COVID-19 LITERATURE REPOSITORY

To what extent do children transmit COVID-19?

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Publication date

14 April 2020

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Discussion

Concern that children might spread COVID-19 stems largely from past experience: children are major spreaders of other respiratory viral infections, such as influenza and measles. Additionally, we know that children infected with the novel coronavirus (SARS-CoV-2) may be asymptomatic: in the most detailed study from China, 13% of children detected by screening contacts were asymptomatic.[1]

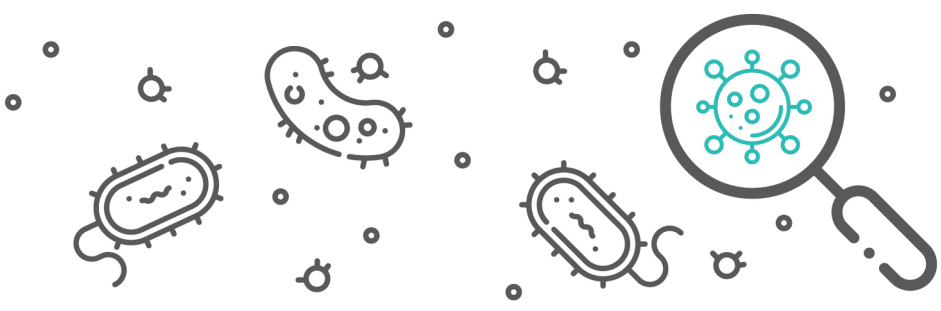
However, the proportion of asymptomatic children depends on testing criteria and ranges from 4% to 28% in published studies.[1-4] While asymptomatic child carriers were important spreaders of polio during epidemics, this does not mean that asymptomatic children often spread COVID-19.

On the contrary, the evidence to date suggests that children, asymptomatic or symptomatic, only rarely spread the virus and that children are usually infected by adults. During contact tracing, the China/WHO joint commission recorded no episodes where transmission occurred from a child to an adult. A review of 31 family clusters of COVID-19 from China, Singapore, the USA, South Korea and Vietnam, found only 3 (9.7%) clusters had a child as the index case and in all 3 clusters the child was symptomatic. [5]

Child-care clusters of COVID-19 have been notable for their extreme rarity in reports from around the world. The current child-care outbreak in Sydney was initiated and spread by infected adults. SARS-CoV-2 is mainly spread by droplets and through touching contaminated surfaces. Studies show SARS-CoV-2 can be detected by PCR in the stool of affected infants for several weeks, raising the possibility of faecal-oral spread.

Reassuringly, German researchers found no live virus in stool despite viral RNA being detectable, suggesting the positive test is due to dead viral debris shed from the respiratory tract rather than active virus. Given that preschool children infected with SARS-CoV-2 have few or no symptoms, one would expect childcare clusters to be common if such children were even moderately infectious.

School outbreaks are also rare, although New Zealand's biggest outbreak of COVID- 19, at Marist College, Auckland involved 14 staff and 12 high school students. A systematic review of school closure to control COVID-19 found insufficient data to comment on efficacy.[6] However, studies suggest school closures in China, Hong Kong and Singapore had little or no effect on control of the 2003 outbreak with the related SARS virus, which like COVID-19 was much milder in children than adults.[6]



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Modelling studies suggest school closures would prevent fewer than 5% of COVID- 19 deaths, much less than other social distancing interventions, and would have major adverse effects on the workforce.[6]

Conclusions

In conclusion, the available evidence suggests that children are not major transmitters of SARS-CoV-2, the coronavirus that causes COVID-19. We have an extremely low detection rate of SARS-CoV-2 in children attending CHW and in our staff. Staff members who do develop symptoms should be tested and must stay away from work until cleared.

This will protect us all. Hospital staff who follow infection control recommendations regarding social distancing, hand-washing and appropriate use of personal-protective equipment are at very low risk of catching SARS-CoV-2.

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