per 100,000 population.

Jefferson County Status: In the 7-year period 1997 – 2003, there were 1.1 new cases per 100,000 population.

Tuberculosis (TB) is a disease caused by the bacterium *Mycobacterium tuberculosis*, with infection sometimes disseminated throughout the body but most commonly associated with pulmonary disease. TB infection is usually transmitted via the air from respiratory secretions aerosolized from an infected person. Bovine tuberculosis (*Mycobacterium bovis*), is a rare disease that may be transmitted by the ingestion of unpasteurized milk or dairy products from infected cattle.

In the mid-1980s a nationwide trend toward elimination of TB was reversed and drug-resistant strains emerged that were more deadly than those encountered previously. The number of TB cases increased by 20% between 1985 and 1992. With improved surveillance, directly observed therapy and investigations of close contacts of patients with TB, new cases of TB declined between 1993 and 1998.

The incidence of new cases of TB in Colorado in 2003 was 2.4 per 100,000 population. A state rate of 3.5 or fewer cases per 100,000 population is considered to be low-incidence by the Centers for Disease Control and Prevention.

Jefferson County Findings

- There were 42 new cases of TB among county residents in 1997 – 2003, for an incidence of 1.1 case per 100,000 population.