

Weekly COVID-19 Breakthrough Infections Report

Clark County, Nevada

Date: September 23, 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

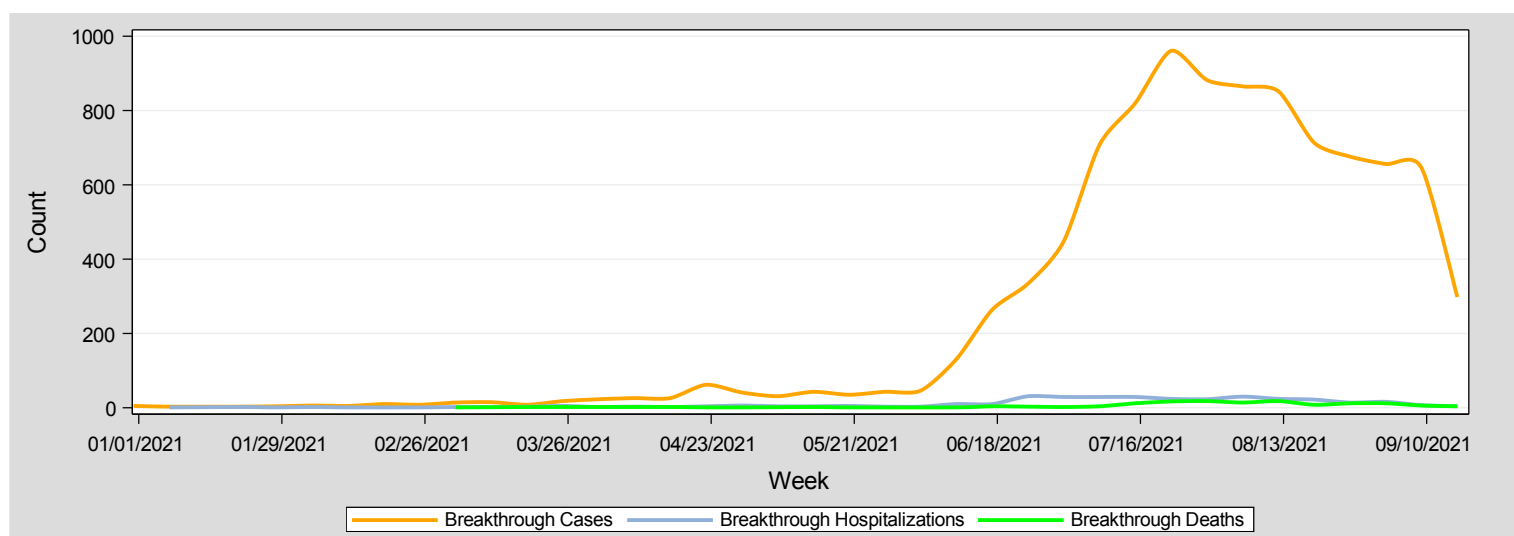


Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status

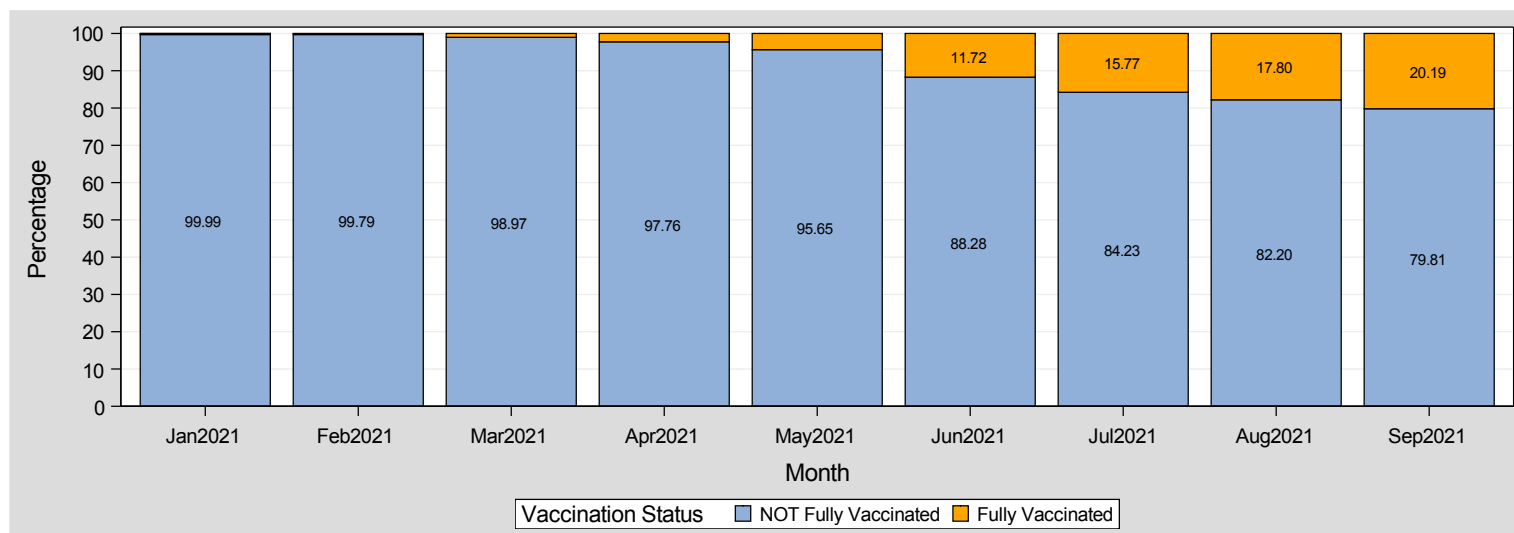


Table 1: Population Characteristics of COVID-19 Breakthrough Cases

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	9729	100
Age (in years)		
5-17	127	1
18-24	580	6
25-49	4279	44
50-64	2562	26
65+	2181	22
Gender		
Male	4491	46
Female	5181	53
Unknown	57	1
Race/Ethnicity		
Hispanic	1728	18
White	3583	37
Black	692	7
API	1007	10
AEA	14	0
Other	481	5
Unknown	2224	23
Travel History		
Yes	787	8
No	3949	41
Unknown	4993	51
Variant of concern (VOC)		
Gamma	18	0
Epsilon	5	0
Delta	827	9
Alpha	47	0
Unknown	8832	91
Hospitalization		
Yes	450	5
No	4675	48
Unknown	4604	47
Death		
Yes	146	2
No	1746	18
Unknown	7837	81
Vaccine Type		
Pfizer	6169	63
Unknown	70	1
Moderna	2058	21
Janssen	1432	15
Underlying Conditions		
Yes	2239	23
No	7490	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
1079989	9729	1238185	307227	901	24813

* 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>	450	100
Age (in years)		
18-24	2	0
25-49	41	9
50-64	77	17
65+	330	73
Gender		
Male	269	60
Female	178	40
Unknown	3	1
Race/Ethnicity		
Hispanic	65	14
White	249	55
Black	57	13
API	34	8
AEA	1	0
Other	16	4
Unknown	28	6
Travel History		
Yes	21	5
No	245	54
Unknown	184	41
Variant of concern (VOC)		
Gamma	1	0
Epsilon	2	0
Delta	27	6
Alpha	1	0
Unknown	419	93
Death		
Yes	128	28
No	103	23
Unknown	219	49
Vaccine Type		
Pfizer	273	61
Unknown	6	1
Moderna	116	26
Janssen	55	12
Underlying Conditions		
Yes	275	61
No	175	39

Table 4: Population Characteristics of COVID-19 Breakthrough Deaths

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	146	100
Age (in years)		
25-49	5	3
50-64	20	14
65+	121	83
Gender		
Male	92	63
Female	52	36
Unknown	2	1
Race/Ethnicity		
Hispanic	20	14
White	93	64
Black	20	14
API	10	7
AEA	1	1
Unknown	2	1
Variant of concern (VOC)		
Gamma	1	1
Epsilon	1	1
Delta	12	8
Alpha	2	1
Unknown	130	89
Hospitalization		
Yes	128	88
Unknown	13	9
No	5	3
Vaccine Type		
Pfizer	89	61
Unknown	4	3
Moderna	35	24
Janssen	18	12
Underlying Conditions		
Yes	72	49
No	74	51

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
1079989	146	1238185	5399	14	436

* 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	275	61
	No	175	39
Hypertension	Yes	159	N/A
Immunocompromised	Yes	19	N/A
Chronic Heart Disease	Yes	82	N/A
Chronic Liver Disease	Yes	6	N/A
Chronic Kidney Disease	Yes	50	N/A
Diabetes	Yes	108	N/A
Neurologic/Neurodevelopmental	Yes	33	N/A
Chronic Lung Disease	Yes	73	N/A
Historically Healthy	Yes	47	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	72	49
	No	74	51
Hypertension	Yes	46	N/A
Immunocompromised	Yes	6	N/A
Chronic Heart Disease	Yes	23	N/A
Chronic Liver Disease	Yes	1	N/A
Chronic Kidney Disease	Yes	15	N/A
Diabetes	Yes	29	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).