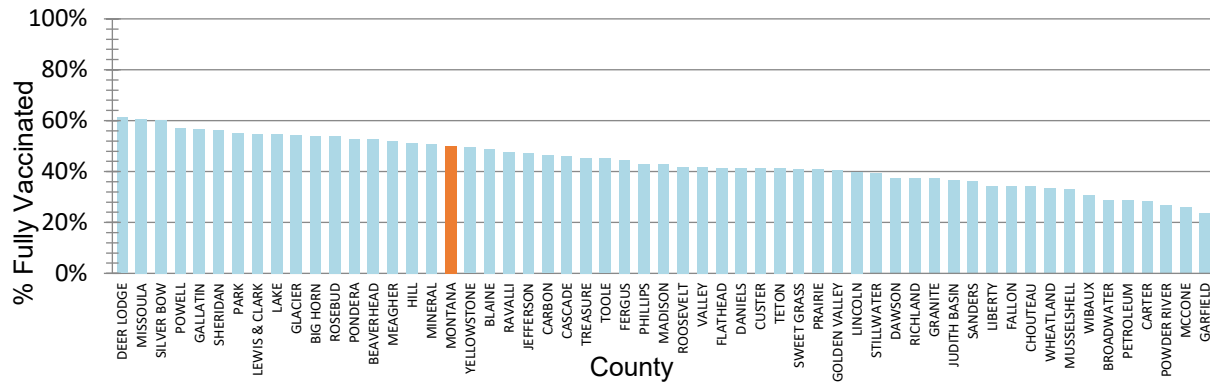


Figure 4. Percent of Eligible Montanans (5+ years) Fully Vaccinated by County – Montana, 11/12/2021



Variant and Breakthrough Cases

Figure 6 displays the percentage of the most common SARS-CoV-2 lineages detected each week, among all samples sequenced that were collected that week. There were 6,620 samples that were sequenced and their lineages were reported to GISAID since September 2020; figure 5 displays the number of specimens sequenced by week. A variant is a lineage that has one or more mutations that differentiate it from other lineages in circulation. Delta is the only Variant of Concern at this time, and it is the dominant circulating strain in Montana. Of specimens collected and sequenced in October and November 1,568/1,571 (99.8%) are Delta. Aside from Delta, all other former variants of concern and interest have been re-classified as Variants Being Monitored. Delta has been the predominant variant in Montana since July 2021.

Figure 5. Number of COVID-19 samples sequenced by collection date, Montana 11/16/2021 [n=6,620]

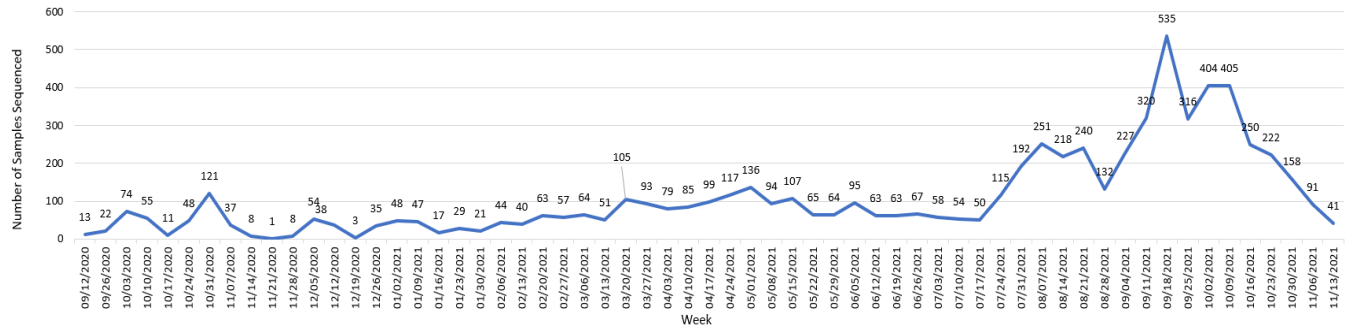
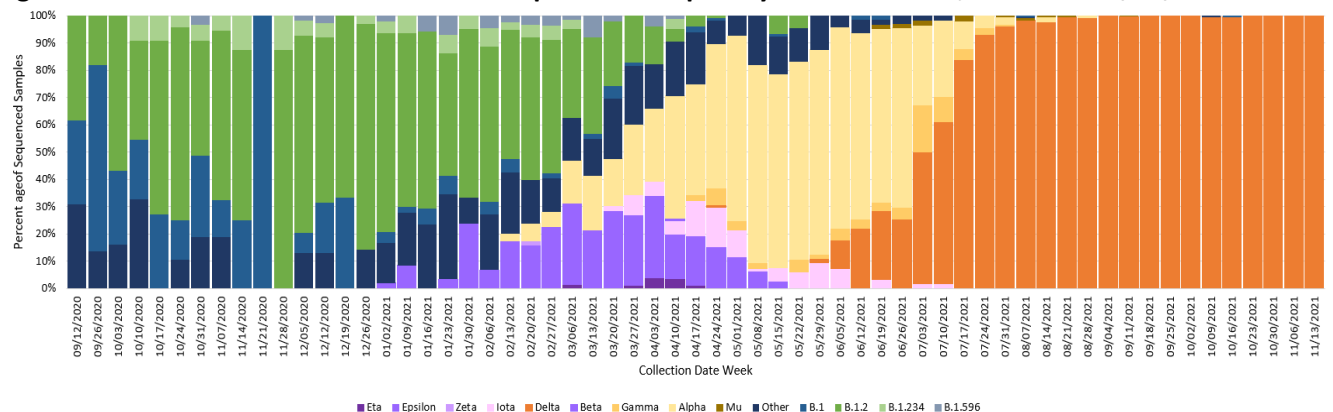


Figure 6. Percent of COVID-19 variants in sequenced samples by collection date, Montana 11/16/2021



A breakthrough COVID-19 infection is defined as a positive SARS-CoV-2 specimen 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 11/16/21, Montana reports 13,533 cases of confirmed breakthrough disease, which includes 786 hospitalizations and 209 deaths. Over the past 8 weeks (September 18 – November 12) the number of cases among unvaccinated individuals was 4.6 times higher than the number of cases among vaccinated individuals; the number of hospitalizations and deaths among unvaccinated individuals were 4.4 and 3.3 times higher, respectively, compared to vaccinated individuals.

Hospitalizations and Deaths and Vaccination Status

COVID-19-related hospitalizations and deaths were analyzed between **April 1 and November 12** to review vaccination status. Since the beginning of April this year, 84% of Montanans who were hospitalized and 77% of those who died were unvaccinated at the time of infection (Table 4). Of the 4,692 individuals who were hospitalized during this time period, 81 (2%) were <18 years old, 722 (15%) were 18 to 44 years old, 1,613 (34%) were 45 to 64 years old and 2,276 (49%) were ≥ 65 years old.

Additionally, COVID-19-related hospitalization and death data from **September 18– November 12** (last 8 weeks) were analyzed to review vaccination status. Eighty-one percent of Montanans who were hospitalized and 76% of those who died had not received a COVID-19 vaccine (Table 5). Of the 2,240 individuals who were hospitalized during this time period, 47 (2%) were <18 years old, 294 (13%) were 18 to 44 years old, 746 (33%) were 45 to 64 years old and 1,153 (51%) were ≥ 65 years old.

Table 4. Vaccination status of COVID-19 hospitalizations and deaths – April 1 to November 12, 2021

| | HOSPITALIZATIONS | DEATHS |
|--|-----------------------|--------------------|
| TOTAL REPORTED | 4,692 | 867 |
| UNVACCINATED | 3,922 (84%) | 667 (77%) |
| VACCINATED (BREAKTHROUGH CASE) | 770 (16%) | 200 (23%) |
| UNVACCINATED AGE RANGE IN YEARS (MEDIAN AGE) | <1-102 (62) | 24-103 (70) |
| VACCINATED AGE RANGE IN YEARS (MEDIAN AGE) | 16-101 (75) | 43-99 (83) |

Table 5. Vaccination status of COVID-19 hospitalizations and deaths – September 18 – November 12, 2021

| | HOSPITALIZATIONS | DEATHS |
|--|----------------------|--------------------|
| TOTAL REPORTED | 2,240 | 409 |
| UNVACCINATED | 1,810 (81%) | 312 (76%) |
| VACCINATED (BREAKTHROUGH CASE) | 430 (19%) | 97 (24%) |
| UNVACCINATED AGE RANGE IN YEARS (MEDIAN AGE) | <1-97 (62) | 24-103 (71) |
| VACCINATED AGE RANGE IN YEARS (MEDIAN AGE) | 16-101 (75) | 45-99 (83) |

| County name | Eligible population 5+ | Dose 1 | Dose 2 | Dose 3 | Fully Immunized | Total Doses Administered | Percent eligible with first dose (5+) | Percent Fully Vaccinated (5+) |
|----------------|------------------------|----------------|----------------|----------------|-----------------|--------------------------|---------------------------------------|-------------------------------|
| BEAVERHEAD | 9,091 | 5,081 | 4,127 | 613 | 4,798 | 9,821 | 56% | 53% |
| BIG HORN | 11,975 | 7,207 | 6,158 | 1,255 | 6,485 | 14,620 | 60% | 54% |
| BLAINE | 6,044 | 3,269 | 2,755 | 793 | 2,951 | 6,817 | 54% | 49% |
| BROADWATER | 6,092 | 2,109 | 1,539 | 365 | 1,766 | 4,013 | 35% | 29% |
| CARBON | 10,476 | 5,173 | 4,527 | 1,236 | 4,845 | 10,936 | 49% | 46% |
| CARTER | 1,141 | 349 | 306 | 36 | 326 | 691 | 31% | 29% |
| CASCADE | 76,124 | 38,886 | 31,549 | 7,915 | 35,202 | 78,350 | 51% | 46% |
| CHOUTEAU | 5,430 | 2,031 | 1,685 | 807 | 1,853 | 4,523 | 37% | 34% |
| CUSTER | 10,692 | 4,903 | 3,933 | 1,051 | 4,416 | 9,887 | 46% | 41% |
| DANIELS | 1,559 | 694 | 595 | 184 | 646 | 1,473 | 45% | 41% |
| DAWSON | 8,071 | 3,253 | 2,737 | 546 | 3,014 | 6,536 | 40% | 37% |
| DEER LODGE | 8,887 | 5,916 | 4,880 | 1,606 | 5,440 | 12,402 | 67% | 61% |
| FALLON | 2,646 | 974 | 863 | 253 | 904 | 2,090 | 37% | 34% |
| FERGUS | 10,495 | 5,066 | 4,320 | 1,121 | 4,679 | 10,507 | 48% | 45% |
| FLATHEAD | 99,993 | 47,363 | 37,551 | 10,057 | 41,494 | 94,971 | 47% | 41% |
| GALLATIN | 110,900 | 74,723 | 57,370 | 13,912 | 63,031 | 146,005 | 67% | 57% |
| GARFIELD | 1,188 | 305 | 241 | 39 | 283 | 585 | 26% | 24% |
| GLACIER | 12,447 | 9,396 | 6,280 | 1,253 | 6,784 | 16,929 | 75% | 55% |
| GOLDEN VALLEY | 788 | 342 | 287 | 56 | 318 | 685 | 43% | 40% |
| GRANITE | 3,218 | 1,373 | 1,090 | 230 | 1,198 | 2,693 | 43% | 37% |
| HILL | 14,914 | 8,562 | 6,560 | 2,138 | 7,659 | 17,260 | 57% | 51% |
| JEFFERSON | 11,819 | 6,163 | 5,199 | 1,614 | 5,588 | 12,976 | 52% | 47% |
| JUDITH BASIN | 1,880 | 742 | 633 | 113 | 691 | 1,488 | 39% | 37% |
| LAKE | 29,280 | 18,071 | 14,916 | 3,918 | 16,046 | 36,905 | 62% | 55% |
| LEWIS & CLARK | 66,257 | 40,666 | 33,649 | 10,805 | 36,354 | 85,120 | 61% | 55% |
| LIBERTY | 2,234 | 802 | 673 | 283 | 769 | 1,758 | 36% | 34% |
| LINCOLN | 19,480 | 8,694 | 7,141 | 1,722 | 7,772 | 17,557 | 45% | 40% |
| MADISON | 8,589 | 4,076 | 3,289 | 749 | 3,695 | 8,114 | 47% | 43% |
| MCCONE | 1,562 | 431 | 400 | 105 | 408 | 936 | 28% | 26% |
| MEAGHER | 1,726 | 958 | 826 | 216 | 900 | 2,000 | 56% | 52% |
| MINERAL | 4,302 | 2,404 | 1,736 | 286 | 2,180 | 4,426 | 56% | 51% |
| MISSOULA | 115,881 | 77,584 | 64,456 | 19,347 | 70,189 | 161,387 | 67% | 61% |
| MUSSELSHELL | 4,458 | 1,583 | 1,292 | 189 | 1,475 | 3,064 | 36% | 33% |
| PARK | 15,969 | 10,249 | 7,927 | 1,942 | 8,795 | 20,118 | 64% | 55% |
| PETROLEUM | 483 | 153 | 132 | 48 | 140 | 333 | 32% | 29% |
| PHILLIPS | 3,675 | 1,702 | 1,295 | 300 | 1,582 | 3,297 | 46% | 43% |
| PONDERA | 5,389 | 3,264 | 2,496 | 669 | 2,846 | 6,429 | 61% | 53% |
| POWDER RIVER | 1,588 | 464 | 378 | 80 | 425 | 922 | 29% | 27% |
| POWELL | 6,534 | 3,971 | 2,984 | 484 | 3,737 | 7,439 | 61% | 57% |
| PRAIRIE | 994 | 432 | 385 | 43 | 405 | 860 | 43% | 41% |
| RAVALLI | 42,972 | 22,636 | 18,256 | 5,421 | 20,506 | 46,313 | 53% | 48% |
| RICHLAND | 10,310 | 4,049 | 3,217 | 585 | 3,847 | 7,851 | 39% | 37% |
| ROOSEVELT | 9,918 | 4,708 | 3,560 | 603 | 4,148 | 8,871 | 47% | 42% |
| ROSEBUD | 8,160 | 4,911 | 3,913 | 827 | 4,409 | 9,651 | 60% | 54% |
| SANDERS | 11,641 | 4,595 | 3,949 | 633 | 4,199 | 9,177 | 39% | 36% |
| SHERIDAN | 3,075 | 1,831 | 1,602 | 598 | 1,728 | 4,031 | 60% | 56% |
| SILVER BOW | 33,267 | 21,996 | 18,780 | 5,493 | 20,011 | 46,269 | 66% | 60% |
| STILLWATER | 9,451 | 4,033 | 3,193 | 910 | 3,709 | 8,136 | 43% | 39% |
| SWEET GRASS | 3,523 | 1,591 | 1,235 | 442 | 1,452 | 3,268 | 45% | 41% |
| TETON | 5,819 | 2,884 | 1,978 | 681 | 2,400 | 5,543 | 50% | 41% |
| TOOLE | 4,391 | 2,094 | 1,631 | 237 | 1,981 | 3,962 | 48% | 45% |
| TREASURE | 623 | 384 | 263 | 74 | 283 | 721 | 62% | 45% |
| VALLEY | 6,931 | 3,104 | 2,482 | 830 | 2,887 | 6,416 | 45% | 42% |
| WHEATLAND | 2,035 | 728 | 639 | 138 | 679 | 1,505 | 36% | 33% |
| WIBAUX | 898 | 310 | 270 | 36 | 277 | 616 | 35% | 31% |
| YELLOWSTONE | 153,378 | 83,892 | 70,067 | 18,225 | 75,769 | 172,184 | 55% | 49% |
| MONTANA | 1,020,663 | 573,130 | 464,195 | 124,112 | 510,374 | 1,161,437 | 56% | 50% |