

# Weekly COVID-19 Breakthrough Infections Report

## Clark County, Nevada

**Date: November 24, 2021**

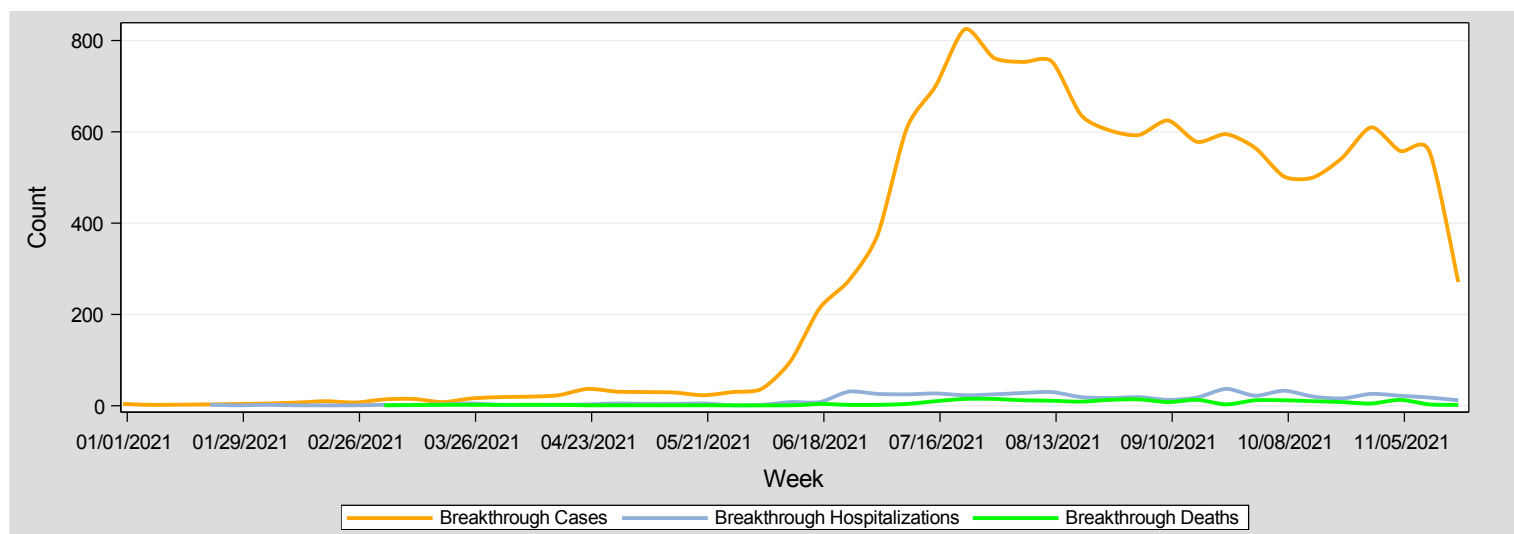
Breakthrough cases are U.S. residents with a SARS-CoV2 RNA or antigen detected on respiratory specimen collected greater than or equal to 14 days after completing the primary series of an FDA authorized COVID-19 vaccine (i.e., complete vaccination). Complete vaccination is two doses of the Pfizer or Moderna vaccine or one dose of the Johnson and Johnson (Janssen) vaccine.

Exclusion Criteria: The persons who were recently positive for COVID-19, defined as a positive <45 days prior to the current positive test under investigations were excluded.

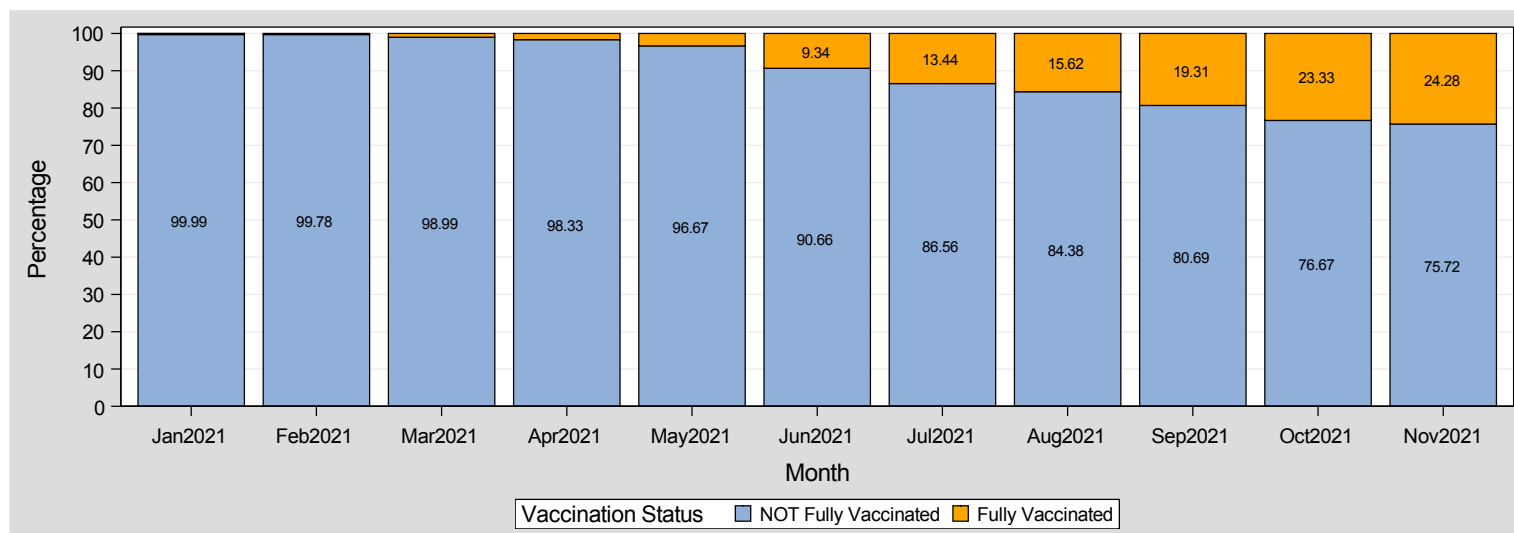
Given the large number of people being vaccinated in the United States and the high level of ongoing SARS-CoV-2 circulation, thousands of symptomatic vaccine breakthrough cases are expected, even if the vaccines remain as effective as demonstrated during the clinical trials.

Following data have been obtained by matching COVID-19 cases information from Trisano (SNHD's surveillance system) to immunization records from Nevada WebIZ (Immunization database). Data is considered preliminary and subject to change.

**Figure 1: Trends in Breakthrough Cases, Deaths and Hospitalizations**



**Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status**



**Table 1: Population Characteristics of COVID-19 Breakthrough Cases**

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	13476	100
<b>Age (in years)</b>		
5-17	292	2
18-24	833	6
25-49	5838	43
50-64	3404	25
65+	3109	23
<b>Gender</b>		
Male	6081	45
Female	7329	54
Unknown	66	0
<b>Race/Ethnicity</b>		
Hispanic	2720	20
White	5378	40
Black	919	7
API	1491	11
AEA	22	0
Other	596	4
Unknown	2350	17
<b>Travel History</b>		
Yes	1144	8
No	6361	47
Unknown	5971	44
<b>Hospitalization</b>		
Yes	687	5
No	7351	55
Unknown	5438	40
<b>Death</b>		
Yes	210	2
No	2081	15
Unknown	11185	83
<b>Vaccine Type</b>		
Pfizer	9846	73
Unknown	115	1
Moderna	3506	26
Janssen	9	0
<b>Underlying Conditions</b>		
Yes	3460	26
No	10016	74

**Table 2: Breakthrough Case Rates**

Fully Vaccinated Population*	Vaccinated Cases	Unvaccinated Population	Unvaccinated Cases	Vaccinated Case Rate per 100K population	Unvaccinated Case Rate per 100K population
1136934	13476	1181240	328622	1185	27820

\* Please note that the numbers reported for fully vaccinated in the above table may not reflect the total number of completed doses reported on the SNHD dashboard. The CDC considers people to be fully vaccinated 2 weeks after their second dose in a 2-dose series, such as the Pfizer or Moderna vaccines, or 2 weeks after a single-dose vaccine, such as Johnson & Johnson's Janssen vaccine.

**Table 3: Population Characteristics of COVID-19 Breakthrough Hospitalizations**

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	687	100
<b>Age (in years)</b>		
5-17	1	0
18-24	3	0
25-49	58	8
50-64	114	17
65+	511	74
<b>Gender</b>		
Male	399	58
Female	287	42
Unknown	1	0
<b>Race/Ethnicity</b>		
Hispanic	93	14
White	400	58
Black	71	10
API	59	9
AEA	3	0
Other	20	3
Unknown	41	6
<b>Travel History</b>		
Yes	38	6
No	362	53
Unknown	287	42
<b>Death</b>		
Yes	184	27
No	121	18
Unknown	382	56
<b>Vaccine Type</b>		
Pfizer	460	67
Unknown	16	2
Moderna	210	31
Janssen	1	0
<b>Underlying Conditions</b>		
Yes	450	66
No	237	34

**Table 4: Variants of Concern (VOC) among Breakthrough cases, hospitalizations and deaths**

Variants of concern (VOC)	Breakthrough Cases	Percent(%) of Breakthrough Cases	Breakthrough Hospitalizations	Percent(%) of Breakthrough Hospitalizations	Breakthrough Deaths	Percent(%) of Breakthrough Deaths
Alpha	35	4	1	3	1	8
Delta	872	94	33	92	11	85
Epsilon	4	0	2	6	1	8
Gamma	15	2	.	.	.	.

\* Please note that only limited number of specimens are sent for sequencing of VOCs compared to total number of COVID-19 cases/breakthrough cases.

**Table 5: Population Characteristics of COVID-19 Breakthrough Deaths**

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	210	100
<b>Age (in years)</b>		
25-49	7	3
50-64	21	10
65+	182	87
<b>Gender</b>		
Male	134	64
Female	76	36
<b>Race/Ethnicity</b>		
Hispanic	26	12
White	142	68
Black	25	12
API	14	7
AEA	1	0
Other	1	0
Unknown	1	0
<b>Variant of concern (VOC)</b>		
Epsilon	1	0
Delta	11	5
Alpha	1	0
Unknown	197	94
<b>Hospitalization</b>		
Yes	184	88
Unknown	19	9
No	7	3
<b>Vaccine Type</b>		
Pfizer	154	73
Unknown	3	1
Moderna	53	25
<b>Underlying Conditions</b>		
Yes	106	50
No	104	50

**Table 5: Breakthrough Death Rates**

Fully Vaccinated Population	Vaccinated Deaths	Unvaccinated Population	Unvaccinated Deaths	Vaccinated Death Rate per 100K population	Unvaccinated Death Rate per 100K population
1136934	210	1181240	5951	18	504

\* Please note that the numbers reported for fully vaccinated in the above table may not reflect the total number of completed doses reported on the SNHD dashboard. The CDC considers people to be fully vaccinated 2 weeks after their second dose in a 2-dose series, such as the Pfizer or Moderna vaccines, or 2 weeks after a single-dose vaccine, such as Johnson & Johnson's Janssen vaccine.

**Table 6: Breakdown of COVID-19 Breakthrough Hospitalizations according to Underlying conditions**

Variable	Outcome	N	%
Underlying Medical Condition	Yes	450	66
	No	237	34
Hypertension	Yes	280	N/A
Immunocompromised	Yes	30	N/A
Chronic Heart Disease	Yes	139	N/A
Chronic Liver Disease	Yes	13	N/A
Chronic Kidney Disease	Yes	80	N/A
Diabetes	Yes	179	N/A
Neurologic/Neurodevelopmental	Yes	43	N/A
Chronic Lung Disease	Yes	117	N/A
Historically Healthy	Yes	61	N/A

**Table 7: Breakdown of COVID-19 Breakthrough Deaths according to Underlying conditions**

Variable	Outcome	N	%
Underlying Medical Condition	Yes	106	50
	No	104	50
Hypertension	Yes	71	N/A
Immunocompromised	Yes	11	N/A
Chronic Heart Disease	Yes	35	N/A
Chronic Liver Disease	Yes	3	N/A
Chronic Kidney Disease	Yes	23	N/A
Diabetes	Yes	45	N/A
Neurologic/Neurodevelopmental	Yes	10	N/A
Chronic Lung Disease	Yes	28	N/A
Historically Healthy	Yes	4	N/A

**Notes:**

- \* White, Black, Asian, and AEA are non-Hispanic. AEA=American Indian/Eskimos/Alaskan Natives & API=Asian Pacific Islander
- \* The report does not include breakthrough hospitalizations from State approved facilities as State is responsible for their investigation.
- \* The breakdown of underlying conditions are not mutually exclusive (i.e., a person can have more than one risk factor).