



# Communicable Disease in Montana: 2012 Annual Report

Prepared by the Communicable Disease Epidemiology Section

Public Health and Safety Division  
Montana Department of Public Health and Human Services

## Contents

Notable Events of 2012 .....	2
Pertussis statewide outbreak.....	2
Gonorrhea outbreak in Roosevelt County/Ft. Peck Reservation.....	3
Foodborne Outbreaks .....	3
Foodborne and Diarrheal Diseases .....	4
Vaccine Preventable Diseases.....	6
Pertussis .....	6
Varicella.....	6
Mumps.....	6
Influenza .....	6
Invasive Diseases.....	7
Meningococcal Disease.....	7
Other Bacterial Invasive Diseases .....	7
Sexually Transmitted Diseases .....	7
Chlamydia.....	8
Gonorrhea .....	9
Syphilis.....	10
HIV/AIDS.....	10
Tuberculosis.....	12
Viral Hepatitis .....	13
Hepatitis A .....	13
Hepatitis B.....	13
Hepatitis C .....	13
Zoonotic and Vector-borne Diseases .....	13
Rabies .....	13
Tickborne Diseases.....	14
Hantavirus .....	14
West Nile Virus .....	14
Healthcare Associated Infections (HAI) .....	15
References.....	17
Appendix I: Cases and comparative statistics for reportable communicable diseases — Montana, 2012.....	18
Appendix II: Communicable disease tables by disease group and jurisdiction of residence — Montana, 2012.	19
Appendix III: Montana Demographic Profile 2012 .....	27
Appendix IV: Diseases Reportable to Montana DPHHS, 2012.....	28

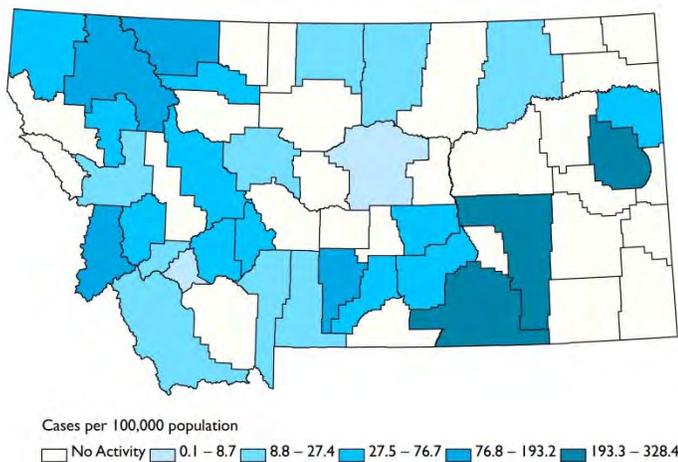
This report was prepared by the Communicable Disease Epidemiology Section (CDEpi) at the Montana Department of Public Health and Human Services (DPHHS). It summarizes communicable diseases reported by the state of Montana in 2012. These reportable conditions met the 2012 case definitions provided by the Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists (CSTE).<sup>1</sup> Communicable diseases that must be reported by diagnostic laboratories and health care professionals to public health authorities are specified by the Administrative Rules of Montana ([ARM 37.114.203](#)). Communicable disease data are maintained by the Montana Infectious Disease Information System (MIDIS), HIV data are maintained in the enhanced HIV/AIDS Reporting System (eHARS), and STD data are maintained in STD\*MIS. Population data<sup>2</sup> as well as reportable communicable disease statistics are found in Appendix I. Small numbers of reported cases may result in unstable rates and should be interpreted with caution. Please contact CDEpi at 406-444-0273 or [hhsepi@mt.gov](mailto:hhsepi@mt.gov) with questions or comments.

## Notable Events of 2012

### Pertussis statewide outbreak

In 2012, 549 cases of pertussis were reported to DPHHS, compared with 134 cases in 2011. This is the highest number of pertussis cases since 2005, when 586 cases were reported. The overall incidence rate in 2012 was 55.0 per 100,000 Montana residents compared with a provisional rate of 13.4 per 100,000 in the United States. In Montana, case counts increased in early April and continued above baseline (1.6 cases per week) for the remainder of the year. Among the 29 counties reporting cases of pertussis in 2012, the number of cases ranged from 1 to 138 with incidence rates ranging from 5.8 to 328.4 per 100,000 population (Figure 1).

**Figure 1. Incidence of pertussis by county of residence — Montana, 2012**



Of the 549 cases, 51% were female. Sixty-one percent of pertussis cases occurred among children aged 5–17 years. Thirty-three infants aged less than one year were reported as having pertussis and six were

hospitalized. All of the hospitalized infants were aged less than three months. There were no reported deaths due to pertussis in 2012. Several pertussis outbreaks were reported in tribal jurisdictions in Montana. Of the 524 cases with a documented status for race, 89 (17%) were identified as American Indian; only 6.4% of the Montana population is classified as American Indian.<sup>3</sup>

Immunization records for 421 pediatric cases eligible by age for pertussis-containing vaccine (aged 2 months–17 years) were assessed for vaccination status per the Advisory Committee on Immunization Practices (ACIP) Recommendations.<sup>4</sup> Overall, 68 (16%) cases eligible by age had not received any doses of pertussis-containing vaccine. Of these, the greatest percentage of unvaccinated cases (36%) occurred among children aged 4–6 years. In addition, 134 (32%) cases in all age categories had not received the total recommended number of doses of pertussis-containing vaccine appropriate for age.

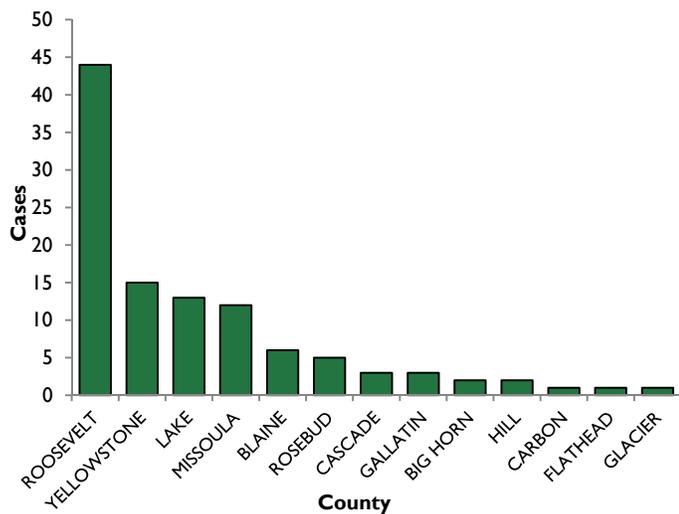
ACIP recommends the administration of tetanus, diphtheria, acellular pertussis vaccine (Tdap) at age 11–12 years. In this age group, which includes 21% of all pediatric cases, only 19% received a Tdap before diagnosis. Cases in the 13–17 year age group had a higher percentage of Tdap vaccination (81%).

Factors contributing to the increased pertussis incidence in the United States are currently being evaluated and several potential factors have been identified. These include increased awareness of the disease, improved diagnostic testing, enhanced surveillance and case reporting, waning immunity of the diphtheria, tetanus, acellular pertussis vaccine (DTaP), and possibly, genetic changes in circulating strains of the bacteria.<sup>5</sup>

## Gonorrhea outbreak in Roosevelt County/Ft. Peck Reservation

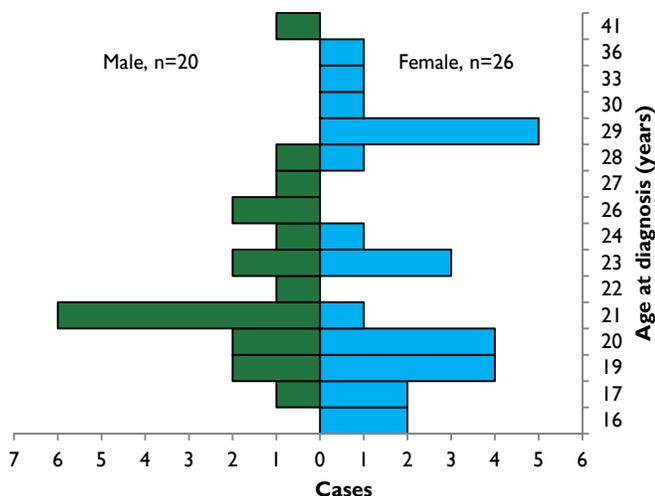
Since 2000, between 60 and 191 gonorrhea cases have been reported to DPHHS each year, including 108 cases reported in 2012. However, an outbreak in Roosevelt County/Ft. Peck that began in 2011 and accounted for more than 40% of the cases in 2012 was significant. Roosevelt County/Ft. Peck reported 12 cases in the last four months of 2011. The outbreak continued in 2012 when 46 cases were reported, three times the number of cases as Yellowstone County (n=15), the most populous county in the state (Figure 2). The average age of cases in the outbreak was 23.2 years (range: 16 to 41 years). Twenty-six cases (57%) were female (Figure 3).

**Figure 2. Gonorrhea cases by county — Montana, 2012\***



\*County case counts may include cases among persons residing in tribal health jurisdictions that are within the county's borders.

**Figure 3. Gonorrhea cases by sex and age — Ft. Peck/Roosevelt County, Montana, 2012\***



\*Includes 2 cases from Blaine County linked to a case in Ft. Peck/Roosevelt County

In addition to the increased burden of disease, the disproportionately greater number of cases reported in Roosevelt County/Ft. Peck may be affected by several factors such as broader STD screening practices among the American Indian (AI) population and increased screening in response to the outbreak.

Because of the widespread use of non-culture methods for detection of *Neisseria gonorrhoeae* infection, tracking the extent of resistant *N. gonorrhoeae* strains in Montana is difficult. To date, resistant strains appear to be limited to certain clusters, and do not appear to be widespread. However, there is concern nationwide that highly resistant strains (resistant to 3 or more antibiotic classes) seen in other countries may become endemic in the United States. CDC recently updated their 2010 STD treatment guidelines, and now recommends “combination therapy with ceftriaxone 250 mg intramuscularly and either azithromycin 1 g orally as a single dose or doxycycline 100 mg orally twice daily for 7 days [ . . . ]. CDC no longer recommends cefixime at any dose as a first-line regimen for treatment of gonococcal infections.”<sup>6</sup> Furthermore, CDC has encouraged increased surveillance for resistant strains by recommending follow up testing and vigilance for treatment failures.

## Foodborne Outbreaks

Two notable foodborne outbreaks were investigated in Montana in 2012. One occurred in Toole County, where a caterer had prepared meals that were served at a school. Eighty-eight persons became ill with nausea, vomiting, and diarrhea in that outbreak. A subsequent investigation indicated that improper food handling and preparation was the likely cause of the outbreak. Laboratory testing of ill persons was not completed. As a result, the causative agent of this outbreak was not determined.

Another outbreak investigated in 2012 occurred in Carbon County after several persons had attended a church potluck. Thirty-nine persons became ill with acute gastroenteritis after consuming a variety of food items at the event. Laboratory testing was performed; however, a causative agent was never confirmed. Despite the lack of laboratory evidence, *Clostridium perfringens* was highly suspected to be the cause of illness due to improper cooling and reheating of poultry products.

During 2012, several Montana counties reported cases of enteric illness that were part of disease clusters or outbreaks. Timely and complete reports are vital for

successful outbreak investigations. Some clusters of illness are apparent immediately, but others that first appear to be isolated events prove to be part of national or international outbreaks. A seemingly isolated event may be linked to an outbreak involving many other ill persons locally, nationally, or internationally.

Continued advancements in pulsed-field gel electrophoresis (PFGE) “fingerprinting” allows DPHHS to establish links between cases regardless of geographic location. PFGE analysis has revealed several linkages and associated Montana cases with national outbreaks. Ongoing improvements of outbreak detection, investigation, and reporting will enhance surveillance methods that could identify contaminated sources earlier in the course of an outbreak.

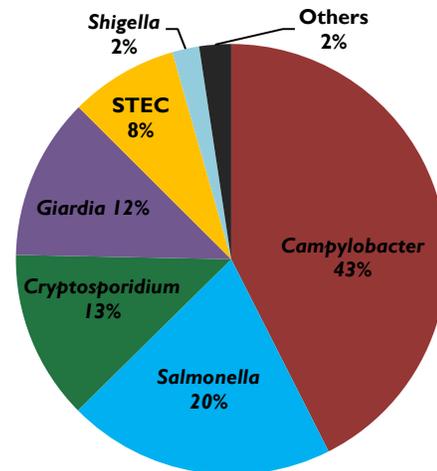
## Foodborne and Diarrheal Diseases

A total of 537 reportable enteric illnesses were reported in Montana in 2012. The most common agent was *Campylobacter spp.*, accounting for 231 (43%) of all reportable enteric cases. Salmonellosis was the next most frequently reported enteric illness accounting for 109 (20%) cases in 2012. This was followed by 69 (13%) cases of cryptosporidiosis and 66 (12%) cases of giardiasis. Additionally, 44 (8%) cases of Shiga-toxin producing *Escherichia coli* (STEC) were reported and 11 (2%) cases of shigellosis occurred in the state as well. Isolated cases of Yersiniosis (n=3), Amebiasis (2), hemolytic uremic syndrome (HUS) (1), and listeriosis (1) accounted for the remaining 2% of reportable enteric illnesses (Figure 4).

Enteric illnesses are more commonly reported during spring and summer months (Figure 5). Campylobacteriosis is often associated with farming and ranching, as cattle and poultry are the most common reservoir for *Campylobacter spp.* Other likely sources of transmission can include undercooked foods, unpasteurized milk and non-chlorinated water. Pets often present as likely sources of infection as well.

Salmonellosis can be acquired from infected birds, especially chicks, but can also be acquired through ingestion of contaminated foods and contact with reptiles or other pets.

**Figure 4. Reported enteric pathogens — Montana, 2012**



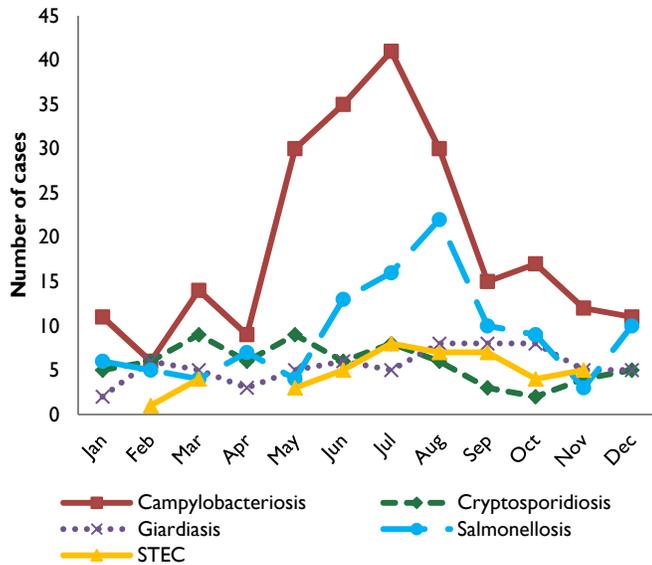
Cryptosporidiosis and giardiasis are often associated with waterborne exposures, usually in recreational waters and untreated natural waters. Both protozoan organisms are highly resistant to chlorine treatment, allowing them to survive in swimming pools even after routine chemical treatment has been applied. The reservoir for these organisms is usually human, but cattle and other animals can also serve as reservoirs.

STEC is most commonly found in cattle, but can cause severe illness in humans. Cases of STEC in Montana are often linked to consumption of contaminated undercooked beef or direct animal contact. HUS can be a complication associated with previous STEC infection that can cause serious renal dysfunction, often requiring dialysis, and sometimes even death.

*Shigella* is an organism found only in humans and has a high infectivity rate. After a large outbreak of shigellosis in 2011, only a few sporadic cases (n=11) were reported in Montana in 2012.

Listeriosis is uncommon in the United States and Montana, but can cause serious complications or even death in persons with underlying illness, pregnant women, the very young, and the very old. Amebiasis and yersiniosis are rarely diagnosed in Montana. As with other enteric illnesses they usually are associated with animal contact, foodborne exposure, or person-to-person contact.

**Figure 5: Selected enteric illness counts by month — Montana, 2012**



As noted in Table 1, campylobacteriosis carries the greatest burden of enteric illnesses in Montana with an incidence rate of 23.1 cases per 100,000 population, more than double the rate of salmonellosis (10.8 cases per 100,000 population). As the only two parasitic enteric illnesses that are reportable in Montana, cryptosporidiosis and giardiasis share a similar disease burden (6.9 and 6.8 cases per 100,000 population, respectively). Few, isolated cases of shigellosis have been reported in Montana (1.1 cases per 100,000 population). Other enteric illnesses are reported at rates less than 1 case per 100,000 population.

**Table 1: Enteric illnesses — Montana, 2012**

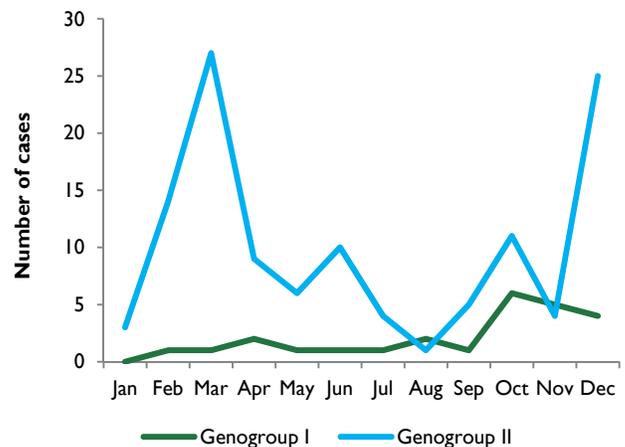
<b>Condition</b>	<b>Rate per 100,000</b>
Campylobacteriosis	22.9
Salmonellosis	10.8
Cryptosporidiosis	6.9
Giardiasis	6.8
Shiga-toxin producing <i>E. coli</i> (STEC)	4.4
Shigellosis	1.1
Yersiniosis	0.3
Amebiasis	0.2
Hemolytic Uremic Syndrome (HUS)	0.1
Listeriosis	0.1

A small number of Montana residents were linked to several multistate *Salmonella* outbreaks associated with fruits and raw poultry in 2012. Twenty-seven enteric illness outbreaks were reported in 2012; of these, 14

(52%) were categorized as acute gastroenteritis as a pathogen could not be confirmed, 11 (42%) were associated with norovirus, one (3%) with *Salmonella* and one (3%) with rotavirus. The majority of outbreaks (60%) occurred in long-term care facilities or assisted living centers. Other noteworthy locations included child daycares and schools (18%), special events (15%), and private homes or camps (7%). An increased risk for person-to-person transmission occurs when persons live in crowded spaces or gather at meetings. Shared community meals, densely populated living spaces, and lack of personal hygiene, such as poor hand washing techniques, exacerbate the spread of enteric illnesses.

Norovirus itself is not a reportable condition in Montana unless it is connected to an outbreak; however, this virus ranks second highest in number of reported cases among all reported enteric pathogens. In 2012, 144 laboratory confirmed cases of norovirus were identified by the Montana Public Health Laboratory (MTPHL) (Figure 6). The majority of cases were identified as Genogroup II, with a slight increase in Genogroup I in the latter months of 2012.

**Figure 6: Reported laboratory confirmed norovirus cases — Montana, 2012**



CDEpi continues to improve state-wide surveillance and outbreak investigations. A new cluster/outbreak form was developed to capture outbreak information and allow for timely reporting. The aim of electronic monitoring of data is real-time disease reporting, allowing epidemiologists in the state to identify outbreaks quickly and collaborate with local health officials in their investigations to prevent additional cases.

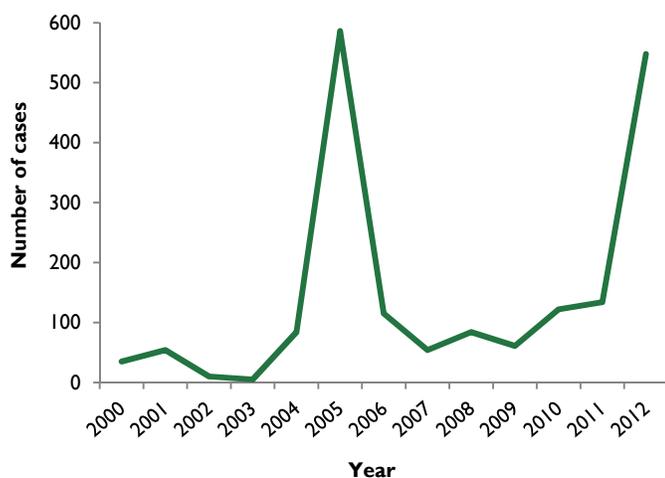
## Vaccine Preventable Diseases

### Pertussis

Pertussis is a highly contagious disease caused by *Bordetella pertussis*. The classic presentation of the disease is characterized by coughing that is so violent and rapid that it leads to an intake of breath marked by a “whoop.” Newborns and young infants are at highest risk for severe disease and complications as they are not fully protected by vaccination until 6 months of age. Nationally, approximately half of all infants aged less than one year with pertussis are hospitalized annually.

Historically, the number of pertussis cases tends to vary from year to year but peaks in a 3–5 year cycle in the United States. In Montana, pertussis case counts have remained consistent over the last ten years with the exception of 2005, when 586 cases were reported (Figure 7). However, in 2012, the highest number of pertussis cases since 2005 were reported in Montana. This was similar to activity elsewhere in the United States, including neighboring states in the Northwest. An increase in cases was first noted towards the end of 2011 when an outbreak in Gallatin County resulted in 41 cases. The majority of cases occurred among children aged 13–17 years. Pertussis activity continued below threshold (1.6 cases per week) until the spring of 2012 when several counties experienced localized outbreaks. In some counties outbreak activity continued through the end of the year. As with the outbreak in late 2011, the majority of cases occurred among school aged children.

**Figure 7. Reported pertussis cases — Montana, 2000–2012**

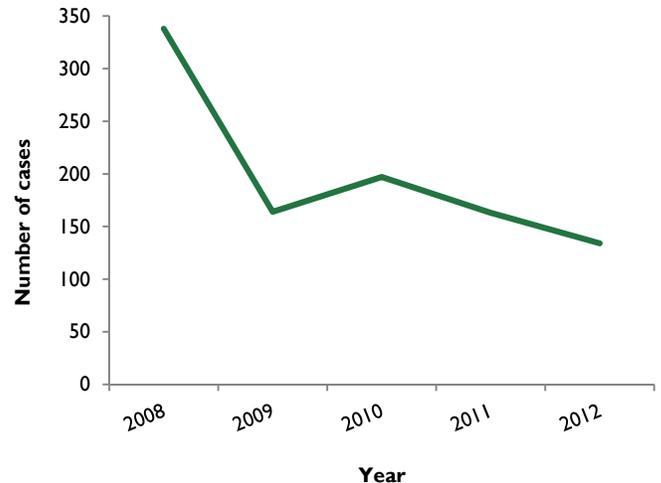


### Varicella

Varicella-zoster virus is the causative agent of chickenpox, which was the second most frequently

reported vaccine preventable disease in 2012. The number of chickenpox cases reported in Montana has decreased from a peak of 337 cases in 2008 to 132 cases in 2012 (Figure 8). Cases had a median age of 8 years were reported from 30 counties.

**Figure 8. Reported varicella cases by year — Montana, 2008–2012**



### Mumps

Mumps is an acute infection caused by a paramyxovirus and characterized by fever, swelling, and tenderness of the salivary glands (parotitis). Once a common childhood disease, incidence of mumps has steadily declined since the introduction of the measles, mumps and rubella (MMR) vaccine. The last confirmed case of mumps in Montana was reported in 2008.

One case of mumps was reported in 2012 that occurred in a person aged over 50 years who reported having had mumps as a child. However, clinical signs and symptoms consistent with the disease were present. The patient also had a positive serum IgM for mumps, consistent with recent infection. The clinical and laboratory evidence therefore fit the case definition for a probable case. The patient did not report travel outside of the United States prior to onset of symptoms.

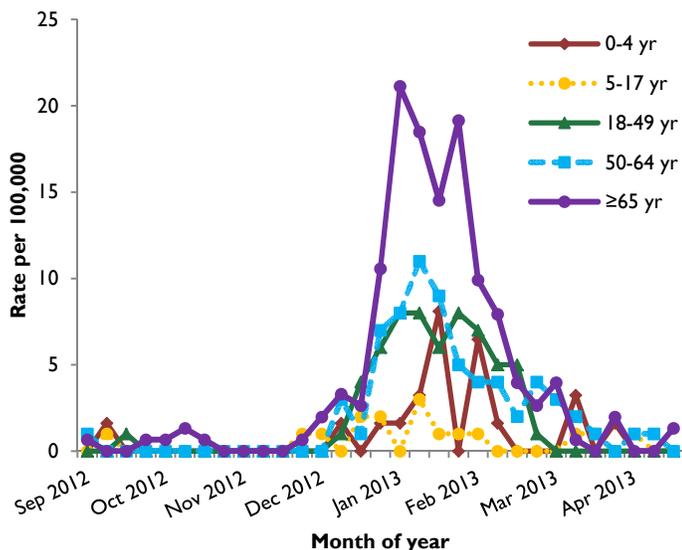
### Influenza

The average influenza season extends from October through mid-May. Nationally, the start of the 2012–13 influenza season was earlier than average with an increase in hospitalizations compared with previous seasons. In Montana, the reported number of confirmed or suspected influenza cases varied greatly across the state, including three counties with no reported influenza activity (range: 0–1,514 cases). The cumulative influenza-related hospitalization rate in Montana (35.9

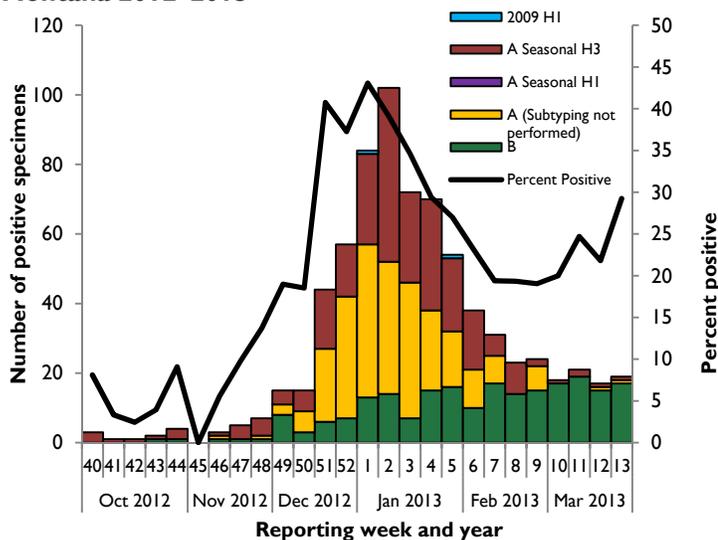
per 100,000 population) was lower than that of the United States (44.3 per 100,000 population).

Influenza-related hospitalizations increased in late December and peaked in early January. By the end of the season, 361 Montanans were hospitalized due to influenza. While hospitalization rates increased for all age categories, the greatest increase was in individuals aged  $\geq 65$  years (Figure 9). This age group accounted for 54% of all reported influenza-related hospitalizations. Of the 15 influenza-related deaths reported, 13 (87%) occurred among adults aged  $\geq 65$  years. No pediatric (aged 0–17 years) deaths were reported.

**Figure 9. Influenza hospitalization rates by age group — Montana, 2012–13 Season**



**Figure 10. Influenza positive tests reported by the Montana Public Health Laboratory and partners\* — Montana 2012–2013**



\*Partner laboratories include: Benefis, Bozeman Deaconess Hospital, Kalispell Regional Medical Center, Missoula Community Hospital and St. Patrick's Hospital.

MTPHL and five partner laboratories reported the number of specimens tested for influenza by polymerase chain reaction (PCR) and the number positive by influenza virus type and influenza A virus subtype (Figure 10). During the first part of the season, the majority of isolates subtyped were influenza A seasonal H3; the majority of isolates later in the season were influenza B.

## Invasive Diseases

### Meningococcal Disease

Meningococcal disease is caused by the gram-negative bacterium *Neisseria meningitidis*. The bacteria reside primarily in humans on the surface of mucosal membranes such as those found in the respiratory tract. Occasionally, *N. meningitidis* invades the human blood stream, crossing the blood-brain barrier, causing serious invasive disease including meningitis and septicemia.

In 2012, 10 meningococcal disease cases were reported in Montana. None of the cases reported were associated with a cluster or outbreak. There are 13 serotypes of *N. meningitidis*; five (A, B, C, W135, Y) are clinically important. Of the cases reported in 2012, isolates were identified as serogroups B (n=2), W135 (2), C (1), D (1), and Y (1). The remaining three isolates were unable to be serotyped. The median age of cases was 23 years (range: 2 months –55 years) and 5 (50%) cases occurred among males. In Montana, the 2012 incidence rate of 0.99 per 100,000 population was higher than the 0.40 rate reported in 2011, and much higher than the national 2011 rate of 0.2 per 100,000 populations.

### Other Bacterial Invasive Diseases

During 2012, cases caused by *Streptococcus pneumoniae* (n=34), *Haemophilus influenzae* (6), and other *Streptococcus* spp. (3), were reported in Montana. No cases of invasive *H. influenzae* type B infection were reported in 2012.

## Sexually Transmitted Diseases

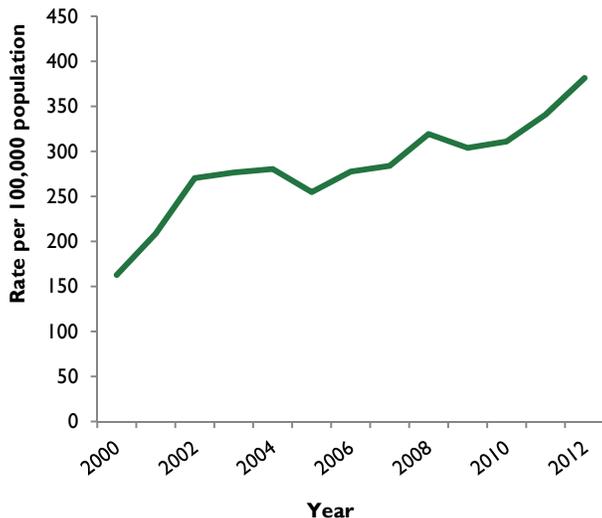
Sexually transmitted diseases (STDs) continue to be the most frequently reported communicable diseases in Montana. Nearly 4,000 STD cases were reported in 2012. All but four Montana counties reported at least one STD case.

## Chlamydia

Chlamydia is a common STD caused by the bacterium *Chlamydia trachomatis*. Chlamydia infections are usually asymptomatic. In women, infection can result in pelvic inflammatory disease (PID), a major cause of infertility, ectopic pregnancy, and chronic pelvic pain. As with other inflammatory STDs, chlamydia infection can facilitate the transmission of HIV. In addition, pregnant women infected with chlamydia can pass the infection to their infants during delivery, potentially resulting in neonatal ophthalmia or pneumonia. Because of the large burden of disease and risks associated with infection, CDC recommends annual chlamydia screening for all sexually active women aged  $\leq 25$  years, older women ( $>25$  years) with risk factors, and all pregnant women.

*C. trachomatis* infection is the most commonly reported communicable disease in Montana and the United States. Since 2000, case counts and the incidence rate have more than doubled in Montana. In 2012, 3,834 cases were reported, 432 more than in 2011. The incidence rate of chlamydia infection increased by 11.9% from 341 to 381 cases per 100,000 population (Figure 11). The U.S. rate of chlamydia in 2011 was 458 cases per 100,000 population, an 8% increase from 2010.<sup>7</sup> This may be attributed to increased screening, improved test sensitivity and reporting, and increased burden of disease.

**Figure 11. Chlamydia incidence rate — Montana, 2000–2012**



In 2012, the majority of chlamydia cases were diagnosed among persons aged 20–24 years (41%) and 2,660 cases (69%) among females. While the disease burden is probably highest among this age group, the high incidence is also attributable to STD screening recommendations that all sexually active females aged  $\leq 25$  years who present for routine healthcare visits receive screening for chlamydia and gonorrhea. The greater proportion of cases among females may be attributable to females seeking medical care at greater rates than males, and therefore being tested more often. The 15–19 years and 20–24 years age groups had the highest incidence rates (Figure 12). This may in part be the result of higher rates of STD screening in these age groups.

**Figure 12. Chlamydia incidence by age at diagnosis — Montana, 2012**

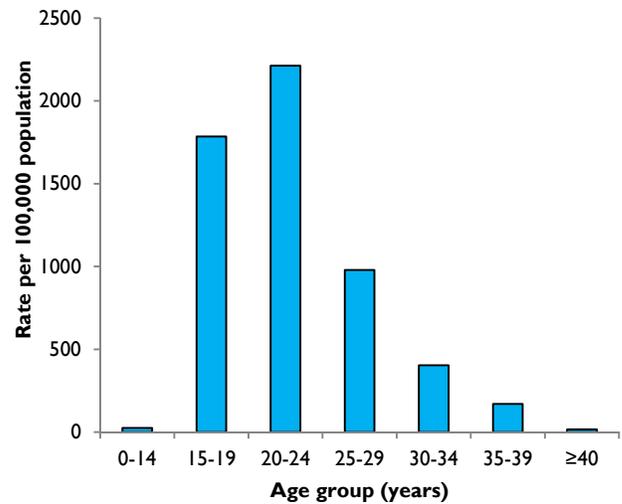


Table 2 outlines the cases of chlamydia reported to DPHHS in 2012 by age, sex, and race. In 2012, the chlamydia incidence rate for persons reported as American Indian was more than five times greater than those reported as white. However, because of the larger percentage of Montana residents classified as white, the number of chlamydia cases among white persons is greater. Moreover, broader STD screening efforts among American Indians may contribute to the higher reported chlamydia incidence rate in this population. However, the specific magnitude of the contribution has not been measured.

**Table 2. Chlamydia cases by age, sex, and race — Montana, 2012\***

Age (years)	Female					Male					Total
	White	American Indian	Other†	Missing	Total	White	American Indian	Other†	Missing	Total	
0–14	18	19	--	6	43	3	--	--	--	3	46
15–19	600	261	18	60	939	102	94	10	15	221	1160
20–24	746	214	30	59	1049	357	110	28	33	528	1577
25–29	228	120	7	30	385	159	45	14	20	238	623
30–34	84	46	2	15	147	72	27	2	5	106	253
35–39	27	20	0	7	54	26	10	2	2	40	94
≥ 40	33	9	0	1	43	27	8	2	1	38	81
<b>Total</b>	<b>1736</b>	<b>689</b>	<b>57</b>	<b>178</b>	<b>2660</b>	<b>746</b>	<b>294</b>	<b>58</b>	<b>76</b>	<b>1174</b>	<b>3834</b>

\* Race classification is irrespective of ethnicity (Hispanic or non-Hispanic)

† Other includes persons of more than one race, black/African American, and Asian/Pacific Islander

### Gonorrhea

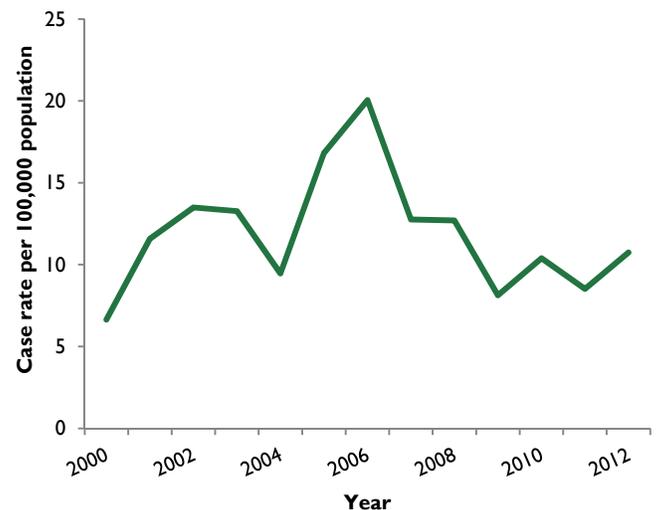
*Neisseria gonorrhoeae* infections are the second most commonly reported STD in Montana and the United States. In the United States, *N. gonorrhoeae* infections, like those resulting from *C. trachomatis*, are a major cause of PID. In addition, epidemiologic and biologic studies provide strong evidence that gonococcal infections facilitate the transmission of HIV.

In 2012, 108 cases of gonorrhea from 13 counties were reported in Montana. This corresponds to an incidence rate of 10.7 cases per 100,000 population, a 26% increase from 2011 when 85 cases (8.5 cases/100,000 population) were reported. The rate in Montana is one of the lowest in the United States. The national incidence rate is 104 cases per 100,000 population, and Vermont had the lowest rate of 7.7.<sup>7</sup> Besides a small increase in incidence in 2005 and 2006, since 2000 Montana’s rate of gonorrhea infections has remained between 6.5–13.5 cases per 100,000 population (Figure 13).

Table 3 outlines the cases of gonorrhea reported to DPHHS in 2012 by age, sex, and race. In 2012, the greatest number of gonorrhea cases were reported among persons aged 20–24 years; the age group that also had the highest incidence rate (Figure 14). As with chlamydia, this might be related to routine STD screening practices for sexually active women ≤25 years of age (60% of gonorrhea cases). Of the 44 cases of gonorrhea diagnosed in the 20–24 year age group, 23 (52%) occurred among females.

In 2012, the gonorrhea incidence rate was highest among persons who were reported as American Indian (98.2 cases per 100,000 population). This rate is nearly 30 times greater than those reported as white (3.4 cases per 100,000 population). In 2011, the incidence rate among American Indians was about five times greater than whites; however, the outbreak at Roosevelt County/Ft. Peck has significantly increased the ratio in 2012. Additionally, broader STD screening practices among American Indians may also contribute to the higher reported gonorrhea incidence rate in this population. However, the specific magnitude of the contribution has not been measured.

**Figure 13. Gonorrhea incidence rate — Montana, 2000–2012**



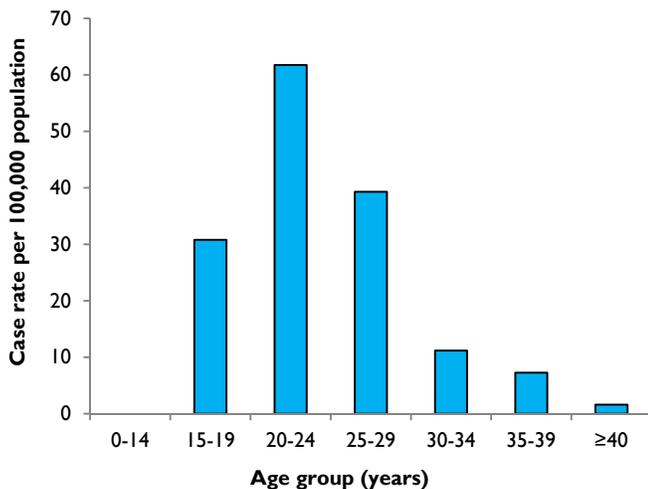
**Table 3. Gonorrhea cases by age, sex, and race — Montana, 2012\***

Age (years)	Female					Male					Total
	White	American Indian	Other†	Missing	Total	White	American Indian	Other†	Missing	Total	
0-14	--	--	--	--	--	--	--	--	--	--	--
15-19	3	11	--	1	15	2	3	--	--	5	20
20-24	7	15	1	--	23	3	17	--	1	21	44
25-29	3	9	--	--	12	3	6	1	3	13	25
30-34	1	3	--	--	4	3	--	--	--	3	7
35-39	1	2	--	--	3	--	1	--	--	1	4
≥40	--	1	--	--	1	5	2	--	--	7	8
<b>Total</b>	<b>15</b>	<b>41</b>	<b>1</b>	<b>1</b>	<b>58</b>	<b>16</b>	<b>29</b>	<b>1</b>	<b>4</b>	<b>50</b>	<b>108</b>

\* Race classification is irrespective of ethnicity (Hispanic or non-Hispanic)

† Other includes persons of more than one race, black/African American, and Asian/Pacific Islander

**Figure 14. Gonorrhea incidence rate by age group — Montana, 2012**



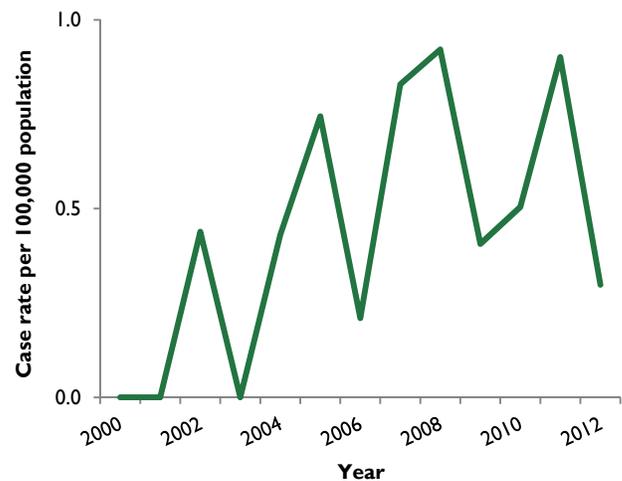
### Syphilis

Syphilis is a genital ulcerative STD caused by the bacterium *Treponema pallidum*. It has often been called "the great imitator" because so many of the signs and symptoms of illness are indistinguishable from those of other diseases. *T. pallidum* is passed from person-to-person through direct contact with a syphilis sore. Infected pregnant women can transmit syphilis to the fetus. Without treatment, *T. pallidum* infection can lead to stillbirth, neonatal death, or infant disorders such as deafness, neurologic impairment, and bone deformities.

Syphilis is characterized into stages for the purposes of treatment and follow-up. Since 2000, 10 or fewer cases of syphilis (all stages) have been reported in Montana each year. In 2012, three syphilis cases were reported compared with nine in 2011. Two cases occurred among males; both were diagnosed at the secondary stage. The female patient was diagnosed at the late latency stage. The two male patients reported having sex with men (MSM). In 2012, Montana's rate of primary and secondary syphilis was 0.3 cases per

100,000 population compared with the U.S. incidence rate in 2011 of 4.5 cases per 100,000 population. Figure 15 displays the fluctuating incidence rate of syphilis in Montana. A syphilis sore can facilitate the transmission of HIV infection, with two to five times increased likelihood of HIV transmission when sores are present.<sup>8</sup> In 2011, three patients were HIV positive at the time of syphilis diagnosis. In 2012, none of the patients were known to be HIV positive.

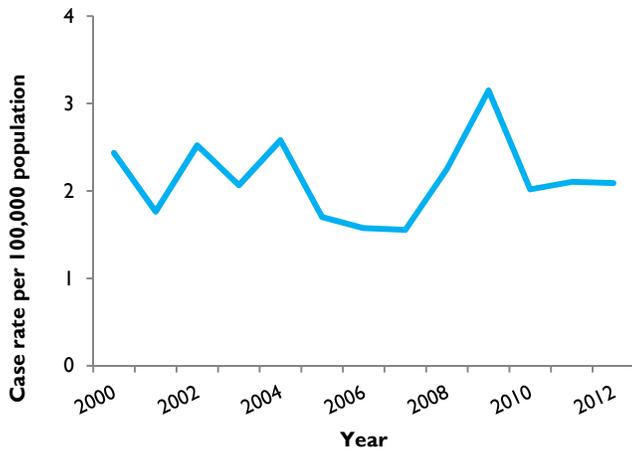
**Figure 15. Syphilis incidence rate — Montana, 2000–2012**



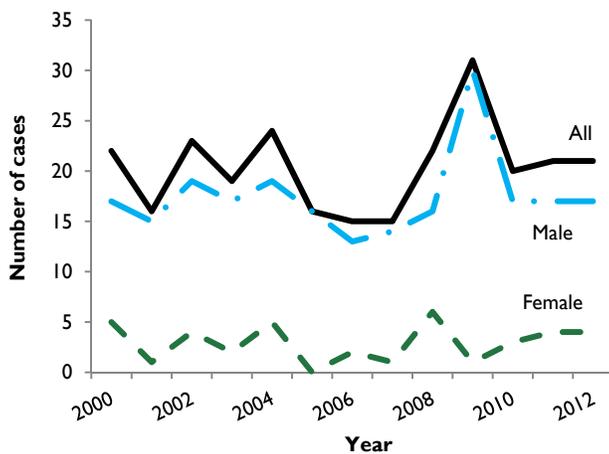
### HIV/AIDS

In 2012, 21 newly diagnosed cases of HIV infection were reported, an incidence rate of 2.1 cases per 100,000 population compared with an estimated U.S. incidence rate of 15.8 cases per 100,000 population in 2011 (Figure 16).<sup>9</sup> During 2000–2012, 15–31 cases of HIV infection were diagnosed each year, predominantly among males (Figure 17).

**Figure 16. Incidence rate of newly diagnosed cases of HIV infection — Montana, 2000–2012**



**Figure 17: Newly diagnosed HIV infections by year and sex — Montana, 2000–2012**



HIV infections in Montana continue to be predominantly diagnosed among white males, with 17 in 2012. Ten (59%) of these reported a risk history of MSM, including one who also reported Injection Drug Use (IDU). Among the four female patients, one reported IDU. Seven patients did not have a risk factor reported. Also noteworthy is that eight (38%) of the 21 cases were diagnosed with AIDS at the same time, or within 30 days of HIV diagnosis, indicating that the person had gone undiagnosed for some time and a need for earlier and regular testing for individuals at risk for HIV infection. Table 4 outlines selected characteristics of the reported cases of newly diagnosed HIV infection for Montana in 2012.

Since 1985, 1,126 HIV cases have been reported to DPHHS. Fifty-eight percent (652) of the cases reported were first diagnosed in Montana. The remaining were diagnosed out-of-state and were reported after returning or moving to Montana. Of the HIV infections

first diagnosed in Montana, over two-thirds resided in one of the seven most populated counties (Yellowstone, Missoula, Gallatin, Flathead, Cascade, Lewis & Clark, and Ravalli) at the time of diagnosis.

As of December 31, 2012, 548 HIV-infected persons were known to be living in Montana. Of those persons living with HIV infection (PLWH) in Montana, 342 (62%) have been diagnosed with AIDS. Eighty-four percent (462) of HIV-infected persons are male and 83% (455) are non-Hispanic white. Approximately 90% of HIV-infected men were identified as (MSM) or (IDU), and nearly 85% of HIV-infected women reported high-risk heterosexual contact or IDU as a risk.

**Table 4. Newly reported persons diagnosed with HIV infection — Montana, 2012\***

Characteristics	Number
<b>Total</b>	21
<b>Sex</b>	
Male	17
Female	4
<b>Disease progression</b>	
HIV only	12
HIV and later AIDS	1
HIV & AIDS diagnosed simultaneously*	8
<b>Age at diagnosis (years)</b>	
13–19	1
20–29	5
30–39	5
40–49	8
50–59	2
<b>Ethnicity, race</b>	
Non-Hispanic, white	15
Non-Hispanic, American Indian	3
Hispanic, any race	1
Non-Hispanic, black/African American	1
Non-Hispanic, other†	1
<b>Exposure category by sex‡</b>	
<b>Male only:</b>	
Male sexual contact w/ another male (MSM)	9
Injection drug use (IDU)	1
MSM & IDU	1
Heterosexual contact§	2
NRR/NIR¶	4
Other**	--
<b>Female only:</b>	
Heterosexual contact§	--
Injection drug use (IDU)	1
NRR/NIR¶	3
Other**	--

\* AIDS diagnosis occurred within 30 days—or one calendar month following HIV diagnosis—or HIV diagnosis occurred any time after AIDS diagnosis

† Non-Hispanic, other is all other races including mixed races

‡ Exposure category describes the combinations of risk factors by which a person may have acquired HIV

§ Heterosexual contact with a person known to have, or to be at high risk for, HIV infection

¶ NRR/NIR includes risk factor not reported or not identified

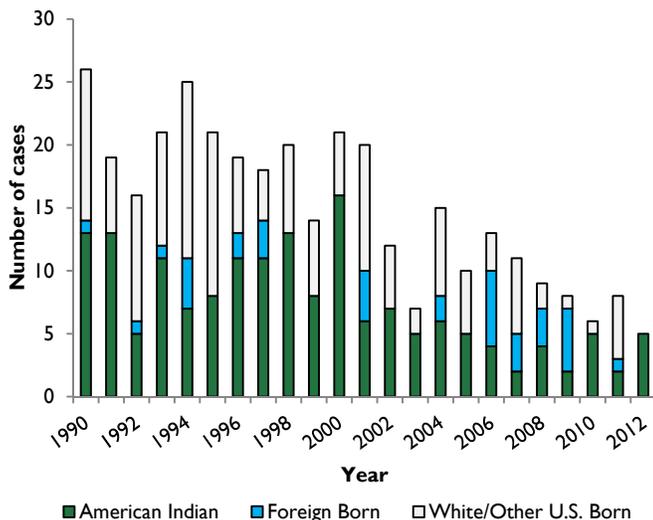
\*\* Other includes hemophilia, blood transfusion, and perinatal exposure

# Tuberculosis

Tuberculosis (TB) is caused by the bacterium *Mycobacterium tuberculosis* and is transmitted person to person through the air when someone with pulmonary TB disease coughs, sneezes, shouts or sings. If *M. tuberculosis* bacilli reach the alveoli of the lung, infection can occur. Persons who become infected with TB can develop active disease at any time during their lifetime. Without treatment of the infection, about 10% of persons with normal immune systems will develop TB disease. The risk is much higher for persons with immunosuppressive conditions such as HIV, diabetes, chronic renal failure, drug or alcohol abuse, and children aged ≤5 years.

Five active cases of TB were reported in Montana in 2012, the fewest ever reported in the state. The 2012 Montana TB incidence rate was 0.5 cases per 100,000 population, significantly lower than the 2012 U.S. case rate of 3.2 per 100,000 (provisional data) (Table 5). The number of TB cases reported annually in Montana has steadily decreased (Figure 18). During the 1990s, an average of 20 cases was reported annually. During 2000–2012, an average of 11 cases per year was reported, with a range of five cases in 2012 to 21 cases in 2001 (Figure 19). TB cases among American Indians have declined from an average of 9.7 cases per year in the 1990s to 5.3 cases per year during 2000–2012. However, TB among foreign-born persons has increased to an average of two cases per year during 2000–2012 compared with one case per year during the 1990s.

**Figure 18. Reported active tuberculosis cases — Montana, 1990–2012**

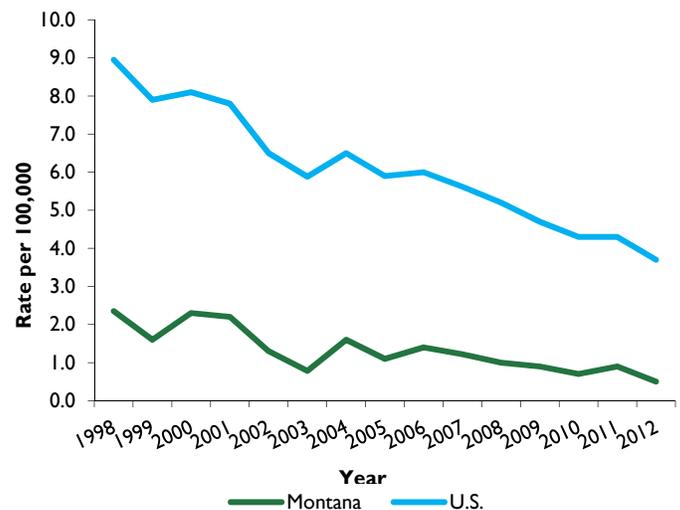


**Table 5. Tuberculosis case summary — Montana, 2012**

Characteristics	Number
<b>New TB Cases</b>	5
<b>Incidence Rates</b>	
Montana (total)	0.5/100,000
American Indian	7.0/100,000
<b>Sex</b>	
Male	3
Female	2
<b>Age at diagnosis (years)</b>	
45–64	3
≥65	2
<b>Ethnicity, race</b>	
Non-Hispanic, White	0
Non-Hispanic, American Indian	5
Other	0
<b>Site of Disease</b>	
Pulmonary*	5
<b>Drug Resistance</b>	
Isoniazid resistant only	1
Multiple-drug resistant	0
<b>County of Residence</b>	
Glacier	1
Lake	1
Rosebud	3
<b>Country of Origin</b>	
U.S.-born	5
Foreign-born	0

\*Includes one case of disseminated disease

**Figure 19. Tuberculosis incidence rate — Montana and United States, 2000–2012**



All five TB cases reported in 2012 were identified as American Indian. Three cases were reported from one local jurisdiction but were not epidemiologically-linked. Of the five cases, two (40%) were previously diagnosed and treated for active TB more than 30 years ago. Two cases were known to have latent TB infection but were

not previously treated preventively and one had an unknown history of latent TB infection. The TB organism isolated from one of the previously treated cases was resistant to isoniazid (INH), a critical first-line TB drug. Since 2000, 4.1% of the total TB cases reported in Montana had single resistance to INH and 1.4% were multidrug-resistant (MDR-TB, resistant to at least isoniazid and rifampin), necessitating strict adherence to using a 4-drug initial treatment regimen regardless of the low number of cases reported annually. Seven pediatric cases (aged <18 years) have been reported since 2000; none were reported in 2012. Pediatric TB cases are considered a sentinel public health event because they provide evidence of recent TB transmission.

Despite the historic low number of TB cases reported in Montana and nationally, a number of challenges remain that slow progress toward the goal of TB elimination. TB persists in specific high-risk populations, including foreign-born persons, racial/ethnic minorities, and homeless persons. Improved diagnostic tools, new drugs that enable shorter, effective treatment of both latent TB infection and active disease, and an effective vaccine are critical for achieving national and global TB elimination.

## **Viral Hepatitis**

### **Hepatitis A**

Hepatitis A virus (HAV) infection is primarily transmitted by the fecal-oral route, either by person-to-person contact or consumption of contaminated food or water. Although viremia occurs early in infection and can persist for several weeks after onset of symptoms, blood borne transmission of HAV is uncommon. In 2012, six cases of acute HAV infection were reported from three counties in Montana. Five patients reported travel outside of the United States prior to onset of symptoms.

### **Hepatitis B**

Hepatitis B virus (HBV) is transmitted through activities that involve percutaneous (puncture through the skin) or mucosal contact with infectious blood or body fluids. Hepatitis B virus infections have decreased significantly over time with increased use of the HBV vaccine. In 2012, two acute and 25 chronic HBV infections were reported in Montana. Both acute cases occurred among males aged >50 years.

### **Hepatitis C**

Hepatitis C virus (HCV) is transmitted through contact with the blood of an infected person, primarily through sharing contaminated needles used to inject drugs, needle stick injuries in healthcare settings, and to infants born to HCV-infected mothers. Hepatitis C virus infection sometimes results in an acute illness that typically occurs 6–7 weeks after exposure, but can range from 6–24 weeks. However, approximately 70–80% of people with acute Hepatitis C do not have symptoms. Approximately 75–85% of those infected with HCV develop chronic disease that can lead to cirrhosis of the liver and liver cancer.

It is estimated that 3.2 million persons in the United States are currently living with past or present HCV infection, the majority of which are 50–70 years of age. Recently revised CDC recommendations include one-time testing of persons born during 1945–1965, regardless of risk history. Persons testing positive for HCV should be screened for susceptibility to HAV and HBV infections and immunized appropriately.<sup>10</sup>

In 2012, 1,251 confirmed cases HCV were reported in Montana. The median age of cases was 46 years (range: 2–80 years). In 2012, the most common age group for newly reported cases of HCV infection was 50–59 years. Of the HCV cases reported, nine (0.7%) cases were acute diagnoses (0.9 case/100,000), the same as in 2011. The acute hepatitis C cases had a median age of 24 years (range: 18–33 years) and six (67%) cases were female.

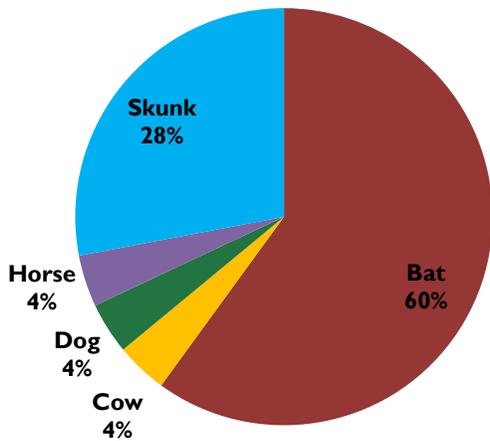
## **Zoonotic and Vector-borne Diseases**

### **Rabies**

Rabies is a vaccine-preventable viral disease that is nearly always fatal and is most often transmitted to humans through the bite of a rabid animal. The vast majority of animal rabies cases reported to DPHHS each year occur among wild animals including skunks and bats. Occasionally domestic animals (e.g., cats, dogs, and horses) are also infected. Human exposure can occur through contact with the saliva of an infected wild or domestic animal. A bite from an infected animal is the most common route of human exposure. Rabies in humans is preventable through prompt and appropriate medical care and use of post-exposure prophylaxis (PEP). Administration of PEP was not reportable to DPHHS in 2012. However, recent updates to the Administrative Rules of Montana (ARM) were completed that will require reporting of PEP to DPHHS beginning in June 2013.

During 2012, 25 animals from 15 counties in Montana tested positive for the rabies virus. Among those animals tested, 15 (11%) of 134 bats, 7 (24%) of 29 skunks, 1 (3%) of 33 cows, 1 (1%) of 100 dogs, and 1 (7%) of 15 horses were positive for rabies virus. The proportion of all positive tests by species is shown in Figure 20. Zero human cases of rabies were reported in 2012.

**Figure 20. Number of positive rabies tests by species — Montana, 2012**

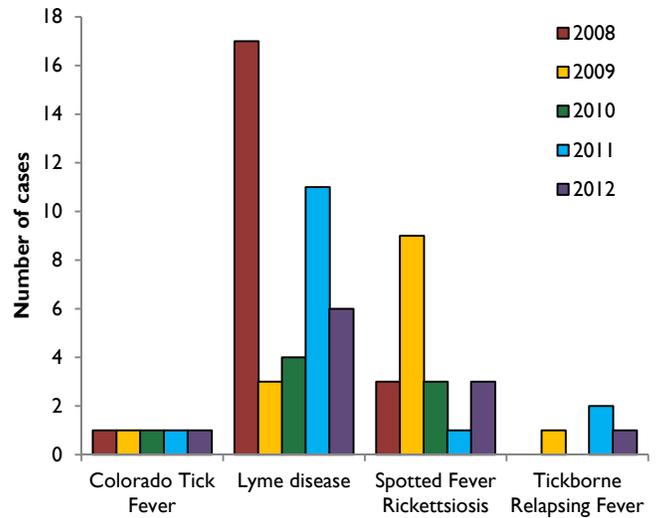


### Tickborne Diseases

Additional vector-borne pathogens present in Montana and transmissible to humans include those that cause Colorado tick fever (*Coltivirus* spp.), Rocky Mountain spotted fever (*Rickettsia rickettsii*), tickborne relapsing fever (*Borrelia hermsii*), tularemia (*Francisella tularensis*), and plague (*Yersinia pestis*). Four cases of tularemia and zero cases of plague were reported in 2012. Seventeen cases of Lyme disease were confirmed in Montana during 2012 (Figure 21); however, these cases were travel associated and acquired out of state. To date, the Lyme disease tick vector (*Ixodes* spp.) has not been detected in Montana.

Precautions should be taken to minimize exposure to ticks, fleas, and deer flies. In addition to vector-borne transmission (e.g., through ticks or fleas), *F. tularensis* and *Y. pestis* can be transmitted through direct contact with blood or tissues from infected wild animals that serve as disease carriers (e.g., rabbits and rodents).

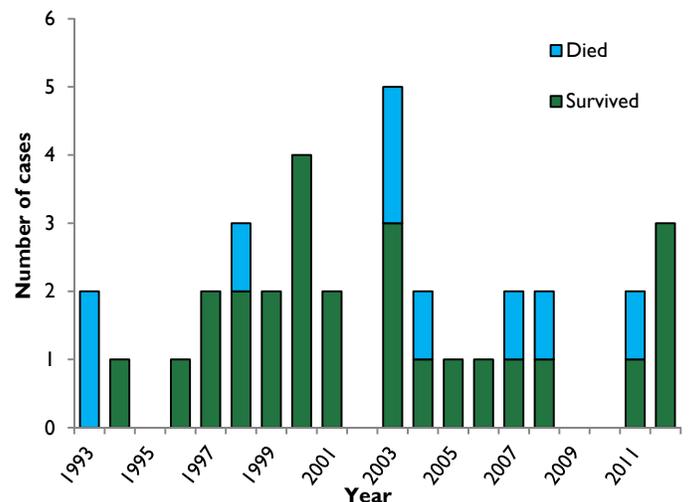
**Figure 21. Reported cases of tickborne diseases — Montana, 2008–2012**



### Hantavirus

Hantavirus is transmitted to humans through exposure to infected rodent tissues or excrement, including dried feces. The rodent hosts that transmit hantavirus to humans are widespread in Montana. Since 1993, Montana has had 35 cases of hantavirus pulmonary syndrome, including nine deaths (Figure 22). Three human cases were reported in Montana in 2012 with no deaths. One of the 2012 cases was infected out of state.

**Figure 22. Reported hantavirus cases and outcome — Montana, 1993–2012**



### West Nile Virus

West Nile virus (WNV) is an arthropod-borne virus (arbovirus) that is transmitted by infected mosquitoes. The majority of persons infected with WNV do not exhibit symptoms. Less than 1% develop West Nile neuroinvasive disease (WNND), a serious and

potentially life-threatening disease. In 2012 5,674 human cases of WNV disease were reported from 976 counties in the United States. Dates of illness onset ranged from March–December.

Six human cases of WNV infection were reported in Montana during 2012. One case of WNND was reported and resulted in death. Cases were reported from Choteau (n=2), Custer (2), Prairie (1), and Richland (1) counties.

Associations have been demonstrated between WNV activity and environmental conditions, such as temperature and rainfall, which commonly fluctuate year-to-year. Environmental and other factors such as animal reservoir populations, contribute to seasonal variability in WNV activity. Therefore, the level of WNV activity during one year is not indicative of WNV activity during subsequent years. While the incidence of WNV disease has decreased in Montana since 2007, appropriate precautions should still be taken to minimize mosquito exposure, especially from the time mosquitoes emerge through the first frost, June–September in Montana. Each summer should be approached with mosquito-bite prevention in mind.

## Healthcare Associated Infections (HAI)

The Montana Healthcare Associated Infection Prevention Initiative (MHAIFI) was established in 2009 and is guided by The Montana HAI Prevention Plan developed in January 2010. During 2009–2012, the MHAIFI created a strong working relationship with the Montana Association of Health Care Providers (MHA) and the Mountain Pacific Quality Health Foundation (MPQH). By the close of 2012, 31 facilities in Montana were using the National Healthcare Safety Network (NHSN). These facilities account for >90% of hospital discharges in the state. Of these, 12 (39%) were inpatient prospective payment facilities, 12 (39%) were dialysis facilities, six (19%) were critical access hospitals, and one (3%) was a long term care facility.

The collaborative effort by the Montana catheter associated urinary tract infections (CAUTI) Learning and Action Network Project has contributed to a decrease in Montana's CAUTI by 24% and urinary catheter utilization rate by 10% compared with baseline calculations from February 2011 in critical and non-critical care facilities combined. The catheter utilization rate in non-critical care facilities in Montana (0.22)

remains slightly higher than the national average (0.17) and is the same in critical care facilities (Table 6). The central line associated bloodstream infection (CLABSI) rate and central line utilization rate in Montana are consistently below the national average in both critical and non-critical care facilities (Table 6).

*Clostridium difficile* is the most common cause of healthcare-associated diarrhea. According to CDC, *C. difficile* incidence rates are at historically high levels in the United States. In Montana, *C. difficile* rates have fluctuated since MPQH started collecting data from facilities participating in the Center for Medicare and Medicaid Services (CMS) Inpatient Quality Reporting Program (Table 7).

A surgical site infection (SSI) occurs following surgery and ranges from superficial to multiple organ involvement. Montana SSI data (not displayed) to determine Standardized Infection Ratios (SIR) are generally unstable due to a low number of total facilities reporting procedure counts to NHSN. The 2011 SSI SIR for colon surgeries and hysterectomies were 0.80 and 0.83, respectively. Data from 2012 will be determined by MPQH in the near future.

**Table 6. Summary CAUTI/CLABSI† and device utilization rate data — United States and Montana, February 2011–March 2013**

	National Critical Care Average (n=11)	Montana Critical Care Average (n=11)	National Non-Critical Care Average (n=11)	Montana Non-Critical Care Average (n=11)
<b>CAUTI*</b>	1.60	1.30	1.50	1.75
<b>Urinary Catheter Utilization Rate**</b>	0.61	0.61	0.17	0.22
<b>CLABSI*</b>	1.10	0.86	0.90	0.40
<b>Central Line Utilization Rate**</b>	0.45	0.17	0.18	0.14

\*Total Number of symptomatic CAUTI/CLABSI per 1000 patient-days; pooled mean

\*\* Total Number of symptomatic CAUTI/CLABSI per 1000 device-days; pooled mean

† CAUTI: catheter associated urinary tract infection; CLABSI: central line associated bloodstream infection

**Table 7. Summary *Clostridium difficile* infection (CDI) rates\* — Montana, July–December 2012**

	July	August	September	October	November	December
<b>No. CDI</b>	5	10	11	9	13	8
<b>No. Patient Days</b>	14588	14454	14186	15366	13663	14398
<b>Rate per 10,000</b>	3.43	6.92	7.75	5.86	9.51	5.56

\* *Clostridium difficile* data collection began July 2012 as part of the CMS Hospital IQR Program

## References

1. Centers for Disease Control and Prevention (CDC). 2012 Nationally Notifiable Infectious Conditions. Available at: <http://wwwn.cdc.gov/NNDSS/script/ConditionList.aspx?Type=0&Yr=2013>
2. National Center for Health Statistics. Bridged-race intercensal estimates of the July 1, 1990-July 1, 1999; July 1, 2000-July 1, 2009. Postcensal estimates of the resident population of the United States for July 1, 2010-July 1 2011. United States resident population by year, county, single-year of age, sex, bridged race, and Hispanic origin, prepared by the U.S. Census Bureau with support from the National Cancer Institute. Available on the Internet at: <http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm> as of April 24, 2004; Oct 26, 2012; July 18, 2012
3. U.S. Census Bureau: State and County QuickFacts. (2012) Available at: <http://quickfacts.census.gov/qfd/states/30000.html>
4. CDC. Pertussis Vaccination: Use of Acellular Pertussis Vaccines Among Infants and Young Children Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997; 46(RR-7). Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/00048610.htm>
5. Cherry, JD. Epidemic Pertussis in 2012 — The Resurgence of a Vaccine-Preventable Disease. The New England Journal of Medicine 367:785-787. Available at: <http://www.nejm.org/doi/full/10.1056/NEJMp1209051>
6. CDC. Update to CDC's Sexually Transmitted Diseases Treatment Guidelines, 2010: Oral Cephalosporins No Longer a Recommended Treatment for Gonococcal Infections. MMWR 2012; 61(31); 590–594. Available at: [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6131a3.htm?s\\_cid=mm6131a3\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6131a3.htm?s_cid=mm6131a3_w)
7. CDC. Sexually Transmitted Disease Surveillance 2011. Atlanta: U.S. Department of Health and Human Services; 2012.
8. CDC. Syphilis — CDC Fact Sheet. Available at: <http://www.cdc.gov/std/syphilis/stdfact-syphilis.htm>.
9. CDC. HIV Surveillance Report, 2011; vol. 23. <http://www.cdc.gov/hiv/topics/surveillance/resources/reports/>; 2013
10. CDC. Testing for HCV Infection: An Update of Guidance for Clinicians and Laboratorians. MMWR 2013; 62(18);362–365. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6218a5.htm>

## Appendix I: Cases and comparative statistics for reportable communicable diseases — Montana, 2012\*†

Condition	2012 cases	5 year median	2012 rate per 100,000
Amebiasis	2	5	0.2
Campylobacteriosis	231	162	23.0
Chlamydia	3834	3078	381.4
Coccidioidomycosis	3	5	0.3
Colorado tick fever	1	1	0.1
Cryptosporidiosis	69	58	6.9
Dengue Fever	2	1	0.2
Giardiasis	67	109	6.7
Gonorrhea	108	101	10.7
Group A <i>Streptococcus</i> , invasive	2	0	0.2
<i>Haemophilus influenzae</i> , invasive	6	3	0.6
Hantavirus pulmonary syndrome	3	2	0.3
Hemolytic uremic syndrome, post-diarrheal	1	1	0.1
Hepatitis A, acute	6	4	0.6
Hepatitis B, chronic	25	3	2.5
Hepatitis B, acute	2	1	0.2
Hepatitis C, chronic	1380	795	137.3
Hepatitis C, acute	9	4	0.9
HIV	21	21	2.1
Legionellosis	4	4	0.4
Listeriosis	1	1	0.1
Lyme disease	6	7	0.6
Meningitis, Bacterial	2	4	0.2
Meningitis, Viral	54	32	5.4
Meningococcal Disease	10	4	1.0
Mumps	1	0	0.1
Pertussis	549	84	54.6
Q fever	2	1	0.2
Rabies, animal	25	18	2.5
Salmonellosis	109	120	10.8
Shiga toxin-producing <i>Escherichia coli</i> (STEC)	44	39	4.4
Shigellosis	11	11	1.1
Spotted Fever Rickettsiosis	3	3	0.3
<i>Streptococcus pneumoniae</i> , invasive	34	22	3.4
Syphilis	3	8	0.3
Tickborne Relapsing Fever	1	0	0.1
Toxic-shock syndrome, staphylococcal	1	0	0.1
Transmissible Spongiform Encephalopathies (TSE)	1	2	0.1
Tuberculosis	5	8	0.5
Tularemia	3	1	0.3
Varicella (Chickenpox)	132	197	13.1
West Nile virus	6	5	0.6
Yersiniosis	3	3	0.3

\* Confirmed and probable cases only. † Conditions for which there were zero (0) cases in 2012 or jurisdictions that reported zero (0) cases for 2012 are not reflected in this table.

## Appendix II: Cases of reportable communicable diseases by disease group and jurisdiction of residence — Montana, 2012

Table I. Case counts of enteric diseases by jurisdiction of residence — Montana, 2012

County/Tribal Jurisdiction	Amebiasis	Campylobacteriosis	Cryptosporidiosis	Giardiasis	HUS*	Listeriosis	Salmonellosis	Shigellosis	STEC†	Yersiniosis
Beaverhead	-	1	-	-	-	1	1	-	-	-
Big Horn/Crow	-	1	2	2	-	-	1	1	-	-
Blaine/Ft. Belknap	-	3	-	-	-	-	1	1	-	-
Broadwater	-	1	-	-	-	-	-	-	1	-
Carbon	-	2	-	-	-	-	1	-	1	-
Carter	-	-	-	-	-	-	-	-	-	-
Cascade	1	15	15	2	-	-	4	-	3	-
Chouteau	-	1	-	1	-	-	-	-	-	-
Custer	-	4	-	2	-	-	2	-	-	-
Daniels	-	-	-	-	-	-	-	-	-	-
Dawson	-	-	-	2	-	-	-	-	-	-
Deer Lodge	-	2	-	1	-	-	-	-	-	-
Fallon	-	-	1	-	-	-	-	-	-	-
Fergus	-	4	-	-	-	-	1	-	2	-
Flathead	-	22	15	8	-	-	6	1	6	2
Gallatin	1	31	5	1	-	-	9	-	9	1
Garfield	-	-	3	-	-	-	-	-	-	-
Glacier/Blackfeet	-	3	1	3	-	-	5	3	2	-
Golden Valley	-	-	-	-	-	-	-	-	-	-
Granite	-	1	1	-	-	-	-	-	-	-
Hill/Rocky Boy	-	4	-	2	-	-	2	-	-	-
Jefferson	-	1	-	-	-	-	1	-	1	-
Judith Basin	-	-	1	-	-	-	1	-	1	-
Lake/CSKT	-	5	1	1	-	-	7	-	2	-
Lewis & Clark	-	22	3	5	-	-	13	-	4	-
Liberty	-	3	-	-	-	-	-	-	-	-
Lincoln	-	14	2	-	-	-	2	-	-	-
Madison	-	4	-	-	-	-	1	-	-	-
McCone	-	-	-	-	-	-	-	-	-	-
Meagher	-	4	2	-	-	-	1	-	-	-
Mineral	-	-	1	-	-	-	1	-	-	-
Missoula	-	15	7	15	-	-	17	1	3	-
Musselshell	-	1	1	-	-	-	-	-	-	-
Park	-	5	1	1	-	-	1	-	-	-
Petroleum	-	-	-	-	-	-	-	-	-	-
Phillips	-	1	-	-	-	-	-	-	-	-
Pondera	-	-	2	-	-	-	-	-	-	-
Powder River	-	1	-	-	-	-	-	-	-	-
Powell	-	2	-	1	-	-	-	-	-	-
Prairie	-	-	-	-	-	-	-	-	-	-
Ravalli	-	1	1	2	-	-	5	-	1	-
Richland	-	1	1	-	-	-	-	-	-	-
Roosevelt/Ft. Peck	-	-	-	-	-	-	-	1	-	-
Rosebud/N. Cheyenne	-	1	-	-	-	-	3	1	-	-
Sanders	-	4	-	-	-	-	-	-	-	-
Sheridan	-	1	1	-	-	-	1	-	-	-
Silver Bow	-	4	-	-	-	-	3	-	1	-
Stillwater	-	2	-	-	-	-	-	-	1	-
Sweet Grass	-	-	-	-	-	-	-	-	-	-
Teton	-	3	-	2	-	-	1	-	-	-
Toole	-	-	-	-	-	-	1	1	1	-
Treasure	-	-	-	-	-	-	-	-	-	-
Valley	-	2	-	-	-	-	3	1	-	-
Wheatland	-	1	-	-	-	-	1	-	-	-
Wibaux	-	2	-	-	-	-	-	-	-	-
Yellowstone	-	27	2	7	1	-	13	-	5	-
<b>TOTAL 2012</b>	<b>2</b>	<b>231</b>	<b>69</b>	<b>67</b>	<b>1</b>	<b>1</b>	<b>109</b>	<b>11</b>	<b>44</b>	<b>3</b>

\*HUS = Hemolytic Uremic Syndrome, post-diarrheal †STEC = Shiga toxin-producing *Escherichia coli*

**Table 2. Case counts of vaccine-preventable diseases by jurisdiction of residence — Montana, 2012**

County/Tribal Jurisdiction	Mumps	Pertussis	Varicella (Chickenpox)
Beaverhead	-	1	2
Big Horn/Crow	-	39	1
Blaine/Ft. Belknap	-	1	4
Broadwater	-	3	-
Carbon	-	-	-
Carter	-	-	-
Cascade	-	19	3
Chouteau	-	-	-
Custer	-	-	6
Daniels	-	-	1
Dawson	-	21	-
Deer Lodge	-	1	-
Fallon	-	-	-
Fergus	-	1	2
Flathead	-	138	25
Gallatin	-	25	6
Garfield	-	-	-
Glacier/Blackfeet	-	17	3
Golden Valley	-	-	1
Granite	-	2	-
Hill/Rocky Boy	-	4	7
Jefferson	-	6	1
Judith Basin	-	-	-
Lake/CSKT	-	15	2
Lewis & Clark	-	47	18
Liberty	-	-	-
Lincoln	-	9	7
Madison	-	-	1
McCone	-	-	-
Meagher	-	-	1
Mineral	-	-	-
Missoula	1	23	9
Musselshell	-	2	1
Park	-	3	8
Petroleum	-	-	-
Phillips	-	-	-
Pondera	-	1	3
Powder River	-	-	-
Powell	-	-	-
Prairie	-	-	-
Ravalli	-	60	1
Richland	-	5	2
Roosevelt/Ft. Peck	-	-	-
Rosebud/N. Cheyenne	-	33	-
Sanders	-	-	3
Sheridan	-	-	-
Silver Bow	-	2	2
Stillwater	-	7	-
Sweet Grass	-	7	-
Teton	-	-	-
Toole	-	-	-
Treasure	-	-	-
Valley	-	1	7
Wheatland	-	-	1
Wibaux	-	-	2
Yellowstone	-	56	2
<b>TOTAL 2012</b>	<b>1</b>	<b>549</b>	<b>132</b>

**Table 3. Case counts of invasive diseases by jurisdiction of residence — Montana, 2012**

County/Tribal Jurisdiction	Group A <i>Streptococcus</i>	<i>Haemophilus influenzae</i> , all serotypes	Meningitis, Bacterial	Meningitis, Viral	Meningococcal Disease	Staphylococcal Toxic Shock Syndrome	<i>Streptococcus pneumoniae</i>	Transmissible Spongiform Encephalopathies (TSE)
Beaverhead	-	-	-	-	-	-	-	-
Big Horn/Crow	1	-	-	4	-	-	3	-
Blaine/Ft. Belknap	-	-	-	1	-	-	1	-
Broadwater	-	-	-	-	-	-	-	-
Carbon	-	-	-	3	-	-	-	-
Carter	-	-	-	-	-	-	-	-
Cascade	-	-	-	1	-	-	-	-
Chouteau	-	-	-	-	-	-	1	-
Custer	-	-	-	1	-	-	-	-
Daniels	-	-	-	-	-	-	-	-
Dawson	-	-	-	-	-	-	-	-
Deer Lodge	-	1	-	-	-	-	-	-
Fallon	-	-	-	-	1	-	-	-
Fergus	-	-	-	-	-	-	1	-
Flathead	-	-	-	5	1	-	-	-
Gallatin	-	2	-	5	1	-	2	-
Garfield	-	-	-	-	-	-	-	-
Glacier/Blackfeet	-	-	-	-	-	-	1	-
Golden Valley	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-
Hill/Rocky Boy	-	-	-	-	1	-	3	-
Jefferson	-	1	-	2	-	-	2	-
Judith Basin	-	-	-	-	-	-	-	-
Lake/CSKT	-	-	-	-	1	-	3	-
Lewis & Clark	-	-	-	4	-	-	3	-
Liberty	1	-	-	-	-	-	-	-
Lincoln	-	-	-	-	-	-	1	-
Madison	-	1	-	1	-	-	1	-
McCone	-	-	-	-	-	-	-	-
Meagher	-	-	-	2	-	-	-	-
Mineral	-	-	-	1	-	-	-	-
Missoula	-	-	-	-	3	1	7	-
Musselshell	-	-	-	1	-	-	-	-
Park	-	-	-	-	-	-	-	-
Petroleum	-	-	-	-	-	-	-	-
Phillips	-	-	-	-	-	-	-	-
Pondera	-	-	-	-	-	-	1	-
Powder River	-	-	-	-	-	-	-	-
Powell	-	-	-	-	-	-	-	-
Prairie	-	-	-	-	-	-	-	-
Ravalli	-	-	-	-	-	-	4	-
Richland	-	-	-	2	-	-	-	-
Roosevelt/Ft. Peck	-	-	-	-	1	-	-	-
Rosebud/N. Cheyenne	-	-	1	2	-	-	-	1
Sanders	-	1	-	1	-	-	-	-
Sheridan	-	-	-	-	-	-	-	-
Silver Bow	-	-	-	1	1	-	-	-
Stillwater	-	-	-	1	-	-	-	-
Sweet Grass	-	-	-	-	-	-	-	-
Teton	-	-	-	-	-	-	-	-
Toole	-	-	-	-	-	-	-	-
Treasure	-	-	-	-	-	-	-	-
Valley	-	-	-	-	-	-	-	-
Wheatland	-	-	-	-	-	-	-	-
Wibaux	-	-	-	-	-	-	-	-
Yellowstone	-	-	1	16	-	-	-	-
<b>TOTAL 2012</b>	<b>2</b>	<b>6</b>	<b>2</b>	<b>54</b>	<b>10</b>	<b>1</b>	<b>34</b>	<b>1</b>

**Table 4. Case counts of sexually transmitted diseases by jurisdiction of residence — Montana, 2012**

County/Tribal Jurisdiction	Chlamydia	Gonorrhea	Syphilis	HIV
Beaverhead	45	-	-	-
Big Horn/Crow	153	2	1	-
Blaine/Ft. Belknap	51	6	-	-
Broadwater	6	-	-	-
Carbon	20	1	-	-
Carter	1	-	-	-
Cascade	417	3	-	-
Chouteau	3	-	-	-
Custer	31	-	-	-
Daniels	1	-	-	-
Dawson	26	-	-	-
Deer Lodge	23	-	-	-
Fallon	13	-	-	-
Fergus	15	-	-	-
Flathead	241	1	-	1
Gallatin	326	3	1	1
Garfield	-	-	-	-
Glacier/Blackfeet	154	1	-	-
Golden Valley	2	-	-	-
Granite	3	-	-	-
Hill/Rocky Boy	265	2	-	-
Jefferson	16	-	-	-
Judith Basin	2	-	-	-
Lake/CSKT	159	13	-	1
Lewis & Clark	170	-	-	-
Liberty	8	-	-	-
Lincoln	51	-	-	1
Madison	6	-	-	-
McCone	4	-	-	-
Meagher	-	-	-	-
Mineral	14	-	-	-
Missoula	439	12	-	6
Musselshell	5	-	-	-
Park	16	-	-	-
Petroleum	-	-	-	-
Phillips	5	-	-	-
Pondera	2	-	-	-
Powder River	2	-	-	-
Powell	17	-	-	-
Prairie	1	-	-	-
Ravalli	71	-	-	-
Richland	49	-	-	-
Roosevelt/Ft. Peck	163	44	-	1
Rosebud/N. Cheyenne	68	5	-	1
Sanders	16	-	-	-
Sheridan	6	-	-	-
Silver Bow	100	-	-	-
Stillwater	17	-	-	-
Sweet Grass	4	-	-	-
Teton	6	-	-	-
Toole	8	-	-	-
Treasure	1	-	-	-
Valley	22	-	-	-
Wheatland	4	-	-	-
Wibaux	-	-	-	-
Yellowstone	586	15	1	9
<b>TOTAL 2012</b>	<b>3834</b>	<b>108</b>	<b>3</b>	<b>21</b>

**Table 5. Case counts of viral hepatitis by jurisdiction of residence — Montana, 2012**

County/Tribal Jurisdiction	Hepatitis A, Acute	Hepatitis B, Acute	Hepatitis B, Chronic*	Hepatitis C, Acute	Hepatitis C, Chronic*
Beaverhead	-	-	-	-	12
Big Horn/Crow	-	-	-	-	17
Blaine/Ft. Belknap	-	-	-	-	8
Broadwater	-	-	-	-	5
Carbon	-	-	-	-	10
Carter	-	-	-	-	-
Cascade	-	-	2	-	111
Chouteau	-	-	-	-	4
Custer	-	-	-	-	7
Daniels	-	-	-	-	-
Dawson	-	-	-	-	5
Deer Lodge	-	-	-	-	7
Fallon	-	-	-	-	-
Fergus	-	-	-	-	8
Flathead	-	-	3	-	95
Gallatin	2	-	5	-	81
Garfield	-	-	-	-	1
Glacier/Blackfeet	-	-	-	1	73
Golden Valley	-	-	-	-	-
Granite	-	-	-	-	1
Hill/Rocky Boy	-	-	-	3	30
Jefferson	-	-	-	-	4
Judith Basin	-	-	-	-	1
Lake/CSKT	-	-	-	-	30
Lewis & Clark	3	-	-	-	75
Liberty	-	-	-	-	-
Lincoln	-	-	1	1	25
Madison	-	-	-	-	3
McCone	-	-	-	-	2
Meagher	-	-	-	-	2
Mineral	-	-	-	-	3
Missoula	-	2	6	1	130
Musselshell	-	-	-	-	5
Park	-	-	1	-	23
Petroleum	-	-	-	-	-
Phillips	-	-	-	-	5
Pondera	-	-	-	-	4
Powder River	-	-	-	-	2
Powell/MSP	-	-	-	-	64
Prairie	-	-	-	-	1
Ravalli	-	-	-	-	29
Richland	-	-	-	-	4
Roosevelt/Ft. Peck	-	-	-	-	99
Rosebud/N. Cheyenne	-	-	1	-	15
Sanders	-	-	-	-	13
Sheridan	-	-	-	-	-
Silver Bow	-	-	1	-	81
Stillwater	-	-	-	-	9
Sweet Grass	-	-	-	-	1
Teton	-	-	-	-	5
Toole	-	-	-	-	6
Treasure	-	-	-	-	-
Valley	-	-	-	-	6
Wheatland	-	-	-	-	1
Wibaux	-	-	-	-	-
Yellowstone	1	-	5	3	256
<b>TOTAL 2012</b>	<b>6</b>	<b>2</b>	<b>25</b>	<b>9</b>	<b>1380</b>

\*Counts are confirmed and probable cases that were newly reported to DPHHS in 2012.

**Table 6. Case counts of zoonotic and vector-borne diseases by jurisdiction of residence — Montana, 2012**

County/Tribal Jurisdiction	Colorado Tick Fever	Hantavirus Pulmonary Syndrome	Q Fever	Rabies, Animal	Spotted Fever Rickettsiosis	Tickborne Relapsing Fever	Tularemia	West Nile
Beaverhead	-	-	-	-	-	-	-	-
Big Horn/Crow	-	-	-	3	-	-	-	-
Blaine/Ft. Belknap	-	-	-	-	-	-	-	-
Broadwater	-	-	-	-	-	-	-	-
Carbon	-	-	-	-	-	-	-	-
Carter	-	-	-	3	-	-	-	-
Cascade	-	2	-	3	2	-	-	-
Chouteau	-	-	-	-	-	-	-	2
Custer	-	-	-	1	-	-	-	2
Daniels	-	-	-	-	-	-	-	-
Dawson	-	-	-	1	-	-	-	-
Deer Lodge	-	-	-	-	-	-	-	-
Fallon	-	-	-	-	-	-	-	-
Fergus	-	-	-	-	-	-	-	-
Flathead	-	-	-	1	-	1	-	-
Gallatin	-	-	-	-	-	-	-	-
Garfield	-	-	-	-	-	-	-	-
Glacier/Blackfeet	-	-	-	-	-	-	-	-
Golden Valley	-	-	-	-	-	-	-	-
Granite	-	-	-	-	-	-	-	-
Hill/Rocky Boy	-	-	-	-	-	-	-	-
Jefferson	-	-	-	-	-	-	-	-
Judith Basin	-	-	-	-	-	-	-	-
Lake/CSKT	-	-	-	2	-	-	1	-
Lewis & Clark	-	-	-	1	-	-	-	-
Liberty	-	-	-	-	-	-	-	-
Lincoln	-	-	-	1	-	-	-	-
Madison	-	-	-	-	-	-	-	-
McCone	-	-	-	-	-	-	-	-
Meagher	-	-	-	-	-	-	-	-
Mineral	-	-	-	2	-	-	-	-
Missoula	1	-	-	1	-	-	-	-
Musselshell	-	-	-	-	-	-	-	-
Park	-	-	-	-	-	-	-	-
Petroleum	-	-	-	-	-	-	-	-
Phillips	-	-	-	-	-	-	-	-
Pondera	-	-	-	-	-	-	-	-
Powder River	-	-	-	-	-	-	-	-
Powell	-	-	-	-	-	-	-	-
Prairie	-	-	-	-	-	-	-	1
Ravalli	-	1	-	1	-	-	-	-
Richland	-	-	-	-	-	-	-	1
Roosevelt/Ft. Peck	-	-	-	-	-	-	-	-
Rosebud/N. Cheyenne	-	-	-	2	-	-	1	-
Sanders	-	-	-	-	-	-	1	-
Sheridan	-	-	-	-	-	-	-	-
Silver Bow	-	-	-	-	-	-	-	-
Stillwater	-	-	-	-	-	-	-	-
Sweet Grass	-	-	-	-	-	-	-	-
Teton	-	-	2	-	1	-	-	-
Toole	-	-	-	-	-	-	-	-
Treasure	-	-	-	-	-	-	-	-
Valley	-	-	-	-	-	-	-	-
Wheatland	-	-	-	2	-	-	-	-
Wibaux	-	-	-	-	-	-	-	-
Yellowstone	-	-	-	1	-	-	-	-
<b>TOTAL 2012</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>25</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>6</b>

**Table 7. Case counts of tuberculosis by jurisdiction of residence — Montana, 2012**

County/Tribal Jurisdiction	Tuberculosis
Beaverhead	-
Big Horn/Crow	-
Blaine/Ft. Belknap	-
Broadwater	-
Carbon	-
Carter	-
Cascade	-
Chouteau	-
Custer	-
Daniels	-
Dawson	-
Deer Lodge	-
Fallon	-
Fergus	-
Flathead	-
Gallatin	-
Garfield	-
Glacier/Blackfeet	1
Golden Valley	-
Granite	-
Hill/Rocky Boy	-
Jefferson	-
Judith Basin	-
Lake/CSKT	1
Lewis & Clark	-
Liberty	-
Lincoln	-
Madison	-
McCone	-
Meagher	-
Mineral	-
Missoula	-
Musselshell	-
Park	-
Petroleum	-
Phillips	-
Pondera	-
Powder River	-
Powell	-
Prairie	-
Ravalli	-
Richland	-
Roosevelt/Ft. Peck	-
Rosebud/N. Cheyenne	3
Sanders	-
Sheridan	-
Silver Bow	-
Stillwater	-
Sweet Grass	-
Teton	-
Toole	-
Treasure	-
Valley	-
Wheatland	-
Wibaux	-
Yellowstone	-
<b>TOTAL 2012</b>	<b>5</b>

**Table 8. Case counts of travel-associated diseases by jurisdiction of residence — Montana, 2012**

County/Tribal Jurisdiction	Coccidioidomycosis	Dengue Fever	Legionellosis	Lyme Disease
Beaverhead	-	-	-	-
Big Horn/Crow	-	-	-	-
Blaine/Ft. Belknap	-	-	-	-
Broadwater	-	-	-	-
Carbon	-	-	-	-
Carter	-	-	-	-
Cascade		-	-	-
Chouteau	-	-	-	-
Custer	-	-	-	
Daniels	-	-	-	-
Dawson	-	-	-	-
Deer Lodge	-	-	-	-
Fallon	-	-	-	-
Fergus	-	-	-	-
Flathead	-	-	-	
Gallatin		-	-	
Garfield	-	-	-	-
Glacier/Blackfeet	-	-	-	-
Golden Valley	-	-	-	-
Granite	-	-	-	-
Hill/Rocky Boy	-	-	-	-
Jefferson	-	-	-	-
Judith Basin	-	-	-	-
Lake/CSKT	-	-	-	-
Lewis & Clark	-	-	-	
Liberty	-	-	-	-
Lincoln	-	-	-	-
Madison	-	-		-
McCone	-	-	-	-
Meagher	-	-	-	-
Mineral	-	-	-	-
Missoula	-	2		
Musselshell	-	-	-	-
Park	-	-	-	-
Petroleum	-	-	-	-
Phillips	-	-	-	-
Pondera	-	-	-	-
Powder River	-	-	-	-
Powell		-	-	-
Prairie	-	-	-	-
Ravalli	-	-		-
Richland	-	-	-	-
Roosevelt/Ft. Peck	-	-	-	-
Rosebud/N. Cheyenne	-	-	-	
Sanders	-	-	-	-
Sheridan	-	-	-	-
Silver Bow	-	-	-	-
Stillwater	-	-	-	-
Sweet Grass	-	-	-	-
Teton	-	-	-	-
Toole	-	-	-	-
Treasure	-	-	-	-
Valley	-	-	-	-
Wheatland	-	-	-	-
Wibaux	-	-	-	-
Yellowstone	-	-		-
<b>TOTAL 2012</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>6</b>

## Appendix III: Montana Demographic Profile 2012

The state of Montana is a geographically large state with a small population. It is the fourth largest state by area in the United States with just over one million residents. There are 51 public health jurisdictions (50 individual counties and one health district composed of six rural counties) as well as seven tribal areas within the state. Over one quarter of the population resides in areas where the population density is categorized as “frontier.” Approximately 60% of all case reports of reportable diseases for Montana are submitted from six counties, all with populations  $\geq 50,000$  residents<sup>1</sup>.

<u>Characteristic</u>	<u>Population</u> 1,005,141	<u>Percent</u>
<b><u>Geographic Classification</u></b>		
Urban	151,882	15.1
Rural	566,457	56.4
Frontier	286,802	28.5
<b><u>Sex</u></b>		
Male	504,949	50.2
Female	500,192	49.8
<b><u>Age Group (years)</u></b>		
<1	11,884	1.2
1-4	49,080	4.9
5-14	123,272	12.3
15-24	136,258	13.6
25-39	181,428	18.1
40-64	344,930	34.8
65+	158,289	15.7
<b><u>Race</u></b>		
White	915,857	91.1
American Indian	71,293	7.1
African American	8,849	0.9
Asian	9,142	0.9
<b><u>Ethnicity</u></b>		
Non-Hispanic	973,589	96.9
Hispanic	31,552	3.1

<sup>1</sup> The Montana Infectious Disease Information System (MIDIS) generated report of 2008-2012 data. The six counties are Yellowstone, Flathead, Missoula, Gallatin, Lewis and Clark, and Cascade.

<sup>2</sup> Based on 2012 population estimates from the National Center for Health Statistics. Bridged-race intercensal estimates of the July 1, 1990-July 1, 1999; July 1, 2000-July 1, 2009. Postcensal estimates of the resident population of the United States for July 1, 2010-July 1, 2012. United States resident population by year, county, single-year of age, sex, bridged race, and Hispanic origin. Prepared by the U.S. Census Bureau with support from the National Cancer Institute. Available on the Internet at: <http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm> as of April 24, 2004; Oct 26, 2012; June 13, 2013

## Appendix IV: Diseases Reportable to Montana DPHHS, 2012

Montana health care providers are required to report cases of the following conditions to their local health department.\* This reporting falls within HIPAA medical privacy exceptions for release of information. Reporting patients with the conditions below does not require patient consent. Reporting enables public health officials to conduct follow-up on cases of significance, and to identify outbreaks or emerging health concerns.

AIDS / HIV Infection	Lymphogranuloma venereum
Amebiasis	Malaria
Anthrax	Measles (rubeola)
Botulism (including infant botulism)	Meningitis, bacterial or viral
Brucellosis	Mumps
Campylobacter enteritis	Ornithosis (psittacosis)
Chancroid	Pertussis (whooping cough)
Chickenpox (varicella)	Plague
Chlamydia genital infection	Poliomyelitis
Cholera	Q fever
Colorado Tick Fever	Rabies or suspected human exposure
Cryptosporidiosis	Reye's Syndrome
Cytomegaloviral illness	Rocky Mountain Spotted Fever
Diarrheal disease outbreak	Rubella (including congenital)
Diphtheria	Salmonellosis
<i>E. coli</i> enteritis, e.g., <i>E. coli</i> O157:H7	Severe Acute Respiratory Syndrome (SARS)
Encephalitis	Shigellosis
Gastroenteritis epidemic, food-borne illness	Smallpox
Giardiasis	<i>Streptococcus pneumoniae</i> invasive disease
Gonococcal infection	Syphilis
Granuloma inguinale	Tetanus
<i>Haemophilus influenzae</i> B invasive disease	Tick-borne relapsing fever
Hansen's disease (leprosy)	Transmissible Spongiform Encephalopathies (e.g., Creutzfeldt-Jakob Disease)
Hantavirus Pulmonary Syndrome	Trichinosis
Hemolytic Uremic Syndrome	Tuberculosis
Hepatitis A, B and C (acute & chronic)	Tularemia
Influenza	Typhoid Fever
Kawasaki disease	Viral Hemorrhagic Fever
Lead poisoning ( $\geq 10$ ug/dl)	Yellow Fever
Legionellosis	Yersiniosis
Listeriosis	
Lyme disease	

*Illness in a foreign traveler*  
*Any unusual illness or cluster of illnesses*

An up to date list of Reportable Diseases in Montana is maintained on our website. To view the current list, please visit:  
<http://www.dphhs.mt.gov/publichealth/cdepi/reporting/index.shtml>

\*Specific requirements related to reporting, investigation and control of specific conditions are found in the Administrative Rules of Montana  
<http://www.mtrules.org/gateway/Subchapterhome.asp?scn=37%2E114%2E2>