

# Weekly COVID-19 Breakthrough Infections Report

## Clark County, Nevada

**Date: September 2, 2021**

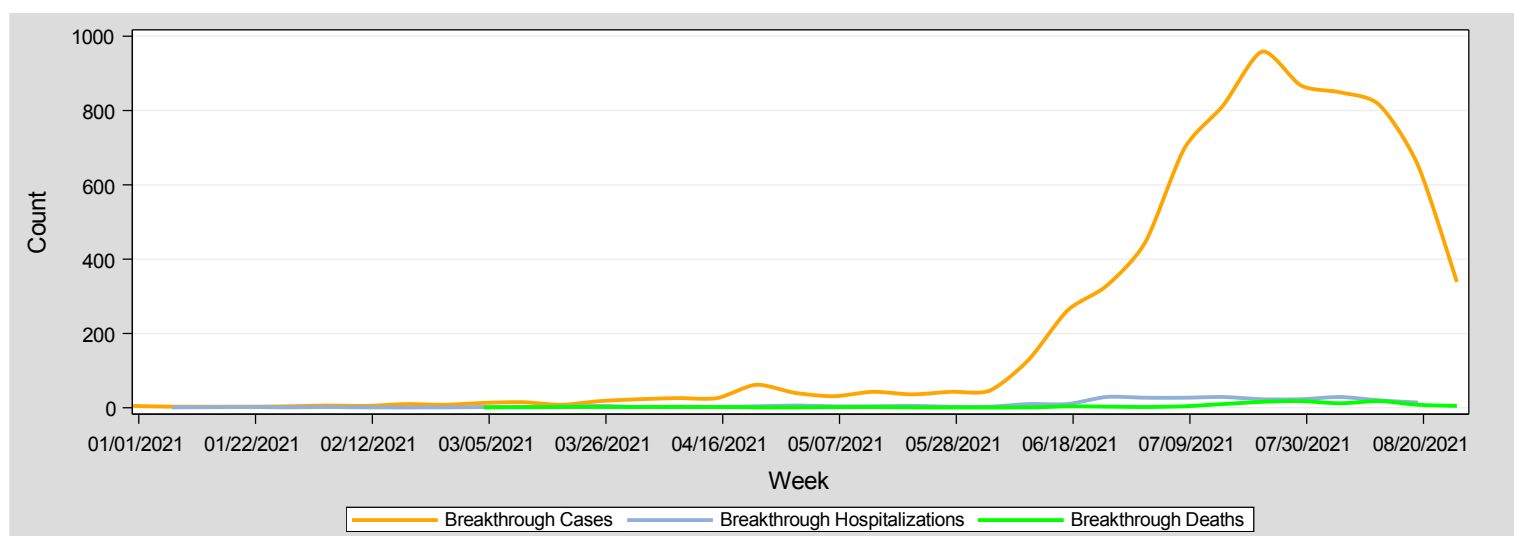
Breakthrough cases are U.S. residents with a SARS-CoV2 RNA or antigen detected on respiratory specimen collected greater than or equal to 14 days after completing the primary series of an FDA authorized COVID-19 vaccine (i.e., complete vaccination). Complete vaccination is two doses of the Pfizer or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

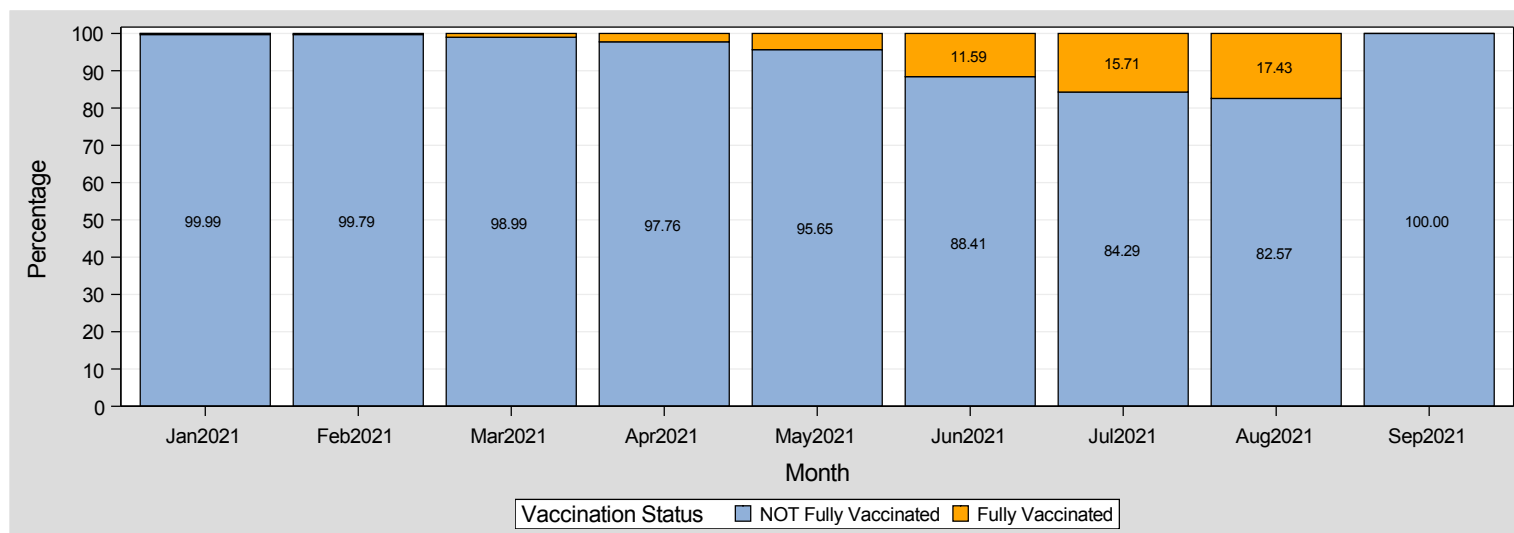
Given the large number of people being vaccinated in the United States and the high level of ongoing SARS-CoV-2 circulation, thousands of symptomatic vaccine breakthrough cases are expected, even if the vaccines remain as effective as demonstrated during the clinical trials.

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>	7634	100
<b>Age (in years)</b>		
5-17	85	1
18-24	465	6
25-49	3357	44
50-64	2006	26
65+	1721	23
<b>Gender</b>		
Male	3552	47
Female	4044	53
Unknown	38	0
<b>Race/Ethnicity</b>		
Hispanic	1303	17
White	2811	37
Black	534	7
API	783	10
AEA	6	0
Other	386	5
Unknown	1811	24
<b>Travel History</b>		
Yes	609	8
No	3036	40
Unknown	3989	52
<b>Variant of concern (VOC)</b>		
Gamma	17	0
Epsilon	4	0
Delta	689	9
Alpha	47	1
Unknown	6877	90
<b>Hospitalization</b>		
Yes	362	5
No	3572	47
Unknown	3700	48
<b>Death</b>		
Yes	112	1
No	1542	20
Unknown	5980	78
<b>Vaccine Type</b>		
Pfizer	4869	64
Moderna	1603	21
Janssen	1162	15
<b>Underlying Conditions</b>		
Yes	1742	23
No	5892	77

**Table 2: Breakthrough Case Rates**

Vaccinated Population	Vaccinated Cases	Unvaccinated Population	Unvaccinated Cases	Vaccinated Case Rate per 100K population	Unvaccinated Case Rate per 100K population
1403283	7634	914891	297767	544	32547

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

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	362	100
<b>Age (in years)</b>		
18-24	2	1
25-49	30	8
50-64	62	17
65+	268	74
<b>Gender</b>		
Male	216	60
Female	145	40
Unknown	1	0
<b>Race/Ethnicity</b>		
Hispanic	42	12
White	208	57
Black	42	12
API	30	8
Other	15	4
Unknown	25	7
<b>Travel History</b>		
Yes	16	4
No	202	56
Unknown	144	40
<b>Variant of concern (VOC)</b>		
Gamma	1	0
Epsilon	1	0
Delta	24	7
Alpha	1	0
Unknown	335	93
<b>Death</b>		
Yes	97	27
No	95	26
Unknown	170	47
<b>Vaccine Type</b>		
Pfizer	226	62
Moderna	90	25
Janssen	46	13
<b>Underlying Conditions</b>		
Yes	239	66
No	123	34

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

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	112	100
<b>Age (in years)</b>		
<i>25-49</i>	4	4
<i>50-64</i>	17	15
<i>65+</i>	91	81
<b>Gender</b>		
<i>Male</i>	70	63
<i>Female</i>	42	38
<b>Race/Ethnicity</b>		
<i>Hispanic</i>	13	12
<i>White</i>	76	68
<i>Black</i>	12	11
<i>API</i>	9	8
<i>Unknown</i>	2	2
<b>Variant of concern (VOC)</b>		
<i>Gamma</i>	1	1
<i>Delta</i>	11	10
<i>Alpha</i>	2	2
<i>Unknown</i>	98	88
<b>Hospitalization</b>		
<i>Yes</i>	97	87
<i>No</i>	4	4
<i>Unknown</i>	11	10
<b>Vaccine Type</b>		
<i>Pfizer</i>	72	64
<i>Moderna</i>	23	21
<i>Janssen</i>	17	15
<b>Underlying Conditions</b>		
<i>Yes</i>	62	55
<i>No</i>	50	45

**Table 5: Breakthrough Death Rates**

Vaccinated Population	Vaccinated Deaths	Unvaccinated Population	Unvaccinated Deaths	Vaccinated Death Rate per 100K population	Unvaccinated Death Rate per 100K population
1403283	112	914891	5143	8	562

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	239	66
	No	123	34
Hypertension	Yes	140	N/A
Immunocompromised	Yes	17	N/A
Chronic Heart Disease	Yes	77	N/A
Chronic Liver Disease	Yes	6	N/A
Chronic Kidney Disease	Yes	42	N/A
Diabetes	Yes	92	N/A
Neurologic/Neurodevelopmental	Yes	30	N/A
Chronic Lung Disease	Yes	66	N/A
Historically Healthy	Yes	33	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	62	55
	No	50	45
Hypertension	Yes	40	N/A
Immunocompromised	Yes	5	N/A
Chronic Heart Disease	Yes	19	N/A
Chronic Liver Disease	Yes	1	N/A
Chronic Kidney Disease	Yes	13	N/A
Diabetes	Yes	26	N/A
Neurologic/Neurodevelopmental	Yes	8	N/A
Chronic Lung Disease	Yes	18	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
- \* Limited number of specimens are sent for sequencing of VOCs compared to total number of COVID-19 cases; 'Unknown' does not necessarily mean cases were not VOC
- \* 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).