

COVID-19 Variants Identified in Montana

Updated 9/14/2021

This report includes the counties where variants of concern and variants of interest have been detected in Montana. Delta continues to be the dominant variant in Montana. Among samples collected during August and September, 614 samples have been sequenced so far, and 605 (99%) of those are Delta. All 112 specimens collected and sequenced in the first two weeks of September were Delta. The Mu variant (B.1.621) has not been classified as a variant of concern by CDC as of 9/14/21, so is it not included in this report, but we have had 6 cases reported in Montana residents, the first in June 2021.

Figure 1. Total COVID Variants Identified in Montana, by County, 9/14/21 (n=1278)

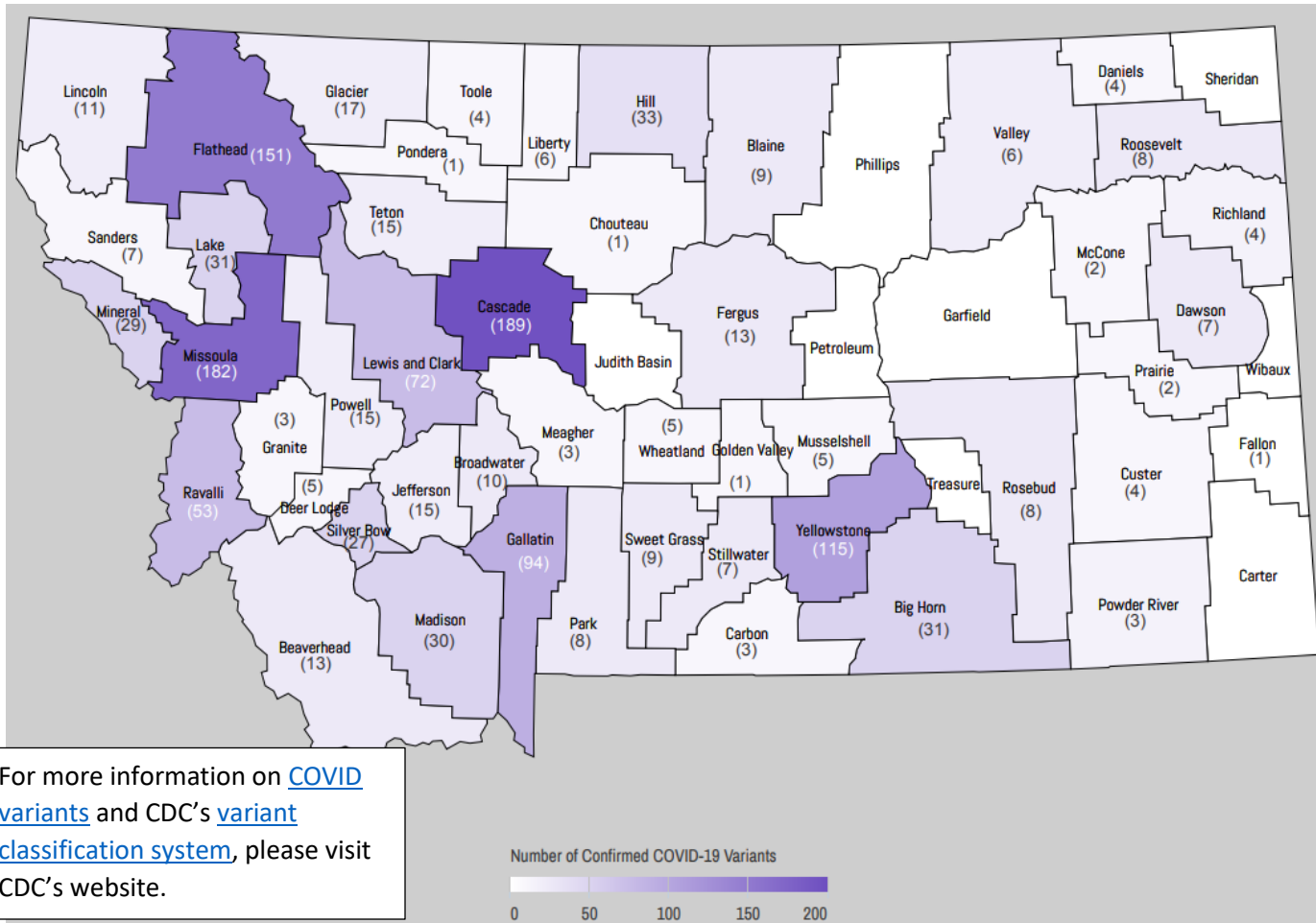


Table 1. Cumulative SARS-CoV-2 variants detected in Montana by classification, GISAID 9/14/2021

Variant Classification	Classification Explanation	Number
Variant of Interest	A variant with specific genetic markers associated with changes to receptor binding, reduced neutralization by antibodies generated against previous infection or vaccination, reduced efficacy of treatments, potential diagnostic impact, or predicted increase in transmissibility or disease severity.	95
Variant of Concern	A variant for which there is evidence of an increase in transmissibility, more severe disease (increased hospitalizations or deaths), significant reduction in neutralization by antibodies generated during previous infection or vaccination, reduced effectiveness of treatments or vaccines, or diagnostic detection failures.	1893
Variant of High Consequence	A variant of high consequence has clear evidence that prevention measures or medical countermeasures (MCMs) have significantly reduced effectiveness relative to previously circulating variants.	0
Total Variants of Concern or Interest		1979

Table 2. Cumulative SARS-CoV-2 variants detected in Montana by location and lineage, MTPHHS, 9/14/2021

County	Variants of Concern			Variants of Interest		Total # Cases
	Alpha (B.1.1.7+Q)	Delta (B.1.617.2+AY)	Gamma (P.1)	Eta (B.1.525)	Iota (B.1.526)	
Beaverhead	4	9	0	0	0	13
Big Horn	4	29	2	0	0	35
Blaine	8	1	0	0	0	9
Broadwater	9	1	0	0	0	10
Carbon	2	1	0	0	0	3
Cascade	70	112	3	0	4	189
Chouteau	1	0	0	0	0	1
Custer	2	2	0	0	0	4
Daniels	0	4	0	0	0	4
Dawson	1	6	0	0	0	7
Deer Lodge	3	1	1	0	0	5
Fallon	0	1	0	0	0	1
Fergus	2	11	0	0	0	13
Flathead	73	61	5	2	10	151
Gallatin	45	40	3	1	5	94
Glacier	6	8	3	0	0	17
Golden Valley	0	1	0	0	0	1
Granite	0	3	0	0	0	3
Hill	18	11	0	0	4	33
Jefferson	9	6	0	0	0	15
Lake	6	25	0	0	0	31
Lewis & Clark	33	29	0	0	10	72
Liberty	1	5	0	0	0	6
Lincoln	1	10	0	0	0	11
Madison	6	19	5	0	0	30
McCone	1	1	0	0	0	2
Meagher	0	1	2	0	0	3
Mineral	12	17	0	0	0	29
Missoula	78	87	9	2	6	182
Musselshell	2	3	0	0	0	5
Park	4	2	0	0	2	8
Pondera	1	0	0	0	0	1
Powder River	3	0	0	0	0	3
Powell	3	8	1	0	3	15
Prairie	0	2	0	0	0	2
Ravalli	44	5	1	0	3	53
Richland	2	2	0	0	0	4
Roosevelt	2	6	0	0	0	8
Rosebud	0	8	0	0	0	8
Sanders	3	2	0	0	2	7
Silver Bow	5	21	1	0	0	27
Stillwater	7	0	0	0	0	7
Sweet Grass	7	2	0	0	0	9
Teton	5	10	0	0	0	15
Toole	2	2	0	0	0	4
Valley	3	5	0	0	0	8
Wheatland	1	4	0	0	0	5
Yellowstone	65	48	1	0	1	115
Total	554	632	37	5	50	1278
Percentage	43%	49%	3%	<1%	4%	

Note 1: The distribution of variants can be influenced by local testing capabilities. As a result, the data in table 2 may not reflect a standardized, statewide sample of variants. Data above are collected in collaboration with partners including, MSU, UM, Fyr Diagnostics, CDC, and other national reference labs.

Note 2: In August 2021 B.1.427 and B.1.429 were removed from the Variants of Interest category by CDC, these variants were subsequently removed from this variant report.

Table 3. Outcome of patients infected with SARS-CoV-2 variants in Montana, by lineage, 9/14/2021

	Variant lineage	Not Hospitalized	Hospitalized	Percentage Hospitalized	Deceased
Variants of Concern	Alpha (B.1.1.7+Q)	424	40	8.6%	6
	Delta (B.1.617.2+AY)	339	93	21.5%	14
	Gamma (P.1)	24	6	20.0%	1
Variants of Interest	Eta (B.1.525)	3	0	0.0%	0
	Iota (B.1.526)	39	3	7.1%	0

Data in table 3 show the hospitalization and death status for cases where that information is recorded in Montana’s communicable disease database (n=1188). Nearly 22% percent of cases infected with the Delta variant were hospitalized and 14 died.

COVID Breakthrough Cases

Breakthrough infection surveillance began in Montana on February 15, 2021. A breakthrough COVID-19 infection is defined as a positive SARS-CoV-2 RNA or antigen detection in a respiratory specimen that is collected ≥14 days after completing the primary COVID-19 vaccine series of an FDA-authorized COVID-19 vaccine. Depending on the specific vaccine administered, completion of series could be one or two doses of vaccine.

As of 9/14/21, Montana reports 4,128 cases of confirmed breakthrough disease, this includes 250 hospitalizations and 50 deaths. 244/276 with subtyping performed are known to be infected with variants of concern or interest.

Table 4. SARS-CoV-2 variants detected in Montana breakthrough cases by lineage, 9/14/2021

	Variants of Concern			Variants of Interest		Total # Variants
	Alpha (B.1.1.7+Q)	Delta (B.1.617.2+AY)	Gamma (P.1)	Eta (B.1.525)	Iota (B.1.526)	
Breakthrough Cases	68	155	12	2	7	244

Variant Trends

Of 2,828 samples sequenced and reported to [GISAID](#) since January 2021, Delta has been the predominant circulating strain in Montana for the past two months.

Figure 3 displays the percentage of each variant detected that week, among all samples sequenced that were collected that week. For example, the week ending May 1, 136 samples were sequenced and 92 (68%) were the Alpha variant (light yellow bar) and 26 (19%) were not variants of concern or interest (dark blue bar). Among samples collected during August and September, 614 samples have been sequenced so far, and 605 (99%) of those are Delta (dark orange bar). All 112 specimens collected and sequenced in the first two weeks of September were Delta.

The overall trends in variants shows that, March through June, the Alpha variant was predominant. Beginning in July, the Delta variant has been detected most often among sequenced samples, and is currently the dominant variant in Montana. Not all samples have enough genetic material to be sequenced. The charts below reflect information on specimens that were sequenced and reported to GISAID.

Figure 2. Number of COVID-19 Samples Sequenced by Collection Date, Montana, 9/14/2021 (n=2,828)

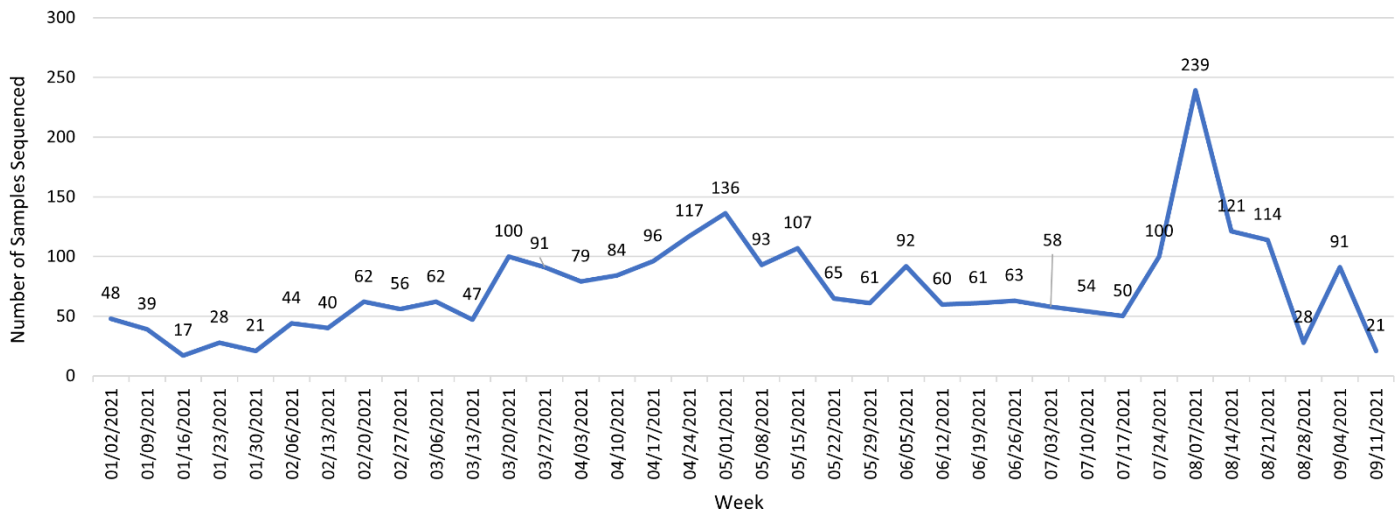


Figure 3. Percent of COVID-19 Variants in Sequenced Samples by Collection Date, Montana, 9/14/2021

