MONTANA COMMUNICABLE DISEASE EPIDEMIOLOGY

Interim Analysis of COVID-19 cases in Montana (as of 4/24/2020)

This report is an interim epidemiological review of COVID-19 cases in Montana. Data is analyzed based on information available as of April 24, 2020 at 10:00 p.m. Current case count at the time of analysis is:

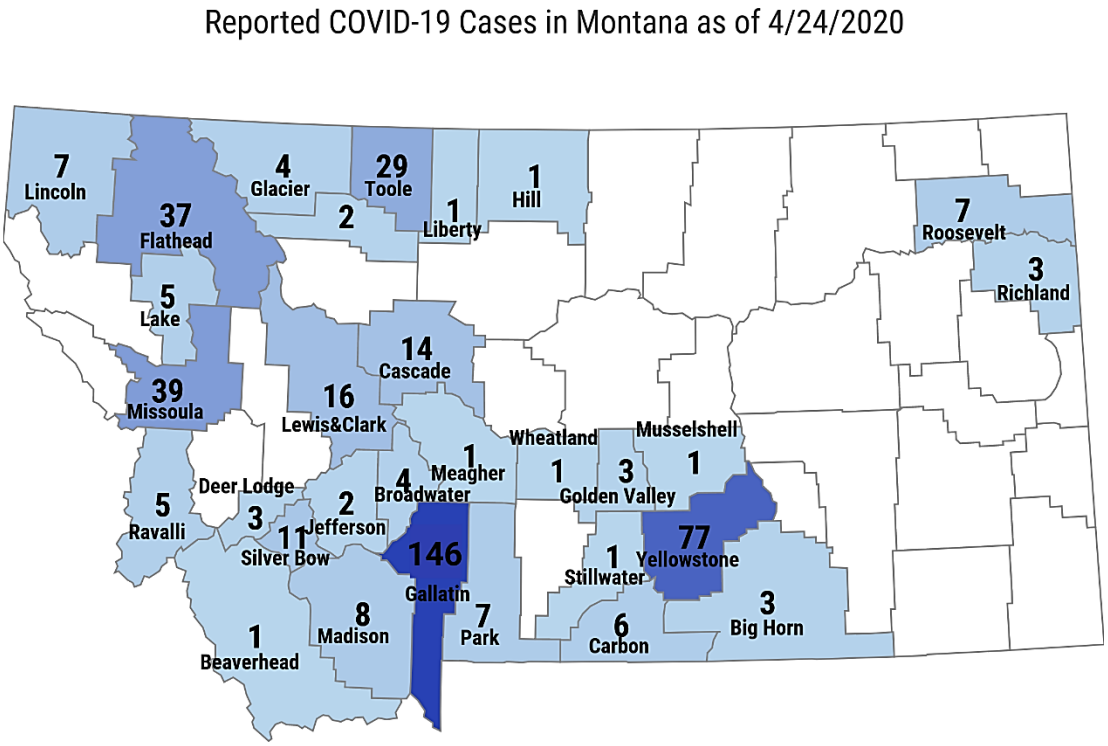
Case Count = 445

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 445 cases of COVID-19 reported in 30 counties in Montana. Gallatin County has been the most impacted, reporting 33% of all reported cases, followed by Yellowstone (17%), Flathead (9%), and Missoula (8%) Counties (Figure 1). Most cases are reported in more populous counties. Of the more rural counties, Toole County is particularly impacted by COVID-19, reporting 7% of all COVID-19 cases in Montana.

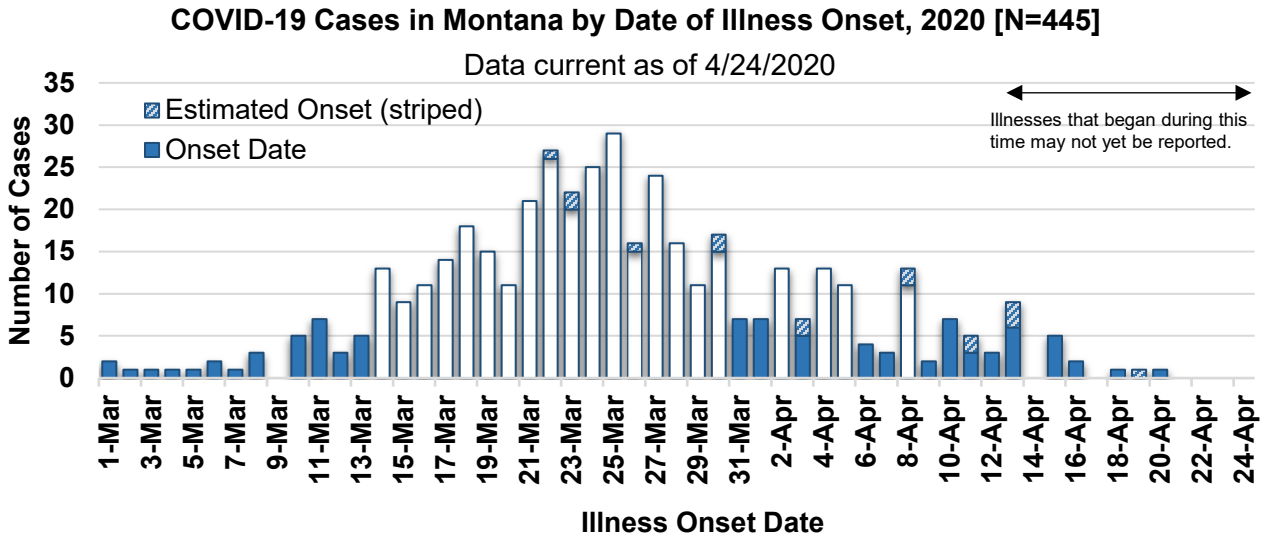
Figure 1: Map of Reported Montana COVID-19 cases



Epidemiological Data

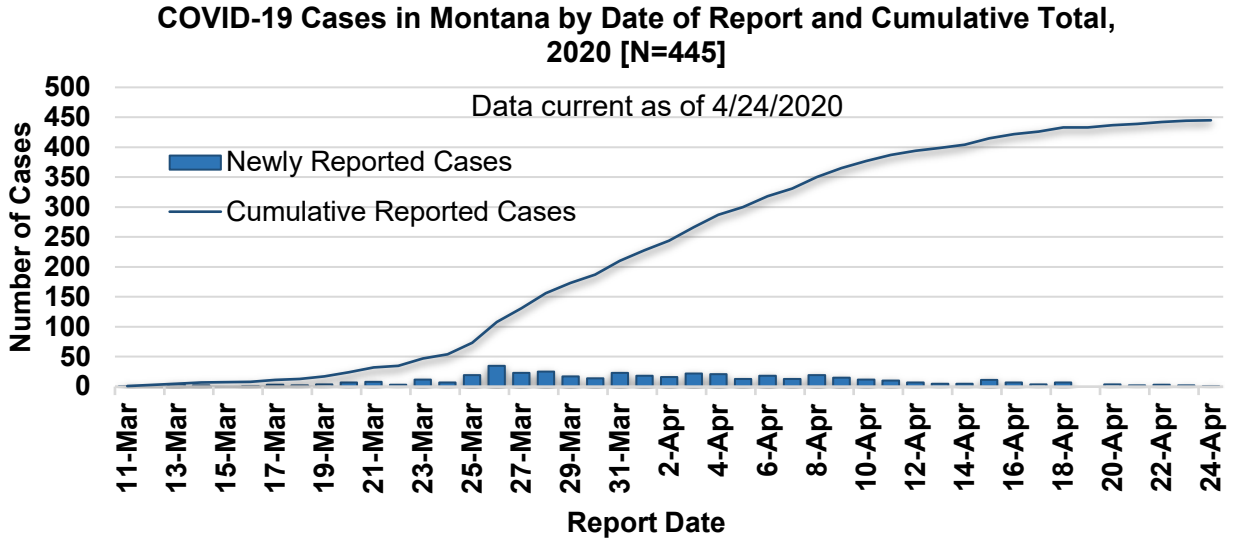
A total of 445 cases were reported as of 4/24/2020. Illness onset date is available for most reported cases. When onset date is not available, collection date is used to calculate an estimated onset (Figure 2). Illness onsets that occurred within the past 10 days may not yet be reported, due to a lag time between illness onset, seeking a provider to get tested, and receiving test results.

Figure 2: Epi Curve for Montana COVID-19 cases



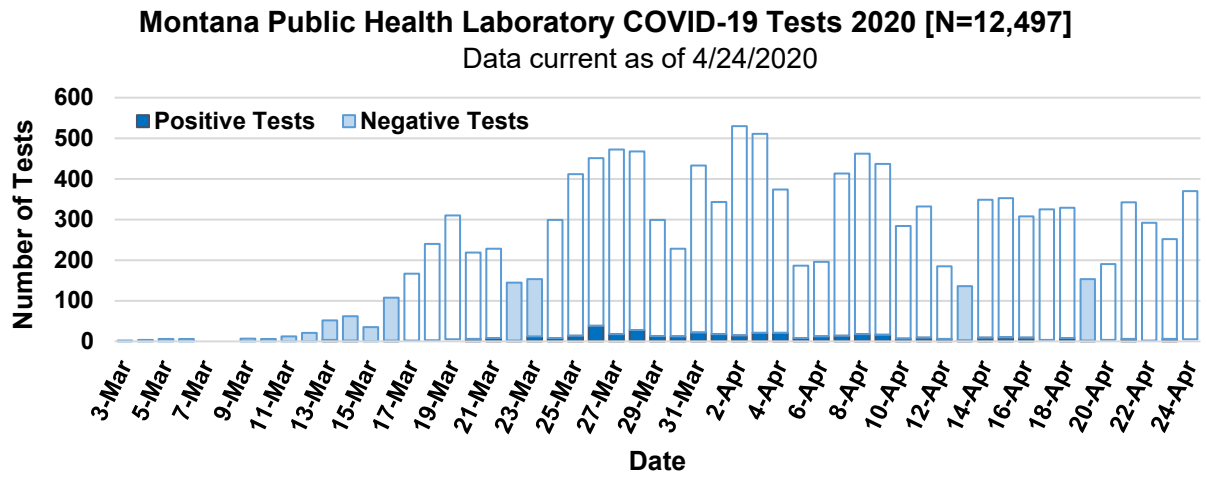
The first COVID-19 case in Montana was reported on 3/11/2020. Since then, the number of new cases has climbed to 445 in six weeks (Figure 3). After reaching the first 100 reported cases within two weeks, well over 100 cases were reported in each of the two following weeks. In week 5 of the outbreak, case reports declined to less than 50 cases, and during the most recent week less than 20 new cases were reported. The growth of COVID-19 continues to slow in Montana.

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



The Montana Public Health Laboratory (MTPHL) continues to receive specimens for COVID-19 testing. In the most recent week, MTPHL processed an average of 280 specimens daily. Total testing completed is comparable to the previous week, but the positivity rate dropped from 3% in the previous week to 2% in the most recent week (Figure 4). In total, MTPHL has tested 12,497 samples for COVID-19 since the first reported illness and 432 of those were positive. 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. In addition, several private laboratories perform COVID-19 testing on Montana residents, and these tests are not reflected in the chart below.

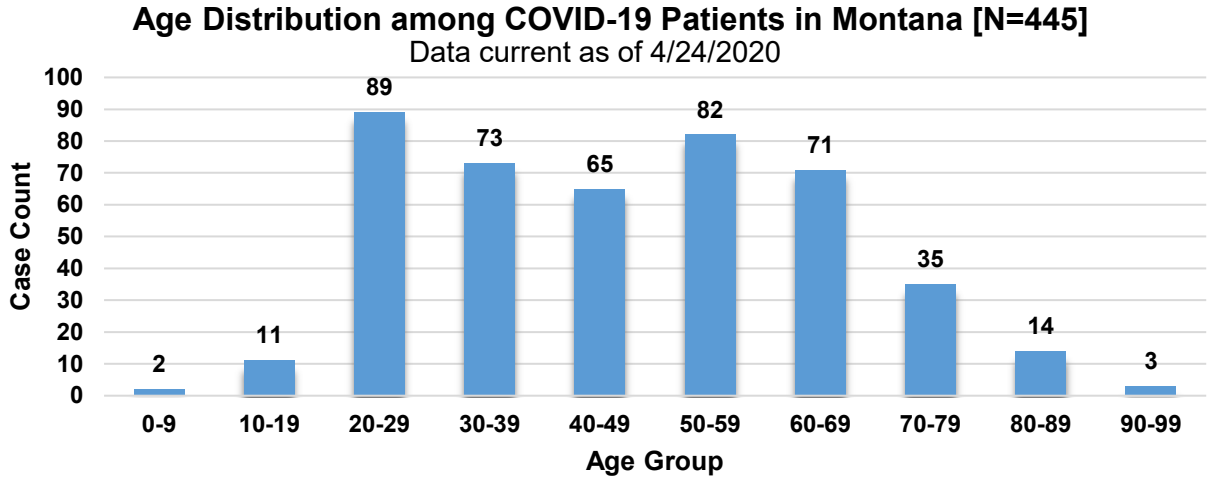
Figure 4: MTPHL Laboratory Testing for COVID-19



Age and Demographic Distribution

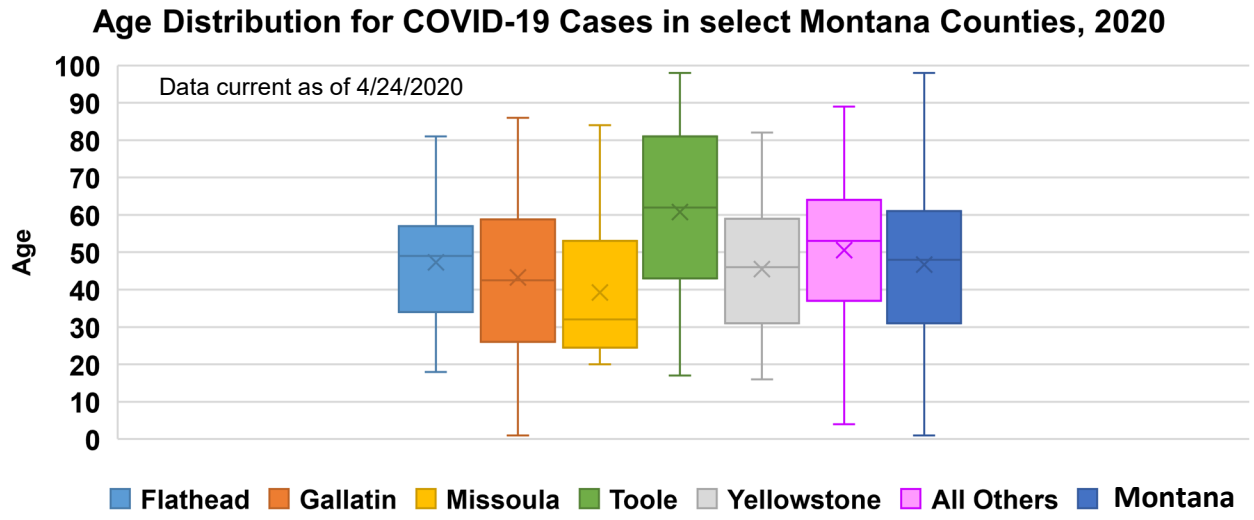
Persons between 20-29 years of age account for 20% of all reported COVID-19 cases in Montana. The next most common age group is 50-59 years (18%) followed by those who are 30-39 years (16%) and 60-69 years (16%) (Figure 5). The median age for all cases is 48 years of age with a range between 1-98 years. Fifty percent of cases are between 31-61 years of age.

Figure 5: Age Distribution for COVID-19 cases in Montana



In the five counties with more than 20 reported cases, the age distribution shows some slight variations. Flathead, Gallatin and Yellowstone Counties report ages comparable to the state average with Gallatin County reporting a lower median age and Flathead County a higher median age (Figure 6). Missoula's cohort is much younger, with a median age of 32 years old. Toole County has the oldest cohort where half of the reported cases are older than 61 years. All other counties have a slightly older age distribution that the state average, with a median age of 53 years old.

Figure 6: Age Distribution for COVID-19 cases in select Montana Counties



Persons infected with COVID-19 are nearly equally distributed among men and women, with 52% of cases reported as female and 48% reported as male. Of 414 (93%) cases with known race at the time of report, 94% of persons identify as white and 5% as American Indian, Alaska Native, Native Hawaiian or Pacific Islander. Other races making up approximately 1% of the cases identify as African American, Asian or other race (Table 1). Native Americans are not disproportionally impacted by COVID-19 in Montana at this time. Ninety-eight percent of all cases with ethnicity information available identify as non-Hispanic and 2% as Hispanic.

Table 1: Race of COVID-19 Cases in Montana

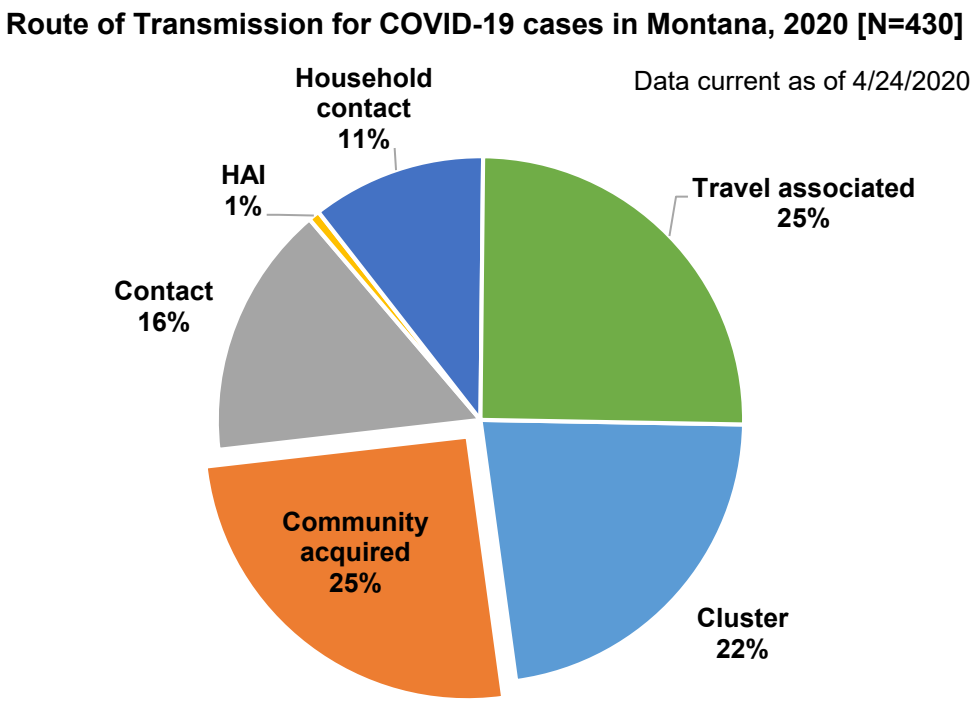
Race	Count	Percent
White	389	94%
American Indian, Alaska Native, Native Hawaiian, Pacific Islander	20	5%
Black or African American	2	0.5%
Asian	1	0.2%
Other	2	0.5%
TOTAL	**414**	

Transmission Characteristics

There are 30 counties reporting COVID-19 cases and even though 14 of those counties indicate that at least one person acquired the virus in the community, only five counties report widespread community acquired transmission occurring in their county. Of current data available, 25% of all cases with known transmission information likely acquired the virus in the community; most of those are in Gallatin and Yellowstone Counties. Twenty-five percent of reported cases likely acquired the virus through travel-

related exposures. Approximately 27% of cases were contacts to a known case, either within the household or otherwise. Clusters identified 22% of new case reports, increasing as a more common route of transmission compared to previous weeks (Figure 7).

Figure 7: Known Routes of Transmission for Montana COVID-19

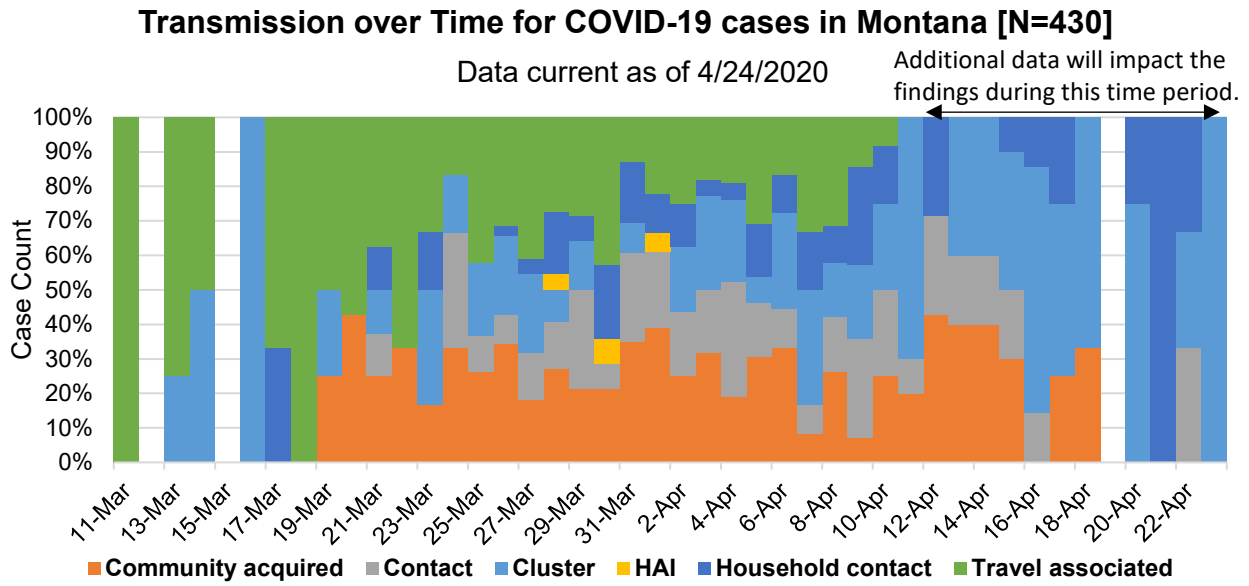


Data unavailable and currently under investigation for 15 (3%) persons.

CATEGORY	DEFINITION
TRAVEL ASSOCIATED	Case traveled out-of-state during the incubation period
COMMUNITY ACQUIRED	Case was unable to be linked with other known cases
CONTACT	Contact to a case not in their household and not part of a known cluster
HOUSEHOLD CONTACT	Household contact to a confirmed case
CLUSTER	Case is part of a known cluster
HAI	Healthcare-associated infection
UNDER INVESTIGATION	Likely route of transmission is still under investigation

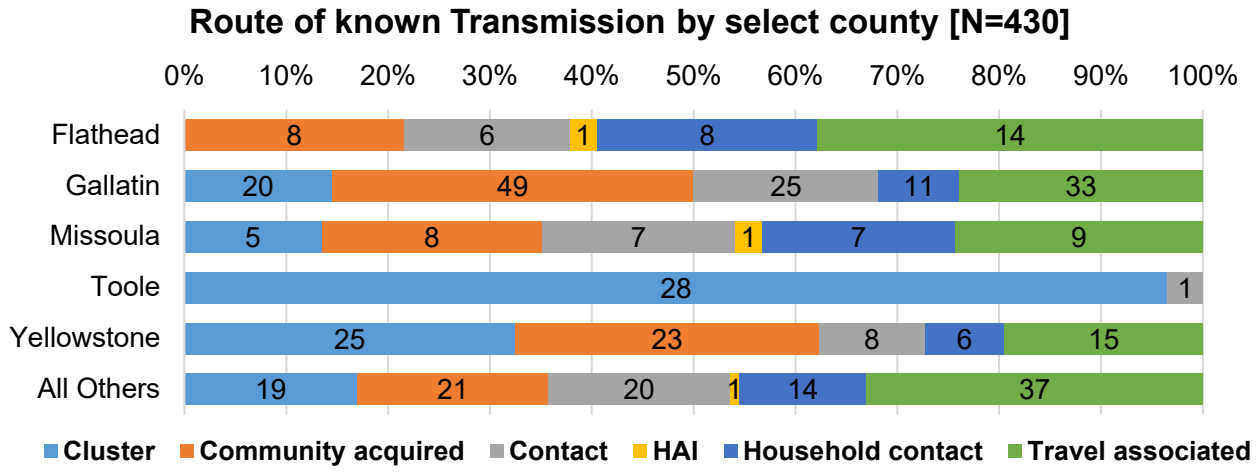
Transmission changes over time can indicate effective public health efforts, such as timely investigations, thorough contact findings, and measures to reduce community-acquired transmission. Transmission information is generally unknown for newly reported cases under investigation. The percent of community-acquired cases has steadily contributed to disease counts, but has declined in recent weeks (Figure 8). Travel-related cases contributed to most cases early in the outbreak but have not contributed to recent new case reports. Contact and particularly cluster investigations have primarily contributed to finding new cases, indicating that disease control efforts through local public health staff is identifying those infected and isolating them appropriately.

Figure 8: Percent of known transmission contributing to COVID-19 Montana cases



The five counties with more than 20 reported cases indicate that travel-associated transmission accounts for around 20% of cases in Gallatin, Missoula, and Yellowstone Counties and nearly 40% for new cases in Flathead County. About one third of cases in Gallatin and Yellowstone Counties are attributable to community-acquired transmission, whereas in Flathead and Missoula Counties, only about 20% are community-acquired. Contact and household contact investigations contribute to a fair number of new cases in Flathead and Missoula Counties. To date, all cases in Toole County are related to an ongoing cluster of illnesses. In addition, some significant cluster activity is noted in Yellowstone County, as well as some in Gallatin, and Missoula Counties (Figure 9). One third of cases reported in all other counties were travel-related. Another third were either a contact to a known case or household contact. The others were either part of a cluster or acquired the virus in the community.

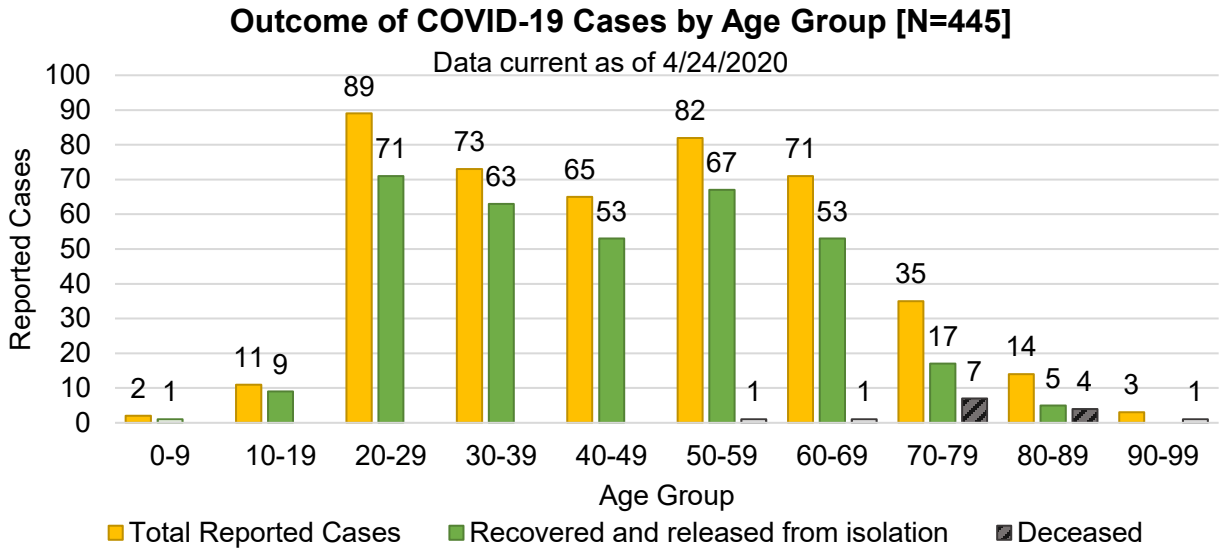
Figure 9: Breakdown of known transmission for select counties



Outcomes

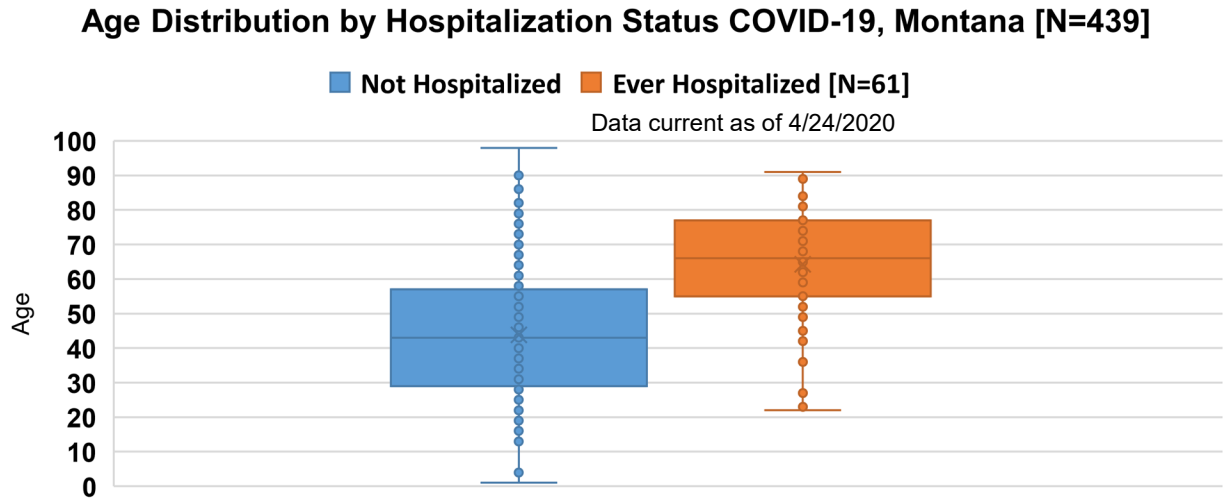
The current outcomes of COVID-19 cases in Montana depict the impact of the illness on the population. There are currently 92 (21%) persons actively infected and 339 (76%) persons who have recovered, meaning they have cleared the illness and are released from isolation (Figure 10). Fourteen persons who were infected with COVID-19, have died. The counties reporting deaths are Toole (6), Cascade, (2), Flathead (2), Lincoln (1), Madison (1), Missoula (1), and Yellowstone (1). Persons who died were between 52 and 91 years of age, and half were female.

Figure 10: Current infections and illness outcomes for Montana COVID-19



Cases who ever had to be hospitalized for COVID-19 are generally much older than those not requiring hospitalization (Figure 11). To date, 61 persons have been hospitalized and their median age is 66, half of them are between 55 and 77 years old. This compares to those not requiring hospitalization with a median age of 43, where half of patients are between 29 and 57 years old.

Figure 11: Age Distribution among COVID-19 cases compared by known hospitalization status



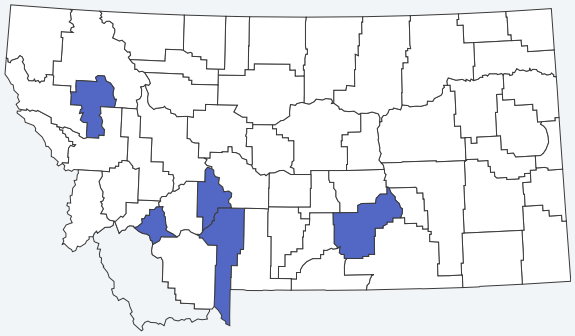
Counties Reporting a COVID-19 Case with Trends

Beaverhead	0	0	0	1	0	0	0	
Big Horn	0	0	0	0	1	2	0	
Broadwater	1	0	1	2	0	0	0	
Carbon	0	0	0	1	5	0	0	
Cascade	0	0	7	4	2	0	1	
Deer Lodge	0	0	0	3	0	0	0	
Flathead	0	2	4	14	14	3	0	
Gallatin	1	3	42	55	34	7	4	
Glacier	0	0	0	1	2	1	0	
Golden Valley	0	0	0	0	1	2	0	
Hill	0	0	1	0	0	0	0	
Jefferson	0	0	2	0	0	0	0	
Lake	1	0	1	3	0	0	0	
Lewis and Clark	0	3	6	4	3	0	0	
Liberty	0	0	1	0	0	0	0	
Lincoln	0	0	3	3	1	0	0	
Madison	0	1	2	3	2	0	0	
Meagher	0	0	1	0	0	0	0	
Missoula	0	4	5	9	11	6	4	
Musselshell	0	0	0	1	0	0	0	
Park	0	0	1	5	1	0	0	
Pondera	0	0	0	0	0	1	1	
Ravalli	0	1	0	1	1	2	0	
Richland	0	0	0	0	3	0	0	
Roosevelt	0	1	0	0	2	3	1	
Silver Bow	1	0	8	2	0	0	0	
Stillwater	0	0	0	0	1	0	0	
Toole	0	0	4	8	8	9	0	
Wheatland	0	0	0	0	0	0	1	
Yellowstone	1	4	18	15	19	13	7	
MONTANA	**5**	**19**	**107**	**135**	**111**	**49**	**19**	

MONTANA COVID-19 CASES

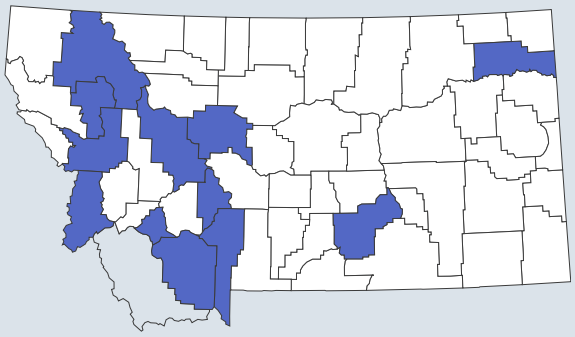
5 cases reported
5 counties

WEEK ENDING 3/13*



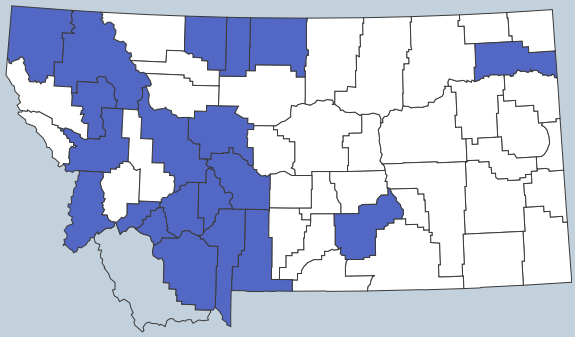
24 cumulative cases reported
12 counties

WEEK ENDING 3/20



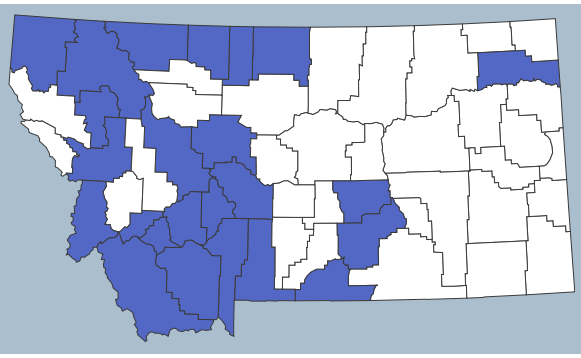
131 cumulative cases reported
20 counties

WEEK ENDING 3/27



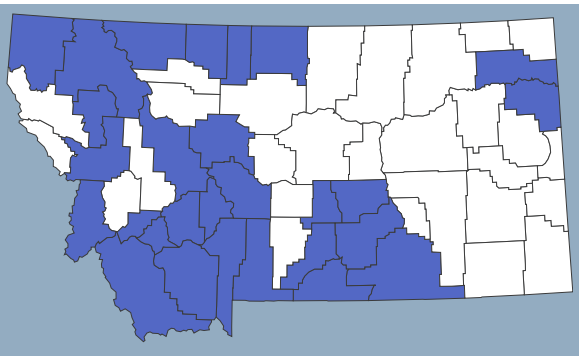
266 cumulative cases reported
23 counties

WEEK ENDING 4/3



377 cumulative cases reported
28 counties

WEEK ENDING 4/10

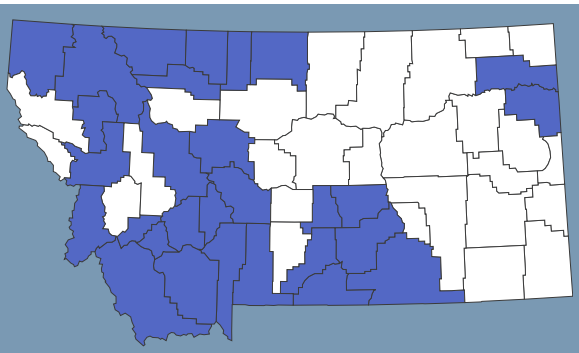


*The first case reported in a Montana resident was from Lake county, but they were infected and treated in a different state

MONTANA COVID-19 CASES

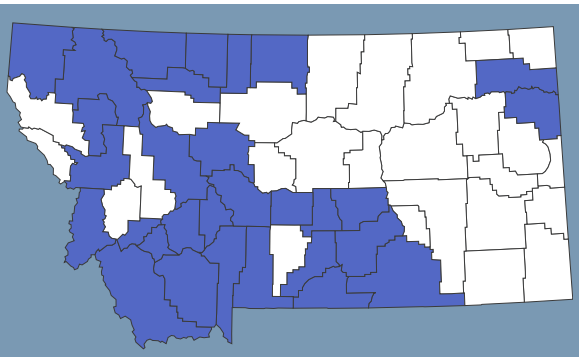
426 cumulative cases reported
29 counties

WEEK ENDING 4/17

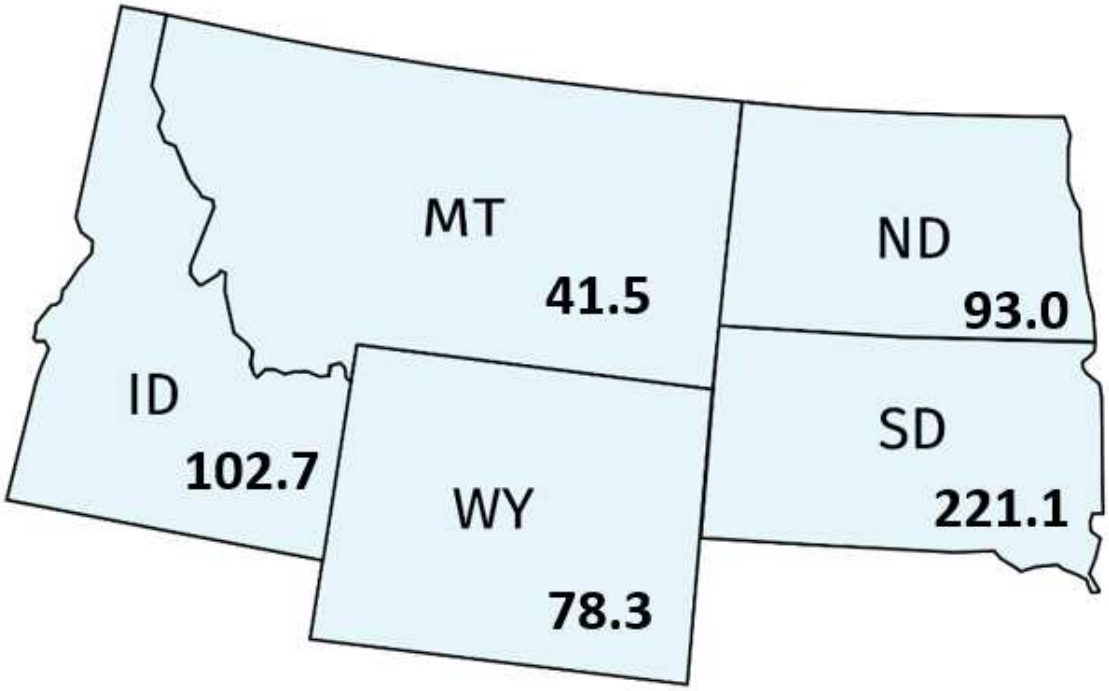


445 cumulative cases reported
30 counties

WEEK ENDING 4/24



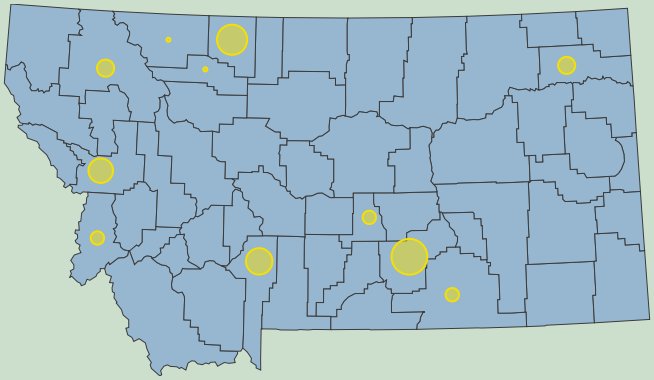
COVID-19 CASE RATES PER 100,000 POPULATION - MONTANA AND NEIGHBORING STATES, AS OF APRIL 24, 2020



Case counts based on CDC case reports as of April 24, 2020 and 2019 population estimates from the U.S. Census Bureau

MONTANA COVID-19 CASES

COVID-19 Cases by Report Date -- April 11-17, 2020



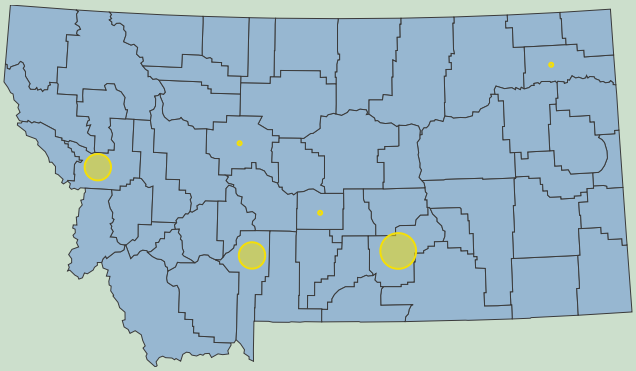
Cases: 49

Counties: 11

Range: 1-13

Note: each circle in a dot-proportion map represents the number of cases per county based on the range given above.

COVID-19 Cases by Report Date -- April 18-24, 2020

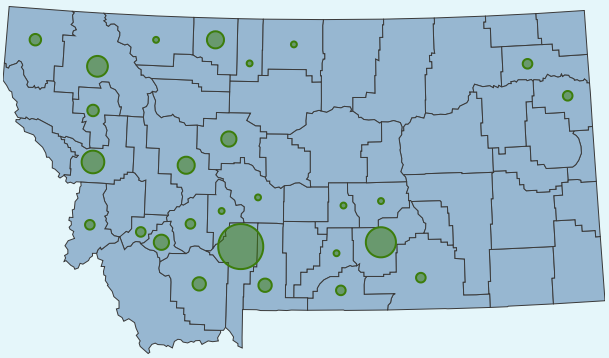


Cases: 19

Counties: 7

Range: 1-7

Recovered COVID-19 Cases - Montana, April 24, 2020



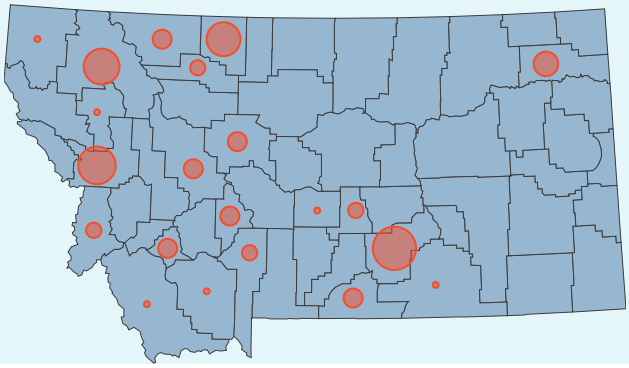
Recovered: 342

Counties: 27

Range: 1-144

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

Active COVID-19 Cases - Montana, April 24, 2020



Active: 92

Counties: 21

Range: 1-17

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