

Weekly COVID-19 Breakthrough Infections Report

Clark County, Nevada

Date: December 20, 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

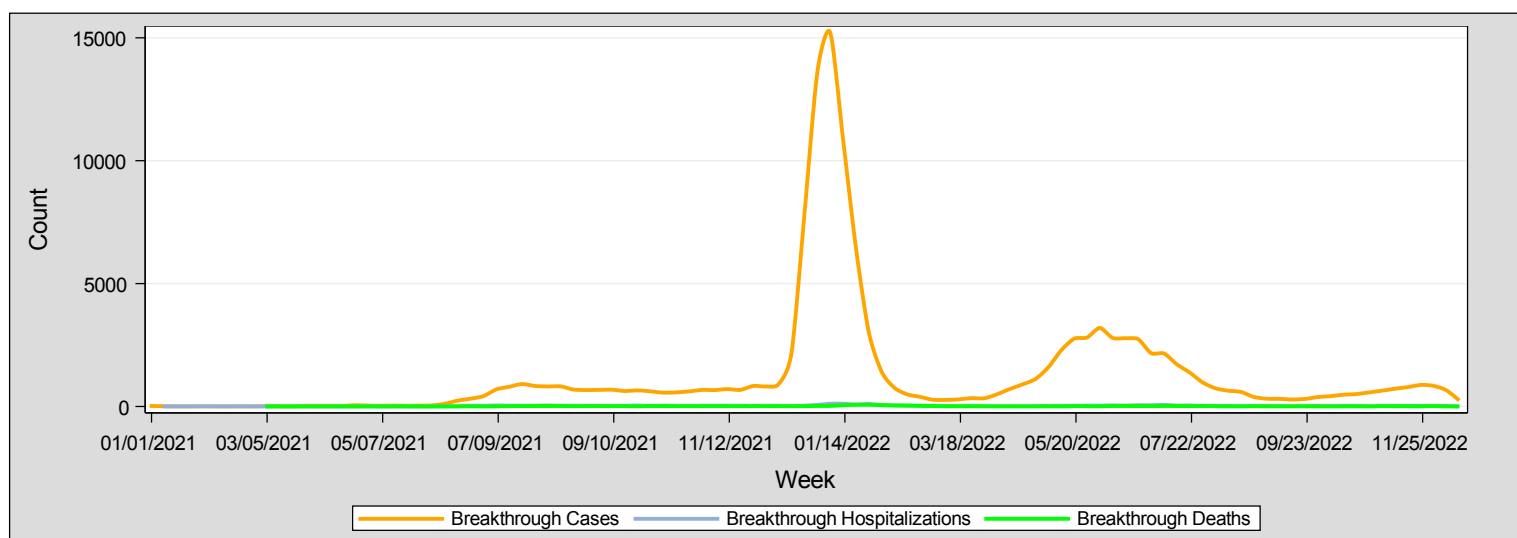


Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status

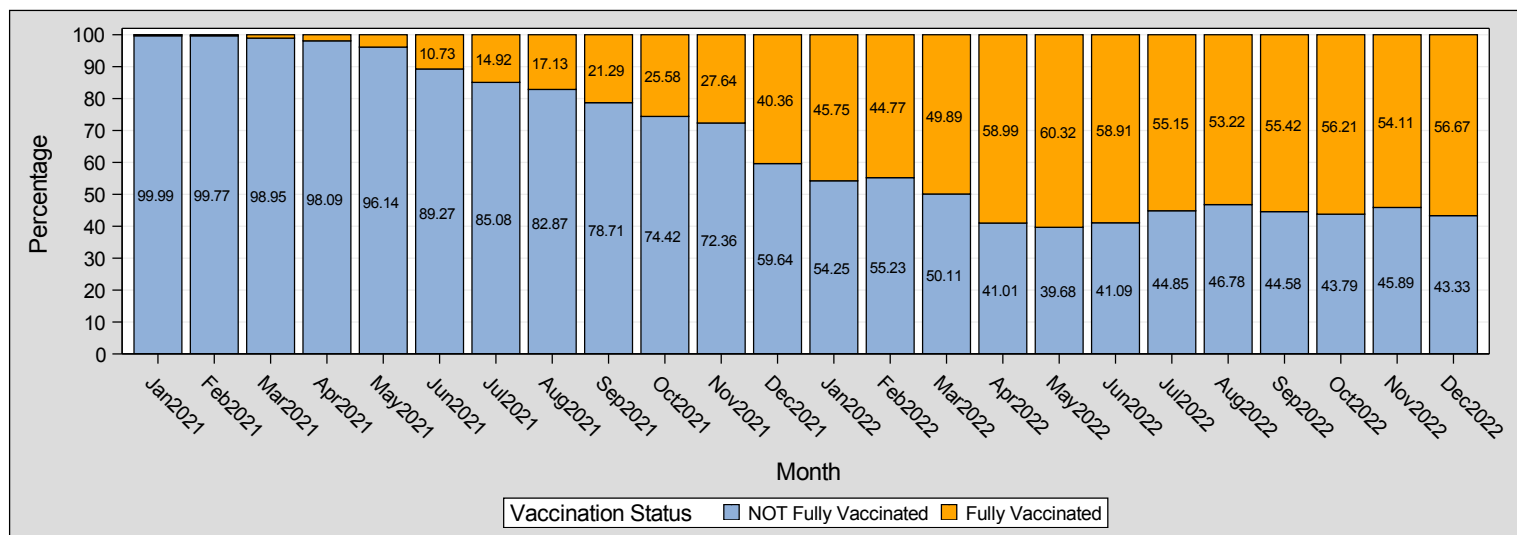


Table 1: Population Characteristics of COVID-19 Breakthrough Cases

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	126831	100
Age (in years)		
<i>0-4</i>	3	0
<i>5-11</i>	1535	1
<i>12-17</i>	5899	5
<i>18-24</i>	10889	9
<i>25-49</i>	55745	44
<i>50-64</i>	30136	24
<i>65+</i>	22624	18
Gender		
<i>Male</i>	55239	44
<i>Female</i>	70625	56
<i>Unknown</i>	967	1
Race/Ethnicity		
<i>Hispanic</i>	26030	21
<i>White</i>	40054	32
<i>Black</i>	9859	8
<i>API</i>	16070	13
<i>AEA</i>	436	0
<i>Other</i>	9127	7
<i>Unknown</i>	25255	20
Travel History		
<i>Yes</i>	5370	4
<i>No</i>	33411	26
<i>Unknown</i>	88050	69
Hospitalization		
<i>Yes</i>	3116	2
<i>No</i>	37770	30
<i>Unknown</i>	85945	68
Death		
<i>Yes</i>	1130	1
<i>No</i>	9384	7
<i>Unknown</i>	116317	92
Vaccine Type		
<i>Pfizer</i>	84690	67
<i>Novavax</i>	5	0
<i>Unknown</i>	1079	1
<i>Moderna</i>	34095	27
<i>Janssen</i>	6961	5
<i>Emergen</i>	1	0
Underlying Conditions		
<i>Yes</i>	18460	15
<i>No</i>	108371	85

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
843474	126831	1474700	465406	15037	31559

Table 3: Population Characteristics of COVID-19 Breakthrough Hospitalizations

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	3116	100
Age (in years)		
5-11	5	0
12-17	18	1
18-24	31	1
25-49	325	10
50-64	537	17
65+	2200	71
Gender		
Male	1686	54
Female	1426	46
Unknown	4	0
Race/Ethnicity		
Hispanic	381	12
White	1814	58
Black	355	11
API	300	10
AEA	15	0
Other	95	3
Unknown	156	5
Travel History		
Yes	137	4
No	1598	51
Unknown	1381	44
Death		
Yes	798	26
No	555	18
Unknown	1763	57
Vaccine Type		
Pfizer	1817	58
Unknown	74	2
Moderna	988	32
Janssen	237	8
Underlying Conditions		
Yes	2247	72
No	869	28

Table 4: Population Characteristics of COVID-19 Breakthrough Deaths

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	1130	100
Age (in years)		
25-49	34	3
50-64	137	12
65+	959	85
Gender		
Male	679	60
Female	451	40
Race/Ethnicity		
Hispanic	126	11
White	752	67
Black	119	11
API	112	10
AEA	6	1
Other	10	1
Unknown	5	0
Hospitalization		
Yes	798	71
No	75	7
Unknown	257	23
Vaccine Type		
Pfizer	620	55
Unknown	26	2
Moderna	367	32
Janssen	117	10
Underlying Conditions		
Yes	653	58
No	477	42

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
843474	1130	1474700	8020	134	544

* 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	2247	72
	No	869	28
Hypertension	Yes	1426	N/A
Immunocompromised	Yes	127	N/A
Chronic Heart Disease	Yes	679	N/A
Chronic Liver Disease	Yes	58	N/A
Chronic Kidney Disease	Yes	441	N/A
Diabetes	Yes	835	N/A
Neurologic/Neurodevelopmental	Yes	191	N/A
Chronic Lung Disease	Yes	597	N/A
Historically Healthy	Yes	270	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	653	58
	No	477	42
Hypertension	Yes	416	N/A
Immunocompromised	Yes	48	N/A
Chronic Heart Disease	Yes	236	N/A
Chronic Liver Disease	Yes	22	N/A
Chronic Kidney Disease	Yes	180	N/A
Diabetes	Yes	250	N/A
Neurologic/Neurodevelopmental	Yes	59	N/A
Chronic Lung Disease	Yes	187	N/A
Historically Healthy	Yes	24	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).