



# COMMUNICABLE DISEASE IN **MONTANA**

## **2023** ANNUAL REPORT



MONTANA  
**COMMUNICABLE DISEASE  
EPIDEMIOLOGY**

Prepared by the Communicable Disease Epidemiology Section  
Epidemiology and Scientific Support Bureau  
Montana Department of Public Health and Human Services (DPHHS)




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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 2023. These reportable conditions met the 2023 case definitions provided by the Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists (CSTE). Reportable conditions 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](#)). Reportable disease data are maintained in the Montana Infectious Disease Information System (MIDIS) and HIV data are maintained in the enhanced HIV/AIDS Reporting System (eHARS). Population data as well as reportable infectious disease statistics are found in Appendices I-III. Small numbers of reported cases may result in unstable rates and should be interpreted with caution. Please contact CDEpi at 406-444-0273 or [hhsepi2@mt.gov](mailto:hhsepi2@mt.gov) with questions or comments.



# Message from the DPHHS Public Health Physician

This is an exciting time to practice public health as the field continues to evolve and practitioners address increasingly complex issues in new and innovative ways. The Communicable Disease in Montana 2023 Annual Report summarizes and highlights the diseases and outbreaks investigated by DPHHS Public Health and Safety Division partners and local and tribal health jurisdictions during 2023, with an emphasis on data trends and important public health events. The prevention and control of communicable disease remains one of the most important aspects of public health practice in the United States and is necessary to ensure the health and well-being of Montana citizens.

From a social science perspective, contemporary public health professionals are revisiting earlier observations that epidemics can cluster in meaningful ways through biopsychosocial processes. Interactions between these biological, social, and psychological factors can create an excess burden of disease in certain populations and are recognized to represent a "syndemic." In Montana, syphilis has interacted in complex ways with substance use to create a disproportionate burden of congenital syphilis in the state. Recognizing the impact of this issue in Montana, the DPHHS Communicable Disease Control and Prevention Bureau hosted their first ever *Syndemic Symposium* in 2023, successfully featuring cross-cutting topics addressing both substance use and sexually transmitted infections with local and national speakers covering topics in both areas.

From a scientific perspective, public health practitioners are also more routinely leveraging the use of whole genome sequencing of food and biological samples in new and exciting ways to enhance infectious disease and foodborne disease outbreak investigations. This, in turn, allows for more specificity for investigation outcome recommendations to prevent future outbreaks.

Amidst the enthusiasm for a better understanding of the social complexities of disease and increasingly accessible technology to perform disease investigations, public health remains firmly rooted in the data that inform all activities. We rely on local and tribal health jurisdictions to fulfill essential disease reporting activities to create a fuller epidemiologic perspective on reportable diseases in our state. This, in turn, can improve local interventions to reduce the occurrence of disease. To this end, and to support local and tribal health jurisdiction situational awareness during respiratory virus season, DPHHS offers a combined respiratory virus dashboard with summary, county-level, and outbreak information on influenza, COVID-19, and respiratory syncytial virus (RSV), the three viruses with the greatest potential to create strain on the public health and health care infrastructure.

We thank the Montana public health workforce, who remain adaptable and continue to evolve with new knowledge and scientific developments to enhance our ability to protect population health!

Sincerely,

Maggie Cook-Shimanek, MD, MPH



Montana Department of Public Health and Human Services





# Who We Are & What We Do

*Preventing and controlling the spread of disease is the heart of public health work. In coordination with local and tribal health agencies, the Communicable Disease Epidemiology Section (CDEpi) keeps that mission in mind as we work each day to improve and protect the health of all Montanans. CDEpi works closely with the Sexually Transmitted Disease Prevention Section, Surveillance and Informatics Section, Infection Control and Prevention/Healthcare-associated Infections Section (ICP/HAI), Environmental Health and Food Safety (EHFS), and many other programs at DPHHS to protect the health and well-being of Montanans.*

## VACCINE PREVENTABLE DISEASES

Vaccine Preventable Disease Epidemiology monitors for diseases that are prevented by vaccination, and works to control the spread of these illnesses. This section works with the Immunization Program at DPHHS to promote the benefits of vaccination.

## ENTERIC DISEASES AND OUTBREAKS

Enteric Diseases and Outbreak Epidemiology performs surveillance to detect food and waterborne diseases, and investigates those cases to identify and prevent outbreaks of enteric illnesses in Montana. In addition, case surveillance and investigation identify common risk factors which help guide prevention messaging and activities that aim to decrease the incidence of enteric diseases.

## HIV AND HEPATITIS C

HIV and Hepatitis C Epidemiology works to identify new and existing HIV/AIDS cases and to use the data to identify trends in HIV occurrence and evaluate prevention interventions. A serious public health concern, Hepatitis C surveillance is also an important function of the CDEpi unit. Surveillance for Hepatitis C is used to direct and evaluate prevention and control activities.

## TUBERCULOSIS CONTROL

Tuberculosis (TB) Control Epidemiology helps identify and manage new cases of TB and their contacts to make sure that appropriate testing and control measures are taking place. TB Control also manages the latent tuberculosis infection (LTBI) medication program and assists with refugee health.

## VECTORBORNE AND ZOONOTIC DISEASES

Vectorborne and Zoonotic Epidemiology monitors and provides assistance with investigating vectorborne diseases, such as those carried by ticks, mosquitoes, and animals. This program manages the response to

potential rabies exposures, including dog bites and bat exposures.

## INFLUENZA, COVID-19, AND OTHER RESPIRATORY DISEASES

Viral Respiratory Illness Epidemiology manages surveillance for influenza, COVID-19, and other seasonal respiratory illness such as respiratory syncytial virus (RSV), as well as prevention messaging for respiratory diseases.

## INFECTION CONTROL AND PREVENTION/HEALTHCARE-ASSOCIATED INFECTIONS SECTION (ICP/HAI)

The ICP/HAI section manages the healthcare-associated infections program in Montana by monitoring outbreaks of HAI and providing education on infection prevention in health care and congregate settings. This program also provides oversight of antibiotic stewardship programs in the state.

## SURVEILLANCE AND INFORMATICS SECTION

The Surveillance and Informatics Section manages MIDIS, the Montana Infectious Disease Information System, which is the surveillance database used for reportable communicable conditions in Montana. This database also transmits nationally reportable disease data to the Centers for Disease Control and Prevention (CDC). Epidemiologists use this database daily to investigate cases, monitor trends in diseases, and identify outbreaks.

## SEXUALLY TRANSMITTED DISEASES (STD) PREVENTION SECTION

The STD program manages the STD surveillance and prevention of sexually transmitted infections (STIs) in Montana. Surveillance data is used to identify common risk factors and guide prevention messaging and activities to reduce the transmission of STIs. This program also reimburses local clinics for STI testing for uninsured people at high risk for STIs.



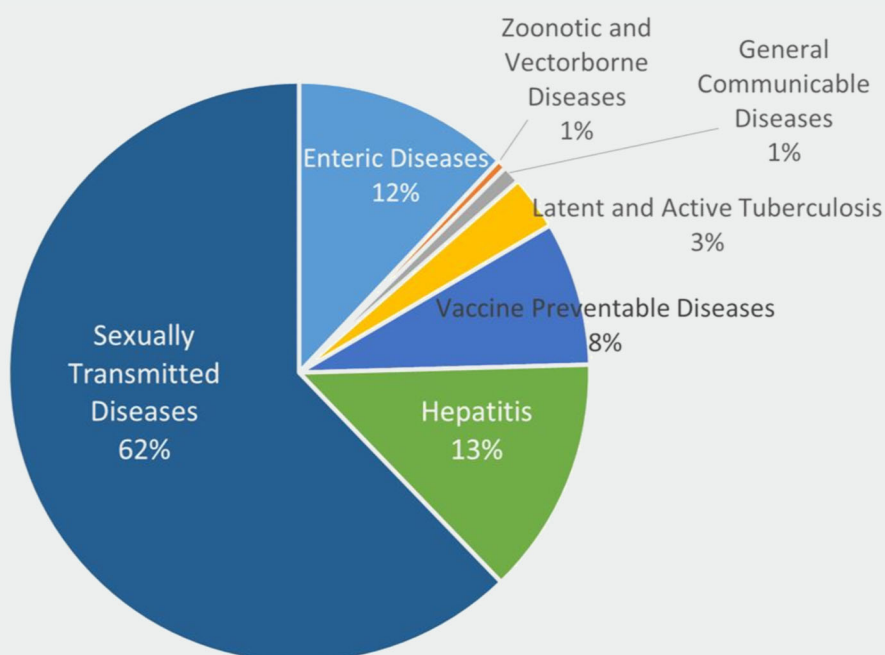
# Preface

The Communicable Disease in Montana 2023 Annual Report contains data for notifiable diseases and conditions reported to Montana DPHHS in 2023. Data on reportable conditions are reported by local and tribal public health jurisdictions, laboratories, health care providers, hospitals, and other health care facilities as required by the Administrative Rules of Montana (ARM) 37.114.201. In 2023, Montana DPHHS tracked more than 8,000 non-COVID-19 communicable disease cases. COVID-19 accounted for an additional 25,637 reported cases in 2023. Each reported case of a reportable condition is investigated by local or tribal public health jurisdictions, and includes application of control measures to prevent further spread of disease. The distribution of non-COVID reportable disease cases reported in 2023 is depicted in Figure 1.

The Notable Events section presents information on noteworthy reports from 2023 for selected diseases that were above expected values or were newly emerging.

Case counts by jurisdiction for reportable conditions are reported in Appendix I, and

**FIGURE 1. REPORTED NON-COVID COMMUNICABLE DISEASES BY CATEGORY, MONTANA, 2023**



historical incidence and case counts are presented in Appendix II. Cases are counted by the week and year in which they occurred as determined by the Morbidity and Mortality Weekly Report (MMWR) assigned by the CDC. In addition, the Montana Demographic Profile is presented in Appendix III.







# Notable Events, 2023

## Morel Mushroom Outbreak

In the spring of 2023, 51 people became sick with gastrointestinal illness after eating at a restaurant in Bozeman, Montana. There were severe outcomes among some cases, including three hospitalizations and two deaths. An epidemiologic study was completed among restaurant patrons, and it was determined that consumption of morel mushrooms at the restaurant was strongly associated with gastrointestinal illness. Additionally, consumption of raw morel mushrooms was more strongly associated with illness compared to consumption of morel mushrooms that were partially cooked.

Prior to this outbreak and investigation, morel mushrooms have generally been considered edible, with little known about adverse health effects. This investigation highlighted the importance of cooking morel mushrooms before eating to mitigate potential toxic effects and prevent severe illness, including hospitalization and death.

## Invasive Group A *Streptococcus* Outbreak

In March of 2023, the ICP/HAI section was notified by a local acute care hospital regarding two patients with necrotizing fasciitis that were admitted from the same long-term care facility (LTCF). Upon further investigation, nine additional cases were identified, and the pathogen of concern was identified as group A *Streptococcus* (GAS). This prompted a GAS outbreak response at the LTCF. To prevent additional infections in this facility, the ICP/HAI section provided two consultations to the LTCF, focusing on outbreak response and wound care.

A total of eleven cases, including three deaths, were identified as part of this outbreak, and nine isolates were sent to the CDC for whole genome sequencing. Of the nine isolates, eight were determined to be highly related. Out of the eleven cases, three were identified by the acute care hospital, six cases were identified through screening efforts, and two

cases were identified through laboratory lookback of specimens.

## First Ever Detection of a Novel Influenza A Virus in Montana

Novel influenza A viruses, also known as variant influenza viruses, occur when a human is infected with a type of flu virus that is different from the viruses circulating seasonally. While not common, variant flu viruses are occasionally detected nationwide through flu surveillance programs. In the fall of 2023, Montana DPHHS announced the first detected case of a novel flu virus, H1N2v, in the state.

A minor in Lewis and Clark County, Montana presented to urgent care following onset of cold-like symptoms including: cough, sore throat, congestion, fatigue, and shortness of breath. While the patient's symptoms were not severe and the patient was not hospitalized, the decision was made to present to care due to the persistence of symptoms. On-site PCR testing resulted as positive for influenza A before the specimen was sent to the Montana Public Health Laboratory (MTPHL) as part of a standard surveillance program. Follow-up testing with the MTPHL indicated that the flu virus was a variant strain, which was later confirmed as swine H1N2v by the CDC.

Epidemiologic investigation later indicated that the patient had been present at an agricultural fair one and two days before symptom onset, though the patient did not have any direct contact with swine. None of the individuals the patient was with at the fair or the patient's family members became ill. Additional investigations led by the Montana Department of Livestock did not reveal any cases of ill swine present at the fair.



## Select Viral Respiratory Illnesses

**COVID-19**, influenza (**flu**), and respiratory syncytial virus (**RSV**) are common circulating viral respiratory conditions in Montana. They are caused by different viruses and are different diseases: SARS-CoV-2 causes COVID-19, influenza viruses cause the flu, and respiratory syncytial virus causes RSV.

These viruses spread between people when someone who is sick coughs, sneezes, or otherwise expels droplets containing the virus. Symptoms of COVID-19, flu, RSV, and other viral respiratory illnesses are often similar and may include a fever, cough, sore throat, runny or stuffy nose, headache, body aches, and low energy.

These viruses spread year-round, but each virus experiences peak activity at different times of year (e.g., influenza activity typically peaks sometime between December and February each year).



## OVERVIEW OF SURVEILLANCE ACTIVITIES

- COVID-19 cases, hospitalizations, deaths, and outbreaks are monitored year-round.
- Influenza hospitalizations, deaths, and outbreaks are tracked year-round. Laboratory confirmed cases of influenza are reported in aggregate counts on a weekly basis for 35 weeks out of the year (referred to as the respiratory virus season). The respiratory virus season begins MMWR week 40 of one year and goes through MMWR week 22 of the following year (e.g., 10/1/2023-6/1/2024).
- Laboratory surveillance partners across the state submit molecular testing data for influenza and RSV weekly during the respiratory virus season. These data allow CDEpi to monitor what types and subtypes of flu are circulating across the state and what the percent positivity for RSV testing is, which is an indication of overall activity.
- Additional data systems for viral respiratory illness surveillance include emergency department data, wastewater surveillance, and death record review.



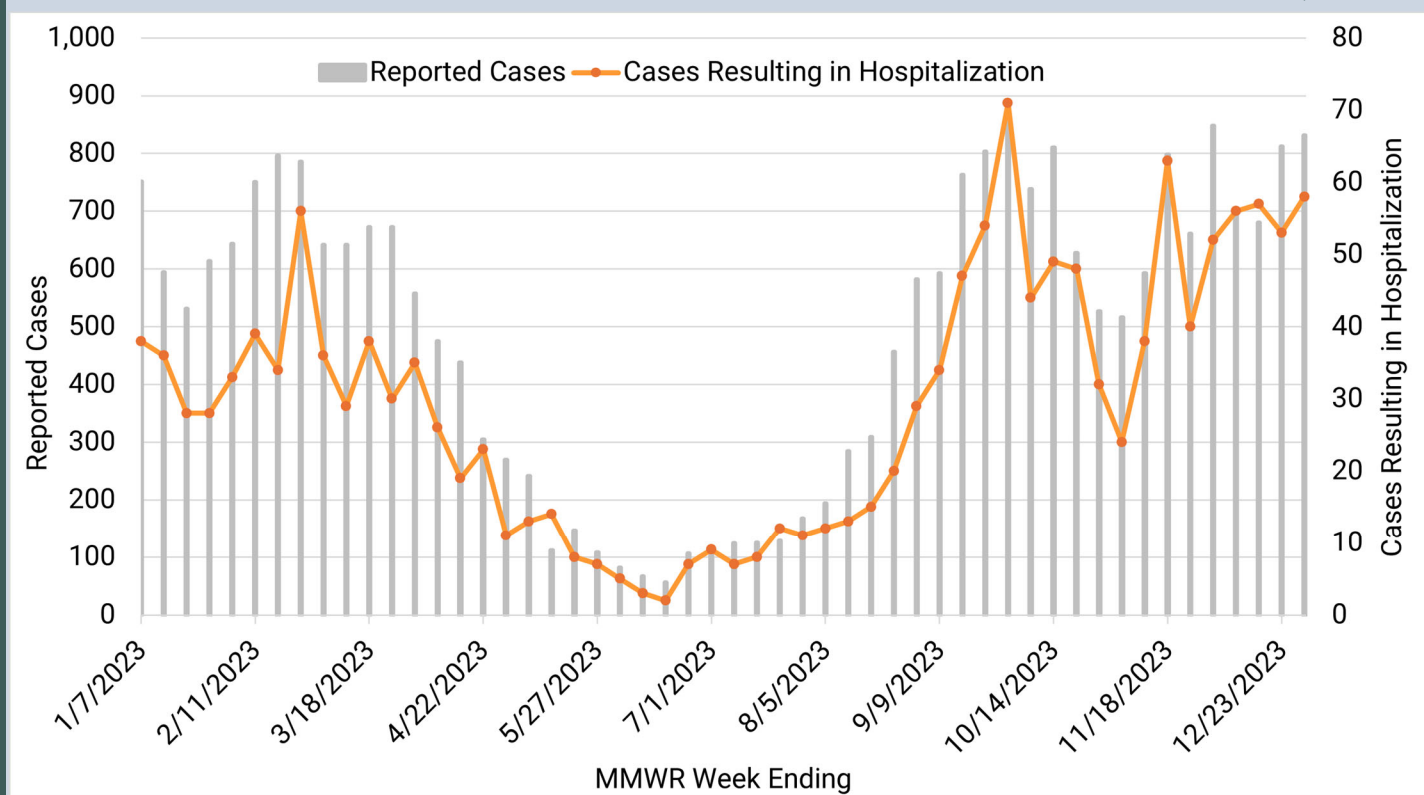


# COVID-19

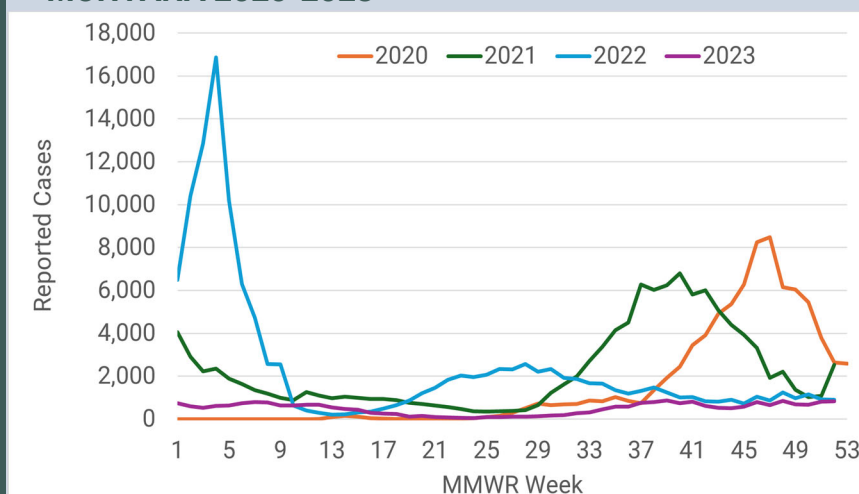
COVID-19 is an infectious respiratory disease caused by the SARS-CoV-2 virus, which was first detected in December 2019 in Wuhan, China. This virus is part of the coronavirus family, which includes common viruses that cause a variety of respiratory diseases. Occasionally, this family of viruses can cause more severe diseases such as severe acute respiratory syndrome (SARS), Middle East Respiratory Syndrome (MERS), and COVID-19.

Beginning in 2023, only persons who tested positive for COVID-19 in a clinical setting (e.g., with a test performed at a laboratory or testing performed by a clinician, pharmacy, school nurse, or emergency department or other health care settings) were included in state case counts. Individuals testing positive with an over-the-counter home test were not included in overall counts starting in 2023.

**FIGURE 2. WEEKLY REPORTED COVID-19 CASES AND HOSPITALIZATIONS – MONTANA, 2023**



**FIGURE 3. REPORTED COVID-19 CASES BY MMWR WEEK – MONTANA 2020-2023**



## COVID-19 FAST FACTS

- Montana reported 25,678 cases of COVID-19 in 2023. Among these cases, 1,554 (6.1%) required hospitalization and 178 (<1%) resulted in death.
- During 2021 and 2022, there were a total of 239,160 cases of COVID-19 reported in Montana, with an average of 119,580 cases reported each year. The noticeable decrease in reported cases is likely due to changes in reporting requirements that occurred in 2023.

# INFLUENZA

Seasonal influenza (flu) is a respiratory illness caused by influenza viruses (types A and B) that can result in serious complications, including hospitalization and death. The flu season in Montana extends from October through May, with activity typically peaking between December and February.

There were no cases, hospitalizations, or deaths due to influenza reported in Montana during the 2020-2021 respiratory virus season (September 27, 2020-June 5, 2021). It is likely that COVID-19 pandemic response and mitigation measures, such as wearing face masks, physical distancing, reduced travel, improved hand and respiratory hygiene, and school closures contributed to the lack of influenza activity observed during the 2020-2021 season.

The 2023-2024 influenza season spanned October 1, 2023 to June 1, 2024. This season experienced greater activity overall as well as peak activity many weeks earlier than Montana has observed in recent years (Figure 4). There were 19,909 influenza cases reported during the 2023-2024 influenza season, a dramatic increase compared to the 10,539 average

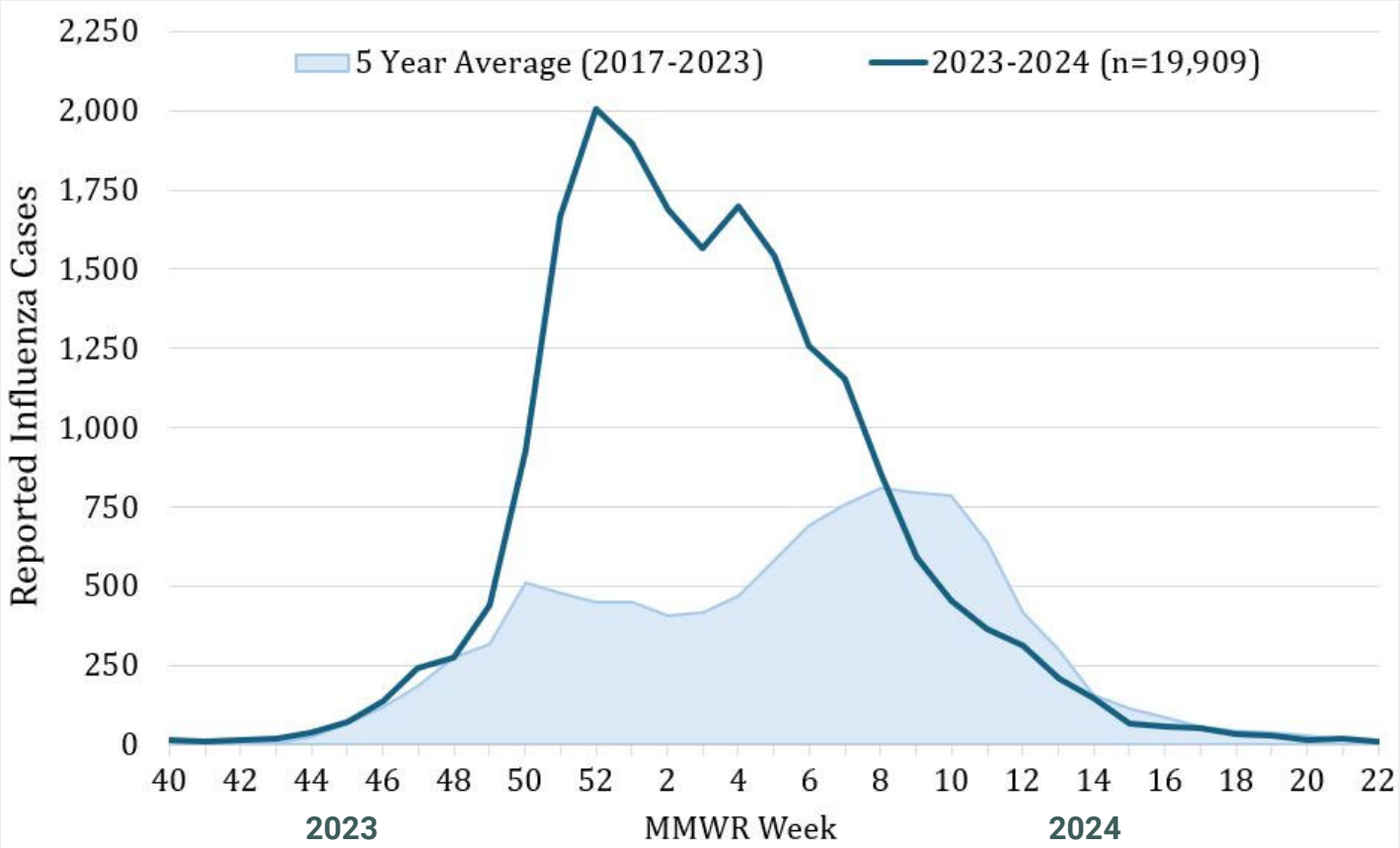
cases per year reported annually between 2017-2023\*.

The total number of hospitalizations for the 2023-2024 season (n=915) was higher than the average yearly reported hospitalizations between 2017-2023\* (n=609) (Figure 5). Figure 7 shows the proportion of hospitalizations due to influenza by age group for the 2023-2024 season. A total of 44 deaths due to influenza infection occurred during the 2023-2024 season, including two pediatric deaths.

TABLE 1. POSITIVE INFLUENZA SPECIMENS FROM MOLECULAR SURVEILLANCE PARTNERS BY INFLUENZA TYPE AND SUBTYPE – MONTANA, 2023-2024

Influenza Type/Subtype	Positive Specimens
Influenza A	3,988 (69.5%)
H1N1	310
H3	255
Subtyping Not	3,423
Influenza B	1,754 (30.5%)

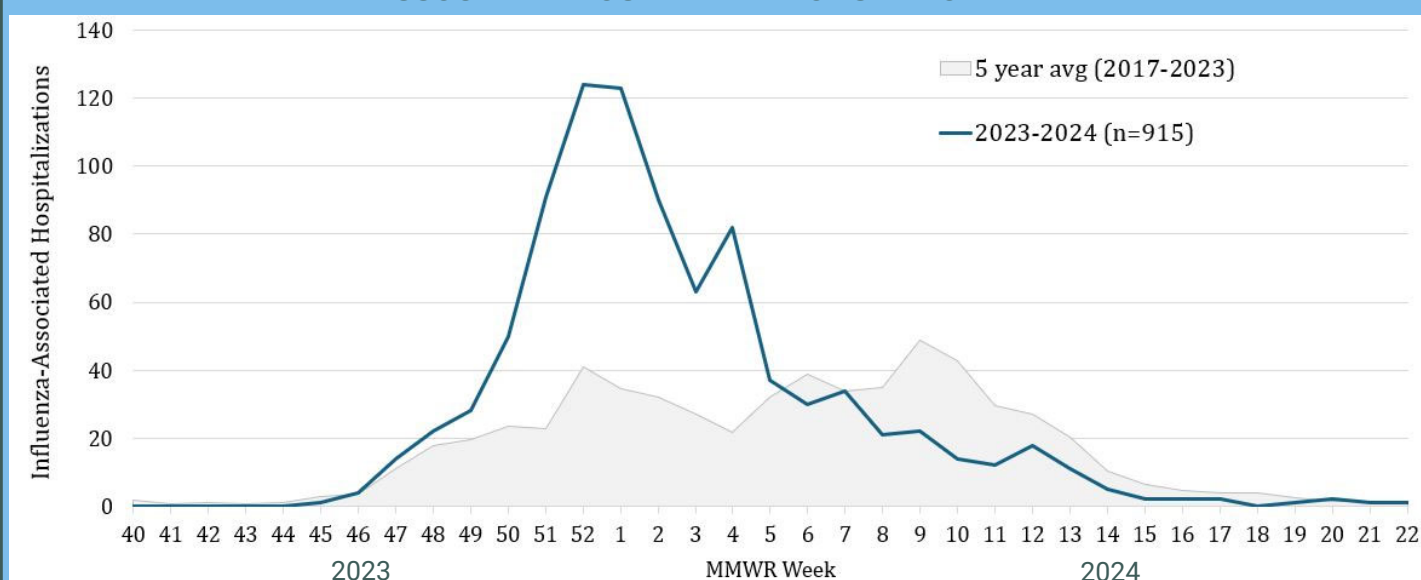
FIGURE 4. REPORTED INFLUENZA CASES BY MMWR WEEK – MONTANA, 2023-2024



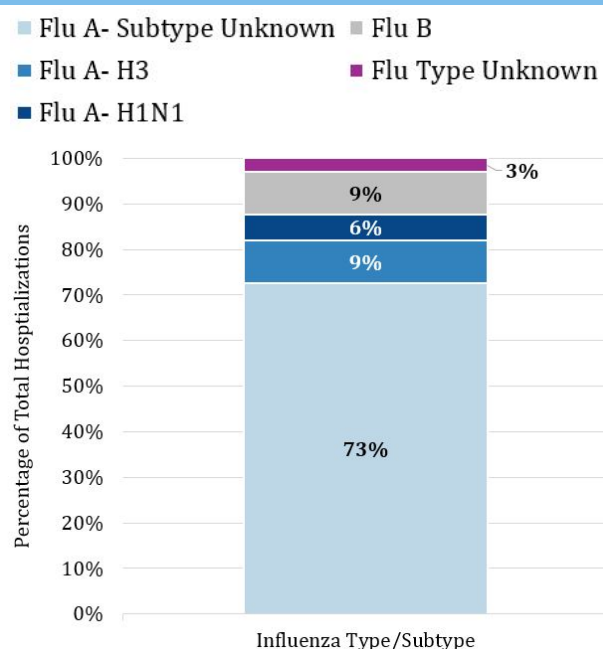
\*the 2020-2021 influenza season has been excluded from the seasonal average because there were no influenza cases reported that season



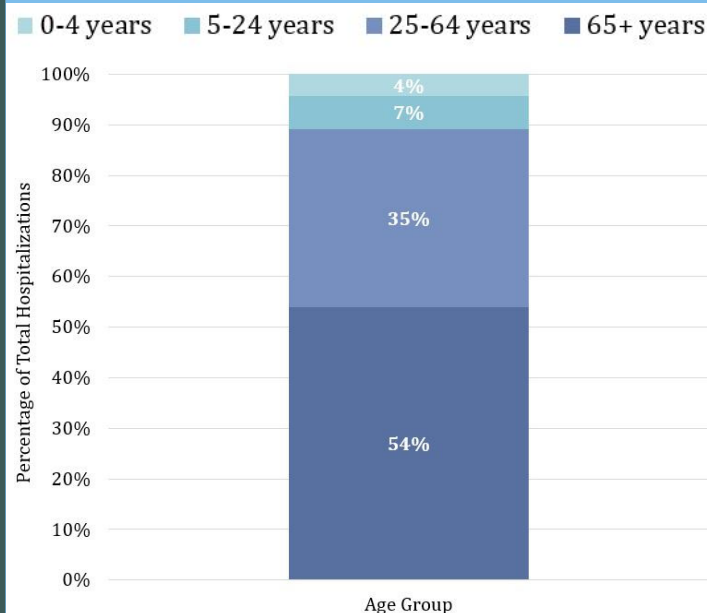
**FIGURE 5. 5-YEAR AVERAGE\* (2017-2023) AND RECENT SEASON (2023-2024) INFLUENZA-ASSOCIATED HOSPITALIZATIONS – MONTANA**



**FIGURE 6. INFLUENZA-ASSOCIATED HOSPITALIZATIONS BY VIRUS TYPE/SUBTYPE – MONTANA, 2023-2024**



**FIGURE 7. INFLUENZA-ASSOCIATED HOSPITALIZATIONS BY AGE GROUP – MONTANA, 2023-2024**



Molecular surveillance partners tested 40,801 specimens for influenza during the 2023-2024 season. Of those specimens, 5,742 (14.1%) were positive for influenza. Results from molecular surveillance are summarized in Table 1.

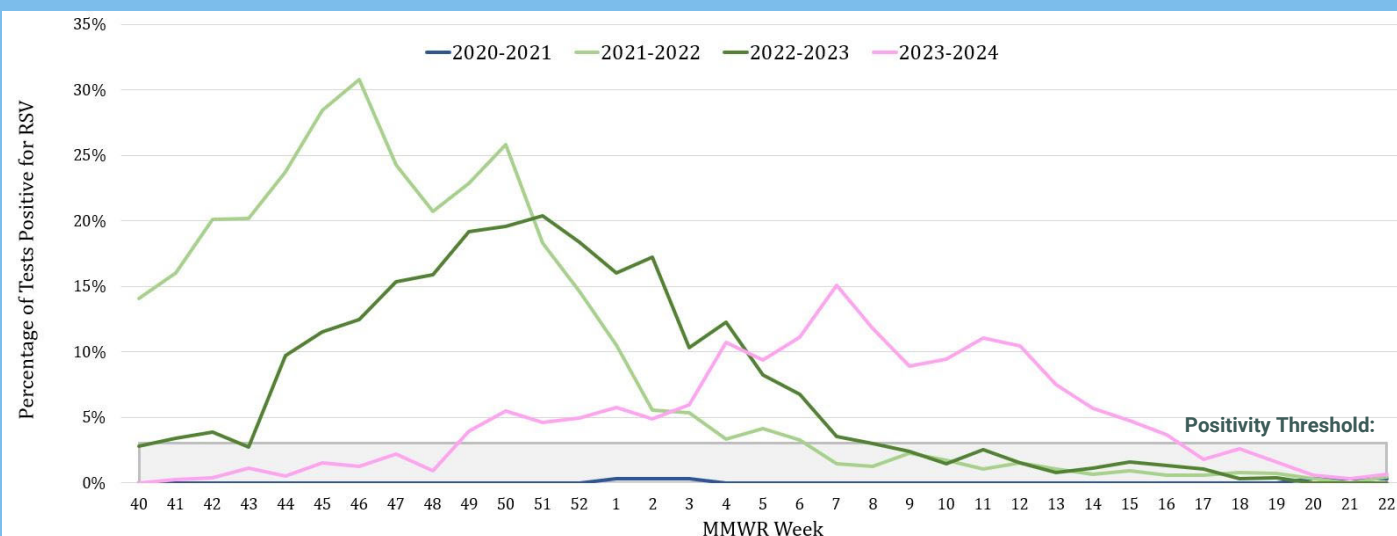
Montana experienced an increase in influenza-associated hospitalizations during the 2023-2024 season compared to prior seasons (Figure 5). Montana averaged\* 609 hospitalizations per season between the 2017-2018 and 2022-2023 respiratory virus seasons. During the 2023-2024 season, Montana reported 915 influenza-associated hospitalizations. The majority (88%) of individuals hospitalized due to influenza infection were diagnosed with influenza type A (Figure 6). Additionally, the majority of individuals hospitalized due to influenza were over the age of 65 years (Figure 7). Pediatric patients (<18 years old) accounted for 9.7% of the total reported influenza-associated hospitalizations. Of the 915 influenza-associated hospitalizations, 39 (4.3%) resulted in death.

\*the 2020-2021 influenza season has been excluded from the seasonal average because there were no influenza cases reported that season

# Respiratory Syncytial Virus (RSV)

Outbreaks of RSV are reportable in Montana, but individual cases are not. Surveillance for RSV in Montana is compiled from voluntary sentinel laboratories, which report testing information weekly. Percent positivity for RSV is determined by the number of positive RSV tests resulting from the total number of RSV tests run. RSV season onset is defined as the first of two consecutive weeks when the weekly percentage of tests positive for RSV is >3%. The RSV season lasted for 20 weeks during the 2023-2024 season.

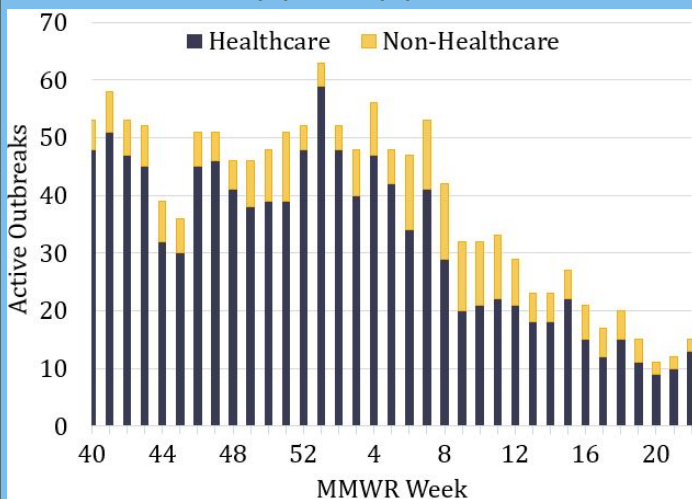
**FIGURE 8. PERCENTAGE OF RSV TESTS POSITIVE BY CALENDAR WEEK – MONTANA, 2020-2024**



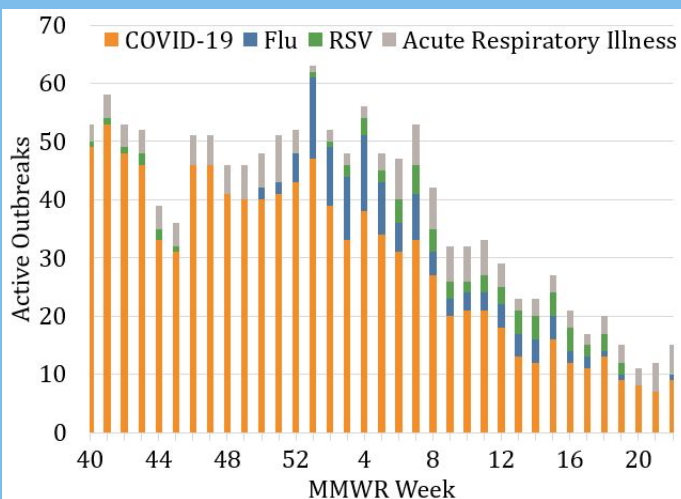
## Outbreaks of Viral Respiratory Illness

The CDEpi and ICP/HAI sections work closely with jurisdictions and facilities in Montana to identify, mitigate, and prevent outbreaks of communicable disease in congregate facilities. During the 2023-2024 season (10/1/23-6/1/24), 334 outbreaks of respiratory illness were reported to Montana DPHHS. Outbreaks in health care settings accounted for 281 (84.1%) of the total reported outbreaks of respiratory illness reported during the 2023-2024 respiratory virus season in Montana. COVID-19 accounted for 254 (76.1%) of the total reported outbreaks during the 2023-2024 respiratory virus season in Montana.

**FIGURE 9. ACTIVE OUTBREAKS OF RESPIRATORY ILLNESS BY FACILITY TYPE AND WEEK— MONTANA, 10/1/2023-6/1/2024**



**FIGURE 10. ACTIVE OUTBREAKS OF RESPIRATORY ILLNESS BY CONDITION AND WEEK— MONTANA, 10/1/2023-6/1/2024**



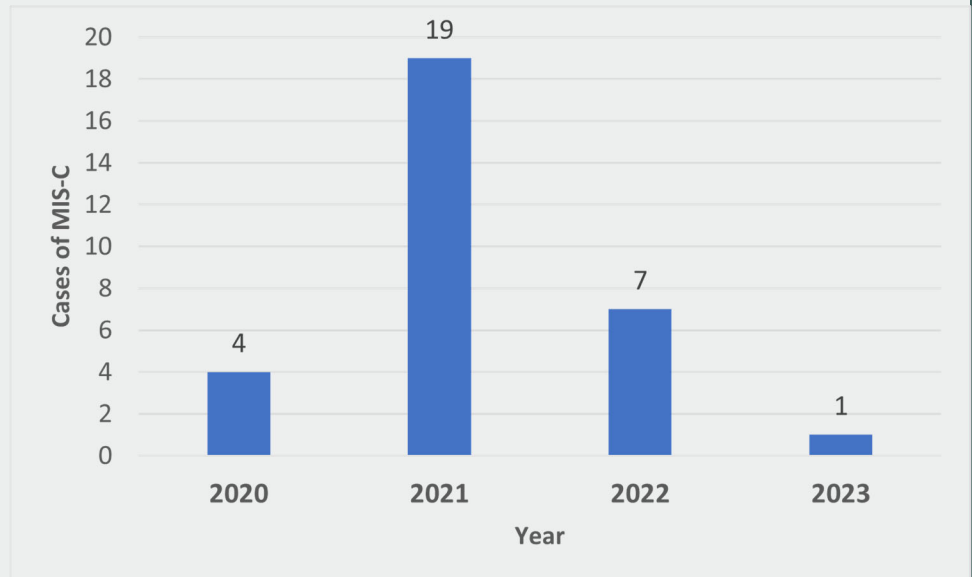


# Multisystem Inflammatory Syndrome in Children (MIS-C)

FIGURE 11. MIS-C CASES BY YEAR — MONTANA, 2020-2023

Multisystem inflammatory syndrome in children, or MIS-C, is a severe post-COVID-19 condition that causes inflammation to multiple body parts, including the heart, brain, skin, eyes, gastrointestinal tract, lungs, and kidneys. MIS-C requires hospital care and symptoms can be similar to Kawasaki disease. Research is ongoing worldwide to understand the full effects of MIS-C.

The first case of MIS-C in Montana was reported in August 2020. In 2023, there was one reported case of MIS-C in Montana. During 2020-2023, 31 MIS-C cases were reported in Montana; one resulted in death. None of the patients with MIS-C had received a



vaccination for the SARS-CoV-2 virus. Vaccination against SARS-CoV-2 is recommended for protection against MIS-C.



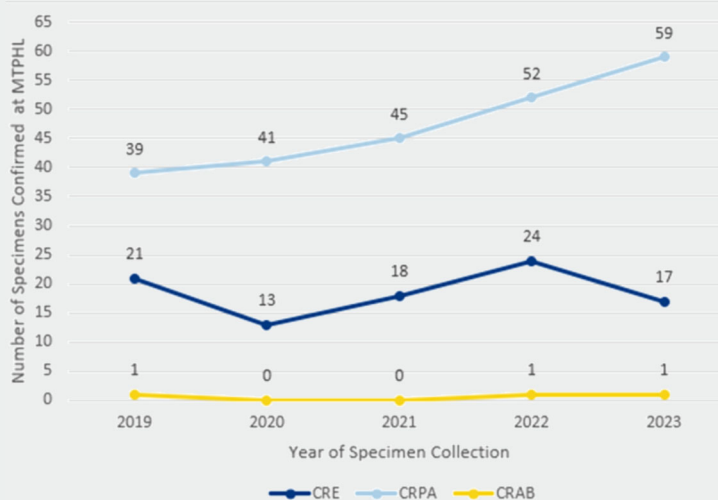
# Health Care-Associated Infections

In December 2021, the Healthcare-Associated Infections program, historically embedded in the Communicable Disease Epidemiology Section, became its own section, called the Infection Control and Prevention/Healthcare-Associated Infections Section (ICP/HAI). The section consists of a section supervisor, four infection prevention specialists, one contracted infection preventionist, one pharmacy expert, and one epidemiologist.

## Carbapenem-Resistant Organisms (CROs)

The ICP/HAI section monitored for multidrug-resistant organisms (MDROs) of concern, including Carbapenem-Resistant Organisms (CROs) in 2023. CROs are organisms that are resistant to the carbapenem class of antibiotics. The most common CROs are within the Enterobacterales order (CRE), *Acinetobacter baumannii* (CRAB), and *Pseudomonas aeruginosa* (CRPA). CROs are required to be sent to the Montana Public Health Laboratory (MTPHL) for confirmation as specified in Rule [37.114.313](#). In 2023, the number of CRE specimens confirmed at MTPHL decreased by 29.2% and CRPA specimens confirmed increased by 13.5% compared to 2022. CRAB was detected in Montana in 2023; this was only the third time since 2019 that CRAB had been identified by the MTPHL.

**FIGURE 12. NUMBER OF SPECIMENS CONFIRMED AS CRE, CRPA, AND CRAB AT THE MTPHL, 2019-2023**



## Carbapenemase-Producing Carbapenem-Resistant Organisms (CP-CROs)

CROs that produce carbapenemases, enzymes that break down the antibiotic class of carbapenems, are considered Carbapenemase-Producing Carbapenem-Resistant Organisms (CP-CROs). The carbapenemase gene can be easily shared between bacteria, leading to the rapid spread of resistance. These organisms can spread within the health care setting through contaminated health care worker hands or through contaminated equipment.

Since the first CP-CRO case was identified in the state in 2019, Montana has had a total of thirteen confirmed CP-CROs detected among Montana health care facilities or Montana residents through 2023. In 2023, five CP-CROs were identified from Montana health care facilities or Montana residents prompting a public health response. Two CP-CREs identified in 2023 were identified with the carbapenemase gene of New Delhi Metallo-beta-lactamase (NDM). Two CP-CRAB were identified in 2023 with the carbapenemase gene of Oxacillinase 23 (OXA-23). Montana identified its first CP-CRPA from a Montana health care facility in 2023. This CP-CRPA was identified with the carbapenemase gene of Verona integron-encoded metallo- $\beta$ -lactamase (VIM). The second CP-CRPA was identified with a carbapenemase gene that was not one of the five commonly reported genes.

**TABLE 2. ABBREVIATED LINE LIST OF REPORTED CP-CROs DETECTED FROM MONTANA HEALTH CARE FACILITIES OR MONTANA RESIDENTS, 2019-2023**

CP-CROs	2019	2020	2021	2022	2023
CP-CRE	3 <ul style="list-style-type: none"> <li><i>M. morganii</i>-IMP</li> <li><i>P. mirabilis</i>-IMP</li> <li><i>E. cloacae</i> complex - NDM (not MT resident)</li> </ul>	1 <ul style="list-style-type: none"> <li><i>E. cloacae</i> complex-NDM</li> </ul>	1 <ul style="list-style-type: none"> <li><i>E. cloacae</i> complex-NDM</li> </ul>	3 <ul style="list-style-type: none"> <li><i>K. pneumoniae</i>-KPC</li> <li><i>K. pneumoniae</i>-NDM (also CP-CRAB)*</li> <li><i>E. cloacae</i> complex-other</li> </ul>	2 <ul style="list-style-type: none"> <li><i>E. coli</i>-NDM</li> <li><i>K. pneumoniae</i>-NDM</li> </ul>
CP-CRPA	0	0	0	0	2 <ul style="list-style-type: none"> <li><i>P. aeruginosa</i>-VIM</li> <li><i>P. aeruginosa</i>-Other (also CP-CRAB)*</li> </ul>
CP-CRAB	0	0	0	1 <ul style="list-style-type: none"> <li><i>A. baumannii</i>-OXA235 (also CP-CRE)*</li> </ul>	2 <ul style="list-style-type: none"> <li><i>A. baumannii</i>-OXA23 (1-not MT resident; 1-also CP-CRPA*)</li> </ul>

In 2022 and 2023, two of the cases had two different CP-CRO genes detected, Therefore, the sum of the CPO genes detected is 15, but the total number of individuals with a positive CP-CRO result remains at 13.



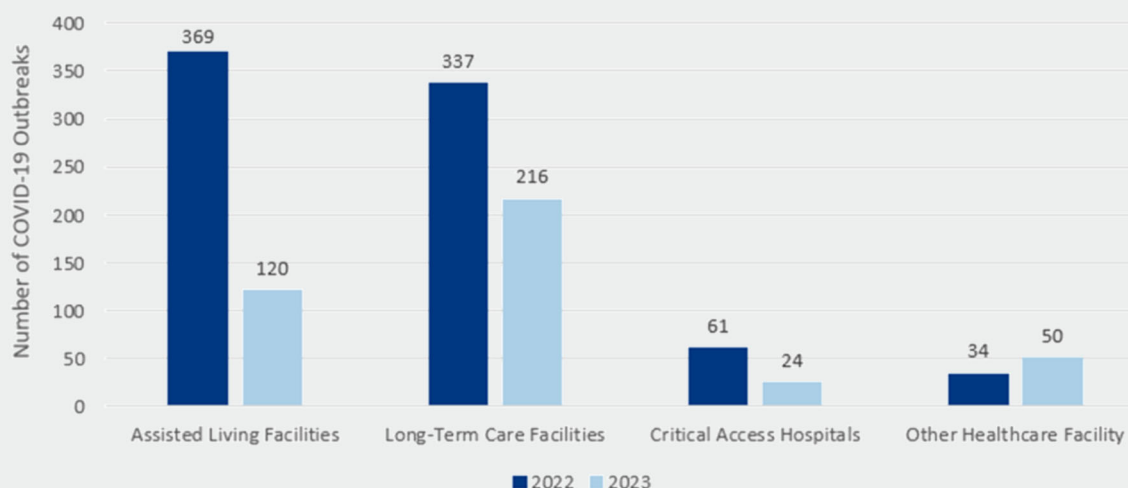
# Health Care-Associated Infections

## Health Care-Associated Outbreaks

### COVID-19

In 2023, the Montana ICP/HAI section investigated 410 COVID-19 outbreaks in health care facilities which was a decrease of 49% from 2022. Long-term care (LTCF) and assisted living (ALF) facilities accounted for 82% of health care-associated COVID-19 outbreaks in 2023. Critical access hospitals (CAH) and other health care facilities accounted for the other 18% of health care-associated COVID-19 outbreaks in 2023. In 2023, there were 432 COVID-19 outbreaks reported in all settings across Montana. Of those 432 COVID-19 outbreaks, 410 (95%) occurred in Montana health care settings.

**Figure 13. TOTAL NUMBER OF COVID-19 OUTBREAKS BY HEALTH CARE FACILITY TYPE—MONTANA, 2022-2023**



### Other Communicable Diseases

In December 2021, the ICP/HAI section began to monitor other types of communicable disease outbreaks, in addition to COVID-19, in health care facilities. In 2023, Montana health care facilities saw a 169% increase in norovirus and acute gastrointestinal illness (AGI) and a 20% decrease in influenza outbreaks compared to 2022. Montana also saw an increase in group A *Streptococcus* (GAS) outbreaks in health care facilities. LTCF accounted for 61% of the other communicable disease outbreaks in 2023, followed by ALF (25%) and Hospitals (13%). In 2023, Montana health care facilities accounted for 71% of all GAS outbreaks, 54% of all norovirus and AGI outbreaks, and 41% of all influenza outbreaks reported.

**TABLE 3. HEALTH CARE FACILITY OUTBREAKS OF COMMUNICABLE DISEASES EXCLUDING COVID-19—MONTANA, 2022-2023**

Disease	2022 - Healthcare Setting Outbreaks	2023- Healthcare Setting Outbreaks	2023 – All Setting Outbreaks	2023 - Percentage of All Outbreaks in Healthcare Settings
Norovirus/Acute Gastrointestinal Illness	13	35	65	54%
Influenza	10	7	17	41%
Acute Respiratory Illness	0	1	19	5%
Respiratory Syncytial Virus (RSV)	2	0	3	0%
Human metapneumovirus	1	0	0	N/A
Group A <i>Streptococcus</i>	0	5	7	71%
CPO	3	5	5	100%
<i>Yersinia enterocolitica</i>	0	1	1	100%
<i>Serratia marcescens</i>	1	1	1	100%
Methicillin-Resistant <i>S. aureus</i> (MRSA)	1	0	0	N/A
<i>C. difficile</i>	1	1	1	100%
Scabies	3	0	0	N/A
Total	35	56	119	47%

This table only includes commonly reported outbreaks in health care settings and does not include every type of communicable disease outbreak that occurs in Montana.



# Enteric Diseases



Enteric diseases are diseases that affect the gastrointestinal (GI) system in humans. All enteric diseases reported on in Table 4 increased in 2023, compared to the previous two years. Enteric pathogens are commonly transmitted through contaminated food or water, contact with animals, or close contact with a sick person. Handwashing after contact with animals, proper food handling, and drinking treated water and pasteurized milk can help reduce the risk of acquiring an enteric disease.

## CAMPYLOBACTERIOSIS

Campylobacteriosis is a diarrheal illness caused by the bacteria *Campylobacter*. In 2023, 438 cases of campylobacteriosis (38.7 cases per 100,000 population) were reported in Montana. This is the highest incidence of campylobacteriosis reported in the state since 2018. Common sources of transmission include exposure to cattle or live poultry, and consumption of raw milk, untreated water, and undercooked foods such as chicken. The 2023 incidence of campylobacteriosis in Montana was almost double the national average of 20 cases per 100,000 population. The high incidence of campylobacteriosis cases in Montana was likely due to the agricultural nature of life in Montana compared to many other states in the U.S.

TABLE 4. COMMONLY REPORTED ENTERIC ILLNESSES IN MONTANA, 2023

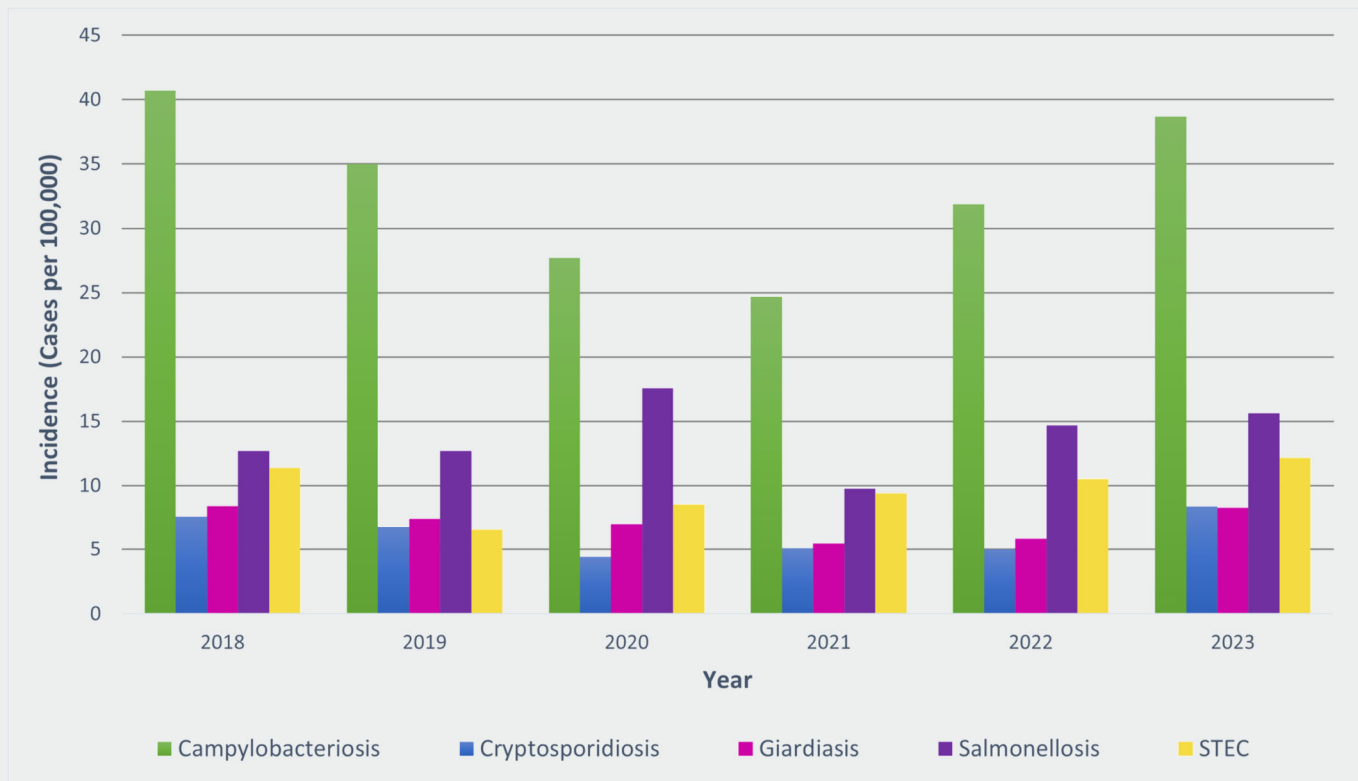
Condition	2023 Cases	2023 Incidence (per 100,000)
Campylobacteriosis	438	38.7
Salmonellosis	177	15.6
Shiga toxin-producing <i>E.coli</i> (STEC)	138	12.2
Cryptosporidiosis	95	8.4
Giardiasis	94	8.3
Shigellosis	21	1.9

## SALMONELLOSIS

Salmonellosis is an enteric disease caused by the bacteria *Salmonella*, and is characterized by a sudden onset of diarrhea, abdominal pain, fever, and nausea. In 2023, 177 cases of salmonellosis were reported in Montana (15.6 cases per 100,000 population), which was higher than the five-year average of 147 salmonellosis cases reported per year between 2018 and 2022. Common risk factors for *Salmonella* infection include exposure to live poultry and ingestion of contaminated food.

## SHIGA TOXIN-PRODUCING *E. COLI* (STEC)

STEC is an enteric disease characterized by abdominal pain and diarrhea that is often bloody. Severe STEC infections can result in hemolytic uremic syndrome (HUS), a rare but serious kidney disease that can be fatal. There were 138 STEC cases reported in 2023 in Montana, yielding an incidence of 12.2 cases per 100,000 population. Incidence of STEC has been increasing slightly each year since 2019. Cattle are a common reservoir for STEC and are a primary source of infection in Montana. Consumption of un-

**FIGURE 14. SELECT ENTERIC ILLNESSES: INCIDENCE OVER TIME – MONTANA, 2018-2023**

dercooked beef and other contaminated foods are also risk factors for illness. There were no reported cases of HUS in Montana in 2023.

## CYCLOSPORIASIS

Cyclosporiasis is an intestinal illness caused by the parasite *Cyclospora cayetanensis*. People are most likely to get sick with cyclosporiasis after consuming food or water contaminated with the parasite. Symptoms of cyclosporiasis include watery diarrhea, frequent bowel movements, loss of appetite, weight loss, and stomach cramps. There were nine cyclosporiasis cases reported in Montana in 2023, all of which were likely acquired outside of Montana. Six of these cases travelled internationally, and three travelled out of state, before their symptoms began.

## CRYPTOSPORIDIOSIS AND GIARDIASIS

*Giardia* and *Cryptosporidium* are parasites that cause gastrointestinal illness and are often associated with waterborne exposures, including swimming in recreational waters and ingesting untreated drinking water. Cryptosporidiosis can also be caused by contact with cattle. In 2023, there were 94 cases of giardiasis reported, with an incidence of 8.3 cases per 100,000. This is the highest reported incidence of giardiasis in Montana since 2018. Of the giardiasis cases reported in 2023, 35% drank untreated water and 49% had recreational water exposure prior to illness onset. There were 95 reported cases of cryptosporidiosis in 2024. Of those, 26% drank untreated water and/or had recreational water exposure prior to illness, and 36% had contact with cattle. The incidence of cryptosporidiosis has fluctuated over the past five years, but the 2023 incidence of 8.4 cases per 100,000 population is higher than the five-year average incidence of 5.7 cases per 100,000 in Montana from 2018-2022.

## TRICHINOSIS

Trichinosis, or trichinellosis, is an infection caused by consumption of the larvae of a parasitic worm called *Trichinella*. People get trichinosis by eating raw or undercooked meat, such as bear or mountain lion, that contains the parasite. Trichinosis causes a variety of symptoms that can include nausea, diarrhea, tiredness, fever, and stomach pain. These symptoms can progress to headache, chills, cough, face and eye swelling, aching joints, and more. There was one confirmed case of trichinosis reported in Montana in 2023 who reported consuming undercooked wild game, and an outbreak of four individuals who became sick with proba-





ble trichinosis after consuming wild game that was likely undercooked. The best way to prevent infection from *Trichinella* is to cook meat thoroughly, especially wild game meat such as bear and mountain lion.

### SHIGELLOSIS

Shigellosis is a bacterial illness caused by *Shigella*, and the only primary reservoir is humans. In Montana, 21 cases of shigellosis were reported in 2023, which is an increase compared to the previous two years. This pathogen is transmitted via the fecal-oral route, and those most at risk of infection are young children, travelers to developing countries, men who have sex with men, and individuals with weakened immune systems.

### LISTERIOSIS

Listeriosis is a rare but serious bacterial infection caused by eating food contaminated with *Listeria monocytogenes*. Pregnant women and their newborns, adults aged 65 and older, and people with weakened immune systems are most likely to develop illness. In Montana, an average of one case per year is reported. There were two cases of listeriosis reported in 2023. These cases were adults in their 40s and 60s — one was hospitalized and both survived.

### VIBRIOSIS

Vibriosis is an enteric illness caused by many different species of *Vibrio*, most often *Vibrio parahaemolyticus* and non-toxigenic *V. cholerae*. Vibriosis infections are often linked to consumption of raw or undercooked seafood (most often oysters), or exposing a

wound to seawater (in Montana, this occurs when cases travel to coastal areas). Most infections occur from May through October when water temperatures rise and *Vibrio* species thrive. There were 13 cases of vibriosis reported in Montana in 2023, which is more than the previous two years combined. Of seven cases that were culture-confirmed, case ages ranged from 1-63 years, four reported eating raw oysters, and one case had a wound exposed to ocean water.

### TYPHOID FEVER AND PARATYPHOID FEVER

Typhoid fever and paratyphoid fever are serious diseases caused by *Salmonella* serotypes Typhi and Paratyphi, respectively. Most cases of typhoid and paratyphoid fever in the United States become infected through international travel. Montana has an average of less than one case per year of each disease. There was one case of paratyphoid fever reported in Montana in 2023, and no cases of typhoid fever. The paratyphoid fever case was reported in an individual who had recently travelled internationally.

### ENTERIC OUTBREAKS

Montana reported 73 enteric illness outbreaks in 2023, which is more than the number of enteric disease outbreaks reported in the previous three years combined. These 73 outbreaks sickened a total of 1,878 people, including 27 hospitalizations and two deaths. Of the enteric disease outbreaks reported in 2023, 29 (40%) were caused by norovirus. Norovirus is a very contagious virus that causes vomiting and diarrhea, and is sometimes referred to as the 'stomach bug'. The other outbreaks were caused by a variety of pathogens, including *Salmonella*, *Trichinella*, and rotavirus.

# Vaccine Preventable Diseases

The vaccine preventable diseases (VPD), excluding COVID-19, tracked by the World Health Organization (WHO) include diphtheria, *Haemophilus influenzae* serotype B, hepatitis B, measles, meningococcal disease, mumps, pertussis, polio, rubella, tetanus, and yellow fever<sup>1</sup>. Many of these conditions are rarely reported in Montana (see Appendices I and II). On average, VPDs, excluding COVID-19, comprise approximately 6% of reportable disease cases in Montana. The most frequently reported non-COVID VPD in Montana in 2023 was pertussis (whooping cough).

## PERTUSSIS

Pertussis, also known as whooping cough, is a highly contagious respiratory disease caused by the bacteria *Bordetella pertussis*, and is characterized by extended periods of uncontrollable coughing usually followed by a characteristic inspiratory 'whoop'. The number of reported pertussis cases varies from year to year, and typically peaks every 5-10 years (Figure 15). In Montana, peaks occurred in 2005 and 2013, when 586 and 663 pertussis cases were reported, respectively. Following the peak in 2013, the number of reported cases of pertussis steadily declined through 2016. However, 2019 showed a large increase with 494 cases reported. This was 3.5 times higher than the number of reported cases in 2018 (n=143). 2020-2022 had marked declines in pertussis cases. In 2023 there were 47 reported cases of pertussis, which is an incidence of 4.1 cases per 100,000 population. There were 5 reported outbreaks of pertussis in 2023, which is defined as 3 or more cases related in time and place.

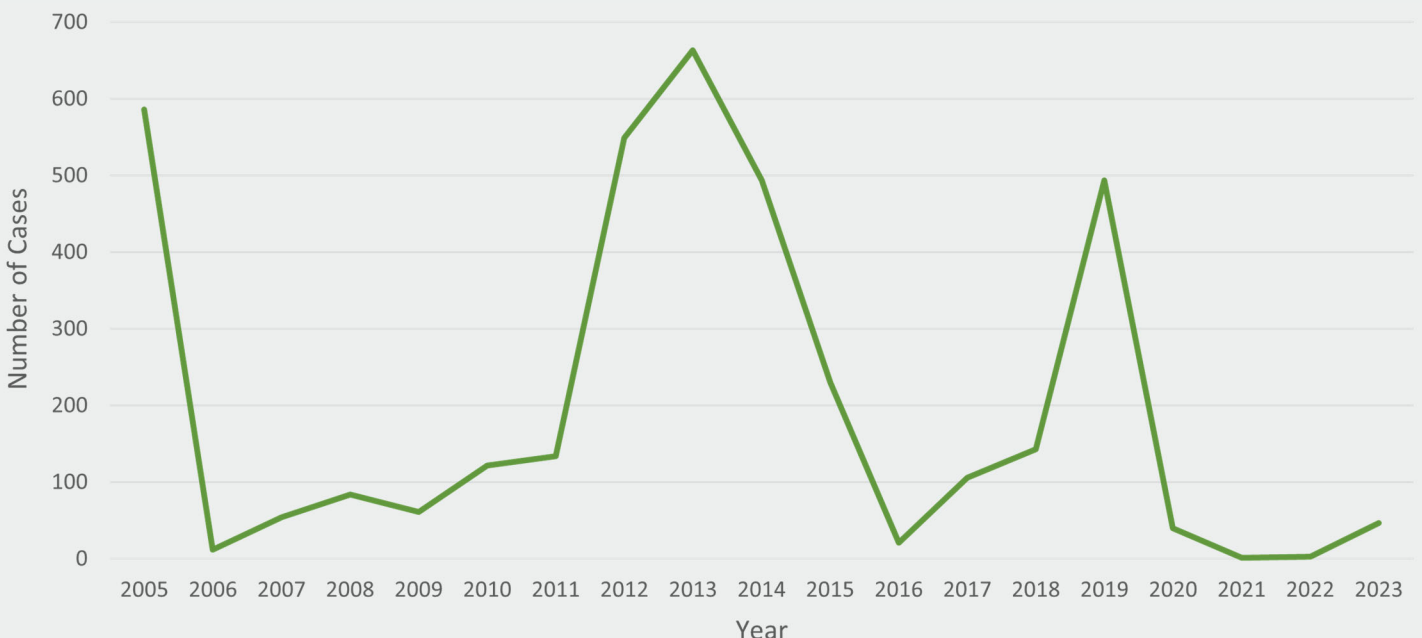
The age range of 2023 pertussis cases in Montana was 0 – 74 years, with a median of 29 years. Three of the cases were hospitalized and none died. Twenty-eight (60%) of the cases were either unvaccinated or not up to date with vaccine recommendations based on age.

## VARICELLA

Varicella-zoster virus is the causative agent of chickenpox. Over the past 15 years, the number of varicella cases reported in Montana has declined from a peak of 437 cases in 2007 to 21 cases in 2021 (Figure 16), largely due to the implementation of two-dose varicella vaccination in 2006, and varicella vaccine requirement for school attendees starting in 2015. In 2023, there were 37 cases of varicella reported in Montana.

In 2023, 5 (14%) varicella cases occurred in children under one year of age who were too young to receive vaccine. The median age of cases was 9 years (range: <1 month–65 years). Of the twenty-three cases less

**FIGURE 15. REPORTED PERTUSSIS CASES – MONTANA, 2005-2023**





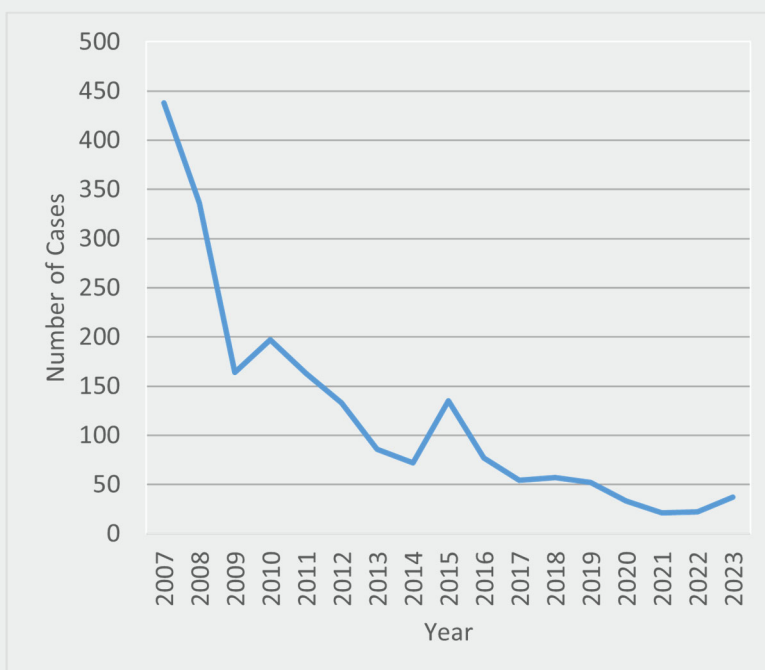
than 18 years old who were eligible for vaccine and had vaccination status available, 70% had not received a varicella vaccination.

## MUMPS

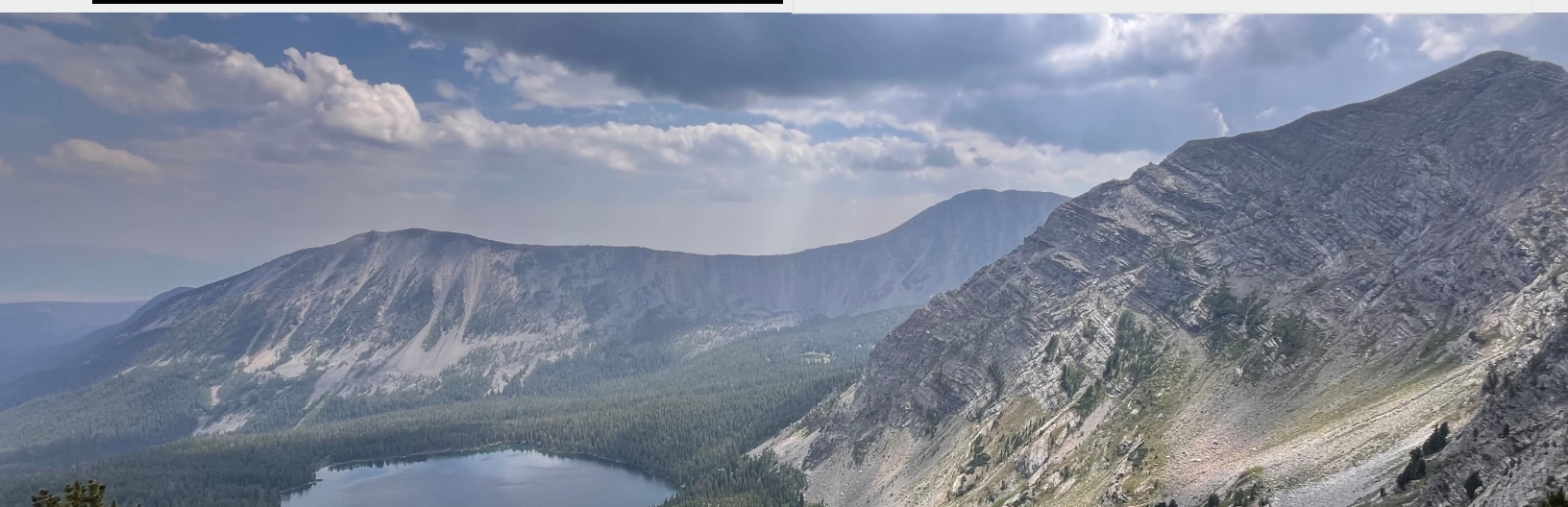
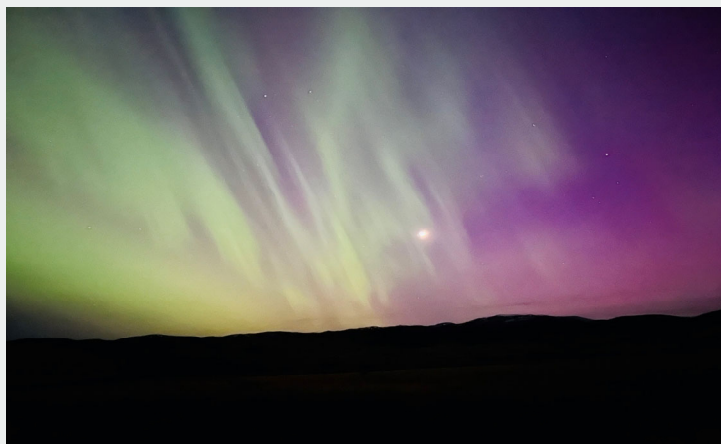
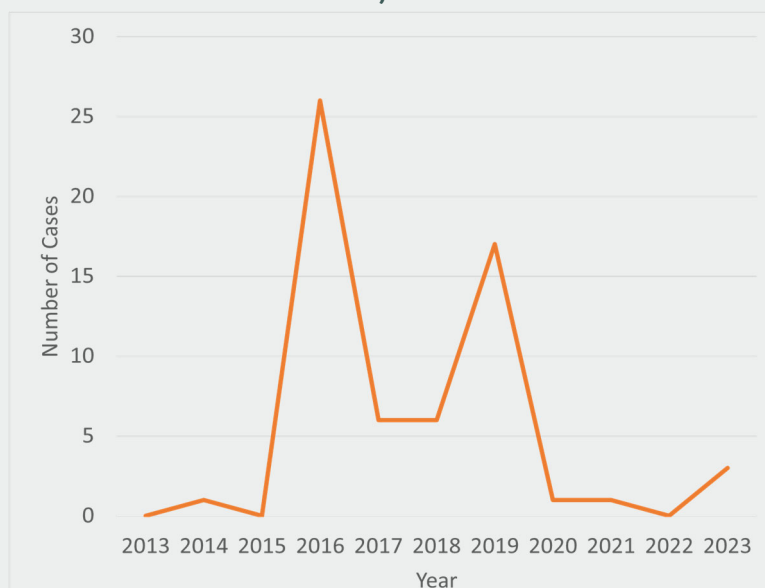
Mumps is an acute infection caused by a paramyxovirus and characterized by fever, swelling, and tenderness of the salivary glands (parotitis). Once a common childhood disease, the incidence of mumps has steadily declined since the introduction of mumps-containing vaccine in 1967 (now given as the measles, mumps, and rubella [MMR] vaccine, starting in 1971).

Prior to 2020, cases of mumps were increasing in the United States, with multiple reports of outbreaks on college campuses. An increase was noted in Montana during that time as well, with 26 reported cases linked to an outbreak in 2016, six cases reported each year in 2017 and 2018, and 17 cases reported in 2019. Prior to the increase in cases starting in 2016, there was a five-year average of less than one case of mumps reported per year in Montana. In 2023 three cases of mumps were reported. One case was not vaccinated due to presumed immunity from previous disease, one case was not vaccinated due to parent refusal, and one case had an unknown vaccination status.

**FIGURE 16. REPORTED VARICELLA CASES – MONTANA, 2007–2023**



**FIGURE 17. REPORTED MUMPS CASES – MONTANA, 2013–2023**





## Select Bacterial Invasive Diseases

*Invasive diseases occur when bacteria invade parts of the body that are considered normally sterile sites (e.g., blood, cerebral spinal fluid, etc.). For example, pneumococcal bacteria can invade the bloodstream, causing bacteremia, or the tissues and fluids covering the brain and spinal cord, causing meningitis. When this happens, disease is usually very severe, requiring treatment in a hospital and in some cases, death. Many invasive diseases are preventable by vaccination.*

### 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 bloodstream, and can cross the blood-brain barrier, causing serious disease including meningitis and septicemia. There are 13 serotypes of *N. meningitidis*; five cause the most disease worldwide (A, B, C, W, Y). The most common serotypes circulating in the United States are B, C, and Y. There are vaccines available to protect against these serotypes, which are part of a recommend vaccine schedule. In 2023, there were zero cases reported of meningococcal disease.

### STREPTOCOCCUS PNEUMONIAE

Pneumococcal disease is an infection caused by *Streptococcus pneumoniae* bacteria. There are multiple vaccines available that protect against many common serotypes of *S. pneumoniae*. In 2023, 110 cases (9.7 per 100,000 population) were reported in Montana, including four deaths. The median age of patients was 54.5 years (range: 2 – 101 years).

### HAEMOPHILUS INFLUENZAE

Fourteen cases of invasive *Haemophilus influenzae* were reported (1.2 per 100,000 population) in Montana in 2023. There was one death. The median age of patients was 59 years (range: <1 – 85 years). Most cases were non-typeable. There were no cases of invasive *H. influenzae* type B, the type that is vaccine preventable.

### STREPTOCOCCAL TOXIC SHOCK SYNDROME

Streptococcal toxic shock syndrome (STSS) is an invasive bacterial disease caused by group A *Streptococcus*. This syndrome can develop in up to one third of invasive group A *Streptococcus* infections, and it causes a cascade of symptoms leading to severe illness, sometimes resulting in death. In 2023 four cases of STSS were reported, with a median age of 45 years (range: 2 – 66 years). There was one death reported. A vaccine to protect against group A *Streptococcus* is not currently available.



# Sexually Transmitted Infections

***Sexually transmitted infections (STIs) continue to be some of the most frequently reported communicable diseases in Montana. All STIs are considered treatable. All Montana counties reported at least one STI case in 2023.***

## CHLAMYDIA

Chlamydia is caused by the bacterium *Chlamydia trachomatis* and was the most frequently reported STI in Montana and the United States in 2023. Chlamydia infections are often asymptomatic and might go unnoticed. In women, chlamydia infection can result in pelvic inflammatory disease (PID), a major cause of infertility; ectopic pregnancy; chronic pelvic pain; as well as facilitate the transmission of HIV<sup>2</sup>. Pregnant women infected with chlamydia can pass the infection to their infants during delivery, potentially resulting in neonatal ophthalmia or pneumonia.

There were 3,655 chlamydia cases reported in Montana in 2023. Starting in 2019 and into 2023 there has been a downward trend in the number of chlamydia cases reported in Montana (Figure 18). In 2023, the incidence was 322.6 chlamydia cases per 100,000 population, compared to 492.2 cases per 100,000 population for the US in 2023. More chlamydia cases were diagnosed among persons aged 20–24 years (35%) than any other age group (Figure 19). In 2023, 2,379 chlamydia cases (65%)

were reported in females. The greater proportion of cases among females might be attributed to screening recommendations for females, resulting in health care providers offering females testing more often than males.

FIGURE 19. CHLAMYDIA CASES BY SEX AND AGE – MONTANA, 2023

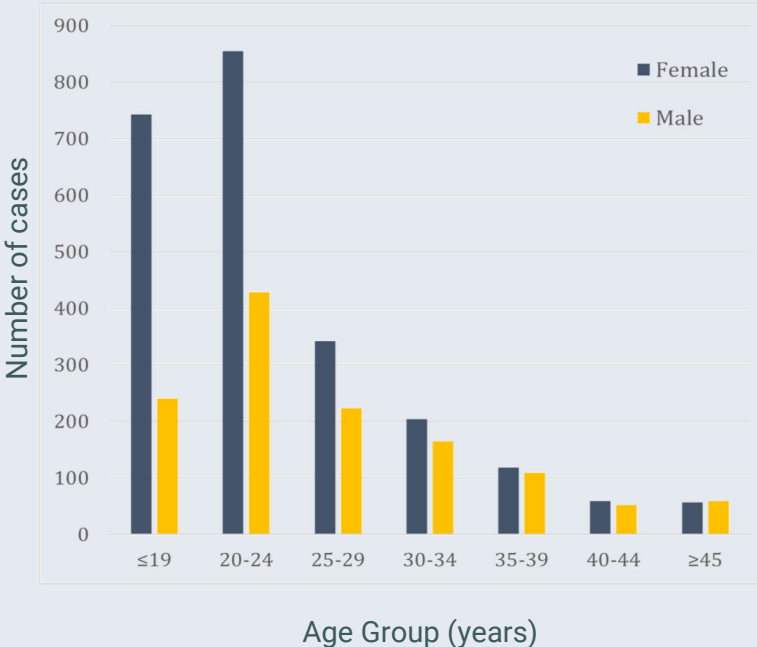
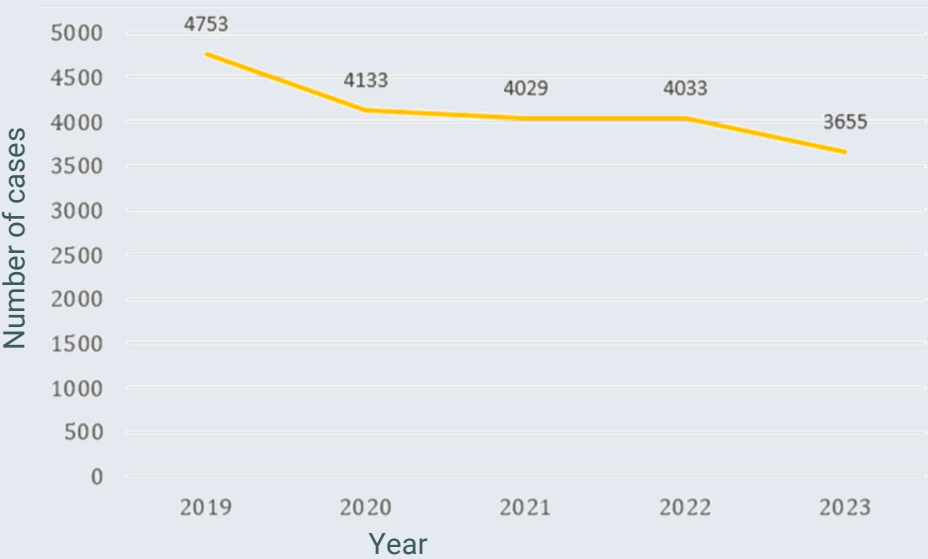


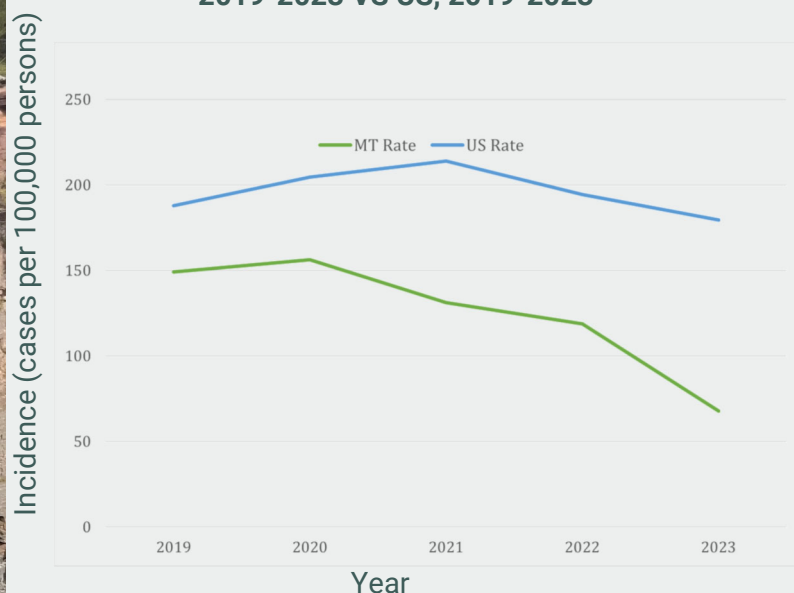
FIGURE 18. CHLAMYDIA CASES – MONTANA, 2019-2023







**FIGURE 20. GONORRHEA INCIDENCE – MONTANA, 2019-2023 VS US, 2019-2023**



## GONORRHEA

Gonorrhea is an infection caused by the bacterium *Neisseria gonorrhoeae*. It was the second most commonly reported STI in Montana in 2023. In Montana, the incidence increased from 2017-2020 but has decreased since 2020 (Figure 20). Gonorrhea infections are a major cause of pelvic inflammatory disease (PID). In addition, epidemiologic and biologic studies provide strong evidence that gonococcal infections facilitate the transmission of HIV<sup>2</sup>. Given the large burden of disease and risks associated with infection, the CDC recommends annual gonorrhea screening for all sexually active women aged less than 25 years, women 25 years and older at increased risk, all women during pregnancy, and at least annual screening for men who have sex with men.

In 2023, 767 gonorrhea cases were reported in Montana. The incidence of gonorrhea in Montana in 2023 was 67.7 cases per 100,000 population, compared to 179.5 cases per 100,000 population for the US in 2023.

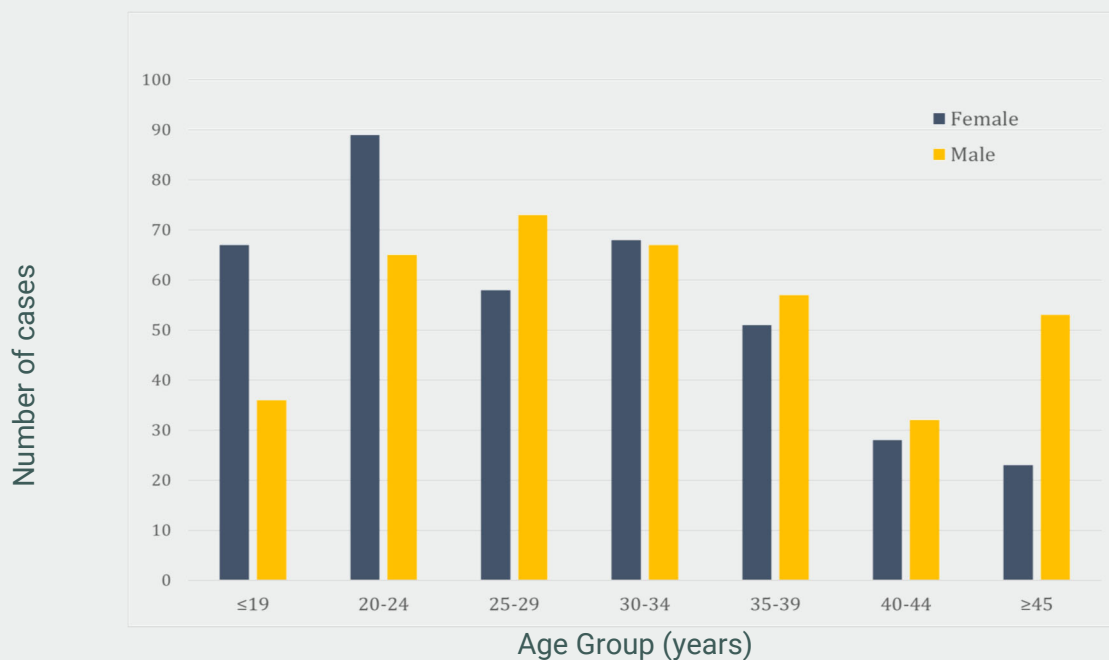
Figure 21 displays the distribution of gonorrhea incidence by sex and age group in Montana in





2023. In Montana, 384 gonorrhea cases (50%) were reported among females. Incidence is highest in the 20–24 and 30–34 year age groups, which account for 38% of the cases reported in Montana during 2023.

**FIGURE 21. GONORRHEA CASES BY SEX AND AGE –MONTANA, 2023**



## SYPHILIS

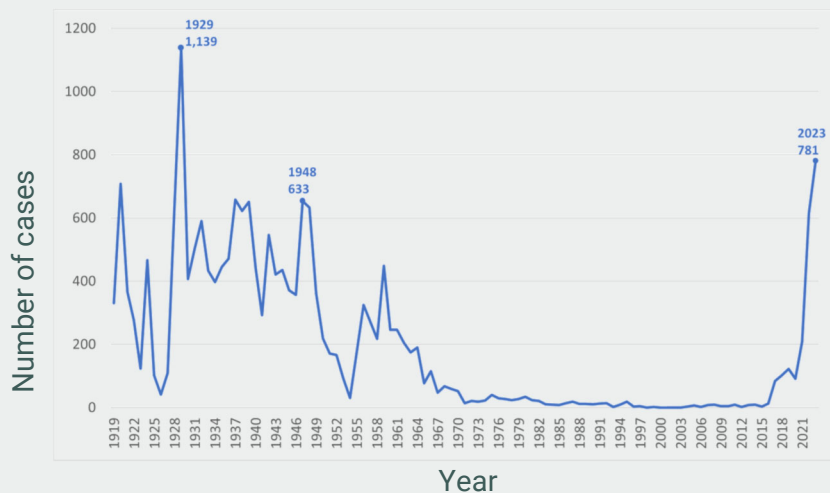
Syphilis is a systemic STI caused by the bacterium *Treponema pallidum*. It has often been called "the great imitator" because the signs and symptoms are similar to other diseases. Syphilis is primarily passed from



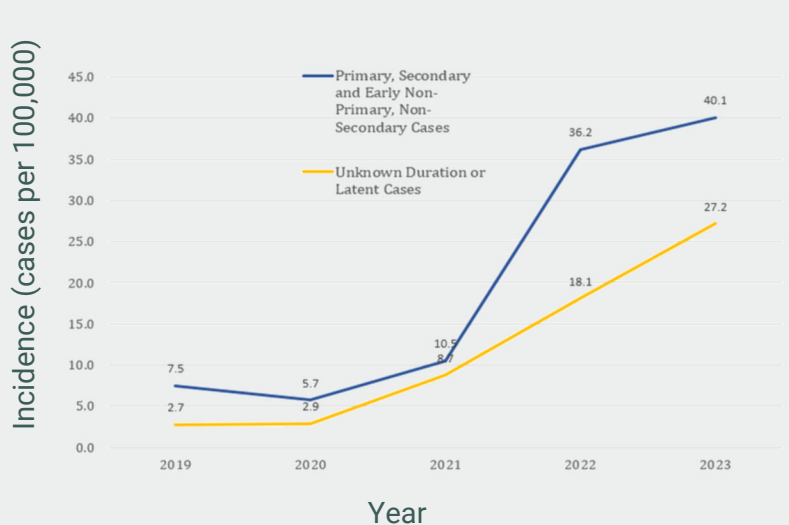
person to person through sexual contact, though infected pregnant women can transmit to their fetus, resulting in congenital syphilis. Without treatment, syphilis infection during pregnancy can lead to stillbirth, neonatal death, or infant disorders such as deafness, neurologic impairment, and bone deformities.

Syphilis can be divided into stages for the purposes of treatment and follow-up. Staging syphilis correctly is critical to appropriate treatment and partner management. Patients with early stages of syphilis (primary, secondary, and early non-primary, non-secondary) represent recent infection and pose an increased risk of transmission to others. About 25 to 40 percent of adults who remain untreated for syphilis can develop tertiary syphilis affecting the heart, bones, internal organs, skin, and the central nervous system.

**FIGURE 22. TOTAL SYPHILIS CASES ALL STAGES—**



**FIGURE 23. TOTAL SYPHILIS RATES BY STAGE — MONTANA, 2019–2023**



From 2019 to 2023, the number of cases dramatically increased from 116 to 781 in 2023, which is the highest case count of syphilis that Montana has reported since 1929 (Figure 22). The incidence of early syphilis cases per 100,000 population in Montana increased from 7.5 per 100,000 population in 2019 to 40.1 cases per 100,000 population in 2023 (Figure 23). The last year that Montana had >55.0 total syphilis cases per 100,000 population was 1959 (76.0 cases per 100,000).

Demographic characteristics are noted in Table 5, showing that most syphilis cases in Montana in 2023 were females (53%); this is a change from 2019 when 24% of syphilis cases were among females.

In 2019, 29% of reported primary and secondary syphilis cases in Montana were reported among American Indians and Alaska Natives (AI/AN). This increased to 71% of Montana's total primary and secondary syphilis cases reported among AI/AN in 2023. The incidence of primary and secondary

**TABLE 5. TOTAL SYPHILIS CASES DIAGNOSED BY SELECT CHARACTERISTICS (N=781) — MONTANA, 2023**

Characteristics	Number
<b>Sex</b>	
Male	363
Female	416
Unknown	2
<b>Age at diagnosis (years)</b>	
≤19	63
20–24	104
25–29	107
30–34	171
35–39	139
40–44	93
45+	104
<b>Ethnicity and race</b>	
American Indian or Alaska Native	433
White	169
Black or African American	18
Asian	1
Multi-race	137
Unknown race	23
Hispanic or Latino, any race	34



syphilis cases was 7.3 times higher for AI/AN than the incidence in Montana as a whole from 2019-2023. Disparities in syphilis rates by race are not explained by differences in sexual behaviors, but rather reflect access to sexual health care, differences in sexual networks, and persistent and systemic racism in medical care<sup>3</sup>.

## CONGENITAL SYPHILIS

Congenital syphilis occurs when *T. pallidum* is transmitted from a pregnant woman with syphilis to her fetus. Less often, perinatal transmission of *T. pallidum* can occur at the time of the delivery if the newborn has contact with maternal genital lesions. Transmission to the fetus in pregnancy can occur during any stage of syphilis.

The effective prevention and detection of congenital syphilis depends on detecting syphilis in pregnant women through the routine serologic screening of all

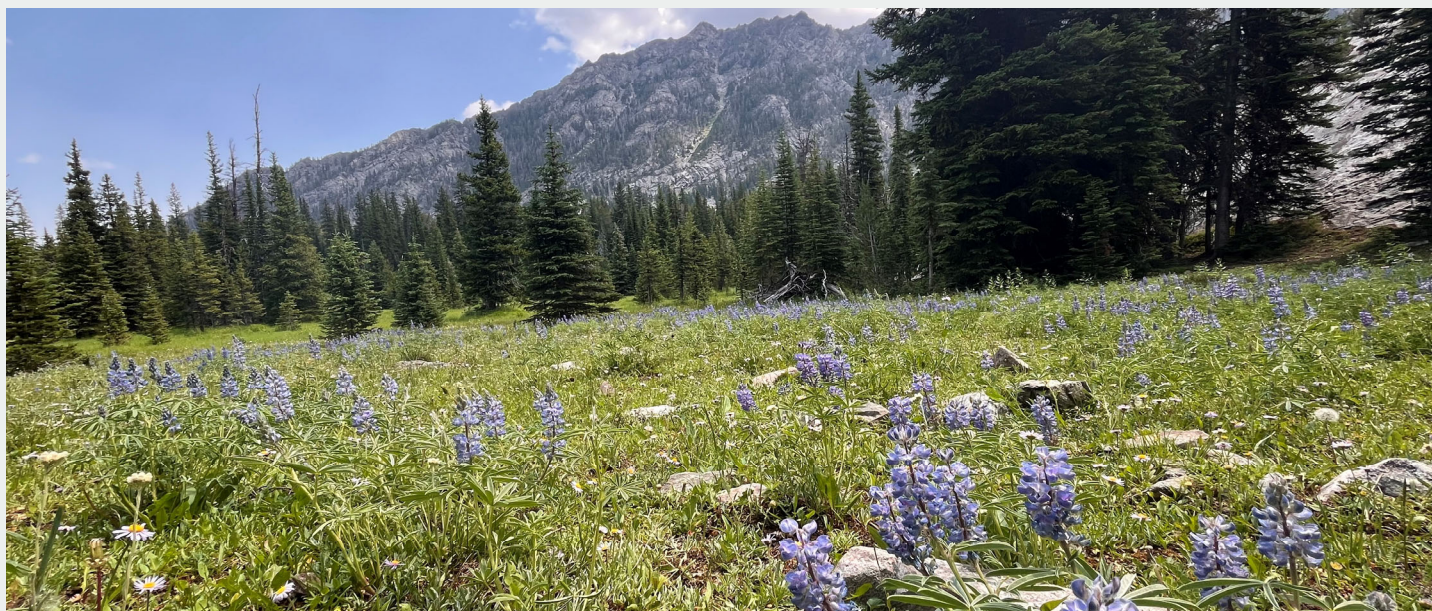
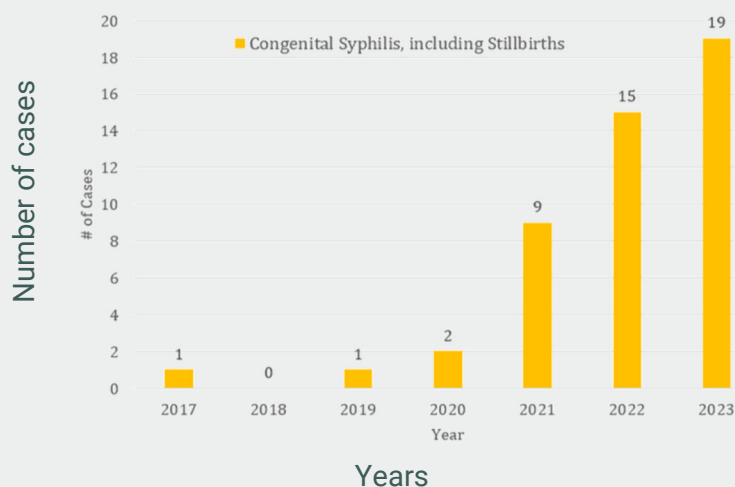
pregnant women during the first prenatal visit, at 28 weeks gestation, and at delivery. Maternal risk factors for syphilis during pregnancy include geography, sex with multiple partners, sex in conjunction with drug use or transactional sex, late entry into prenatal care or no prenatal care, drug use, incarceration of the pregnant woman or her partner, and unstable housing. For many people, the most significant risk factor is living in a community with high rates of syphilis.

Congenital syphilis can have long-term health impacts on the infant including: deformed bones, abnormal tooth development, severe anemia, enlarged liver and spleen, jaundice, brain and nerve problems, meningitis, and skin rashes.

Congenital syphilis cases have been increasing nationwide since 2012. Until 2020, Montana had a low incidence of congenital syphilis, averaging less than 1 case per year. Cases dramatically increased in 2021 when nine cases were reported, including two stillbirths and one infant death. In 2023, 19 cases of congenital syphilis were reported, including 2 stillbirths (Figure 24). The increase in congenital syphilis cases closely mirrors the increase in syphilis cases among females aged 15-44 years.

From 2013 to 2017, no cases of congenital syphilis were reported among AI/AN in Montana. During the next five-year timeframe, from 2019-2023, 35 (76%) of Montana's 46 congenital syphilis cases were reported among AI/AN. Given what is known about disparities in syphilis rates by race and ethnicity, it is likely the observed disparities in congenital syphilis cases by race in Montana also reflect maternal access to sexual health care, differences in maternal sexual networks, and the persistent and systemic racism in medical care, rather than differences in maternal sexual behavior.

**FIGURE 24. CONGENITAL SYPHILIS CASES — MONTANA, 2017–2023**



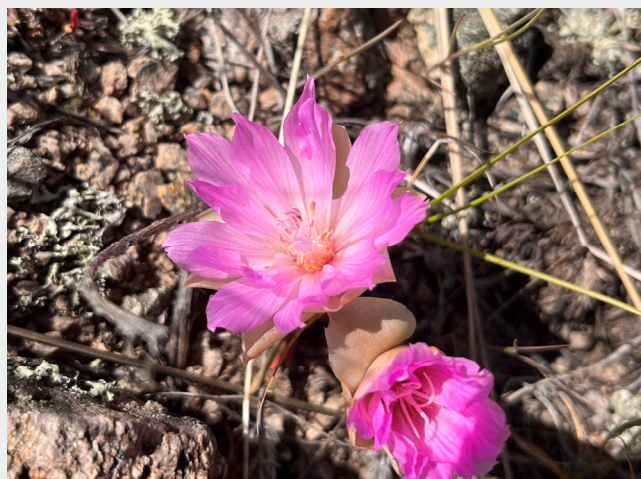
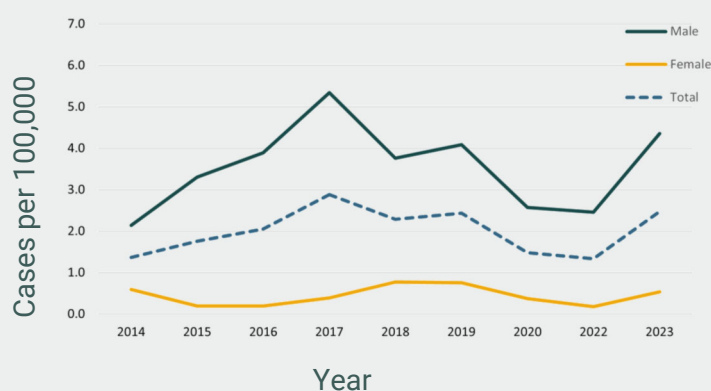
# HIV/AIDS

*HIV (human immunodeficiency virus) is spread through many body fluids and targets parts of the immune system. While there is no cure, persons infected with HIV can be treated with antiretroviral therapy (ART), which reduces the viral load and prevent transmission to others during sexual contact. Left untreated, opportunistic infections or cancers take advantage of the weakened immune system, indicating that the person has entered stage 3 disease, also known as acquired immunodeficiency syndrome (AIDS).*

In 2023, 28 newly diagnosed HIV cases were reported in Montana. Four new HIV cases were diagnosed with Stage 3 HIV at the same time as their initial diagnosis, indicating that there remains a need for recognition of risk factors and early testing. Since 2014, 14 to 30 new cases have been reported each year. Figure 25 shows that rates of new cases have remained relatively stable during this time. Most of the new cases are reported from the most populous counties in Montana: Yellowstone, Missoula, Cascade, Gallatin, and Flathead.

The leading transmission categories among HIV cases are male-to-male sexual contact (MSM) and injection drug use (IDU) (Table 6). When comparing 2023 with 2022, there has been little difference in

**FIGURE 25. REPORTED NEWLY DIAGNOSED HIV CASES PER 100,000 – MONTANA, 2014–2023**



risk factor percentages. Because of the small number of events, Table 6 presents aggregate data for 2019-2023 HIV cases.

Most HIV cases diagnosed in Montana during the 2019-2023 time period were among white, non-Hispanic persons (Table 6). Unlike other sexually transmitted infections (STIs), HIV infection did not disproportionately impact the American Indian population in Montana. During 2019-2023, 7% of new diagnoses were among the American Indian population. The U.S. Census reports that American Indians made up about 6% of the Montana population in 2023.

**TABLE 6. PERSONS NEWLY DIAGNOSED WITH HIV BY SELECT CHARACTERISTICS (N=105) – MONTANA, 2019-2023**

Characteristics	Number
<b>Sex</b>	
Male	93
Female	12
<b>Age at diagnosis (years)</b>	
<15	0
15-24	18
25-34	41
35-44	20
45-54	17
≥55	9
<b>Ethnicity and race</b>	
American Indian or Alaska Native, non-Hispanic	7
White, non-Hispanic	83
Black, non-Hispanic	<5
Asian, non-Hispanic	<5
Hispanic, any race	8
<b>Transmission category†</b>	
Male sexual contact w/ another male (MSM)	61
Injection drug use (IDU)	10
MSM & IDU	11
High-risk heterosexual contact‡	5
No identified risk	18

†Transmission category describes the combinations of risk factors by which a person might have acquired HIV

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



# Tuberculosis

*Tuberculosis (TB) is caused by the bacterium Mycobacterium tuberculosis. The bacteria usually attack the lungs, but TB bacteria can attack any part of the body such as the kidney, spine, and brain. Not everyone infected with TB bacteria becomes sick. The disease is transmitted person to person, and those who become infected with TB (latent TB) can develop active disease at any time during their lifetime. Without treatment of infection, about 5% to 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 five years of age or younger.*

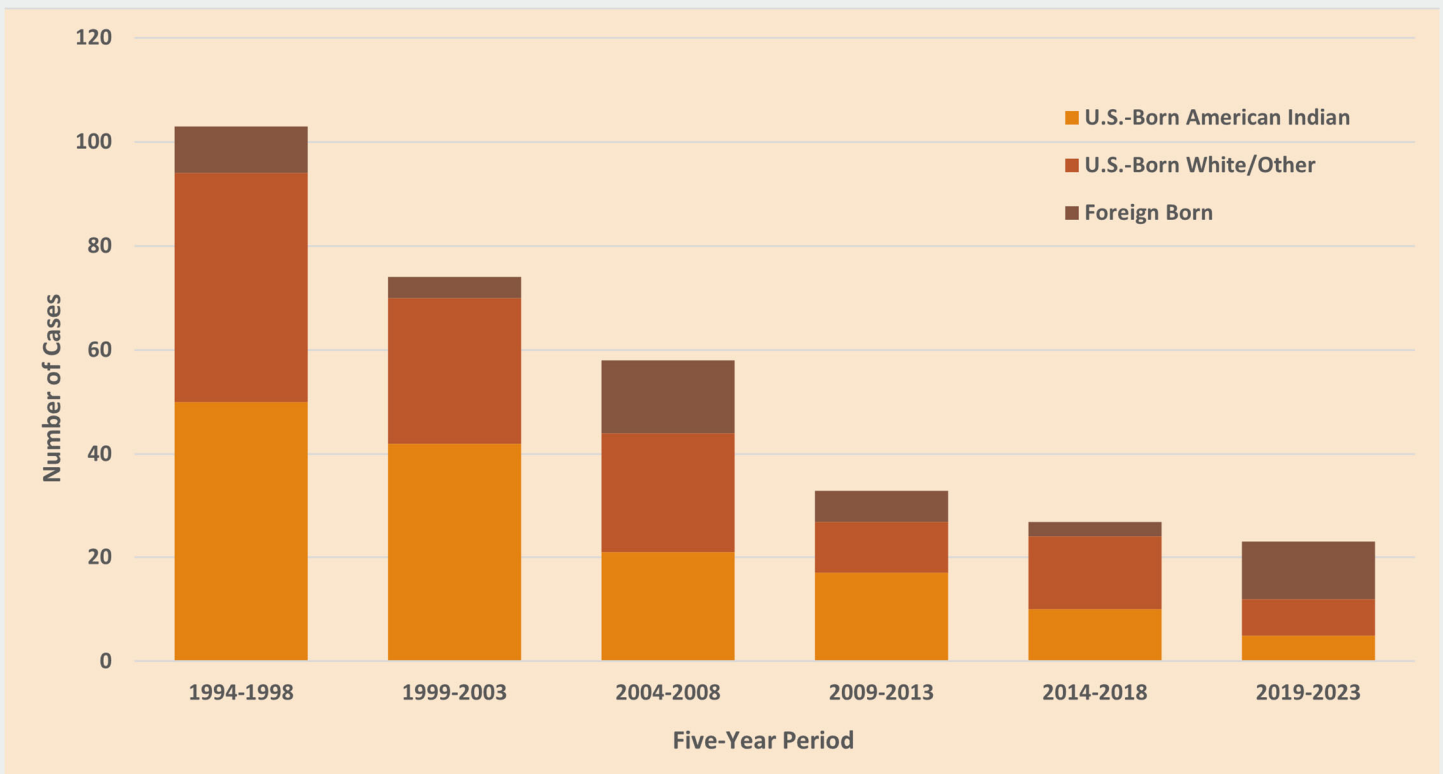
The number of TB cases reported annually in Montana and in the United States has steadily decreased over the past three decades. Figure 26 presents the number of TB cases over time by foreign-born persons and by race for U.S.-born persons. TB persists in specific high-risk populations, including foreign-born persons, persons previously exposed to TB, persons with compromised immune systems, and American Indians. These populations are considered higher risk due to the high prevalence of endemic TB outside of the US, the risk of being exposed to TB, the risk of converting to active TB disease, and the historically high numbers of active TB within American Indian populations. Overall, TB cases have steadily declined from an average of 20 cases per year in the 1990s to an average of 4.6 cases per year in the last 5 years.

TB cases among American Indians have declined from an average of 10 cases per year in the 1990s to an average of two cases per year during the last 10 years. In the last five years, an average of 1 cases per year among American Indians were reported in Montana.

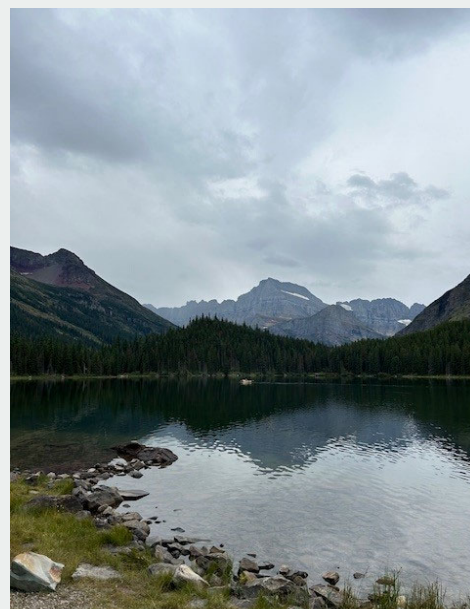
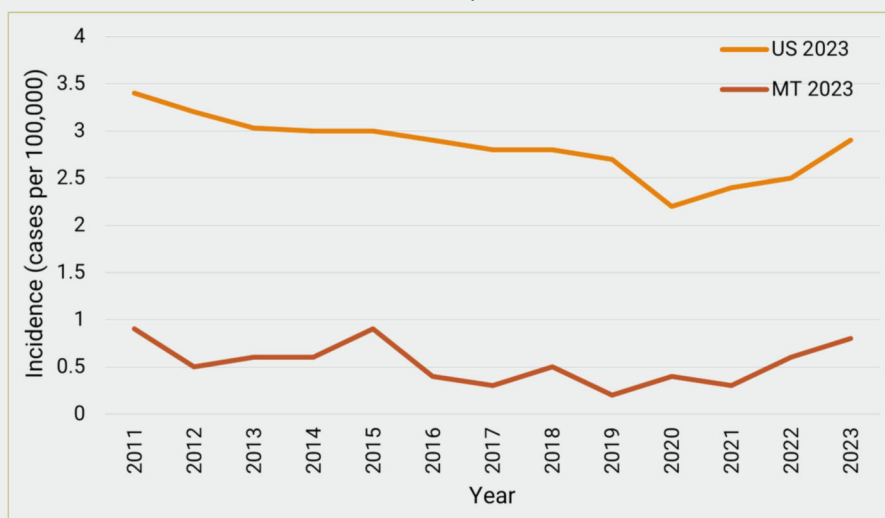
Eight cases of active TB were reported in Montana in 2023. Counties of residence included Carter, Flathead, Gallatin, Roosevelt, and Yellowstone. The 2023 Montana TB incidence was 0.8 cases per 100,000 population, which is 3.6 times lower than the U.S. rate (2.9 cases per 100,000 population in 2023) (Figure 27). Nationally, rates went up in almost every state in the US in 2023, including Montana.

From 2019-2023, eleven reported TB cases were foreign born, five were U.S.-born American Indian, and seven were U.S.-born white/other. Five of the eight patients diagnosed in 2023 had pulmonary TB

**FIGURE 26. REPORTED ACTIVE TUBERCULOSIS CASES BY RACE – MONTANA, 1994–2023**



**FIGURE 27. TUBERCULOSIS INCIDENCE — MONTANA AND UNITED STATES, 2011–2023**



disease, one patient had pleural TB disease, one patient had TB in the bone and/or joints, and one had lymphatic cervical TB. Risk factors of note for these cases included birth or travel in countries with endemic TB, contact with an infectious TB case, untreated latent TB infection, diabetes, and immunosuppression (not HIV/AIDS). One patient died before completing treatment; TB was a contributing factor to their death.

Contact investigations for the eight cases in 2023 were extensive and involved over 350 contacts. No contacts tested positive for TB. One contact investigation involved a case in a high school. This contact investigation was extensive and required collaboration between several counties.

Several cases experienced adverse reactions to TB medication. Management of these cases was complex and involved cross-disciplinary partnerships among public health, clinical, and pharmaceutical physicians and staff. National experts were consulted in many instances. Thanks to the dedication of local public health staff, all cases were followed through their course of treatment and aided in their recovery efforts.

Despite the low numbers of TB cases reported in Montana and nationally, a number of challenges remain that slow the progress toward TB elimination. 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.





# Latent Tuberculosis

Montana TB case rates continue to be among the lowest in the country. However, these rates have begun to plateau in recent years with an average of 5 cases per year during 2014 to 2023. The goal in Montana and nationally is TB elimination. An important strategy to eliminate TB is to address TB disease’s largest contributing source: those who have latent TB infection (LTBI) and convert to active disease. Over 80% of TB cases nationally, and over 90% of TB cases in Montana, are among individuals who had LTBI and converted to active TB disease. Per CDC, an estimated 13 million people have LTBI in the U.S.; around 9,000 of people with LTBI are in Montana<sup>4</sup>. If we are to achieve TB elimination in Montana, a concerted effort in identifying and treating people with LTBI is needed.

There were 252 cases of LTBI diagnosed in Montana during 2023. Cases who were diagnosed during 2023 were likely to have been infected years before diagnosis. It is very difficult to determine the time frame of infection for LTBI cases when there is no known evidence that the patient was a close contact to an active case of TB. Many patients have no knowledge of ever being exposed, which underscores the importance of LTBI testing, especially for people at higher risk.

Of the LTBI cases identified during 2023, 61.5% (155) started treatment. Treatment is the only way to eliminate the chance of developing active disease.

Only 34 of the LTBI cases during 2023 were either foreign-born or had an unknown location of birth. Most of Montana’s LTBI cases from 2023 are U.S.-born, which does not follow national trends. Risk factors of interest included: lived outside of US, immunosuppression (not

TABLE 7. CHARACTERISTICS OF LTBI CASES – MONTANA, 2023 (N=252)

Sex	
Male	136
Female	116
Age at diagnosis (years)	
<15	2
15-24	29
25-34	56
35-44	59
45-54	39
55-64	40
≥65	27
Ethnicity and race	
American Indian or Alaska Na-tive	34
White	130
Black or African American	8
Asian	31
Multi-race	12
Unknown race	37
Hispanic or Latino, any race	44
US Borne	
Yes	218
No	24
Unknown	10

HIV), ever experienced homelessness, and ever incarcerated. These risk factors only account for less than 30% of the LTBI cases.

Most patients diagnosed with LTBI were between the ages of 25 and 44, or 55 and older. These patients most likely would represent those who are required to have baseline TB testing in the health care industry, and those who are potentially starting an immunosuppressive therapy.

Those who have ever been exposed to an active case in their lifetime, or who were born in or traveled to a TB endemic country for a month or more, might have LTBI and not know it. Getting tested if you have these risk factors will help detect LTBI, and treatment will neutralize the TB bacteria before it can convert to active TB.



# Viral Hepatitis

*Hepatitis refers to an inflammation of the liver. Heavy alcohol use, toxins, some medications, and certain medical conditions can cause hepatitis. One of the main causes of hepatitis are viruses; the most common types of viruses that cause hepatitis are hepatitis A, B, and C. Symptoms of hepatitis include fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, dark urine, grey-colored stools, joint pain, and jaundice. Symptoms of acute viral hepatitis appear any time from 2 weeks to 6 months after exposure. Symptoms of chronic viral hepatitis can take decades to develop, and many people with hepatitis are asymptomatic.*

## HEPATITIS A

Hepatitis A virus (HAV) infection is a vaccine-preventable liver infection. It is highly contagious, and the virus is found in the blood and stool of people who are infected. It spreads when someone ingests the virus, either through close contact with an infected person or through eating contaminated food or beverages. Symptoms of hepatitis A infection include fatigue, nausea, stomach pain, and jaundice, and can last up to two months. Hepatitis A does not progress to a chronic infection. There were 2 cases of hepatitis A infection reported in Montana in 2023.

## Hepatitis B

Hepatitis B is a viral infection of the liver caused by the hepatitis B virus (HBV). Hepatitis B is spread through contact with the blood, semen, or other body fluids of someone who is infected, most often through sexual contact, injection drug use (IDU), or from mother to baby at birth. Symptoms of infection may or may not be present, and infection

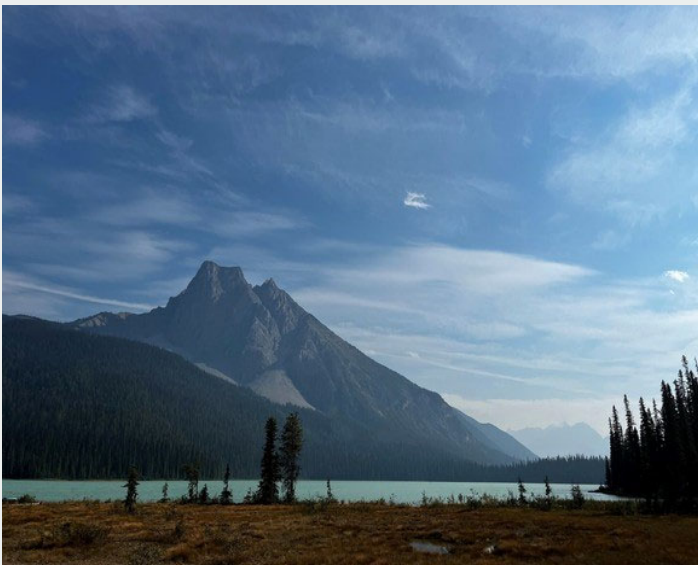
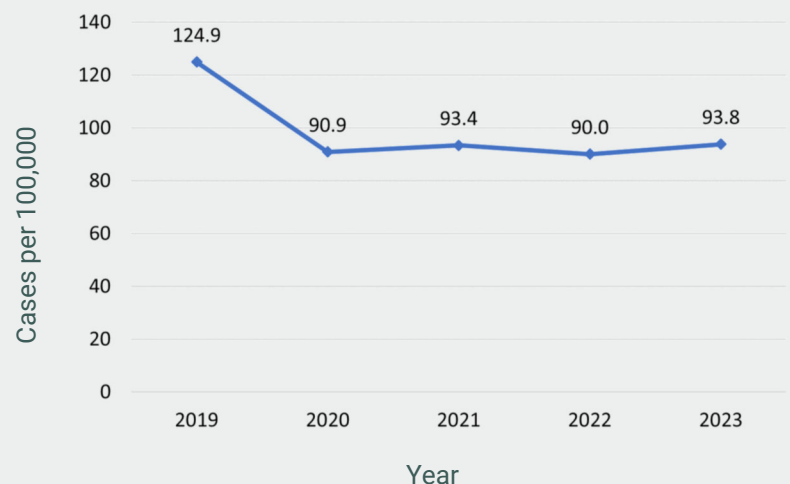
is confirmed with laboratory blood tests. HBV infection can be an acute (short-term) illness or it can become a chronic (long-term) infection. Chronic hepatitis B can lead to serious health issues, including cirrhosis or liver cancer, especially among people who are infected at birth. HBV infections have decreased significantly since the 1990s, when HBV vaccination became routinely recommended for infants and children. There were 16 reported chronic HBV infections reported in Montana in 2023. It's possible that some of these cases may have had the disease for years but were only identified recently. The median age of cases was over 30 and the majority were male. There were 5 acute HBV cases reported in Montana in 2023, indicating recent infection. There were no perinatal hepatitis B infections reported in 2023. Four infants who were born to women with hepatitis B completed prophylaxis to prevent infection in 2023.

## HEPATITIS C

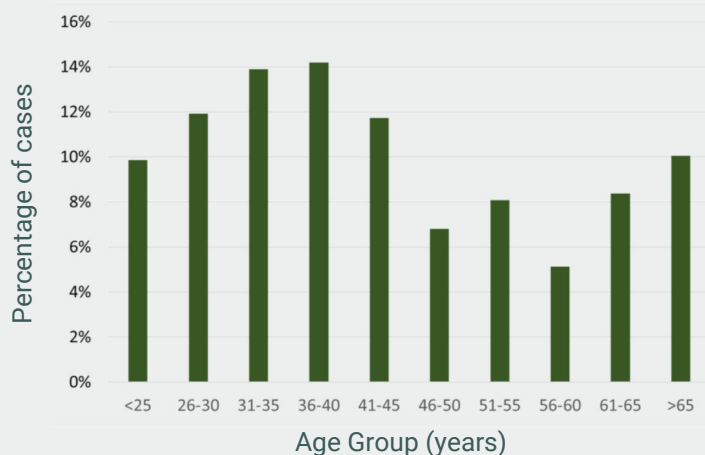
Hepatitis C virus infection (HCV) is a liver disease that ranges in severity from a mild illness lasting a few weeks to a serious, lifelong illness. It is caused by infection with the hepatitis C virus and is spread through contact with blood of an infected person. Today, in the United States, the majority of persons become infected with HCV by sharing needles or other equipment used to inject drugs.

Like hepatitis B, HCV can be either acute or chronic. Hepatitis C has an incubation period of 2 weeks to 6 months. There were 1,063 cases of chronic hepatitis C reported in Montana in 2023. Not all cases were newly acquired; some may have been infected years prior to their diagnosis. While there is no vaccine for HCV, treatment can cure more than 95% of cases. The CDC estimates that up to 50% of people with hepatitis C in the US are unaware of their infection. The incidence of

**FIGURE 28. INCIDENCE OF CHRONIC HEPATITIS C INFECTIONS – MONTANA, 2023**





**FIGURE 29. NEWLY REPORTED CHRONIC HEPATITIS C INFECTIONS BY AGE GROUP – MONTANA, 2023****TABLE 8. DEMOGRAPHIC CHARACTERISTICS OF PERSONS WITH CHRONIC HEPATITIS C – MONTANA, 2023**

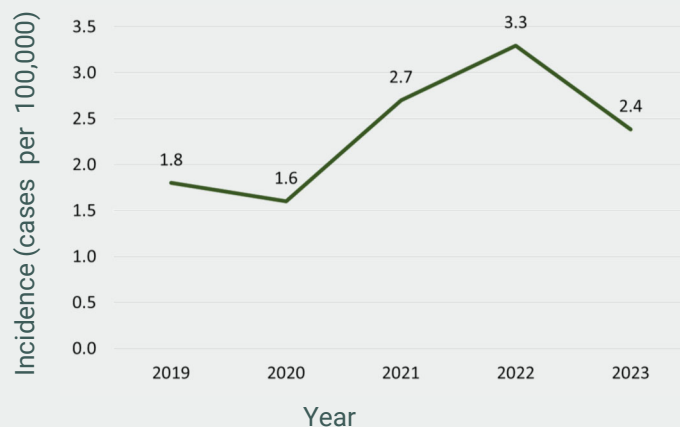
SEX		RACE	
Male	672 (63%)	White	539 (51%)
Female	374 (35%)	American Indian or Alaska Native	425 (40%)
Other/Unknown	17 (2%)	Black or African American	10 (1%)
		Other	29 (3%)
		Unknown	60 (6%)

chronic HCV infections in Montana between 2016 and 2023 is shown in Figure 28.

Chronic HCV affects multiple generations with infections highest among two age groups: persons 36–40 years old and persons older than 65 years (Figure 29). Younger populations typically acquire the disease through injection drug use while persons 59 and older are more likely to have developed chronic HCV through unscreened blood products.

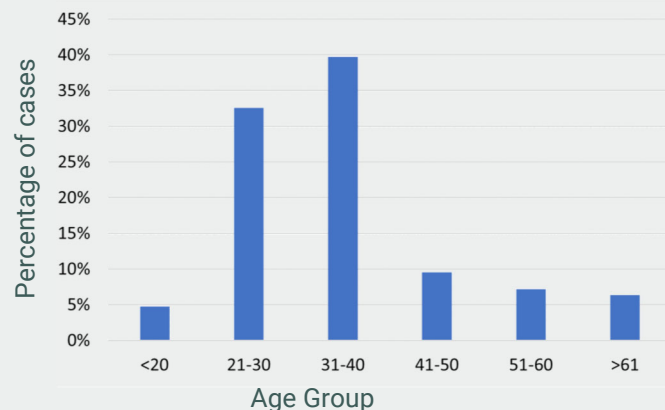
In Montana, more males were diagnosed with chronic HCV (63% of diagnosed cases) than females in 2023 (Table 8). Chronic HCV disproportionately impacted the American Indian population which made up 40% of total cases while accounting for 6% of the Montana population.

Acute hepatitis C is a short-term viral infection caused by the hepatitis C virus. After being infected with acute HCV, more than half of people will go on to develop chronic HCV. Because of its short time span and the fact that in many cases, the disease causes no symptoms, cases of acute HCV are often not detected.

**FIGURE 30. ACUTE HEPATITIS C INFECTIONS – MONTANA, 2019-2023**

Between 2019 and 2022, the rates of acute HCV increased in Montana (Figure 30). This might have been influenced by the COVID-19 pandemic, as well as an increase in substance use. Between 2022 and 2023, the incidence of acute HCV cases in Montana declined (2.4 cases per 100,000 population) and was lower than the United States incidence in 2021 (2.8 per 100,000). It is unclear if this represents a reduced impact of the COVID-19 pandemic or an increase in undiagnosed disease.

Acute HCV is often strongly associated with injection drug use, particularly among young adults. During 2019-2023, more than two-thirds of acute HCV cases in Montana were in persons younger than 40 years old. More males were diagnosed with acute HCV (58% of diagnosed cases) than females during the same time period.

**FIGURE 31. ACUTE HEPATITIS C INFECTIONS BY AGE GROUP – MONTANA, 2019-2023**

# Zoonotic & Vectorborne Diseases

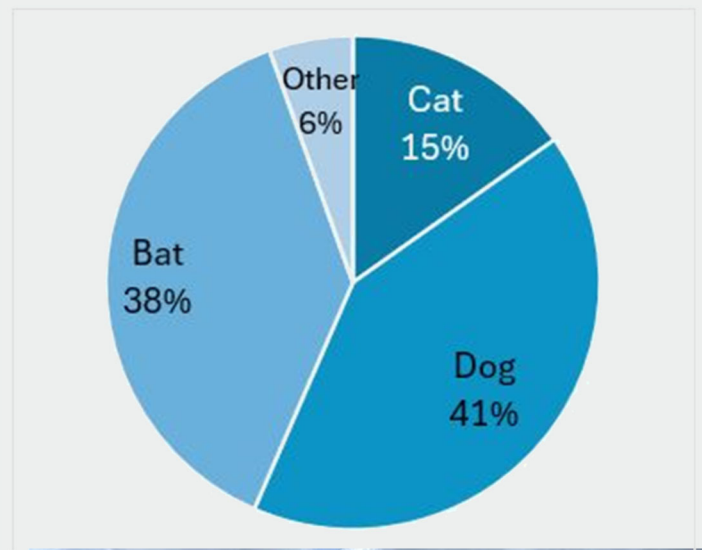
## RABIES

Rabies is a vaccine-preventable viral disease that is almost universally fatal and is most often transmitted to humans through the bite of a rabid animal. Most 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 or neural tissue of an infected wild or domestic animal. A bite from an infected animal is the most common route of human exposure. The last cases of human rabies in Montana were reported in 1996 and 1997; both were associated with bat exposures.

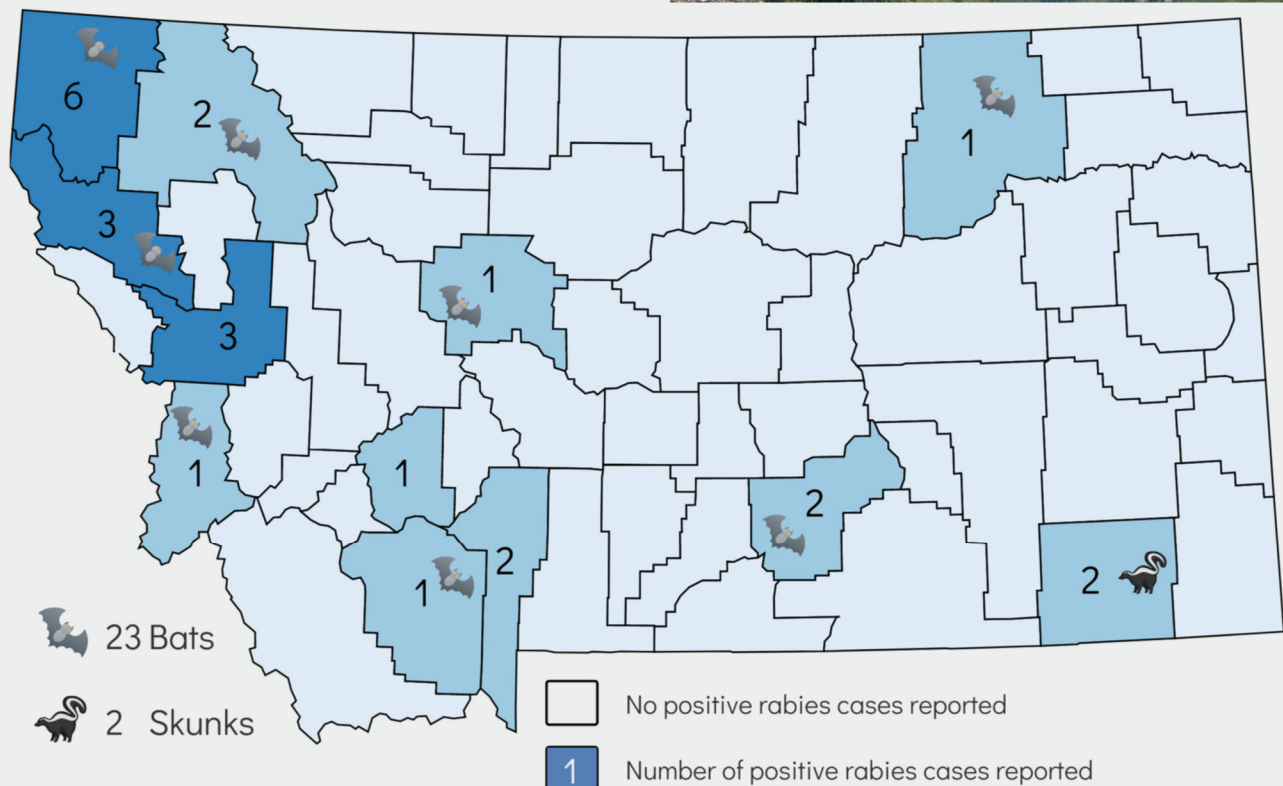
In 2023, 573 animals were tested for rabies at the Montana Veterinary Diagnostic Laboratory (MVDL); 23 bats and two skunks tested positive for rabies virus (Figure 32).

Rabies in humans is preventable through prompt and appropriate medical care and use of rabies post-exposure prophylaxis (rPEP). In 2023, 237 Montana residents received the recommendation to pursue rPEP to prevent disease after exposure to an animal that is capable of transmitting rabies. The animals they were exposed to are summarized in Figure 33.

**FIGURE 33. ANIMAL EXPOSURES THAT LED TO rPEP RECOMMENDATIONS (N=237) – MONTANA, 2023**



**FIGURE 32. ANIMALS THAT TESTED POSITIVE FOR RABIES VIRUS (N=25) – MONTANA, 2023**



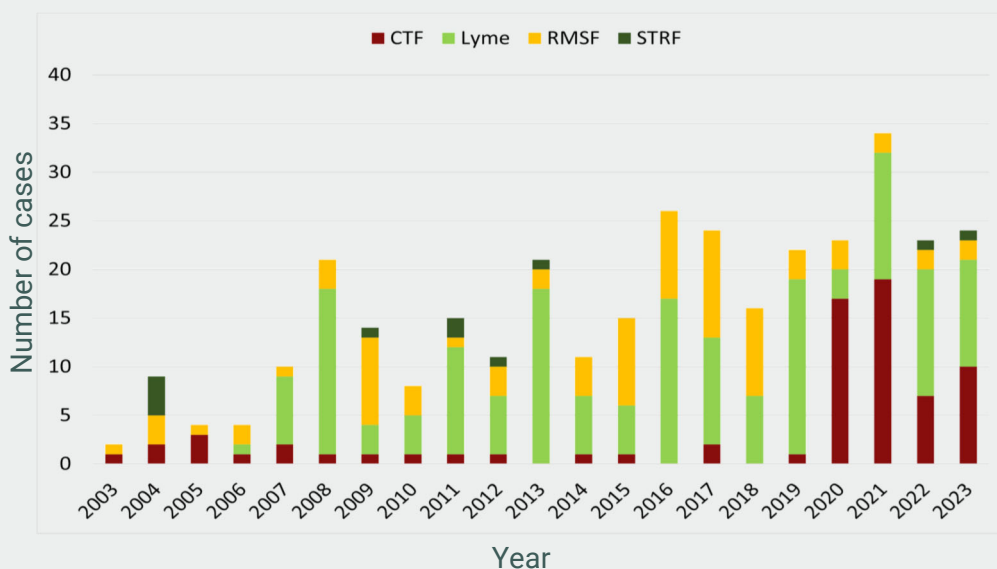




## TICKBORNE DISEASES

Pathogens present in Montana that can be transmitted to humans by ticks include those that cause Colorado tick fever, Rocky Mountain spotted fever (RMSF, *Rickettsia rickettsii*), soft tick relapsing fever (STRF, *Borrelia hermsii*), and tularemia (*Francisella tularensis*). The number of reported cases from 2003-2023 is shown in Figure 34. The most commonly reported tickborne disease acquired in Montana in recent years is Colorado tick fever (CTF), which is carried by the established tick species *Dermacentor andersoni* (Rocky Mountain wood tick). While CTF can be acquired throughout the state, exposures frequently occur along Montana's western border. Reported cases of CTF increased sharply in 2020 and remain elevated through 2023. Lyme

**FIGURE 34. REPORTED CASES OF TICKBORNE DISEASES — MONTANA, 2003–2023**



disease is the most frequently acquired condition in Montana residents associated with out-of-state travel. *Ixodes* species ticks associated with Lyme transmission (including *I. pacificus* and *I. scapularis*) have not been detected in Montana as of the end of 2023.

## OTHER VECTORBORNE DISEASES

Out-of-state travel was associated with one case of ehrlichiosis, *chaffeensis* in a Montana resident during 2023. Travel out of state can result in exposure to vectorborne

illnesses not endemic to Montana, and tick and mosquito prevention techniques are still highly encouraged—especially during outdoor recreation.

Mosquitoborne diseases reported in Montana in 2023 included two cases of malaria, one case of dengue, and one case of chikungunya; all were associated with international travel. Before traveling, it's advised to research what vectorborne diseases are endemic or causing outbreaks in the destination region. In many cases, vaccination (e.g., yellow fever) and/or prophylaxis (e.g., malaria) are available and highly encouraged.

## WEST NILE VIRUS

West Nile virus (WNV) is an arbovirus transmitted by infected mosquitoes throughout the United States. Most persons infected with WNV do not experience symptoms. However, less than one percent of infected persons develop West Nile neuroinvasive disease (WNND), a serious and potentially debilitating and life threatening condition.

Since the introduction of WNV into Montana in 2002, the number of cases in Montana has followed a cyclic pattern with outbreaks detected every four to six years. Fourteen of the twenty-two years of WNV surveillance had fewer than 20 annual cases (range 0–11). Five years had between 26 and 51 cases (2005, 2006, 2013, 2018, 2023) and two years (2003 and 2007) had over 200 cases. WNV season usually runs from July until October, with most cases reported in August and September.

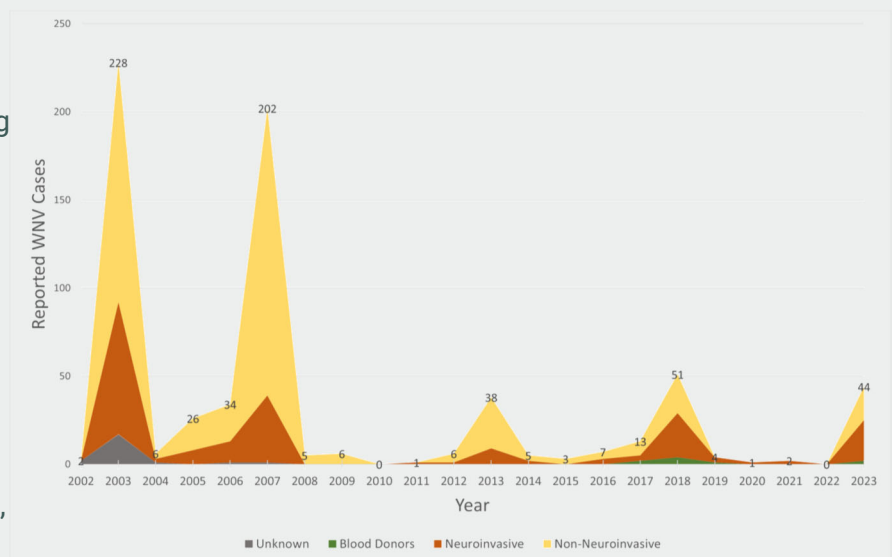
2023 was an active WNV year in Montana and the first outbreak season since 2018. Forty-four (44) total cases were reported in Montana residents, including one death. Cases, including 23 neuroinvasive, 19 non-neuroinvasive, and 2 asymptomatic, occurred throughout Montana (Figure 36). Of the 44 cases, 9 were identified through blood donation, including the two asymptomatic individuals. Of reported WNV cases in Montana during 2023, 61.4% were over the age of 50.

Mosquito pools are collected and tested for WNV each year. In 2023, there were 22 counties that submitted mosquitoes for WNV testing. Out of 496 pools of mosquitoes tested, WNV was detected in 39 pools across multiple counties (Figure 36).

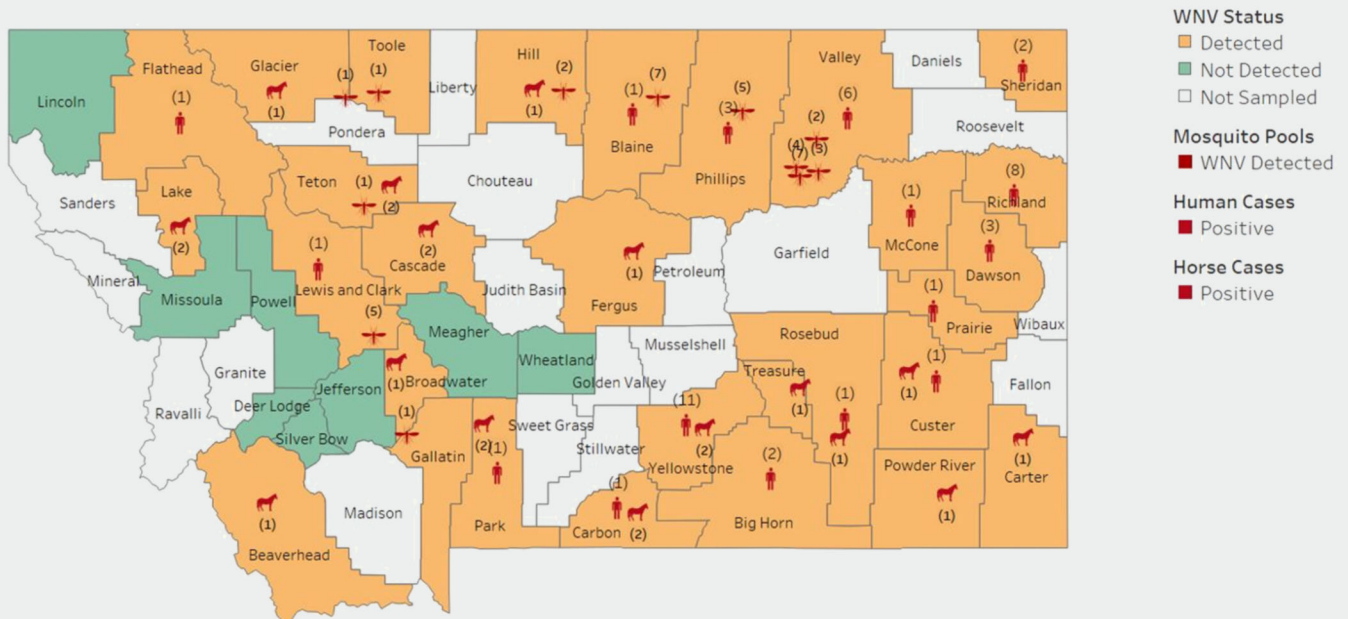
The primary mosquito carrier of WNV in Montana is *Culex tarsalis*. As of 2023, *C. tarsalis* has been identified in every county in Montana, with *C. tarsalis* captured in Glacier County for the first time. *C. pipiens*, a common carrier for WNV throughout the U.S., has also been identified in some Montana counties, but is much less widespread.

The severity of a WNV season is difficult to predict ahead of time. WNV is a potentially severe infection, and can lead to long-term body pain and fatigue, encephalitis, meningitis, permanent paralysis, or even blindness. Because of this, preventing mosquito exposures and bites is recommended each summer. WNV cannot be transmitted person to person except through blood transfusion or organ transplants.

**FIGURE 35. WEST NILE VIRUS CASES BY YEAR—MONTANA, 2023**



**FIGURE 36. WEST NILE VIRUS ACTIVITY BY COUNTY – MONTANA, 2023**







## HANTAVIRUS

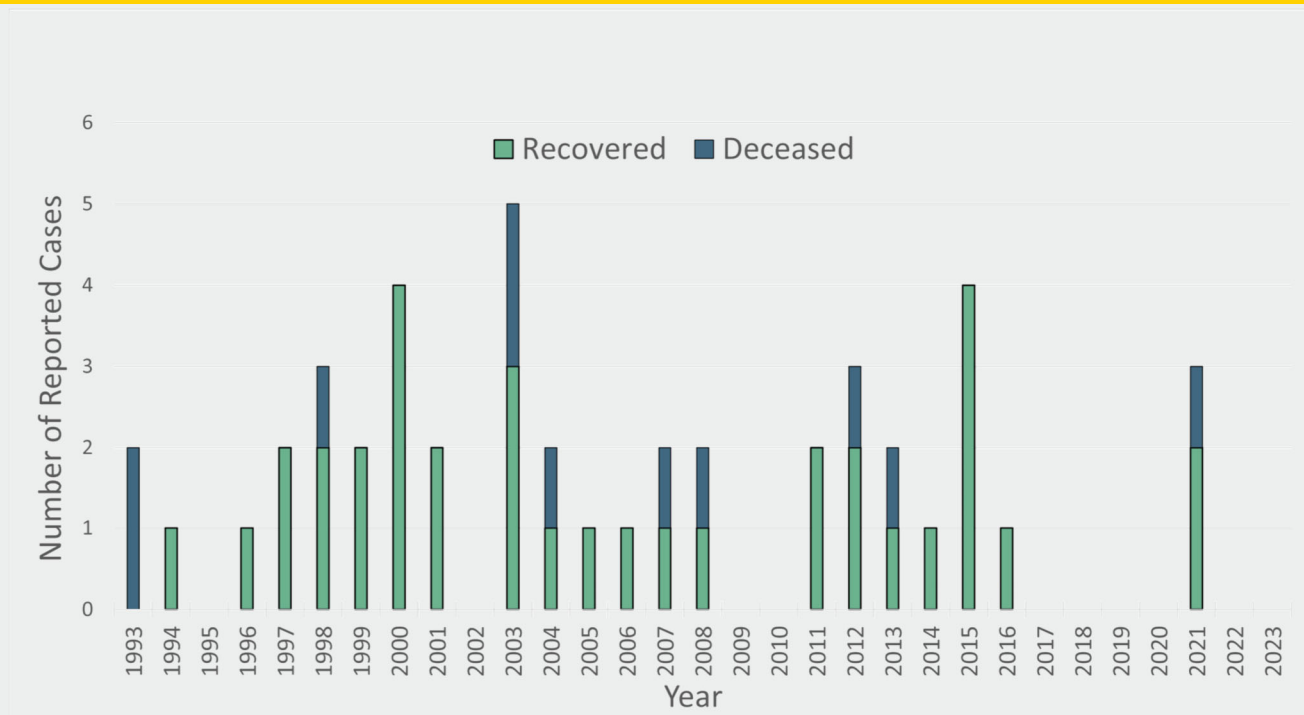
Hantaviruses are a family of viruses found worldwide that are spread primarily by the urine, droppings, and saliva of rodents. Hantavirus pulmonary syndrome (HPS) became a notifiable condition in 1993. Hantavirus infections that do not result in HPS (non-HPS hantavirus infections) became nationally notifiable in 2016. The deer mouse is the most common host of the virus and is widespread in Montana.

Since 1993, Montana has reported 46 cases of hantavirus infection, including 11 deaths (Figure 37). No cases of hantavirus were reported in Montana between 2017 and 2020. Four cases of hantavirus infection have been reported in Montana since 2016. Of these, 3 were classified as hantavirus infection (non-HPS) and one was classified as HPS.

Twenty-six counties in Montana have reported at least one case of hantavirus infection since 1993. The majority of cases have occurred in the western and southwestern regions of Montana.

Reducing potential exposures to rodents is key to preventing hantavirus. Montanans can do this by sealing up, trapping up, and cleaning up. Examples include sealing up holes and gaps in homes and garages, trapping and disposing of rodents, and carefully cleaning areas with mouse infestation while using appropriate personal protective equipment (e.g., goggles, respiratory protection, and gloves)<sup>6</sup>.

**FIGURE 37. HANTAVIRUS CASES AND OUTCOMES – MONTANA, 1993-2023**



## Q FEVER & TULAREMIA

Q fever is a zoonotic disease caused by the bacteria *Coxiella burnetii*. The bacteria naturally infect some animals such as cattle, sheep, and goats, and can be found in the birth products, urine, feces, and milk of infected animals. Exposures can occur if the bacteria are inhaled, such as if dust contaminated with birthing products is disturbed, or if the bacteria are consumed, such as during the consumption of unpasteurized (raw) milk and raw milk products. Direct contact with animals is not required to become infected with Q fever. Rarely, a bite from an infected tick can also cause Q fever.

Q fever often causes mild, flu-like illness, with symptoms such as fever, fatigue, muscle aches, and nausea, vomiting, or diarrhea. A portion of individuals infected with *C. burnetii* bacteria may develop a more serious condition called chronic Q fever. Chronic Q fever develops many months after initial Q fever infection. People with chronic Q fever will often develop endocarditis, which can have severe health effects.

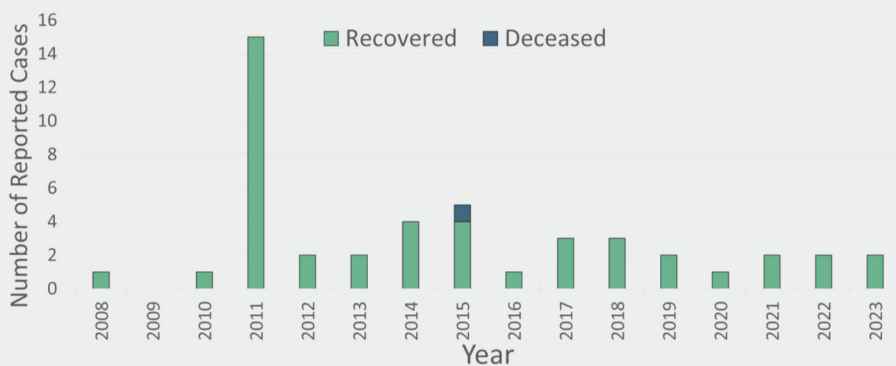
A multi-state outbreak in 2011 resulted in 15 Montana residents contracting Q fever from a farm in Washing-

ton State. Since then, Montana has reported an average of 2 cases per year.

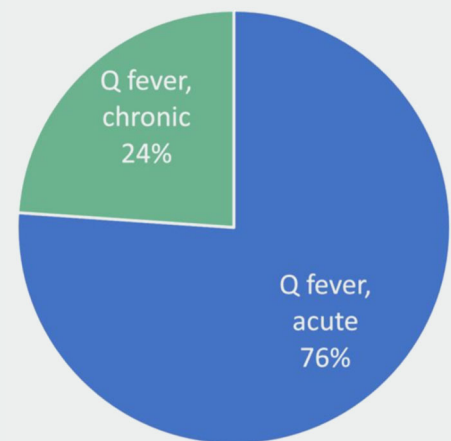
Like Q fever, tularemia is a disease caused by a bacteria, *Francisella tularensis*, that can be acquired through many types of exposures, including: inhalation of contaminated soil, ingestion of contaminated water or raw milk, deer fly bites, tick bites, and contact with an infected animal (most frequently rabbits, hares, and rodents). Montana averaged approximately 2 reported tularemia cases per year from 2019-2023.

Tularemia symptoms vary based off the type of exposure. For example, one of the most common presentations for tularemia is glandular or ulceroglandular, which is associated with contact with *F. tularensis* through an open wound or bite from an infected animal or insect (ticks, deerflies). Pneumonic tularemia, contracted from breathing the bacteria in, is the most severe form. While clinical presentations vary by type of exposure, tularemia is commonly associated with a high fever and lymphadenopathy, sometimes resembling plague. Q fever and tularemia can be serious and fatal if the patient is not treated properly.

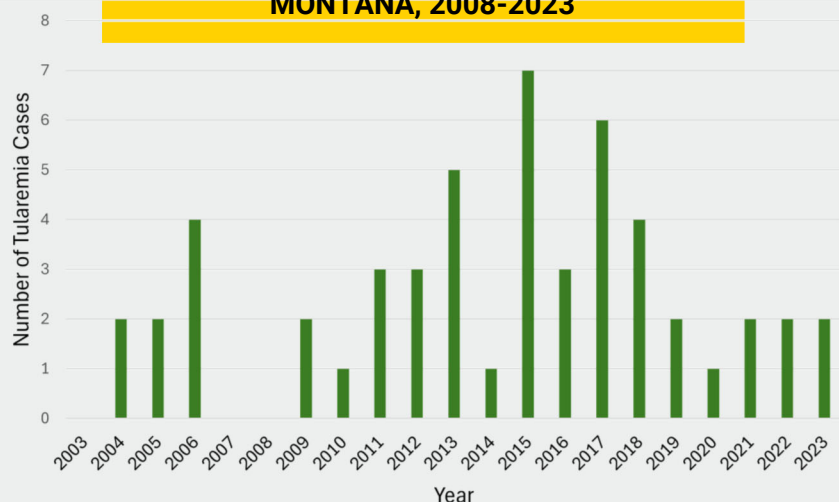
**FIGURE 38. Q FEVER CASES AND OUTCOMES— MONTANA, 2008-2023**



**FIGURE 39. Q FEVER CASES BY CASE CLASSIFICATION— MONTANA, 2008-2023**



**FIGURE 40. TULAREMIA CASES BY YEAR — MONTANA, 2008-2023**





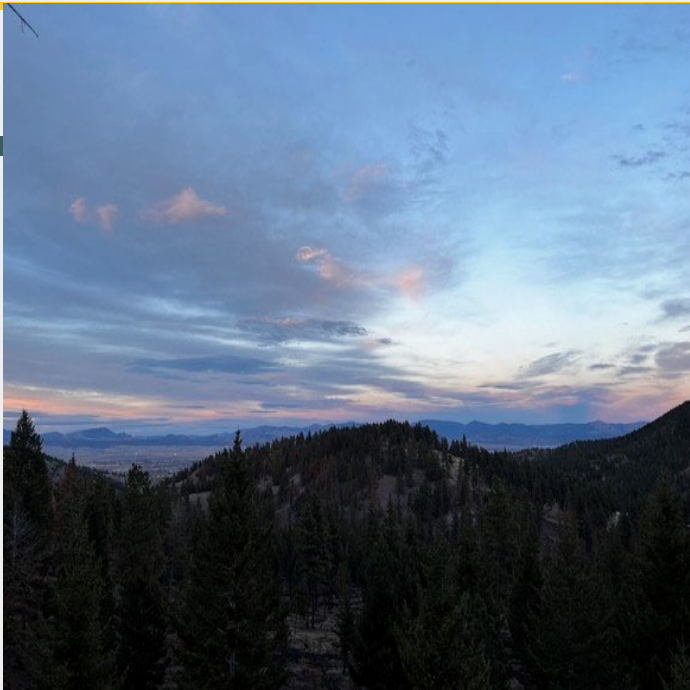
# Other Diseases



## COCCIDIOIDOMYCOSIS (VALLEY FEVER)

Coccidioidomycosis, also called Valley fever, is an infection caused by the fungus *Coccidioides immitis*. The fungus is found in the soil primarily in the southwestern United States, Mexico, and South America. In the United States, *Coccidioides* fungus can be found in Arizona, California, Nevada, New Mexico, Texas, Utah, and in south-central Washington. People become infected by breathing in dust from disturbed soil that contains the fungal spores during activities such as farming and construction, or during windstorms. Coccidioidomycosis is most common in adults aged 60 and older. Coccidioidomycosis is not endemic in Montana.

A majority of Montana’s cases are residents who spend their winters in endemic areas, with most cases partially living in or traveling to Arizona. The remainder of cases are in individuals who previously lived or worked in areas where coccidioidomycosis is endemic. In Montana in 2023, there were 16 reported cases of coccidioidomycosis, 10 of whom were aged

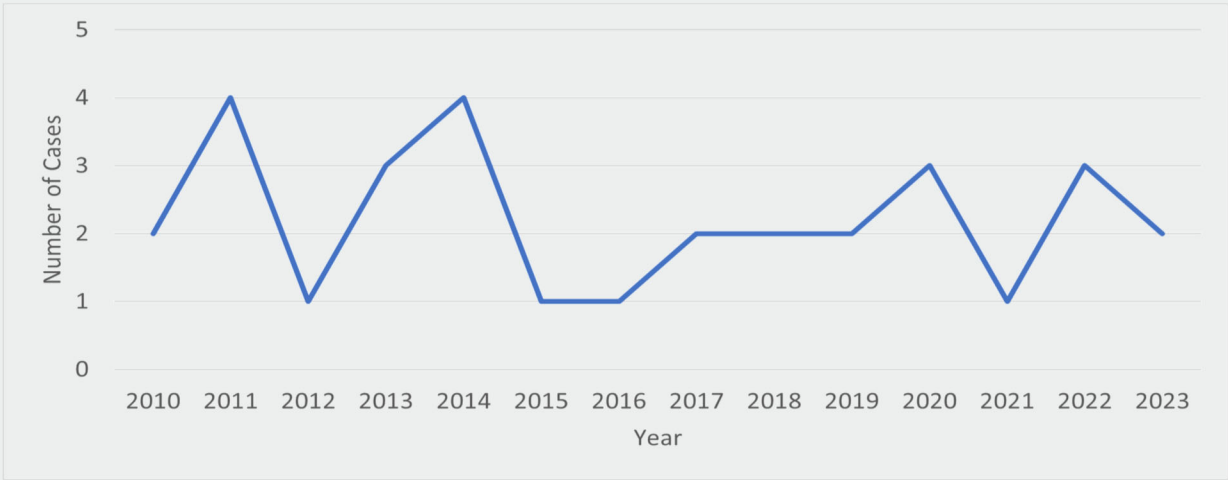


60 years and older. Two cases were hospitalized and there were no deaths reported.

## CREUTZFELDT-JAKOB DISEASE

Creutzfeldt-Jakob disease (CJD) is a rare transmissible spongiform encephalopathy (TSE) that is universally fatal and causes death in one to two individuals per million nationwide per year. CJD is classified into three categories: iatrogenic (acquired through infected tissue), familial (individuals who have inherited mutations of the prion protein gene), and sporadic (random mutations of the prion protein gene). Onset of symptoms often occurs decades after exposure, limiting identification of the source or date of initial infection. Nationwide, approximately 85% of cases are designated as sporadic. In Montana, between one and four cases were reported per year between 2010 and 2023. In 2023, two cases of CJD were reported, one male and one female, both in their 60s.

FIGURE 41. CREUTZFELDT-JAKOB DISEASE CASES—MONTANA, 2010–2023





## LEGIONELLOSIS

Legionellosis is an infection caused by the bacterium *Legionella*. *Legionella* bacteria are found naturally in the environment, and become a problem when they infiltrate and grow in settings like building water systems, hot tubs, pools, and decorative fountains that are not well maintained. People become infected when they breathe in the aerosolized bacteria. The disease presents as either a mild febrile illness (Pontiac fever), a form of pneumonia called Legionnaires' disease (which can become severe), or extrapulmonary legionellosis (a very rare condition where *Legionella* cause disease at sites outside the lungs). Most legionellosis cases reported in Montana are cases of Legionnaires' disease (LD). The case fatality rate of LD is about 10%, and those who are over the age of 50, are smokers, and/or have chronic diseases are most at risk for infection. From 2019 to 2023, there was an average of 13 Legionnaires' disease cases reported in Montana per year, which is 30% higher than the previous five-year average (10 cases per year from 2014-2018). There were 20 Legionnaires' disease cases reported in MT in 2023 (Figure 42). Of those, 18 were hospitalized (90%) and three died (15%).

In institutional settings, water management programs are essential to preventing the spread of *Legionella*. In other settings, proper maintenance of pools, hot tubs, and water features is necessary to prevent transmission.

**FIGURE 42. LEGIONNAIRES' DISEASE CASES – MONTANA, 2000-2023**



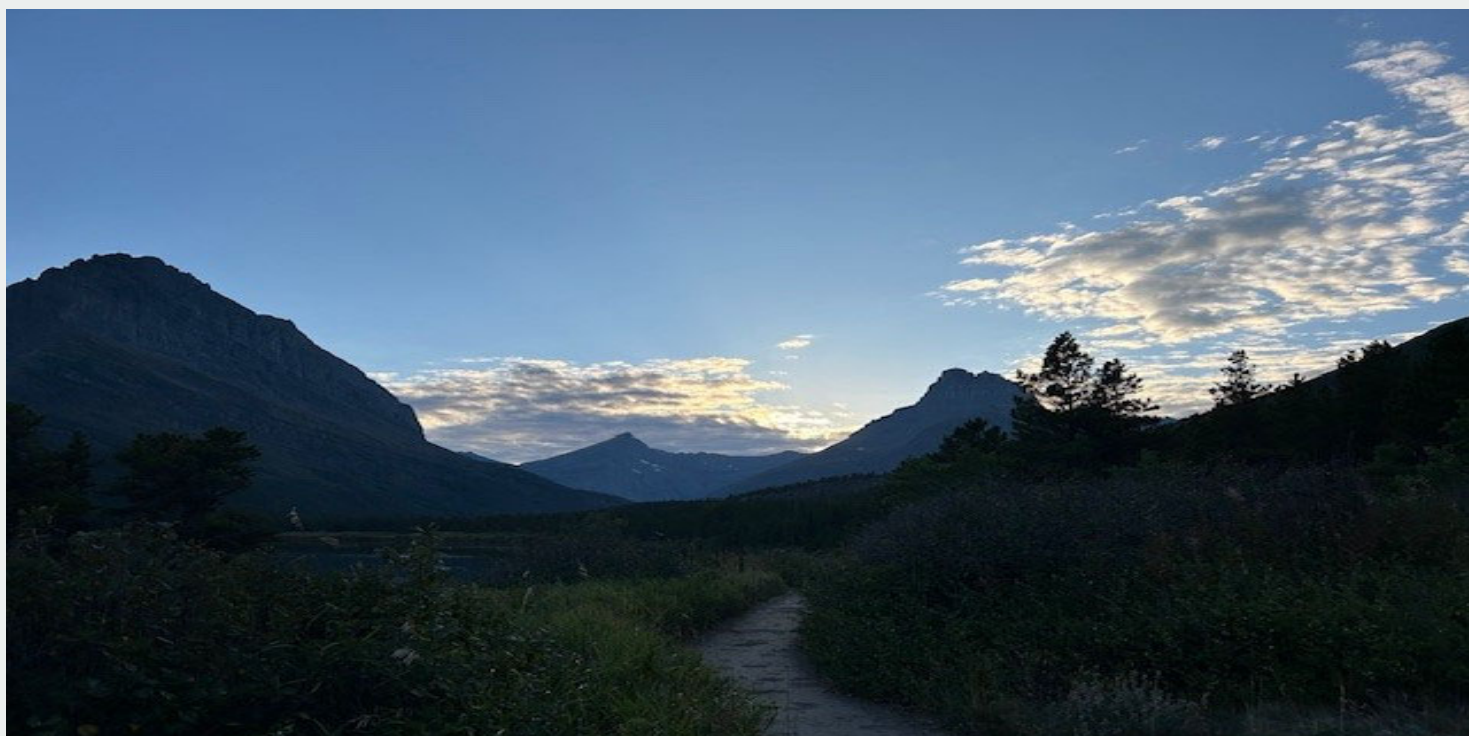


## Acknowledgements

- We thank our local and tribal public health jurisdictions for their dedication to public health.
- Additional gratitude to the Montana Public Health Laboratory (MTPHL) for assistance during disease and outbreak investigations.
- Thank you to the CDEpi, HAI/ICP, and STD/HIV teams for beautiful photos of Montana.

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## Appendix I: Case Counts by Jurisdiction—Montana, 2023

Jurisdiction Name	Campylobacteriosis	Chikungunya virus	Chlamydia	Coccidioidomycosis	Colorado tick fever	COVID-19	Cryptosporidiosis	Cyclosporiasis	Dengue	Ehrlichiosis, chaffeensis	Giardiasis	Gonorrhea	Haemophilus Influenzae, invasive	Hepatitis A, acute	Hepatitis B, acute	Hepatitis B, chronic	Hepatitis C, acute	Hepatitis C, chronic <sup>a</sup>	HIV/AIDS	Legionellosis	Listeriosis	Lyme disease	Malaria	MIS-C	Mumps	Paratyphoid fever (Salmonella)
BEAVERHEAD	16	-	34	-	-	134	9	-	-	-	3	2	-	-	-	-	-	3	-	-	-	-	-	-	1	-
BIG HORN/CROW	16	-	188	-	2	426	3	-	-	-	3	76	1	-	-	-	2	39	<5	-	-	-	-	-	-	-
BLAINE/FT. BELKNAP	3	-	14	-	-	177	1	-	-	-	-	14	-	-	-	-	1	13	-	-	-	-	-	-	-	-
BROADWATER	3	-	7	-	-	99	1	-	-	-	-	-	-	-	-	-	1	6	-	-	-	-	-	-	-	-
CARBON	5	-	16	-	-	234	-	-	-	-	-	1	-	-	-	-	-	2	-	1	-	-	-	-	-	-
CARTER	-	-	1	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CASCADE	20	-	314	2	-	2618	5	1	-	-	2	55	3	-	-	2	1	52	<5	1	-	1	-	-	-	-
CHOUTEAU	2	-	3	-	-	152	-	-	-	-	1	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-
CUSTER	1	-	47	-	-	249	2	-	-	-	2	1	-	-	-	-	2	14	-	-	-	1	-	-	-	-
DANIELS	-	-	5	-	-	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DAWSON	-	-	19	-	-	138	1	-	-	-	-	-	-	-	-	-	-	5	-	-	1	-	-	-	-	-
DEER LODGE	9	-	16	-	-	295	1	-	-	-	-	1	-	-	-	1	1	19	-	-	-	-	-	-	1	-
FALLON	2	-	3	-	-	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FERGUS	7	-	13	-	-	318	-	-	-	-	-	4	-	-	-	1	-	6	-	-	-	-	-	-	-	-
FLATHEAD	23	-	228	1	-	1591	-	1	-	-	10	41	-	-	-	-	1	30	-	3	-	-	-	-	1	-
GALLATIN	42	-	527	2	1	3108	16	-	1	-	21	57	-	-	1	2	-	23	<5	3	-	3	2	-	-	-
GARFIELD	-	-	1	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GLACIER/BLACKFEET	8	-	126	-	-	473	-	-	-	-	-	111	-	-	-	-	1	39	<5	-	-	-	-	-	-	-
GOLDEN VALLEY	2	-	2	-	-	18	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
GRANITE	2	-	3	-	-	56	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
HILL/ROCKY BOY	3	-	124	-	-	335	2	-	-	-	-	29	-	-	-	-	-	25	-	-	-	-	-	-	-	-
JEFFERSON	5	-	14	-	-	240	1	-	-	-	2	-	-	-	-	1	1	8	-	1	-	-	-	-	-	-
JUDITH BASIN	2	-	4	-	-	30	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	-	-	-
LAKE/CSKT	14	-	116	-	-	664	3	-	-	-	5	16	-	-	-	1	-	53	-	-	-	2	-	-	-	-
LEWIS AND CLARK	38	-	138	2	1	1793	8	5	-	-	8	11	4	-	-	1	-	68	<5	2	-	1	-	1	-	-
LIBERTY	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LINCOLN	10	-	16	-	-	349	-	-	-	-	1	1	-	-	-	-	-	9	-	-	-	-	-	-	-	-
MADISON	7	-	8	-	-	205	3	-	-	-	-	-	-	-	-	-	-	1	<5	-	-	-	-	-	-	-
MCCONE	2	-	3	-	-	18	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
MEAGHER	3	-	-	-	-	44	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MINERAL	2	-	5	-	-	104	1	-	-	-	2	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
MISSOULA	37	-	364	1	4	2432	8	-	-	-	20	64	2	-	2432	1	2	61	<5	-	-	2	-	-	-	1
MUSSELSHELL	2	-	10	-	-	104	-	-	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	-	-	-
PARK	10	-	27	1	-	418	5	-	-	-	4	2	-	-	-	-	-	3	-	-	-	-	-	-	-	-
PETROLEUM	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PHILLIPS	1	-	7	-	-	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PONDERA	1	-	4	-	-	94	-	-	-	-	-	3	-	-	-	-	1	1	-	-	-	-	-	-	-	-
POWDER RIVER	-	-	3	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
POWELL	5	-	19	1	-	150	-	-	-	-	-	1	-	-	-	1	2	49	<5	-	-	-	-	-	-	-
PRAIRIE	1	-	2	-	-	4	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
RAVALLI	18	-	79	1	2	828	4	-	-	-	-	5	-	1	-	-	-	15	-	-	-	-	-	-	-	-
RICHLAND	3	-	35	-	-	162	3	-	-	-	-	2	-	-	-	-	1	6	-	1	-	-	-	-	-	-
ROOSEVELT/FT. PECK	-	-	160	-	-	593	-	-	-	-	-	46	-	-	-	1	1	119	-	-	-	-	-	-	-	-
ROSEBUD/NORTHERN CHEYENNE	4	-	120	2	-	199	1	-	-	-	-	41	-	-	-	-	1	43	<5	-	-	-	-	-	-	-
SANDERS	18	-	19	-	-	141	-	-	-	-	2	2	1	-	1	1	1	3	-	1	-	-	-	-	-	-
SHERIDAN	1	-	6	-	-	147	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
SILVER BOW	9	-	119	-	-	817	1	-	-	-	2	20	1	-	2	-	2	97	<5	-	-	-	-	-	-	-
STILLWATER	7	1	15	-	-	106	1	-	-	-	-	3	-	-	-	-	-	-	-	1	1	-	-	-	-	-
SWEET GRASS	2	-	9	-	-	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TETON	5	-	6	-	-	102	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOOLE	1	-	5	-	-	122	-	-	-	-	-	-	-	-	-	-	2	46	-	-	-	-	-	-	-	-
TREASURE	1	-	-	-	-	7	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VALLEY	1	-	11	-	-	286	2	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-	-	-	-
WHEATLAND	2	-	1	-	-	49	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
WIBAUX	-	-	1	-	-	10	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
YELLOWSTONE	62	-	638	3	-	4773	9	2	-	1	5	150	2	1	1	3	1	184	7	5	-	1	-	-	-	-
MONTANA	438	1	3655	16	10	25678	95	9	1	1	94	767	14	2	5	16	27	1063	28	20	2	11	2	1	3	1

<sup>a</sup> HCV cases are counted in the jurisdiction of diagnosis, which may not be the jurisdiction where the person became infected. This may increase disease counts in jurisdictions which house correctional or treatment facilities that conduct routine HCV testing.



## Appendix I: Case Counts by Jurisdiction—Montana, 2023, Continued

Jurisdiction Name	Pertussis	Q fever, Acute	Q fever, Chronic	Rabies, animal	Rabies, post-exposure prophylaxis (PEP)	Salmonellosis	Shiga toxin-producing <i>Escherichia coli</i> (STEC)	Shigellosis	Soft Tick Relapsing Fever	Spotted Fever	Rickettsiosis	Streptococcal toxic shock syndrome	<i>Streptococcus pneumoniae</i> , invasive	Syphilis, congenital <sup>a</sup>	Syphilis, primary and secondary	Syphilis, total	Transmissible Spongiform Encephalopathies	Trichinosis (Trichinellosis)	Tuberculosis	Tuberculosis, Latent Infection (LTBI)	Tularemia	Varicella (Chickenpox)	Vibriosis	West Nile virus, neuroinvasive	West Nile virus, non-neuroinvasive	Total	
BEAVERHEAD	-	-	-	-	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	78
BIG HORN/CROW	-	-	-	-	1	2	5	-	-	-	-	-	3	-	56	107	-	-	-	4	-	-	-	1	1	-	514
BLAINE/FT. BELKNAP	-	-	-	-	4	-	1	-	-	-	-	-	-	-	5	11	-	-	-	-	-	-	-	1	-	-	68
BROADWATER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	20
CARBON	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	30
CARTER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2
CASCADE	2	-	1	1	14	24	10	1	-	-	-	-	11	-	20	58	1	-	-	7	-	-	-	-	-	-	613
CHOUTEAU	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	12
CUSTER	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	3	-	-	-	7	-	3	-	-	-	1	87
DANIELS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
DAWSON	-	-	-	-	15	2	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	2	1	-	48
DEER LODGE	-	-	-	-	-	1	2	-	-	-	-	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	55
FALLON	-	-	-	-	-	2	3	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	11
FERGUS	9	-	-	-	5	2	4	-	-	-	-	-	1	-	1	2	-	-	-	4	-	1	-	-	-	-	60
FLATHEAD	-	-	-	2	24	11	8	1	-	1	1	14	-	6	16	-	-	-	1	18	-	1	3	-	1	-	449
GALLATIN	6	-	-	2	21	19	16	6	-	-	-	-	8	-	4	19	1	-	2	38	-	6	2	-	-	-	855
GARFIELD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
GLACIER/BLACKFEET	-	-	-	-	1	4	-	-	-	-	-	-	2	-	7	16	-	-	-	-	-	-	-	-	-	-	316
GOLDEN VALLEY	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
GRANITE	-	-	-	-	-	1	1	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	11
HILL/ROCKY BOY	-	-	-	-	1	2	1	-	-	-	-	-	-	-	1	4	-	-	-	8	-	2	-	-	-	-	203
JEFFERSON	-	-	-	1	-	4	4	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	44
JUDITH BASIN	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11
LAKE/CSKT	-	-	-	-	10	3	3	1	-	-	-	-	3	-	2	11	-	-	-	9	1	-	1	-	-	-	254
LEWIS AND CLARK	1	-	-	-	5	8	20	1	-	-	1	10	-	5	10	-	-	-	-	2	-	5	2	-	1	-	361
LIBERTY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LINCOLN	-	-	-	6	12	4	1	1	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	63
MADISON	-	-	-	1	-	-	2	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	25
MCCONE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	9
MEAGHER	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
MINERAL	-	-	-	-	8	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	23
MISSOULA	1	-	-	3	43	14	8	2	1	-	2	8	-	5	22	-	-	-	39	-	2	1	-	-	-	-	722
MUSSELSHELL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
PARK	-	-	-	-	2	2	1	3	-	-	-	-	3	-	2	4	-	-	-	7	-	-	-	1	-	-	77
PETROLEUM	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
PHILLIPS	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	1	2	-	14
PONDERA	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
POWDER RIVER	-	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
POWELL	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	11	-	-	-	34	-	1	-	-	-	-	129
PRAIRIE	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-	8
RAVALLI	27	-	-	1	4	13	13	3	-	-	-	-	3	-	1	3	-	1	-	5	-	1	1	-	-	-	201
RICHLAND	-	-	-	-	3	2	-	-	-	-	-	-	-	-	-	1	-	-	7	-	5	-	3	4	-	-	77
ROOSEVELT/FT. PECK	-	-	-	-	1	2	1	-	-	-	-	-	4	-	33	149	-	-	1	9	-	1	-	-	-	-	533
ROSEBUD/NORTHERN CHEYENNE	-	-	-	-	-	-	1	-	-	-	-	-	2	-	54	104	-	-	-	-	-	-	-	1	-	-	378
SANDERS	1	-	-	3	4	2	7	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	69
SHERIDAN	-	-	-	-	-	2	1	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	15
SILVER BOW	-	-	-	-	-	7	2	-	-	-	-	-	9	-	7	12	-	-	-	3	-	-	-	-	-	-	294
STILLWATER	-	-	-	-	-	-	1	-	-	-	-	-	1	-	3	3	-	-	-	-	-	-	-	-	-	-	37
SWEET GRASS	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	14
TETON	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	18
TOOLE	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	1	-	-	-	6	-	1	-	-	-	-	64
TREASURE VALLEY	-	-	-	1	8	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	4	2	-	35
WHEATLAND	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	7
WIBAUX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
YELLOWSTONE	-	1	-	2	38	29	14	2	-	-	-	-	18	-	94	202	-	-	3	33	1	8	2	6	5	-	1537
MONTANA	47	1	1	25	237	177	138	21	1	2	4	110	19 <sup>a</sup>	312	781	2	1	8	252	2	37	13	23	19	-	-	8515

\* Congenital syphilis data per jurisdiction are suppressed to protect patient confidentiality.

# Appendix II: Comparative Statistics for Reportable Communicable Diseases—Montana, 2018–2023<sup>†</sup>

Condition	Reported Cases and Incidence (cases per 100,000 population)										5-Year Average Incidence, 2018-2022	2023 Reported Cases	2023 Incidence
	2018		2019		2020		2021		2022				
	Cases	Incidence	Cases	Incidence	Cases	Incidence	Cases	Incidence	Cases	Incidence			
Campylobacteriosis	432	40.7	374	35.0	300	27.8	273	24.7	358	31.9	32.0	438	38.7
Chikungunya virus	0	0	0	0	0	0	0	0	0	0	0.0	1	0.1
Chlamydia	4901	461.4	4752	444.6	4138	382.9	4033	364.6	4088	364.1	403.5	3655	322.6
Coccidioidomycosis	28	2.6	25	2.3	15	1.4	22	2.0	18	1.6	2.0	16	1.4
Colorado tick fever	0	0	1	0.1	21	1.9	19	1.7	7	0.6	0.9	10	0.9
COVID-19	NA	NA	NA	NA	85195	7884.2	116257	10509.3	122903	10945.5	9779.7*	25678	2266.7
Cryptosporidiosis	81	7.6	72	6.7	48	4.4	56	5.1	56	5.0	5.8	95	8.4
Cyclosporiasis	10	0.9	2	0.2	1	0.1	4	0.4	4	0.4	0.4	9	0.8
Dengue virus infection	0	0	6	0.6	0	0	0	0	0	0	0.1	1	0.1
Ehrlichiosis, <i>chaffeensis</i>	0	0	0	0	0	0	1	0.1	0	0	0.0	1	0.1
Giardiasis	89	8.4	79	7.4	76	7.0	60	5.4	65	5.8	6.8	94	8.3
Gonorrhea	1176	110.7	1571	147.0	1696	157.0	1451	131.2	1311	116.8	132.5	767	67.7
<i>Haemophilus influenzae</i> , invasive	17	1.6	27	2.5	13	1.2	16	1.4	18	1.6	1.7	14	1.2
Hepatitis A, acute	0	0	17	1.6	8	0.7	3	0.3	5	0.4	0.6	2	0.2
Hepatitis B, acute	1	0.1	1	0.1	5	0.5	2	0.2	2	0.2	0.2	5	0.4
Hepatitis B, chronic	20	1.9	25	2.3	21	1.9	22	2.0	30	2.7	2.2	16	1.4
Hepatitis C, acute	13	1.2	19	1.8	17	1.6	30	2.7	37	3.3	2.2	27	2.4
Hepatitis C, chronic	1530	144.0	1335	124.9	982	90.9	1033	93.4	1011	90.0	108.6	1063	93.8
HIV/AIDS	23	2.2	26	2.4	16	1.5	20	1.8	15	1.3	1.8	28	2.5
Legionellosis	10	0.9	14	1.3	7	0.7	15	1.4	11	1.0	1.1	20	1.8
Listeriosis	0	0	0	0	2	0.2	2	0.2	4	0.4	0.2	2	0.2
Lyme disease	7	0.7	8	0.8	3	0.3	13	1.2	13	1.2	0.8	11	1.0
Malaria	3	0.3	0	0	2	0.2	2	0.2	2	0.2	0.2	2	0.2
MIS-C	NA	NA	NA	NA	4	0.4	19	1.7	7	0.6	0.9*	1	0.1
Mumps	6	0.6	17	1.6	1	0.1	1	0.1	0	0	0.5	3	0.3
Paratyphoid fever ( <i>Salmonella Paratyphi</i> )	0	0	0	0	0	0	0	0	0	0	0.0	1	0.1
Pertussis	143	13.5	494	46.2	40	3.7	1	0.1	3	0.3	12.8	47	4.1
Q fever, Acute	3	0.3	2	0.2	1	0.1	2	0.2	2	0.2	0.2	1	0.1

<sup>†</sup>Conditions for which there were zero cases in 2023 are not reflected in this table. NR = Not Reportable. NA = Not Applicable. Small numbers of reported cases may result in unstable rates and should be interpreted with caution.

\*Three-year average incidence reported, due to the condition not being reportable from 2018-2019.



# Appendix II: Comparative Statistics for Reportable Communicable Diseases—Montana, 2018–2023<sup>†</sup>, Continued

Condition	Reported Cases and Incidence (cases per 100,000 population)										5-Year Average Incidence, 2018-2022	2023 Reported Cases	2023 Incidence
	2018		2019		2020		2021		2022				
	Cases	Incidence	Cases	Incidence	Cases	Incidence	Cases	Incidence	Cases	Incidence			
Q fever, Chronic	0	0	0	0	0	0	0	0	0	0	0.0	1	0.1
Rabies, animal	17	1.6	18	1.7	13	1.2	20	1.8	13	1.2	1.5	25	2.2
Rabies, post-exposure prophylaxis (PEP)	223	21.0	208	19.5	178	16.5	279	25.2	210	18.7	20.2	237	20.9
Salmonellosis	135	12.7	136	12.7	190	17.6	108	9.8	165	14.7	13.5	177	15.6
Shiga toxin-producing <i>Escherichia coli</i> (STEC)	121	11.4	69	6.5	92.0	8.5	104	9.4	118	10.5	9.3	138	12.2
Shigellosis	12	1.1	11	1.0	15	1.4	7	0.6	15	1.3	1.1	21	1.9
Soft Tick Relapsing Fever	0	0	0	0	0	0	0	0	1	0.1	0.0	1	0.1
Spotted Fever Rickettsiosis	9	0.8	3	0.3	2	0.2	2	0.2	2	0.2	0.3	2	0.2
Streptococcal toxic shock syndrome (STSS)	2	0.2	2	0.2	0	0	1	0.1	2	0.2	0.1	4	0.4
<i>Streptococcus pneumoniae</i> , invasive	121	11.4	131	12.3	84	7.8	113	10.2	104	9.3	10.2	110	9.7
Syphilis, congenital	0	0	1	0.1	2	0.2	9	0.8	15	1.3	0.5	19	1.7
Syphilis, primary and secondary	45	4.2	59	5.5	44	4.1	97	8.8	326	29.0	10.3	312	27.5
Syphilis, total	103	9.8	123	10.9	97	9.1	218	19.7	615	54.8	20.9	781	68.9
Transmissible Spongiform Encephalopathies (TSE)	2	0.2	2	0.2	3	0.3	1	0.1	3	0.3	0.2	2	0.2
Trichinosis (Trichinellosis)	0	0	0	0	0	0	0	0	0	0	0.0	1	0.1
Tuberculosis	5	0.5	2	0.2	4	0.4	3	0.3	6	0.5	0.4	8	0.7
Tuberculosis, Latent Infection (LTBI)	NR	NA	NR	NA	178	16.5	261	23.6	234	20.8	20.3**	252	22.2
Tularemia	4	0.4	2	0.2	1	0.1	2	0.2	2	0.2	0.2	2	0.2
Varicella (Chickenpox)	57	5.4	52	4.9	33	3.1	21	1.9	22	2.0	3.5	37	3.3
Vibriosis	14	1.3	2	0.2	3	0.3	4	0.4	8	0.7	0.6	13	1.1
West Nile virus, neuroinvasive	25	2.4	3	0.3	1	0.1	2	0.2	0	0	0.6	23	2.0
West Nile virus, non-neuroinvasive	22	2.1	0	0	0	0	0	0	0	0	0.4	19	1.7

<sup>†</sup>Conditions for which there were zero cases in 2023 are not reflected in this table. NR = Not Reportable. NA = Not Applicable. Small numbers of reported cases may result in unstable rates and should be interpreted with caution.

\*Three-year average incidence reported, due to the condition not being reportable from 2018-2019.

\*\*Three-year average incidence. LTBI became reportable in Montana in 2020. True case rates may be higher, due to limited availability to follow up on cases because of COVID-19 pandemic response.

## Appendix III: Montana Demographic Profile, 2023

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 1.1 million residents. There are 60 public health jurisdictions within the state that include 51 individual counties, one health district composed of five rural counties, as well as eight tribal health departments. Forty-five percent of all case reports of reportable communicable diseases for Montana in 2023 were submitted from four counties, all with populations  $\geq 80,000$  residents.<sup>\*,‡</sup>

CHARACTERISTIC	POPULATION	PERCENT <sup>‡</sup>
	1,132,812	100
SEX		
Male	573,941	51%
Female	558,871	49%
AGE GROUP (YEARS)		
0-4	57,574	5%
5-14	134,485	12%
15-24	145,629	13%
25-44	295,477	26%
45-64	267,663	24%
65+	231,984	20%
RACE		
White	1,004,899	89%
American Indian/Alaska Native	72,887	6%
Black or African American	7,270	1%
Asian	11,977	1%
Native Hawaiian or other Pacific Islander	1,169	<1%
Two or more races	34,610	3%
ETHNICITY		
Not Hispanic or Latino	1,079,160	95%
Hispanic or Latino	53,652	5%

<sup>\*</sup>From the Montana Infectious Disease Information System (MIDIS) generated report of 2023 data. The four counties are Yellowstone, Gallatin, Missoula, and Cascade.

<sup>‡</sup>Data source: Montana Population Estimates, 2023, based on US Census Bureau Estimates gathered from the Montana Department of Commerce.



# Appendix IV: Diseases and Conditions Reportable to Public Health in Montana, 2023

Montana health care providers are required to report cases of the following conditions to their local or tribal health department\*. This reporting falls within HIPAA medical privacy exceptions for release of information.

Reporting enables public health officials to conduct follow up on cases of significance, and to identify outbreaks or emerging health concerns.

Acquired Immune Deficiency Syndrome (AIDS)	Lyme disease
Anaplasmosis	Lymphogranuloma venereum
Anthrax	Malaria
Arboviral diseases, neuroinvasive and non-neuroinvasive (California serogroup, Chikungunya, Eastern equine encephalitis, Powassan, St. Louis encephalitis, West Nile virus, Western equine encephalitis, Zika virus infection)	Measles (rubeola)
Arsenic poisoning (urine levels $\geq 70$ $\mu\text{g/L}$ total arsenic; or $\geq 35$ $\mu\text{g/L}$ methylated plus inorganic arsenic in urine)	Melioidosis
Babesiosis	Meningococcal disease ( <i>Neisseria meningitidis</i> )
Botulism (infant, foodborne, other, and wound)	Mercury poisoning (urine level $\geq 10$ $\mu\text{g/L}$ or urine level $\geq 10$ $\mu\text{g/L}$ elemental mercury/gram of creatinine or blood level $\geq 10$ $\mu\text{g/L}$ elemental, organic, and inorganic mercury)
Brucellosis	Monkeypox
Cadmium poisoning (blood level $\geq 5$ $\mu\text{g/L}$ or urine level $\geq 3$ $\mu\text{g/L}$ )	Mumps
Campylobacteriosis	Pertussis (whooping cough)
<i>Candida auris</i>	Plague ( <i>Yersinia pestis</i> )
Chancroid	Poliomyelitis
<i>Chlamydia trachomatis</i> infection	Psittacosis
Coccidioidomycosis	Q fever ( <i>Coxiella burnetii</i> ), acute and chronic
Colorado tick fever	Rabies, human and animal (including exposure to a human by a species susceptible to rabies infection)
Coronavirus Disease 2019 (COVID-19)	Rubella (including congenital)
Cryptosporidiosis	Salmonellosis (including <i>Salmonella</i> Typhi and Paratyphi)
Cyclosporiasis	Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease
Dengue virus infection	Shigellosis
Diphtheria	Smallpox
Ehrlichiosis	Spotted fever rickettsiosis
<i>Escherichia coli</i> , Shiga toxin-producing (STEC)	<i>Streptococcus pneumoniae</i> , invasive disease
Gastroenteritis outbreak	Streptococcal toxic shock syndrome (STSS)
Giardiasis	Syphilis
Gonorrheal infection	Tetanus
Granuloma inguinale	Tickborne relapsing fever
<i>Haemophilus influenzae</i> , invasive disease	Toxic shock syndrome, non-streptococcal (TSS)
Hansen's disease (leprosy)	Transmissible spongiform encephalopathies (including Creutzfeldt Jakob Disease)
Hantavirus Pulmonary Syndrome/infection	Trichinellosis (Trichinosis)
Hemolytic Uremic Syndrome, post-diarrheal	Tuberculosis (including latent tuberculosis infection)
Hepatitis A, acute	Tularemia
Hepatitis B, acute, chronic, perinatal	Varicella (chickenpox)
Hepatitis C, acute, chronic, perinatal	<i>Vibrio cholerae</i> infection (Cholera)
Human Immunodeficiency Virus (HIV)	Vibriosis
Influenza (including hospitalizations and deaths)	Viral Hemorrhagic fevers
Lead levels in a venous blood specimen at any level	Yellow Fever
Lead levels in a capillary blood specimen $\geq 3.5$ micrograms per deciliter in a person $<16$ years	Outbreak in an institutional or congregate setting
Legionellosis	Any unusual incident of unexplained illness or death in a human or animal with potential human health implications
Leptospirosis	
Listeriosis	

An up-to-date list of Reportable Diseases in Montana is maintained on the State of Montana's website. To view the current list, please visit [ARM 37.114.203](#)

\*Specific requirements related to reporting, investigation, and control of specific conditions are found in the Administrative Rules of Montana



MONTANA  
**COMMUNICABLE DISEASE  
EPIDEMIOLOGY**