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Bulletin No. 11 July 15, 2021

Summary of COVID-19 Vaccine Breakthrough Cases — Alaska, February 1 through June 30, 2021

Background

COVID-19 vaccines remain our best defense against the spread of the SARS-CoV-2 virus. The Pfizer-BioNTech, Moderna, and Janssen COVID-19 vaccines are all highly effective at preventing hospitalization and death. No vaccines are 100% effective;^{1,2} therefore, cases among a small percentage of vaccinated people are expected and are classified as vaccine breakthrough (VB) cases. This *Bulletin* provides an update of VB cases in Alaska.³ All data are preliminary, congruent with public data display as of July 14, 2021, and are subject to change.

Methods

Data were summarized for Alaska residents classified as confirmed or probable cases of SARS-CoV-2 infection from February 1 through June 30, 2021 who met the definition for a VB case. Methods remain the same as in the previous *Bulletin*.^{3,4}

Results

From February 1 to June 30, 2021, 656 cases of SARS-CoV-2 infection were classified as VB cases (Figure). Demographic characteristics of VB cases and reasons for testing are summarized in Tables 1 and 2. The median age of VB patients was 47 years (range: 16–96). Seventeen persons with VB infections were hospitalized and two died (both had substantial comorbidities). During this same time period, 391 hospitalizations and 58 deaths were reported in persons not fully vaccinated.

Figure. Vaccine Breakthrough COVID-19 Cases, by Week, and Cumulative Completed COVID-19 Vaccine Series

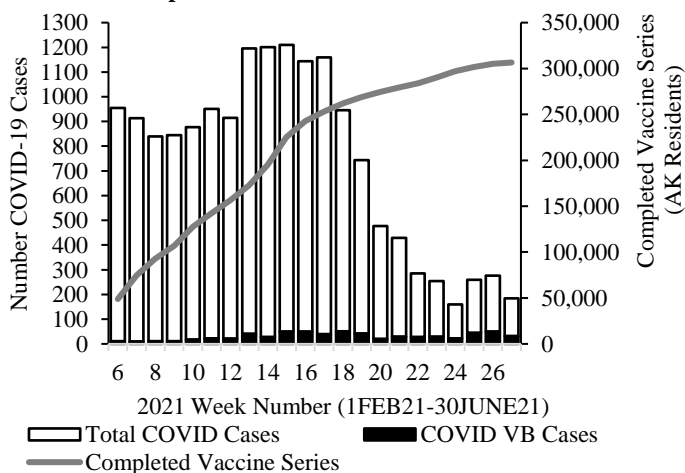


Table 1. Demographic Characteristics of 656 Persons with VB

Characteristic	# (%)
Sex, male	281 (43%)
American Indian/Alaska Native	218 (33%)
Asian	45 (7%)
Black of African American	9 (1%)
Native Hawaiian or Pacific Islander	15 (2%)
White	300 (46%)
More than one race	17 (3%)
Other Race	13 (2%)
Hispanic (of any race)	27 (4%)

Note: 39 (6%) had unknown race, 116 (18%) had unknown ethnicity

Table 2. Reason for Testing among 656 Persons with VB

Reason for Testing	# (%)
Routine Surveillance (e.g., required by employer)	127 (19%)
Travel screening	75 (11%)
Pre-admit, pre-appointment/procedure screening	46 (7%)
Known exposure	137 (21%)
Symptomatic at time of test with no known exposure	153 (23%)
Unknown	118 (18%)

Additional Characteristics of the 656 VB Cases

- 620 (95%) infections were identified by a molecular test; 36 (5%) were identified by an antigen-based test

- 339 (52%) were symptomatic, 253 (38%) were asymptomatic, 64 (10%) were unknown
- 95 (38%) of the 253 asymptomatic persons chose a test-based strategy to shorten their isolation by testing negative twice ≥ 24 hours apart
- 50 (8%) infections were in persons with a history of a previous positive SARS-CoV-2 test >90 days prior to the most recent test; 29 were asymptomatic, 24 had ≥ 1 underlying medical condition, and 11 were healthcare workers
- 62 (9%) were in persons who worked or resided in a long-term care facility
- 200 (59%) of the 338 samples submitted were successfully sequenced; 73 (37%) were a variant of concern (VOC; 54 were Alpha, 2 were Beta, 15 were Delta, and 2 were Gamma).

Discussion

As of June 30, 0.2% (656/298,039) of fully vaccinated Alaskans in VacTrAK were identified as VB cases, representing 4.2% (656/15,562) of the SARS-CoV-2 infections during February 1 through June 30, 2021. The proportion of weekly cases that were VB increased over time, which is to be expected due to decreasing case counts and increasing vaccine coverage (Figure). The overwhelming majority of deaths (97%) and hospitalizations (96%) occurred in persons who were not fully vaccinated.

In April 2021, CDC recommended against screening asymptomatic vaccinated persons in most situations; that change likely explains the increase in the percentage of symptomatic VB cases since the previous *Bulletin* (52% versus 43%, respectively).⁵

VOC made up 37% of the successfully sequenced VB samples, indicating that they were likely not the primary contributor to VB case counts during February 1 to June 30, 2021.

VB cases by vaccine type are not included in this *Bulletin* because differential variation in vaccine uptake confounds data summarization for these characteristics. Information about differential vaccine effectiveness is available online.⁶

Recommendations

- Eligible Alaskans aged ≥ 12 years should seek vaccination promptly for the best protection against COVID-19.
- Anyone with COVID-19 symptoms should be tested for SARS-CoV-2 infection immediately (per [Alaska SOE Testing Guidance](#)), regardless of their vaccination status.
- Anyone infected with SARS-CoV-2 must follow standard isolation procedures, regardless of their vaccination status.
- Clinicians and laboratories should send all positive clinical specimens to the [Alaska State Public Health Laboratory](#) for sequencing.
- Persons with weakened immune systems due to medical conditions or medications should talk to their healthcare provider about continuing precautions (e.g., social distancing, avoiding crowds, wearing a mask) after vaccination.

References

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- CDC. Interim Estimates of Vaccine Effectiveness of BNT162b2 and mRNA-1273 COVID-19 Vaccines in Preventing SARS-CoV-2 Infection Among Health Care Personnel, First Responders, and Other Essential and Frontline Workers — Eight U.S. Locations, December 2020–March 2021. *MMWR* 2021;70(13):495–500.
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