COVID-19 for Pediatric Populations

October 6, 2020
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
• CDPH and IDPH guidances
• New data
• Mitigation strategies
• Discussion
COVID-19 Trends Among School-Aged Children — United States, March 1–September 19, 2020

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TABLE. Demographic characteristics and underlying conditions among school-aged children aged 5–11 years and 12–17 years* with positive test results for SARS-CoV-2 (N = 233,474) — United States, March 1–September 19, 2020

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All (N = 277,285)</th>
<th>5–11 yrs (n = 101,503)</th>
<th>12–17 yrs (n = 175,782)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex†</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>140,755 (50.8)</td>
<td>50,096 (49.4)</td>
<td>90,659 (51.6)</td>
</tr>
<tr>
<td>Male</td>
<td>136,530 (49.2)</td>
<td>51,407 (50.6)</td>
<td>85,123 (48.4)</td>
</tr>
<tr>
<td>Median age, yrs</td>
<td>13</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Symptom status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>161,751 (58.3)</td>
<td>56,917 (56.1)</td>
<td>104,834 (59.6)</td>
</tr>
<tr>
<td>No</td>
<td>12,806 (4.6)</td>
<td>5,985 (5.9)</td>
<td>6,821 (3.9)</td>
</tr>
<tr>
<td>Missing/Unknown</td>
<td>102,728 (37.0)</td>
<td>38,601 (38.0)</td>
<td>64,127 (36.5)</td>
</tr>
</tbody>
</table>
FIGURE 1. COVID-19 incidence* among school-aged children aged 5–11 years (N = 101,503) and 12–17 years (N = 175,782), by week — United States, March 1–September 19, 2020†

* Incidence = cases per 100,000, calculated using 2018 population from https://datacenter.kidscount.org/.
† Data included through September 19, 2020, so that each week has a full 7 days of data.  
https://www.cdc.gov/mmwr/volumes/69/wr/mm6939e2.htm
COVID Dashboard

CHICAGO I COVID-19 Citywide Positivity Rate

Current Positivity rate
Based on a 7 day rolling average

4.3% ▲
Prior wk.: 4.3%

Tests performed (3/1/2020 - 10/4/2020)
Cumulative tests

1,142,291

Tests performed and testing target (7 day rolling average)

Daily tests (7 day rolling average)

8,946 ▲
Prior wk.: 8,360 (7%)

Confirmed cases (3/1/2020 - 10/3/2020)
Cumulative cases

81,715

Daily tests performed

324 ▲
Prior wk.: 303 (7%)
Cumulative COVID-19 Cases among Chicago residents 5-14 years of age by Chicago zip code as of September 29, 2020

Map showing the number of new cases since 3/1/2020

Left: Map courtesy of Margarita Reina, CDPH
COVID-19 tests and Person Positivity (7DRA) among 5-14 year olds

Figure courtesy of Margarita Reina, CDPH
Pediatric Cumulative COVID-19 Testing Rates by Population (0-17 years of age)
Chicago zip code through September 29, 2020

Map showing Zip Codes with positivity >= 10% from week ending 9/26/2020

Left: Map courtesy of Margarita Reina, CDPH
Updates to CDPH Interim PreK-12 Guidance on 9/25/20 – includes new CDPH COVID-19 Testing Guide

AIM: Early identification of cases in addition to early quarantine and testing of close contacts will prevent transmission as we work to improve pediatric testing capacity.

* The diagnostic viral testing landscape for COVID-19 is evolving rapidly. Clinicians should choose an appropriate test based on their clinical suspicion of COVID-19. Factors to consider include the sensitivity and turnaround time of the test, the clinical presentation, time since symptom onset, risk of exposure to COVID-19, underlying risk factors for severe COVID-19 and the risk of onward transmission. For example, if high clinical suspicion exists due to clinical appearance or risk factor (e.g. contact with a confirmed case), and an antigen or other rapid test is negative, healthcare providers may consider obtaining a PCR test.

† A positive result on any viral test (antigen, rapid molecular or PCR) should be considered positive for public health purposes.

** The diagnostic viral testing landscape for COVID-19 is evolving rapidly. Clinicians should choose an appropriate test based on their clinical suspicion of COVID-19. Factors to consider include the sensitivity and turnaround time of the test, the clinical presentation, time since symptom onset, risk of exposure to COVID-19, underlying risk factors for severe COVID-19 and the risk of onward transmission. For example, if high clinical suspicion exists due to clinical appearance or risk factor (e.g. contact with a confirmed case), and an antigen or other rapid test is negative, healthcare providers may consider obtaining a PCR test.

§ Test again only if symptoms develop during the remaining quarantine period.

**COVID-19 INTERIM EXCLUSION GUIDANCE**

Decision Tree for Symptomatic Individuals in Pre-K, K-12 Schools and Day Care Programs

<table>
<thead>
<tr>
<th>Status</th>
<th>A. COVID-19 diagnostic test Positive (confirmed case) OR COVID-like symptoms without COVID-19 testing and exposed to confirmed case (probable case)</th>
<th>B. Symptomatic individual with a negative COVID-19 diagnostic test</th>
<th>C. Symptomatic individual with an alternative diagnosis without negative COVID-19 diagnostic test</th>
<th>D. Symptomatic individual without diagnostic testing or clinical evaluation</th>
<th>E. Asymptomatic individual who is a close contact to a confirmed or probable COVID-19 case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluated by Healthcare Provider</td>
<td>YES / NO</td>
<td>YES / NO</td>
<td>YES</td>
<td>NO</td>
<td>NA</td>
</tr>
<tr>
<td>Return to School Guidance</td>
<td>Stay home at least ten calendar days from onset of symptoms AND for 24 hours with no fever (without fever-reducing medication) AND improvement of symptoms.</td>
<td>Stay home until symptoms have improved/resolved per return-to-school criteria for diagnosed condition. Follow provider directions, recommended treatment &amp; return to school guidance as per school policies and IDPH Communicable Diseases in Schools.</td>
<td>Stay home until symptoms have improved/resolved per return-to-school criteria for diagnosed condition. Follow provider directions, recommended treatment &amp; return to school guidance as per school policies and IDPH Communicable Diseases in Schools.</td>
<td>Stay home at least ten calendar days from onset of symptoms AND for 24 hours with no fever (without fever-reducing medication) AND improvement of symptoms.</td>
<td>Stay home for 14 calendar days after last exposure to the COVID-19 case. If COVID-19 illness develops, use the ten-day isolation period guidance for a COVID-19 case from the onset date. Testing is recommended.</td>
</tr>
<tr>
<td>Quarantine for Close Contacts?</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>Household Member (e.g., Siblings, Parent)</td>
<td>NA</td>
</tr>
<tr>
<td>Documentation Required to Return to School</td>
<td>Release from isolation letter (if received from their LHD) provided by the parent/guardian or staff person, notification via phone, secure email or fax from the LHD to the school, OR other process implemented by your LHD</td>
<td>Negative PCR/molecular COVID-19 test result OR healthcare provider’s note indicating the negative PCR/molecular test result.</td>
<td>If testing is not performed due to the clinical judgment of the healthcare provider, a medical note is needed to return to school/day care documenting that there is no clinical suspicion for COVID-19 infection and indicate an alternative diagnosis with exclusion consistent with this diagnosis.</td>
<td>After the ten-day exclusion, a note from parent/guardian documenting that the ill student and/or household contacts are afebrile without fever-reducing medication and symptoms have improved.</td>
<td>Release from Quarantine letter (if received from their LHD) provided by the parent/guardian or staff member, LHD notification via phone, secure email or fax to the school OR other process implemented by your LHD</td>
</tr>
</tbody>
</table>

1 Based on available data and science, schools must make local decisions informed by local context in consultation with their local public health department. This chart should be used in conjunction with the Public Health Interim Guidance for Pre-K-12 Schools and Day Care Programs for Addressing COVID-19.

2 New onset of a symptom not attributed to allergies or a pre-existing condition.

3 Severely immunocompromised or severely ill: may need to isolate for 20 days as per guidance from the individual’s infectious disease physician.

4 If the individual has been identified by public health for quarantine or knows they are a close contact to a case, the 14-calendar-day quarantine must be completed.

5 Consider quarantine for other close contacts if there was poor adherence to social distancing or use of face coverings.

6 Contacts to close contacts of a case do not need to be excluded unless the close contact becomes a confirmed or probable case.

7 Excludes schools in Chicago

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Medical Evaluation and Testing are Strongly Recommended for ALL Persons with COVID-Like Symptoms.

Send home or deny entry (and provide remote instruction) if **ANY** of the following symptoms are present: Fever (100.4°F or higher), new onset of moderate to severe headache, shortness of breath, new cough, sore throat, vomiting, diarrhea, abdominal pain from unknown cause, new congestion/runny nose, new loss of sense of taste or smell, nausea, fatigue from unknown cause, muscle or body aches.

*Revised 9/24/2020 Interim Guidance, Subject to updates*
Supplemental Guidance: Considerations for School Nurses and Healthcare Providers

Box A. Assessment of Symptomatic Persons
Consider the following when assessing symptomatic students/staff:

- Are symptoms new to the student/staff person or are they a change in baseline for that individual?

Does the symptomatic individual have any of the following potential exposure risks?

- Did the student/staff have an exposure to a suspected or confirmed COVID-19 case in the past 14 days?
- Is there a household or other close contact with similar symptoms who has not been yet classified as a confirmed or probable case?
- Is there a household member or other close contact with high-exposure risk occupation or activities (e.g. HCW, correctional worker, other congregate living setting worker or visitor)?
- Did the student/staff member have potential exposure due to out-of-school activities (private parties, playing with friend groups, etc.) or have poor compliance with mask wearing and social distancing?
- Do they live in an area of moderate or high community transmission? (as defined in the Adaptive Pause Metrics guidance)
- Do they have a history of travel to an area of high transmission in previous 14 days?
- Is there an outbreak in the school or has there been another known case of COVID-19 in the school building in the last 14 days or are there other students or staff in the classroom or cohort currently out with COVID-19 symptoms?

Box B. Clinical Evaluation for Children with Symptoms of COVID-19

Consider the individual’s risk of exposure. See Box A.

TESTING

PCR or antigen (Ag) testing is acceptable.
- If an Ag detection test is negative and there is a high clinical suspicion of COVID-19, confirm with PCR, ideally within 2 days of the initial Ag test.
- If RT-PCR testing is not available, clinical discretion can be used to recommend isolation.

Test result is only valid for the day of specimen collection.

Isolation COVID-19 Testing Recommended

Alternate diagnoses should be considered, and exclusions based on usual practice. (Isolate until at least 24 hours fever-free without fever-reducing medicine)


Resources:

COVID-19 incidence among adolescents aged 12–17 years was approximately twice that in children aged 5–11 years.

At least one underlying medical condition was reported among school-aged children who were hospitalized (16%), admitted to an intensive care unit (27%), or who died (28%).

3% (7,738 ) reported an underlying condition, chronic lung disease, including asthma, was most commonly reported (55%), followed by disability (9%), immunosuppressive conditions (7%), diabetes (6%), psychological conditions (6%), cardiovascular disease (5%), and severe obesity (4%).

Among school-aged children with complete information on race/ethnicity who were hospitalized or admitted to an ICU, Hispanic ethnicity was most commonly reported (45% and 43%, respectively), followed by Black (24% and 28%, respectively) and White (22% and 17%, respectively) races.

58% reported at least one symptom, 5% reported no symptoms, and information on symptoms was missing or unknown for 37%.

https://www.cdc.gov/mmwr/volumes/69/wr/mm6939e2.htm?s_cid=mm6939e2_w
Group at Stanford tested 1217 NP specimens from 1206 unique patients from March 2020.

- Co-infection in 24 of 116 (21%) specimens positive for SARS-CoV-2
- The most common co-infections were rhinovirus/enterovirus (6.9%), respiratory syncytial virus (5.2%), and non–SARS-CoV-2 Coronaviridae (4.3%)
- The youngest patient in the SARS-CoV-2 co-infection group was aged 9 years
- While patients with co-infections did not differ significantly in age from those infected with SARS-CoV-2 only (mean age 46.9 years and 51.1 years respectively, (4.2-year difference [95% CI, -4.8 to 13.2]), no specific pediatric data on co-infection and disease severity was presented.
### CDC indicators and thresholds for risk of introduction and transmission of COVID-19 in schools

**Chicago annotated**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Lowest risk of transmission in schools</th>
<th>Lower risk of transmission in schools</th>
<th>Moderate risk of transmission in schools</th>
<th>Higher risk of transmission in schools</th>
<th>Highest risk of transmission in schools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core Indicators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of new cases per 100,000 persons within the last 14 days*</td>
<td>&lt;5</td>
<td>5 to &lt;20</td>
<td>20 to &lt;50</td>
<td>50 to ≤ 200</td>
<td>&gt;200</td>
</tr>
<tr>
<td>Percentage of RT-PCR tests that are positive during the last 14 days**</td>
<td>&lt;3%</td>
<td>3% to &lt;5%</td>
<td>5% to &lt;8%</td>
<td>8% to ≤ 10%</td>
<td>&gt;10%</td>
</tr>
<tr>
<td>Ability of the school to implement 5 key mitigation strategies:</td>
<td>Implemented all 5 strategies correctly and consistently</td>
<td>Implemented all 5 strategies correctly but inconsistently</td>
<td>Implemented 3-4 strategies correctly and consistently</td>
<td>Implemented 1-2 strategies correctly and consistently</td>
<td>Implemented no strategies</td>
</tr>
<tr>
<td>- Consistent and correct use of masks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Social distancing to the largest extent possible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Hand hygiene and respiratory etiquette</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cleaning and disinfection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- <strong>Contact tracing</strong> in collaboration with local health department</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary Indicators</th>
<th>&lt;-10%</th>
<th>-10% to &lt;-5%</th>
<th>-5% to &lt;0%</th>
<th>0% to ≤ 10%</th>
<th>&gt;10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent change in new cases per 100,000 population during the last 7 days compared with the previous 7 days (negative values indicate improving trends)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of hospital inpatient beds in the community that are occupied***</td>
<td>&lt;80%</td>
<td>&lt;80%</td>
<td>80 to 90%</td>
<td>&gt;90%</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Percentage of intensive care unit beds in the community that are occupied***</td>
<td>&lt;80%</td>
<td>&lt;80%</td>
<td>80 to 90%</td>
<td>&gt;90%</td>
<td>&gt;90%</td>
</tr>
<tr>
<td>Percentage of hospital inpatient beds in the community that are occupied by patients with COVID-19***</td>
<td>&lt;5%</td>
<td>5% to &lt;10%</td>
<td>10% to 15%</td>
<td>&gt;15%</td>
<td>&gt;15%</td>
</tr>
<tr>
<td>Existence of localized community/public setting COVID-19 outbreak****</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Number of new cases per 100,000 persons within the last 14 days is calculated by adding the number of new cases in the county (or other community type) in the last 14 days divided by the population in the county (or other community type) and multiplying by 100,000.
Five Key Mitigation Strategies

- **Masks**: Encourage consistent and correct use of face masks, by all students, teachers, and staff to prevent SARS-CoV-2 transmission through respiratory droplets.

- **Social Distancing**: Maintain a distance of at least 6 feet between people.

- **Hand hygiene and respiratory etiquette**: Teach and reinforce handwashing with soap and water for at least 20 seconds and increase monitoring to ensure adherence among students and staff.

- **Cleaning and disinfection**: Clean and disinfect frequently touched surfaces (e.g., playground equipment, door handles, sink handles, toilets, drinking fountains) within the school and on school buses at least daily or between use as much as possible.

- **Contact Tracing**: Systematic contact tracing of infected students, teachers, and staff in collaboration with local health department.

- Visual signage posted throughout facilities regarding hygiene, social distancing

- Encourage social distancing within the classroom, promote distancing by moving desks or furniture in the classroom

- Face coverings required at all times while inside the school building

- Hallways or other places where students queue marked with suggested 6 ft distancing markings

- Provide hand sanitizer stations throughout school and office spaces, including at all entrances, exits, and classrooms

- Any student or staff who arrives with COVID-19 symptoms or develops symptoms during the day should be separated in a designated space while transportation home is arranged

Additional Layered Mitigation Strategies

• **Cohorting**: Cohorts (or “pods”) are groups of students, and sometimes teachers or staff, that stay together throughout the school day to minimize exposure for students, teachers, and staff across the school environment. **Ensure that cohorts are as static as possible by having the same group of students stay with the same teachers or staff** (all day for young children, and as much as possible for older children).
  - Alternating schedules with fixed cohorts: Alternate schedules with fixed cohorts of students and staff to decrease class size and promote social distancing to prevent wide scale transmission.
  - Communal spaces: Close communal use of shared spaces, such as dining halls and playgrounds with shared playground equipment, if possible; otherwise, stagger use and clean and disinfect between use.

• **Ventilation**: Ensure ventilation systems operate properly and increase circulation of outdoor air as much as possible, for example by opening windows and doors. Do not open windows and doors if doing so poses a safety or health risk (e.g., risk of falling, triggering asthma symptoms) to anyone using the facility.

• **Water systems**: Take steps to ensure that all water systems and features (e.g., sink faucets, decorative fountains) are safe to use after a prolonged facility shutdown.

• **Physical barriers and guides**: Install physical barriers, such as sneeze guards and partitions, particularly in areas where it is difficult for individuals to remain at least 6 feet apart (e.g., reception desks).

Discussion