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PREVENTION OPPORTUNITIES UNDER THE BIG SKY

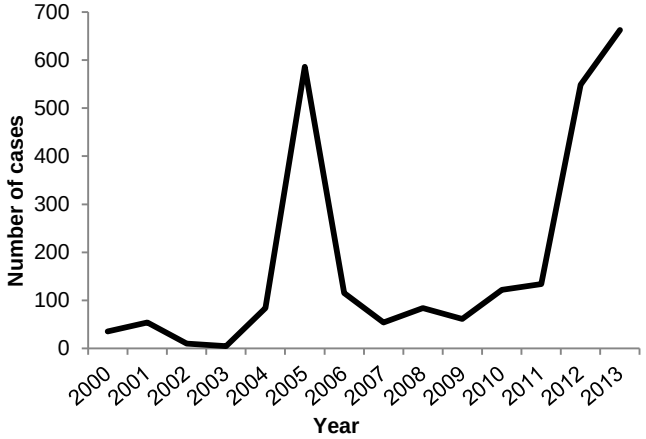
Highlights from 2013 Communicable Disease Annual Report

This report describes reportable communicable diseases in Montana in 2013 as well as selected outbreaks. The reportable conditions have met the 2013 case definitions provided by the Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists (CSTE).[1] The complete 2013 Communicable Disease Annual Report can be found at: http://www.dphhs.mt.gov/publichealth/cdepi/surveillance/index.shtml

PERTUSSIS STATEWIDE OUTBREAK

In 2013, 663 cases of pertussis were reported to the Department of Public Health and Human Services (DPHHS), compared with 549 cases in 2012. This is the largest number of pertussis cases since 2005, when 586 cases were reported (Figure 1). Montana's 2013 incidence rate was the highest in the nation at 65.3 per 100,000 Montana residents; eight times the provisional rate of 7.7 per 100,000 in the United States. Among the 36 counties reporting cases of pertussis in 2013, the number of cases ranged from 1 to 251 with incidence rates ranging from 3.7 to 411.8 per 100,000 population.

Figure 1. Reported pertussis cases — Montana, 2000–2013



Of the 663 cases, 48% were female. Sixty-four percent of pertussis cases occurred among children aged 5–17 years. Of the 630 cases with a documented race, 599 (95%) were identified as white, 22 (3.5%) as American Indian, and 9 (1.5%) as African American, Asian or Native Hawaiian/Pacific Islander. Twenty-five infants aged less than one year were reported as having pertussis and six were hospitalized. Five of the hospitalized infants were aged less than three months. There were no reported deaths due to pertussis in 2013.

Immunization records for 507 cases aged less than 18 years and eligible for pertussis-containing vaccine were assessed for vaccination status per the Advisory Committee on Immunization Practices (ACIP) Recommendations.[2] Overall, 123 (19%) cases eligible by age had not received any doses of pertussis-containing vaccine. The greatest percentage of the unvaccinated cases (29%) occurred among children aged 13–17 years. In addition, 71 (14%) cases in all pediatric 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 26% of all pediatric cases, 50% had not received a Tdap before diagnosis. Cases in the 13–17 year age group had a higher percentage of Tdap vaccination (66%).

GASTROINTESTINAL DISEASES

Forty-four enteric illness outbreaks were reported in 2013. Of these, 26 (59%) were caused by norovirus and five others caused by *Campylobacter*, *Cryptosporidium*, *Shigella*, *Legionella*, and histamines. Thirteen outbreaks (30%) were categorized as acute gastroenteritis illness (AGI) as a pathogen could not be confirmed. Three-quarters of norovirus outbreaks that were sequenced confirmed that the new strain GII.4 Sidney was the most prevalent strain of norovirus in Montana in 2013. Over 1300 Montanans became ill in these outbreaks, 53 were hospitalized, and six died.

The majority of outbreaks (60%) occurred in long-term care facilities, assisted living centers, or similar institutions. Other noteworthy locations included child daycares and schools (16%) and restaurants (5%).

An outbreak of norovirus that occurred in Yellowstone National Park and Grand Teton National Park sickened over 540 visitors and employees from over 30 states, including Montana, and 3 foreign countries. The outbreak began when multiple tour buses with sick passengers on board visited the parks in early June.

In another outbreak during the summer, over 200 persons became ill from a norovirus outbreak linked to a church camp. Large gatherings, crowded living conditions, and increased mingling of persons contributed to this large outbreak. Investigation efforts linked the outbreak to the arrival of several ill individuals and lack of prevention efforts and no notification to the camp director. The virus spread among attendees before control measures could be implemented.

A third notable outbreak occurred in the southeastern part of the state caused by *Shigella*, an enteric pathogen. *Shigella* is easily spread from person-to-person, especially among young children. The outbreak began in May and continued through the

fall, sickening over 50 persons, mostly children aged 4–7 years. Epidemiological investigations did not identify a point source, and findings revealed that person-to-person transmission was the most likely route of exposure during that outbreak.

Waterborne disease outbreaks are rarely reported in Montana. However, in 2013 several Montanans were infected with C*ryptosporidium*, a parasite that is highly resistant to chlorine and can survive in treated water. During August and September, 23 persons, mostly children, became ill after swimming in pools and splash parks. Local health departments worked closely with environmental health specialists and pool operators to ensure the health and safety of swimmers. Increased numbers of cryptosporidiosis cases were reported in nearby states as well during 2013.

These outbreaks serve as reminders that the health of the community largely depends on individual participation, including hand hygiene and staying home while ill, to help protect those around them. Once illnesses spread among susceptible populations, it becomes increasingly difficult to contain outbreaks. Vigorous application of control measures, environmental cleaning, and attention to hand hygiene are often the most effective control measures public health can offer during acute gastrointestinal illness (AGI) outbreaks.

CDEpi continues to improve methods for state-wide surveillance and outbreak investigation. Reducing the burden of enteric illnesses in Montana is continually a key focus. Several prevention campaigns aimed towards high risk situations for enteric illness are scheduled to be implemented.

Table 1. Case counts for selected reportable communicable diseases by jurisdiction of residence — Montana 2013[1,2,3]

	Campylobacteriosis	Chlamydia	Cryptosporidiosis	Dengue Fever	Giardiasis	Gonorrhea	*Haemophilus influenzae*, all serotypes	Hepatitis A, Acute	Hepatitis B, Chronic	Hepatitis C, Acute	Hepatitis C, Chronic	HIV	Legionellosis	Leishmaniasis	Lyme Disease	Pertussis	Rabies, Animal	Salmonellosis	Shigellosis	STEC[4]	*Streptococcus pneumoniae*	Syphilis	Tuberculosis	Tularemia	Varicella (Chickenpox)	West Nile
Beaverhead	3	44	--	--	--	--	--	--	--	1	7	--	--	--	--	2	--	2	--	--	--	--	--	--	6	--
Big Horn/Crow	4	167	3	--	--	12	--	--	--	1	15	--	--	--	--	1	2	1	23	--	--	1	1	1	--	1
Blaine/Ft. Belknap	1	47	--	--	1	--	--	--	1	--	8	--	--	--	1	--	--	--	--	--	--	--	--	--	--	1
Broadwater	--	7	2	--	--	--	--	--	--	--	--	--	--	--	1	11	--	--	--	--	1	--	--	--	1	--
Carbon	6	13	1	--	--	--	--	--	--	--	9	--	--	--	1	4	--	1	--	1	--	--	--	--	--	1
Carter	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--
Cascade	16	438	18	--	11	5	--	--	1	2	91	2	2	--	1	3	--	12	1	3	--	1	--	--	1	1
Chouteau	1	2	8	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--
Custer	5	50	1	--	1	1	--	--	--	2	8	1	--	1	--	2	4	1	3	--	--	--	--	1	3	6
Daniels	1	--	1	--	2	1	--	--	--	--	3	--	--	--	--	3	--	--	--	--	--	--	--	--	--	--
Dawson	--	28	--	--	1	3	--	--	--	--	3	--	--	--	1	7	1	--	--	--	--	--	1	--	--	--
Deer Lodge	--	29	--	--	2	1	--	--	--	--	8	--	--	--	--	38	--	1	--	--	--	--	--	--	3	--
Fallon	1	6	1	--	--	--	--	--	--	--	--	--	--	--	--	--	3	--	--	1	--	--	--	--	--	--
Fergus	4	11	1	--	1	--	--	--	1	--	16	--	--	--	--	18	--	1	--	--	--	--	--	--	--	--
Flathead	10	257	16	1	14	7	--	--	2	--	103	3	2	--	3	252	1	8	--	3	3	1	--	--	6	--
Gallatin	25	327	10	1	18	3	--	--	1	--	43	1	--	--	3	25	--	15	5	11	--	--	--	--	8	--
Garfield	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Glacier/Blackfeet	1	164	--	--	--	5	1	--	--	1	52	--	--	--	--	3	--	--	--	1	--	--	1	--	--	--
Golden Valley	1	1	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--
Granite	1	5	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hill/Rocky Boy	3	142	--	--	1	1	2	--	--	--	16	--	--	--	--	1	--	2	--	--	2	--	1	--	6	4
Jefferson	--	13	--	--	--	--	--	--	--	1	6	--	--	--	--	8	--	1	--	--	--	--	--	--	--	--
Judith Basin	1	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lake/CSKT	5	142	1	--	3	44	--	--	--	--	37	1	2	--	--	7	2	1	--	1	7	1	--	1	1	--
Lewis & Clark	16	165	--	--	7	4	2	--	--	--	56	--	--	2	--	92	6	11	1	1	3	1	--	--	10	--
Liberty	2	1	--	--	1	--	--	--	--	--	1	--	--	--	--	4	--	1	--	--	--	--	--	--	--	1
Lincoln	11	37	1	--	--	1	--	--	1	2	22	--	--	--	--	16	2	--	2	--	1	--	1	--	1	--
Madison	2	14	1	--	--	--	--	--	--	--	1	1	--	--	--	1	--	1	--	1	--	--	--	--	--	--
McCone	1	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	1
Meagher	4	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--

	Campylobacteriosis	Chlamydia	Cryptosporidiosis	Dengue Fever	Giardiasis	Gonorrhea	*Haemophilus influenzae*, all serotypes	Hepatitis A, Acute	Hepatitis B, Chronic	Hepatitis C, Acute	Hepatitis C, Chronic	HIV	Legionellosis	Leishmaniasis	Lyme Disease	Pertussis	Rabies, Animal	Salmonellosis	Shigellosis	STEC[4]	*Streptococcus pneumoniae*	Syphilis	Tuberculosis	Tularemia	Varicella (Chickenpox)	West Nile
Mineral	1	7	--	--	1	--	1	--	--	--	7	--	--	--	--	--	1	1	--	--	1	--	--	--	2	--
Missoula	14	387	7	3	11	19	--	1	5	1	125	4	--	1	2	14	2	9	1	5	1	1	--	--	2	--
Musselshell	1	7	1	--	--	--	--	--	--	--	2	--	--	--	--	4	--	--	--	--	--	--	--	--	--	--
Park	3	19	3	--	1	1	--	--	--	--	28	--	--	--	1	2	--	2	1	1	--	--	--	--	4	--
Petroleum	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phillips	1	6	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pondera	1	3	1	--	--	--	--	--	--	--	1	1	--	--	--	11	--	--	--	--	--	--	--	--	--	--
Powder River	--	5	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	6	2
Powell/MSP[5]	6	12	1	--	2	--	--	--	--	1	50	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--
Prairie	--	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ravalli	8	58	1	--	2	--	--	3	--	--	14	--	--	--	3	6	3	1	--	2	2	--	--	1	1	1
Richland	1	64	1	--	--	--	--	--	--	--	10	1	--	1	--	10	--	1	--	--	--	--	1	--	3	--
Roosevelt/Ft. Peck	4	173	1	--	1	40	--	--	--	--	96	1	--	--	1	18	--	1	1	--	2	--	1	--	1	--
Rosebud/N. Cheyenne	2	140	1	--	2	28	--	--	--	--	10	--	--	--	--	4	4	--	14	1	1	--	--	--	--	--
Sanders	4	14	--	--	1	--	--	2	--	--	6	--	--	--	--	1	1	--	--	--	1	--	--	--	--	--
Sheridan	2	5	--	--	1	--	--	--	--	--	5	--	--	--	--	2	--	--	--	--	--	--	--	--	--	1
Silver Bow	1	106	--	--	1	5	--	--	3	--	38	2	--	--	--	29	--	1	1	5	--	--	--	--	--	1
Stillwater	2	6	1	--	--	--	--	--	--	--	3	--	--	--	--	1	--	--	--	--	--	--	--	--	--	1
Sweet Grass	1	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Teton	--	8	--	--	1	--	--	--	--	--	2	--	--	--	--	2	--	--	--	--	--	--	--	--	1	--
Toole	--	7	1	--	--	1	--	--	1	--	4	--	--	--	--	1	--	3	--	--	--	--	--	--	6	1
Treasure	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Valley	--	14	--	--	--	--	--	--	--	--	3	--	1	--	--	--	--	--	--	--	1	--	--	--	5	2
Wheatland	1	3	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wibaux	1	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1
Yellowstone	24	648	39	--	3	42	--	--	5	4	225	4	3	--	--	57	1	16	16	10	5	1	--	1	4	11
TOTAL 2013	205	3818	125	5	91	224	6	6	21	16	1141	22	10	5	18	663	36	94	69	49	31	8	6	5	84	38

[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 2013 or jurisdictions that reported zero (0) cases for 2013 are not reflected in this report.
[3]Data Source: DPHHS Communicable Disease Control and Prevention Bureau
[4]STEC = Shiga Toxin-Producing *Escherichia coli*
[5]Montana State Prison

Table 2. Communicable diseases with less than five reported cases — Montana 2013[1]

	Coccidioidomycosis	**Creutzfeldt-Jakob Disease (CJD)**	***Ehrlichiosis chaffeensis***	**Hantavirus Pulmonary Syndrome**	**Hepatitis B, Acute**	**Histoplasmosis**	**Meningococcal Disease**	**Q Fever**	**Spotted Fever Rickettsiosis**	**Tickborne Relapsing Fever**	**Vibriosis**
Number of Cases	3	3	1	2	4	1	1	2	2	1	3

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

GONORRHEA STATEWIDE OUTBREAK

Two hundred twenty-four cases of gonorrhea were reported in 2013, more than twice the number reported in 2012. The increase in cases from 2012 to 2013 was reported from several counties statewide (Figure 3).

The 224 cases (22.1 cases per 100,000 population) reported exceeds the recent high of 191 cases (20.1) reported in 2006. Most of the cases continue to occur in the 20–24 and 25–29 year age groups, which account for more than 60% of the cases but only 13% of the general population. Montana's American Indian population was disproportionately impacted, accounting for 50% of the 224 cases in 2013. While there was an increase in cases among all races, the largest and steepest increase occurred among American Indians (AI) (Figure 2)

Figure 2. Gonorrhea cases by race — Montana, 2004–2013

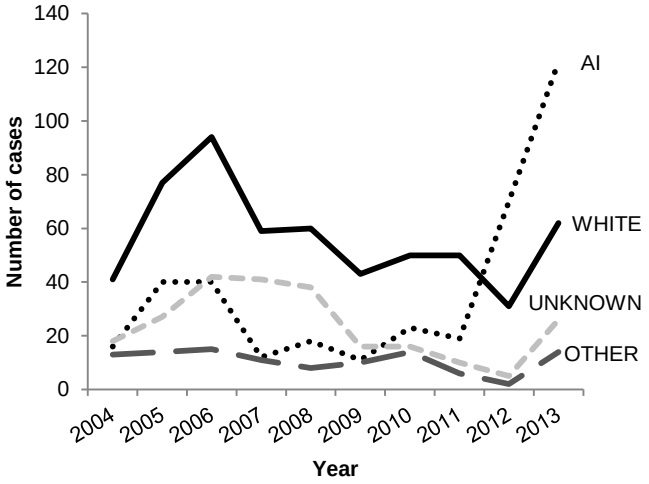
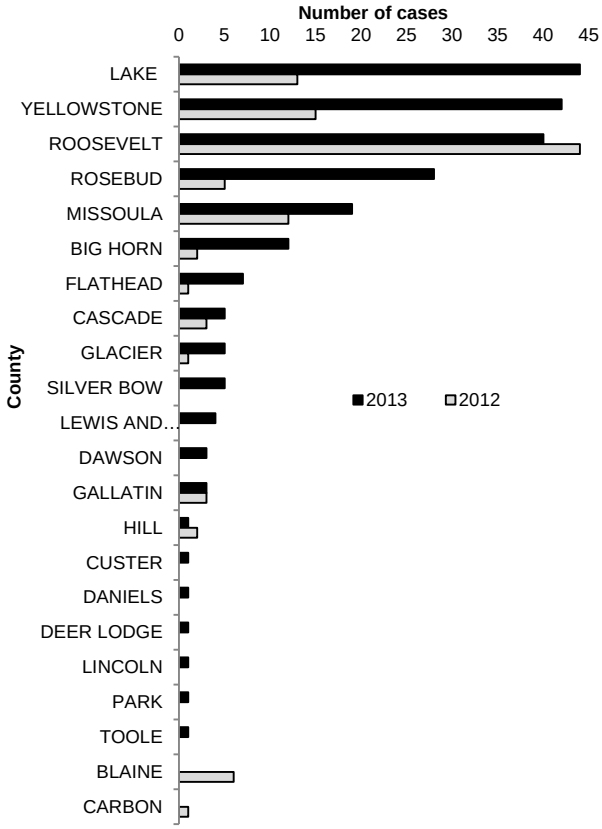


Figure 3. Gonorrhea cases by county — Montana, 2012–2013*



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

Recommendation: Reportable diseases and conditions are specified by the Administrative Rules of Montana (ARM) 37.114. Timely and accurate reporting is essential for control of these diseases.

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

References:

1. Centers for Disease Control and Prevention (CDC). 2013 Case Definitions: Nationally Notifiable Conditions Infectious and Non-Infectious Cases. 2013.
2. 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

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