

Weekly COVID-19 Breakthrough Infections Report

Clark County, Nevada

Date: January 27, 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

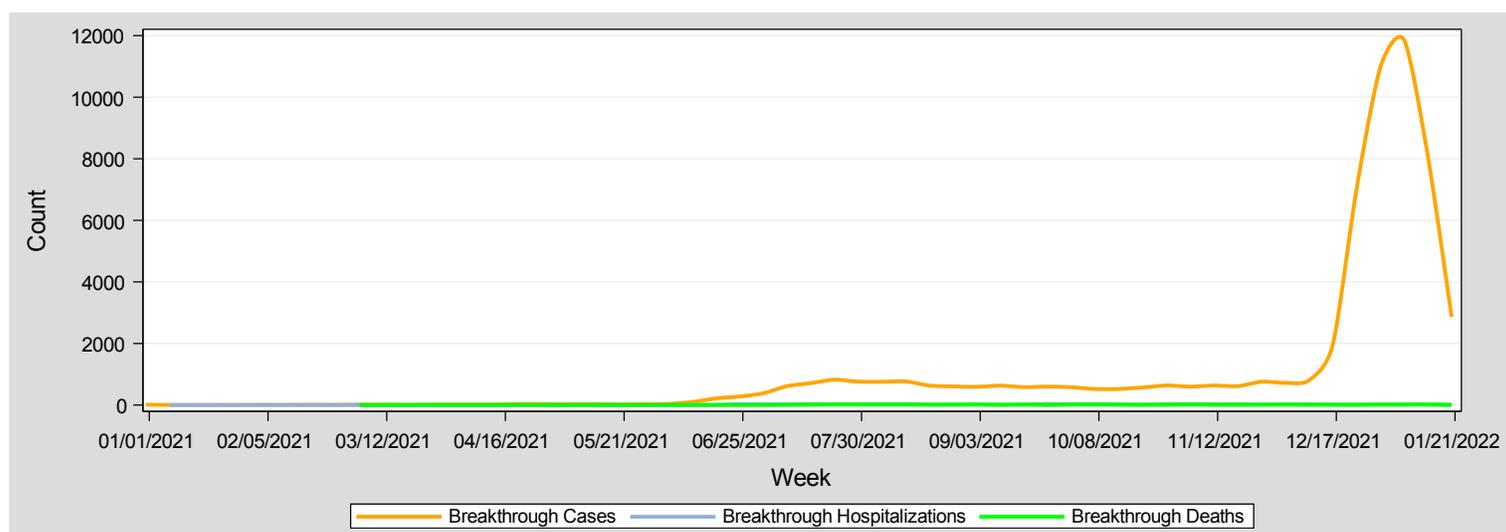


Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status

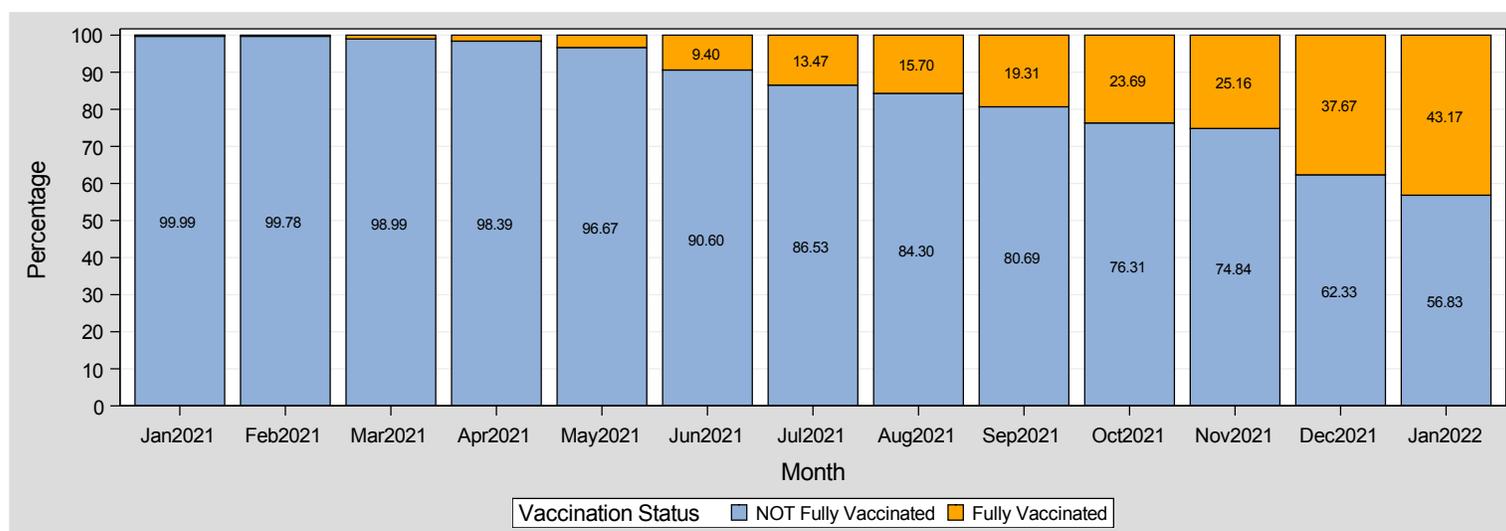


Table 1: Population Characteristics of COVID-19 Breakthrough Cases

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	59670	100
Age (in years)		
5-17	3810	6
18-24	5965	10
25-49	27991	47
50-64	13270	22
65+	8634	14
Gender		
Male	25320	42
Female	33921	57
Unknown	429	1
Race/Ethnicity		
Hispanic	12021	20
White	17753	30
Black	4384	7
API	7300	12
AEA	40	0
Other	5572	9
Unknown	12600	21
Travel History		
Yes	1828	3
No	11468	19
Unknown	46374	78
Hospitalization		
Yes	957	2
No	12927	22
Unknown	45786	77
Death		
Yes	307	1
No	3077	5
Unknown	56286	94
Vaccine Type		
Pfizer	42409	71
Unknown	454	1
Moderna	16554	28
Janssen	253	0
Underlying Conditions		
Yes	5744	10
No	53926	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
1236665	59670	1081509	407003	4825	37633

* 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>	957	100
Age (in years)		
5-17	1	0
18-24	8	1
25-49	92	10
50-64	169	18
65+	687	72
Gender		
Male	540	56
Female	416	43
Unknown	1	0
Race/Ethnicity		
Hispanic	124	13
White	562	59
Black	102	11
API	82	9
AEA	3	0
Other	25	3
Unknown	59	6
Travel History		
Yes	48	5
No	517	54
Unknown	392	41
Death		
Yes	253	26
No	146	15
Unknown	558	58
Vaccine Type		
Pfizer	620	65
Unknown	23	2
Moderna	312	33
Janssen	2	0
Underlying Conditions		
Yes	637	67
No	320	33

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	34	3	1	2	1	6
Delta	932	94	41	93	15	88
Epsilon	4	0	2	5	1	6
Gamma	15	2
Omicron	6	1

* 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>	307	100
Age (in years)		
25-49	9	3
50-64	31	10
65+	267	87
Gender		
Male	198	64
Female	109	36
Race/Ethnicity		
Hispanic	36	12
White	206	67
Black	32	10
API	23	7
AEA	2	1
Other	2	1
Unknown	6	2
Variant of concern (VOC)		
Epsilon	1	0
Delta	15	5
Alpha	1	0
Unknown	290	94
Hospitalization		
Yes	253	82
No	9	3
Unknown	45	15
Vaccine Type		
Pfizer	209	68
Unknown	7	2
Moderna	89	29
Janssen	2	1
Underlying Conditions		
Yes	161	52
No	146	48

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
1236665	307	1081509	6526	25	603

* 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	637	67
	No	320	33
Hypertension	Yes	398	N/A
Immunocompromised	Yes	38	N/A
Chronic Heart Disease	Yes	208	N/A
Chronic Liver Disease	Yes	20	N/A
Chronic Kidney Disease	Yes	119	N/A
Diabetes	Yes	252	N/A
Neurologic/Neurodevelopmental	Yes	64	N/A
Chronic Lung Disease	Yes	175	N/A
Historically Healthy	Yes	95	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	161	52
	No	146	48
Hypertension	Yes	110	N/A
Immunocompromised	Yes	15	N/A
Chronic Heart Disease	Yes	55	N/A
Chronic Liver Disease	Yes	3	N/A
Chronic Kidney Disease	Yes	40	N/A
Diabetes	Yes	64	N/A
Neurologic/Neurodevelopmental	Yes	15	N/A
Chronic Lung Disease	Yes	48	N/A
Historically Healthy	Yes	6	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).