

COVID-19 Variants Identified in Montana

Updated 9/21/2021

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, 784 samples have been sequenced so far, and 774 (99%) of those are Delta. All 166 specimens collected and sequenced in September were Delta. CDC updated variant classifications late 9/21, so we will update the report next week to reflect the new classification of “Variants Being Monitored”. Variants Being Monitored includes the Mu variant, 8 cases of which have been reported in Montana residents since June 2021.

Figure 1. Total COVID Variants Identified in Montana, by County, 9/21/21 (n=1351)

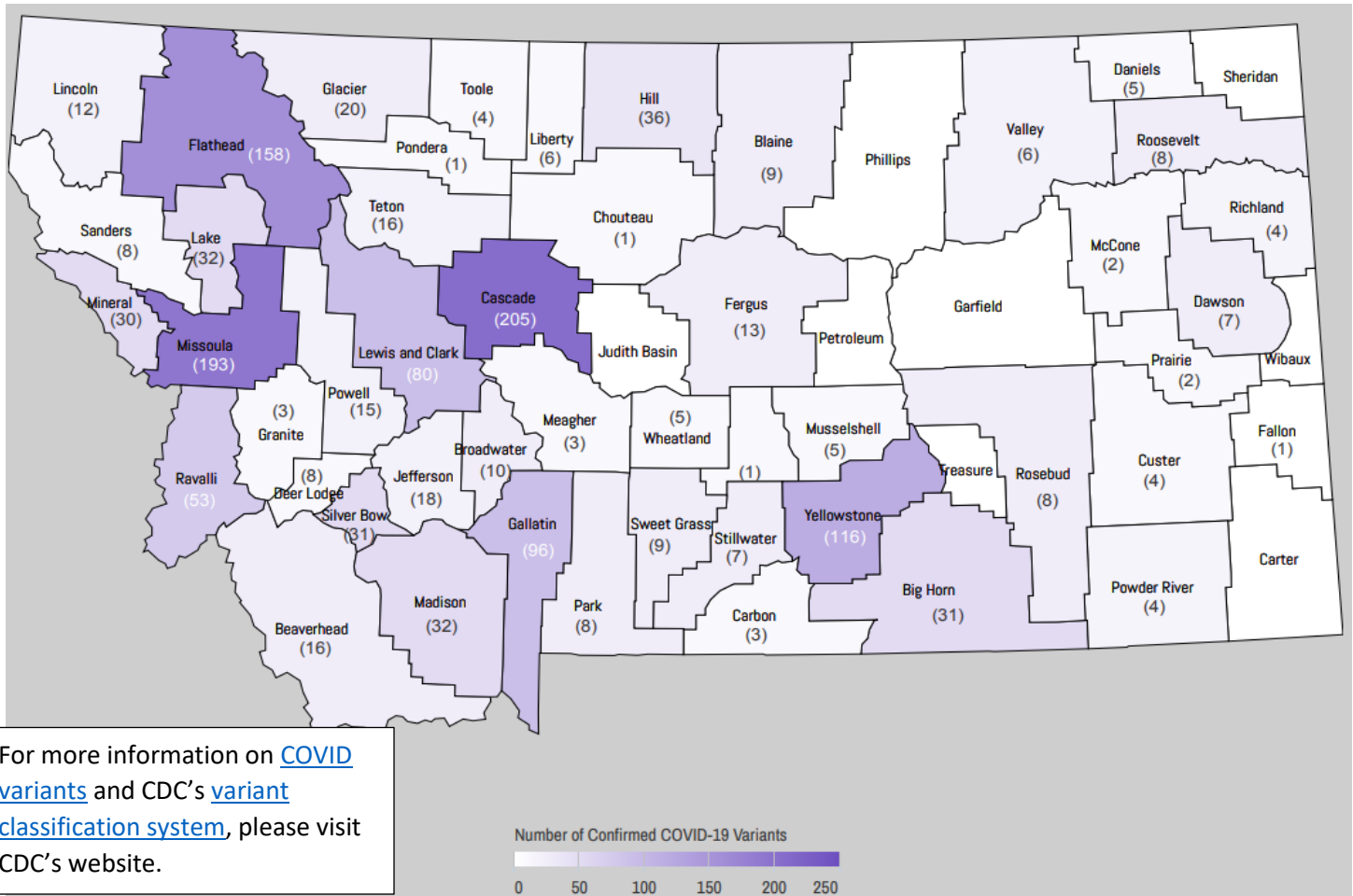


Table 1. Cumulative SARS-CoV-2 variants detected in Montana by classification, GISAID 9/21/2021

| 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. | 96 |
| 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. | 2067 |
| 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 | | 2163 |

Table 2. Cumulative SARS-CoV-2 variants detected in Montana by location and lineage, MTPHHS, 9/21/2021

| 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 | 12 | 0 | 0 | 0 | 16 |
| 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 | 128 | 3 | 0 | 4 | 205 |
| Chouteau | 1 | 0 | 0 | 0 | 0 | 1 |
| Custer | 2 | 2 | 0 | 0 | 0 | 4 |
| Daniels | 0 | 5 | 0 | 0 | 0 | 5 |
| Dawson | 1 | 6 | 0 | 0 | 0 | 7 |
| Deer Lodge | 3 | 4 | 1 | 0 | 0 | 8 |
| Fallon | 0 | 1 | 0 | 0 | 0 | 1 |
| Fergus | 2 | 11 | 0 | 0 | 0 | 13 |
| Flathead | 73 | 68 | 5 | 2 | 10 | 158 |
| Gallatin | 45 | 42 | 3 | 1 | 5 | 96 |
| Glacier | 6 | 11 | 3 | 0 | 0 | 20 |
| Golden Valley | 0 | 1 | 0 | 0 | 0 | 1 |
| Granite | 0 | 3 | 0 | 0 | 0 | 3 |
| Hill | 18 | 14 | 0 | 0 | 4 | 36 |
| Jefferson | 9 | 9 | 0 | 0 | 0 | 18 |
| Lake | 6 | 26 | 0 | 0 | 0 | 32 |
| Lewis & Clark | 33 | 36 | 1 | 0 | 10 | 80 |
| Liberty | 1 | 5 | 0 | 0 | 0 | 6 |
| Lincoln | 1 | 11 | 0 | 0 | 0 | 12 |
| Madison | 6 | 21 | 5 | 0 | 0 | 32 |
| McCone | 1 | 1 | 0 | 0 | 0 | 2 |
| Meagher | 0 | 1 | 2 | 0 | 0 | 3 |
| Mineral | 12 | 18 | 0 | 0 | 0 | 30 |
| Missoula | 78 | 98 | 9 | 2 | 6 | 193 |
| Musselshell | 2 | 3 | 0 | 0 | 0 | 5 |
| Park | 4 | 2 | 0 | 0 | 2 | 8 |
| Pondera | 1 | 0 | 0 | 0 | 0 | 1 |
| Powder River | 3 | 1 | 0 | 0 | 0 | 4 |
| 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 | 3 | 0 | 0 | 2 | 8 |
| Silver Bow | 5 | 25 | 1 | 0 | 0 | 31 |
| Stillwater | 7 | 0 | 0 | 0 | 0 | 7 |
| Sweet Grass | 7 | 2 | 0 | 0 | 0 | 9 |
| Teton | 5 | 11 | 0 | 0 | 0 | 16 |
| Toole | 2 | 2 | 0 | 0 | 0 | 4 |
| Valley | 3 | 5 | 0 | 0 | 0 | 8 |
| Wheatland | 1 | 4 | 0 | 0 | 0 | 5 |
| Yellowstone | 65 | 49 | 1 | 0 | 1 | 116 |
| Total | 554 | 704 | 38 | 5 | 50 | 1351 |

| | | | | | | |
|------------|-----|-----|----|-----|----|--|
| Percentage | 41% | 52% | 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, 9/21/2021

| | 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) | 375 | 96 | 20.4% | 15 |
| | Gamma (P.1) | 25 | 6 | 19.4% | 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=1011). Approximately 20% percent of cases infected with the Delta variant were hospitalized and 15 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 9/21/21, Montana reports 5,131 cases of confirmed breakthrough disease, this includes 308 hospitalizations and 57 deaths. 265/297 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, 9/21/2021

| | 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 | 176 | 12 | 2 | 7 | 265 |

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, 784 samples have been sequenced so far, and 774 (99%) of those are Delta (dark orange bar). All 166 specimens collected and sequenced in 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, 9/21/2021 (n=3020)

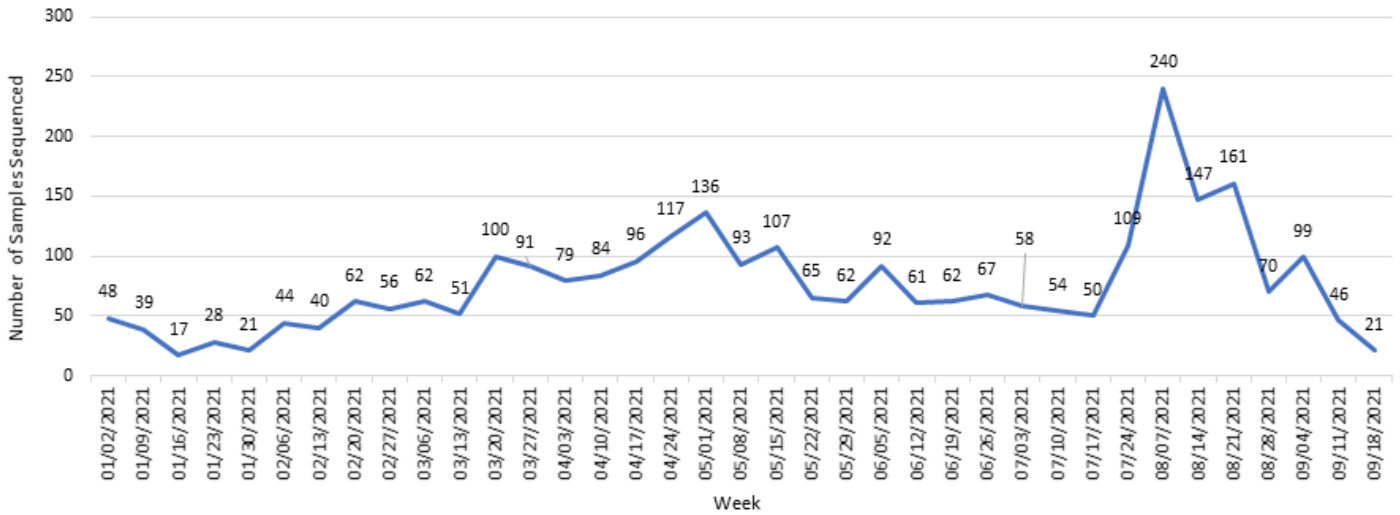


Figure 3. Percent of COVID-19 Variants in Sequenced Samples by Collection Date, Montana, 9/21/2021

