

Don't Believe the Hype

Hospitalization rates overestimate COVID burden in children

There has been a lot of recent media focus on COVID in children. Hospitalization rates are used as a marker for disease burden in adults during the pandemic. We are now met daily with headlines proclaiming that hospitalization rates in kids are way up implying that the disease burden in children is rapidly rising. But is this true? This study from Stanford University examined the data to try to get an idea of the disease burden in children. Hospitalized children were categorized as asymptomatic, mild/moderate (no oxygen needed), severe (oxygen needed), critical (ICU admission for high flow nasal cannula or mechanical ventilation), or MIS-C (Multisystem inflammatory syndrome in children). They also categorized the hospital admission as likely or unlikely to have been caused by COVID. They found that most children hospitalized with COVID have asymptomatic or mild/moderate disease and nearly half the hospitalizations were not caused by the infection with the virus. Many others had conditions that made the role of COVID infection unclear. Reported hospitalization rates overestimate the COVID-19 disease burden in children considerably.



Abstract

- **Objective:** Pediatric hospitalization rates are used as a marker of coronavirus disease 2019 (COVID-19) disease severity in children but may be inflated by the detection of mild or asymptomatic infection via universal screening. We aimed to classify COVID-19 hospitalizations using an existing and novel approach and to assess the interrater reliability of both approaches.
- **Patients and Methods:** This retrospective cohort study characterized severity of illness and likelihood of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection as the cause of hospitalization in pediatric patients under 18 years of age. Subjects had positive SARSCoV-2 nasopharyngeal testing or were diagnosed with multisystem inflammatory syndrome in children (MIS-C), and were hospitalized between May 10, 2020 (when universal screening of all admissions began) and February 10, 2021 at a university-based, quaternary care children's hospital in Northern California. Hospitalizations were categorized as either likely or unlikely to be caused by SARS-CoV-2 (novel approach), and disease severity was categorized according to previously published classification of disease severity.
- **Results:** Of 117 hospitalizations, 46 (39.3%) were asymptomatic, 33 (28.2%) had mild to moderate disease, 9 (7.7%) had severe illness, and 15 (12.8%) had critical illness (weighted kappa 0.82). Fourteen (12%) patients had MIS-C. Fifty-three (45%) admissions were categorized as unlikely to be caused by SARS-CoV-2 (kappa 0.78).
- **Conclusion:** Although COVID-19 has considerable associated morbidity and mortality in children, reported hospitalization rates likely overestimate the true disease burden.

Most public reporting of COVID-19 hospitalizations is based on the detection of the virus in a patient in the hospital, not whether or not COVID is the reason for the hospitalization. Most hospitals are applying universal screening for all hospitalized patients and before all hospital procedures (surgeries, scans, etc.). This single-center study reviewed pediatric hospital admissions between May 10, 2020-February 10, 2021. They found, as expected, that children have a very high proportion of asymptomatic (39.3%) or mild/moderate (28.2%) symptom disease. Overall, 45% of the total hospitalizations listed as COVID positive were found to be unlikely to be caused by COVID. Unfortunately, our media continues to report total numbers and percentages of hospitalized COVID patients who are children. From this analysis, it appears that the total number of children "hospitalized" for COVID is greatly exaggerated. Additionally, since the number of adult hospitalizations is decreasing dramatically the percentage of hospitalizations involving children is higher. During the peak of the pandemic (summer-winter 2020) the pediatric hospitalization rate was 1.7% of total hospitalizations. While the media headlines generate clicks and anxiety, the actual numbers don't seem to live up to the hype.

Kushner LE, et al. "For COVID" or "With COVID": Classification of SARS-CoV-2 Hospitalizations in Children. *Hosp Pediatr.* 2021; doi: [10.1542/hpeds.2021-006001](https://doi.org/10.1542/hpeds.2021-006001)