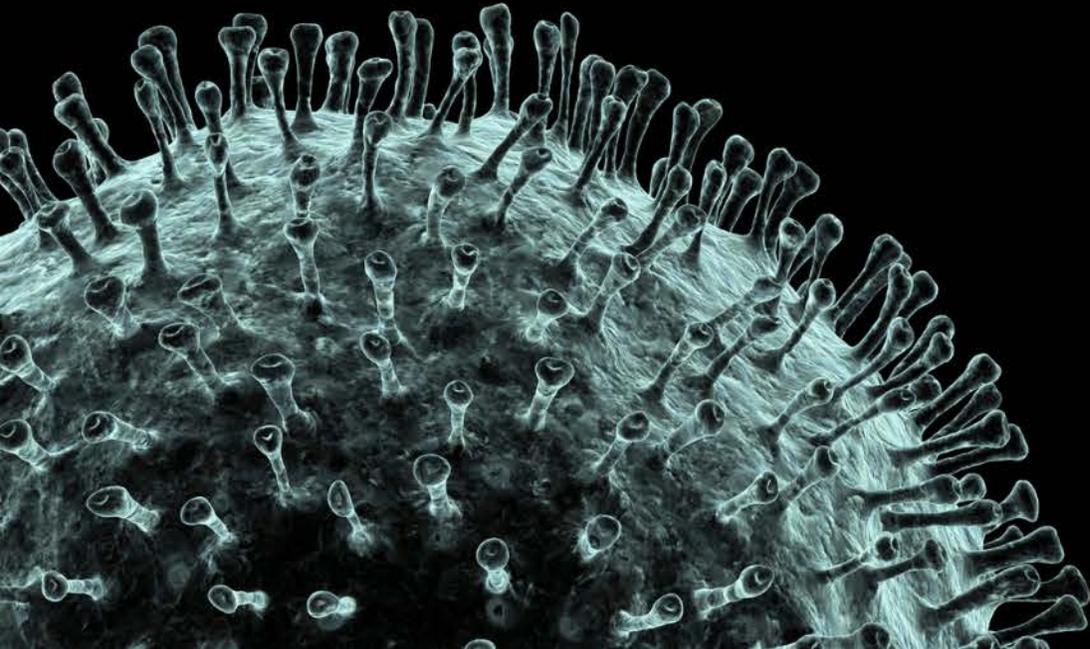


# COVID-19 Conversations



Wendy Armstrong

Professor of Medicine/Infectious Diseases  
Emory University School of Medicine



[COVID19Conversations.org](https://COVID19Conversations.org)

[#COVID19Conversations](https://twitter.com/COVID19Conversations)



# COVID-19 Infection rates in children

380,000 cases reported

180K since 7/9 (90% increase in 4 weeks)

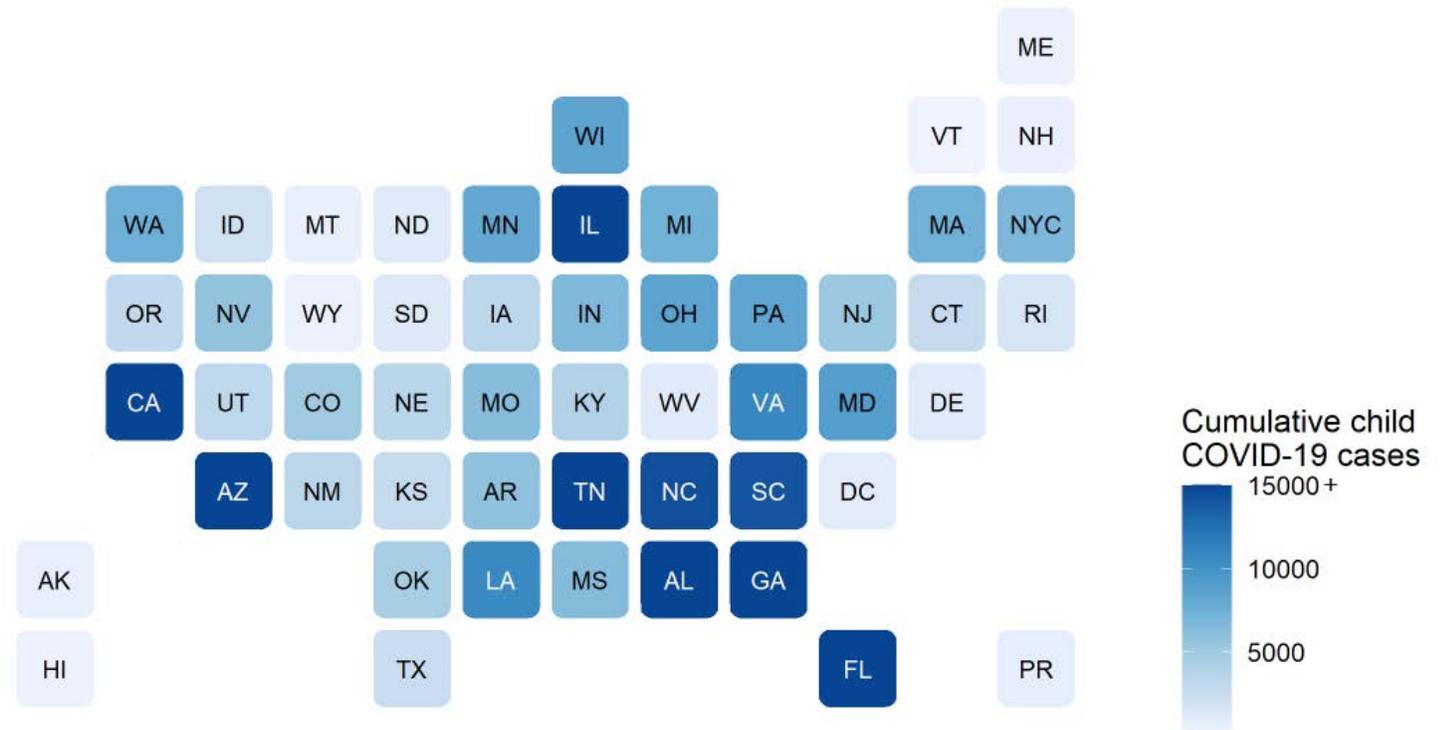
9.1% of total cases as of 8/6/20

~ <3% of hospitalizations

~ <1% of deaths

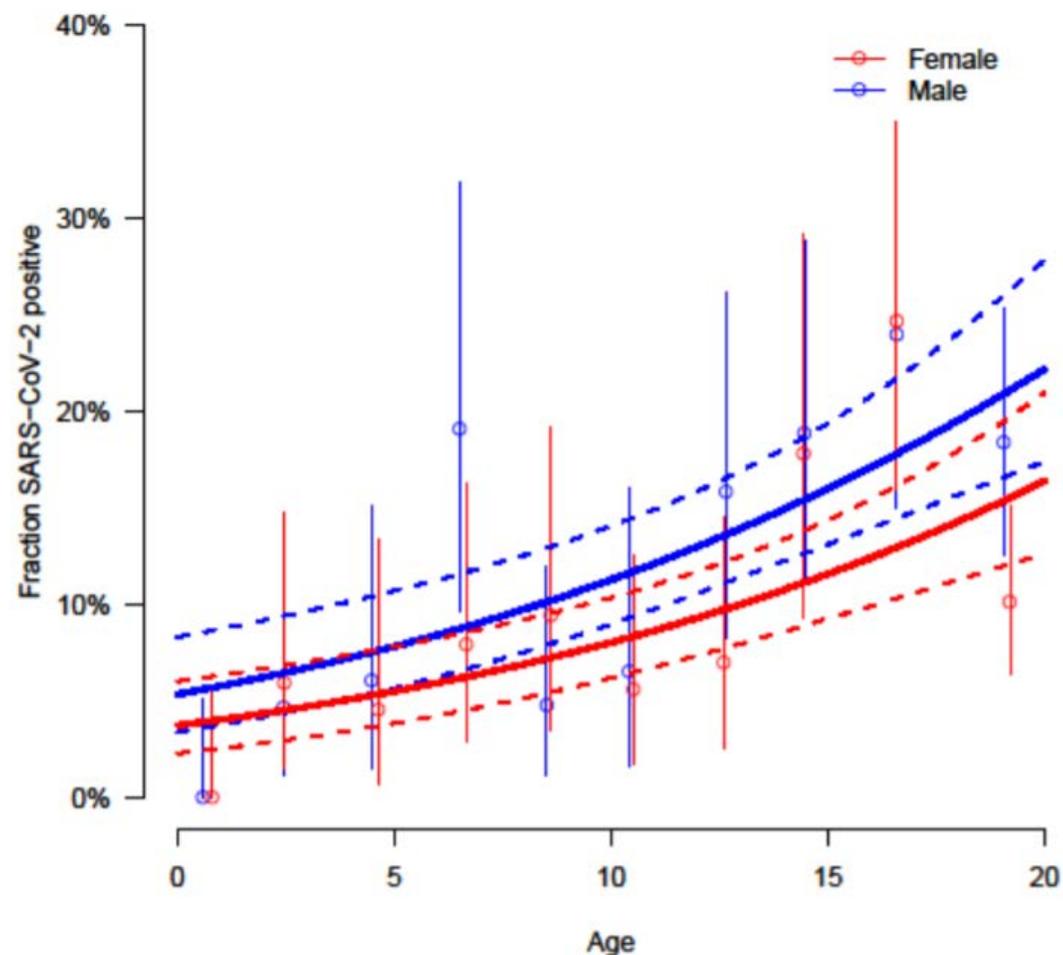
MIS-C: Multisystem Inflammatory Syndrome – COVID-19

## Cumulative Number of Reported Child COVID-19 Cases in the US as of 8/6/20



# Looking more closely

- Geneva: Ages 5-9 risk was 32% that of adults age 20-49 and no significant difference between 10-19 yo and 20-49 yo
- Iceland:
  - More than 22,000 residents
  - Age < 10: 6.7% positive,
  - Age > 10: 13.7% positive



[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)31304-0/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31304-0/fulltext)

<https://www.nejm.org/doi/full/10.1056/NEJMoa2006100>

# Why are the rates lower in children?

- Less exposure?
- Less testing?
- Biologic resistance?

# Children and transmission: less than adults?

- Multiple studies have found children are the index cases in fewer than 10% of COVID-19 familial clusters

Contact Tracing during Coronavirus Disease Outbreak, South Korea, 2020

59,000 contacts of 5,700 index patients Jan – March, 2020

- 10,600 – household contacts (12% positive)
- 48,000 – non-household contacts (2% positive)
  
- HIGHEST rates: Index pt was 10-19 years of age (18.6% contacts +)
- LOWEST rates: Index pt was 0-9 years of age (5.3% contacts +)

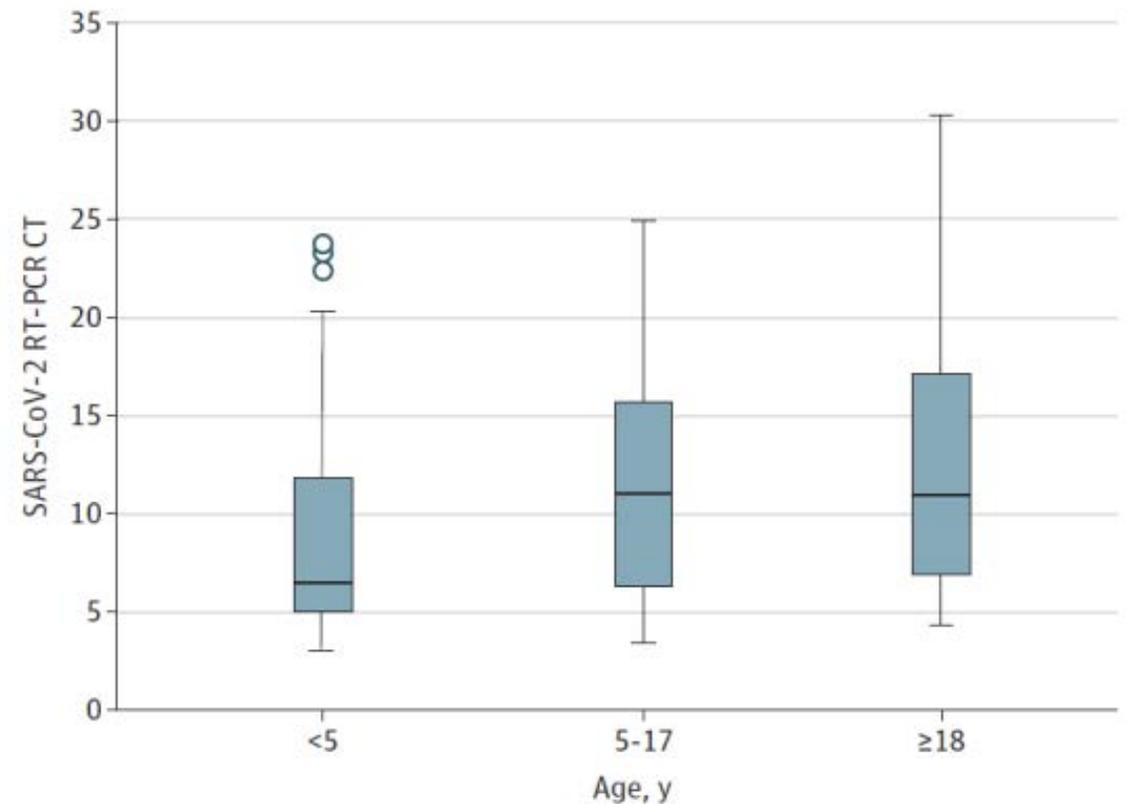
# Is it less virus?

- 145 patients with mild-moderate disease within 1 week of symptom onset
- 10-100 fold greater viral burden in the upper respiratory tract of young children < 5 years of age

Heald-Sergeant, et al

JAMA Pediatrics Published online July 30, 2020

Figure. Distribution of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Reverse Transcriptase–Polymerase Chain Reaction (RT-PCR) Amplification Cycle Threshold (CT) Values From Nasopharyngeal Swabs Collected From Patients With Coronavirus Disease 2019



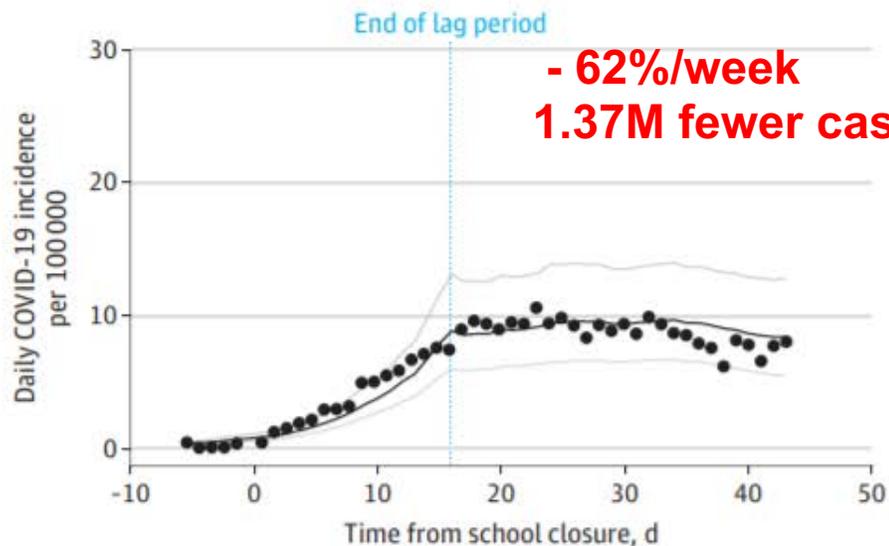
# Association Between Statewide School Closure and COVID-19 Incidence and Mortality in the US

Katherine A. Auger, MD, MSc; Samir S. Shah, MD, MSCE; Troy Richardson, PhD; David Hartley, PhD, MPH; Matthew Hall, PhD; Amanda Warniment, MD; Kristen Timmons, MS; Dianna Bosse, BA; Sarah A. Ferris, BA; Patrick W. Brady, MD, MSc; Amanda C. Schondelmeyer, MD, MSc; Joanna E. Thomson, MD, MPH

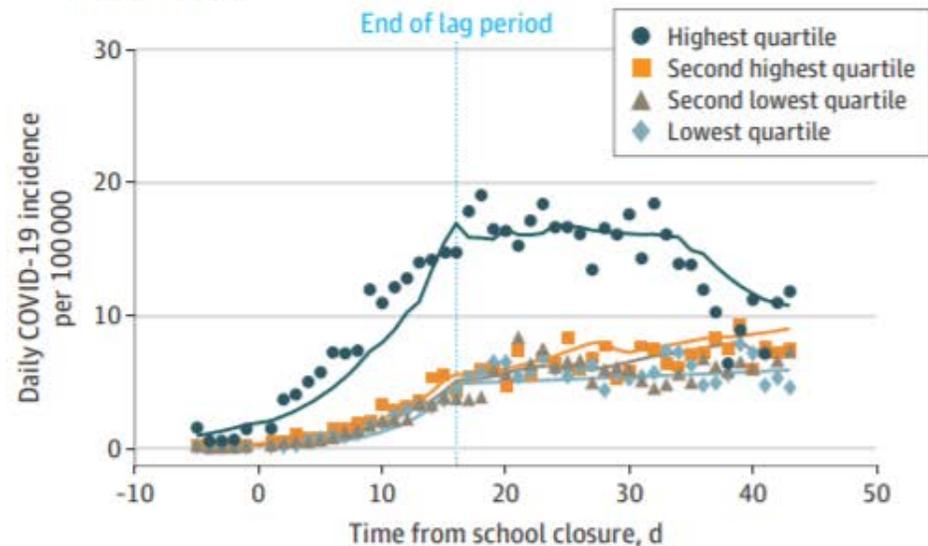
- Over 10 days in March, all 50 states closed K-12 schools and childcare centers and enacted other non-pharmaceutical interventions to slow the spread of SARS-CoV2
- Interrupted time series analyses, adjusted at the state level for testing capacity, population density, health status, social vulnerability

Figure 2. Modeled Association of School Closure With Coronavirus Disease 2019 (COVID-19) Incidence and Mortality

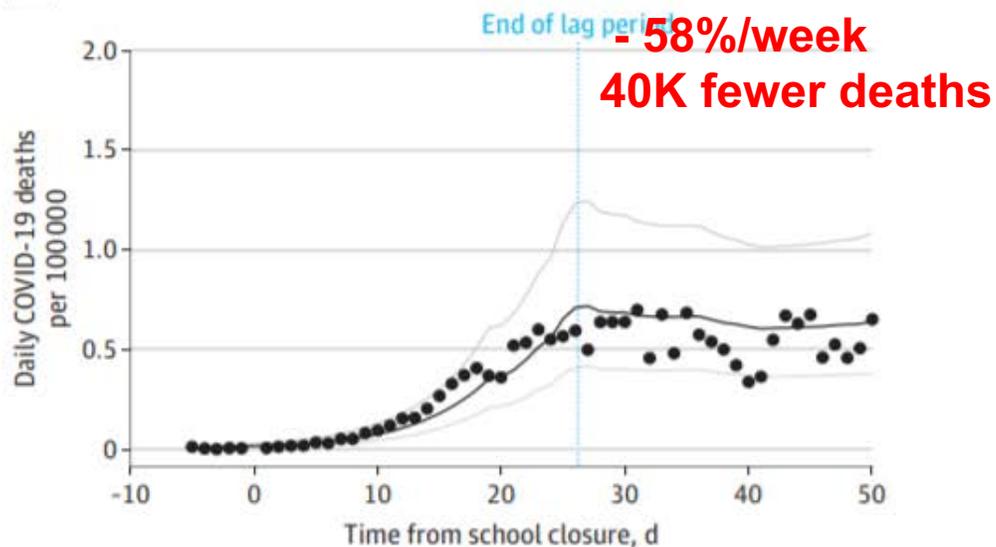
**A** Daily incidence for all states



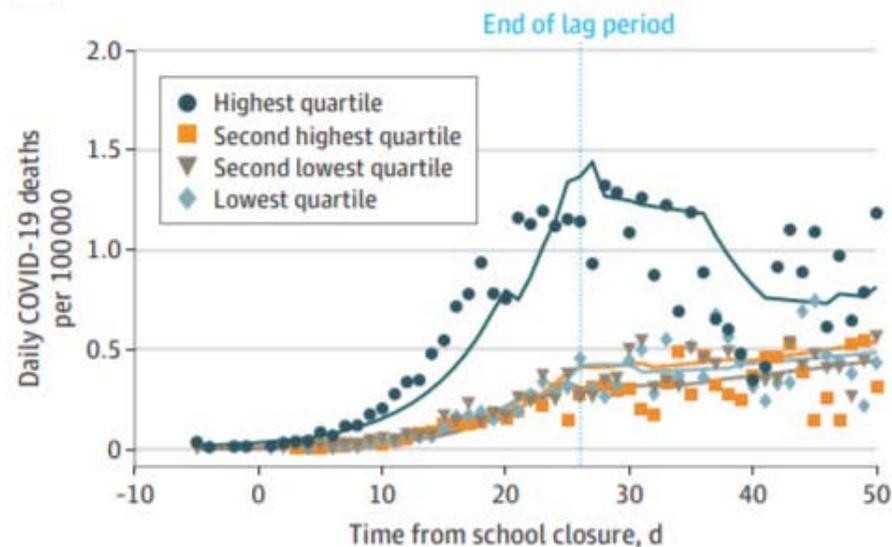
**B** Daily incidence by cumulative incidence quartile at the time of school closure



**C** Mortality for all states



**D** Mortality by cumulative incidence quartile at the time of school closure



# How do we re-open K-12 schools safely?

- Recommendations on re-opening schools (NASEM)
- Lessons from the Danish experience
- Pandemic preparedness: Use expertise already present in schools