

SYNOPSIS

05/13/2020

Review of “Characteristics and outcomes of children with coronavirus disease 2019 (COVID-19) infection admitted to US and Canadian pediatric intensive care units”

Article citation: Shekerdemian LS, Mahmood NR, Wolfe KK, Riggs BJ, Ross CE, McKiernan CA, et al. Characteristics and outcomes of children with coronavirus disease 2019 (COVID-19) infection admitted to US and Canadian pediatric intensive care units. *JAMA Pediatr.* 2020 May 11 [Epub ahead of print]. Available from: <https://doi.org/10.1001/jamapediatrics.2020.1948>

One-Minute Summary

- This study characterizes the **demographic characteristics and clinical course of patients (N=48) with Coronavirus Disease 2019 (COVID-19) admitted to pediatric intensive care units (PICUs)** in North America from March 14 to April 3, 2020.
- The median age of patients (n=48) was 13 years (interquartile range [IQR]: 4.2-16.6), and 25 (52%) were male. Thirty five of 48 patients (73%) presented with respiratory symptoms. The most common comorbidity was long-term history of requiring support due to developmental delays or genetic anomalies, found in 19/48 (40%) of patients, followed by patients with immune suppression, found in 11/48 (23%) of patients.
- **Patient clinical characteristics (n=48):**
 - **Severity:** 16/48 (33%) were severe, 17/48 (35%) were critical.
 - **Organ system failure:** single organ (usually respiratory) in 30/48 (63%) patients, two organ system failure in 7/48 (15%), three or more organ systems in 4/48 (8%) patients.
 - **Respiratory support:** 39/48 (81%) of patients required respiratory support, 18/48 (38%) of patients required intubation
 - **Median length of stay: PICU:** 5 days (IQR: 3-9); **hospital,** 7 days (IQR: 4-13)
 - **Outcome (by Apr. 10):** 31/48 (65%) discharged, 9/48 (19%) hospitalized in severe/critical condition, 6/48 (13%) hospitalized in mild/moderate condition, 2/48 (4%) died.
- The case fatality rate (CFR) in these pediatric patients was 4.2%, which is lower than the CFR reported for adult patients in intensive care units (50-62%) ([Bhatraju et al.](#), [Yang et al.](#)).
- This cross-sectional study confirms earlier reports that COVID-19 can cause severe illness in children, but severity is considerably less than in adults. Similar to adult COVID-19 patients, severe disease in children is associated with pre-existing comorbidities.

Additional Information

- The authors performed a retrospective review of medical records to identify COVID-19 patients (<1 to 21 years old) admitted to North American PICUs (n=46; 40 in USA, 6 in Canada) from Mar. 14 to Apr. 3 (final follow-up on Apr. 10). Thirty of the pediatric hospitals had not admitted any critically ill patients with confirmed COVID-19 infection, including all of the 6 participating Canadian hospitals, and two hospitals were not able to receive institutional review board approval in time. All patients were from 14 PICUs located in the USA.
- The authors acknowledge that the short follow-up period for more recent cases, means that some patients might have had more severe outcomes after Apr. 10.

PHO Reviewer's Comments

- None.

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Review of “Characteristics and outcomes of children with coronavirus disease 2019 (COVID-19) infection admitted to US and Canadian pediatric intensive care units”. Toronto, ON: Queen’s Printer for Ontario; 2020.

Disclaimer

This document was developed by Public Health Ontario (PHO). PHO provides scientific and technical advice to Ontario’s government, public health organizations and health care providers. PHO’s work is guided by the current best available evidence at the time of publication.

The application and use of this document is the responsibility of the user. PHO assumes no liability resulting from any such application or use.

This document may be reproduced without permission for non-commercial purposes only and provided that appropriate credit is given to PHO. No changes and/or modifications may be made to this document without express written permission from PHO.

Public Health Ontario

Public Health Ontario is an agency of the Government of Ontario dedicated to protecting and promoting the health of all Ontarians and reducing inequities in health. Public Health Ontario links public health practitioners, front-line health workers and researchers to the best scientific intelligence and knowledge from around the world.

For more information about PHO, visit publichealthontario.ca.

