

INFECTIOUS DISEASE

Overview

Infectious diseases are caused by viruses, bacteria, fungi and parasites. Some are transmitted from one person to another and called communicable diseases. When passed from person to person, infectious diseases can quickly affect the health of the whole population. Certain diseases must be reported to the health department to ensure the health of the community. Reporting systems collect data to show trends on where and when the disease occurs and helps to detect outbreaks.

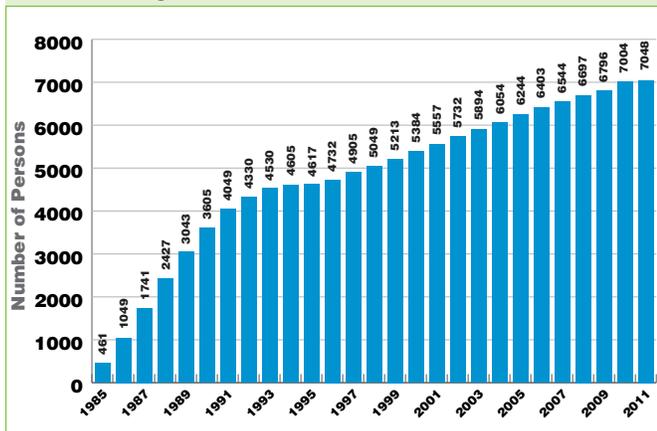
Denver is most impacted by influenza, HIV/AIDS, sexually transmitted infections, tuberculosis, and foodborne diseases. Many diseases that were once common causes of death and disability (polio, measles, and hepatitis A and B) are now preventable by vaccines (See *Immunization*).

Approximately 75% of Colorado's HIV/AIDS cases are diagnosed in the Denver metropolitan area. There are over 7,000 people living with HIV or AIDS in Denver and new HIV infections occur every year (FIGURE 1). However, the number of newly-diagnosed cases of HIV in Denver has steadily decreased since 2005 (FIGURE 2). This is likely due to enhanced testing, linkage of newly-diagnosed persons to care, and use of effective treatment. Denver's new HIV infections are concentrated in the central and north parts of the city (FIGURE 3).⁵⁶

Sexually transmitted infections can lead to impaired fertility, poor pregnancy outcomes, the spread of HIV, and cancer of the reproductive organs. Chlamydia has been increasing in Denver, which may be due to increased use of laboratory tests for this infection (FIGURE 4).

FIGURE 1

Persons Living with HIV or AIDS DENVER, 1985 - 2010

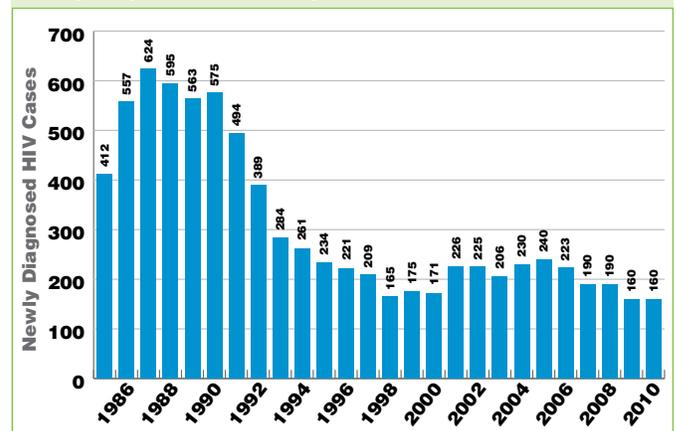


As testing and treatment for HIV/AIDS improves, an increasing number of people are living with AIDS. Death rates from AIDS are declining. In 2010, over 7,000 Denver residents were living with HIV/AIDS.

SOURCE: HIV and AIDS Reporting System

FIGURE 2

Newly Diagnosed HIV Cases per Year DENVER, 1985 - 2010



This graph shows the number of people diagnosed with HIV each year since 1985. HIV is a reportable illness and every new case is tracked by the county and the state. In 2010, 160 people in Denver were diagnosed with HIV, a dramatic reduction since the peak of the epidemic.

SOURCE: HIV and AIDS Reporting System



Cost Facts

Treating one case of active tuberculosis (TB) costs about \$6,000 in the U.S. and the total cost for one person diagnosed with active TB is estimated to be \$376,000. This includes the costs of spreading the disease to others, early death, and disability from lung damage. These costs can be reduced by early diagnosis and treatment of persons infected with TB who are not yet sick (called latent TB). The estimated cost to prevent active TB by treating latent TB is \$14,350. Increased screening, earlier diagnosis, and treatment of latent TB infection could help prevent active TB.⁵⁹

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Tuberculosis is spread through the air from infected persons and can be fatal if not treated. Tuberculosis is decreasing in Denver, but remains above the Healthy People 2020 goal. Approximately 75% of cases diagnosed in Colorado are in the Denver metropolitan area (FIGURE 5).⁵⁷ Tuberculosis treatment takes at least six months and is most effective when the full course is completed. Tuberculosis is much more common among persons born outside of the United States (FIGURE 6).

Each year 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths in the U.S. can be traced to foodborne disease (FIGURE 7).⁵⁸ In Denver, rates of foodborne disease are higher than the goal for the country. Foodborne diseases may affect large groups, can spread rapidly, and can be fatal. Even though the U.S. food supply is one of the safest in the world, organisms in the environment and those occurring naturally in food can cause problems with the food we eat. Recently an outbreak of Listeria, a bacteria found in the environment, was traced back to tainted food. Foodborne disease costs Americans billions of dollars each year and serves as a constant challenge for consumers, researchers, government, and industry.⁵⁸

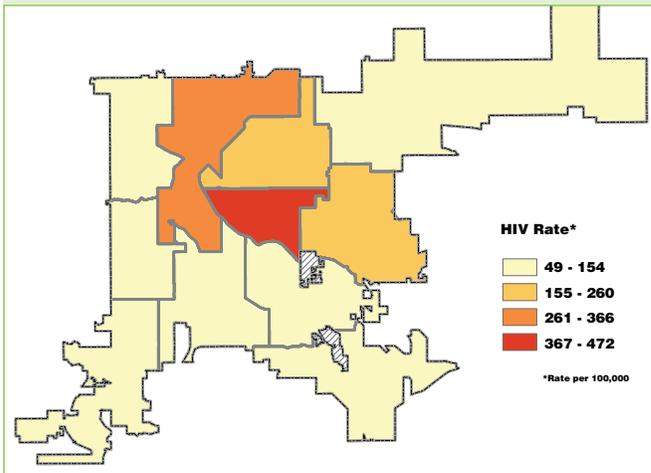
Local Story

Linking HIV/AIDS Patients to Care

Andrew, a 28-year-old man, tested positive for HIV infection at Denver Public Health. He was introduced to a Linkage to Care counselor who scheduled his first doctor visit, offered emotional support, and gave him a free test to assess his health. Linkage to Care is the process that connects a person who tests positive for HIV or AIDS to support and medical treatment. The counselor listened to Andrew's fears and concerns about disclosing his status, long-term health, and access to health care. Andrew learned about his lab results and talked about the importance of regular care with his new clinician. Andrew also learned about the importance of not spreading this infection to others. After his session, the counselor took Andrew to the HIV Clinic where his health care and treatment began.

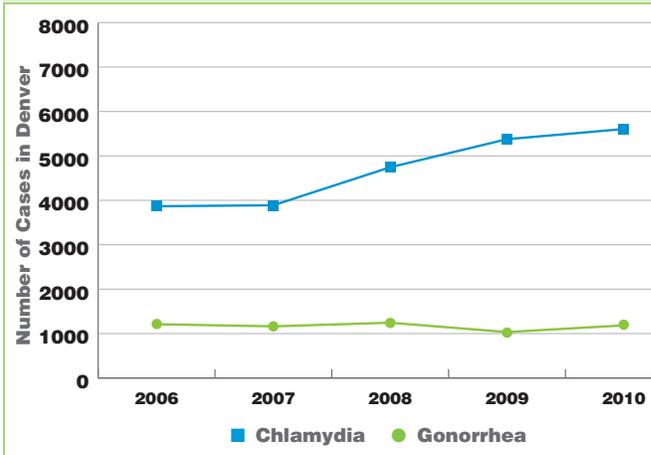
Without health insurance, many patients like Andrew would be worried about health care costs. Having a counselor increases the percentage of patients who return for regular health care. The counselor reviewed options and Andrew found out that he could afford health care and HIV medications. Denver Public Health provides this linkage service for any person who tests positive for HIV.

FIGURE 3
HIV Rate DENVER, 2006 - 2010

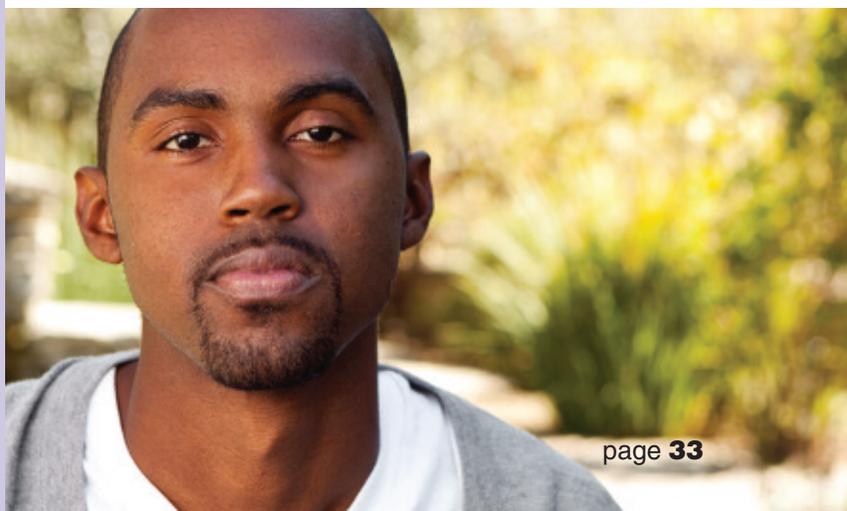


This map shows the rate of new HIV diagnoses from 2006 to 2010 per 100,000 people for each council district.
SOURCE: HIV and AIDS Reporting System

FIGURE 4
Cases of Gonorrhea and Chlamydia DENVER, 2006 - 2010



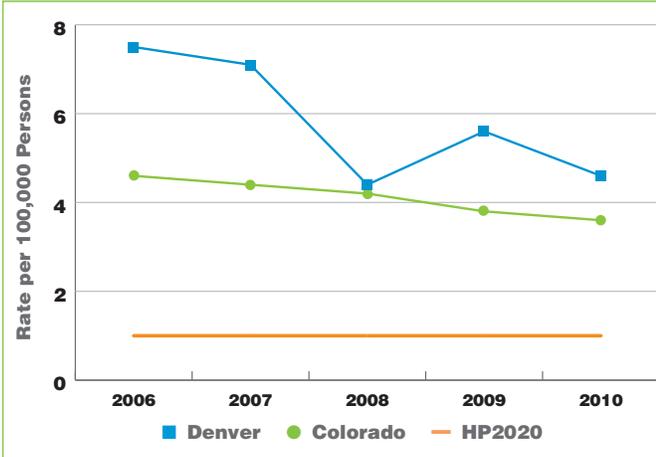
This graph shows the number of cases of Gonorrhea and Chlamydia diagnosed between 2006 and 2010. Chlamydia rates have been steadily increasing for the past several years, possibly due to increased testing.
SOURCE: Patient Reporting, Investigation and Surveillance Manager



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FIGURE 5

**Rate of Active Tuberculosis (TB) Cases
DENVER AND COLORADO, 2006 - 2010**

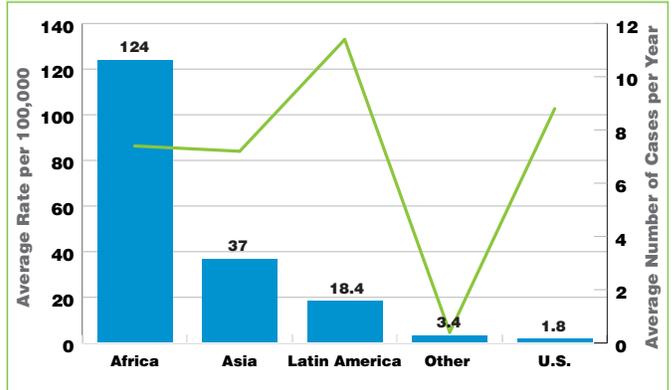


The TB case rate in Denver is higher than Colorado's and above the Healthy People 2020 goal of 1.0 cases per 100,000 population.

SOURCE: Denver Metro TB Program

FIGURE 6

**Average Annual Rate of Active Tuberculosis (TB) Cases by
Region of Birth DENVER, 2006 - 2010**



In Denver, individuals born in Africa had tuberculosis (TB) case rates 69 times greater than U.S.-born residents. Rates of individuals from Asia were 20 times higher and Latin America were 10 times higher than U.S.-born residents. Although the rate is highest in African-born individuals, more people are diagnosed annually from Latin America and the U.S.

SOURCE: Denver Metro TB Program, American Community Survey

Comparison Story

Bringing Awareness to Hepatitis C Virus (HCV)—the Hidden Epidemic

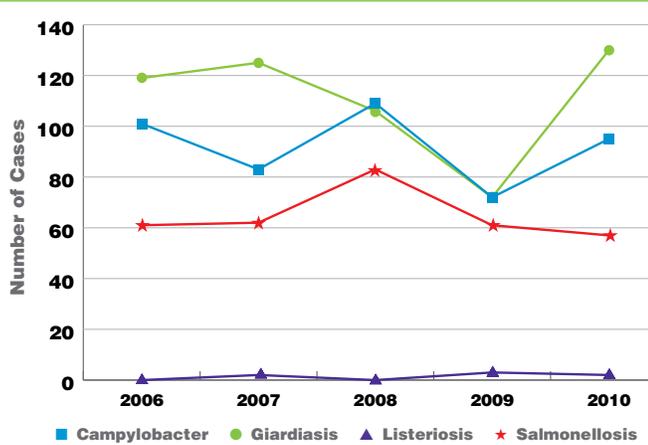
Hepatitis C Virus (HCV) is spread by contact with blood from an infected person or through sexual intercourse.⁶⁰ In the U.S., 3.2 million people are chronically infected with Hepatitis C Virus (HCV), making it the most common chronic viral infection in the country. Many people with chronic HCV do not know they are infected and may have no symptoms and could spread it to others. The most common risk factor for HCV infection in recent years is sharing needles or other equipment to inject drugs. Persons infected with HIV are at an increased risk for HCV infection also. Approximately 20% of the persons with HIV infection in Denver also have HCV. Long-term complications of HCV include liver scarring (cirrhosis) in about 20% of infected people, and liver cancer.⁶⁰

Tune Into Hep C (www.tuneintohepc.com) is a national campaign to increase awareness of HCV and encourage people to talk to their doctor and get tested. Musicians affected by HCV are speaking out to start a conversation between people and their doctors about HCV across the nation. HCV testing is important because HCV can be cured through long-term treatment (3-12 months).⁶⁰ Denver Public Health is piloting a new rapid screening test, recently approved by the FDA, that provides results within 20 minutes. This new test will increase identification and treatment of Hepatitis C.

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FIGURE 7

Reported Cases of Foodborne and Waterborne Illness
DENVER, 2006 - 2010



Many foodborne diseases are reported and tracked by the county health department. The number of annual cases for four common foodborne illnesses are shown in this chart. Although Listeria was in the news in 2011, it causes less disease than other foodborne bacteria.

SOURCE: Colorado Electronic Disease Registry System



Did You Know

- Most foodborne illnesses go undiagnosed and are not reported to health departments. The Centers for Disease Control (CDC) estimates that 9.4 million illnesses are caused by 31 known foodborne pathogens.⁵⁸
- Newer blood tests exist to find out if someone has been infected with tuberculosis (TB). Treatment is available to prevent them from getting sick with active TB and spreading it to friends and family.⁶¹
- The best defense against cold and flu is good old-fashioned hand washing. Wash hands for approximately 20 seconds (long enough to sing “Happy Birthday” twice through!). If soap and water is not available, use an alcohol-based hand sanitizer.
- Listeria is a foodborne illness and Denver reported no cases in 2006 and 2008. A total of nine cases have been reported in Denver for 2011; six were associated with the multi-state outbreak linked to eating cantaloupe.⁶²
- There are 18 infectious diseases that can be prevented by vaccination (see *Immunizations*).

