

Weekly COVID-19 Breakthrough Infections Report

Clark County, Nevada

Date: September 16, 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

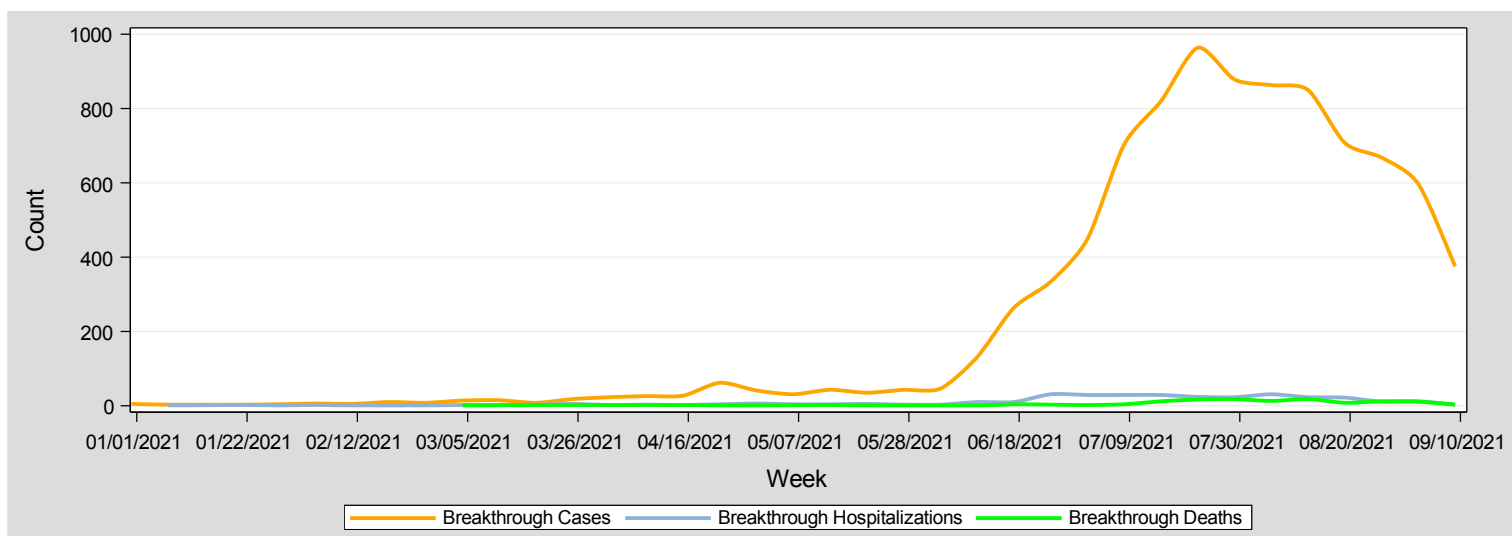


Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status

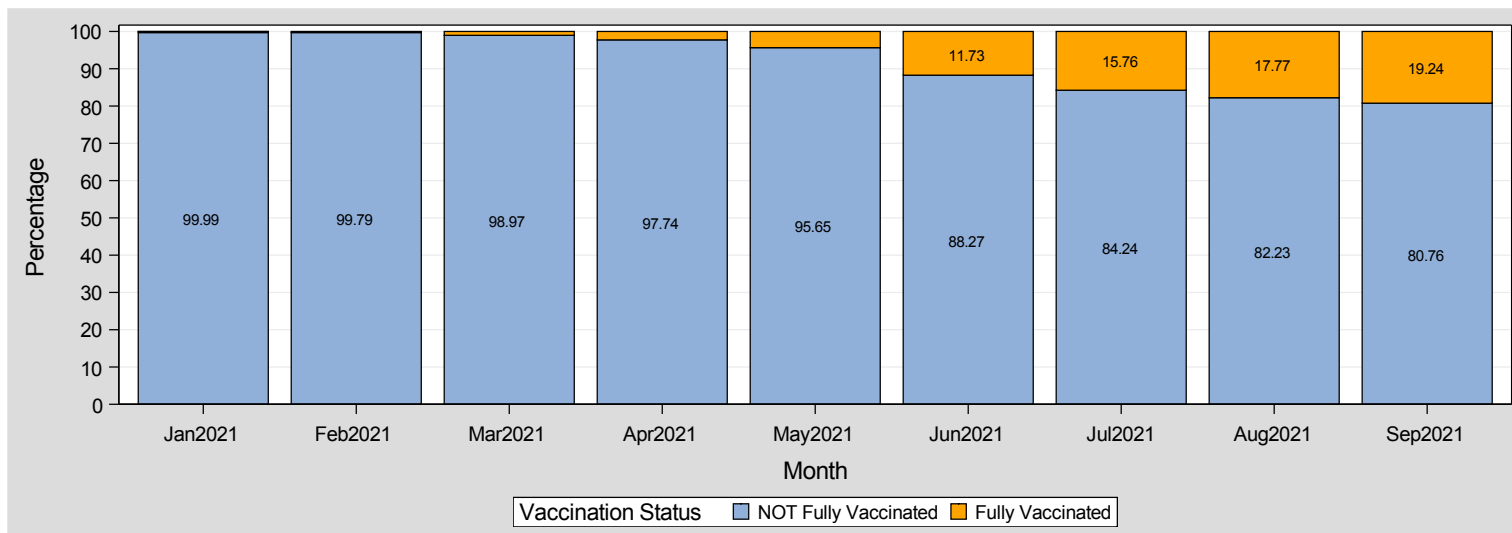


Table 1: Population Characteristics of COVID-19 Breakthrough Cases

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	9080	100
Age (in years)		
5-17	112	1
18-24	548	6
25-49	3999	44
50-64	2386	26
65+	2035	22
Gender		
Male	4194	46
Female	4832	53
Unknown	54	1
Race/Ethnicity		
Hispanic	1620	18
White	3324	37
Black	633	7
API	949	10
AEA	10	0
Other	460	5
Unknown	2084	23
Travel History		
Yes	723	8
No	3624	40
Unknown	4733	52
Variant of concern (VOC)		
Gamma	18	0
Epsilon	5	0
Delta	744	8
Alpha	47	1
Unknown	8266	91
Hospitalization		
Yes	425	5
No	4279	47
Unknown	4376	48
Death		
Yes	137	2
No	1674	18
Unknown	7269	80
Vaccine Type		
Pfizer	5740	63
NULL	62	1
Moderna	1912	21
Janssen	1366	15
Underlying Conditions		
Yes	2071	23
No	7009	77

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
1058157	9080	1260017	304521	858	24168

* 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>	425	100
Age (in years)		
18-24	2	0
25-49	40	9
50-64	71	17
65+	312	73
Gender		
Male	258	61
Female	165	39
Unknown	2	0
Race/Ethnicity		
Hispanic	65	15
White	233	55
Black	51	12
API	33	8
Other	17	4
Unknown	26	6
Travel History		
Yes	21	5
No	235	55
Unknown	169	40
Variant of concern (VOC)		
Gamma	1	0
Epsilon	2	0
Delta	26	6
Alpha	1	0
Unknown	395	93
Death		
Yes	118	28
No	101	24
Unknown	206	48
Vaccine Type		
Pfizer	263	62
NULL	6	1
Moderna	104	24
Janssen	52	12
Underlying Conditions		
Yes	266	63
No	159	37

Table 4: Population Characteristics of COVID-19 Breakthrough Deaths

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	137	100
Age (in years)		
25-49	5	4
50-64	20	15
65+	112	82
Gender		
Male	88	64
Female	48	35
Unknown	1	1
Race/Ethnicity		
Hispanic	21	15
White	88	64
Black	15	11
API	10	7
Unknown	3	2
Variant of concern (VOC)		
Gamma	1	1
Epsilon	1	1
Delta	12	9
Alpha	2	1
Unknown	121	88
Hospitalization		
Yes	118	86
Unknown	14	10
No	5	4
Vaccine Type		
Pfizer	83	61
NULL	4	3
Moderna	31	23
Janssen	19	14
Underlying Conditions		
Yes	70	51
No	67	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
1058157	137	1260017	5292	13	420

* 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	266	63
	No	159	37
Hypertension	Yes	154	N/A
Immunocompromised	Yes	18	N/A
Chronic Heart Disease	Yes	82	N/A
Chronic Liver Disease	Yes	6	N/A
Chronic Kidney Disease	Yes	47	N/A
Diabetes	Yes	104	N/A
Neurologic/Neurodevelopmental	Yes	33	N/A
Chronic Lung Disease	Yes	71	N/A
Historically Healthy	Yes	44	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	70	51
	No	67	49
Hypertension	Yes	45	N/A
Immunocompromised	Yes	5	N/A
Chronic Heart Disease	Yes	23	N/A
Chronic Liver Disease	Yes	1	N/A
Chronic Kidney Disease	Yes	14	N/A
Diabetes	Yes	28	N/A
Neurologic/Neurodevelopmental	Yes	10	N/A
Chronic Lung Disease	Yes	19	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
- * 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).