

Adjudicating Reasons for Hospitalization Reveals That Severe Illness From COVID-19 in Children Is Rare

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In this issue of *Hospital Pediatrics*, Kushner et al¹ conducted an extensive chart review of 117 pediatric hospitalizations with a positive severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) polymerase chain reaction (PCR) test from May 10, 2020, to February 10, 2021, at a quaternary care academic children's hospital in northern California. Study authors used a set of predetermined criteria to characterize each hospitalization as either likely or unlikely for coronavirus disease 2019 (COVID-19). They found that 53 hospitalizations (45%) were unlikely to be due to disease caused by SARS-CoV-2. Rather, patients were hospitalized for a wide range of other diagnoses, including bacterial infections, scheduled surgical procedures, appendicitis, ingestions, anaphylaxis, and neurologic conditions. Of the 64 patients who were likely to have been hospitalized for COVID-19, 3 were asymptomatic and 27 had mild to moderate symptoms, with 20 characterized as either severe or critical (the remaining 14 were diagnosed with multisystem inflammatory syndrome in children [MIS-C]).

Webb et al² reviewed the charts of 146 children hospitalized with a positive SARS-CoV-2 PCR test result at another large children's hospital in California from May 1, 2020, to September 30, 2020 (17 children with MIS-C were excluded from the analysis). Each hospitalization was characterized as (1) incidental, if describing patients who had no symptoms of COVID-19 and had an alternate diagnosis that led to admission; (2) potentially symptomatic, describing patients with COVID-19 symptoms (fever, respiratory symptoms, and gastrointestinal symptoms) but who were primarily admitted for another reason and did not require any respiratory support; or (3) significantly symptomatic, defined as patients with respiratory or cardiac symptoms consistent with COVID-19 and requiring respiratory or ICU level support. Of 146 non-MIS-C patients with a positive PCR test result, 40% were found to be incidentally infected, 47% were deemed potentially symptomatic, and 14% were significantly symptomatic.

Notably, the percentage of hospitalized children with an incidental finding of a positive SARS-CoV-2 PCR test result was remarkably similar between the two studies (45% Kushner et al¹; 40% Webb et al²). In addition, the percentage of children deemed with severe or critical COVID-19 in the Kushner et al¹ study was close to the

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percentage of children deemed significantly symptomatic in the study by Webb et al² (17% vs 14%). Taken together, these studies underscore the importance of clearly distinguishing between children hospitalized with SARS-CoV-2 found on universal testing versus those hospitalized for COVID-19. Both studies reveal that reported hospitalization rates greatly overestimate the true burden of COVID-19 in children.

Collecting and publicizing accurate estimates of the impact of COVID-19 on children is critical for informing public policy and allowing parents to make informed decisions about risk. Despite abundant data revealing low transmission of SARS-CoV-2 in educational settings,^{3–5} many children remain in virtual learning either because school districts have not provided an in-person option or because parents have opted to keep children at home.⁶ Although some parents may be keeping children at home because of logistical challenges with hybrid models or a lack of after-care options, others are doing so out of fear that their children will be infected and fall seriously ill. This is concerning given the tremendous health risks that children and families face as a result of not attending in-person school, including worsening mental health for children and parents,^{7,8} lack of therapy and appropriate support for children with specialized learning needs,⁹ increased risk for obesity,^{10–12} and lower academic achievement,^{13,14} leading to long-term detrimental impacts on quality of life and longevity.

Particularly, because we are now in a phase in which all adults have access to COVID-19 vaccines, but children under the age of 12 years do not, it is critical that the risks of COVID-19 to children be portrayed accurately and also contextualized in comparison to other common respiratory illnesses (eg, influenza and respiratory syncytial virus). Children have suffered tremendously because of policies that have kept schools and recreational facilities closed to them, and the burden has been greatest on children who are in low-income households and English-language learners.^{6,13,14}

Scientific and media reports in which the risk of COVID-19 to children are inaccurately portrayed can do harm by alarming parents and providing justification for ongoing restrictions to in-person education and other programming (eg, summer camps). Kushner et al¹ and Webb et al² have contributed greatly to the field by doing careful work to understand the true burden of COVID-19 among children. Via these studies, parents and policymakers should be reassured that pediatric hospitalization for severe COVID-19 disease is indeed rare.

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