

COVID-19 Variant of Concern (VOC) Case Report

January 17, 2022

Cases reported here include cases with specimens sequenced at the Scientific Laboratory Division (SLD), University of New Mexico, Centers for Disease Control and Prevention (CDC), Aegis, LabCorp, Fulgent, Gravity, and Helix Genetics.

Variants of concern (VOC) are defined by Centers for Disease Control and Prevention:

<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>.

COVID-19 Genomic Surveillance

Monitoring COVID-19 variants is an important part of epidemiologic surveillance to track the accumulation of SARS-CoV-2 mutations, which naturally occur over time. As the virus evolves, many variants will emerge and be identified; however, only a small minority will be classified as variants being monitored (VBM), variants of interest (VOI), or variants of concern (VOC). Variants are classified in these groups depending on whether the new mutations cause changes in transmissibility (i.e., how well the virus spreads between people), disease severity, detection by current diagnostic tests, or ability to evade monoclonal antibody treatments, natural immunity, or vaccine-induced immunity. Only a small proportion of COVID-19 cases have been sequenced since readily available diagnostic tests do not test for specific variant strains and must be sent to a lab for sequencing. Genetic sequencing requires coordinated effort and time, therefore there is a lag time from specimen collection to reporting of approximately 3-4 weeks.

CDC is monitoring two VOCs currently in the US, Delta and Omicron. All other VOCs and VOIs are now classified as VBMs due to their low prevalence including Alpha, Beta, Gamma, Epsilon, Eta, Iota, Kappa, Zeta, and Mu. CDC designated B.1.1.529 (Omicron) a VOC on November 30, 2021. The first confirmed Omicron case was identified in NM December 12, 2021. To date, 298 confirmed cases of Omicron have been sequenced in NM. Delta represented approximately 99% of sequenced samples in New Mexico in the week of December 6, 2021. Sequenced specimens reported from December 20, 2021 to January 17, 2022 are incomplete but indicate a rising proportion of Omicron compared to other variants. CDC Nowcast predictive modeling forecasts Omicron to represent 99.5% of US positive cases the week of January 15, 2022.⁴ CDC currently classifies all AY sublineage variants in combination with B.1.617.2 as Delta, and all BA sublineage variants as Omicron. Studies indicate that vaccines and vaccine booster doses authorized for use in the US are effective at preventing transmission, severe illness, and death caused by VOCs and are the recommended measure to slow the emergence of new variants. Beginning August 20, 2021, NMDOH reinstated wearing masks in all indoor public settings to slow the spread of emerging variants of COVID-19.

NM COVID-19 Variant Epidemiologic Interpretation

CDC VARIANTS OF CONCERN (VOC)			
Name	First Identified	Attributes ¹	New Mexico ²
Delta (B.1.617.2 and AY sublineages)	India	-Increased transmissibility -May reduce effectiveness of antibody treatments -May cause more severe illness in unvaccinated persons -May reduce natural and vaccine immunity	-Since 6/28/21, Delta has remained the dominant variant, and represented 99% of sequences reported on 12/6/21. -Proportion of deaths is currently 2%.
Omicron (B.1.1.529 and BA sublineages)	South Africa	-May increase transmissibility -May reduce effectiveness of antibody treatments -May reduce natural and vaccine immunity	-First case observed in NM 12/12/21. - To date, 298 confirmed cases of Omicron have been sequenced in NM.

CDC VARIANTS BEING MONITORED (VBM)			
Name³	First Identified	Attributes¹	New Mexico²
Alpha (B.1.1.7 and Q lineages)	United Kingdom	-50% more transmissible -Potential to cause more severe cases and deaths	-Alpha has proportionally declined from 78% the week of 5/24/21 to 3% of samples collected the week of 7/19/21. -Has not been observed in NM since 8/16/21.
Beta (B.1.351 and descendent lineages)	South Africa	-50% more transmissible -Reduced effectiveness of antibody treatments -Reduced response of natural and vaccine induced immunity	- Least reported VOC in NM. -Has not been observed in NM since 7/19/21.
Gamma (P.1 and descendent lineages)	Japan/Brazil	-Reduced effectiveness of some antibody treatments -Reduced response of natural and vaccine immunity	-First case sequenced in NM the week of 3/22/21 and has not been observed since 8/9/2021; Gamma peaked at 10% of sequenced NM specimens the week of 6/21/2021. -Currently has the highest proportion of hospitalizations (24%); oversampling of severe cases may skew these results.
Epsilon (B.1.427, and B.1.429)	California	-Downgraded from a VOI on September 21, 2021	-First case sequenced in NM the week of 10/12/20 and has not been observed since 6/7/21; Epsilon peaked at 26% of sequenced NM specimens the week of 3/15/21.
Iota (B.1.526)	U.S.	-Downgraded from a VOI on September 21, 2021	-First case sequenced in NM the week of 2/08/21 and has not been observed since 6/28/21; Iota peaked at 15% of sequenced NM specimens the week of 5/10/21
Mu (B.1.621, and B.1.621.1)	Colombia	-Designated a VBM on September 21, 2021	-First case sequenced in NM the week of 5/24/21 and has not been observed since 8/16/21; Mu peaked at 7% of sequenced NM specimens the week of 6/7/21.

¹<https://www.cdc.gov/coronavirus/2019-ncov/variants/variant-info.html>

²NM interpretations based on data collected >4 weeks ago to allow for lag in genomic sequencing.

³All other VBMs have either not been observed in NM or have had <10 sequenced specimens and are not included in this table.

⁴[CDC COVID Data Tracker](#)

Cumulative number of Specimens Sequenced and Matched to Case Investigations

Lineage	Sequenced Cases	Matched Cases*	Percent Matched
B.1.617.2 (Delta)	11453	9985	87%
B.1.1.529 (Omicron)	298	180	60%
B.1.1.7 (Alpha)	1835	1539	84%
B.1.351 (Beta)	8	3	38%
P.1 (Gamma)	109	95	87%
B.1.427/B.1.429 (Epsilon)	521	429	82%
B.1.525 (Eta)	4	4	100%
B.1.526 (Iota)	191	164	86%
B.1.617.1 (Kappa)	2	2	100%
P.2 (Zeta)	3	2	67%
B.1.621/B.1.621.1 (Mu)	38	30	79%
Other lineage	4478	3002	67%
Total	18940	15435	81%

*Cases are matched to NMDOH case investigation data to provide demographic, disease outcome, and other clinical information. This table includes 187 sequences from patients who were tested at New Mexico facilities but reside outside New Mexico. These have been removed from the subsequent tables and figures.

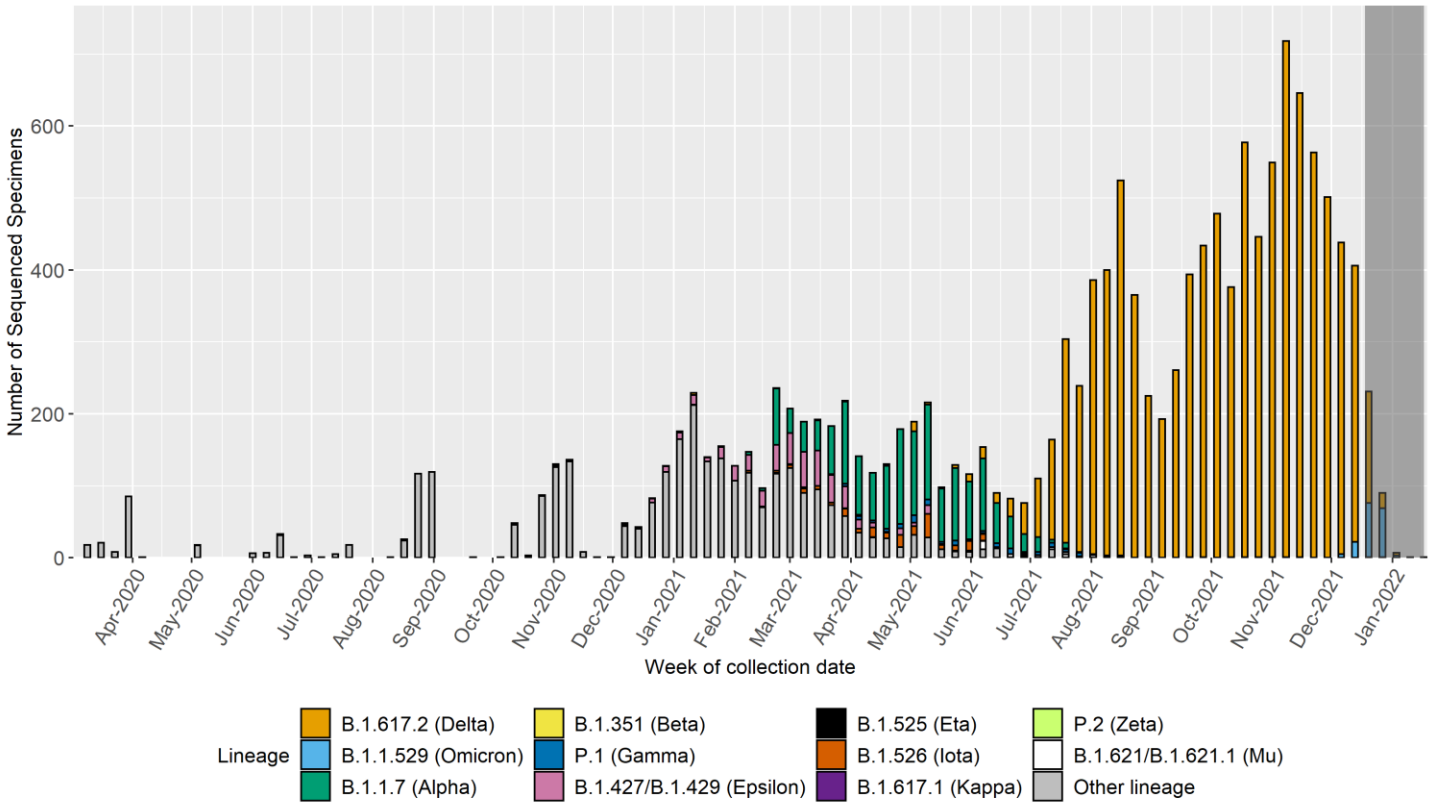
Cumulative number of variant cases, hospitalizations, and deaths

Lineage	Total Cases	Number Hospitalized	Percent Hospitalized	Number Died	Percent Died	Vaccine Breakthrough Cases*
Delta	9907	854	9%	196	2%	3287
Omicron	178	1	1%	0	0%	110
Alpha	1522	152	10%	19	1%	94
Beta	3	0	0%	0	0%	0
Gamma	93	22	24%	2	2%	3
Epsilon	418	9	2%	2	0%	8
Eta	4	0	0%	0	0%	0
Iota	162	5	3%	1	1%	8
Kappa	2	0	0%	0	0%	0
Zeta	2	0	0%	0	0%	0
Mu	30	2	7%	0	0%	4
Other lineage	2927	143	5%	44	2%	23

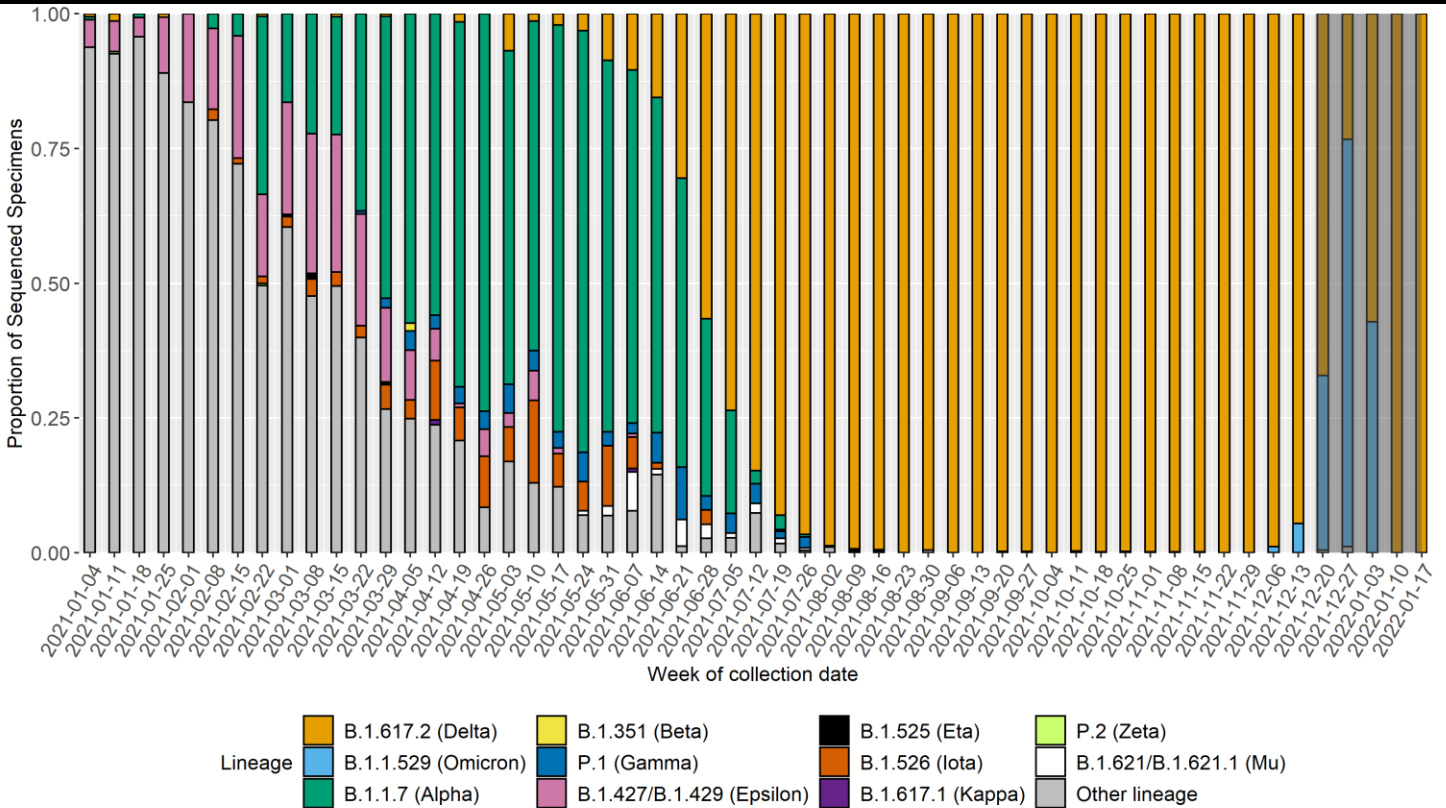
*A vaccine breakthrough (VBT) case is defined as a person who tests positive ≥ 14 days after completing the full series of an FDA-authorized COVID-19 vaccine and has not tested positive the prior 89 days. *Because samples collected from VBT cases are more frequently sequenced compared to samples from other COVID-19 cases, these counts should not be used to evaluate the frequency with which VOCs cause vaccine breakthrough.*

**The specimen submission process for sequencing is not representative. A large proportion of P.1 (Gamma) cases were collected from a single hospital in San Juan County that submitted specimens on hospital admissions, rather than on a representative set of cases in the county. This is likely increasing the apparent severity of this VOC.

Identified SARS-CoV-2 lineages by week

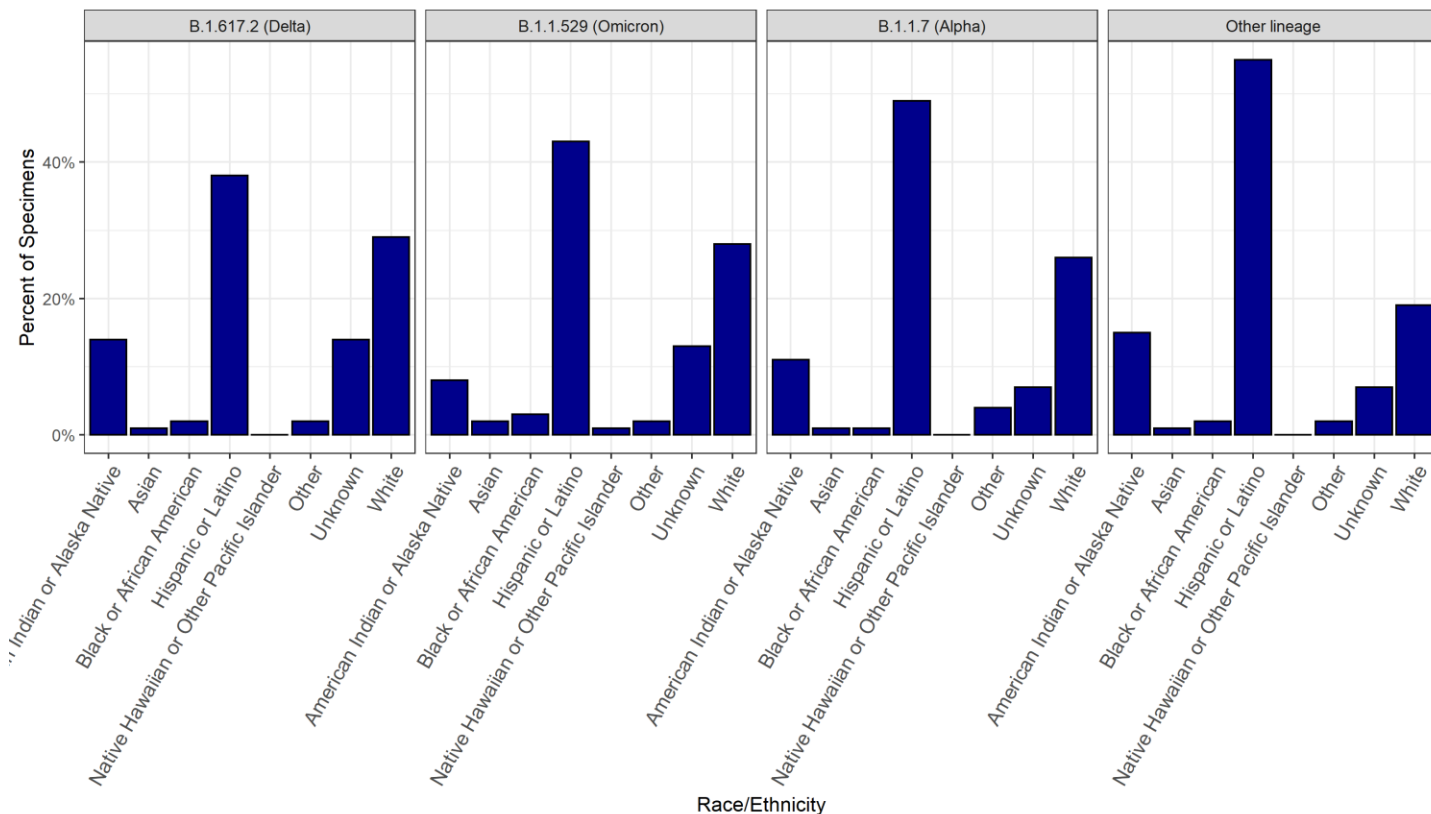


Proportion of identified SARS-CoV-2 lineages by week

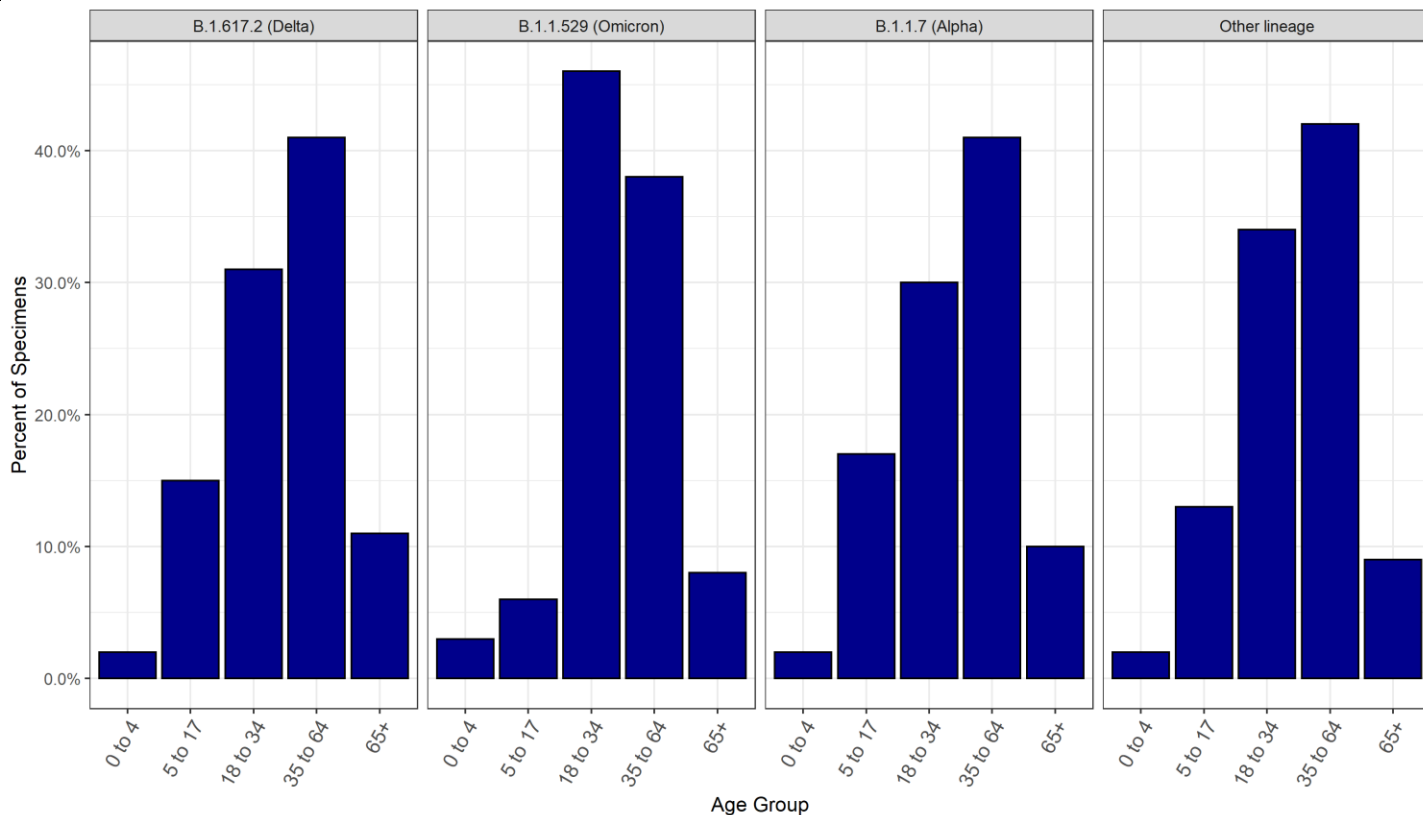


*The dark grey shaded region in each of the figures on this page represents the lag period between specimen collection and genomic sequencing results such that the results may look different when all specimens available for sequencing have been reported.

Cumulative proportion of variant cases by Race/Ethnicity



Cumulative proportion of variant cases by Age Group



*Only VOCs with greater than 100 sequenced specimens in NM are reported and excludes all VBMs other than Alpha.

Cumulative number of variant cases by county of residence*

Counties with less than 5 matched sequenced cases are not included in the table below.

County	B.1.1.529 (Omicron)	B.1.617.2 (Delta)	B.1.1.7 (Alpha)	Other lineage
Bernalillo	75	3219	450	956
Chaves	4	205	13	56
Cibola	0	186	13	103
Colfax	1	131	24	26
Curry	0	125	23	22
Dona Ana	21	717	80	420
Eddy	1	258	19	97
Grant	9	77	13	34
Guadalupe	0	57	1	15
Lea	1	137	17	114
Lincoln	0	46	5	52
Los Alamos	0	43	9	24
Luna	0	41	14	20
McKinley	0	292	17	90
Otero	11	674	24	149
Rio Arriba	1	140	92	37
San Juan	9	1459	312	288
San Miguel	2	102	10	53
Sandoval	9	569	73	210
Santa Fe	20	508	96	292
Sierra	0	102	5	5
Socorro	0	53	9	31
Taos	2	121	16	37
Torrance	0	116	16	22
Valencia	11	414	70	110

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Percentage of variant cases reporting any symptoms

Lineage	Total	Total Investigated (%)	No	Yes	Symptomatic (%)
B.1.1.529 (Omicron)	178	23 (13%)	4	19	83%
B.1.617.2 (Delta)	9900	3962 (40%)	243	3719	94%
B.1.1.7 (Alpha)	1522	1163 (76%)	104	1059	91%
Other lineage	3393	2610 (77%)	353	2257	87%

Percentage of specific symptoms reported by symptomatic variant cases

The table below includes data ONLY from symptomatic cases.

Symptom	B.1.1.529 (Omicron)	B.1.617.2 (Delta)	B.1.1.7 (Alpha)	Other lineage
Fever (Measured or Subjective)	37% (7)	53% (1944)	46% (484)	43% (952)
Chills	53% (10)	48% (1755)	46% (476)	44% (991)
Muscle Aches	53% (10)	55% (2030)	57% (590)	56% (1247)
Runny Nose	74% (14)	55% (2022)	53% (548)	54% (1201)
Sore Throat	68% (13)	44% (1618)	45% (468)	43% (962)
Cough	68% (13)	75% (2737)	73% (766)	64% (1428)
Shortness of Breath	16% (3)	30% (1115)	29% (306)	24% (533)
Nausea/Vomiting	26% (5)	27% (989)	27% (283)	23% (505)
Headache	74% (14)	65% (2370)	66% (686)	65% (1459)
Abdominal Pain	16% (3)	14% (522)	16% (163)	14% (307)
Diarrhea	21% (4)	29% (1078)	28% (297)	26% (579)
Fatigue	79% (15)	67% (2472)	70% (732)	66% (1473)
Loss of Appetite	21% (4)	40% (1451)	40% (418)	36% (793)
Loss of Taste or Smell	21% (4)	49% (1789)	39% (411)	46% (1023)

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Percentage of variant cases reporting underlying conditions

Lineage	Total	Total Investigated (%)	No	Yes	Underlying Conditions (%)
B.1.1.529 (Omicron)	178	23 (13%)	20	3	13%
B.1.617.2 (Delta)	9900	3801 (38%)	2883	918	24%
B.1.1.7 (Alpha)	1522	1157 (76%)	594	563	49%
Other lineage	3393	2515 (74%)	1570	945	38%

Percentage of specific underlying conditions reported by variant cases

Data below includes ONLY cases who report having a pre-existing condition.

Symptom	B.1.1.529 (Omicron)	B.1.617.2 (Delta)	B.1.1.7 (Alpha)	Other lineage
Chronic Lung Disease	0% (0)	24% (179)	25% (127)	26% (214)
Chronic Liver Disease	0% (0)	5% (36)	3% (17)	4% (32)
Chronic Renal Disease	0% (0)	12% (88)	4% (19)	4% (36)
Diabetes Mellitus	0% (0)	34% (257)	19% (96)	21% (174)
Cardiovascular Disease	0% (0)	36% (267)	32% (163)	28% (231)
Autoimmune Disease	0% (0)	6% (44)	8% (40)	5% (42)
Neurological Disability	0% (0)	8% (59)	6% (31)	8% (64)
Current or Former Smoker	100% (3)	37% (280)	53% (271)	52% (435)

* Note: One P.1 variant case reported an underlying condition that is not included on the list above.

**Only VOCs with greater than 100 sequenced specimens in NM are reported and excludes all VBMs other than Alpha.

Data Sources

- **COVID-19 data**
 - **New Mexico Electronic Disease Surveillance System (NM-EDSS)**, Infectious Disease Epidemiology Bureau, Epidemiology and Response Division, New Mexico Department of Health.
 - **Salesforce/MTX COVID-19 Case Investigation Platform.**
- **Sequencing data**
 - New Mexico Department of Health (NMDOH) receives sequencing data for specimens sequenced at the NMDOH Scientific Laboratory Division (SLD), University of New Mexico, Centers for Disease Control and Prevention (CDC), Aegis, LabCorp, Fulgent Genetics, Gravity, and Helix Genetics.
- **Variants of concern (VOC)** are defined by Centers for Disease Control and Prevention:
<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>.
- **CDC COVID Data Tracker** [CDC COVID Data Tracker](#)

Data Notes

- **The data reported in this weekly update may not match the daily numbers that are reported in the New Mexico Department of Health (NMDOH) press releases and/or the NMDOH COVID-19 data dashboard. This may be due to variation in the date and time of data extraction from NM-EDSS, corrections after quality assurance review, and differences in the exclusion criteria.**
- **New Mexico Electronic Disease Surveillance System (NM-EDSS).** Disease incidence data are derived from reports of notifiable infectious diseases. NMDOH relies on health care providers, laboratories, hospitals, clinics, institutions, and individuals to report suspected and confirmed notifiable infectious diseases in accordance with New Mexico Administrative Code 7.4.3.13. Under-reporting can occur due to of lack of awareness about reporting requirements or lack of compliance with those requirements. Not all cases of infectious diseases can be detected for various reasons including lack of access to health care services, lack of laboratory testing or concerns about confidentiality. Specific and standardized national case definitions are used to classify disease reports by case status.
- **Race/Ethnicity.** Race/Ethnicity are reported as a single variable according to the selection of the case. Any case who is Hispanic is in the Hispanic category and all other races are non-Hispanic.