

# Weekly COVID-19 Breakthrough Infections Report

## Clark County, Nevada

**Date: November 10, 2021**

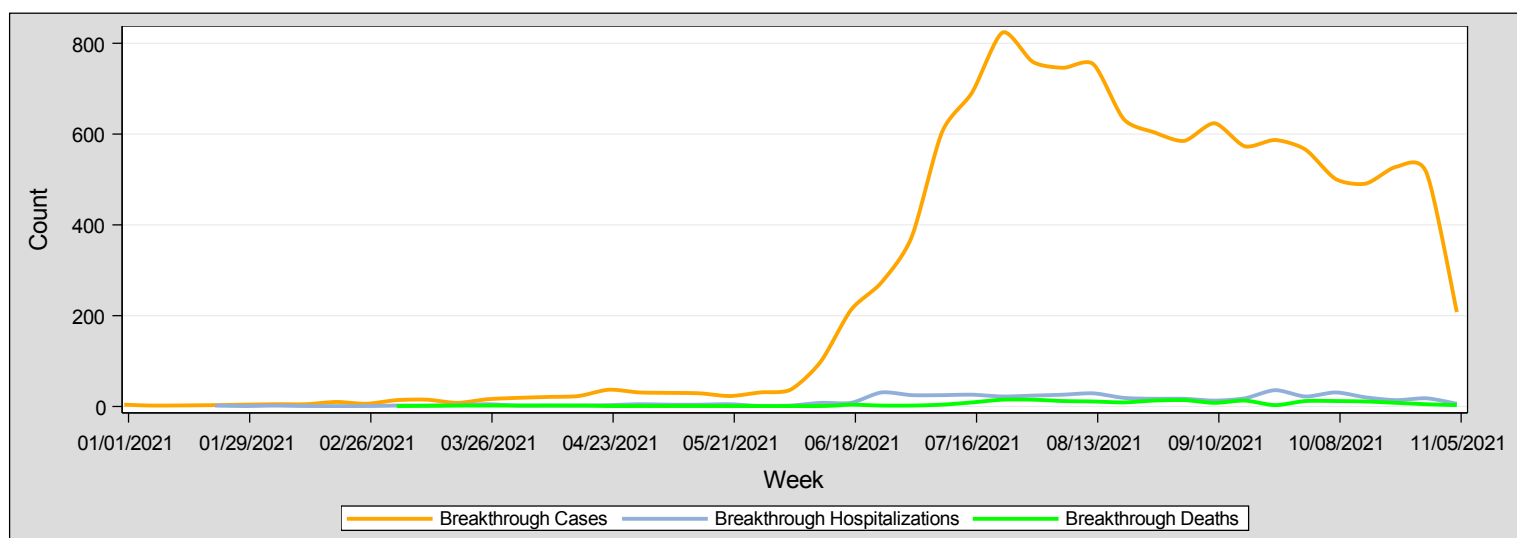
Breakthrough cases are U.S. residents with a SARS-CoV2 RNA or antigen detected on respiratory specimen collected greater than or equal to 14 days after completing the primary series of an FDA authorized COVID-19 vaccine (i.e., complete vaccination). Complete vaccination is two doses of the Pfizer or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

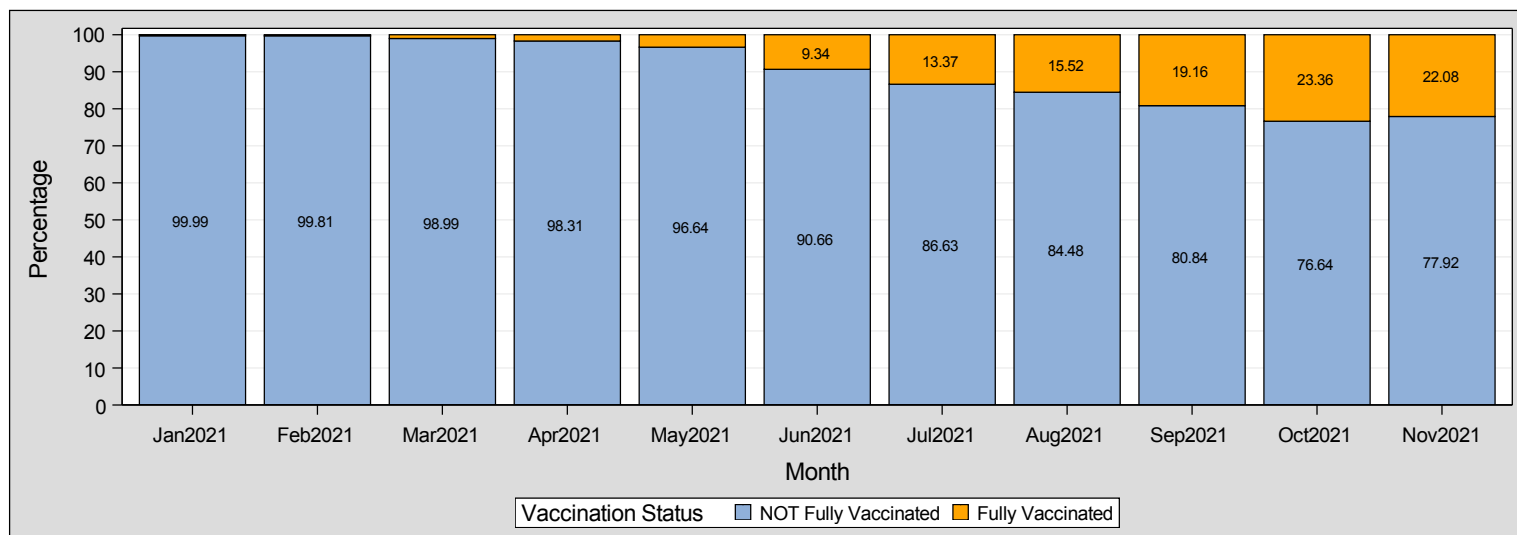
Given the large number of people being vaccinated in the United States and the high level of ongoing SARS-CoV-2 circulation, thousands of symptomatic vaccine breakthrough cases are expected, even if the vaccines remain as effective as demonstrated during the clinical trials.

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>	12125	100
<b>Age (in years)</b>		
5-17	251	2
18-24	740	6
25-49	5212	43
50-64	3075	25
65+	2847	23
<b>Gender</b>		
Male	5461	45
Female	6603	54
Unknown	61	1
<b>Race/Ethnicity</b>		
Hispanic	2403	20
White	4774	39
Black	824	7
API	1337	11
AEA	20	0
Other	546	5
Unknown	2221	18
<b>Travel History</b>		
Yes	1051	9
No	5586	46
Unknown	5488	45
<b>Hospitalization</b>		
Yes	607	5
No	6532	54
Unknown	4986	41
<b>Death</b>		
Yes	195	2
No	1930	16
Unknown	10000	82
<b>Vaccine Type</b>		
Pfizer	8872	73
Unknown	93	1
Moderna	3150	26
Janssen	10	0
<b>Underlying Conditions</b>		
Yes	3113	26
No	9012	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
1117562	12125	1200612	324103	1085	26995

\* 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>	607	100
<b>Age (in years)</b>		
18-24	3	0
25-49	51	8
50-64	100	16
65+	453	75
<b>Gender</b>		
Male	359	59
Female	247	41
Unknown	1	0
<b>Race/Ethnicity</b>		
Hispanic	82	14
White	352	58
Black	67	11
API	48	8
AEA	2	0
Other	19	3
Unknown	37	6
<b>Travel History</b>		
Yes	32	5
No	319	53
Unknown	256	42
<b>Death</b>		
Yes	170	28
No	112	18
Unknown	325	54
<b>Vaccine Type</b>		
Pfizer	406	67
Unknown	14	2
Moderna	186	31
Janssen	1	0
<b>Underlying Conditions</b>		
Yes	394	65
No	213	35

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

Variants of concern (VOC)	Breakthrough Cases	Percent(%)		Percent(%)		Percent(%)	
		of Breakthrough Cases	Breakthrough Hospitalizations	of Breakthrough Hospitalizations	Breakthrough Deaths	of Breakthrough Deaths	
Alpha	36	4	1	3	1	8	
Delta	854	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>	195	100
<b>Age (in years)</b>		
25-49	7	4
50-64	20	10
65+	168	86
<b>Gender</b>		
Male	126	65
Female	69	35
<b>Race/Ethnicity</b>		
Hispanic	24	12
White	135	69
Black	22	11
API	10	5
AEA	1	1
Other	1	1
Unknown	2	1
<b>Variant of concern (VOC)</b>		
Epsilon	1	1
Delta	11	6
Alpha	1	1
Unknown	182	93
<b>Hospitalization</b>		
Yes	170	87
No	7	4
Unknown	18	9
<b>Vaccine Type</b>		
Pfizer	146	75
Unknown	3	2
Moderna	46	24
<b>Underlying Conditions</b>		
Yes	100	51
No	95	49

**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
1117562	195	1200612	5849	17	487

\* 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	394	65
	No	213	35
Hypertension	Yes	236	N/A
Immunocompromised	Yes	27	N/A
Chronic Heart Disease	Yes	121	N/A
Chronic Liver Disease	Yes	12	N/A
Chronic Kidney Disease	Yes	71	N/A
Diabetes	Yes	159	N/A
Neurologic/Neurodevelopmental	Yes	38	N/A
Chronic Lung Disease	Yes	104	N/A
Historically Healthy	Yes	56	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	100	51
	No	95	49
Hypertension	Yes	68	N/A
Immunocompromised	Yes	10	N/A
Chronic Heart Disease	Yes	33	N/A
Chronic Liver Disease	Yes	3	N/A
Chronic Kidney Disease	Yes	23	N/A
Diabetes	Yes	40	N/A
Neurologic/Neurodevelopmental	Yes	10	N/A
Chronic Lung Disease	Yes	27	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).