

Weekly COVID-19 Breakthrough Infections Report

Clark County, Nevada

Date: November 4, 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

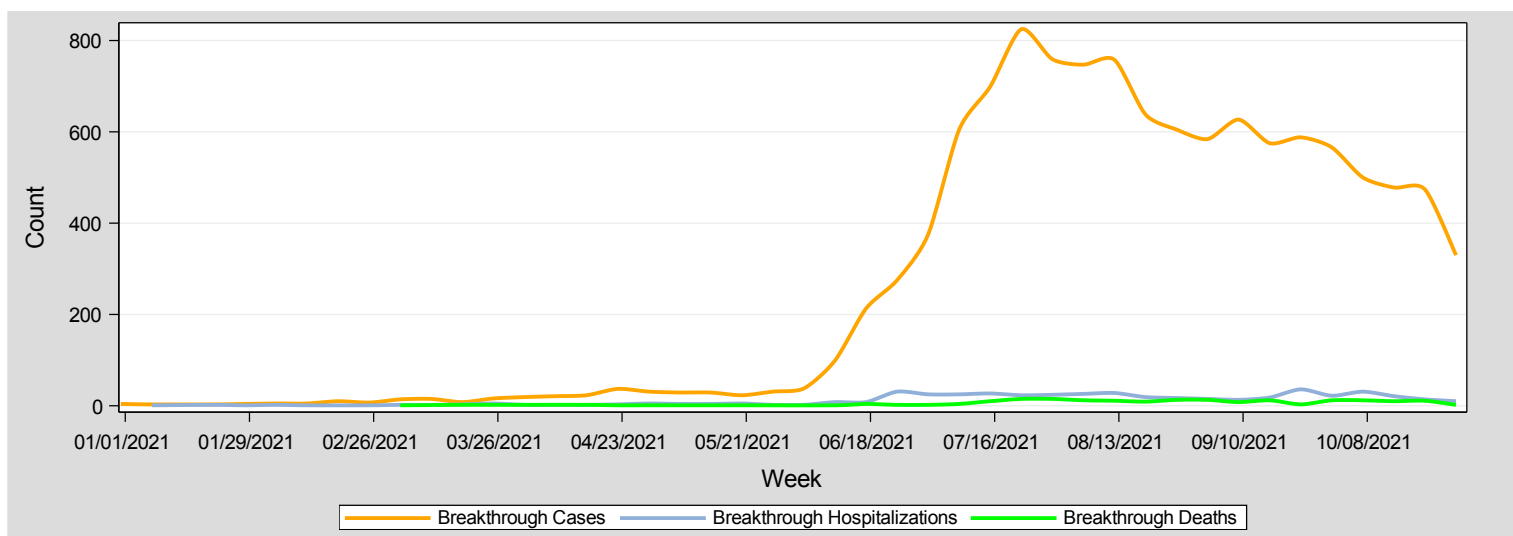


Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status

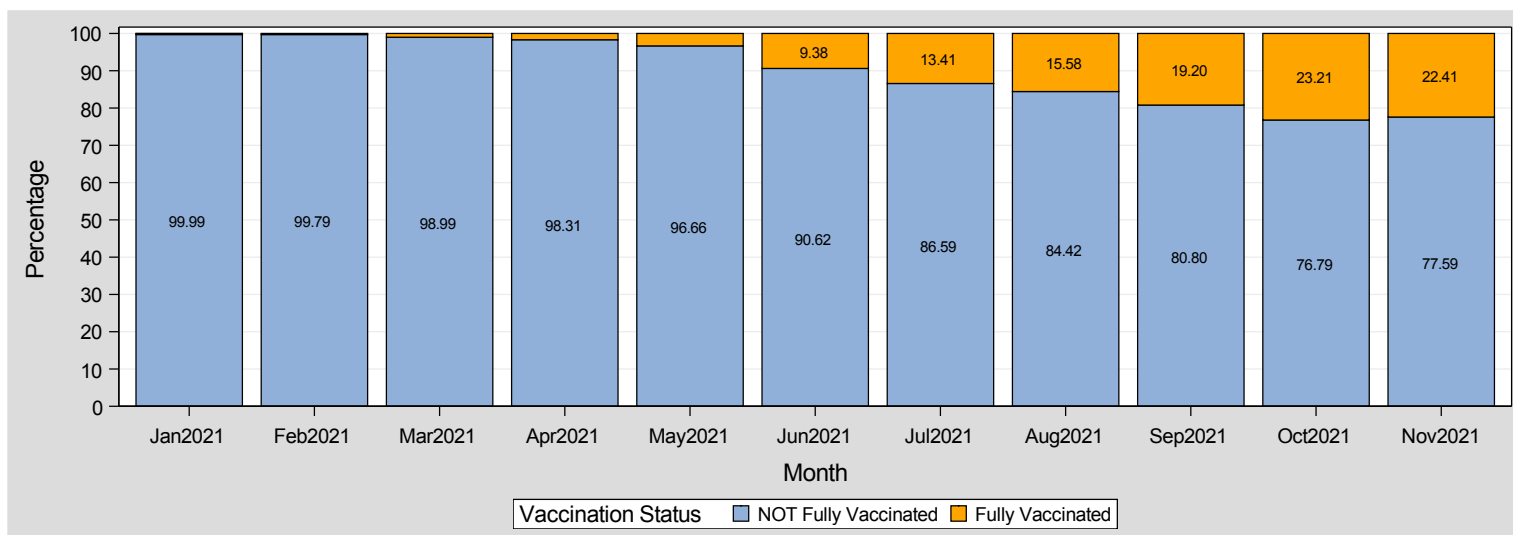


Table 1: Population Characteristics of COVID-19 Breakthrough Cases

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	11695	100
Age (in years)		
5-17	226	2
18-24	703	6
25-49	5010	43
50-64	2968	25
65+	2788	24
Gender		
Male	5274	45
Female	6360	54
Unknown	61	1
Race/Ethnicity		
Hispanic	2274	19
White	4568	39
Black	803	7
API	1285	11
AEA	19	0
Other	535	5
Unknown	2211	19
Travel History		
Yes	1014	9
No	5297	45
Unknown	5384	46
Hospitalization		
Yes	587	5
No	6208	53
Unknown	4900	42
Death		
Yes	190	2
No	1898	16
Unknown	9607	82
Vaccine Type		
Pfizer	8585	73
Unknown	87	1
Moderna	3013	26
Janssen	10	0
Underlying Conditions		
Yes	2987	26
No	8708	74

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
1113977	11695	1204197	322231	1050	26759

* 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>	587	100
Age (in years)		
18-24	3	1
25-49	48	8
50-64	94	16
65+	442	75
Gender		
Male	340	58
Female	246	42
Unknown	1	0
Race/Ethnicity		
Hispanic	76	13
White	342	58
Black	68	12
API	45	8
AEA	2	0
Other	17	3
Unknown	37	6
Travel History		
Yes	34	6
No	308	52
Unknown	245	42
Death		
Yes	163	28
No	111	19
Unknown	313	53
Vaccine Type		
Pfizer	393	67
Unknown	13	2
Moderna	180	31
Janssen	1	0
Underlying Conditions		
Yes	381	65
No	206	35

Table 4: Variants of Concern (VOC) among Breakthrough cases, hospitalizations and deaths

Variants of concern (VOC)	Breakthrough Cases	Percent(%)		Percent(%)		Percent(%)	
		of Breakthrough Cases	Breakthrough Hospitalizations	of Breakthrough Hospitalizations	Breakthrough Deaths	of Breakthrough Deaths	
Alpha	36	4	1	3	1	8	
Delta	855	94	31	91	11	85	
Epsilon	4	0	2	6	1	8	
Gamma	15	2	

* 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>	190	100
Age (in years)		
25-49	7	4
50-64	18	9
65+	165	87
Gender		
Male	121	64
Female	69	36
Race/Ethnicity		
Hispanic	23	12
White	132	69
Black	21	11
API	11	6
AEA	1	1
Other	1	1
Unknown	1	1
Variant of concern (VOC)		
Epsilon	1	1
Delta	11	6
Alpha	1	1
Unknown	177	93
Hospitalization		
Yes	163	86
No	7	4
Unknown	20	11
Vaccine Type		
Pfizer	140	74
Unknown	3	2
Moderna	47	25
Underlying Conditions		
Yes	97	51
No	93	49

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
1113977	190	1204197	5811	17	483

* 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	381	65
	No	206	35
Hypertension	Yes	229	N/A
Immunocompromised	Yes	26	N/A
Chronic Heart Disease	Yes	119	N/A
Chronic Liver Disease	Yes	11	N/A
Chronic Kidney Disease	Yes	68	N/A
Diabetes	Yes	149	N/A
Neurologic/Neurodevelopmental	Yes	39	N/A
Chronic Lung Disease	Yes	101	N/A
Historically Healthy	Yes	54	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	97	51
	No	93	49
Hypertension	Yes	66	N/A
Immunocompromised	Yes	10	N/A
Chronic Heart Disease	Yes	32	N/A
Chronic Liver Disease	Yes	2	N/A
Chronic Kidney Disease	Yes	24	N/A
Diabetes	Yes	38	N/A
Neurologic/Neurodevelopmental	Yes	10	N/A
Chronic Lung Disease	Yes	24	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
 - * 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).