

Research Informing Changes in K-12 COVID-19 Guidance



Updated March 19, 2021

The following references and data inform what's being learned about the limited transmission of COVID-19 in schools when guidance and protocols like Ready Schools, Safe Learners are closely followed. This is not intended to be a complete list.

Please note that evidence changes and OHA continues to monitor and digest scientific findings to inform state policy and public health decision-making.

The Center for Disease Control's [March 19, 2021 Science Brief](#) revised physical distancing recommendations for K-12 schools to reflect at least 3 feet between students in classrooms and provides clearer guidance when 6 feet is recommended or required.

Center for Disease Control's information on effectiveness of face coverings

The CDC has [evidence-based guidance on masking](#). **Face masking/face coverings are one of the most important tools we have for reduction of transmission, whether in the community, on a bus, or in the schools.**

*"SARS-CoV-2 infection is transmitted predominantly by respiratory droplets generated when people cough, sneeze, sing, talk, or breathe. CDC recommends community use of [masks](#), specifically non-valved multi-layer cloth masks, to prevent transmission of SARS-CoV-2. **Masks are primarily intended to reduce the emission of virus-laden droplets ("source control"), which is especially relevant for asymptomatic or presymptomatic infected wearers who feel well and may be unaware of their infectiousness to others, and who are estimated to account for more than 50% of transmissions.** Masks also help reduce inhalation of these droplets by the wearer ("filtration for personal protection"). The community benefit of masking for SARS-CoV-2 control is due to the combination of these effects; individual prevention benefit increases with increasing numbers of people using masks consistently and correctly."*

The CDC also states that, "Experimental and epidemiological data support community masking to reduce the spread of SARS-CoV-2...Adopting universal masking policies can help avert future lockdowns, especially if combined with other non-pharmaceutical interventions such as social distancing, hand hygiene, and adequate ventilation."

The CDC has [specific guidance on wearing masks in schools](#).

List of research informing decisions related to RSSL guidance

Below are additional sources of information and research that add to the body of evidence on school reopening and COVID-19 transmission. More recent studies in the United States now

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augment many months of international literature demonstrating what educational systems have learned from effective and well-implemented safety protocols to reopen schools to in-person learning, while still minimizing risk of increasing transmission of the virus.

1. [COVID-19 School and Community Resource Library](#) from Mass General Hospital Global Health. Comprehensive summary of school-related COVID-19 data. Updated regularly.
2. [Summary of Evidence Related to Schools During the COVID-19 Pandemic](#) from the University of Washington **contains a comprehensive bibliography of the research to date for further reference.**
3. OHA has seen relatively few school outbreaks so far in Oregon; most of these have had only 2–3 cases. As of March 8, 2021, 343 schools have reported at least one COVID-19 case in a student or staff member. Of these, 153 schools have had only one case; a single case is not an outbreak and does not provide evidence of transmission within the school.
4. [Robust surveillance from a district in Germany demonstrated little transmission in schools over two months.](#)
 - Ehrhardt, J., Ekinci, A., Krehl, H., Meincke, M., Finci, I., Klein, J., Geisel, B., Wagner-Wiening, C., Eichner, M. and Brockmann, S.O., 2020. Transmission of SARS-CoV-2 in children aged 0 to 19 years in childcare facilities and schools after their reopening in May 2020, Baden-Württemberg, Germany. *Eurosurveillance*, 25(36), p.2001587.
5. [Robust surveillance from England demonstrated little transmission in schools over one month.](#)
 - Ismail, S.A., Saliba, V., Bernal, J.L., Ramsay, M.E. and Ladhani, S., 2020. SARS-CoV-2 infection and transmission in educational settings: cross-sectional analysis of clusters and outbreaks in England.
6. [Limited school attendance did not appear to significantly affect transmission.](#) Reopening of schools for all students in countries with low community transmission (Denmark and Norway) has not resulted in a significant increase in the growth rate of COVID-19 cases. Return of most students to school in countries with higher levels of community transmission (Germany) has been accompanied by increased transmission among students, but not school staff.
 - Stage HB, Shingleton J, Ghosh S, Scarabel F, Pellis L, Finnie T. Shut and re-open the role of schools in the spread of COVID-19 in Europe. *medrxiv*. June 2020.

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7. [Investigation of 27 cases from 25 schools found attack rate of 2.8% in Australia.](#)
Similar low numbers of cases found in Ireland and Singapore before schools closed.
8. [In a study of just under 900 children and adolescents aged <18 years in Mississippi,](#) close contact with persons with COVID-19 and gatherings with persons outside the household and lack of consistent mask use in school were associated with SARS-CoV-2 infection, whereas attending school or child care was not associated with receiving positive SARS-CoV-2 test.
9. [North Carolina: in 11 school districts with nearly 100,000 students/staff open for 9 weeks of in-person instruction,](#) researchers tracked secondary transmission of SARS-CoV-2; within-school infections were extremely rare, demonstrating that strict enforcement of SARS-CoV-2 mitigation policies such as masking, physical distancing, and hand hygiene, resulted in minimal clusters of SARS-CoV-2 infection and low rates of secondary transmission in schools, and did not cause a larger community infection burden.
10. [Data from the Public Health Agency of Sweden](#) showed that fewer than 10 preschool teachers and 20 schoolteachers in Sweden received intensive care for Covid-19 up until June 30, 2020 (20 per 103,596 schoolteachers, which is equal to 19 per 100,000). Note that in Sweden, Covid-19 was prevalent in the community during the spring of 2020; social distancing was encouraged in Sweden, but wearing face masks was not.
11. [Norway: transmission of SARS-CoV-2 from children under 14 years of age was minimal in primary schools in Oslo and Viken,](#) the two Norwegian counties with the highest COVID-19 incidence and in which 35% of the Norwegian population resides. In a period of low to medium community transmission (a 14-day incidence of COVID-19 of < 150 cases per 100,000 inhabitants), when symptomatic children were asked to stay home from school, there were < 1% SARS-CoV-2–positive test results among child contacts and < 2% positive results in adult contacts in 13 contact tracings in Norwegian primary schools. Most index cases were asymptomatic and were tested for SARS-CoV-2 by PCR because they were contacts of positive household members, supporting that household transmission is a considerable source of SARS-CoV-2 infection in children.
12. [Study examining how reopening schools in-person has affected COVID-19 hospitalizations by using large databases across the US, by county.](#) Researchers found no evidence that reopening schools in-person or in a hybrid form increased COVID hospitalizations in the 75 percent of counties that had low COVID hospitalization rates during the summer, prior to reopening schools. Results suggest that it seems safe to reopen schools when there are no more than 36 to 44 total new COVID hospitalizations per 100,000 people per week.

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13. [Harvard Global Health Institute. Key Metrics for COVID Suppression](#). Researchers and Public Health Experts unite to bring clarity to key metrics guiding coronavirus response. Harvard Global Health Institute, Harvard’s Edmond J. Safra Center for Ethics, Rockefeller Foundation, CovidActNow, Covid-Local, CIDRAP and many others join forces, launch new COVID Risk Level map and COVID suppression guidance for policy makers and the public.
14. [Harvard Global Health Institute. A Framework for Policy Makers and the Public](#). This memo focuses only on key epidemiological metrics and key performance indicators for testing, tracing and supported isolation response capacity.

Evidence on Physical Distancing and Cohorting

In March 2021, OHA conducted a review of current evidence on physical distancing and cohorting in schools with a focus on COVID-19-related outcomes. The following are highlights from this evidence review.

15. [Effectiveness of three versus six feet of physical distancing for controlling spread of COVID-19 among primary and secondary students and staff: A retrospective, state-wide cohort study](#). **Supports 3 feet distancing for K-12.** Student case rates were similar in the 242 districts with ≥ 3 feet versus ≥ 6 feet of physical distancing between students. Case rates among school staff in districts with ≥ 3 feet versus ≥ 6 feet of physical distancing were also similar. (March 2021).
16. [COVID-19 transmission in educational institutions August to December 2020, Rhineland-Palatinate, Germany: a study of index cases and close contact cohorts](#). **Supports less than 6 feet distancing for all age groups. No cohorting noted.** Of 784 index case introductions, 654 (83%) had no onward transmission in schools. Students were distanced $>1.5M$ in classrooms for children aged > 10 years, but no minimum distance in 10 or under classrooms. (February 2021)
17. [COVID-19 Cases and Transmission in 17 K–12 Schools — Wood County, Wisconsin, August 31–November 29, 2020](#). **Supports less than 6 feet distancing for all age groups. Supports cohorting (size 11-20 students).** Schools in the study employed infection control strategies, including physical distancing (students: no minimum distance in elementary, although masked while $<6'$ from others; $6'$ recommended at MS/HS but not always achieved; staff $6'$ from all other persons), masking, and cohorting (size 11-20 students). During 13 weeks of in-person learning, there were 133 cases among the 4,876 students included in the study, and 58 cases among the 654 staff included in the study. Only 7 of these 191 total cases were attributed to in-school transmission (all 7 among students). (Jan 2021)
18. Lincoln (Nebraska) Public Schools, [LPS Staff Coronavirus Rates Summary Recording](#). **Supports 3 feet distancing for elementary and middle schools.** This video provides a summary of an analysis of coronavirus cases in Lincoln Public Schools staff compared to

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community spread. Elementary and middle schools were full-time in person, with 3' of distance where needed; high school was hybrid with a plan for full-time beginning Feb 2021. Rates among staff working in classrooms was similar to those outside of the classroom. (December 2020)

19. [Reopening Schools and the Dynamics of SARS-CoV-2 Infections in Israel: A Nationwide Study](#). **No information on distancing; no cohorting, no major spread.** Despite relatively crowded schools and the lack of cohorting that accompanied full reopening of schools in Israel, spread of SARS-CoV-2 in schools was not an important factor in the increase in infections seen after reopening; 21–27 days after reopening no significant increase in positivity in children 0-9 or 10-19 was seen. (January 2021)
20. [Minimal transmission of SARS-CoV-2 from paediatric COVID 19 cases in primary schools, Norway, August to November 2020](#). **Supports 1 meter distancing; supports cohorts up to 15 students per teacher in grades 1–4 and 20 students per teacher in grades 5–7.** With preventive measures implemented in schools, there was minimal child-to-child (0.9%, 2/234) and child-to-adult (1.7%, 1/58) transmission. (January 2021)
21. [Incidence and secondary transmission of SARS-CoV-2 infections in schools](#). **Supports 6 feet distancing, but does not compare to <6 feet distancing. No information on cohorting.** The study examined 11 school districts in North Carolina with nearly 100,000 students/staff open for 9 weeks of in-person instruction, tracking secondary transmission of SARS-CoV-2; within-school infections were extremely rare. (January 2021)
22. [The Experience of Two Independent Schools with In-Person Learning During the COVID-19 Pandemic](#). **Supports less than 6 feet distancing in K-12. No information on cohorting.** Two large independent K-12 schools in the US that implemented mitigation measures, including mandatory masks, classroom disinfecting, and distancing (5-6' spacing of desks/tables). Of 69 traceable COVID-19 introductions, 63 (91%) were not associated with school-based transmission, 59 cases (54%) occurred in the 2 weeks post-Thanksgiving. In 6/7 clusters, clear noncompliance with mitigation protocols was found. The largest outbreak had 28 identified cases and was traced to an off-campus party. There was no transmission from students to staff. (January 2021)
23. [Factors Associated with Positive SARS-CoV-2 Test Results in Outpatient Health Facilities and Emergency Departments Among Children and Adolescents Aged <18 Years — Mississippi, September–November 2020](#). **Supports less than 6 feet distancing in schools. No significant difference in students in a classroom with >10 students between cases and controls.** Among children and adolescents aged <18 years in Mississippi, close contact with persons with COVID-19 and gatherings with persons outside the household and lack of consistent mask use in school were associated with SARS-CoV-2 infection, whereas attending school or child care was not associated with receiving positive SARS-CoV-2 test

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results. No association with in-person school attendance, distancing varied by school, many <6'). Schools in Miss. had varying models (full vs. hybrid), some schools at 3' of distance. (December 2020)

24. [Data-Driven Reopening of Urban Public Education Through Chicago's Tracking of COVID-19 School Transmission.](#) **Supports less than 6 feet distancing in schools.** Mitigation efforts in a large private school system included mandatory masking, distancing (distance not specified in manuscript; per authors 6' only when unmasked at lunch, otherwise less), temperature and symptom checks, hand hygiene, and quarantine of the entire cohort for index cases. Contact tracing revealed a lower attack rate from August 17 to October 4, 2020 for students and staff participating in in-person learning than for the community overall. (December 2020)
25. [Which policies most effectively reduce SARS-CoV-2 transmission in schools?](#) **Supports smaller cohorts. No details on distancing.** Simulation model of NYC public schools: Strategies: cohorting/hybrid models, daily symptom screen, monthly or weekly screening of 10/20/100% of school population. Cohort size had a greater impact than schedule of days in school (model excluded out of school contacts). Smaller cohorts and commensurately reduced instruction time (cohorts of 9 attending one-third of days rather than cohorts of 13 attending one-half of days) reduced transmission risk. (November 2020)
26. [Secondary transmission of COVID-19 in preschool and school settings in northern Italy after their reopening in September 2020: a population based study.](#) **Supports 1 meter distancing in schools.** Reported epidemiological investigations of transmission of the SARS-CoV-2 in 41 classes of 36 schools in Reggio Emilia province, northern Italy, from their reopening on 1 September to 15 October 2020. The overall secondary case attack rate was 3.2%, reaching 6.6% in middle and high schools. Mitigation included mandatory masking except when at desk and not speaking for middle and high schools, single desks >1m apart, minimization of crowding in halls and doorways, cohorting, cancellation of extracurricular activities. Hybrid models were used if space did not permit full classes at >1m. (December 2020)
27. [SARS-CoV-2 infections in Italian schools: preliminary findings after one month of school opening during the second wave of the pandemic.](#) **Supports 1 meter distancing in schools. No national limit on class sizes.** National schools reported only 1 case of SARS-CoV-2 infection in more than 90% of cases, and only in one high school a cluster of more than 10 cases have been described. These preliminary data support low transmission of SARS-CoV-2 within schools, at least among younger students. (October 2020)
28. [Summary of School Re-Opening Models and Implementation Approaches During the COVID 19 Pandemic.](#) Older data. **Generally supports smaller cohorts and 6 feet of**

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distancing. Review of country experiences with reopening, with outcomes cited if available. (July 2020)

29. [Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis.](#) Supports 1 meter as major risk reduction over less than 1, and 2 meters as likely even lower risk. (June 2020)
30. [Two metres or one: what is the evidence for physical distancing in COVID-19?](#) Less than 2 meters distancing is likely adequate in lower risk settings. (August 2020)