COVID-19 for Pediatric Populations

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Disclosures

• No financial disclosures
• What gets said here today may change based on new data and recommendations
  – Knowledge is moving rapidly, the fastest it has for any pandemic
Agenda

• Epidemiology
• Schools and Childcare
  — Experience elsewhere: Maine and England
• Cardiac
• Closing Thought
• Discussion
Epidemiology
Illinois Cases

At Risk County Maps

https://www.dph.illinois.gov/covid19/covid19-statistics
Cumulative Rates of Laboratory-Confirmed COVID-19-Associated Hospitalizations by Age, United States, March 1 – September 12, 2020

Source: CDC COVID-NET. Data from 14 states.
## SARS-CoV-2–Associated Deaths Among Persons Aged <21 Years — United States, February 12–July 31, 2020

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. (%)</th>
<th>Underlying medical condition</th>
</tr>
</thead>
</table>
| Total         | 121 (100) | No underlying condition
|               |         | ≥1 underlying condition
|               |         | ≥2 underlying conditions
|               |         | Chronic lung disease**
|               |         | Obesity††
|               |         | Neurologic and developmental§§
|               |         | Cardiovascular disease‖
|               |         | Cancer or immunosuppressive condition***
|               |         | Diabetes mellitus†††
|               |         | Chronic kidney disease
|               |         | Chronic liver disease
|               |         | Other‡‡‡‡
| Age group, yrs |         | Location of death
| <1           | 30 (24.8) | Home
| 1–4          | 91 (75.2) | Emergency department
| 5–9          | 54 (44.6) | Hospital
| 10–13        | 34 (28.1) | Other/Unknown
| 14–17        | 26 (21.5) | Median interval from symptom onset to hospital admission, days (IQR)****
| 18–20        | 22 (18.2) | Median interval from hospital admission to death, days (IQR)††††
| Age, yrs, median (IQR) | 16 (7–19) | Median interval from symptom onset to death, days (IQR)§§§§
| Sex          | 50 (41.3) | 17 (14.0)
| Female       | 45 (37.2) | 11 (9.1)
| Male         | 76 (62.8) | 5 (4.1)
| Race/Ethnicity |         | 3 (2.5)
| Hispanic     |         | 37 (30.6)
| American Indian/Alaska Native, non-Hispanic | | 16 (13.2)
| Asian or Pacific Islander, non-Hispanic | | 23 (19.0)
| Black, non-Hispanic | | 79 (65.3)
| White, non-Hispanic | | 3 (2.5)
| Multiple/Other† | | 17 (14.0)
| Missing/Unknown | | 2 (1.7)
| SARS-CoV-2–associated condition§ | | 3 (2.5)
| COVID-19      | | 17 (14.0)
| MIS-C         | | 2 (1.7)

0.03% of reported cases
Community Exposures among Symptomatic Adults – 11 U.S. Healthcare Facilities

- Shopping
- Restaurant
- Office setting
- Salon
- Home, more than 10
- Gym
- Public transportation
- Bar/coffee shop
- Church/religious gathering

Adjusted Odds Ratio


Fauci lecture 9/22/202 at MIT
Schools and Childcare and COVID
Transmission Dynamics of COVID-19 Outbreaks Associated with Child Care Facilities — Salt Lake City, Utah, April–July 2020

Adriana S. Lopez, MHS1; Mary Hill, MPH2; Jessica Antezano, MPA2; Dede Vilven, MPH2; Tyler Rutner2; Linda Bogdanow2; Carlene Claflin2; Ian T. Kracalik, PhD1; Victoria L. Fields, DVM1; Angela Dunn, MD3; Jacqueline E. Tate, PhD1; Hannah L. Kirking, MD1; Tair Kiphibane2; Ilene Risk, MPA2; Cuc H. Tran, PhD1
Children who likely got COVID-19 at two Utah child care centers spread it to household members.
Transmission by Children <10 Yrs in 2 Child Care Facilities to Home

- Transmission likely occurred from children (all less than 10 years old) with confirmed COVID to 25% (12/46 parents or siblings at home) of their non-facility contacts.
Transmission Dynamics of COVID-19 Outbreaks Associated with Child Care Facilities — Salt Lake City, Utah, April–July 2020

Adriana S. Lopez, MHS; Mary Hill, MPH; Justin Antone, MPH; Dede Vélez, MPH; Tyler Rumsey; Linda Bojilovoski; Carolina Chillón; Ian T. Kuczala, PhD; Vanessa L. Fields, DVM; Angela Daman, MD; Jacqueline E. Tan; PhD; Hannah L. Korting, MD; Tau Kipphut; Bree Rutt; MPA; Cee H. Tran, PhD
Data on Schools Opening in US

Percentage of districts

City
- In-person: 79
- Hybrid: 3.3
- Remote: 1.9
- Varies by school / grade: 1.9
- To be announced or no information: 3.3

Suburb
- In-person: 33.8
- Hybrid: 11
- Remote: 4.7
- Varies by school / grade: 11
- To be announced or no information: 4.7

Rural
- In-person: 65
- Hybrid: 8.2
- Remote: 12.8
- Varies by school / grade: 8
- To be announced or no information: 6

Center on Reinventing Public Education
Figure 3. Percentage of Districts in Each Poverty Quartile That Plan to Start Fully Remote

- Lowest poverty quartile (0 - 9.7% poverty): 24%
- Medium-low poverty quartile (9.7 - 15.8% poverty): 19%
- Medium-high poverty quartile (15.8 - 22.7% poverty): 23%
- Highest poverty quartile (22.7+% poverty): 41%

Cardiology and COVID

Getting to the heart of it......
Outcomes of Cardiovascular Magnetic Resonance Imaging in Patients Recently Recovered from COVID-19

VO Puntmann, ML Carerj, I Weiters et al.

- Cohort of 100 German patients recently recovered from COVID-19 infection
- MRI revealed cardiac involvement in 78%, ongoing myocardial inflammation in 60%

JAMA Cardiol. doi:10.1001/jamacardio.2020.3557
Cardiovascular Magnetic Resonance Findings in Competitive Athletes Recovering From COVID-19 Infection

Saurabh Rajpal, MBBS, MD; Matthew S. Tong, DO; James Borchers, MD, MPH; et al

JAMA Cardiol. Published online September 11, 2020. doi:10.1001/jamacardio.2020.4916

• Of 26 adult competitive athletes, 4 (15%) had CMRI findings suggestive of myocarditis and additional 30.8% had findings suggestive of myocardial injury

• A recent expert consensus article recommended for adults 2-week convalescence followed by no diagnostic cardiac testing if asymptomatic and an EKG and TTE in mildly symptomatic athletes prior to return to play for competitive sports


• Is this sufficient? Would CMRI be a better option
AAP Guidance for Return to Sports Following SARS-CoV-2 Infection

• All children and adolescents with SARS-CoV-2, regardless of symptoms, require a minimum 14-day resting period and must be asymptomatic for >14 days before returning to exercise and/or competition
  – AAP strongly encourages patients be cleared for participation by their PCP with a focus on cardiac symptoms, including but not limited to chest pain, SOB, fatigue, palpitations, or syncope
  – If symptoms then EKG
  – If new finding on EKG, then workup as noted below for severe presentations

• Those with severe presentations (hypotension, arrhythmias, requiring intubation or ECMO support, kidney or cardiac failure) or with MIS-C must be treated as though they have myocarditis and restricted from exercise and participation for 3-6 months
  – Must be cleared by their PCP with appropriate pediatric medical subspecialist, (e.g., pediatric cardiologist), EKG, echocardiogram, 24-hour Holter, exercise stress test, and if warranted, CMRI before considering return to activity

COVID-19 Patient Questions

1. Has the patient had any of the following symptoms in the past 14 days
   i. Fever or chills, cough, SOB or difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting or diarrhea
   ii. Get date started and date resolved

2. Has patient ever had a positive test for SARS-CoV-2 (PCR, antigen, antibody)? If yes, get date of test.

3. Was patient hospitalized? If yes, dates and location.

4. If the patient had symptoms that might be COVID or possible cardiac related symptoms (SOB, palpitations, exercise intolerance, chest pain) then consider testing for SARS-CoV-2 if not done previously, especially if known exposure

https://www.amssm.org/PublicationFiles/Interim-Guidance-PPE-COVID.pdf
Closing Thought
Nationwide, Black People are Dying at 2.4 Times the Rate of White People

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Deaths per 100,000 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black or African American</td>
<td>94</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>61</td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>60</td>
</tr>
<tr>
<td>Asian</td>
<td>43</td>
</tr>
<tr>
<td>White</td>
<td>40</td>
</tr>
<tr>
<td>Native Hawaiian and Pacific Islander</td>
<td>39</td>
</tr>
<tr>
<td>Other</td>
<td>35</td>
</tr>
<tr>
<td>Two or more races</td>
<td>4</td>
</tr>
</tbody>
</table>

We have lost at least 38,827 Black lives to COVID-19. Black people account for 21% of COVID-19 deaths where race is known.

Source: The COVID Tracking Project, COVID Racial Data Tracker, 9/21/2020

Fauci lecture 9/22/202 at MIT
Please remember to vote and to remind your patients/families about the importance of voting.

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Medical School Leaderboard  State Leaderboard

Strengthening Our Healthcare System — One Vote at a Time

https://vot-er.org/