

Weekly COVID-19 Breakthrough Infections Report

Clark County, Nevada

Date: January 13, 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

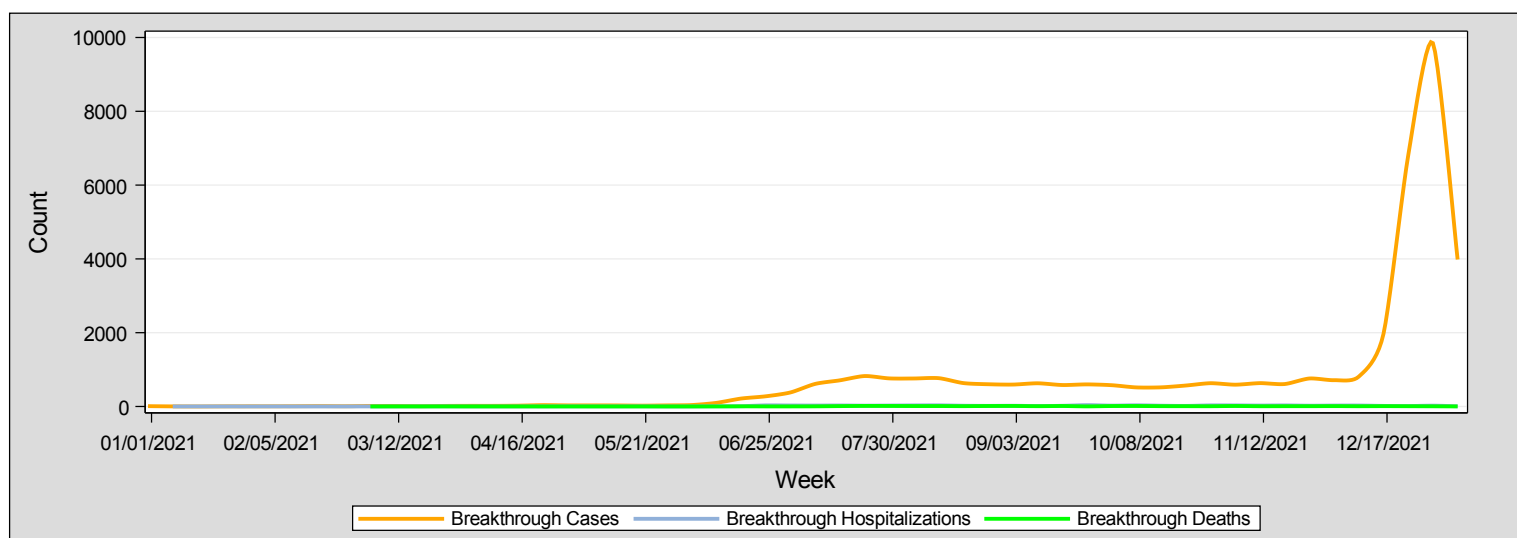


Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status

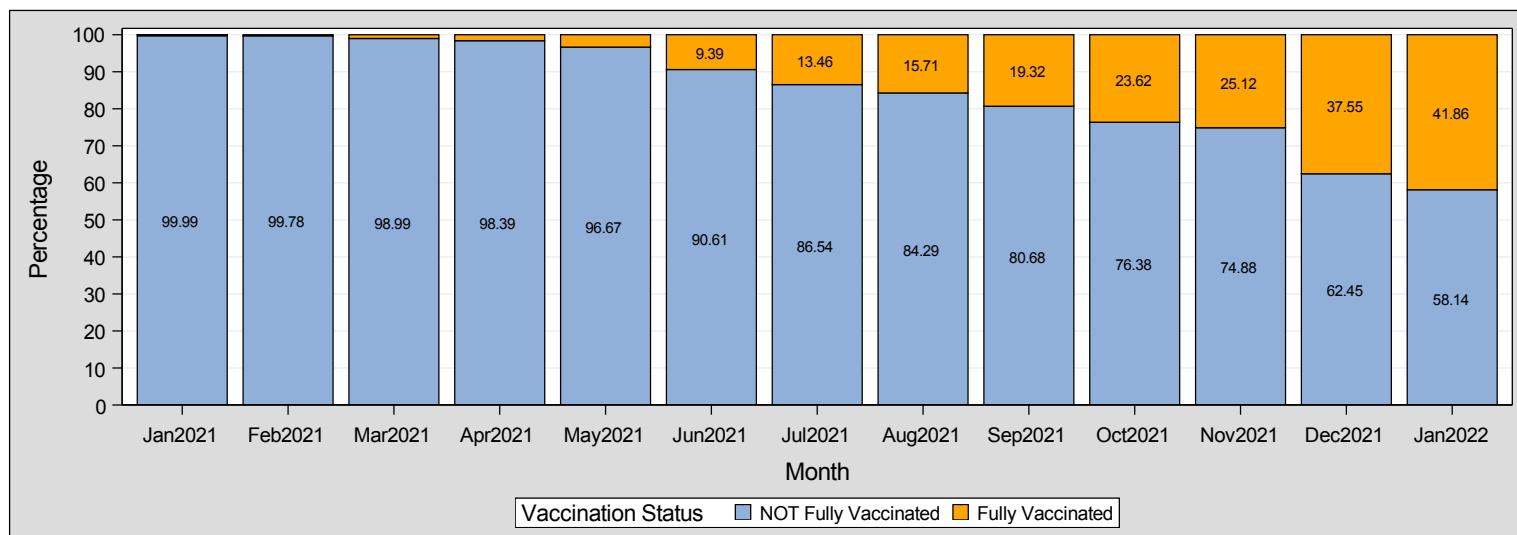


Table 1: Population Characteristics of COVID-19 Breakthrough Cases

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	39101	100
Age (in years)		
5-17	1835	5
18-24	3938	10
25-49	18820	48
50-64	8735	22
65+	5773	15
Gender		
Male	16690	43
Female	22147	57
Unknown	264	1
Race/Ethnicity		
Hispanic	7778	20
White	12248	31
Black	2984	8
API	4597	12
AEA	30	0
Other	3564	9
Unknown	7900	20
Travel History		
Yes	1678	4
No	9828	25
Unknown	27595	71
Hospitalization		
Yes	896	2
No	11211	29
Unknown	26994	69
Death		
Yes	270	1
No	2759	7
Unknown	36072	92
Vaccine Type		
Pfizer	27845	71
Unknown	296	1
Moderna	10834	28
Janssen	126	0
Underlying Conditions		
Yes	5062	13
No	34039	87

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
1205832	39101	1112342	375678	3243	33774

* 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>	896	100
Age (in years)		
5-17	1	0
18-24	7	1
25-49	82	9
50-64	154	17
65+	652	73
Gender		
Male	504	56
Female	391	44
Unknown	1	0
Race/Ethnicity		
Hispanic	120	13
White	531	59
Black	90	10
API	77	9
AEA	2	0
Other	24	3
Unknown	52	6
Travel History		
Yes	48	5
No	474	53
Unknown	374	42
Death		
Yes	235	26
No	146	16
Unknown	515	57
Vaccine Type		
Pfizer	585	65
Unknown	19	2
Moderna	291	32
Janssen	1	0
Underlying Conditions		
Yes	605	68
No	291	32

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	4	1	3	1	7
Delta	896	94	34	92	12	86
Epsilon	4	0	2	5	1	7
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>	270	100
Age (in years)		
25-49	9	3
50-64	28	10
65+	233	86
Gender		
Male	171	63
Female	99	37
Race/Ethnicity		
Hispanic	34	13
White	182	67
Black	29	11
API	21	8
AEA	1	0
Other	1	0
Unknown	2	1
Variant of concern (VOC)		
Epsilon	1	0
Delta	12	4
Alpha	1	0
Unknown	256	95
Hospitalization		
Yes	235	87
No	7	3
Unknown	28	10
Vaccine Type		
Pfizer	188	70
Unknown	5	2
Moderna	77	29
Underlying Conditions		
Yes	149	55
No	121	45

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
1205832	270	1112342	6338	22	570

* 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	605	68
	No	291	32
Hypertension	Yes	384	N/A
Immunocompromised	Yes	39	N/A
Chronic Heart Disease	Yes	195	N/A
Chronic Liver Disease	Yes	16	N/A
Chronic Kidney Disease	Yes	114	N/A
Diabetes	Yes	241	N/A
Neurologic/Neurodevelopmental	Yes	59	N/A
Chronic Lung Disease	Yes	168	N/A
Historically Healthy	Yes	81	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	149	55
	No	121	45
Hypertension	Yes	105	N/A
Immunocompromised	Yes	14	N/A
Chronic Heart Disease	Yes	52	N/A
Chronic Liver Disease	Yes	3	N/A
Chronic Kidney Disease	Yes	38	N/A
Diabetes	Yes	61	N/A
Neurologic/Neurodevelopmental	Yes	13	N/A
Chronic Lung Disease	Yes	45	N/A
Historically Healthy	Yes	5	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).