

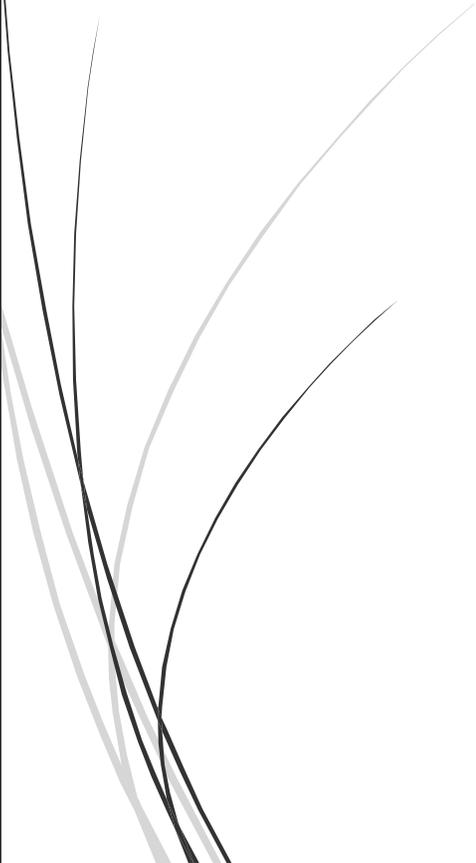


8/2/2021

# COVID-19 Literature Review Group

Prepared by The Ohio State University

## COVID-19 Transmission in School Aged Children and Adolescents and COVID-19 Delta Variant Outbreaks



**ODH Literature Review Group**  
THE OHIO STATE UNIVERSITY

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**COVID-19 Literature Review**  
**Prepared by Kenya Moyers, The Ohio State University**  
**July 27, 2021**

**Topic: COVID-19 Transmission in School Aged Children and Adolescents**

**Title:** Household Transmission of SARS-CoV-2 from Children and Adolescents

**Source:** The New England Journal of Medicine

**Publication Date:** Jul 21, 2021

**Link:** <https://www.nejm.org/doi/full/10.1056/NEJMc2031915>

**Study Period:** July 17, 2020 – August 24, 2020

**Study Location:** Atlanta, Georgia

**Sample Size:** 224 campers, 526 household contacts

**Summary:** The Georgia Department of Public Health and the Centers for Disease Control and Prevention collaborated on a retrospective cohort study at an overnight camp. The study included camp attendees and their household contacts in order to assess secondary transmission and factors associated with household transmission. Researchers interviewed 224 campers, referred to as index patients, who were between 7 and 19 years old and for whom there was evidence of SARS-CoV-2 infection (based on molecular or antigen laboratory testing). Of the campers, 198 (88%) were symptomatic; symptoms developed in 141 of the 198 campers (71%) upon returning home from camp. Among the 526 household contacts, 72% (n= 377) were tested for SARS-CoV-2 and 12% (n=46) of those who were tested had positive results. There was a total of 48 secondary cases, with 38 cases which occurred in households where the camper became symptomatic after returning home from camp. The median interval between the onset of symptoms in the camper and the onset of symptoms in the household contacts infected by that patient was 5.0 days (95% CI: 4.0, 6.5). Transmission occurred in 35 of 194 households. A small percentage of the household contacts who were infected required hospitalization.

When asked about preventative measures, 146 of 217 (67%) campers who responded reported that they maintained social distancing and 34% reported that they had always worn masks around contacts during the infectious period after they had returned home. Among the campers who were 18 years old or younger, the increasing use of physical distancing and masks was associated with the older age for the patient (Odds ratio for physical distancing = 1.4, 95% CI: 1.2, 1.5; Odds ratio for mask use = 1.4, 95%CI: 1.2, 1.6). The risk of secondary case of infection among household contacts was lower among contacts of campers who had practiced physical distancing than among contacts of campers who did not. In addition, household members who had close or direct contact with the camper had a higher risk of infection than those who had minimal to no contact. The secondary attack rates in this study were most likely underestimates because patients reported their own test results and testing was voluntary. The transmission of SARS-CoV-2 in the household was probably reduced due to the timing at which the camper returned home and when and why they practiced social distancing at camp. When feasible, children and adolescents with a known exposure to COVID-19 or a positive test result should remain at home and practice physical distance from other household members.

**Key Findings Relevant to Ohio's Response:** With school's returning to in-person this fall, we should continue to practice social/physical distancing to reduce transmission.

**Title:** COVID-19 Transmission during Transportation of 1<sup>st</sup> to 12<sup>th</sup> Grade Students: Experience of an Independent School in Virginia

**Source:** Journal of School Health

**Publication Date:** July 20, 2021

**Link:** <https://onlinelibrary.wiley.com/doi/full/10.1111/josh.13058>

**Study Period:** August 24, 2020 – March 19, 2021

**Study Location:** Virginia

**Sample Size:** 1,154 students

**Summary:** Researchers designed this study to help determine what mitigation is necessary to keep COVID-19 transmission low on school buses. The study monitored 1,154 students (in grades 1-12) at an independent school in Virginia. Students were tested every two weeks using asymptomatic PCR testing. Fifteen school buses were used to transport 462 students to school. Of the students who utilized school buses, 235 were in grades 1-6, 164 in grades 7-9, and 63 in grades 10-12. Each of the buses operated near capacity with 2 students in every seat, required masks, physical distancing minimum of 2.5 ft and ventilation techniques. 7 of the buses operated at larger capacities and had an aide on each. Students, aides, and drivers were expected to wear a mask at all times. Prior to entering the bus, there were no temperature or symptom checks, but parents were emailed a checklist every school night to encourage self-reporting of any symptoms. However, students did have their temperatures checked as they entered the school building. Surveillance testing was done using pooled saliva-based testing and followed by a confirmatory PCR nasal swab test if the saliva test was positive. School nurses and staff performed contact tracing immediately after receiving a positive test using seating charts to trace exposures. Results from the study showed that a total of 79 students and 21 staff members tested positive for COVID-19. 37 student bus riders who rode the school bus during their infectious period were sent home to quarantine, with an additional 52 fellow bus riders sent home due to exposure. All 52 students who were close contacts remained asymptomatic and tested negative for COVID-19. Overall, there were 39 cases including 37 students, 1 driver and 1 aid present on bused during the infectious period of COVID-19. However, there was no student-to-student transmissions, no adult-to-student transmissions, and no student-to-adult transmissions. Findings indicated that universal testing and contact tracing revealed that disease transmission was not linked to bus transportation. Additionally, findings show that COVID-19 transmission can be low on school buses when enforcing mitigation protocols such as simple ventilation and universal masking, at minimal physical distances and during the highest community transmission.

**Key Findings Relevant to Ohio's Response:** COVID-19 transmission via school buses can be greatly reduced with the proper mitigation strategies in place. In addition, frequent testing and contact tracing are necessary as well.

**COVID-19 Literature Review**  
**Prepared by Kenya Moyers, The Ohio State University**  
**July 30, 2021**

**Topic: COVID-19 Delta Variant Outbreaks**

**Title:** Outbreaks of SARS-CoV-2 Infections, Including COVID-19 Vaccine Breakthrough Infections, Associated with Large Public Gatherings—Barnstable County, Massachusetts, July 2021

**Source:** Morbidity and Mortality Weekly Report

**Publication Date:** July 30, 2021

**Link:** [https://www.cdc.gov/mmwr/volumes/70/wr/mm7031e2.htm?s\\_cid=mm7031e2\\_w](https://www.cdc.gov/mmwr/volumes/70/wr/mm7031e2.htm?s_cid=mm7031e2_w)

**Study Period:** July 2021

**Study Location:** Barnstable County, Massachusetts

**Sample Size:** 469 cases

**Summary:** During July 3–17, 2021, multiple summer events and large public gatherings were held in a town in Barnstable County, Massachusetts, that attracted thousands of tourists from across the United States. In July 2021 overall, 469 cases of COVID-19 associated with multiple summer events and large public gatherings in a town in Barnstable County, Massachusetts, were identified among residents of the state. 69% of the residents were vaccinated. About 74% of the cases occurred among those who were either fully vaccinated (2 doses of Pfizer-BioNTech or Moderna) or had received a single dose (Johnson & Johnson) vaccine 2 weeks or more before exposure. The Delta variant of SARS-CoV-2 was found via genomic sequencing in 133 cases. Overall, 79% of vaccinated patients with breakthrough infection were symptomatic. Reported symptoms for those with breakthrough infection were cough, headache, sore throat, myalgia and fever. Among 5 of the patients who were hospitalized, four were fully vaccinated; no deaths were reported. The Delta variant is highly transmissible, and understanding determinants of transmission, including human behavior and vaccine effectiveness is essential to develop prevention strategies. The CDC now recommends that everyone, including those who are vaccinated, should wear masks in indoor public settings in areas where COVID-19 transmission is high.

**Key Findings Relevant to Ohio's Response:** Jurisdictions should consider expanded prevention strategies, such as universal masking in indoor public settings, especially for large public gatherings that include travelers from many areas with differing levels of SARS-CoV-2 transmission.