COVID-19 Vaccines in Adolescents: Talking Points, ACIP Meeting Recap and Questions & Answers

May 13, 2021

Talking Points

- On May 10, 2021, FDA expanded the current EUA for Pfizer COVID-19 vaccine to include adolescents 12 through 15 years of age. On May 12, CDC's independent advisory committee on vaccines (ACIP) voted to recommend the use of this vaccine in ages 12-15 as well.
- 2260 children ages 12 through 15 participated in the Pfizer COVID-19 vaccine clinical trial and the vaccine was found to be 100% effective in preventing COVID-19 disease in this age group.
- Pfizer trial participants in the 12 through 15-year-old age group had similar side effects as those seen in older populations (e.g., pain at the injection site, tiredness, headache, chills, muscle aches, fever and joint pain). Systemic reactions (e.g., fever, fatigue, headache, chills), were more common after the second dose and most symptoms resolved in 1-2 days.
- All three currently authorized vaccines: Pfizer, Moderna and Johnson & Johnson are currently conducting trials in children and adolescents.
- There is no evidence that COVID-19 vaccine will affect fertility or child-bearing for children receiving the vaccine.
- Vaccinating young people is a key step to opening up schools safely, as well as keeping family members of all ages safe and healthy.

May 12, 2021 ACIP Meeting Recap

- There have been over 1.5 million reported cases of COVID-19 disease and >13,000 hospitalizations due to COVID-19 in adolescents 12-17 years of age as of April 30, 2021 (the hospitalization rate is higher in this age group than was observed during the 2009-10 H1N1 pandemic).
- Adolescents 12-17 years of age are at risk of severe illness from COVID-19.
- Clinical presentation of MIS-C is more severe in adolescents than younger children.
- COVID-19 in adolescents may also contribute to transmission in households and communities, including older vulnerable populations.
- Adolescents represent an increasing proportion of recent COVID-19 cases.
- Approximately 20% of the children in Pfizer's 12–15-year-old clinical trial had an underlying medical condition. The demographics of the children in the study included: 5% non-Hispanic Black, 11.7 % Hispanic/Latino, 6% Asian, 0.4% American

Indian/Alaska Native, 0.3% Native Hawaiian or other Pacific Islanders, and 85% White.

- COVID-19 vaccine must be administered according to applicable state, territorial and jurisdictional vaccination laws, including those related to consent. There is no federal, legal requirement for caregiver consent for COVID-19 vaccination or any other vaccination.
- Pfizer-BioNTech dosing and administration information:

Authorized age groups	**≥ 12 years**
Number of doses in series	2 doses
Interval between 1st and 2nd doses*	3 weeks
Dose volume	0.3 ml
Route	Intramuscular

*If it is not feasible to adhere to the recommended interval, the second dose may be administered up to 6 weeks (42 days) after the first dose.

- The COVID-19 vaccine and other vaccines may now be administered on the same day. This includes simultaneous administration of COVID-19 vaccine and other vaccines on the same day, as well as co-administration within 14 days. It is unknown whether reactogenicity is increased with coadministration, including with other vaccines known to be more reactogenic, such as adjuvanted vaccines. When deciding whether to co-administer with COVID-19 vaccines, providers should consider whether the patient is behind or at risk of becoming behind on recommended vaccines and the reactogenicity profile of the vaccines.
- People with a history of MIS-C and MIS-A have high antibodies to the COVID virus, however it is unclear how long protection may last. Persons with this history may choose to be vaccinated and consider delaying vaccination until they have recovered from illness and for 90 days after diagnosis of MIS-C or MIS-A.
- Contraindications to the vaccine in adolescents are the same as in adults, including:
    - Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of the COVID-19 vaccine
    - Immediate allergic reaction of any severity to a previous dose or known (diagnosed) allergy to a component of the vaccine
    - Known polysorbate allergy is no longer a contraindication to mRNA vaccination but is a contraindication to Janssen COVID-19 vaccine and thus, a precaution to mRNA COVID-19 vaccination.

- The post-vaccination waiting time for adolescents is 30 minutes or 15 minutes as is with adults. There is a 30-minute wait period for those with a history of immediate allergic reaction (any severity) to a vaccine or injectable therapy, a contraindication to a different type of COVID-19 vaccine or a history of anaphylaxis (due to any cause). There is a 15-minute waiting period for everyone else.
- There is syncope (fainting) risk after any injectable vaccine in adolescents. Procedures should be in place to prevent falling injuries and manage syncopal reactions following COVID-19 vaccination. Individuals are recommended to be observed following COVID-19 vaccination for at least 15 minutes; patients should be seated or lying down during the observation period to decrease the risk for injury should they faint. If syncope develops, patients should be observed until symptoms resolve.
- There are no data as yet regarding the duration of protection or the need for booster doses in children. Results of ongoing studies will be available soon. Updated clinical guidance from the CDC to be posted on CDC's website soon.
- Among parents surveyed, about half plan to get their children vaccinated. Reasons for not vaccinating:
    - not sure it will be safe (59%)
    - vaccine developed too quickly (59%)
    - don't trust info being published about the vaccine (48%)
    - won't trust right away (44%)
    - don't have enough info (43%)
- Parents reported similar or slightly lower intent to vaccinate their children compared to intent to vaccinate themselves.
- Intent to vaccinate children differed by parent's gender, age, and income status. There were also differences by race/ethnicity. Source
- Most jurisdictions are utilizing a variety of implementation strategies to vaccinate adolescents.
- Adolescents and their parents report greatest comfort with receiving COVID-19 vaccine at their primary care providers' offices and nearly all primary care providers surveyed are willing to provide COVID-19 vaccines to their patients.
- Current cold-chain storage requirements and package sizes could limit the availability of the Pfizer-BioNTech COVID-19 vaccine. States and jurisdictions will have to consider this in their allocation and distribution strategy.
- The following vaccination strategies should be considered to vaccinate adolescents:

Augment existing public health infrastructure and add new channels to vaccinate adolescents

Category	Approach
Primary care providers serving adolescents	Utilize primary care as trusted providers to notify, schedule, and vaccinate their patients, including managing routine immunizations, particularly as students return to school
Pharmacies and HRSA sites[1]	Leverage broad pharmacy footprint and HRSA sites to administer COVID-19 vaccine to adolescents rapidly, as with adults
School-based vaccination	Partner with Federally Qualified Health Centers, pharmacies, public health, and adolescent provider networks to hold targeted programs at schools to ensure equity and coverage, particularly as students return

. Health Resources and Services Administration (HRSA) sites including: Federally Qualified Health Centers (FQHCs), Rural Health Clinics, Community Health Centers

Resources:
CDC Director's Statement
ACIP Meeting Presentation
ACIP Meeting Presentation 2
ACIP Meeting Presentation 3

Questions & Answers:

- Did the FDA expand the EUA for Pfizer COVID-19 vaccine to adolescents 12-15 years of age?
- What are the differences between COVID-19 pediatric clinical trials and adult clinical trials? Which vaccines have ongoing pediatric trials?
- What is the burden of COVID-19 disease and MIS-C in children?
- Are there specific safety concerns in children post COVID-19 vaccination (e.g., increased cases of MIS-C)?
- Does AAP support COVID-19 vaccination for children?
- What safety measures should be in place post-vaccination and what about returning to school this fall?
- How can pediatricians prepare for COVID-19 vaccination of children?
- What is AAP's #CallYourPediatrician campaign and toolkit?

- Are there any safety concerns with the new technologies (mRNA and nanotechnology) being used in the development of the Pfizer-BioNTech and Moderna COVID-19 vaccines?
- Will the vaccine affect fertility or child-bearing if I give it to my younger adolescent?
- Are scientists worried about the development of blood clots after vaccination in children?
- What vaccine safety surveillance programs are in place?

Did the FDA expand the EUA for Pfizer COVID-19 vaccine to adolescents 12-15 years of age?

On May 10, 2021, the FDA expanded the current EUA for Pfizer COVID-19 vaccine to include adolescents 12 through 15 years of age. The vaccine will be administered in children 12 through 15 years of age as a series of 2 doses, three weeks apart, using the same dosage and dosing regimen that is used for individuals 16 years and older.

The clinical trial included 2260 participants ages 12 through 15 years old, which is still ongoing. Half of the participants received the vaccine and half received a saline (salt water) placebo. More than half of the participants were followed for safety for at least 2 months after the second dose of vaccine.

The most commonly reported side effects in the adolescent clinical trial participants, which typically lasted 1-3 days, were pain at the injection site, tiredness, headache, chills, muscle pain, fever and joint pain. With the exception of pain at the injection site, more adolescents reported these side effects after the second dose than after the first dose, so it is important for vaccination providers and recipients to expect that there may be some side effects after either dose, but even more so after the second dose. The side effects in adolescents were consistent with those reported in clinical trial participants 16 years of age and older.

It is important to note that as a general matter, while some individuals experience side effects following any vaccination, not every individual's experience will be the same and some people may not experience side effects.

The Pfizer-BioNTech COVID-19 vaccine should not be given to anyone with a known history of a severe allergic reaction, including anaphylaxis—to any component of the vaccine. Since its authorization for emergency use, rare severe allergic reactions, including anaphylaxis, have been reported following administration of the Pfizer-BioNTech COVID-19 vaccine in some recipients.

The FDA looked at effectiveness two ways: immunogenicity and an analysis of COVID-19 cases. **The immune response to the vaccine in 190 participants, 12 through 15 years of age, was compared to the immune response of 170 participants, 16 through 25 years of age. In this analysis, the immune response of adolescents was non-inferior to (at least as good as) the immune response of the older participants.**

An analysis of cases of COVID-19 occurring among participants 12 through 15 years of age seven days after the second dose was also conducted. In this analysis, among participants with no prior evidence of COVID-19 disease, no cases of COVID-19 occurred among 1,005 vaccine recipients and 16 cases of COVID-19 occurred among 978 placebo recipients; **the vaccine was 100% effective in preventing COVID-19. No hospitalizations due to COVID-19 or cases of MIS-C were reported by trial participants. No deaths were reported among any trial participants, no cases of anaphylaxis were reported in the adolescent (12-15 years of age) study participants and no cases of Bell's Palsy or facial paralysis were reported in adolescents.**

At this time, there are limited data to address whether the vaccine can prevent transmission of the virus from person to person. In addition, at this time, data are not available to determine how long the vaccine will provide protection. The Pfizer vaccine will continue to be monitored for safety in all age groups for which it is authorized. It is mandatory for Pfizer Inc. and vaccination providers to report the following to the Vaccine Adverse Event Reporting System for Pfizer-BioNTech COVID-19 vaccine: all vaccine administration errors, serious adverse events, cases of Multisystem Inflammatory Syndrome (MIS) and cases of COVID-19 that result in hospitalization or death.

The Advisory Committee on Immunization Practices (ACIP) met on May 12, 2021 and voted to authorize the use of this vaccine in persons 12 to 15 years of age. They also met to discuss further guidelines or recommendations for use of the Pfizer vaccine in the 12- to 15-year-old age group. You may access the meeting details here.

What are the differences between COVID-19 pediatric clinical trials and adult clinical trials? Which vaccines have ongoing pediatric trials?

Vaccine trials in children also go through Phase 1, 2 and 3 as were done with adult COVID-19 vaccine trials. Some children will be assigned to the vaccine group and some to the placebo group, as in adult trials. Vaccine dosing may be the same or different for children versus adults. Source

The goal for scientists is to find the optimal dose for children. Researchers will select the lowest dose needed to generate a robust immune response.

The immune response is used to assess how well researchers expect the vaccine to protect children, immunobridging studies. This is different from the effectiveness studies performed in adults which requires tens of thousands of participants to show efficacy. In trials with children, because the total number of children in the study is so much less

(usually a few thousand) there may be far fewer symptomatic infections to measure efficacy the same way as in adult trials. Hence, scientists look at the immune response in children after vaccination (e.g., blood markers). If the immune responses after vaccination in children are the same or more than what was seen in adults, this means that the vaccine is effective in children.

Researchers also check how safe the vaccines are in children and strike a balance between eliciting a strong immune response and at the same time minimizing the side effects that might come with a strong immune response. Source

Scientists also have to consider whether or not COVID-19 vaccines interfere with the immunity generated by routine childhood vaccinations in younger children.

As of May 10, 2021, the following vaccine manufacturers are studying the safety and efficacy of COVID-19 vaccines in children and teens:

Vaccine	Age Group	Number of participants	Efficacy/safety	EUA authorization
Pfizer	12-15 years	2260	100% efficacy, side effect profile similar to that seen in persons 16 years and older who received the Pfizer vaccine	Authorized by FDA May 10, 2021
Pfizer	3 groups: - 5 - 11 years - 2 - 5 years - 6 months - 2 years	4500	No data available	Possibly mid-September
Pfizer			No data available	Possibly mid-September
Pfizer			No data available	Possibly early November
Moderna	12-17 years	3235	96% efficacy after 1 dose. Phase 2/3 study ongoing	
Moderna	6 months – 11 years	6750	Currently enrolling for Phase 2/3 trial	
J and J	12-17 years		Enrolling for Phase 2 study	
Novavax	12-17 years	3000	Enrolling for Phase 3 study	

What is the burden of COVID-19 disease and MIS-C in children?

Children can be infected with the virus that causes COVID-19, can get sick from COVID-19, and can spread the virus that causes COVID-19 to others. Children, like adults, who have COVID-19 but have no symptoms ("asymptomatic") can still spread the virus to others.

Since the onset of the pandemic, as of April 29, 2021:

- Over 3.78 million children have tested positive for COVID-19 since the onset of the pandemic
- Children represent 13.8% of total cumulated cases in states reporting cases by age and 2% of total hospitalizations due to COVID-19 to date
- There have been 296 deaths due to COVID-19 in children who have been tested since the onset of the pandemic (Not all states report data, so this may be an underestimate. Some scientists think it might be closer to 400). However, this is still a high number of deaths in a year. In some years 100-200 children die from the flu every year.

These numbers of course change from week to week. To view most current data visit AAP's site.

Most children with COVID-19 have mild symptoms or have no symptoms at all.

The symptoms of COVID-19 in children are similar to adults. The most common symptoms of COVID-19 in children are fever and cough, but children may have any of these signs or symptoms of COVID-19:

- Fever or chills
- Cough
- Nasal congestion or runny nose
- New loss of taste or smell
- Sore throat
- Shortness of breath or difficulty breathing
- Diarrhea
- Nausea or vomiting
- Stomachache
- Tiredness
- Headache
- Muscle or body aches
- Poor appetite or poor feeding, especially in babies under 1 year old

At this time, it still appears that severe illness due to COVID-19 is rare among children. Hospitalizations and death due to COVID-19 are not common in children.

Babies under 1 year old and children, regardless of age, with certain underlying conditions may be more likely to have severe illness from COVID-19. The conditions include:

- Asthma or chronic lung disease
- Diabetes
- Genetic, neurologic, or metabolic conditions
- Sickle cell disease
- Heart disease since birth
- Immunosuppression (weakened immune system due to certain medical conditions or being on medications that weaken the immune system)
- Medical complexity (children with multiple chronic conditions that affect many parts of the body, or are dependent on technology and other significant supports for daily life)
- Obesity

Pediatric providers stress an urgent need to collect more data on the longer-term impacts of the pandemic on children, including ways the virus may harm the long-term physical, emotional and mental health of children who become infected.

Multisystem inflammatory syndrome in children (MIS-C) is a rare condition that can occur in children and adolescents who develop COVID-19 disease. However, though rare, when it occurs, it can be serious. In MIS-C, different body parts can become inflamed, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs. We do not yet know what causes MIS-C. However, we know that many children with MIS-C had the virus that causes COVID-19, or had been around someone with COVID-19. MIS-C can be serious, even deadly, but most children who were diagnosed with this condition have gotten better with medical care.

CDC is still learning about MIS-C and how it affects children, so we don't know why some children have gotten sick with MIS-C and others have not. We also do not know if children with certain health conditions are more likely to get MIS-C. These are among the many questions CDC is working to try to understand.

- 3,742 MIS-C cases have been reported in the U.S. as of May 3, 2021.
- Most cases of MIS-C were in children and adolescents between the ages of 1 and 14 years, with a median age of 9 years.
- MIS-C cases have occurred in children and adolescents from <1 year old to 20 years old. 21% of cases occurred in adolescents 12-17 years.
- 63% of reported cases have occurred in children who are Hispanic or Latino (1,023 cases) or Black, Non-Hispanic (868 cases).
- 99% of cases (3,152) tested positive for SARS CoV-2, the virus that causes COVID-19. The remaining 1% were around someone with COVID-19.
- More than half (59%) of reported cases were male.

Vaccinating children may help to decrease COVID-19 disease cases in children. Vaccinating children may help us reach herd immunity faster. With the spread of variants and more adults vaccinated now than kids, children may now become more of the 'spreaders' of the virus.

Resources:

https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/children/symptoms.html
https://www.cdc.gov/mis-c/cases/index.html
https://www.chop.edu/navigating-covid-19-resources-parents

Are there specific safety concerns in children post COVID-19 vaccination (e.g., increased cases of MIS-C)?

Children who have been diagnosed with severe MIS-C have been found to have higher levels of antibodies to the SARS-CoV-2 virus (the virus that causes COVID-19 disease) including higher antibody levels against the spike protein and viral nucleocapsid.

A few scientists have speculated that this kind of inflammatory risk is concerning because if the vaccine is able to induce this same type of antibody response, then it would potentially place otherwise healthy children at risk of severe outcome following vaccination intended to prevent illness from SARS-CoV-2. Even in small numbers, this is highly concerning. We do not know as yet if this is a risk. Scientists will be looking for immune responses to the vaccine that might exacerbate underlying COVID-19 disease. They will also look to see whether trial participants are developing immune reactions similar to those seen in MIS-C. Source

One of the reasons to perform vaccine trials in children is to make sure that they do not have any side effects that are pediatric-specific. Since there are also cases of MIS-A, (Multisystem Inflammatory Syndrome in Adults), in young adults, if MIS were to be a problem, we may see it in the larger adult trials. We have not, to date. There is no known biomarker to predict an immune response that leads to MIS-C. It is also possible that protection from COVID-19 by vaccination will also protect against its sequelae, including MIS-C. Source

Does AAP support COVID-19 vaccination for children?

AAP released policy guidelines on May 12, 2021 regarding the use of COVID-19 vaccines in children and adolescents. The guidance states that vaccines are safe and effective in protecting individuals and populations against infectious diseases. New vaccines are evaluated by a long-standing, rigorous, and transparent process through the US Food and Drug Administration (FDA) and the Centers for Disease Control and Prevention (CDC) by which safety and efficacy data are reviewed prior to authorization and recommendation. Source

AAP recommends:

- COVID-19 vaccination for all children and adolescents 12 years of age and older who do not have contraindications using a COVID-19 vaccine authorized for use for their age.
- Any COVID-19 vaccine authorized through Emergency Use Authorization by the FDA, recommended by the CDC, and appropriate by age and health status can be used for COVID-19 vaccination in children and adolescents.
- Given the importance of routine vaccination and the need for rapid uptake of COVID-19 vaccines, the AAP supports coadministration of routine childhood and adolescent immunizations with COVID-19 vaccines (or vaccination in the days before or after) for children and adolescents who are behind on or due for immunizations (based on the CDC/AAP Recommended Child and Adolescent Immunization Schedule) and/or at increased risk from vaccine-preventable disease.

What safety measures should be in place post-vaccination and what about returning to school this fall?

For now, it is recommended that we continue to practice physical distancing, wear a well-fitting face mask, and use PPE during medical encounters. Initial data suggests that the COVID-19 vaccine not only prevent illness in the person who is vaccinated, but also prevents them from transmitting the virus; however, additional data is needed prior to discontinuing these prevention measures. Pediatricians can help by explaining this to families in their practice. CDC continues to recommend the use of masks, physical distancing, handwashing, cleaning and contact tracing in the school setting.

It is unknown at this time whether COVID-19 vaccination will be required for students attending primary and secondary schools (school immunization requirements vary by jurisdiction). Many colleges and universities are requiring students to be fully vaccinated with COVID-19 vaccine in order to attend in-person classes for the Fall 2021 semester.

How can pediatricians prepare for COVID-19 vaccination of children?

Pediatricians and their teams can begin preparing by:

- Enrolling to be a COVID-19 vaccine site in their state using enrollment websites
- Administering catch-up vaccines to children who are behind by contacting patients and families to encourage them to come to the office to get caught up on vaccines and using CDC's catch-up schedule
- Learning about providing COVID-19 vaccines to adults and consider enrolling in Medicare to provide COVID-19 vaccine to seniors

- Promoting vaccine confidence to patients and families using AAP's vaccine communication toolkit, CDC's COVID-19 vaccine confidence resources and de Beaumont's From Concern to Confidence guide

What is AAP's #CallYourPediatrician campaign and toolkit?

The AAP has developed the #CallYourPediatrician campaign to reach parents with timely reminders that going to the pediatrician is important and safe. The #CallYourPediatrician toolkit includes sample texts, videos and photos for social media posts.

Are there any safety concerns with the new technologies (mRNA and nanotechnology) being used in the development of the Pfizer-BioNTech and Moderna COVID-19 vaccines?

There are no known additional risks of mRNA vaccines or lipid nanoparticles. Live attenuated viral vaccines, such as measles vaccine, induce an immune response that is similar to natural infection. mRNA vaccines, on the other hand, simply give the body instructions to produce one very specific part of a virus – in this case the so-called spike protein – to then induce an immune response. Because mRNA is broken down very quickly in the human body, to do its work it needs to be able to get into our cells, and so it is wrapped in a lipid nanoparticle. Once it gets into the cells to deliver the instructions, the mRNA breaks down very quickly. It does not get into the nucleus of the cell, or into our genes. Since the new mRNA vaccines have been administered, their safety profiles are reassuring. Source

Will the vaccine affect fertility or child-bearing if I give it to my younger adolescent?

There is no evidence that the COVID-19 vaccine affects future fertility in either adults or children. Infertility has not been found to be an issue in women infected with COVID-19, so it would not be expected to be a concern for the vaccine.

While fertility was not specifically studied in the clinical trials of the vaccine, no loss of fertility has been reported among trial participants or among the millions who have received the vaccines since their authorization, and no signs of infertility appeared in animal studies. Similarly, there is no evidence that the COVID-19 vaccine affects puberty. Source

Concerns about antibodies generated by the COVID-19 vaccine attacking syncytin-1, a protein associated with the placenta during pregnancy, are unfounded. The claims, which circulated online, were based on a small number of similar amino acids in the two proteins, but the overlap is not sufficient to cause such a reaction. This notion has been addressed by Source 1, Source 2.

Are scientists worried about the development of blood clots after vaccination in children?

No blood clots were noted in the Pfizer-BioNTech clinical trial participants age 12 through 15 years after vaccination. It is not yet clear how the rare blood clots potentially linked to the Oxford–AstraZeneca and Johnson & Johnson vaccines will affect COVID-19 vaccine trials in children. The University of Oxford, UK, has paused a small trial in children age 6–17 years that began in February. Johnson & Johnson announced at the start of April that it was set to begin including adolescents in an ongoing trial of its vaccine but has since paused all its trials as the clots are investigated. Source

What vaccine safety surveillance programs are in place?

All COVID-19 vaccines granted Emergency Use Authorization (EUA) by the Food and Drug Administration (FDA) and vaccines on the Recommended Child and Adolescent Immunization Schedule, including co-administered vaccines are monitored through robust FDA and CDC systems that monitor vaccine safety in the United States. This vaccine safety system includes the Vaccine Adverse Event Reporting System (VAERS), Vaccine Safety Data Link (VSD), Clinical Immunization Safety Assessment (CISA), and V-SAFE, a new smartphone-based system added to the safety monitoring system specifically to monitor for side effects of the COVID-19 vaccines. These systems have proven that they work in picking up a safety signal for an extraordinarily rare complication with the Janssen COVID-19 vaccine. VAERS and VSD are specifically designed to monitor safety signals from simultaneous administration of multiple vaccines (i.e. co-administration). Source

AAP Resources:
Policy Statement
Press Statement

New HealthyChildren.org article