

Variant and Breakthrough Cases

A variant has one or more mutations that differentiate it from other variants in circulation. Multiple variants of SARS-CoV-2 have been documented throughout this pandemic. There were 3,020 samples that were sequenced and reported to [GISAID](#) since January 2021. B.1.617.2 (Delta) has been the predominant variant in Montana in recent months. Of 784 specimens collected during the months of August and September that have been sequenced, 774 (99%) are Delta variant. All 166 samples collected and sequenced in September were resulted as Delta. 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 5. Number of COVID-19 samples sequenced by collection date, Montana 9/21/2021 [n=3,020]

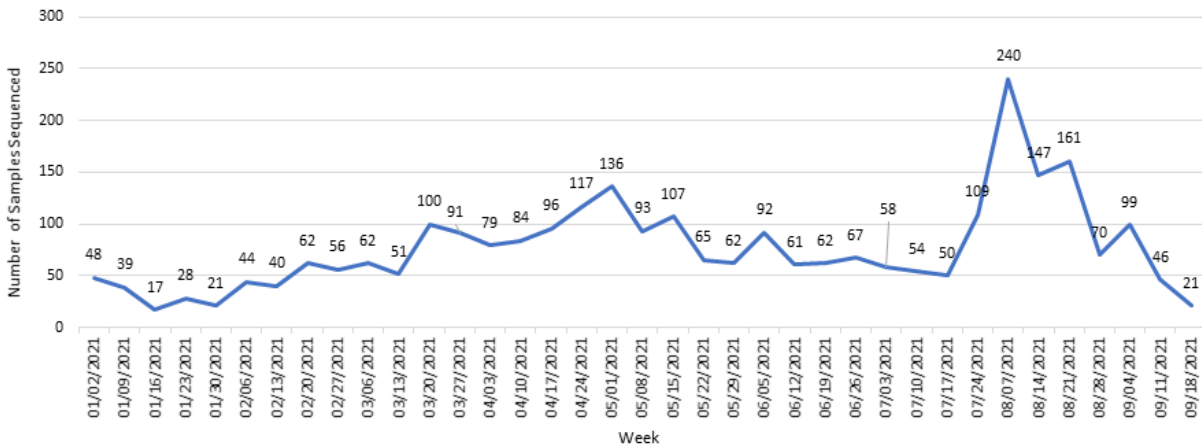
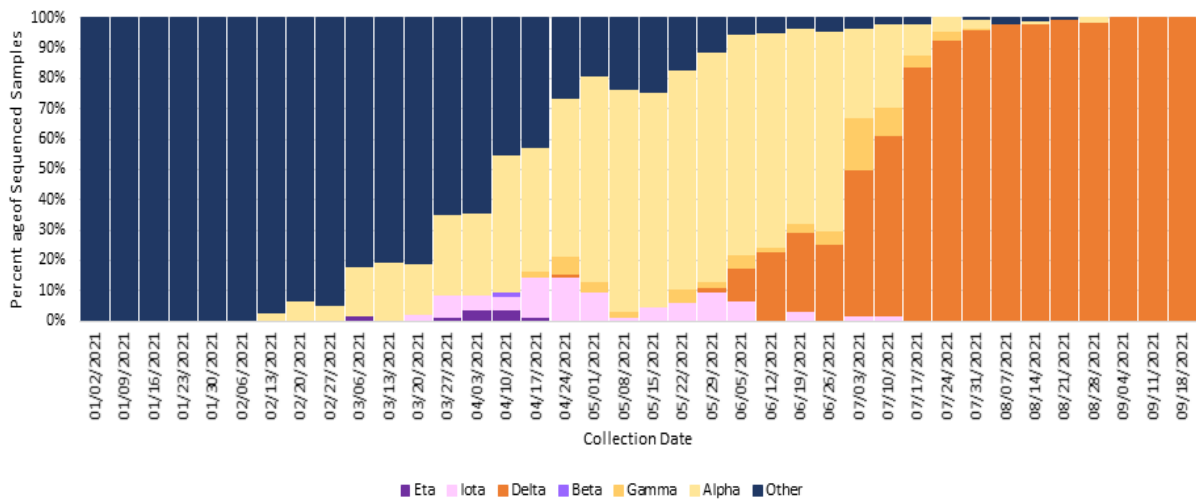


Figure 6. Percent of COVID-19 variants in sequenced samples by collection date, Montana 9/21/2021



A breakthrough COVID-19 infection is defined as a positive SARS-CoV-2 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, which includes 308 hospitalizations and 57 deaths. Of those with subtyping performed ($n=297$), 265 are known to be infected with variants of concern or interest.

County name	Eligible population 12+	Dose 1	Dose 2	Dose 3	Fully Immunized	Total Doses Administered	Percent eligible with first dose (12+)	Percent Fully Vaccinated (12+)
BEAVERHEAD	8,412	4,773	3,833	44	4,457	8,650	57%	53%
BIG HORN	10,303	6,330	5,241	48	5,498	11,619	61%	53%
BLAINE	5,359	3,055	2,519	35	2,691	5,609	57%	50%
BROADWATER	5,443	1,981	1,453	18	1,666	3,452	36%	31%
CARBON	9,621	4,880	4,290	60	4,564	9,230	51%	47%
CARTER	1,051	329	286	5	301	620	31%	29%
CASCADE	68,949	36,560	29,627	561	32,973	66,748	53%	48%
CHOUTEAU	4,903	1,913	1,540	15	1,697	3,468	39%	35%
CUSTER	9,855	4,368	3,505	39	3,937	7,912	44%	40%
DANIELS	1,454	633	534	5	579	1,172	44%	40%
DAWSON	7,410	3,052	2,551	24	2,810	5,627	41%	38%
DEER LODGE	8,375	5,576	4,601	82	5,140	10,259	67%	61%
FALLON	2,330	931	802	3	841	1,736	40%	36%
FERGUS	9,561	4,719	4,001	86	4,336	8,806	49%	45%
FLATHEAD	88,987	44,438	35,248	602	38,797	80,288	50%	44%
GALLATIN	99,225	69,888	54,050	534	59,143	124,472	70%	60%
GARFIELD	1,066	287	230	0	269	517	27%	25%
GLACIER	10,794	8,835	5,788	33	6,250	14,656	82%	58%
GOLDEN VALLEY	703	312	262	3	291	577	44%	41%
GRANITE	3,071	1,305	1,021	18	1,120	2,344	42%	36%
HILL	13,256	7,547	5,962	49	6,752	13,558	57%	51%
JEFFERSON	10,702	5,770	4,925	116	5,281	10,811	54%	49%
JUDITH BASIN	1,747	678	583	33	634	1,294	39%	36%
LAKE	25,868	16,666	13,843	199	14,905	30,708	64%	58%
LEWIS & CLARK	59,541	38,096	32,129	830	34,687	71,055	64%	58%
LIBERTY	2,022	764	621	30	713	1,415	38%	35%
LINCOLN	17,763	8,185	6,674	151	7,255	15,010	46%	41%
MADISON	7,777	3,835	3,105	33	3,492	6,973	49%	45%
MCCONE	1,440	406	379	1	386	786	28%	27%
MEAGHER	1,638	897	773	8	841	1,678	55%	51%
MINERAL	3,889	2,259	1,630	11	2,057	3,900	58%	53%
MISSOULA	104,911	73,138	62,039	940	67,383	136,117	70%	64%
MUSSELSHELL	4,097	1,482	1,203	27	1,367	2,712	36%	33%
PARK	14,746	9,665	7,474	99	8,284	17,238	66%	56%
PETROLEUM	433	137	125	1	133	263	32%	31%
PHILLIPS	3,331	1,573	1,168	12	1,443	2,753	47%	43%
PONDERA	4,931	3,046	2,284	41	2,614	5,371	62%	53%
POWDER RIVER	1,510	427	351	4	391	782	28%	26%
POWELL	6,230	3,758	2,752	51	3,416	6,561	60%	55%
PRAIRIE	931	410	359	2	376	771	44%	40%
RAVALLI	38,686	21,119	17,410	439	19,462	38,968	55%	50%
RICHLAND	8,978	3,694	2,903	48	3,412	6,645	41%	38%
ROOSEVELT	8,436	4,112	3,058	6	3,471	7,176	49%	41%
ROSEBUD	7,211	4,510	3,450	29	3,874	7,989	63%	54%
SANDERS	10,768	4,320	3,715	34	3,926	8,069	40%	36%
SHERIDAN	2,847	1,697	1,496	12	1,613	3,205	60%	57%
SILVER BOW	30,125	20,810	17,910	448	18,979	39,168	69%	63%
STILLWATER	8,428	3,763	2,988	45	3,462	6,796	45%	41%
SWEET GRASS	3,273	1,490	1,148	12	1,350	2,650	46%	41%
TETON	5,160	2,601	1,767	16	2,156	4,384	50%	42%
TOOLE	4,055	1,931	1,443	40	1,776	3,414	48%	44%
TREASURE	584	332	238	1	256	571	57%	44%
VALLEY	6,313	2,797	2,271	41	2,594	5,109	44%	41%
WHEATLAND	1,823	681	602	7	638	1,290	37%	35%
WIBAUX	834	285	238	1	245	524	34%	29%
YELLOWSTONE	136,442	78,182	65,152	1,376	70,187	144,710	57%	51%
MONTANA	917,598	535,228	435,550	7,408	477,171	978,186	58%	52%