Children and COVID-19

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As of Aug 26, over 4.79M children have tested positive for COVID-19

>203,000 pediatric cases added in a week matches winter surge peaks. Children were 22.4% of the weekly reported COVID-19 cases

Child hospitalizations reached a new peak: 330 children/day

~500 US children have died from COVID-19

https://covid.cdc.gov/covid-data-tracker/#demographics
Protecting Children from COVID-19: Don’t wait to vaccinate

- **COVID-19 Vaccines** are the first and best defense against COVID-19
  - 470k children received their first COVID-19 vaccine in the last week

- **Get as many people around children vaccinated as possible**
  - Vaccinations lagging among younger adults – parents, caregivers, staff in childcare and schools
  - Parental vaccination status is a marker for adolescent vaccination status – vaccine hesitancy among parents may lead to missed opportunities to vaccinate adolescents
  - Also includes all eligible adolescents age 12+

- **Strategies**
  - **Make getting vaccinated easy**: On-site vaccine events (e.g., at schools)
  - **Educate and earn trust**: Adapt key messages and use toolkits to fit the needs of the community and is responsive to concerns. Work with trusted messengers and host info sessions.
  - **Employer roles**: Flexible/paid sick leave, vaccine mandates

Protecting Children from COVID-19: Layered Protection

• **Proper Masking**: Most effective mitigation strategy when COVID-19 is circulating and vaccination is unavailable or insufficient uptake
  • Focus on comfort and fit
  • Children <2 years old should not wear masks
  • Evidence that children can recognize social/emotional cues from unmasked parts of face

• **Physical Distancing**: >6 feet is best and choose outdoors when possible

• **Handwashing and Respiratory Etiquette**: Elbows, not hands

• **Getting Tested Early if You or Your Child Has Symptoms**:
  • Monoclonal antibodies available under EUA for people with high-risk conditions ages 12+ (e.g., obesity)
  • Insufficient data in children, but a multidisciplinary panel is revisiting their recommendation against routine administration in children because of Delta

Keep up with children’s usual care: Bring children in for well visits

• *Routine vaccines are critical for health*: Flu, RSV. Can co-administer COVID-19 with childhood vaccines
• *Do not delay care*: If you think your child is sick, call your doctor for advice or instructions

https://www.pnas.org/content/118/4/e2014564118
Schools are a safe environment for children & staff, if mitigation strategies are followed

Masks

- Spread in schools was <1% in masked environments: NC (in winter, 209 cases, 26,610 quarantined), UT (5 cases, 1,041 close contacts), WI (7 cases, 5530 students/staff contacts), NE (2 cases, >4000 quarantined)
- Higher rates of spread in unmasked school settings: 30% at wrestling tournament in FL, 13-16% in Israel, 37% higher in GA
- High vaccination rates (>70-80%) and low community transmission may safely allow transitioning away from universal masking of students and staff in K-12 schools

Physical distancing

- Inability to physically distance should not limit in-person instruction when appropriate masking adherence and other strategies are used
- NC data suggests: Districts permitting 1, 2, or 3 students per bus seat with masks saw no difference in secondary transmission
  - Modified quarantine policies in schools (i.e., no quarantine for appropriately masked students) has been shown to be safe and promotes in-person education
  - Surveillance and symptomatic testing. Consider more frequent testing for unvaccinated students/staff engaged in higher risk extracurricular activities
Adolescents & COVID-19 Vaccines: Coverage & Acceptability

COVID-19 Adolescent Vaccination Coverage (ages 12-17, as of July 31, 2021)
- At that time: 42.4% for at least 1 dose; 31.9% for series completion
- **Wide state variation**: 20.2% in MS to 70.1% in VT for series initiation
- **Increasing coverage with age**. Vast majority received second dose
  - 12-13 yr olds: 36.0% first dose, 25.4% completion
  - 14-15 yr olds: 40.9% and 30.5%
  - 16-17 yr olds: 50.6% and 40.3%
- **Inequities**: White children had higher COVID-19 vaccination rates than Black children in all 7 states reporting race/ethnicity adolescent vaccination data
  - 64% White vs 15% Black in DC
  - 55% White vs 23% Black in CT

- **Intentions**: 56% parents of unvaccinated 12-17 year olds would definitely/probably have their teen vaccinated (April 2021)
  - Lower intentions among parents who were female, Hispanic, living in MW or South, or with lower education.
- **Factors that would increase vaccine intentions**: Receiving more information about COVID-19 vaccine safety and efficacy; COVID-19 vaccine requirements in schools

http://dx.doi.org/10.15585/mmwr.mm7035e1; http://dx.doi.org/10.15585/mmwr.mm7028e1external
Adolescents and the COVID-19 Vaccines: Efficacy

• Protects well against symptomatic, lab-confirmed COVID-19
  • Age 16+: 90.9% (95%CI 88.5%, 92.8%)
  • Age 16-17: 100% (95%CI 62.4%, 100%)
  • Age 12-15: 100% (95%CI 78.1%, 100%)
    • 2,229 adolescents 12-15 years old in the US
    • 18 cases in placebo group vs 0 in vaccinated group
    • No severe cases of COVID-19

• Protects very well against COVID-19 associated hospitalization for age 16+: 100% (95% CI -0.0%, 100%)

• Strong immune response in 12-15 year olds

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No. of Participants</th>
<th>Geometric Mean 50% Neutralizing Titer (95% CI)</th>
<th>Geometric Mean Ratio (95% CI), 12 to 15 Yr vs. 16 to 25 Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>12–15 yr</td>
<td>190</td>
<td>1239.5 (1095.5–1402.5)</td>
<td>1.76 (1.47–2.10)</td>
</tr>
<tr>
<td>16–25 yr</td>
<td>170</td>
<td>705.1 (621.4–800.2)</td>
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• Multiple studies showing that vaccines are working very well in the real world: ≥89%

Adolescents and the COVID-19 Vaccines: Safety

The benefits of the COVID-19 vaccines far outweigh the risks for adolescents

- Among 8.9M US adolescents 12-17 vaccinated through July 16, 2021:
  - VAERS 9,246 reports received: 58.1% in ages 12-15 years; 41.9% in ages 16-17 years
    - **90.7% nonserious adverse events.** Common conditions were **dizziness** (20.1%), **syncope** (13.3%, 61% in females, median age 15, 16% transported to ED for evaluation), **headache** (11.1%)
    - **9.3% serious adverse events.** Common conditions were chest pain (56.4%), increased troponin level (41.7%), myocarditis (40.3%), increased CRP (30.6%) → all consistent with **myocarditis diagnosis**
  - v-safe 129,000 adolescents enrolled: 63.4% local reactions, 48.9% systemic reactions (more after 2nd dose)
    - Most common: injection site pain, fatigue, headache, and myalgia
    - In week after dose 2: ~1/3 reported fever, ~1/4 unable to perform normal daily activities

- **Myocarditis**
  - Rare after vaccination: ~12.6 cases out of every million second dose administrations, mostly among younger males
  - More common after infection: More common in infected (11 extra cases per 100k) than vaccinated (2.7 extra cases) persons. 12-17 yr old boys ~6 times more likely to develop myocarditis after infection than vaccination (preprint data)

https://www.cdc.gov/mmwr/volumes/70/wr/mm7031e1.htm?s_cid=mm7031e1_w
Myocarditis: https://www.cdc.gov/mmwr/volumes/70/wr/mm7027e2.htm; Barda et al. *NEJM*. DOI: 10.1056/NEJMoa2110475;
https://www.medrxiv.org/content/10.1101/2021.07.23.21260998v1
# COVID-19 Vaccines in Younger Children: What’s Next?

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Pfizer</th>
<th>Moderna</th>
<th>Johnson &amp; Johnson</th>
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<tbody>
<tr>
<td>16-17 years</td>
<td><strong>Full approval on Aug 23, 2021</strong> (after EUA on Dec 11, 2020)</td>
<td><strong>EUA requested Jun 10 (93% effective, safe)</strong></td>
<td><strong>Announced in April 2021, ongoing</strong></td>
</tr>
<tr>
<td>12-15 years</td>
<td><strong>EUA approved May 10, 2021. Additional time required before approval</strong></td>
<td><strong>EUA requested Jun 10 (93% effective, safe)</strong></td>
<td><strong>Ongoing</strong></td>
</tr>
<tr>
<td>5-11 years</td>
<td><strong>Started March 2021, expect EUA submission in Sept</strong></td>
<td><strong>Started March 2021, expect EUA submission in fall</strong></td>
<td><strong>Planned</strong></td>
</tr>
<tr>
<td>6mo - 5yrs</td>
<td><strong>Started March 2021, ongoing</strong></td>
<td><strong>Started March 2021, ongoing</strong></td>
<td><strong>Planned</strong></td>
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- **Pfizer**: Examining increasing doses (dose-escalation) on safety, tolerability, and immunogenicity in a two-dose schedule in 3 age groups: 5-11 years, 2-5 years, and 6 months-2 years. Expected enrollment of ~4,500 children.

- **Moderna**
  - **TeenCOVE**: 3,732 participants 12-17 years old. 0 cases in vaccinated arm. Similar safety, tolerability profile as in adult study.
  - **KidsCOVE**: Expected enrollment ~12,000 children age 6 months to 12 years

- **Smaller Dose**: Anticipate smaller dose for children <12 years old due to size & stronger immune response

- **AAP** has urged FDA to authorize COVID-19 vaccines for children <12 as soon as possible

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**FDA and AAP Strongly Discourage Off-Label Use in Children <12 years Old**:
Providers risk violation of provider agreement, liability for adverse events, & potentially forfeiting payment