Interim Analysis of COVID-19 cases in Montana (as of 9/18/2020)

This report is an interim epidemiological review of COVID-19 cases in Montana. Data is analyzed based on information available as of September 18, 2020. Current case count at the time of analysis is:

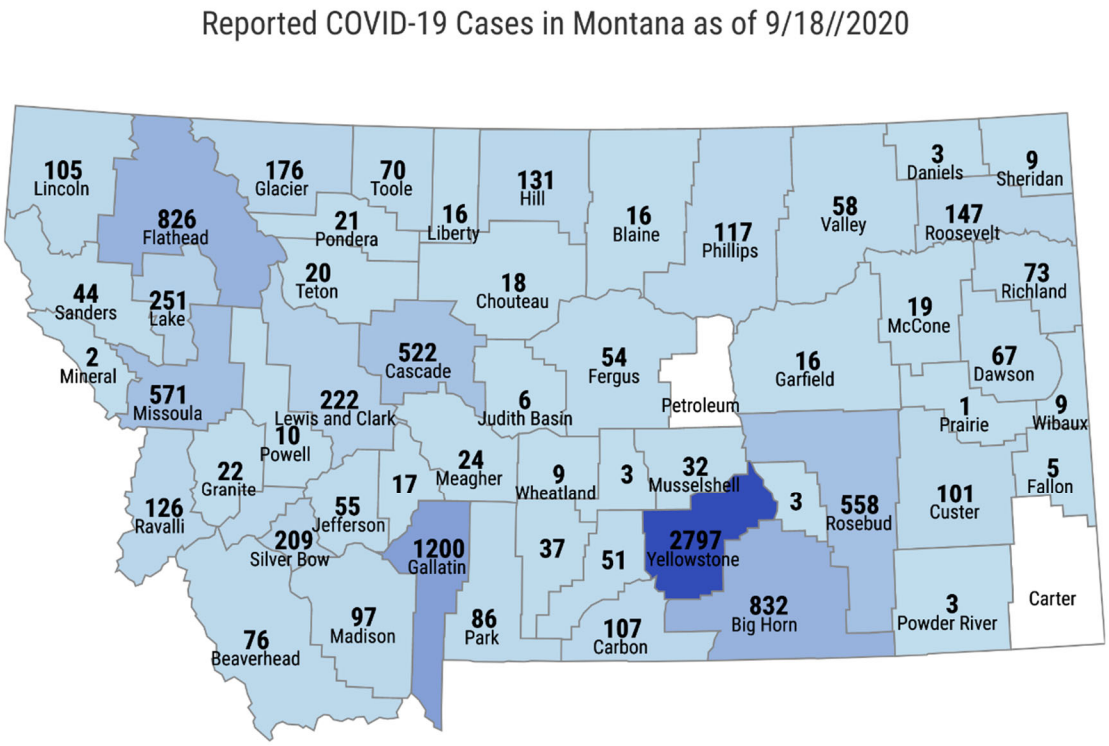
Case Count = 10,163

This report is completed using data that is available during the time of analysis and there may be a delay between current case count and this report, due to rapidly changing updates. When data is limited to available information, number of cases included in analysis is indicated in graphs.

Geographic Distribution

There are 10,163 cases of COVID-19 reported in 54 counties in Montana. Most cases are reported in more populous counties. Yellowstone County and Gallatin County have been the most impacted, reporting 28% and 12% of all reported cases, respectively. Big Horn (8%), Flathead (8%), Missoula (6%), Rosebud (5%) and Cascade (5%) counties report more than 500 cases each (Figure 1).

*Figure 1: Map of Reported Montana COVID-19 cases**

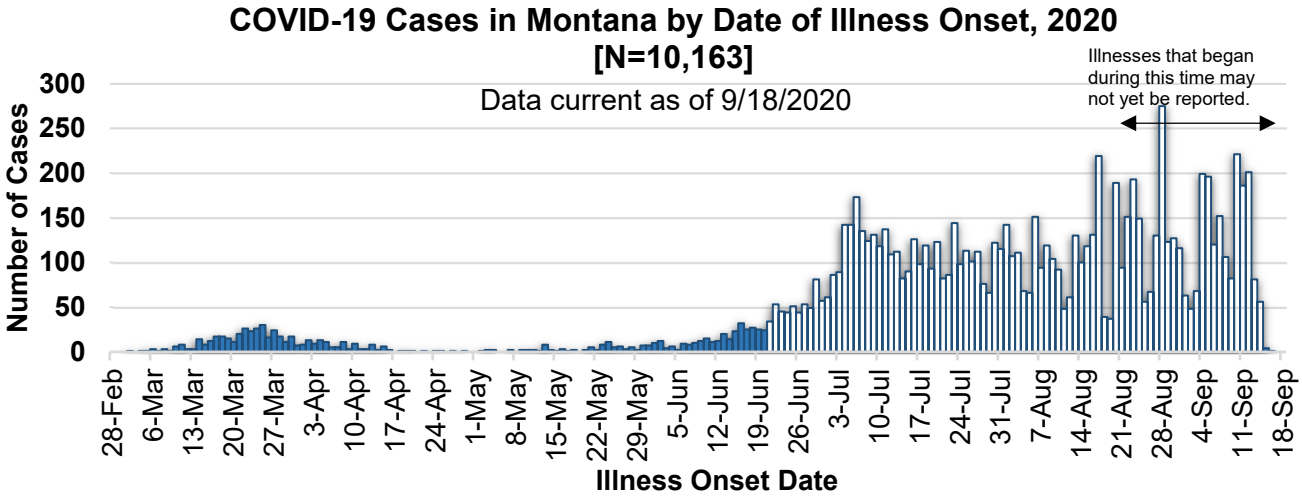


**Cases reported on the map initially included residents of other states who were tested and isolated in Montana. As COVID-19 is now widespread across the United States, the map no longer includes out of state residents who test positive in Montana in order to align with CSTE residency guidelines that classify cases by the individual's state of residence. This is standard practice for all communicable diseases to ensure accurate data for Montana.*

Epidemiological Data

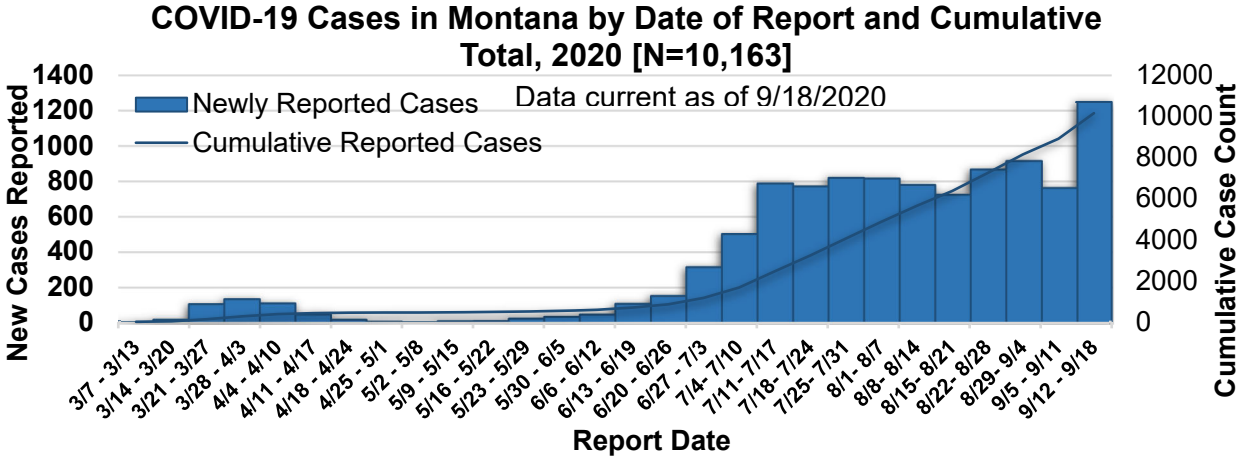
A total of 10,163 cases were reported as of 9/18/2020. Illness onset date is available for less than half (40%) of reported cases. When onset date is not available, collection date is used to calculate an estimated onset date (Figure 2). Of note, about 396 (4%) of persons indicated that they were asymptomatic at the time of the test, meaning they showed no symptoms of COVID-19 at that time. Illness onsets that occurred within the past 10 days may not yet be reported due to lag time between illness onset, seeking healthcare for testing, and receiving test results.

Figure 2: Epi Curve for Montana COVID-19 cases



The first COVID-19 case in Montana was reported on 3/11/2020. Since then, the number of cases in Montana has climbed to 10,163 (Figure 3). Growth was initially exponential until reaching about 100 case reports, then growth became linear. By mid-April, growth significantly slowed and there were few new reported cases in May. Once 500 cases were reached in early June, case reports have grown exponentially again, then maintained linear growth in mid-July through August. Case reports climbed significantly in mid-September. Of note, updated CDC contact tracing recommendations on May 29, 2020 may contribute to increased case reports as all contacts to a case are recommended to be tested.

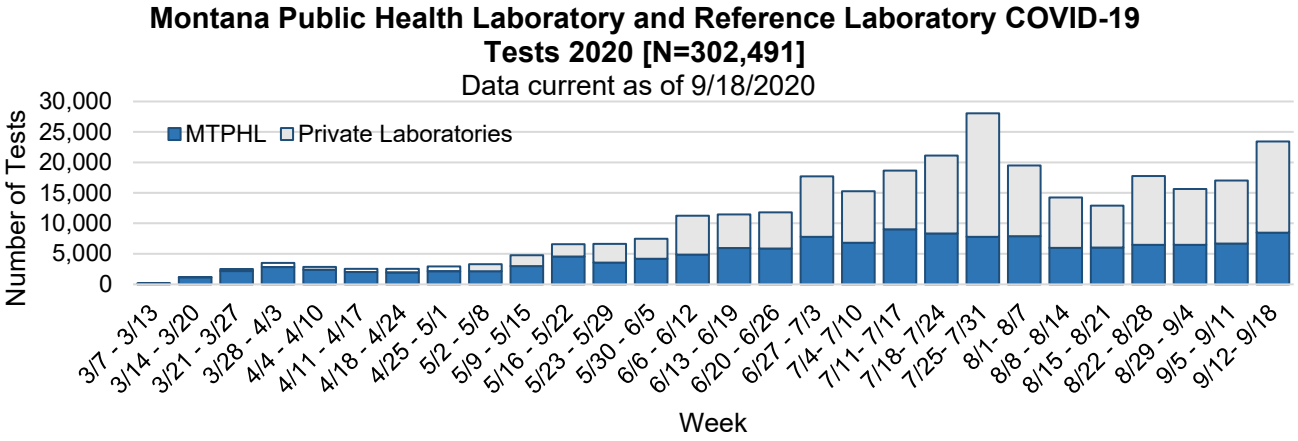
Figure 3: Cumulative reported cases for COVID-19 in Montana



Laboratory Data

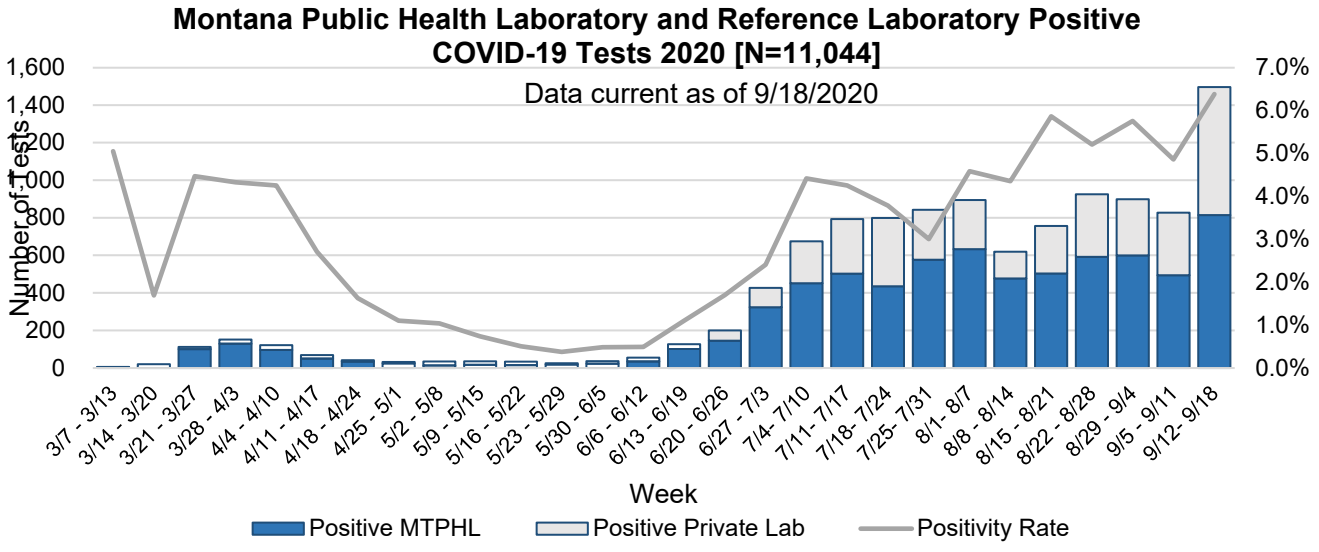
COVID-19 testing was initially available solely through the CDC. COVID-19 PCR testing capability was implemented by the Montana Public Health Laboratory (MTPHL) on March 9th. Private laboratories began implementing COVID-19 testing in the weeks following. Private laboratories include reference laboratories and those in smaller hospital labs performing point-of-care (POC) testing. A total of 302,491 tests have been completed to date. In September, an average of 20,000 tests were completed weekly, which is up by 25% of the number of specimens tested weekly in August (Figure 4).

Figure 4: Total Laboratory Testing for COVID-19 in Montana



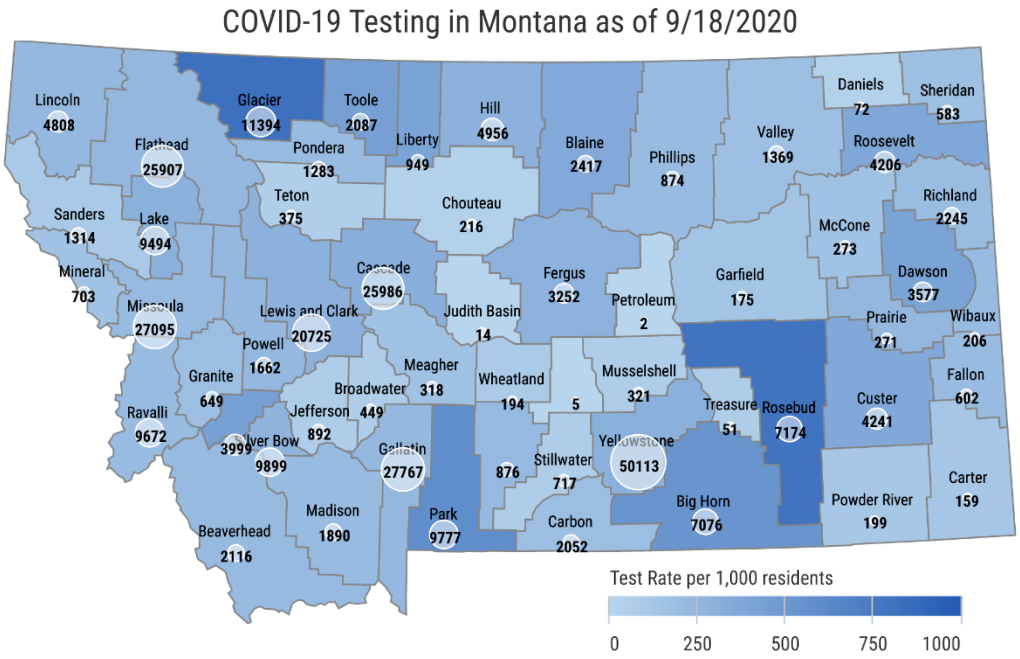
So far 11,044 positive tests have been resulted through MTPHL and private laboratories. Some of these tests are repeat specimens from the same individual to check for clearance of the virus, but positive cases are only counted once. The overall positivity rate for all laboratory testing to date is about 3.1%, though this has varied over time. During the first peak in late March and early April, the weekly positivity reached over 4% and has dropped down to a low of 0.4% in May. In June, the average weekly positivity began to rise, reaching an average of 4% in July and a current average of 5.6% in September (Figure 5).

Figure 5: Positive Laboratory Tests for COVID-19 in Montana



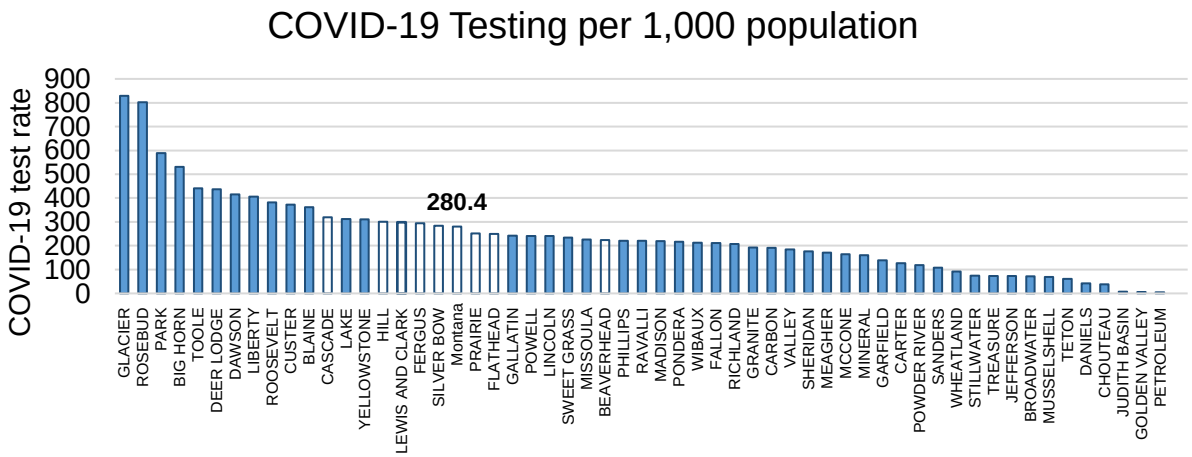
Of all COVID-19 tests conducted in Montana, most were from persons tested in Yellowstone County (17%), followed by Gallatin (9%), Missoula (9%), Cascade (9%), and Flathead (9%) counties (Figure 6). Lab testing data is displayed for county of residence when known. When county of residence is unknown, the county of the facility collecting the test was used. Positive case reports are reflected in Figure 1 and are always counted by county of residence.

Figure 6: COVID-19 Total Tests and Test Rate in Montana



Counties with the highest COVID testing rates are Glacier (828.5/1,000), Rosebud (802.7/1,000), Park (588.8/1,000), Big Horn (531.3/1,000), and Toole (440.7/1,000) counties (Figure 6 & 7). The average COVID testing rate for Montana is 280.4/1,000 population. Large scale community test events contribute to variations in COVID testing rates by county.

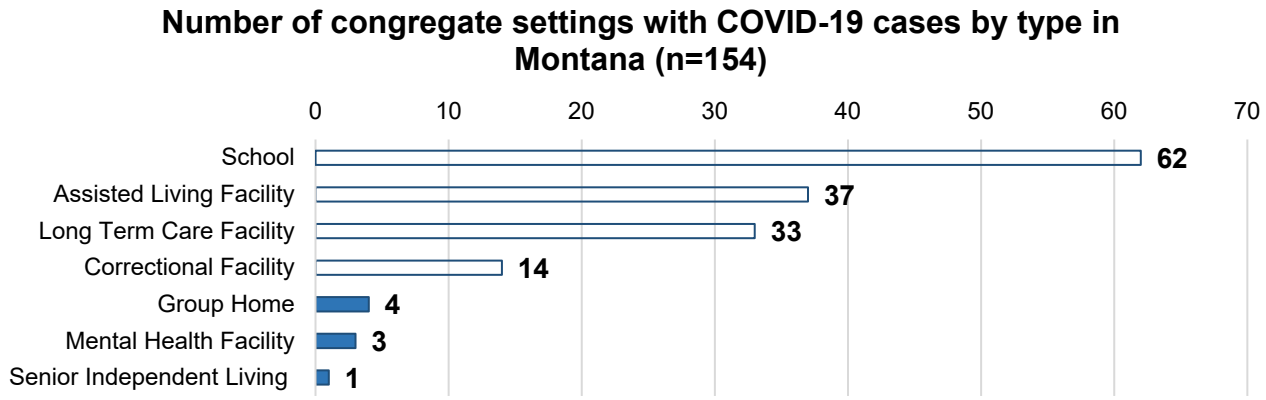
Figure 7: Ranked COVID Test Rate by County in Montana



Congregate Settings

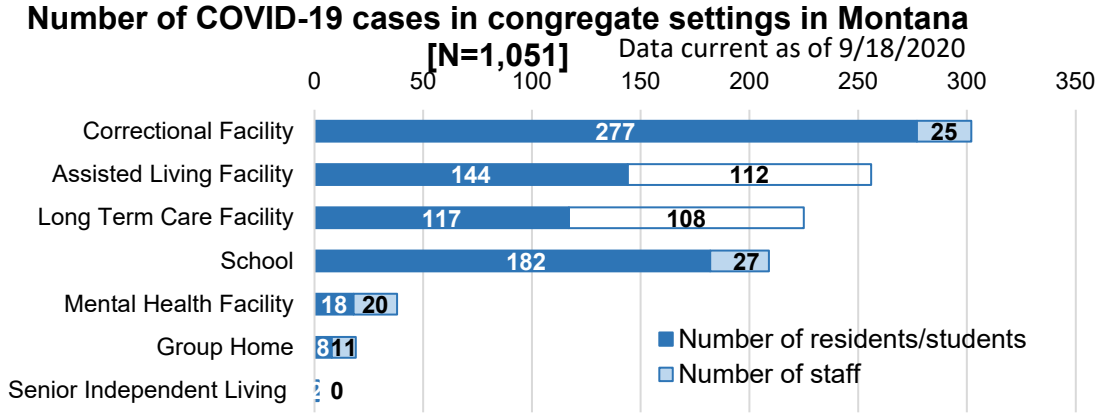
A congregate setting is an environment where a number of people reside, meet or gather in close proximity for either a limited or extended period of time. Examples of congregate settings include homeless shelters, group homes, prisons, detention centers, schools and workplaces. There are 25 counties that have reported at least one congregate setting with a COVID-19 outbreak in Montana. The counties with the most outbreaks in congregate settings are Yellowstone (30%), Flathead (16%), Cascade (7%) and Gallatin (5%). Most outbreaks occur in schools, assisted living facilities (ALF) and long-term care facilities (LTCF), but outbreaks in other settings, such as correctional facilities, group homes and mental health facilities have also been reported (Figure 8). There are currently 98 active outbreaks in the state.

Figure 8: Type and number of congregate settings experiencing a COVID-19 outbreak in Montana



A total of 1,051 cases can be attributed to outbreaks at congregate setting, most of them are residents, meaning people who reside at these locations (i.e. residents, inmates, students) versus staff, who frequent these settings as employees (i.e. nursing staff, jailors, teachers) (Figure 9). For outbreaks at schools, students at universities contribute most cases (47%), followed by elementary school students (19%). Forty-eight persons with COVID-19 have died as part of outbreaks associated with congregate settings, about one third of all COVID-19 reported deaths in the state. Most of those deaths (92%) occurred at ALFs and LTCFs.

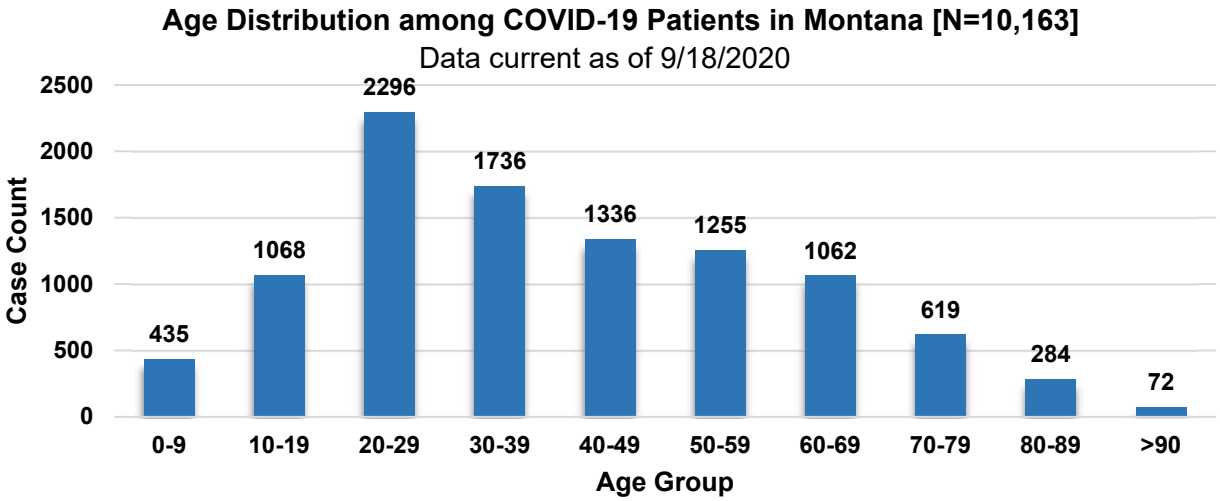
Figure 9: Number of COVID-19 residents and staff by type of congregate setting in Montana



Age and Demographic Distribution

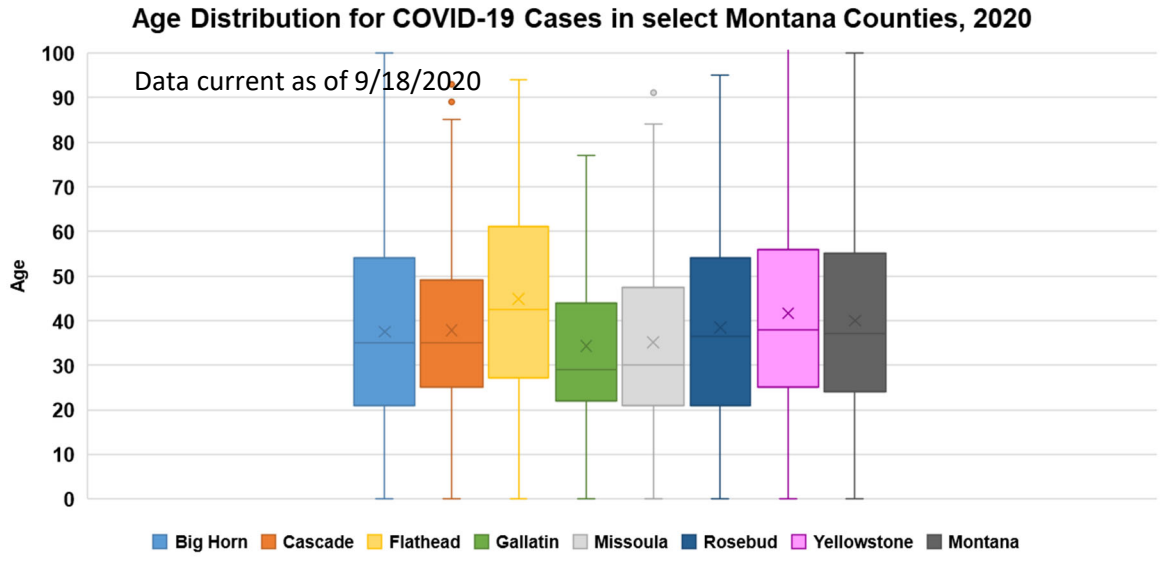
To date, persons between 20-29 years of age account for 23% of all reported COVID-19 cases in Montana. The next most common age group is 30-39 years (17%), followed by 40-49 (13%) and 50-59 years (12%) (Figure 10). The median age for all cases is 37 years of age (range: <1-102 years). Fifty percent of cases are between 24-55 years of age.

Figure 10: Age Distribution for COVID-19 cases in Montana



In the eight counties with more than 500 reported cases, the age distribution shows some slight variations. Most of these counties report ages comparable to the state average, with median ages somewhat comparable to each other. Reported cases in Gallatin and Missoula Counties tend to be younger than cases in other counties. Gallatin and Missoula counties report a lower median age of 29 and 30 years old, respectively (Figure 11).

Figure 11: Age Distribution for COVID-19 cases in select Montana Counties



Persons infected with COVID-19 are equally distributed among men and women, with 50% of cases reported as female and 50% reported as male. Of 7,232 (71%) cases with known race at the time of report, 73% of persons identify as white and 24% as American Indian, Alaska Native, Native Hawaiian, or Pacific Islander. Other races, comprising less than 3% of the cases, identify as African American, Asian or other race (Table 1). Ninety-five percent of all cases with ethnicity information available, identify as non-Hispanic and five percent as Hispanic. Native Americans make up about 7% of Montana's population, but represent 24% of reported COVID-19 cases in the state.

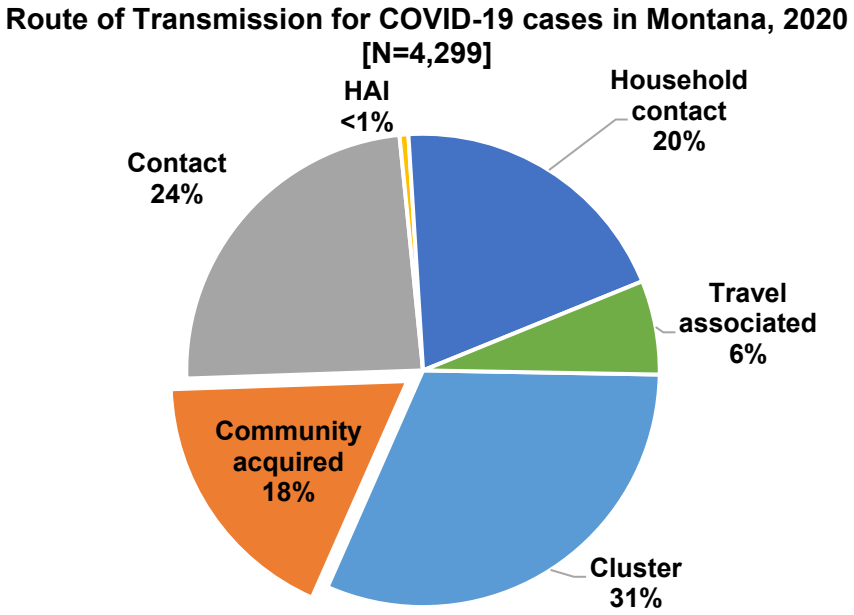
Table 1: Race of COVID-19 Cases in Montana

Race	Count	Percent
White	5,292	73%
American Indian, Alaska Native, Native Hawaiian, Pacific Islander	1,740	24%
Black or African American	69	1.0%
Asian	35	0.5%
Other	96	1.3%
TOTAL	**7,232**	

Transmission Characteristics

There are 54 counties reporting COVID-19 cases and even though 34 of those counties indicate that at least one person acquired the virus in the community, 13 counties have reported widespread community acquired transmission occurring in their county. Of current data available, about 44% of cases were contacts to a known case, either within the household or otherwise. Clusters identified 31% of new case reports, and 18% of all cases with known transmission information likely acquired the virus in the community; most of those are in Gallatin and Yellowstone counties. Six percent of reported cases likely acquired the virus through travel-related exposures (Figure 12).

Figure 12: Known Routes of Transmission for Montana COVID-19

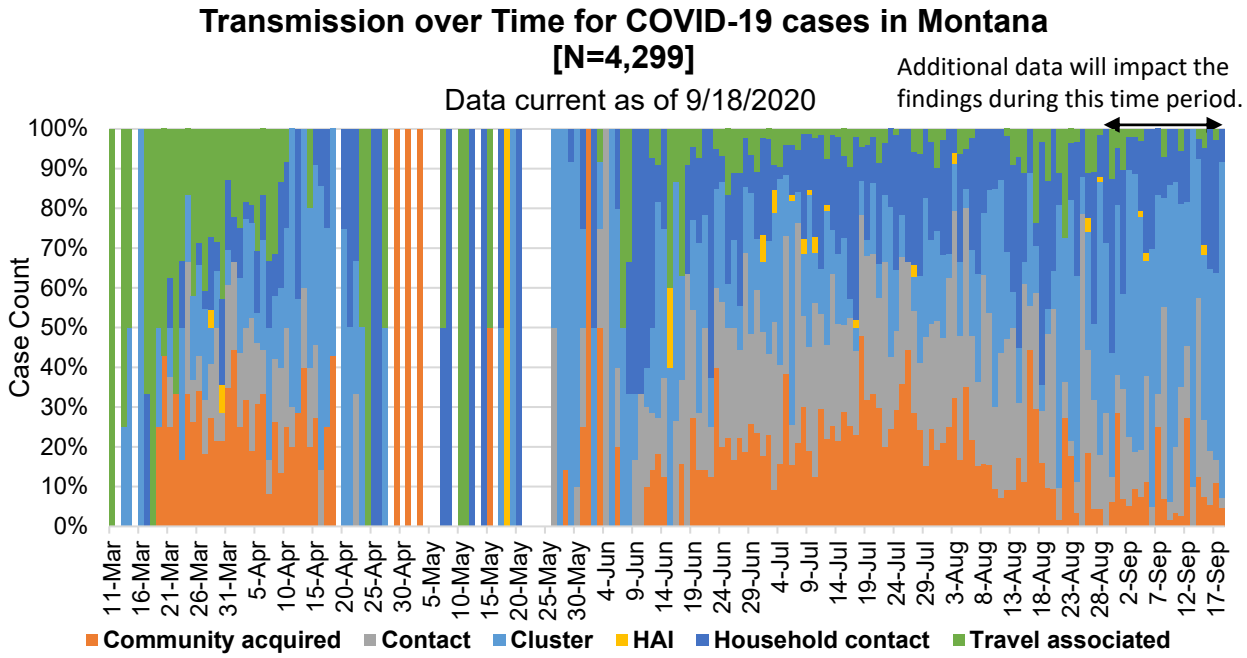


Data unavailable and currently under investigation for 5,864 (57%) persons.

CATEGORY	DEFINITION
COMMUNITY ACQUIRED	Case was unable to be linked with other known cases
HOUSEHOLD CONTACT	Household contact to a confirmed case
HAI	Healthcare-associated infection

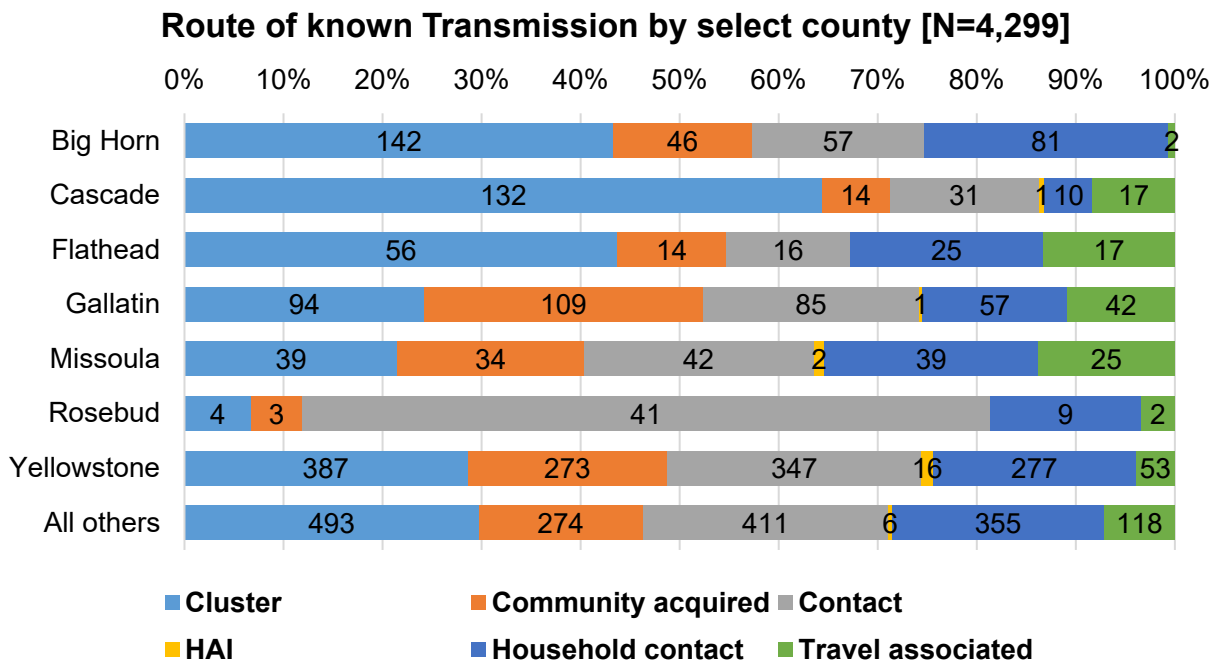
Transmission changes over time can indicate effective public health efforts, such as timely investigations, thorough contact findings, and measures to reduce community-acquired transmission. Transmission information is generally unknown for newly reported cases under investigation. Contact tracing and cluster investigations have significantly contributed to finding new cases, indicating that disease control efforts through local public health staff are identifying those infected and isolating them appropriately. New clusters were identified towards the end of May and by September they contribute to more than half of new case reports. Contacts and household contacts continue to be identified, making up one third of all cases reported in September. The percent of community-acquired cases steadily contributed to disease counts until mid-April. After that, new community-acquired cases only contributed to new COVID-19 reports periodically, with increased frequency in June and July. By September, cases that were community-acquired significantly dropped. Travel-related transmission contributed to most cases early in the outbreak and then declined significantly, contributing only sporadically to new cases over time (Figure 13). Persons are more likely to acquire the virus through contact with a known case, especially within a household, or during a cluster investigation.

Figure 13: Percent of known transmission contributing to COVID-19 Montana cases



More detail about route of transmission has been analyzed for the seven counties with more than 500 reported cases. Clusters contribute to nearly two thirds of new cases in Cascade County and more than 40% of all cases in Big Horn and Flathead Counties. Contact and household contact investigations significantly impact case counts in Rosebud County. Contacts also contribute to more than 40% of new cases in Big Horn, Missoula and Yellowstone counties, and nearly 40% in Gallatin County. Gallatin, Yellowstone and Missoula counties have most cases attributable to community-acquired transmission (28%, 20% and 19% respectively). Travel-associated transmissions account for 14% of new cases in Missoula County and about 13% of cases in Flathead County (Figure 14). Of all other counties reporting less than 500 cases, nearly half are contacts or household contacts, and nearly one third are part of clusters. About 17% (1 out of 6) percent acquired the virus in the community and seven percent were likely travel related.

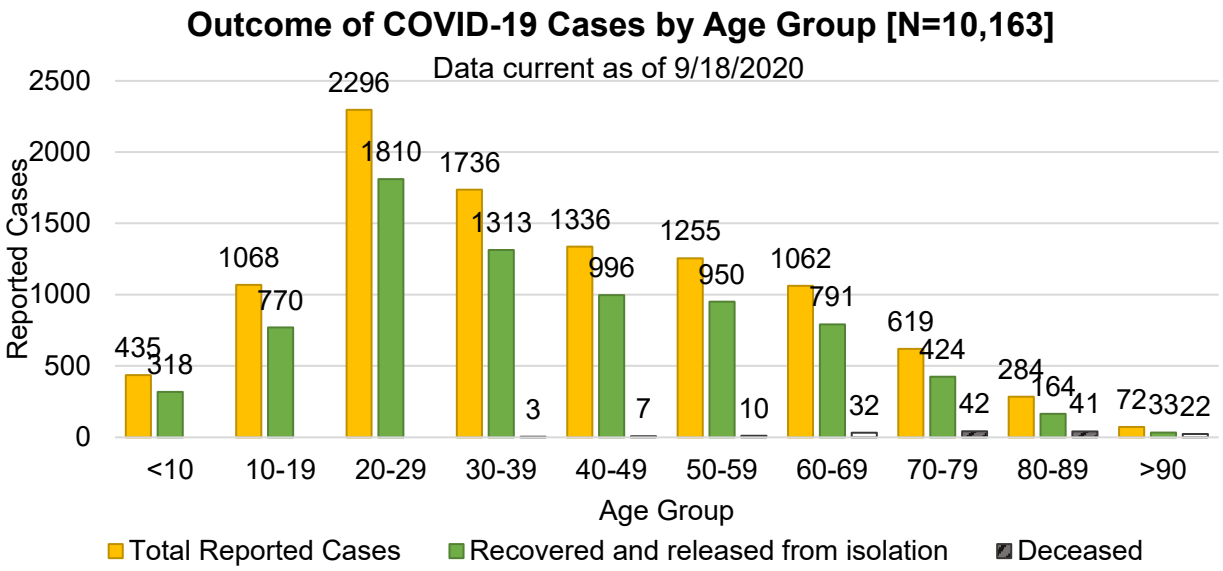
Figure 14: Breakdown of known transmission for select counties



Outcomes

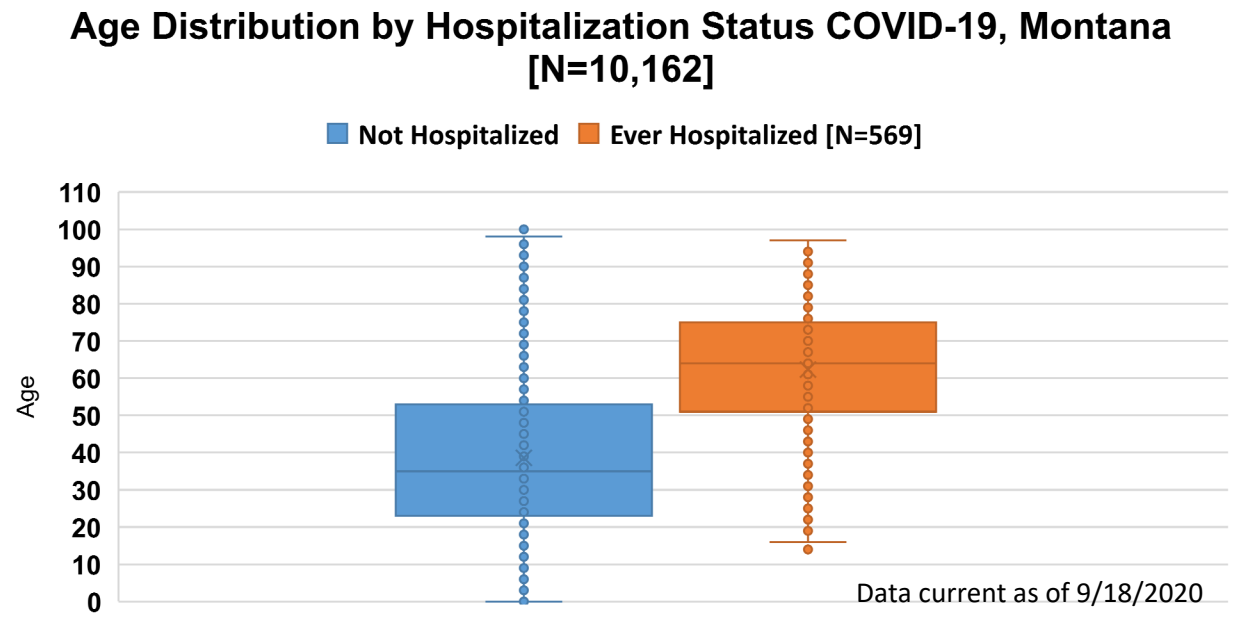
The current outcomes of COVID-19 cases in Montana depict the impact of the illness on the population. There are currently 2,437 (24%) persons actively infected and 7,569 (74%) persons who have recovered, meaning they have cleared the illness and are released from isolation (Figure 15). There are 157 persons, who were infected with COVID-19, who have died. Counties reporting three or more deaths include Yellowstone (57), Big Horn (21), Rosebud, (17), Flathead (16), Toole (6), Cascade, (5), Gallatin (4), Missoula (3), Lewis & Clark (3), Hill (3) and Lincoln (3). Counties with two reported deaths are Ravalli, Richland, Custer, and Stillwater counties. Meagher, Dawson, Fergus, Musselshell, Sanders, Beaverhead, Sweet Grass, Madison, Lake, Roosevelt, Glacier each lost one resident due to COVID-19. Persons who died were between 30 and 97 years of age, with a median age of 77 years old. Fifty-four percent were male. For those who died, and race was known, 80 (63%) of them identified as white and 47 (37%) as Native American.

Figure 15: Current infections and illness outcomes for Montana COVID-19



Persons who required hospitalization for COVID-19 are generally much older than those not requiring hospitalization (Figure 16). To date, 569 persons have been hospitalized with a median age of 64 years, half of them are between 51 and 75 years old. Those who did not require hospitalization have a median age of 35, and half of patients are between 23 and 53 years old. Ten percent of Native Americans and ten percent of Blacks infected with COVID-19 required hospitalization versus six percent of those who identify as white and were infected with COVID-19.

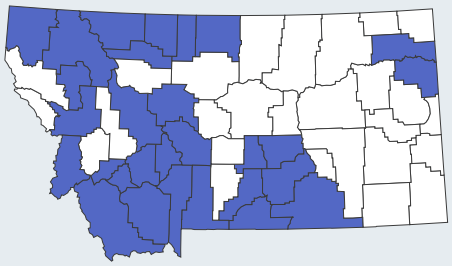
Figure 16: Age Distribution among COVID-19 cases compared by known hospitalization status



MONTANA COVID-19 CASES

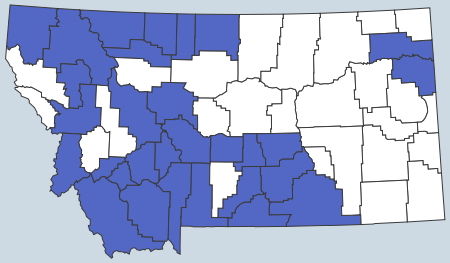
210 cumulative cases reported
22 counties

MARCH 31, 2020



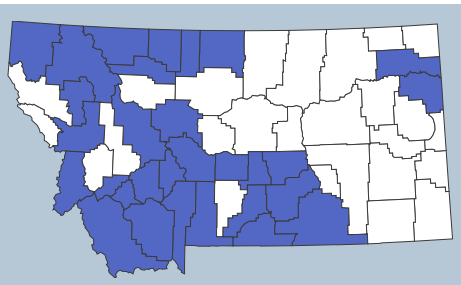
452 cumulative cases reported
27 counties

APRIL 30, 2020



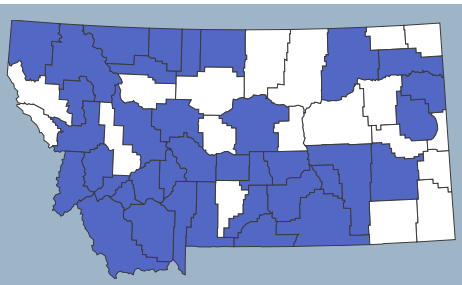
505 cumulative cases reported
30 counties

MAY 31, 2020



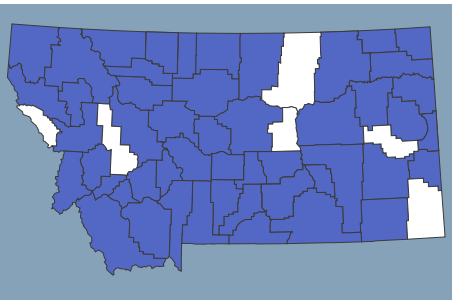
1,016 cumulative cases reported
37 counties

JUNE 30, 2020



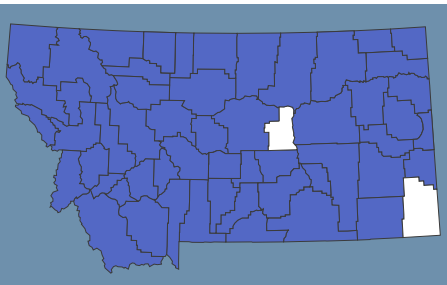
3,252 cumulative cases reported
50 counties

JULY 31, 2020



7,243 cumulative cases reported
54 counties

AUGUST 31, 2020

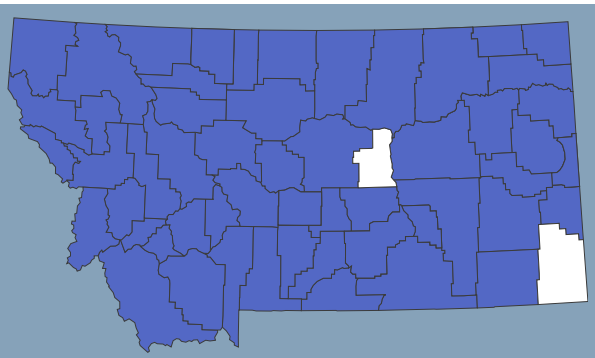


MONTANA COVID-19 CASES

8,164 cumulative cases reported

54 counties

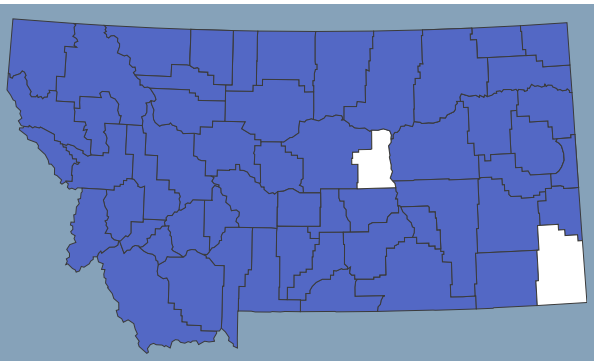
WEEK ENDING 9/4



8,914 cumulative cases reported

54 counties

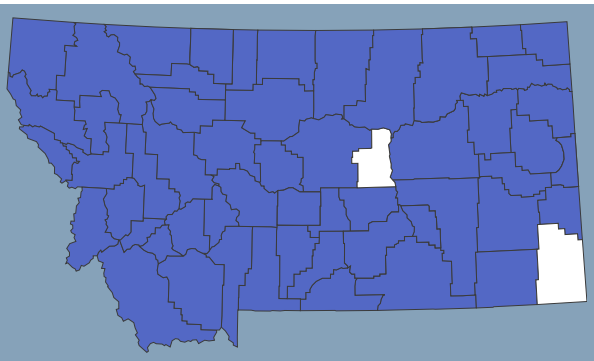
WEEK ENDING 9/11



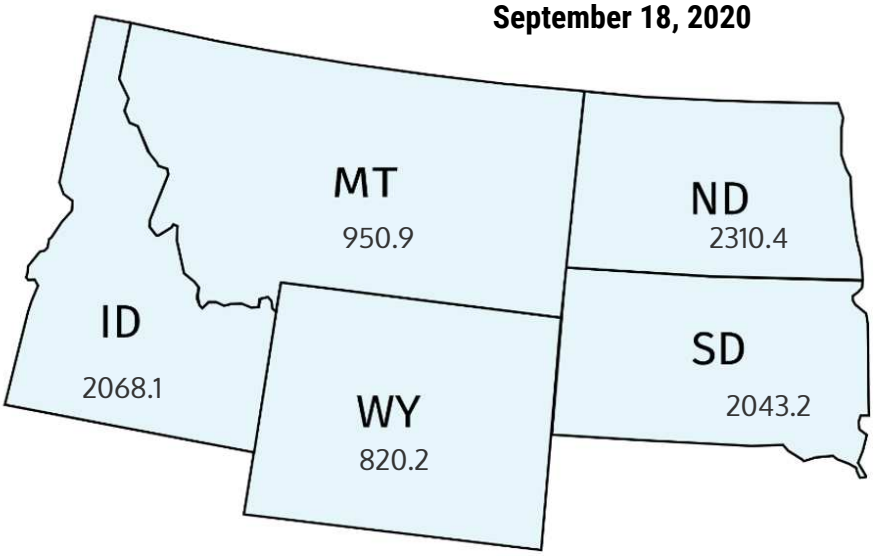
10,163 cumulative cases reported

54 counties

WEEK ENDING 9/18



COVID-19 Case Rates Per 100,000 Population - Montana and neighboring states, September 18, 2020

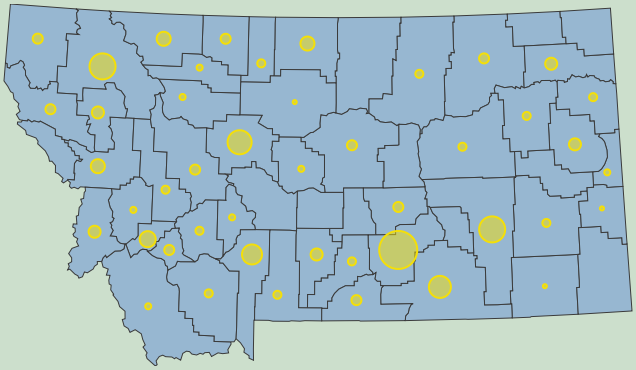


State	Cases Reported
Idaho	36959
Montana	10163
North Dakota	17607
South Dakota	18075
Wyoming	4747

Case counts based on CDC case reports as of September 18, 2020 and 2019 population estimates from the U.S. Census Bureau

MONTANA COVID-19 CASES

COVID-19 Cases by Report Date -- August 22- September 4, 2020

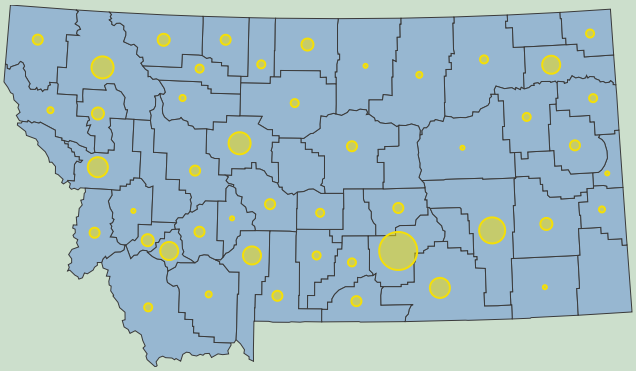


Cases: 1,794

Counties: 45

Range: 1-463

COVID-19 Cases by Report Date -- September 5-18, 2020

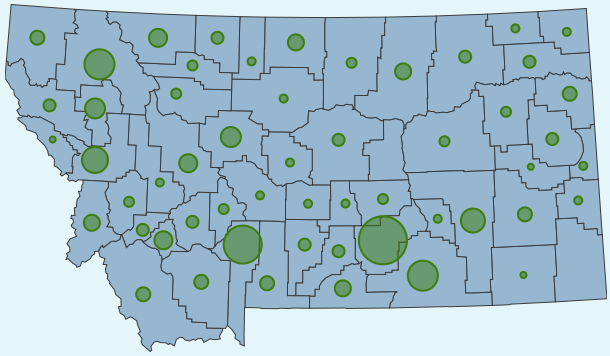


Cases: 2,012

Counties: 47

Range: 1-559

Recovered COVID-19 Cases -- Montana, September 18, 2020



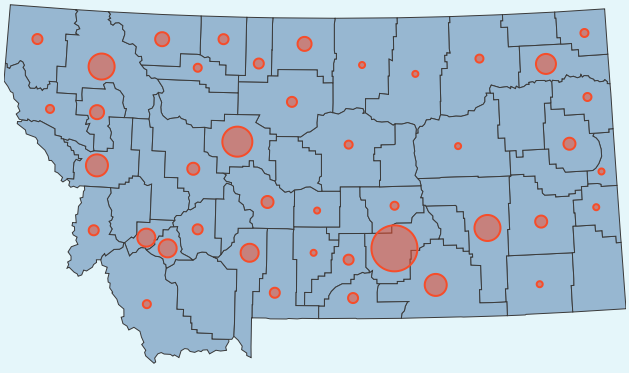
Recovered: 7,809

Counties: 54

Range: 1-2,020

Recovered COVID-19 includes cases who have recovered and are released from isolation.

Active COVID-19 Cases -- Montana, September 18, 2020



Active: 2,197

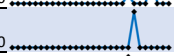
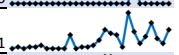
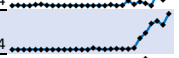
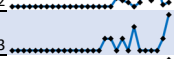
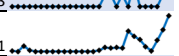
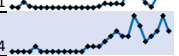
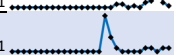
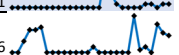
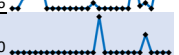
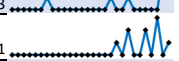
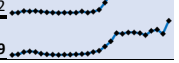
Counties: 42

Range: 1-720

Active COVID-19 includes cases who are hospitalized or recovering but still remain in isolation.

Counties Reporting COVID-19 Cases with Trendline – Montana 2020

County	13 Mar	20 Mar	27 Mar	3 Apr	10 Apr	17 Apr	24 Apr	1 May	8 May	15 May	22 May	29 May	5 Jun	12 Jun	19 Jun	26 Jun	3 Jul	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sep	11 Sep	18 Sep	Trend
Beaverhead	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	17	21	15	6	1	1	2	2	2	
Big Horn	0	0	0	0	1	2	0	0	0	5	0	20	8	8	11	17	13	26	27	79	102	104	87	76	68	62	56	61	
Blaine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3	1	2	5	1	0	0	0	1	
Broadwater	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	1	1	0	3	0	2	0	1	0	
Carbon	0	0	0	1	5	0	0	0	0	0	0	0	0	0	7	5	8	5	9	5	11	12	6	7	4	7	5	9	
Cascade	0	0	7	4	2	0	1	1	1	1	0	0	0	0	4	6	7	14	21	42	34	19	18	16	83	95	66	84	
Chouteau	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	4	0	0	0	1	4	3	
Custer	0	0	0	0	0	0	0	0	0	0	0	0	0	3	18	4	5	8	3	6	5	9	0	2	3	3	8	24	
Daniels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	
Dawson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	0	1	7	1	13	2	9	11	8	8	
Deer Lodge	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	6	6	5	5	2	1	49	4	28	
Fallon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	1	
Fergus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2	3	14	2	7	7	15	1	
Flathead	0	2	4	14	14	3	0	0	0	0	0	0	0	0	8	8	10	3	46	62	79	77	55	84	115	93	51	97	
Gallatin	1	3	42	55	34	7	4	0	3	0	0	2	10	26	17	35	49	115	159	186	100	83	59	25	57	38	43	52	
Garfield	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	2	0	0	0	0	1	3	1	0	
Glacier	0	0	0	1	2	1	0	2	0	0	0	0	0	0	1	1	14	6	6	16	2	18	16	19	29	8	19	15	
Golden Valley	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Granite	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	0	0	1	9	2	0	1	2	1	0	
Hill	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	18	8	1	2	6	4	29	17	10	23	
Jefferson	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	8	4	7	3	3	3	5	2	4	10	
Judith Basin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3	0	0	0	
Lake	1	0	1	3	0	0	0	0	0	0	0	0	0	4	1	2	7	27	52	34	29	16	10	8	11	20	10	21	
Lewis and Clark	0	3	6	4	3	0	0	0	0	0	0	0	2	1	3	3	6	13	33	23	28	27	21	15	5	9	3	14	
Liberty	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	8	1	
Lincoln	0	0	3	3	1	0	0	0	0	0	0	0	0	0	0	0	2	4	31	9	16	7	2	2	9	3	11	3	
Madison	0	1	2	3	2	0	0	0	0	0	0	0	0	0	0	0	7	12	16	15	17	9	1	4	2	3	1	1	
McCone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	2	0	6	3	1	4	
Meagher	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	5	15	
Mineral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	
Missoula	0	4	5	9	11	6	4	0	0	0	0	0	0	0	9	18	40	17	37	44	49	71	56	23	27	18	27	101	
Musselshell	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	5	8	4	9	

County	13 Mar	20 Mar	27 Mar	3 Apr	10 Apr	17 Apr	24 Apr	1 May	8 May	15 May	22 May	29 May	5 Jun	12 Jun	19 Jun	26 Jun	3 Jul	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sep	11 Sep	18 Sep	Trend
Park	0	0	1	5	1	0	0	1	0	0	0	0	0	0	0	1	4	3	14	10	7	8	7	1	0	4	9	10	
Phillips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	64	16	3	4	0	3	
Pondera	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3	3	1	2	0	2	2	1	1	3	
Powder River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	
Powell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	8	0	0	0	
Prairie	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
Ravalli	0	1	0	1	1	2	0	0	0	0	8	0	1	1	2	5	11	9	8	1	21	10	3	7	15	6	3	11	
Richland	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	4	9	9	6	7	5	1	1	6	4	5	5	5	
Roosevelt	0	1	0	0	2	3	1	0	0	0	0	0	0	0	0	0	0	2	0	1	10	3	8	5	0	27	12	74	
Rosebud	0	0	0	0	0	0	0	0	0	0	0	1	0	0	6	2	1	2	4	3	3	6	43	62	97	107	92	134	
Sanders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3	2	0	2	17	3	10	1	2	
Sheridan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	2	0	0	0	0	1	3	
Silver Bow	1	0	8	2	0	0	0	0	0	0	0	0	0	0	0	2	6	5	6	5	29	22	17	7	1	16	31	51	
Stillwater	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1	2	3	4	3	3	7	5	2	3	4	7	4	
Sweet Grass	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	1	0	3	4	22	3	1	
Teton	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	4	1	0	0	0	0	1	1	0	1	1	
Toole	0	0	4	8	8	9	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	13	1	2	0	10	7	6	
Treasure	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	
Valley	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	3	4	4	15	5	4	11	1	6	
Wheatland	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3	3	
Wibaux	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	2	0	3	0	1	
Yellowstone	1	4	18	15	19	13	7	4	1	3	3	2	14	4	12	29	97	188	246	162	204	211	230	288	239	224	217	342	
MONTANA	**5**	**19**	**107**	**135**	**111**	**49**	**19**	**8**	**5**	**10**	**11**	**25**	**35**	**48**	**109**	**155**	**316**	**503**	**794**	**772**	**820**	**818**	**789**	**725**	**872**	**921**	**763**	**1249**