

COVID-19 Coronavirus in Children – November 10, 2020 1112

Spectrum Health contact (Dr. Beth Baird and Dr. Erica Michaels) ***Highlight denotes new content**

Document reviewed: January 13, 2021

Can children get coronavirus?

SARS-CoV-2 is “novel” and there is still a lot to learn about how it affects children. Data regarding epidemiologic characteristics and clinical features of infected children is limited.

Studies suggest that children are just as likely as adults to become infected but are much less likely to be symptomatic or develop severe symptoms.^{3,7} According to the WHO and a study in China, children under 18 years made up only 2.4% of all reported cases.^{3,5} The incidence of COVID-19 in children is likely much higher.

The importance of children in transmitting the virus remains uncertain, however, it is thought that children play a major role in community-based transmission.^{3,5}

How does coronavirus affect children?

The study, Epidemiology of COVID-19 Among Children in China, showed that of 2143 children followed, most cases were found to be mild.² Only 6% of children infected with coronavirus experienced severe symptoms compared to 18.5% of adults.^{2,6}

Clinical features:^{3,7}

- URI symptoms (cough, sneezing, rhinorrhea, sore throat)
- Fever
- Headache
- Myalgia
- Pneumonia
- GI symptoms (nausea, vomiting, diarrhea)

Current data trends:

- No gender bias between male: female ²
- Median age ~7yrs ²
- Co-infections rates reported 40-60% in children (i.e. influenza, RSV, metapneumovirus)¹

What does the diagnostic work-up reveal in children with coronavirus?

Both laboratory and radiologic results are similar to adults infected with COVID-19.³

Labs

- WBC normal or lymphopenia
- Thrombocytopenia
- Elevated CRP and procalcitonin
- Elevated LDH
- In severe cases, elevated LFTs, d-dimer, LDH, coagulation studies

Radiology

- Chest XR- bilateral patchy airspace consolidations often at the periphery, peri-bronchial thickening, and ground-glass opacities
- Chest CT- airspace consolidations and ground-glass opacities

What children are at highest risk?

Co-morbidities including cardiac, pulmonary, or immunosuppressed states.¹ Younger age is the most consistent risk factor for developing severe symptoms.⁶

- Infants 11%
- Age 1-5yr 7%
- Age 6-10yr 4%
- Age 11-15 4%
- Age 16-18 3%

Why do children have less severe symptoms?

It's not quite understood why children do better with coronavirus and the discrepancy in disease severity is puzzling. Data from pediatric cases of SARS and MERS also shows milder symptoms compared to adults.⁵

Some proposed thoughts on why children experience milder symptoms include:⁵

- fewer opportunities for exposure
- higher levels of antibodies against virus
- different response from their developing immune system
- virus does not bind well to their cells

Are anti-viral medications recommended?

Currently, there are no specific drugs approved by the FDA for treatment of COVID-19 and treatment remains largely supportive. However, the NIH currently recommends Remdesivir for children with COVID-19 who are aged ≥ 12 years and weight ≥ 40 kg. Remdesivir is also available for younger children (and those weighing <40 kg) through the FDA Emergency Use Authorization. Additionally, the NIH also suggests that dexamethasone may be beneficial in pediatric patients with COVID-10 respiratory disease who are on mechanical ventilation.

Standard supportive measures include:

- Sufficient fluid and calorie intake
- Oxygen supplementation
- Broad-spectrum antibiotics with second or third generation cephalosporin if secondary bacterial infection is suspected
- Decisions regarding anti-viral therapy should be individualized according to disease severity. When a decision is made to use an anti-viral, Remdesivir is preferred.

Quick plug on pregnancy and breast-feeding mothers.

- No evidence that SARS-CoV-2 can be vertically transmitted to an infant.³
- No samples of breast milk have been found to contain the virus. Encourage mothers to continue breast feeding.⁵

How to communicate with children about COVID-19.

As medical providers we play an important role in helping children make sense of what they hear and understand about COVID-19. The CDC has created guidance to help with these conversations.⁴

- Emphasize good hand hygiene. Make it fun!
- Get kids talking. Ask about their current understanding and address concerns in an open, honest, age appropriate way

- Let them know it can infect anyone and that it's no one's fault
 - Provide reassurance that they will return to school and see their friends again.
1. Cruz A, Zeichner S. COVID-19 in children: initial characterization of the pediatric disease. *Pediatrics*. 2020; doi: 10.1542/peds.2020-0834
 2. Dong Y, Mo X, Hu Y, et al. Epidemiological characteristics of 2143 pediatric patients with 2019 coronavirus disease in China. *Pediatrics*. 2020; doi:10.1543/peds.2020-0702
 3. Zimmermann, P., & Curtis, N. (2020). Coronavirus Infections in Children Including COVID-19. *The Pediatric Infectious Disease Journal*, 1. doi: 10.1097/inf.0000000000002660
 4. <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/talking-with-children.html>
 5. <https://www.cdc.gov/coronavirus/2019-ncov/hcp/pediatric-hcp.html>
 6. <https://www.aappublications.org/news/2020/03/16/coronavirus031620>

[https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30236-X/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30236-X/fulltext)