

Weekly COVID-19 Breakthrough Infections Report

Clark County, Nevada

Date: September 30, 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

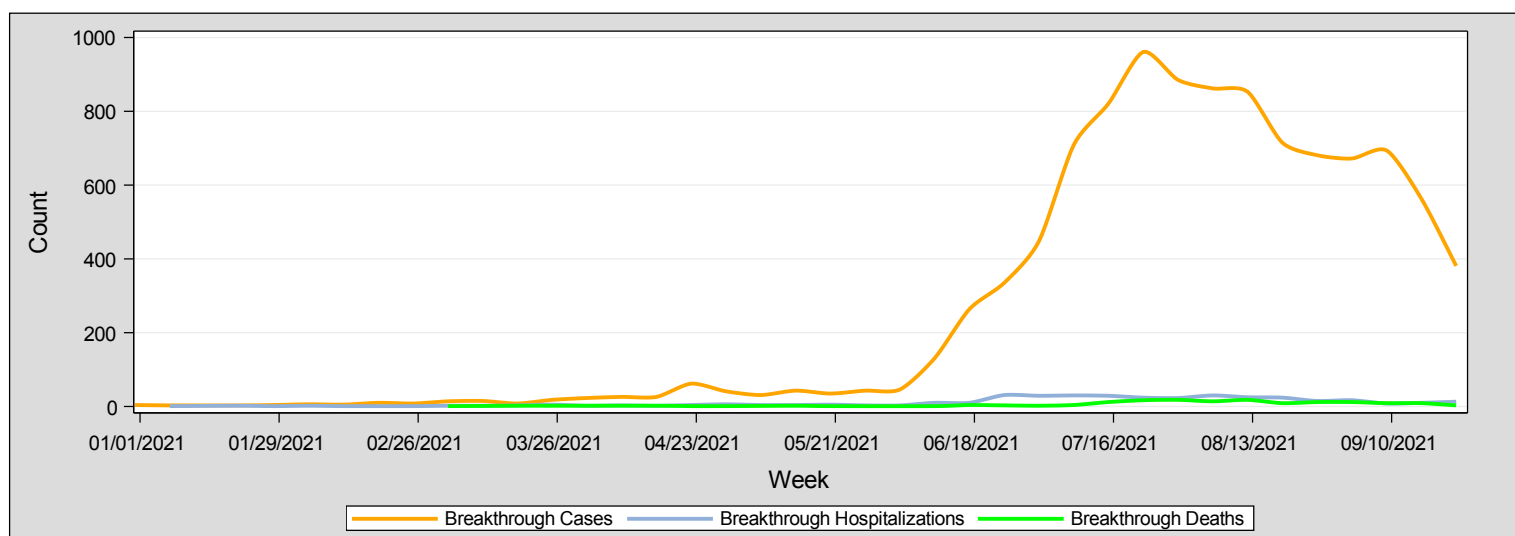


Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status

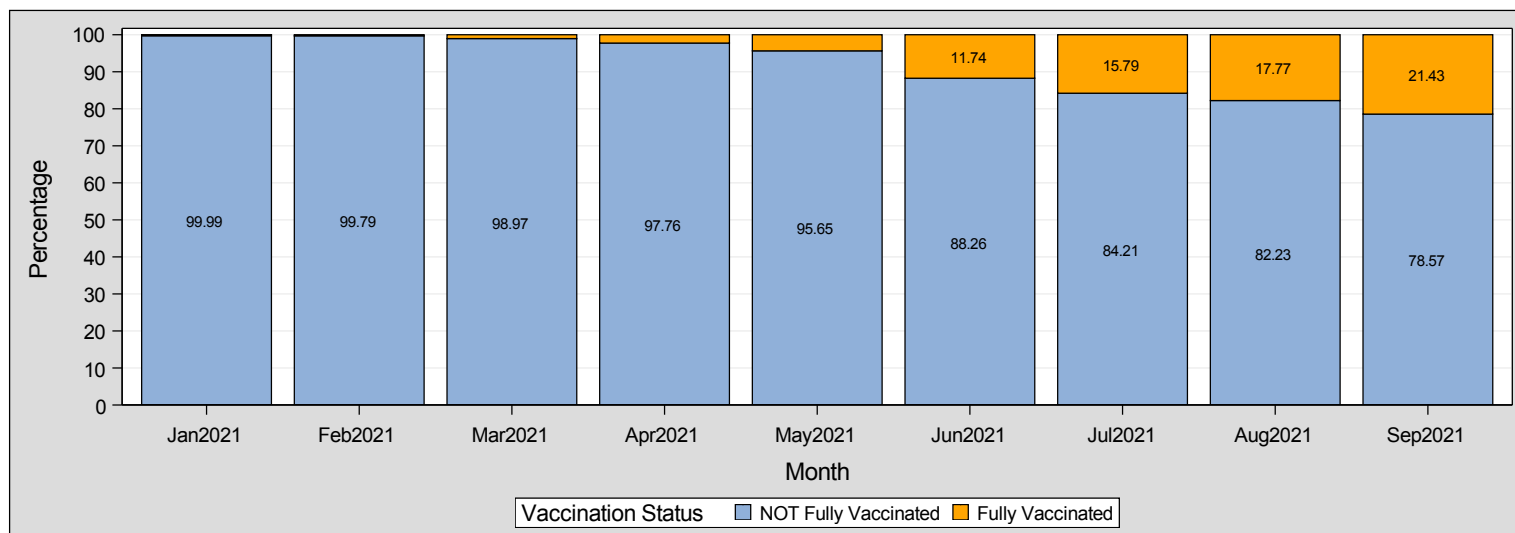


Table 1: Population Characteristics of COVID-19 Breakthrough Cases

	<i>Overall</i>	
	<i>N</i>	<i>%</i>
<i>All</i>	10449	100
Age (in years)		
5-17	142	1
18-24	627	6
25-49	4592	44
50-64	2750	26
65+	2338	22
Gender		
Male	4821	46
Female	5569	53
Unknown	59	1
Race/Ethnicity		
Hispanic	1883	18
White	3899	37
Black	760	7
API	1102	11
AEA	15	0
Other	506	5
Unknown	2284	22
Travel History		
Yes	850	8
No	4332	41
Unknown	5267	50
Hospitalization		
Yes	482	5
No	5115	49
Unknown	4852	46
Death		
Yes	158	2
No	1813	17
Unknown	8478	81
Vaccine Type		
Pfizer	6621	63
Unknown	76	1
Moderna	2234	21
Janssen	1518	15
Underlying Conditions		
Yes	2441	23
No	8008	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
1090085	10449	1228089	309783	959	25225

* 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>	482	100
Age (in years)		
18-24	3	1
25-49	44	9
50-64	82	17
65+	353	73
Gender		
Male	283	59
Female	197	41
Unknown	2	0
Race/Ethnicity		
Hispanic	67	14
White	271	56
Black	62	13
API	36	7
AEA	1	0
Other	16	3
Unknown	29	6
Travel History		
Yes	24	5
No	261	54
Unknown	197	41
Death		
Yes	138	29
No	107	22
Unknown	237	49
Vaccine Type		
Pfizer	295	61
Unknown	8	2
Moderna	121	25
Janssen	58	12
Underlying Conditions		
Yes	291	60
No	191	40

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	47	5	1	3	2	13	
Delta	852	92	27	87	12	75	
Epsilon	5	1	2	6	1	6	
Gamma	18	2	1	3	1	6	

* 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>	158	100
Age (in years)		
25-49	5	3
50-64	20	13
65+	133	84
Gender		
Male	101	64
Female	56	35
Unknown	1	1
Race/Ethnicity		
Hispanic	21	13
White	103	65
Black	21	13
API	11	7
AEA	1	1
Unknown	1	1
Variant of concern (VOC)		
Gamma	1	1
Epsilon	1	1
Delta	12	8
Alpha	2	1
Unknown	142	90
Hospitalization		
Yes	138	87
No	6	4
Unknown	14	9
Vaccine Type		
Pfizer	97	61
Unknown	4	3
Moderna	38	24
Janssen	19	12
Underlying Conditions		
Yes	76	48
No	82	52

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
1090085	158	1228089	5493	14	447

* 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	291	60
	No	191	40
Hypertension	Yes	168	N/A
Immunocompromised	Yes	20	N/A
Chronic Heart Disease	Yes	86	N/A
Chronic Liver Disease	Yes	6	N/A
Chronic Kidney Disease	Yes	53	N/A
Diabetes	Yes	114	N/A
Neurologic/Neurodevelopmental	Yes	36	N/A
Chronic Lung Disease	Yes	81	N/A
Historically Healthy	Yes	51	N/A

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

Variable	Outcome	N	%
Underlying Medical Condition	Yes	76	48
	No	82	52
Hypertension	Yes	49	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	32	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
- * 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).