

• Infectious Disease Surveillance

The incidence of infectious disease in Vermont is less common than chronic disease. Still, we must keep a close watch as new risks emerge due to drug resistance, novel infections and zoonotic agents. Generations of Vermonters who have never experienced outbreaks of life-threatening infectious diseases may not understand the risks of an under-vaccinated population.

Disease reporting enables public health officials to collect, analyze and distribute data about illness and death. Reporting helps to describe disease trends, identify outbreaks, and control the sources of infection. The information helps us find and treat people who may have been exposed, plan disease prevention campaigns, and educate the health care community and residents.

• Sexually Transmitted Infections

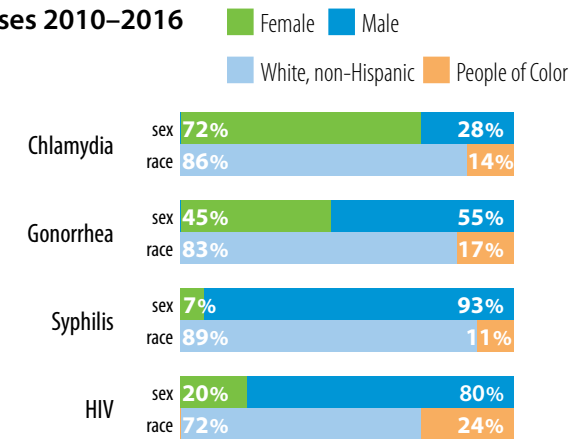
Chlamydia, gonorrhea, syphilis and HIV are sexually transmitted infections that must be reported by health care providers to the Health Department. Most people who have a sexually transmitted infection do not have immediately recognizable symptoms, and this delays treatment. Testing is recommended for nearly everyone who is sexually active. Early treatment can mean a longer and better quality of life. Having an untreated sexually transmitted infection also increases a person's risk for infertility, and for acquiring HIV. In Vermont, men who have sex with men are disproportionately affected by gonorrhea and HIV.

Vermonters Diagnosed with Sexually Transmitted Infections

Vermont Reportable Disease Surveillance / Vermont Enhanced HIV/AIDS Reporting System • 2010–2016

| | Chlamydia | Gonorrhea | Syphilis | HIV |
|-------------------------|---------------|------------|-----------|-----------|
| age: <19 | 3,354 | 83 | 2 | 5 |
| 20–39 | 8,650 | 520 | 49 | 47 |
| 40–69 | 340 | 68 | 44 | 44 |
| 69+ | 3 | 0 | 0 | 0 |
| Total | 12,347 | 671 | 95 | 96 |
| median annual diagnoses | 1,727 | 97 | 9 | 13 |

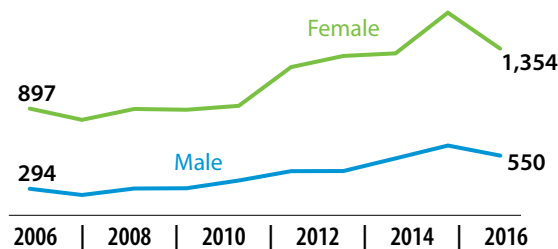
New Diagnoses 2010–2016



Chlamydia Cases

Vermont Reportable Disease Surveillance • 2006–2016

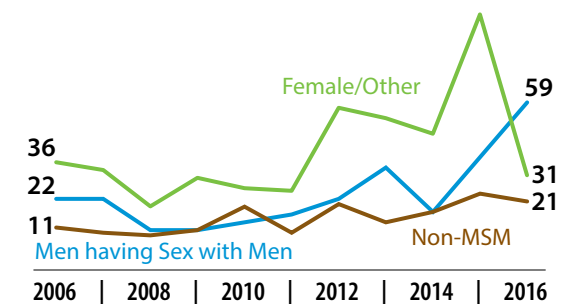
of Vermonters diagnosed each year with chlamydia



Gonorrhea Cases

Vermont Reportable Disease Surveillance • 2006–2016

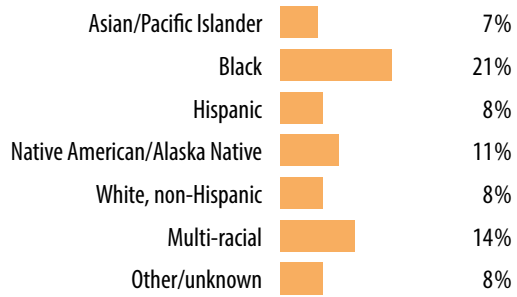
of Vermonters diagnosed each year with gonorrhea



HIV Testing, Adults & Adolescents

Vermont Behavioral Risk Factor Surveillance System • 2016
 Vermont Youth Risk Behavior Survey • 2015

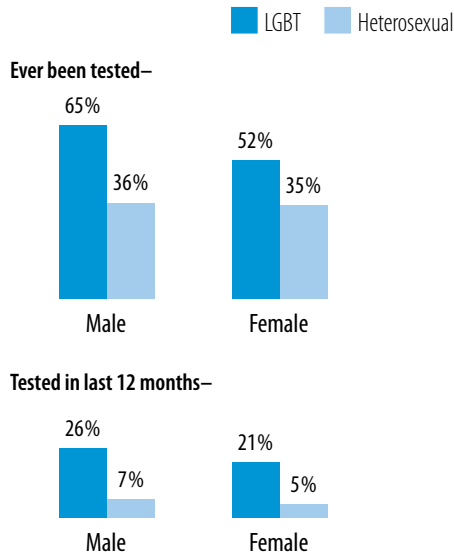
% of adults age 18–64 tested in the past 12 months



Adolescents (grades 9 to 12) who have ever been tested — 10%

HIV Testing, Adults by Gender

Vermont Behavioral Risk Factor Surveillance System • 2016

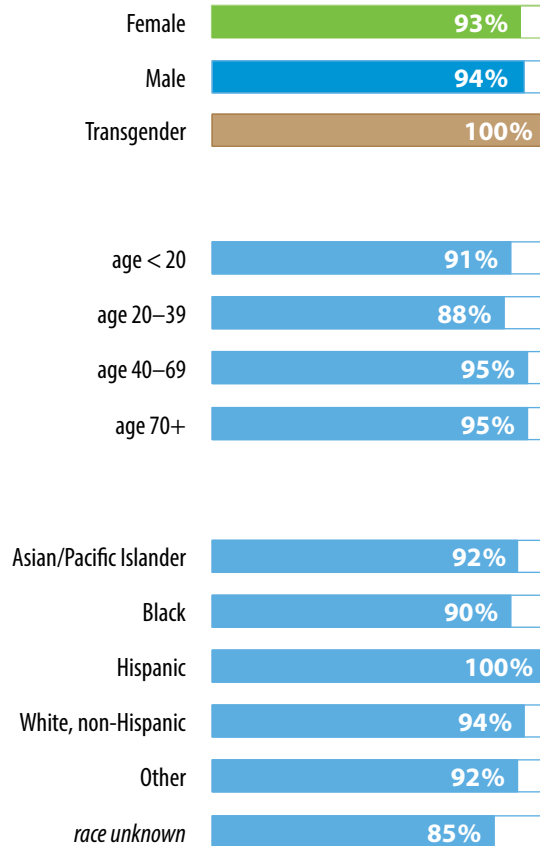


HIV Viral Suppression

Vermont Enhanced HIV/AIDS Reporting System • 2016

% of people with viral suppression among Vermonters living with diagnosed HIV infection in 2016

94% of HIV infections in Vermonters have been virally suppressed



• Chlamydia

Chlamydia is the most commonly reported infectious disease in the U.S. and in Vermont. Chlamydia is preventable, but cases continued to rise since 2004, especially among younger people. Females usually experience no symptoms, but infection can result in pelvic inflammatory disease, a major cause of infertility, ectopic pregnancy and chronic pelvic pain. Females are diagnosed more than twice as often as males, often when seeking reproductive health services. This may account for the greater number diagnosed between age 15 and 24. Males rarely have health problems linked to chlamydia.

• Gonorrhea

Vermont's overall rates of gonorrhea are well below the national average. Males and females have been almost equally affected in past years, but in 2016 most cases were among men who have sex with men. Between 2014 and 2015, there was a steep increase in cases among females for reasons that are unclear. Untreated gonorrhea can cause serious and permanent health problems in both males and females. The emergence of multi-drug resistant gonorrhea in other states makes early diagnosis and treatment a pressing health priority.

• Suppressing the HIV Virus

Compared to most of the U.S., Vermont has a relatively small number of people living with HIV. Most Vermonters living with HIV are in medical care, take medications, and are virally suppressed. A person who is virally suppressed has very low levels of virus in their body. Viral suppression lowers a person's infectiousness, and the risk of transmission to others.

Infectious Disease • Immunization

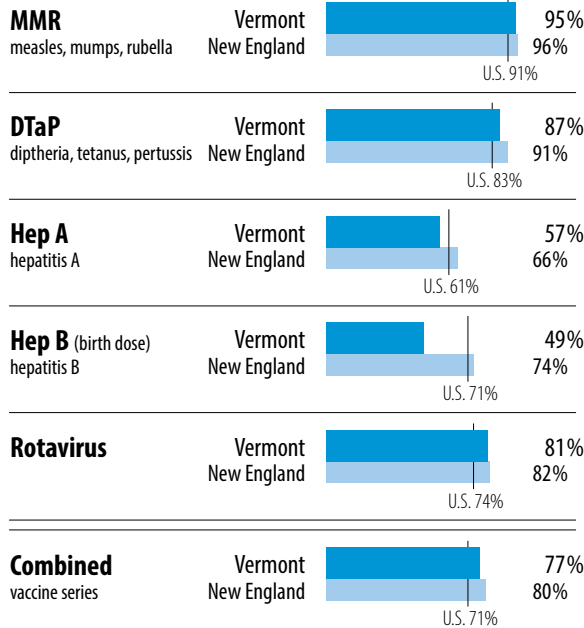
• Vaccinate for a Healthy Life

Vaccines have repeatedly been shown to be safe and effective in preventing many infectious diseases. A person who is immunized is protected against vaccine-preventable diseases or severe illness, and helps prevent disease outbreaks in the community.

The overall immunization rate for children younger than 3 years is improving. In 2016, 77% were immunized with the full series of recommended vaccines, higher than the national average of 71%. Still, one in four children in this age group have not received the full series of these vaccines.

Early Childhood Immunizations

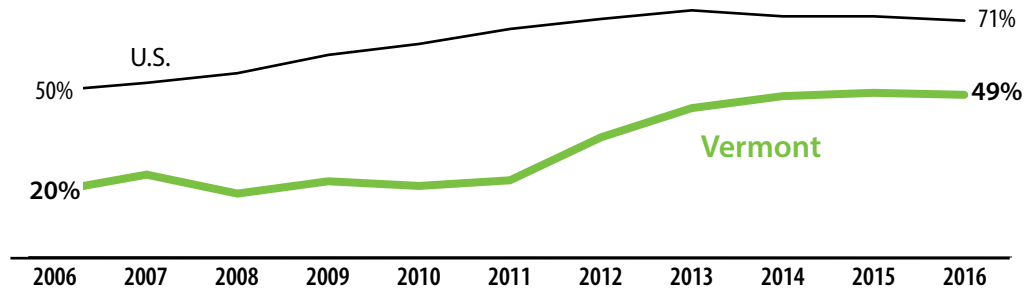
National Immunization Survey • 2006–2016



Birth Dose of Hepatitis B Vaccine

National Immunization Survey • 2006–2016

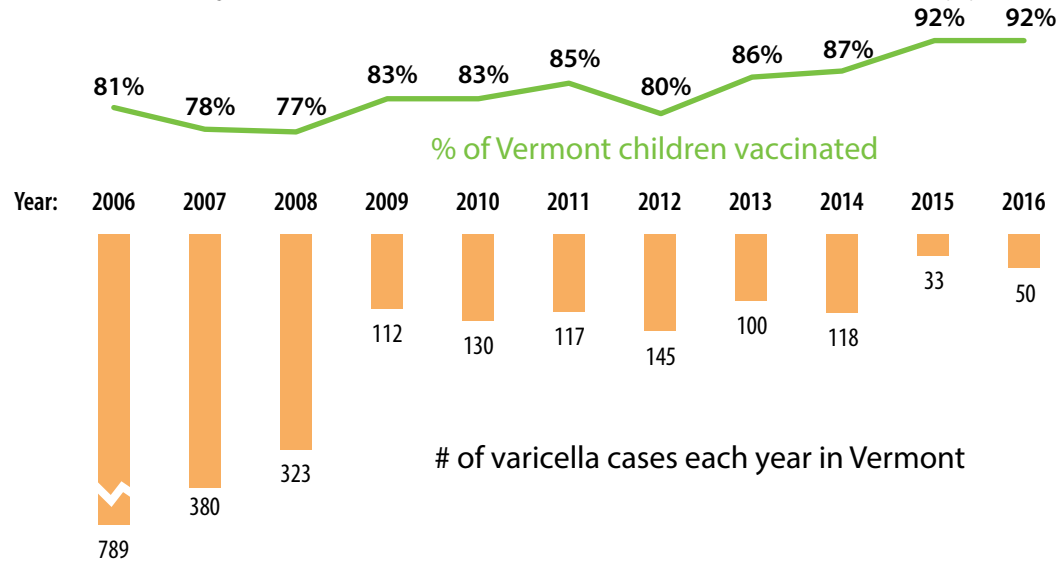
% of children 19–35 months old who have received a dose of hepatitis B vaccine at birth



Varicella Vaccination & Disease Rates

Vermont Reportable Disease Surveillance • 2006–2016

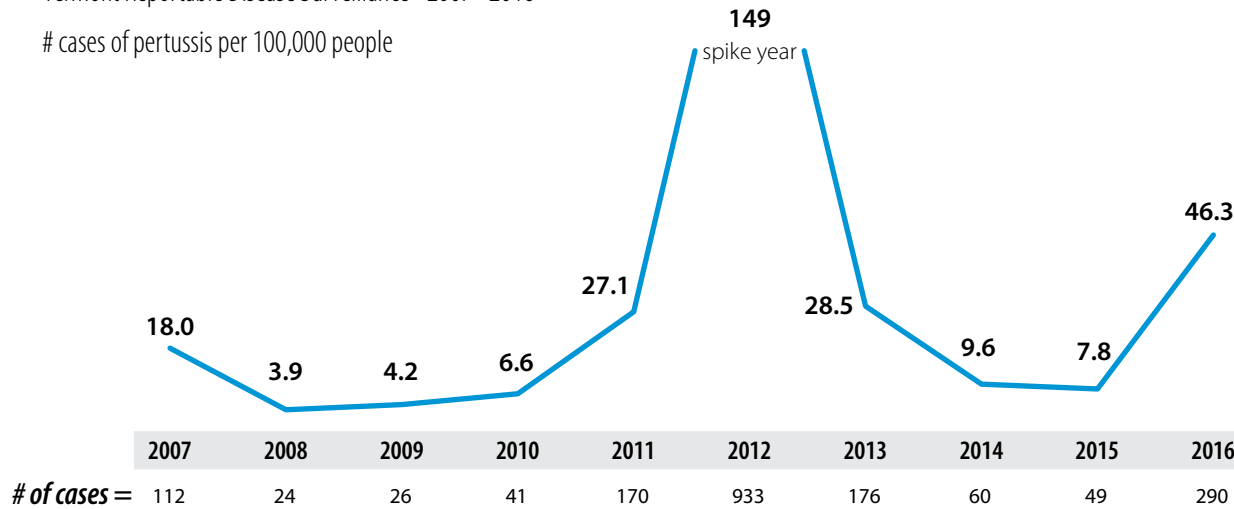
% of Vermont children age 19–35 months who are vaccinated, and the # of varicella cases in the Vermont population each year



Pertussis Cycles

Vermont Reportable Disease Surveillance • 2007–2016

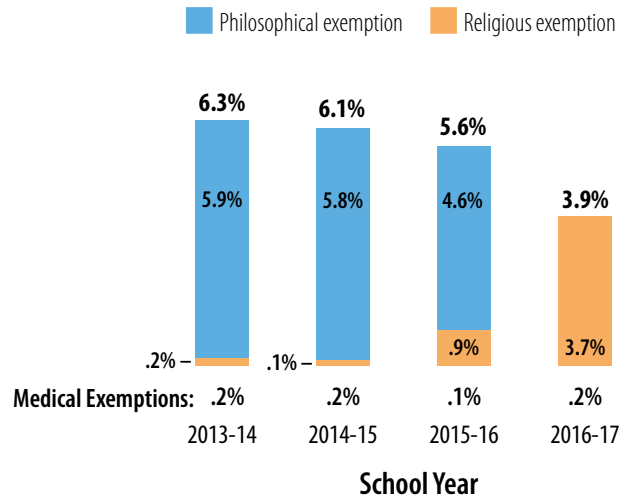
cases of pertussis per 100,000 people



Vaccination Exemptions in Kindergarten

Vermont Annual Immunization Report • 2013–2017

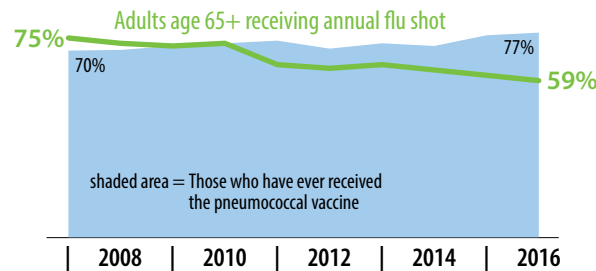
% of incoming Kindergarteners in Vermont who have exemptions from required vaccinations, by school year



Vaccination Among Adults Age 65+

Vermont Behavioral Risk Factor Surveillance System • 2007–2016

% of Vermonters age 65+ receiving the annual flu shot and the one-time pneumococcal vaccine



Hepatitis B Vaccine at Birth

Hepatitis B is a life-threatening liver infection caused by a virus. All infants should receive a dose of hepatitis B vaccine at birth. This is important because 90% of infants who contract the disease become chronic carriers and are at risk for liver cancer. Yet of all the states, Vermont has the lowest rate of hepatitis B vaccine dose given at birth.

Varicella (Chickenpox)

Higher rates of varicella vaccination correlate with lower numbers of cases of the disease. A second dose of vaccine at 4 to 6 years is recommended. In 2016, 5- to 9-year-olds accounted for 22% of all cases of varicella, down from 58% in 2006.

Pertussis (Whooping Cough)

Pertussis outbreaks tend to occur in waves, with peaks every three to five years. Vaccination rates in Vermont are high: 94% of Kindergarteners and 93% of 7th graders are appropriately vaccinated.

Vaccines for Kindergarten Entry

Since the 2013-14 school year, non-medical exemptions from vaccines for school entry have decreased, and vaccination rates have increased to 94% for all students in grades K through 12. The philosophical exemption was eliminated in 2016.

Vaccines for Older Adults

Older adults are at high risk for serious illness and death from flu and pneumococcal pneumonia, but vaccination rates are low. Vermonters age 65+ who have a college degree are more likely to get the flu vaccine than those with less education.

Infectious Disease • Ticks & Mosquitoes

• The Emergence of Tickborne Diseases

Vermont is home to Lyme disease and at least four other tickborne diseases, several of which are becoming increasingly common in the state. Vermont has one of the highest rates of Lyme disease in the U.S., and other tickborne diseases such as anaplasmosis and babesiosis are emerging. These diseases cause a range of health outcomes, from self-limiting fever to death.

Tickborne diseases are both preventable and treatable. A timely diagnosis can help patients avoid further health complications. All cases that are diagnosed in Vermont must be reported to the Health Department.

• Lyme Disease, Anaplasmosis, Babesiosis

There is geographic variation in the incidence of tickborne diseases. Southern counties have the highest rate of tickborne disease reporting. Bennington County has by far the highest rate of tickborne diseases cases in the state.

• Who is most affected by ticks?

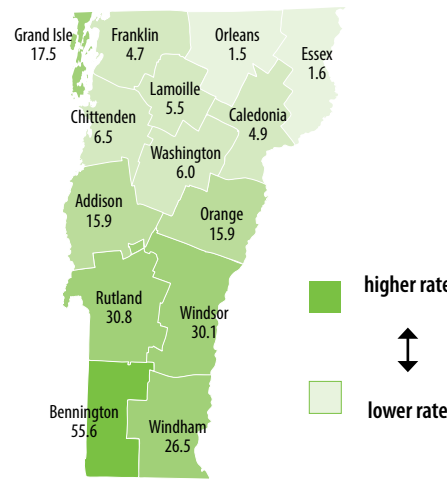
All Vermonters are at risk, but some groups are more at risk than others. People who spend time outdoors for work or recreation are more likely to encounter ticks that can spread these diseases.

Children and older adults have the highest numbers of confirmed cases of Lyme disease. Older adults and males have the highest numbers of cases of anaplasmosis.

Tickborne Disease Cases

Vermont Reportable Disease Surveillance • 2016

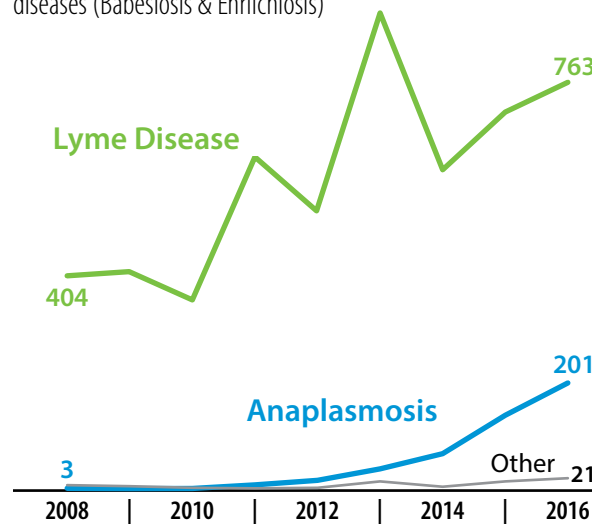
of cases reported, per 10,000 people



Tickborne Disease Reports

Vermont Reportable Disease Surveillance • 2008–2016

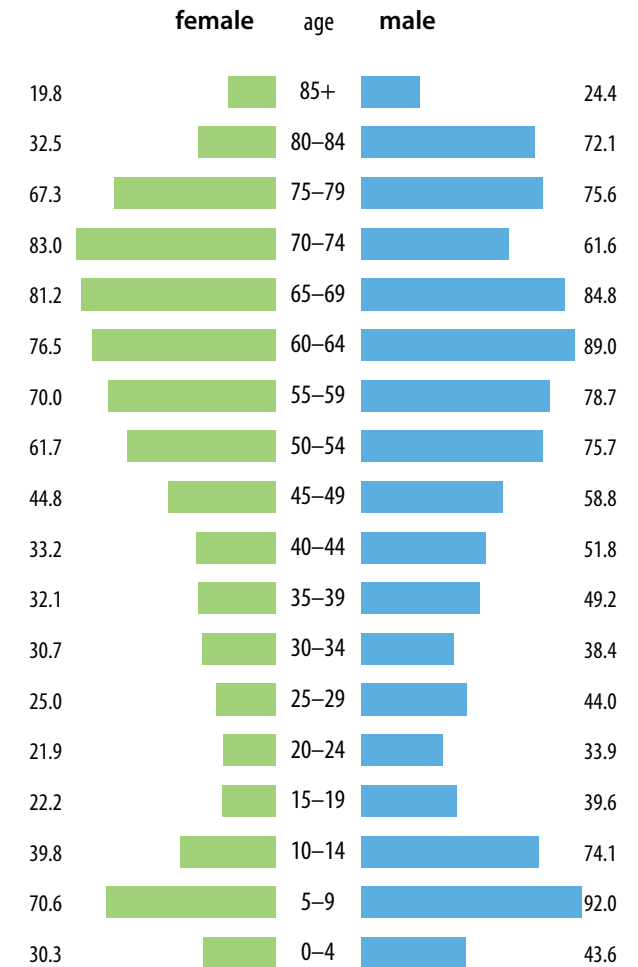
of cases of Lyme Disease, Anaplasmosis & other tickborne diseases (Babesiosis & Ehrlichiosis)



Lyme Disease Cases

Vermont Reportable Disease Surveillance • 2008–2016

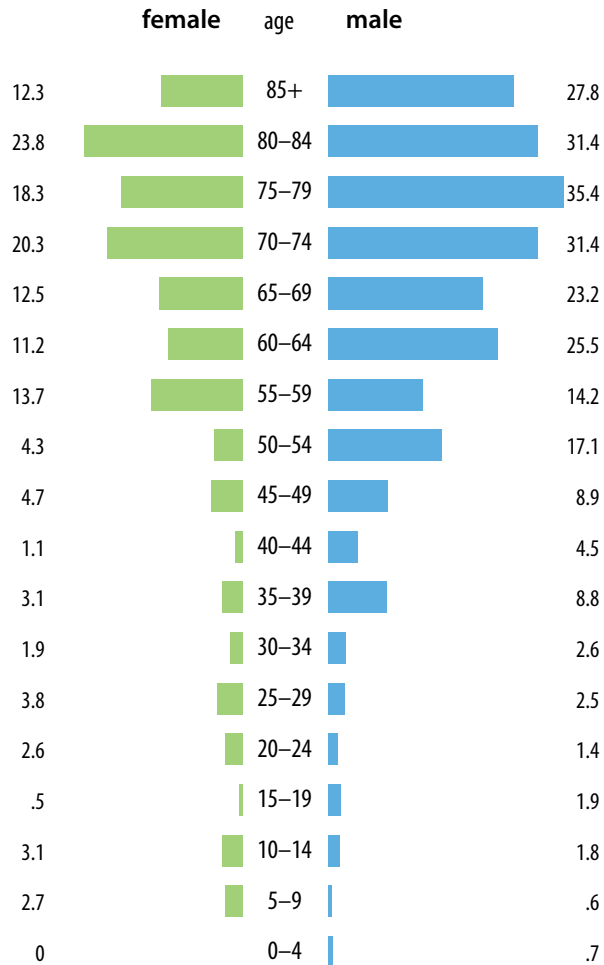
of cases of Lyme disease in Vermont, per 100,000 people



Anaplasmosis Cases

Vermont Reportable Disease Surveillance • 2008–2016

of cases of anaplasmosis in Vermont, per 100,000 people

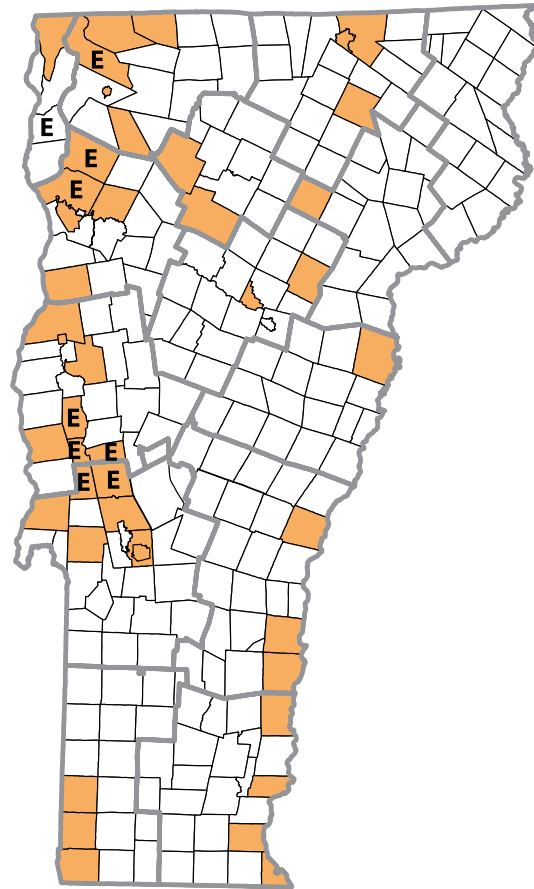


West Nile Virus & EEE in Mosquito Pools

Vermont Arbovirus Surveillance • 2013–2017

Towns where one or more mosquito pools have been found to contain –

West Nile virus ■ Eastern Equine Encephalitis E Both ■ E



• Mosquitoes & West Nile Virus

Based on years of monitoring, risk for West Nile virus appears to be widespread across the state. West Nile virus activity has been detected in all counties in birds, mosquitoes, people or animals. However, during the 2017 season, only 89 of 4,306 mosquito pools tested positive for West Nile virus.

In 2017, human infections with West Nile virus were identified in Chittenden, Addison and Grand Isle counties.

• Mosquitoes & EEE

No human cases of Eastern equine encephalitis (EEE) have been reported in Vermont since 2012.

Two areas of the state have had detections of EEE virus in mosquito pools in the past 10 years: western Franklin county, and northern Rutland/southern Addison counties.

• Mosquito-borne Disease Monitoring

During the summer months, mosquitoes are monitored for mosquito-borne diseases. Each week, mosquitoes are collected at locations around the state by the Vermont Agency of Agriculture, Food & Markets. These collections of mosquitoes are tested by the Health Department Laboratory for diseases that affect humans, such as West Nile virus and Eastern equine encephalitis, known as EEE or 'Triple E'.

Like tickborne diseases, every human case of West Nile virus and EEE diagnosed in Vermont must be reported to the Health Department.

• Diseases Reportable to Public Health

The Health Department depends on health care professionals to identify and report certain diseases. This enables public health officials to investigate and act quickly to control the spread of disease.

Hepatitis C, tuberculosis and salmonellosis are three examples of infectious diseases of public health significance that affect some groups of people more than others.

• Health Care-Associated Infections (HAIs)

Health care-associated infections are infections that patients can acquire while receiving medical treatment in a health care facility. HAIs are a major, yet often preventable, threat to patient safety. Sepsis is a potentially life-threatening complication of infection, and may occur in health care settings.

Some HAIs are caused by viruses, bacteria or fungi that are resistant to one or more antimicrobials used to treat these infections. This makes HAIs dangerous for all people, but especially for those who are immunocompromised. *Clostridium difficile* (C. diff) is one example of an antibiotic-resistant bacteria that causes serious diarrheal illness, and can be picked up from contaminated surfaces or spread from the hands of a health care worker.

Older people are most affected by sepsis and C. difficile, likely because they tend to interact more often with the health care system.

Vermont Department of Health Reportable Diseases

Reportable:

Any unexpected pattern of cases, suspected cases, deaths or increased incidence of any other illness of major public health concern, because of the severity of illness or potential for epidemic spread, which may indicate a newly recognized infectious agent, an outbreak, epidemic, related public health hazard or act of bioterrorism.

- Anaplasmosis
- AIDS
- ☎ **Anthrax**
 - Arboviral disease
 - Babesiosis
 - Blood lead levels
- ☎ **Botulism**
 - Brucellosis
 - Campylobacteriosis
 - *Chlamydia trachomatis* infection
 - Cholera
 - Creutzfeldt-Jakob disease/transmissible spongiform encephalopathies
 - Cryptosporidiosis
 - Cyclosporiasis
 - Dengue
- ☎ **Diphtheria**
 - Eastern Equine Encephalitis
 - Ehrlichiosis
 - Encephalitis
 - Gonorrhea
 - Guillain-Barré Syndrome
 - *Haemophilus influenzae* disease, invasive
 - Hantavirus disease
 - Hemolytic Uremic Syndrome (HUS)
 - Hepatitis A
 - Hepatitis B
 - Hepatitis B, positive surface antigen in a pregnant woman
- Hepatitis C
- Hepatitis E
- Human immunodeficiency virus (HIV)
- Influenza: Report only
 - ☎ **Individual cases of influenza due to a novel strain of Influenza A**
 - Pediatric influenza-related deaths
 - Institutional outbreaks
- Legionellosis
- Leptospirosis
- Listeriosis
- Lyme Disease
- Malaria
- ☎ **Measles (Rubeola)**
 - Meningitis, bacterial
- ☎ **Meningococcal disease**
 - Middle East Respiratory Syndrome (MERS)
 - Mumps
 - Pertussis (Whooping cough)
- ☎ **Plague**
- ☎ **Poliovirus infection, including poliomyelitis**
 - Psittacosis
 - Q Fever
- ☎ **Rabies, human and animal cases**
 - Reye Syndrome
 - Spotted Fever Rickettsiosis
- Rubella (German Measles)
- Rubella, Congenital Rubella Syndrome
- Salmonellosis
- ☎ **Severe Acute Respiratory Syndrome (SARS)**
 - Shiga toxin-producing *E. coli* (STEC)
 - Shigellosis
- ☎ **Smallpox**
 - Streptococcal disease, Group A, invasive
 - Streptococcal disease, Group B, invasive (infants less than 1 month of age)
 - *Streptococcus pneumoniae* disease, invasive
 - Syphilis
 - Tetanus
 - Toxic Shock Syndrome
 - Trichinosis
 - Tuberculosis
- ☎ **Tularemia**
 - Typhoid Fever
 - Varicella (Chickenpox only)
- ☎ **Viral hemorrhagic fever**
 - Vibriosis
 - West Nile Virus
 - Yellow Fever
 - Yersiniosis

Treatment: Human rabies postexposure treatment (HRPET) is reportable even when no evidence of rabies has been found.

Reporting of Diseases

The law requires that health care providers report diseases of public health importance. Persons who are required to report: health care providers, infection preventionists, laboratory directors, nurse practitioners, nurses, physician assistants, physicians, school health officials and administrators of long-term care and assisted living facilities. Cases of reportable diseases should be reported to the Health Department within 24 hours. Immediate notification is essential for diseases marked by a telephone symbol (☎).

Consultation and Inquiries 24/7:

802-863-7240 or 1-800-640-4374 (VT only)



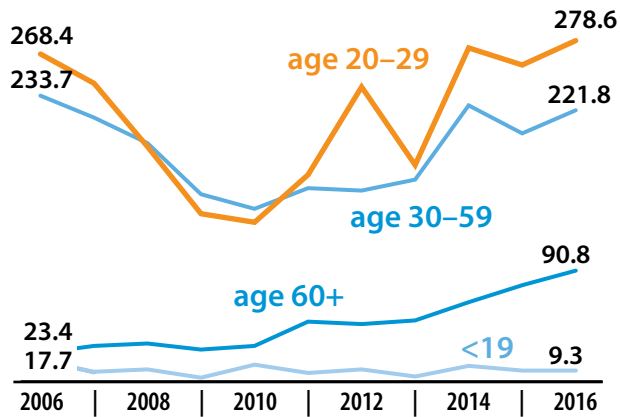
HealthVermont.gov

effective 3/26/15

Hepatitis C Cases

Vermont Reportable Disease Surveillance • 2006–2016

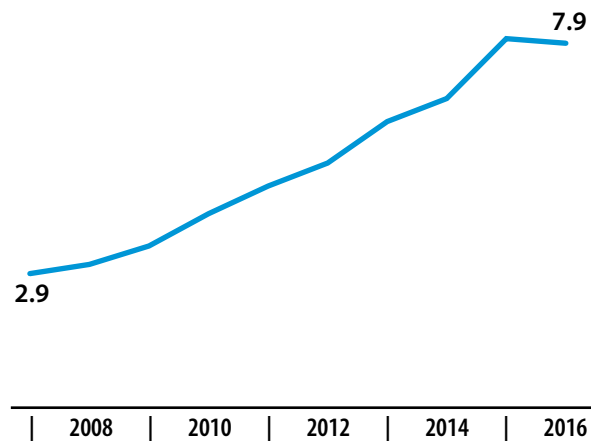
of Vermonters diagnosed with hepatitis C, per 100,000 people



Sepsis Cases

Vermont Uniform Hospital Discharge Data Set • 2007–2016

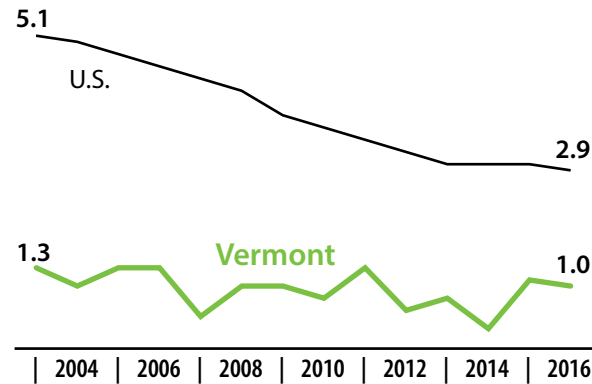
of Vermonters diagnosed with sepsis, per 1,000 people



Tuberculosis Cases

Vermont Reportable Disease Surveillance • 2004–2016

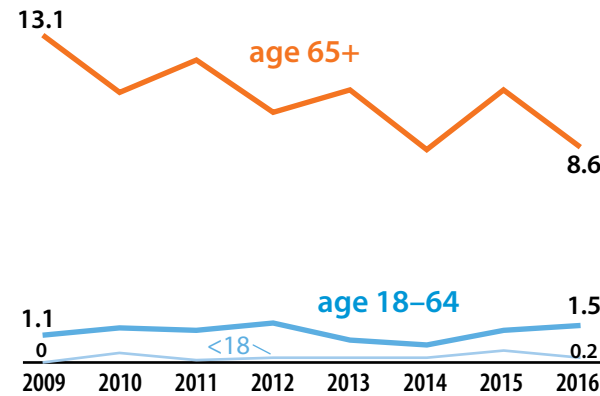
of Vermonters diagnosed with tuberculosis, per 100,000 people



Clostridium Difficile

Vermont Uniform Hospital Discharge Data Set • 2009–2016

of Vermonters diagnosed with C. diff, per 10,000 people

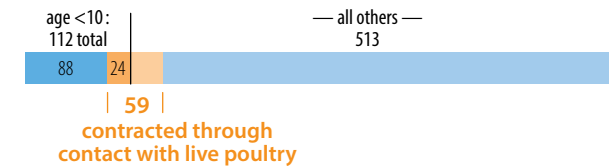


- **Hepatitis C** is a life-threatening viral infection of the liver. Since 2014, 800 to 900 cases of hepatitis C have been reported in Vermont residents each year, most commonly among baby boomers (born 1945-1965) and injection drug users.

- **Active Tuberculosis** disease is rare in Vermont, but still affects a few people each year. From 2003 to 2016, 82 cases were reported. Foreign-born and people of color are disproportionately affected.

- **Salmonellosis** Vermont Reportable Disease Surveillance data shows that while children under age 10 make up 11% of the population, 41% of the cases of salmonellosis due to contact with live poultry are among these young children.

625 Salmonella cases 2011–2015



41% of live poultry-related cases of salmonellosis are among children under 10

- **Sepsis** cases in Vermont appear to have sharply increased over the past decade. This could be a true increase, or may reflect better recognition of sepsis in hospitalized patients. In 2016, sepsis was the cause of 217 deaths among Vermonters.

- **Clostridium Difficile** is the #1 cause of infectious diarrhea in hospitalized patients in the U.S. The rate of C. difficile is increasing in Vermont. Older adults with current or previous antibiotic use and receiving medical care are at highest risk for infection.