

# Weekly COVID-19 Breakthrough Infections Report

## Clark County, Nevada

**Date: February 24, 2022**

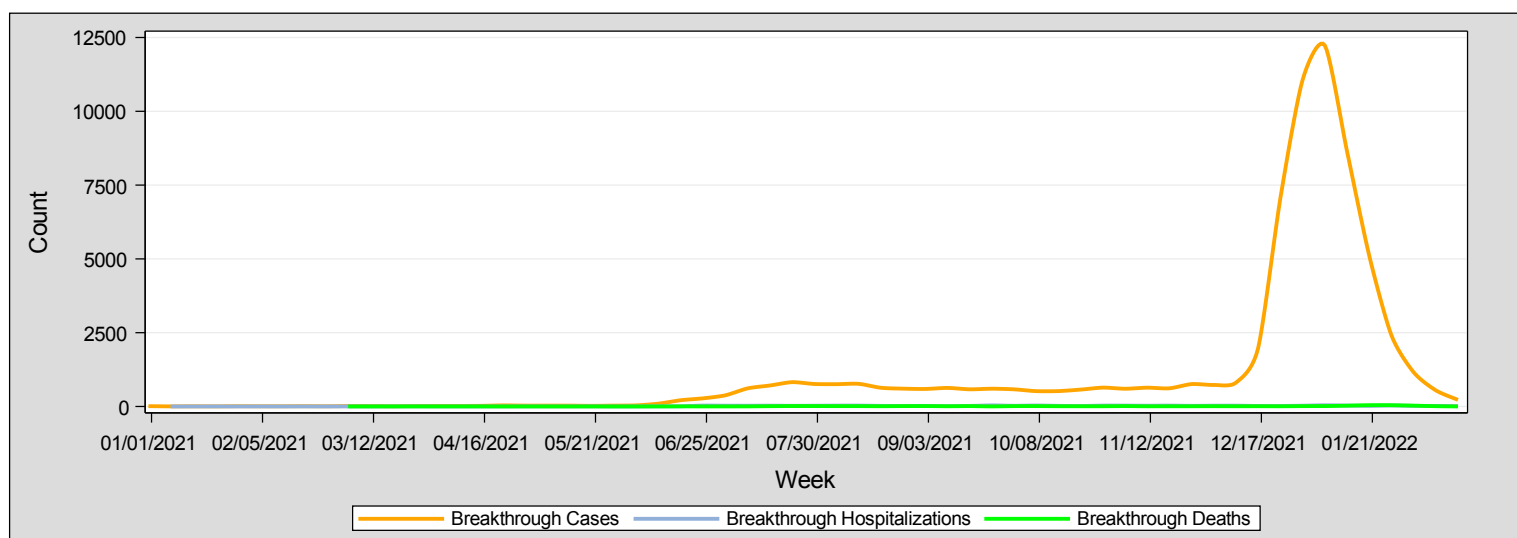
Breakthrough cases are U.S. residents with a SARS-CoV2 RNA or antigen detected on respiratory specimen collected greater than or equal to 14 days after completing the primary series of an FDA authorized COVID-19 vaccine (i.e., complete vaccination). Complete vaccination is two doses of the Pfizer or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

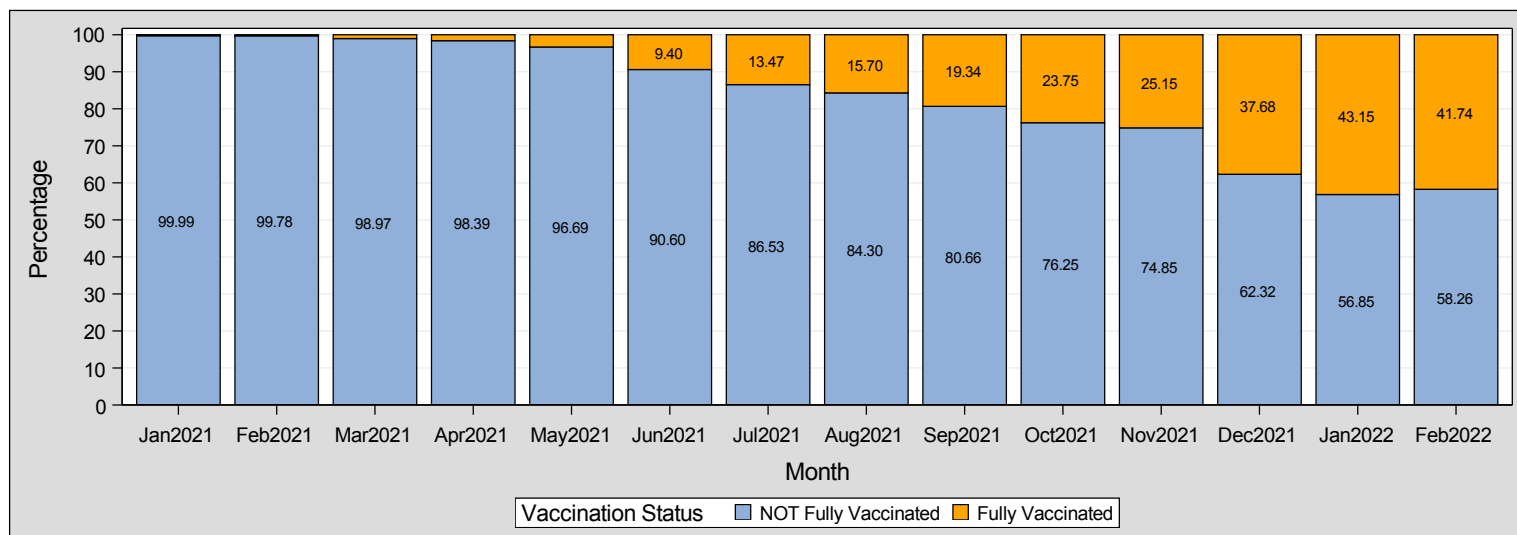
Given the large number of people being vaccinated in the United States and the high level of ongoing SARS-CoV-2 circulation, thousands of symptomatic vaccine breakthrough cases are expected, even if the vaccines remain as effective as demonstrated during the clinical trials.

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>	67611	100
<b>Age (in years)</b>		
5-17	4593	7
18-24	6646	10
25-49	31251	46
50-64	15004	22
65+	10117	15
<b>Gender</b>		
Male	28749	43
Female	38371	57
Unknown	491	1
<b>Race/Ethnicity</b>		
Hispanic	13960	21
White	20318	30
Black	4939	7
API	8453	13
AEA	48	0
Other	5931	9
Unknown	13962	21
<b>Travel History</b>		
Yes	2041	3
No	13786	20
Unknown	51784	77
<b>Hospitalization</b>		
Yes	1162	2
No	15376	23
Unknown	51073	76
<b>Death</b>		
Yes	445	1
No	3519	5
Unknown	63647	94
<b>Vaccine Type</b>		
Pfizer	47971	71
Unknown	528	1
Moderna	18797	28
Janssen	315	0
<b>Underlying Conditions</b>		
Yes	6809	10
No	60802	90

**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
1276418	67611	1041756	419516	5297	40270

\* 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>	1162	100
<b>Age (in years)</b>		
5-17	4	0
18-24	10	1
25-49	109	9
50-64	200	17
65+	839	72
<b>Gender</b>		
Male	645	56
Female	515	44
Unknown	2	0
<b>Race/Ethnicity</b>		
Hispanic	158	14
White	662	57
Black	128	11
API	109	9
AEA	3	0
Other	33	3
Unknown	69	6
<b>Travel History</b>		
Yes	50	4
No	627	54
Unknown	485	42
<b>Death</b>		
Yes	346	30
No	159	14
Unknown	657	57
<b>Vaccine Type</b>		
Pfizer	739	64
Unknown	33	3
Moderna	386	33
Janssen	4	0
<b>Underlying Conditions</b>		
Yes	755	65
No	407	35

**Table 4: Population Characteristics of COVID-19 Breakthrough Deaths**

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	445	100
<b>Age (in years)</b>		
25-49	12	3
50-64	58	13
65+	375	84
<b>Gender</b>		
Male	279	63
Female	165	37
Unknown	1	0
<b>Race/Ethnicity</b>		
Hispanic	58	13
White	275	62
Black	47	11
API	46	10
AEA	2	0
Other	6	1
Unknown	11	2
<b>Variant of concern (VOC)</b>		
Epsilon	1	0
Delta	16	4
Alpha	1	0
Unknown	427	96
<b>Hospitalization</b>		
Yes	346	78
No	19	4
Unknown	80	18
<b>Vaccine Type</b>		
Pfizer	282	63
Unknown	14	3
Moderna	147	33
Janssen	2	0
<b>Underlying Conditions</b>		
Yes	208	47
No	237	53

**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
1276418	445	1041756	6961	35	668

\* 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	755	65
	No	407	35
Hypertension	Yes	469	N/A
Immunocompromised	Yes	47	N/A
Chronic Heart Disease	Yes	247	N/A
Chronic Liver Disease	Yes	25	N/A
Chronic Kidney Disease	Yes	146	N/A
Diabetes	Yes	298	N/A
Neurologic/Neurodevelopmental	Yes	76	N/A
Chronic Lung Disease	Yes	212	N/A
Historically Healthy	Yes	109	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	208	47
	No	237	53
Hypertension	Yes	139	N/A
Immunocompromised	Yes	17	N/A
Chronic Heart Disease	Yes	79	N/A
Chronic Liver Disease	Yes	5	N/A
Chronic Kidney Disease	Yes	49	N/A
Diabetes	Yes	88	N/A
Neurologic/Neurodevelopmental	Yes	20	N/A
Chronic Lung Disease	Yes	64	N/A
Historically Healthy	Yes	7	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).