

# Characteristics and clinical features of SARS-CoV-2 infections among ambulatory and hospitalized children and adolescents in an integrated health care system in Tennessee

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## Background

- Understanding of the full spectrum of manifestations and duration of SARS-CoV-2 infections in children is limited
- We report characteristics of children and adolescents  $\leq 18$  years with SARS-CoV-2 infection up to 30 days after diagnosis in a large, integrated health network affiliated with an urban academic medical center in the southern United States

## Methods

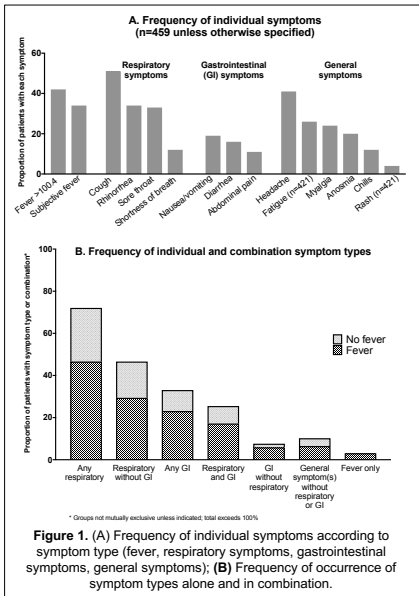
- Active laboratory surveillance was performed for all symptomatic and asymptomatic children  $\leq 18$  years of age and adults with a positive SARS-CoV-2 test by polymerase chain reaction (PCR) in the Vanderbilt University Medical Center (VUMC) laboratory from March 12 to July 17, 2020
- Testing began March 12, 2020 for symptomatic individuals (new respiratory symptoms, fever, or SARS-CoV-2 contact) and May 4, 2020 for routine asymptomatic screening (before admission, chemotherapy, procedures)
- We performed phone follow-up at days 2, 7 and 30 after diagnosis for symptomatic patients  $\leq 18$  and neonates born to SARS-CoV-2 infected women
- Daily and 7-day moving average percent positivity frequencies were calculated and stratified by symptomatic status and age group from April 26-July 17, 2020

## Results

- SARS-CoV-2 tests were positive in 5261/70071 (7.5%) specimens across all age groups; 531/10327 (5.1%) specimens in patients  $\leq 18$  years, compared to 4730/59744 (7.9%) specimens in patients  $> 18$  years
- 46/5752 (0.8%) specimens from asymptomatic children/adolescents were positive
- 485/4575 (10.6%) specimens from 459 symptomatic children  $\leq 18$  years were positive; 67% tested in outpatient clinic, 29% in ED, 0.4% in hospital
- Of 459 children, median age 12.6 years (IQR 4.9-17.1); 47% female; 21% had underlying comorbidity
- 77% children were white, 16% were black, 4% were Asian. 32% reported Hispanic ethnicity and 10% reported Middle Eastern ancestry
- 67% had a known household (50%) or community (17%) contact with COVID-19

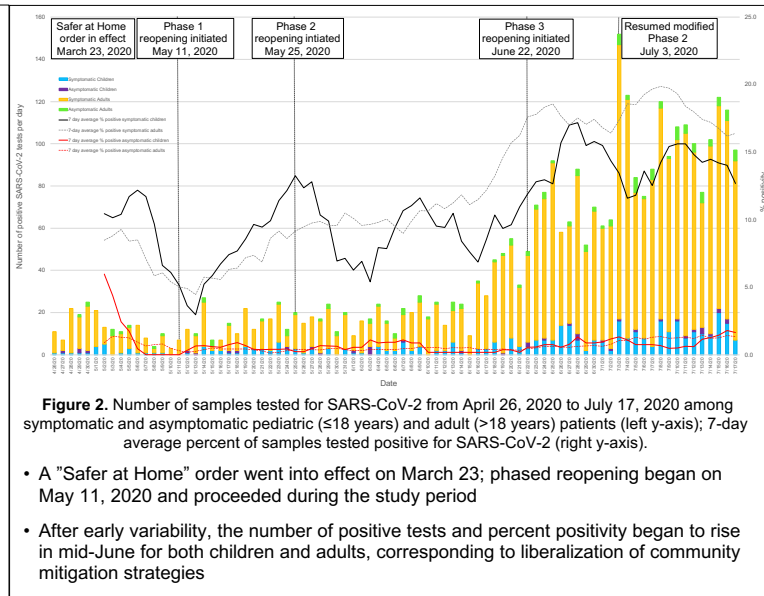
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## Results



**Figure 1.** (A) Frequency of individual symptoms according to symptom type (fever, respiratory symptoms, gastrointestinal symptoms, general symptoms); (B) Frequency of occurrence of symptom types alone and in combination.

## Results (continued)



**Figure 2.** Number of samples tested for SARS-CoV-2 from April 26, 2020 to July 17, 2020 among symptomatic and asymptomatic pediatric ( $\leq 18$  years) and adult ( $> 18$  years) patients (left y-axis); 7-day average percent of samples tested positive for SARS-CoV-2 (right y-axis).

- A "Safer at Home" order went into effect on March 23; phased reopening began on May 11, 2020 and proceeded during the study period
- After early variability, the number of positive tests and percent positivity began to rise in mid-June for both children and adults, corresponding to liberalization of community mitigation strategies

- Most patients had a respiratory symptom, typically without gastrointestinal (GI) symptoms (**Figure 1**)
- 18/459 (4%) patients had hospitalizations possibly related to SARS-CoV-2 infection; median length of hospital stay was 1.5 days
- No patient had MIS-C, required ICU admission or ECMO during the study period
- Symptom resolution occurred by day 2 in 192/447 (43%), day 7 in 335/429 (78%), and day 30 in 373/396 (94%) of patients

## Conclusions

- In a comprehensive assessment of pediatric infections diagnosed in the ambulatory setting, symptomatic SARS-CoV-2 infection is typically mild and brief in children and adolescents  $\leq 18$  years of age
- Liberalization of community mitigation measures may have impacted infection patterns