

COVID-19

LITERATURE REPOSITORY

Clinical features of COVID-19 in paediatric patients

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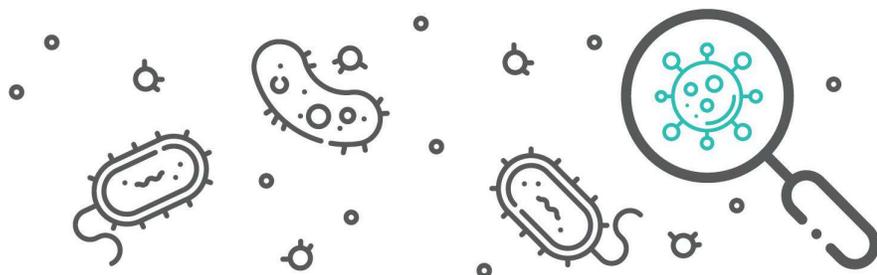
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Discussion

SARS-CoV-2 infection presents as a spectrum of disease, COVID-19, that tends to be milder and commonly asymptomatic in children^{1, 2}. Clinical features may include fever, cough, upper respiratory tract symptoms (rhinorrhoea and sore throat) and gastrointestinal symptoms (diarrhoea and vomiting)^{1, 2}. Blood tests are often normal, with few reports of lymphopenia¹ and raised procalcitonin². The most common CT finding is bilateral ground glass opacity, however CT imaging alone is not sufficient to diagnose or exclude COVID-19^{1, 2} and is not recommended in diagnostic guidelines in Australia for non-severe disease³.

The first confirmed paediatric SARS-CoV-2 infection of an asymptomatic 10 year-old boy was reported in Shenzhen on January 20 2020⁴. Since then, there has been a growing number of case series reports most notably from China and The USA. An evaluation of 1,391 children assessed and tested for SARS-CoV-2 between January 28 and February 26 2020 at Wuhan Children's Hospital revealed 171 confirmed cases of SARS-CoV-2 infection, among which 15.8% (n=27) had no symptoms and no radiologic features of pneumonia¹. The most common presenting symptoms were cough (48.5%), pharyngeal erythema (46.2%) and fever (41.5%)¹. Less common symptoms include diarrhoea (8.8%), vomiting (6.4%), fatigue (7.6%) and rhinorrhoea (7.6%)¹. Tachycardia and tachypnoea were found in 42% and 28% of patients respectively and 2.3% of patients had oxygen saturation <92% during hospitalisation¹. Lymphopenia was present in 3.5% of patients and 32.7% had bilateral ground glass opacity on CT scan¹. 3 patients required intensive care support and invasive mechanical ventilation; all had comorbidities (hydronephrosis, leukaemia on chemotherapy and intussusception)¹. Although children have generally milder clinical manifestations, a nationwide epidemiological study in China suggests that young children, particularly infants, are at increased risk of severe disease⁵.

As of April 02 2020, the US CDC reported a total of 2,572 confirmed paediatric cases of COVID-19⁶. Available data on signs and symptoms of 291 cases showed largely consistent finding with the report from China. The most



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common symptoms were fever (56%), cough (54%), headache (28%), sore throat (24%), myalgia (23%) and shortness of breath (13%). Less common symptoms include diarrhoea (13%), nausea and vomiting (11%), runny nose (7%) and abdominal pain (5.8%)⁶.

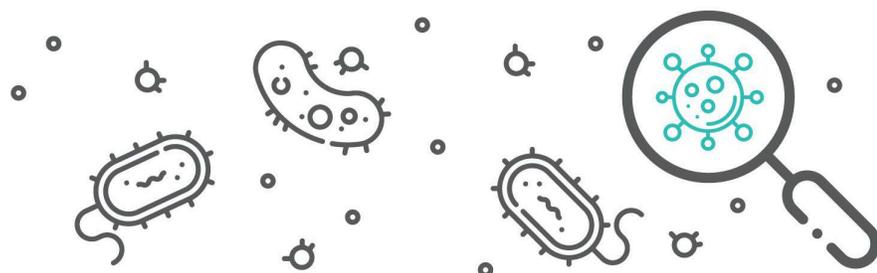
There is a significant amount of missing data in the US report including limited data on patient outcomes. The analysis therefore may not represent a true estimate of symptoms and severity of disease in their population.

Conclusions

COVID-19 appears to be less severe in children, with the predominant symptoms being fever, cough and mild upper respiratory and/or gastrointestinal symptoms.

References

1. Lu X, Zhang L, Du H, et al. SARS-Cov-2 infection in children. *N Eng J Med.* 2020; doi:10.1056/NEJMc2005073.
Link: <https://www.nejm.org/doi/10.1056/NEJMc2005073>
2. Xia W, Shao J, Guo Y, et al. Clinical and CT features in pediatric patients with COVID-19 infections: Different points from adults. *Paediatric pulmonology.* 2020; doi: 10.1002/ppul.24718.
Link: <https://onlinelibrary.wiley.com/doi/epdf/10.1002/ppul.24718>
3. ASID-ANZPID: Interim guidelines for the clinical management of COVID-19 in children and adolescents. Published 14th April 2020, Accessed 17th April 2020. Link: <https://www.asid.net.au/documents/item/1897>
4. Chan J, Yuan S, Kok K, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus. *Lancet.* 2020;395:514-23. doi: doi.org/10.1016/S0140-6736(20)30154-9
5. Dong Y, Mo X, Hu Y, et al. Epidemiological characteristics of 2143 pediatric patients with 2019 coronavirus disease in China. *Pediatrics.* 2020; doi:10.1542/peds.2020-0702.
Link: <https://pediatrics.aappublications.org/content/pediatrics/early/2020/03/16/peds>
6. CDC COVID-19 Response Team. Coronavirus Disease 2019 in Children – United States, February 12 – April 2, 2020. *MMWE Morb Mortal Wkly Rep*, epub: 6 April 2020. doi: <http://dx.doi.org/10.15585/mmwr.mm6914e4>.



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