

# A Brief Cautionary Note on Opening Schools

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There have been many claims that opening or keeping open schools has little effect on the spread of the coronavirus SARS-CoV-2, which causes COVID-19. However, empirical evidence shows that children can get severely sick with COVID-19 and that schools can have a large impact on its spread. While there is still much unknown about the exact transmission mechanism in children—further complicated by heterogeneity among children, as well as among societies and contexts—the question of how to act can often be answered without such detailed knowledge [1].

There are many examples of schools and child-care facilities substantially contributing to the spread of the virus. To give a few: In Texas as of July 6, there were 894 confirmed cases among staff and 441 among children from 883 of the state’s child care facilities [2]. By contrast, Texas reported only 59 total cases in 53 childcare facilities on May 15. In Israel, which had reduced its total number of new cases nationwide to less than 20 per day in mid May, there were 130 cases from a single school by June 3, just two weeks after schools fully reopened [3]. In England, nearly 20% of outbreaks from June 15-21 were from schools [4].

Some scientific analyses confirm the large role that schools play in spreading the virus, while there are others that do not find evidence of large effects from school closures [5]. Divergent results could be due to different modeling assumptions, as well as heterogeneity in the societies studied. For instance, if the virus is well-contained, schools are less likely spread the virus, and if no other interventions besides school closures are enacted, such closures may not have as large an effect. There is also mixed evidence on the degree to which children spread

the virus [6], which may arise in part because of substantial heterogeneity among children, with some infected children being far more contagious than others.

A common misconception is that children are rarely infected. CDC data indicates that as of April 2, 1.7% of confirmed cases are children (i.e. under 18 years of age) [7]. Given that people under 18 make up 22.3% of the 2019 U.S. population [8], this means that proportionally, children were 7.6% as likely to be infected as the general population. However, if infected children are less likely to be tested than infected adults (perhaps due to a greater percentage of children having milder or atypical symptoms), these numbers will be underestimates. A recent study analyzed contact-tracing data and found that children aged 0-14 were 34% as susceptible to the virus as adults aged 15-64 [9].

Another misconception is that children rarely become severely ill. However, of the confirmed CDC cases, 5.7% of children vs. 10% of adults required hospitalization (20% of children vs. 33% of adults if only cases in which hospitalization data is available are counted) [7]. Thus, among these confirmed cases, hospitalization rates of adults and children differ by less than a factor of two.

While the exact degree of transmission among children and the precise impact of school openings/closures are still unknown, recent school openings have shown just how dangerous they can be. Schools and day-care centers have already caused many super-spreader events; as long as community transmission persists, schools and day-care centers that reopen or remain open will likely cause additional super-spreader events that will hinder containment efforts.

## REFERENCES

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