SARS-CoV-2 Transmission Associated with an Indoor Music Event That Required Proof of Full Vaccination Against COVID-19 Prior to Entry — Seattle, July 2021

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Running Title: COVID-19 at Music Event—Seattle 2021
Abstract: In July 2021, Public Health – Seattle and King County--investigated a COVID-19 outbreak at an indoor event intended for fully-vaccinated individuals, revealing unvaccinated staff, limited masking, poor ventilation, and overcrowding. Supporting businesses to develop and implement comprehensive COVID-19 prevention plans is essential for reducing spread in these settings. Word Count: 48/50

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On June 30, 2021, as part of the third phase of the Washington COVID-19 Reopening Guidance for Businesses and Workers, businesses in the state were allowed to return to usual capacity and operations except for indoor events with more than 10,000 participants [1]. At that time, King County masking mandates were removed for vaccinated persons in indoor public settings. Vaccine verification or negative SARS-CoV-2 testing was recommended but not required for persons attending large indoor and outdoor gatherings, such as concerts and sporting events. This report describes the investigation, public health response, and lessons learned after an outbreak of COVID-19 among a group of 360 attendees and 14 staff after an indoor music event requiring proof of vaccination prior to entry in July 2021.

Outbreak Investigation and Findings

On July 16, 2021, Public Health – Seattle and King County (PHSKC) was notified of two people with a positive test for SARS-CoV-2, the virus that causes COVID-19, who had attended the same indoor music event in Seattle on July 9, 2021. At the time of the event, King County, Washington was experiencing low community levels of COVID-19 [2] with a 7-day incidence of 30.75 per 100,000 population. PHSKC initiated an investigation on the day of notification and by July 29, 2021 had documented an additional 25 cases linked to the music event (Figure 1). Twenty-five primary and 2 secondary cases were identified via contact tracing interviews and event organizer reporting. Among primary cases, 19 attendees and 1 staff were confirmed (positive SARS-CoV-2 nucleic acid amplification test result) and 4 attendees and 1 staff were probable cases (positive SARS-CoV-2 antigen test result or a compatible clinical syndrome and an epidemiologic link to a confirmed case). The 2 secondary cases consisted of one confirmed and one probable case. Two of the probable cases were reported directly to event organizers and were not reported to the Washington Disease Reporting System or independently verified by PHSKC. The estimated attack rate was 6.4% (23/360) among attendees and 14.3% (2/14) among staff. No
hospitalizations or deaths were reported. Eight of 20 specimens underwent molecular sequencing; all were Delta variant (two B.1.617.2 and six AY.3).

Event organizers reported that prior to entry, all 360 attendees (including guest ticket holders, performers, and volunteers) were required to provide official documentation (i.e., COVID-19 vaccination card) as proof of being fully vaccinated against COVID-19. People were considered fully vaccinated 2 weeks after their second dose of a 2-dose series COVID-19 mRNA vaccine (Pfizer-BioNTech or Moderna vaccines) or 2 weeks after one dose vaccine of Johnson & Johnson’s Janssen vaccine. The 14 venue-staff, which included bartenders, security, event management, and facilities management, were not screened for proof of vaccination. The investigation revealed at least five unvaccinated staff members worked the event, including one person who later reported having COVID-19 symptoms on the day of the event. That person was in a roaming security position throughout the event, and subsequently tested positive for SARS-CoV-2. A second unvaccinated staff member who worked the event developed symptoms and tested positive for SARS-CoV-2 within eight days of the event. One fully vaccinated attendee reported having symptoms three days prior to the event, attested to having no symptoms of COVID-19 on the day of the event, and tested positive for SARS-CoV-2 three days after the event.

Several COVID-19 prevention strategies had been implemented by the event organizers, including limiting ticket sales to 50% capacity (based on a presumed maximum occupancy of 700), checking proof of vaccination at the door with matching government-issued photo identification, and requiring attendees to sign an attestation that they were not currently experiencing symptoms of COVID-19. No symptom screening was implemented upon entry for venue staff. Facial coverings were optional for attendees, with event organizers estimating that approximately 15% wore masks during the event. A mask requirement was in place for venue staff, but not enforced, and mask compliance among staff
during the event was reported to be low. Event activities included singing and dancing. The event organizers did not maintain a formal attendee registration list (i.e., email addresses were only available for 214 (59%) attendees), and some tickets were purchased in groups.

Public Health Response

On July 14, 2021, the event organizers sent an electronic notification via a social media post on the event announcement and sent an email the following day to event attendees and staff informing them about the outbreak and encouraging SARS-CoV-2 testing. Messaging to attendees also encouraged the use of Washington Exposure Notifications [3], a Washington State Department of Health tool that uses smartphones to allow users to report a positive test for SARS-CoV-2 and alerts other close contact users that they may have been exposed. On July 17, 2021, at PHSKC’s request, the event organizer re-notified staff and event attendees of the outbreak. PHSKC provided public health guidance to event organizers to support identification of additional SARS-CoV-2 infections and prevent further transmission, including recommending SARS-CoV-2 testing for anyone who attended the event on July 9, 2021, and might have been exposed to SARS-CoV-2, regardless of symptoms or vaccination status.

An onsite assessment of the venue was completed on July 30, 2021, by PHSKC. Venue management had not developed a formal COVID-19 plan and no system for tracking vaccination status of employees was in place despite both being required by the Washington Department of Labor and Industries [4]. PHSKC provided a tailored COVID-19 plan to the venue after the assessment. The assessment included evaluation of indoor ventilation and air filtration practices. Multiple recommendations were made to improve ventilation at the venue, including altering location of fans for maximal airflow and installation of HEPA filters in areas with inadequate ventilation. Further evaluation by a heating, ventilation, and air conditioning specialist was recommended. For future events, the venue was encouraged to further reduce occupant capacity to limit overcrowding, require staff to wear masks.
within the venue, and implement widespread symptom screening and testing of symptomatic or exposed staff, regardless of vaccination status.

Discussion

Event organizers planned this event for a fully vaccinated group of attendees, and therefore masking was not required after local masking requirements were lifted following local declines in SARS-CoV-2 cases. While organizers chose to limit event capacity to 50%, it was determined during PHSKC’s facility assessment that social distancing as defined by CDC guidance at the time of the event (6 feet distance between people who do not live in the same household) was not possible, even at this reduced capacity, and that the space was poorly ventilated [5]. This PHSKC investigation revealed that at least five unvaccinated staff members—including one who was likely SARS-CoV-2 positive—worked at the event. Businesses should encourage employees to get vaccinated and establish supportive policies that decrease barriers to access (such as paid leave for employees to get vaccinated). State and local health jurisdictions should consider supporting businesses in the development and implementation of COVID-19 prevention plans and in the creation of mechanisms to track the vaccination status of their staff. In settings where resources are not available to provide tailored service to every business, venues could be prioritized based on level of risk.

Event organizers did not have a formal registration or sign-in process for the event, and PHSKC investigators had to rely on incomplete information when conducting case-finding. A list of names and emails from online ticket sales was available to PHSKC investigators, but information was only available for 59% of attendees due to group ticket purchases. This led to PHSKC’s inability to verify two of the reported cases and likely resulted in an overall underreporting of cases associated with the event. It is
important to note that pre- and post-event social activities among attendees could also have contributed to transmission and total cases associated with this event. Some attendees reported participating in multiple social activities during the 14-day exposure period prior to the event, and immediately following, such as interstate travel, visiting bars and restaurants, and other indoor and outdoor gatherings. Sequencing results showed two distinct strains of the Delta variant among cases, which could indicate multiple introductions at this event or exposure at another gathering.

The results of this outbreak investigation are further evidence in support of layered COVID-19 prevention strategies including symptom screening, masking, and vaccination for both patrons and staff before spending time in public indoor spaces. Prevention efforts can be scaled up or down based on community levels of COVID-19 [2]. It is likely that the implementation of the existing public health guidance regarding COVID-19 prevention measures at the time of this event [1] could have minimized the extent of the outbreak. With the emergence of the Omicron variant, and its increased transmissibility [6-8], the importance of prevention strategies has only increased. Local health jurisdictions can support businesses with COVID-19 prevention plan development (including masking requirements, encouraging employees to get vaccinated, and creation of vaccination tracking systems for employees) and support the use of ventilation assessments as standard practice, which might lead to the reduction of SARS-CoV-2 transmission in these settings [9].
NOTES:

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Disclaimer: The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention. All data were collected as part of routine public health surveillance, contact tracing, and environmental health assessments for COVID-19.

Conflicts of Interest

No reported conflicts of interest. All authors have submitted the ICMJE Form for Disclosure or Potential Conflicts of Interest.
References


Figure 1. Indoor Music Event COVID-19 Epidemic Curve. Verified SARS-CoV-2 cases (n=25; excludes two probable cases that were not reported to the Washington Disease Reporting System) among event attendees, staff, and known contacts by symptom onset date. If symptom onset date was unavailable, date of sample collection was used.
Figure 1
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