MONTANA PUBLIC HEALTH

September, 2012
Vol.7, Issue 9
http://www.dphhs.mt.gov/publichealth

PREVENTION OPPORTUNITIES UNDER THE BIG SKY

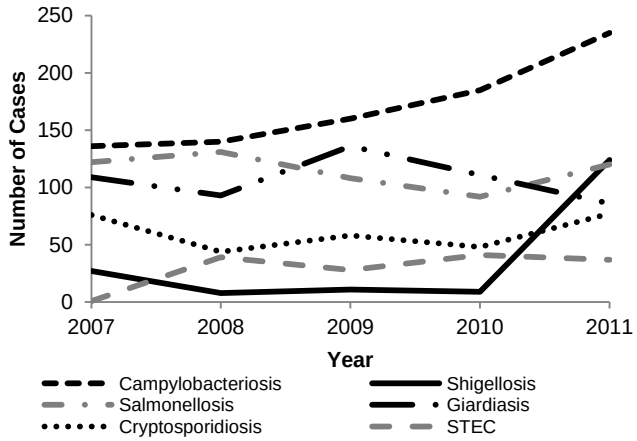
2011 Communicable Disease Summary

This report summarizes selected reportable communicable diseases in Montana for 2011. These reportable conditions have met the 2011 case definitions provided by the Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists (CSTE).[1] Disease counts by jurisdiction are found in Tables 1–2.

ENTERIC DISEASES

Campylobacteriosis, shigellosis, salmonellosis, giardiasis, cryptosporidiosis, and shiga-toxin producing *Escherichia coli* (STEC) infection are the most frequently reported non-viral diarrheal diseases in Montana (Figure 1). Cases of campylobacteriosis and shigellosis have increased since 2007. The increase in shigellosis in 2011 includes cases from two separate outbreaks. The rise in reported campylobacteriosis may be attributed in part to solicitation of isolates for pulsed field gel electrophoresis (PFGE) testing by the Montana Public Health Laboratory. This was in response to a multistate campylobacteriosis outbreak associated with a contaminated water source in Montana in 2010. PFGE separates large molecules of DNA and describes patterns of DNA fragments from bacterial isolates that can be used to link cases to an outbreak.

Figure 1. Reported enteric diseases, Montana, 2007-2011



Source: DPHHS Communicable Disease Control and Prevention Bureau

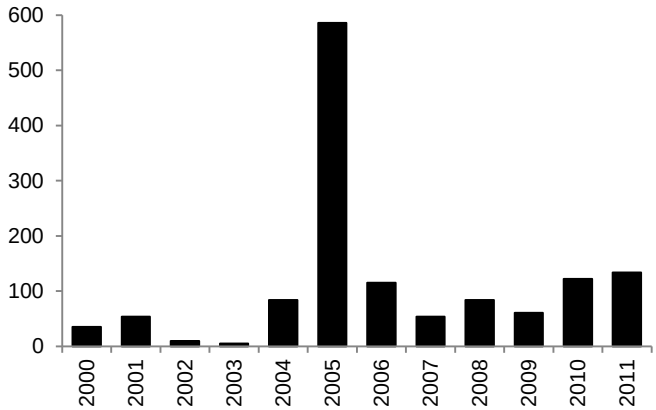
Forty-four clusters of gastroenteritis were reported in 2011. Norovirus was identified or suspected as the causative agent in 19 reported clusters. Clusters of STEC, *Salmonella*, and *Shigella* infections with matched PFGE results were identified in 2011. Among the four clusters of PFGE-matched STEC, three had PFGE patterns that matched national outbreak investigations. *Salmonella* PFGE results identified clusters which included cases that matched multistate outbreaks. Two outbreaks of shigellosis were identified through *Shigella* PFGE results. The investigations attributed transmission to person-to-person contact.

Listeriosis, a serious foodborne illness caused by *Listeria monocytogenes*, primarily affects immunocompromised persons. Zero to three cases of listeriosis have been reported annually in Montana since 2002. In 2011, three cases, including one death, were reported. Two of these were identified as cases in a multistate outbreak of listeriosis linked to cantaloupe from a farm in Colorado.

PERTUSSIS

In 2005, a pertussis outbreak occurred in Montana with 586 reported cases; the highest incidence rate in the nation that year (62.7/100,000 population). A substantial decrease in the number of reported cases occurred from 2006-2010, averaging 87 cases per year (Figure 2). In 2011, 134 cases were reported (13.4/100,000 population) with over 62% of those cases occurring in three counties. In late November, Gallatin County experienced a school-based outbreak that resulted in 41 confirmed or epi-linked cases within a three week time period.

Figure 2. Reported pertussis cases, Montana 2000–2011



Source: DPHHS Communicable Disease Control and Prevention Bureau

Table 1. Case Counts for Selected Reportable Communicable Diseases by Jurisdiction of Residence, Montana 2011[1,2,3]

	Campylobacteriosis	*Chlamydia*	Coccidioidomycosis	Cryptosporidiosis	Giardiasis	Gonorrhea	HIV/AIDS	Hepatitis B, Chronic	Hepatitis C, Acute	Lyme Disease	Meningitis, Viral	Pertussis	Q Fever	Rabies, Animal	STEC[4]	Salmonellosis	Shigellosis	*Streptococcus pneumoniae*, invasive	Syphilis	Tuberculosis	Varicella
Beaverhead	0	10	0	0	1	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	2
Big Horn/Crow	2	115	0	0	1	1	0	0	0	0	1	0	0	5	0	3	2	0	0	0	0
Blaine/Ft. Belknap	2	50	0	1	0	1	0	0	0	0	0	0	0	0	2	2	10	0	0	0	1
Broadwater	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0
Carbon	1	7	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Cascade	13	403	0	11	5	7	3	1	1	0	0	0	4	0	4	14	5	1	0	0	3
Chouteau	0	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Custer	2	31	0	2	1	1	0	0	0	1	0	2	0	0	0	1	0	0	0	0	18
Daniels	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dawson	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Deer Lodge	0	29	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0
Fallon	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fergus	5	24	0	0	1	2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
Flathead	25	287	0	20	16	4	0	1	0	1	7	21	0	1	0	4	2	1	0	0	19
Gallatin	36	276	0	2	10	3	1	2	0	3	0	49	0	1	5	19	5	0	0	1	16
Garfield	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glacier/Blackfeet	6	123	1	0	1	1	0	1	0	0	1	0	1	0	5	3	44	0	1	0	1
Golden Valley	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Granite	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hill/Rocky Boy	2	191	0	1	2	0	0	0	0	0	0	0	0	1	1	2	47	1	0	0	2
Jefferson	0	10	1	0	0	0	1	0	0	0	0	1	0	1	1	1	0	0	0	0	3
Judith Basin	4	0	0	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Lake/CSKT	9	158	0	2	2	3	2	0	0	1	0	18	0	0	1	0	1	1	0	1	2
Lewis & Clark	14	139	0	3	7	4	0	1	0	1	2	14	6	0	4	5	1	11	0	2	4
Liberty	1	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Lincoln	9	34	0	5	0	0	0	0	7	1	0	0	0	1	0	1	0	2	0	0	37
Madison	3	4	0	3	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0
McCone	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meagher	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
Mineral	0	8	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Missoula	29	382	0	14	14	10	6	6	0	2	0	9	0	0	2	13	2	0	4	0	8
Musselshell	1	10	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
Park	4	18	0	0	2	1	0	0	0	0	0	5	0	0	0	1	0	0	0	1	3
Petroleum	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phillips	2	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Pondera	1	9	0	2	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3
Powder River	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Powell	0	11	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
Prairie	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ravalli	8	77	0	2	6	0	1	2	0	0	0	3	0	1	1	4	0	2	0	0	1
Richland	0	33	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	20
Roosevelt/Ft. Peck	4	136	1	0	0	12	0	0	0	0	4	0	0	0	0	0	0	0	0	1	2
Rosebud/N. Cheyenne	2	65	0	0	1	0	0	0	0	0	0	3	0	2	0	3	1	0	0	0	0

	Campylobacteriosis	*Chlamydia*	Coccidioidomycosis	Cryptosporidiosis	Giardiasis	Gonorrhea	HIV/AIDS	Hepatitis B, Chronic	Hepatitis C, Acute	Lyme Disease	Meningitis, Viral	Pertussis	Q Fever	Rabies, Animal	STEC[4]	Salmonellosis	Shigellosis	*Streptococcus pneumoniae*, invasive	Syphilis	Tuberculosis	Varicella
Sanders	3	12	1	1	2	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	7
Sheridan	0	4	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Silver Bow	5	93	0	0	0	5	1	1	0	0	0	0	0	0	1	3	0	1	1	0	1
Stillwater	2	17	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Sweet Grass	0	6	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Teton	2	9	0	1	0	0	0	0	0	0	0	0	2	0	2	1	0	0	0	0	4
Toole	0	10	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1
Treasure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Valley	1	13	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	3
Wheatland	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0
Wibaux	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellowstone	18	554	1	1	5	20	6	6	0	0	14	9	1	4	3	10	2	0	0	1	0
TOTAL	235	3406	5	77	87	85	21	24	9	11	32	134	15	18	37	120	124	22	7	8	163

[1] This table reflects confirmed and probable selected reportable conditions for the state of Montana by jurisdiction of residence. The full table can be viewed online at http://www.dphhs.mt.gov/publichealth/cdepi/surveillance/index.shtml
[2] Conditions for which there were zero (0) cases in 2011 or jurisdictions that reported zero (0) cases for 2011 are not reflected in this report.
[3]Data Source: DPHHS Communicable Disease Control and Prevention Bureau
[4] STEC = Shiga Toxin-Producing *Escherichia coli*

Table 2. Communicable Diseases with Less than Five Reported Cases, Montana 2011[1]

	Amebiasis	Creutzfeldt-Jakob Disease (CJD)	Colorado Tick Fever	Group A *Streptococcus*, invasive	Hemolytic Uremic Syndrome	*Haemophilus influenzae*	Hantavirus Pulmonary Syndrome	Hepatitis A, Acute	Kawasaki Disease	Legionellosis	Listeriosis	Malaria	Meningitis, Bacterial	Meningococcal Disease	Rocky Mountain Spotted Fever	Toxic Shock Syndrome	Tickborne Relapsing Fever	Tularemia	West Nile	Yersiniosis
Number of Cases	2	4	1	3	1	3	2	3	1	1	3	2	4	4	1	1	2	3	1	4

[1]Source: DPHHS Communicable Disease Control and Prevention Bureau

Q FEVER

In 2011, two outbreaks of Q fever were detected in Montana.[2] *Coxiella burnetii* is the causative agent of Q fever, an endemic enzootic pathogen in the United States. Goats, sheep, and cattle are the most common animal reservoirs. Q fever can cause life-threatening illness, but often goes unrecognized and unreported. During 2001–2010 in Montana, only three cases of acute Q fever were reported while in 2011, fifteen cases of acute Q fever were reported in two separate outbreaks. One outbreak was associated with the interstate sale of infected goats and resulted in the identification of nine cases of acute Q fever in Cascade, Teton and Yellowstone counties (11 additional cases were identified in Washington State residents). Another outbreak of acute Q fever associated with an office building in Lewis and Clark County resulted in the identification of three cases; a definite source could not be determined. Of the remaining three cases reported in 2011, one was likely from tickborne transmission and two had an unknown source of illness.

HIV/AIDS

In 2011, 21 Montana residents (17 male, 4 female) were reported with newly diagnosed HIV infection. Six of the cases were simultaneously diagnosed with HIV and AIDS, indicating a need for earlier and regular testing for individuals at risk for HIV infection. The majority of these cases reported male-male sexual contact (MSM) and/or injection drug use (IDU) as a risk-exposure.

In November 2011-January 2012, a cluster of six newly-diagnosed HIV cases and one case not associated with the cluster was reported in Missoula County. These new HIV cases reported MSM as their risk-exposure. The investigation by the Missoula City County Health Department found inconsistent use of safe sex practices and lack of regular HIV testing among those individuals. The identification of this cluster further highlights the need for high-risk group individuals to practice safe sex and regularly test for HIV infection.

As of December 31, 2011, five hundred twenty-nine HIV-infected persons were known to be living in Montana. Eighty-five percent of these were male. Nearly 90% of HIV-infected men reported having MSM and/or IDU as a risk-exposure, and nearly 85% of HIV-infected women reported high-risk heterosexual contact or IDU as a risk exposure.

GONORRHEA

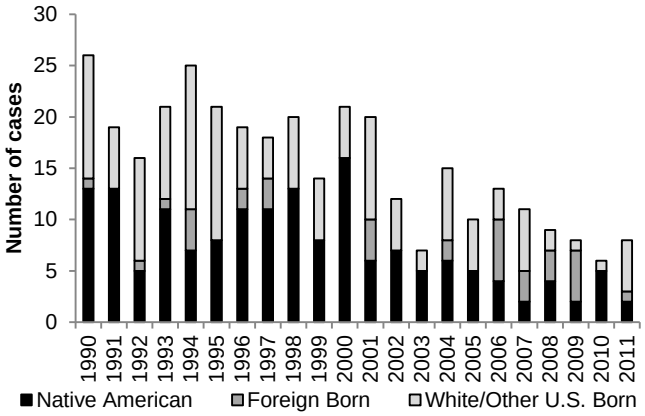
Since 2002, 80 to 191 gonorrhea cases have been reported in Montana each year. In 2011, eighty-five cases were reported (8.5 cases/100,000 population), a 17.5% decrease from the 103 cases reported in 2010. Nearly half (43.5%) of gonorrhea cases reported in 2011 were diagnosed between September 1 and December 31. Twelve cases during that period were reported from Roosevelt County which had an incidence rate for the year of 114 cases/100,000 population. Of additional concern is the antimicrobial resistance *Neisseria gonorrhoeae* has developed over the years. The 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."[3]

TUBERCULOSIS

The number of tuberculosis (TB) cases reported annually in Montana has steadily decreased. During the 1990s, an average of 20 cases was reported annually. Since 2000, an average of 12 cases/year was reported, with eight cases in 2011 (Figure 3). TB cases among Native Americans have declined from an average of ten cases/year in the 1990s to five cases/year since 2000. TB among foreign-born persons, however, has increased to an average of three cases/year since 2000 compared to one case/year in the 1990s. The 2011 TB case rate in Montana was 0.8 per 100,000 population, well below the 2011 national TB case rate (provisional data) of 3.4/100,000 population.

Of the eight TB cases reported in 2011, six were diagnosed with latent tuberculosis infection previously, but had not been prescribed or had not completed treatment to reduce the risk of developing disease. At least two cases had significant delay in diagnosis of disease. There were no pediatric cases reported in 2011; there had been one in each of the three previous years. While no drug resistance was present in 2011 cases, 3.6% of the cases reported in the last decade in Montana had single resistance to isoniazid (INH) and 0.9% were multidrug resistant (MDR, resistant to at least isoniazid and rifampin and no previous history of TB). Nationally, 7.8% of cases are resistant to INH and 1% are MDR.

Figure 3. Reported active tuberculosis cases, Montana, 1991–2011



Source: DPHHS Communicable Disease Control and Prevention Bureau

DPHHS recommends health care providers submit timely, complete case reports for reportable conditions. This ensures appropriate targeting of public health interventions and meaningful analysis to determine disease burden.

Prepared by the DPHHS Communicable Disease Epidemiology Program. For more information, contact (406) 444-0273.

References:

1. Centers for Disease Control and Prevention (CDC). 2011 Case Definitions: Nationally Notifiable Conditions Infectious and Non-Infectious Cases. 2011.
2. Montana DPHHS Communicable Disease Program. Q Fever in Montana. CD Epidemiology Surveillance Snapshot, 2012.
3. Centers for Disease Control and Prevention (CDC). Update to CDC Sexually Transmitted Disease Treatment Guidelines, 2010: Oral Cephalosporins No Longer a Recommended Treatment for Gonococcal Infections. MMWR Weekly Report 2012; 61(31):590-594.

2,275 copies of this public document were published at an estimated cost of $0.73 per copy, for a total cost of $1665.98 which includes $674.08 for printing and $991.90 for distribution.

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