

# COVID-19 Breakthrough Report

Oregon's Weekly Surveillance Summary



## Breakthrough case report - October 21, 2021

### Background

Data for the weekly breakthrough case report will include data through the most recent Sunday and the report will be published on Thursdays.<sup>1</sup> Vaccine breakthrough cases are defined as instances in which an individual tests positive for COVID-19 at least 14 days following the completion of any COVID-19 vaccine series.<sup>2</sup> Vaccine breakthrough cases that result in hospitalization or death are reported to CDC.

This report includes only those vaccine breakthrough cases which are reported to public health following a positive test result. Many vaccine breakthrough cases are believed to experience no symptoms or minimal symptoms.<sup>3</sup> These cases are unlikely to undergo testing for COVID-19 and be reported to public health. Therefore, the true number of vaccine breakthrough cases is unknown.

### COVID-19 cases in vaccinated and unvaccinated people

#### Weekly summary

During the week of October 10–October 16, there were 8,423 cases of COVID-19. 6,446 (76.5%) were unvaccinated and 1,977 (23.5%) were vaccine breakthrough cases. The median age of breakthrough cases was 48 years. 35 (1.8%) breakthrough cases were residents of care facilities, senior living communities or other congregate living settings. 439 (22.2%) cases were 65 or older. There were 88 (4.5%) cases aged 12-17.

OHA publishes the most up-to-date information about cases from the most recently completed MMWR week. However, not all information about a case's vaccination status may be available at the

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<sup>1</sup> The weekly summary, Figure 1, and Figure 2 use the date that cases are reported to OHA, to provide information on the most recently identified cases. All other dates in this report use specimen collection date to align with the breakthrough case definition.

<sup>2</sup> This definition is consistent with the CDC's definition, available here: <https://www.cdc.gov/vaccines/covid-19/downloads/COVID-vaccine-breakthrough-case-investigations-Protocol.pdf>

<sup>3</sup> Bergwerk, M., Gonen, T., Lustig, Y., Amit, S., Lipsitch, M., Cohen, C., Mandelboim, M., Gal Levin, E., Rubin, C., Indenbaum, V. and Tal, I., 2021. Covid-19 breakthrough infections in vaccinated health care workers. *New England Journal of Medicine*.

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time of publication. Table 1 includes updated totals of COVID-19 cases by vaccine breakthrough status for the previous six weeks.

**Table 1. COVID-19 cases by vaccine breakthrough status over the previous 6 weeks**

| MMWR week ending | Total cases | Breakthrough cases | Percent breakthrough case |
|------------------|-------------|--------------------|---------------------------|
| 2021-09-11       | 13,978      | 2,944              | 21.1                      |
| 2021-09-18       | 11,955      | 2,842              | 23.8                      |
| 2021-09-25       | 11,540      | 2,606              | 22.6                      |
| 2021-10-02       | 10,387      | 2,626              | 25.3                      |
| 2021-10-09       | 9,126       | 2,556              | 28.0                      |
| 2021-10-16       | 8,423       | 1,977              | 23.5                      |

## Cumulative summary

Overall, there have been 32,954 vaccine breakthrough cases identified in Oregon. The median age of breakthrough cases is 48 years (range: 11-106). 1,219 (3.7%) breakthrough cases were residents of care facilities, senior living communities or other congregate living settings. 8,199 (24.9%) cases were 65 or older. There have been a total of 848 (2.6%) cases aged 12-17. Breakthrough cases have been reported in all 36 counties.

Cases of COVID-19 are much more common in unvaccinated<sup>4</sup> individuals than in vaccinated individuals (Figure 1). The rate of COVID-19 cases among unvaccinated individuals in the most recent week was more than 4 times the rate of COVID-19 cases among those who are fully vaccinated. Community spread remains elevated throughout the state and is particularly high in areas with lower vaccination rates. As COVID-19 cases have increased across Oregon, vaccine breakthrough cases have also increased, but at a much lower rate than in the unvaccinated. Vaccination remains the most effective tool to reduce the spread of COVID-19.

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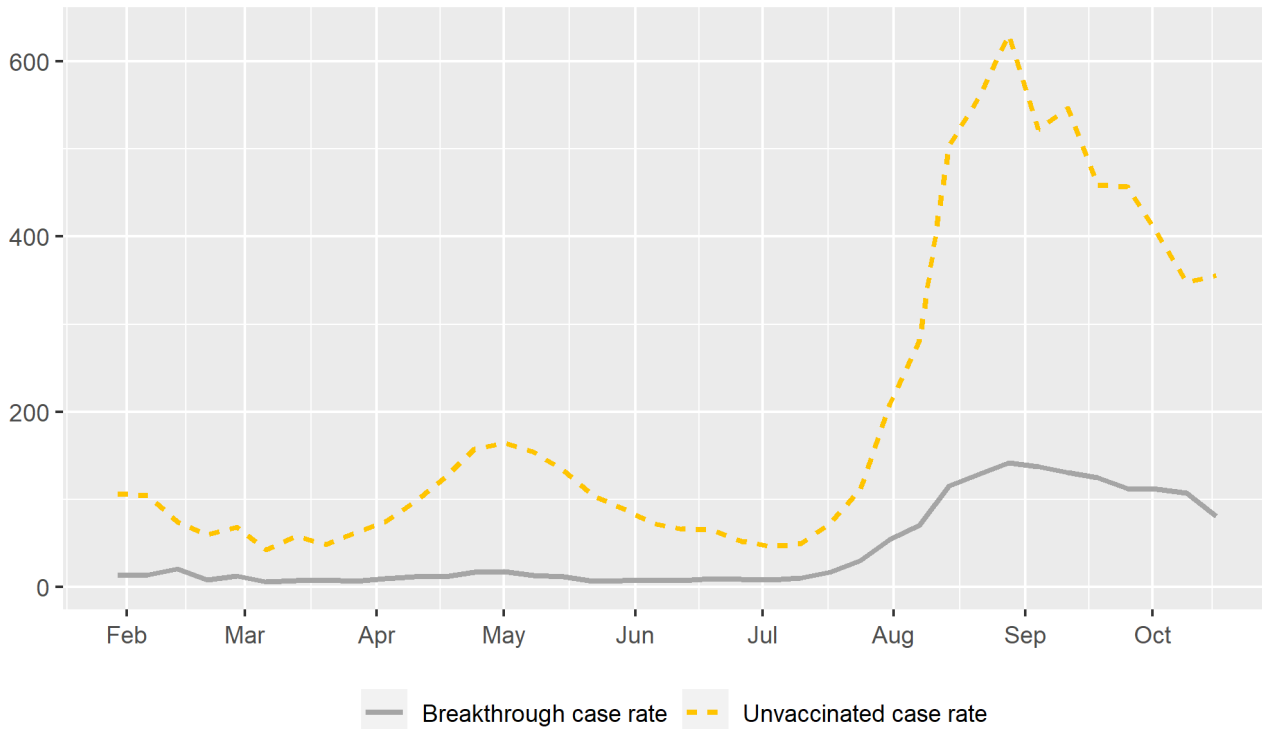
<sup>4</sup> Unvaccinated persons are defined as people who have not received an approved COVID-19 vaccine, or who have not completed a COVID-19 vaccine series.

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Figure 1. COVID-19 cases per 100,000 per week, by vaccination status



## Vaccine breakthrough cases and severity

The Pfizer, Moderna and Johnson & Johnson COVID-19 vaccines are all highly effective at preventing severe COVID-19 illness and death. Table 2 includes totals of breakthrough cases by vaccine manufacturer and severity. Relatively few breakthrough cases have been hospitalized, and even fewer have died (Figure 2).<sup>5</sup>

<sup>5</sup> A death is considered to be related to COVID-19 in any of the following circumstances: a) death of a confirmed or probable COVID-19 case within 60 days of the earliest available date among exposure to a confirmed case, onset of symptoms, or date of specimen collection for the first positive test; b) death from any cause in a hospitalized person during admission or in the 60 days following discharge AND a COVID-19-positive laboratory diagnostic test at any time since 14 days prior to hospitalization; or c) death of someone with a COVID-19-specific ICD-10 code listed as a primary or contributing cause of death on a death certificate, regardless of the dates of diagnosis or death

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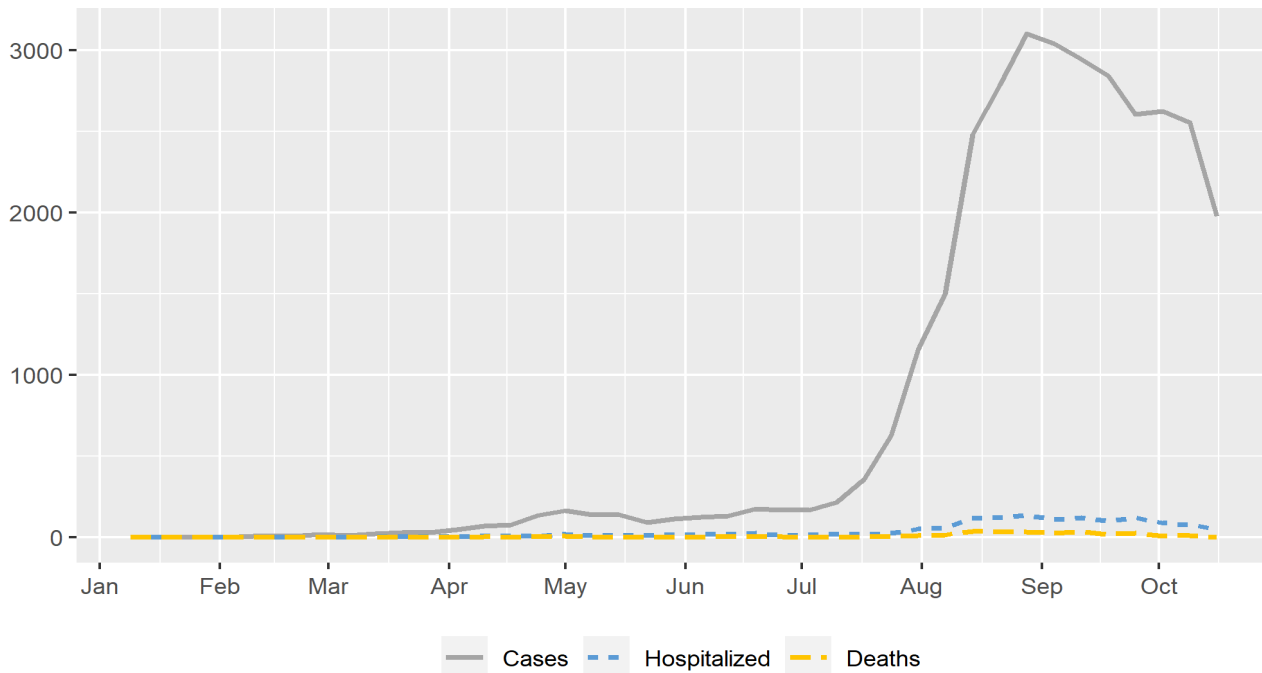
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Table 2. COVID-19 Breakthrough cases by vaccine manufacturer and severity<sup>6</sup>

| Vaccine manufacturer      | Primary series completed | Cases  | Hospitalizations | Deaths | Cases per 100,000 vaccinated |
|---------------------------|--------------------------|--------|------------------|--------|------------------------------|
| Pfizer                    | 1,437,259                | 16,352 | 613              | 158    | 1,137.7                      |
| Moderna                   | 912,731                  | 8,564  | 357              | 80     | 938.3                        |
| Johnson & Johnson/Janssen | 221,086                  | 3,934  | 214              | 44     | 1,779.4                      |

Figure 2. COVID-19 breakthrough cases, hospitalizations and deaths, by week



<sup>6</sup> Table 2 provides the number of cases per 100,000 vaccinated individuals by vaccine manufacturer. Because this figure does not account for the time that each person has been fully vaccinated, it is not a true rate and should not be interpreted as such.

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To date, 4.4% of all known breakthrough cases have been hospitalized (n=1,448), and only 1% have died (n=325).<sup>7</sup> The median age of the people who have died is 80 (range: 34-101). It is important to note that not all vaccine breakthrough cases are reported to public health, which may cause the proportions in the following section to appear higher than in reality. These figures are not vaccine breakthrough hospitalization or death rates and should not be interpreted as such.

Tables 3, 4 and 5 provide detailed vaccine breakthrough severity data by age, race and ethnicity.

**Table 3. COVID-19 breakthrough cases by age group and severity**

| Age group | Breakthrough cases | Breakthrough hospitalizations | Breakthrough deaths |
|-----------|--------------------|-------------------------------|---------------------|
| 12-19     | 1,493              | 11                            | 0                   |
| 20-29     | 4,629              | 27                            | 0                   |
| 30-39     | 5,689              | 45                            | 2                   |
| 40-49     | 5,522              | 64                            | 7                   |
| 50-59     | 5,041              | 128                           | 10                  |
| 60-69     | 4,706              | 297                           | 53                  |
| 70-79     | 3,594              | 396                           | 86                  |
| 80+       | 2,280              | 480                           | 167                 |
| Total     | 32,954             | 1,448                         | 325                 |

<sup>7</sup> Cumulative deaths reported here reflect all breakthrough cases known to have died since January 1, 2021. There may be a lag of several weeks between when an individual dies and when their death appears in this report. Increases in cumulative deaths between this and subsequent reports should *not* be interpreted as individuals who have died within the past week.

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Table 4. COVID-19 breakthrough case severity by race<sup>8</sup>

| Race                          | Cases  | Hospitalizations | Deaths |
|-------------------------------|--------|------------------|--------|
| > 1 race                      | 312    | 12               | 2      |
| American Indian/Alaska Native | 434    | 19               | 4      |
| Asian                         | 756    | 29               | 5      |
| Black                         | 482    | 34               | 6      |
| Not Available                 | 8,412  | 185              | 67     |
| Other                         | 2,385  | 81               | 27     |
| Pacific Islander              | 75     | 3                | 1      |
| White                         | 20,098 | 1,085            | 213    |
| Total                         | 32,954 | 1,448            | 325    |

Table 5. COVID-19 breakthrough case severity by ethnicity

| Ethnicity    | Cases  | Hospitalizations | Deaths |
|--------------|--------|------------------|--------|
| Hispanic     | 2,429  | 62               | 10     |
| Not Hispanic | 16,812 | 939              | 184    |
| Unknown      | 13,713 | 447              | 131    |
| Total        | 32,954 | 1,448            | 325    |

<sup>8</sup> During the case investigation, people are asked to self-report their race, ethnicity, tribal affiliation, country of origin, or ancestry. As of October 2021, 42,423 (80.8%) of the 52,483 persons who identify as "Other" race also self-identify as Hispanic or Latino.

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Table 6 provides the proportion of vaccine breakthrough cases who have died with COVID-19. More than 80% of vaccine breakthrough deaths have occurred in patients 70 years and older. The proportion of vaccine breakthrough cases who have died with COVID-19 has increased over time. This trend is likely multifactorial and may be associated with increased COVID-19 transmission in our communities, increased disease severity associated with infection caused by the Delta variant and waning immunity over time in elderly populations.

**Table 6. COVID-19 deaths by month, by breakthrough case status<sup>9</sup>**

| Month          | Total COVID-19 deaths | Vaccine breakthrough deaths | Percent vaccine breakthrough deaths |
|----------------|-----------------------|-----------------------------|-------------------------------------|
| March 2021     | 118                   | 4                           | 3.4                                 |
| April 2021     | 105                   | 6                           | 5.7                                 |
| May 2021       | 183                   | 15                          | 8.2                                 |
| June 2021      | 94                    | 13                          | 13.8                                |
| July 2021      | 81                    | 16                          | 19.8                                |
| August 2021    | 418                   | 96                          | 23.0                                |
| September 2021 | 633                   | 126                         | 19.9                                |

<sup>9</sup> Data in Table 6 will be updated monthly and will reflect cases from the previous month.

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## COVID-19 variants

**Table 7. COVID-19 breakthrough cases associated with variants of concern<sup>10</sup>**

Overall, approximately 6.5% of positive specimens in Oregon have been sequenced. Delta is currently the dominant variant circulating in Oregon. At this time, vaccine breakthrough cases appear to reflect the variants circulating in the community. Additional information on variants can be found here: <https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/GISAIDVariantDashboardUpdated/OregonVariantDashboard>

| Subtype           | Cases |
|-------------------|-------|
| Delta (B.1.617.2) | 1,162 |

**Table 8. COVID-19 breakthrough cases associated with variants being monitored**

| Subtype                   | Cases |
|---------------------------|-------|
| Alpha (B.1.1.7)           | 148   |
| Beta (B.1.351)            | 16    |
| Gamma (P.1)               | 62    |
| Epsilon (B.1.427/B.1.429) | 38    |
| Iota (B.1.526)            | 29    |

<sup>10</sup> As of September 29, OHA will align with CDC's classification of SARS-CoV-2 variants. Variant classification scheme defines four classes of SARS-CoV-2 variants: variants of concern, variants of interest, variants being monitored, and variants of high consequence. Delta is currently the only variant of concern in the United States.



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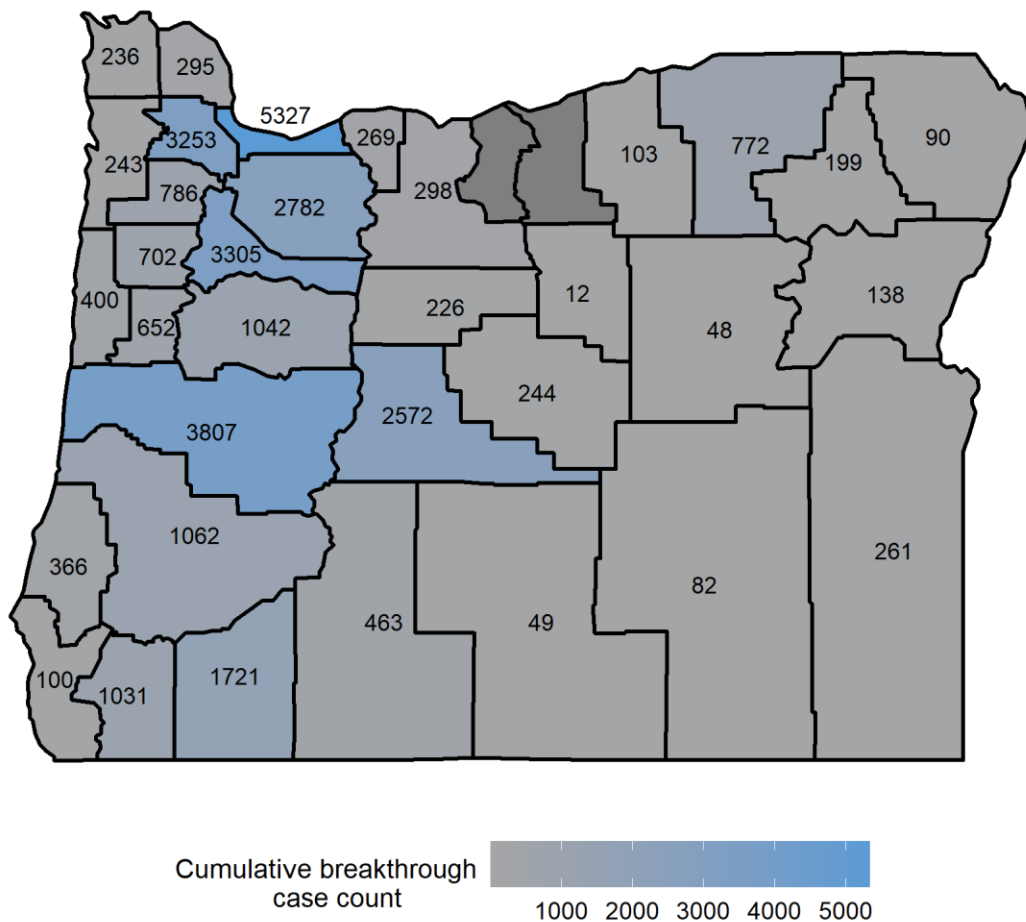
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**Figure 3. Map of COVID-19 breakthrough case cumulative counts, by county of residence<sup>11</sup>**

In general, cumulative breakthrough case counts correspond with the population size of each county. Additional information on cumulative case counts can be found here:

<https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonCOVID-19TestingandOutcomesbyCounty/OregonsCOVID-19TestingandOutcomesbyCounty>



<sup>11</sup> Counties that have a total of fewer than 10 cases will appear grey without a data label.

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Table 9. COVID-19 breakthrough cases by county of residence<sup>12</sup>

| County     | Cumulative cases |
|------------|------------------|
| Baker      | 138              |
| Benton     | 652              |
| Clackamas  | 2782             |
| Clatsop    | 236              |
| Columbia   | 295              |
| Coos       | 366              |
| Crook      | 244              |
| Curry      | 100              |
| Deschutes  | 2572             |
| Douglas    | 1062             |
| Gilliam    | 1-9              |
| Grant      | 48               |
| Harney     | 82               |
| Hood River | 269              |
| Jackson    | 1721             |
| Jefferson  | 226              |
| Josephine  | 1031             |
| Klamath    | 463              |
| Lake       | 49               |

<sup>12</sup> Counties that have a total of fewer than 10 cases will be reported as 1-9 cases.

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| County     | Cumulative cases |
|------------|------------------|
| Lane       | 3807             |
| Lincoln    | 400              |
| Linn       | 1042             |
| Malheur    | 261              |
| Marion     | 3305             |
| Morrow     | 103              |
| Multnomah  | 5327             |
| Polk       | 702              |
| Sherman    | 1-9              |
| Tillamook  | 243              |
| Umatilla   | 772              |
| Union      | 199              |
| Wallowa    | 90               |
| Wasco      | 298              |
| Washington | 3253             |
| Wheeler    | 12               |
| Yamhill    | 786              |