

Weekly COVID-19 Breakthrough Infections Report

Clark County, Nevada

Date: November 18, 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

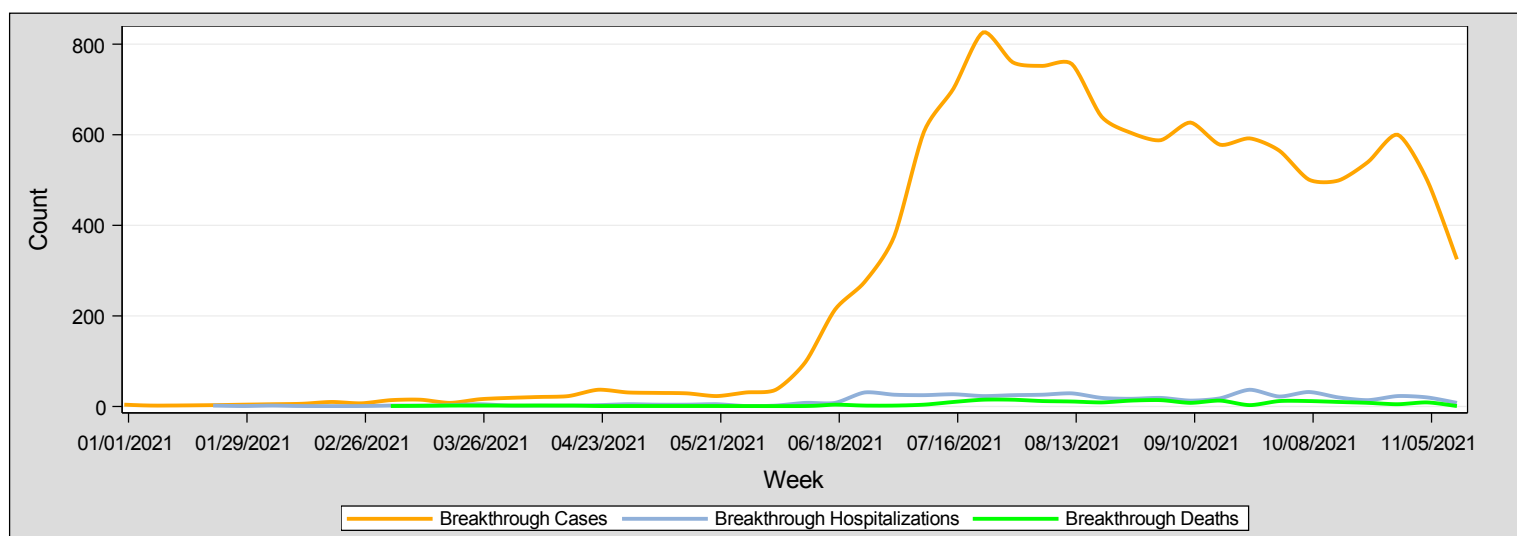


Figure 2: Percentage of Cases among 12 Years and Older By Vaccination Status

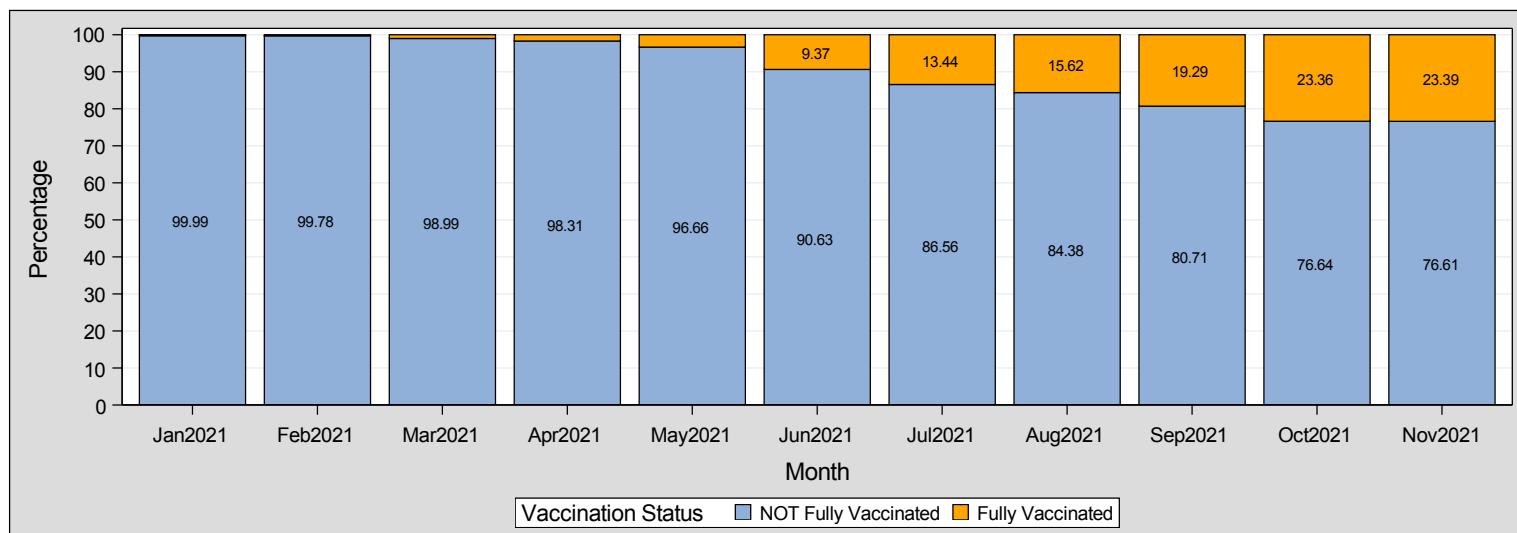


Table 1: Population Characteristics of COVID-19 Breakthrough Cases

| | <i>Overall</i> | |
|------------------------------|----------------|----------|
| | <i>N</i> | <i>%</i> |
| <i>All</i> | 12898 | 100 |
| Age (in years) | | |
| 5-17 | 270 | 2 |
| 18-24 | 796 | 6 |
| 25-49 | 5569 | 43 |
| 50-64 | 3270 | 25 |
| 65+ | 2993 | 23 |
| Gender | | |
| Male | 5814 | 45 |
| Female | 7021 | 54 |
| Unknown | 63 | 0 |
| Race/Ethnicity | | |
| Hispanic | 2585 | 20 |
| White | 5112 | 40 |
| Black | 886 | 7 |
| API | 1428 | 11 |
| AEA | 21 | 0 |
| Other | 574 | 4 |
| Unknown | 2292 | 18 |
| Travel History | | |
| Yes | 1108 | 9 |
| No | 6014 | 47 |
| Unknown | 5776 | 45 |
| Hospitalization | | |
| Yes | 652 | 5 |
| No | 6993 | 54 |
| Unknown | 5253 | 41 |
| Death | | |
| Yes | 202 | 2 |
| No | 2010 | 16 |
| Unknown | 10686 | 83 |
| Vaccine Type | | |
| Pfizer | 9444 | 73 |
| Unknown | 104 | 1 |
| Moderna | 3341 | 26 |
| Janssen | 9 | 0 |
| Underlying Conditions | | |
| Yes | 3315 | 26 |
| No | 9583 | 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 |
|------------------------------|------------------|-------------------------|--------------------|--|--|
| 1134479 | 12898 | 1183695 | 326695 | 1137 | 27600 |

* 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> | 652 | 100 |
| Age (in years) | | |
| 5-17 | 1 | 0 |
| 18-24 | 3 | 0 |
| 25-49 | 55 | 8 |
| 50-64 | 108 | 17 |
| 65+ | 485 | 74 |
| Gender | | |
| Male | 382 | 59 |
| Female | 269 | 41 |
| Unknown | 1 | 0 |
| Race/Ethnicity | | |
| Hispanic | 89 | 14 |
| White | 379 | 58 |
| Black | 68 | 10 |
| API | 55 | 8 |
| AEA | 2 | 0 |
| Other | 19 | 3 |
| Unknown | 40 | 6 |
| Travel History | | |
| Yes | 35 | 5 |
| No | 341 | 52 |
| Unknown | 276 | 42 |
| Death | | |
| Yes | 178 | 27 |
| No | 117 | 18 |
| Unknown | 357 | 55 |
| Vaccine Type | | |
| Pfizer | 438 | 67 |
| Unknown | 15 | 2 |
| Moderna | 198 | 30 |
| Janssen | 1 | 0 |
| Underlying Conditions | | |
| Yes | 420 | 64 |
| No | 232 | 36 |

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 | 35 | 4 | 1 | 3 | 1 | 8 |
| Delta | 864 | 94 | 33 | 92 | 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> | 202 | 100 |
| Age (in years) | | |
| 25-49 | 7 | 3 |
| 50-64 | 21 | 10 |
| 65+ | 174 | 86 |
| Gender | | |
| Male | 131 | 65 |
| Female | 71 | 35 |
| Race/Ethnicity | | |
| Hispanic | 25 | 12 |
| White | 138 | 68 |
| Black | 23 | 11 |
| API | 13 | 6 |
| AEA | 1 | 0 |
| Other | 1 | 0 |
| Unknown | 1 | 0 |
| Variant of concern (VOC) | | |
| Epsilon | 1 | 0 |
| Delta | 11 | 5 |
| Alpha | 1 | 0 |
| Unknown | 189 | 94 |
| Hospitalization | | |
| Yes | 178 | 88 |
| No | 7 | 3 |
| Unknown | 17 | 8 |
| Vaccine Type | | |
| Pfizer | 149 | 74 |
| Unknown | 3 | 1 |
| Moderna | 50 | 25 |
| Underlying Conditions | | |
| Yes | 102 | 50 |
| No | 100 | 50 |

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 |
|-----------------------------|-------------------|-------------------------|---------------------|---|---|
| 1134479 | 202 | 1183695 | 5906 | 18 | 499 |

* 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 | 420 | 64 |
| | No | 232 | 36 |
| Hypertension | Yes | 254 | N/A |
| Immunocompromised | Yes | 28 | N/A |
| Chronic Heart Disease | Yes | 131 | N/A |
| Chronic Liver Disease | Yes | 12 | N/A |
| Chronic Kidney Disease | Yes | 74 | N/A |
| Diabetes | Yes | 166 | N/A |
| Neurologic/Neurodevelopmental | Yes | 38 | N/A |
| Chronic Lung Disease | Yes | 110 | N/A |
| Historically Healthy | Yes | 61 | N/A |

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

| Variable | Outcome | N | % |
|-------------------------------|---------|-----|-----|
| Underlying Medical Condition | Yes | 102 | 50 |
| | No | 100 | 50 |
| Hypertension | Yes | 68 | N/A |
| Immunocompromised | Yes | 10 | N/A |
| Chronic Heart Disease | Yes | 33 | N/A |
| Chronic Liver Disease | Yes | 3 | N/A |
| Chronic Kidney Disease | Yes | 23 | N/A |
| Diabetes | Yes | 42 | N/A |
| Neurologic/Neurodevelopmental | Yes | 10 | N/A |
| Chronic Lung Disease | Yes | 28 | 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).