



Position paper

COVID Vaccines in Adolescents and Young Adults

The Society for Adolescent Health and Medicine



ABSTRACT

Worldwide, a number of COVID-19 vaccines have been approved or granted Emergency Use Authorization (EUA) or Emergency Use Listing for adolescents and young adults (AYA), which has brought hope to many across the globe. Extension of the EUA for a COVID-19 vaccine to children and adolescents aged 5 through 15 years is exciting news for children, adolescents, parents, and providers of AYA. Many countries around the globe have extended immunization against COVID-19 to younger age groups. At the same time, the COVID-19 pandemic has led to a decrease globally in administration of other adolescent vaccines. This highlights that vaccine recommendations do not necessarily lead to successful and equitable vaccine distribution, and overcoming barriers to vaccination is critical. Certain subpopulations of AYA, particularly those who are marginalized/underrepresented, do not receive appropriate health care. AYA should be offered protection against all vaccine-preventable illnesses at every opportunity. Creating innovative strategies to improve vaccine uptake among AYA should be encouraged.

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Positions of the Society for Adolescent Health and Medicine

1. The Society for Adolescent Health and Medicine supports the use of recommended COVID-19 vaccines for adolescents and young adults (AYA).
2. Strategies should be implemented to ensure equitable allocation of vaccines to historically and currently marginalized/underrepresented youth that include addressing medical distrust among racial and ethnic communities of color as a barrier to AYA vaccination.
3. Age-appropriate vaccines should be coadministered with COVID-19 vaccines.
4. Collaboration should be fostered with entities that facilitate improving AYA vaccination rates and vaccine equity.

Statement of the Problem

The worldwide COVID-19 pandemic has contributed to a global decline in immunization rates in AYA. Although immunization

Conflict of interest: Coyne-Beasley is an external advisory board (Scientific) member for Pfizer, Moderna, Sanofi Pasteur, and Dynavax. Zimet is a consultant to Sanofi Pasteur (Adolescent Immunization Initiative), Merck (HPV vaccination), and Moderna (COVID-19 vaccination) and recipient of research funding from Merck for investigator-initiated studies. Skinner received honoraria for educational contributions about GlaxoSmithKline and Seqirus vaccines.

rates are starting to improve in the United States, they are still suboptimal and there are groups of AYA who have had and continue to have delayed vaccinations [1]. Approval of COVID-19 vaccines for adolescents aged 16 years and older and Emergency Use Authorization (EUA) in the United States of COVID-19 vaccines for adolescents and children as young as 5 years of age are recent developments in the battle against SARS-CoV-2. The recommendation to vaccinate younger patients has been adopted by several countries around the world including, but not limited to, Australia, Brazil, Canada, India, Turkey, and the United States [2]. As knowledge of new vaccines and the novel coronavirus continue to evolve, this position seeks to help guide clinical providers on recommended immunization practices. It is also important to ensure that youth are protected against other vaccine-preventable illnesses in the context of the current COVID-19 pandemic. The COVID-19 pandemic has highlighted the need to reduce ongoing health disparities that have historically been poorly addressed. These include ensuring that underrepresented/marginalized youth around the world are offered appropriate opportunities to access preventive measures, care, and treatment. Creating strong connections within communities and immunization champions, including AYAs, could further advance vaccine advocacy efforts.

Methods

These recommendations are based on extensive reviews of current literature, policies, and practice guidelines. They include

an agreement of expert multidisciplinary opinions of contributing authors.

Positions and Recommendations

Position 1: The Society for Adolescent Health and Medicine supports the use of recommended COVID-19 vaccines for AYA

COVID-19 poses a significant threat to the health of AYAs. This is particularly true given the sequelae of COVID-19 infection, which can include a range of illnesses such as multi-system inflammatory syndrome in children and myocarditis, complications that can result in hospitalization, long-term health problems, and death [3]. Although, AYAs are more likely to experience mild forms of COVID-19 than older adults, they can still develop chronic (also known as “long-haul”) symptoms [4,5] and can die from the disease. It has been estimated that 14.5% of infected adolescents aged 12–16 years have persistent symptoms 5 weeks postinfection [4]. Moreover, there are data demonstrating that some AYA can develop chronic symptoms (persisting for at least 6 months) such as headaches, chest pain, fatigue, dyspnea, and memory problems. SARS-CoV-2 post-infectious neurologic sequelae (including encephalopathy, Bell’s palsy, meningitis, and transverse myelitis) have been found in patients as young as 9 months of age [6]. These findings vary based on study design and case definition, and information continues to evolve in this regard.

COVID-19 vaccination of youth is central to protection of personal and public health. Moreover, vaccination, along with universal masking, hand washing, appropriate physical distancing, and isolation, are essential strategies to prevent further spread and mutations of SARS-CoV-2, given the ongoing complexity and evolution of the COVID-19 pandemic ([7,8]). National and global efforts to comply with infection mitigation (such as physical distancing and proper use of face masks) have been challenging, even in the face of more infectious variants of SARS-CoV-2. Quarantine, isolation, and their downstream effects on school attendance, as well as the inability to participate in normal extracurricular activities, have negatively impacted AYA psychosocial development.

In December 2020, the first approved COVID-19 vaccine in the United States (Pfizer-BioNTech BNT162b2 mRNA) was granted the EUA for persons aged 16 years and older [3]. In May 2021, the US Food and Drug Administration (FDA) expanded the EUA for this COVID-19 vaccine to include adolescents aged 12–15 years [9]. In June 2021, after review of cases of vaccination-associated myocarditis, the US Advisory Committee on Immunization Practices determined that the benefits of vaccination for AYA outweighed the risks [10]. Subsequently, in late August 2021, the FDA granted full approval of the vaccine for administration to individuals aged 16 years and older [3]. More recently, at the end of October 2021, the FDA extended its EUA to include individuals as young as 5 years of age, a change supported by the American Academy of Pediatrics [11,12]). In December 2021, in the United States, the Pfizer-BioNTech vaccine (Comirnaty) was fully approved for youth aged 16 years and older and has EUA for children aged 5–15 years. In January 2022, in the United States, Moderna COVID-19 vaccine (Spikevax) was fully approved for youth aged 18 years and older [13]. Globally, there are other COVID vaccines that have been approved by the World Health Organization (WHO) including those made by Moderna and Johnson and Johnson [2]. The Pfizer-BioNTech vaccine is

highlighted given its specific indication for adolescents aged 12 years and older.

Encouraging AYA and parents of adolescents to accept COVID-19 vaccination will offer some protection against SARS-CoV-2 infection/transmission and robust protection against severe COVID-19 disease, hospitalization, and death. In the United States, the EUA COVID-19 vaccine for persons aged 12 years and older has shown efficacy against symptomatic infection to be as high as 93% [14]. Vaccination of immunocompromised AYA is important. Including AYA who are pregnant and lactating in immunization programs also contributes to efforts to protect the wider community. The WHO Strategic Advisory Group of Experts endorses vaccinating individuals aged 5 years and older against SARS-CoV-2 [15]. However, each country can implement a rollout strategy that differs from WHO recommendations due to various factors including cost and dissemination challenges.

Approved vaccines are safe and effective. Historically, there are robust data on prior vaccines demonstrating that if significant vaccine side effects occur, they appear within 2 months of administration [16]. In the United States and globally, there continues to be ongoing safety monitoring of vaccines postlicensure [17]. Given that it has been over 12 months since initial phase 3 trials for COVID-19 vaccines were completed, it is reassuring that no significant long-term side effects have been identified, and it is unlikely that any will be identified in the future.

There are data showing that 36% of patients do not produce antibodies to SARS-CoV-2 postinfection [18]. Similarly, antibodies wane 60 days postinfection [19]. There is risk of reinfection post COVID-19 [20]. Hence, vaccination also is recommended for those previously infected with SARS-CoV-2, as natural immunity due to infection is variable and wanes over time. In January 2022, due to waning immunity after vaccination, the US Centers for Disease Control and Prevention recommended that adolescents aged 12–17 years old receive a booster shot 5 months after their initial Pfizer-BioNTech vaccination series [21].

Position 2: Strategies should be implemented to ensure equitable allocation of vaccines to historically and currently marginalized/underrepresented youth that include addressing medical distrust among racial and ethnic communities of color as a barrier to AYA vaccination.

Vaccine equity, ensuring that all groups, but particularly those at greatest risk for COVID-19 infection and sequelae, are provided with adequate vaccine access, is key to controlling the COVID-19 pandemic. However, the pandemic has challenged health-care systems across the world and magnified health inequalities [22]. COVID-19 has disproportionately affected communities of color [23,24]. In addition, there is differential uptake of COVID-19 vaccine globally [25]. No one is safe until everyone is safe. Pediatric deaths, case fatality rates, and intensive care unit admission of children are significantly higher in low-/middle-income countries than in high-income countries. These findings underscore the greater need for vaccination of children in low-/middle-income countries for the global prevention of COVID-19 [26]. Furthermore, with most of the world’s population unvaccinated, more contagious and virulent variants will undoubtedly emerge, extending and possibly worsening the pandemic globally.

Social determinants of health such as physical environments, access to health care services, racism, education, income, and social status as well as employment and working conditions have

contributed to health disparities. AYA, particularly those who are marginalized/underrepresented, are often impacted by social determinants of health. In addition, trust in health systems and the medical team can impact how well health recommendations are followed. Therefore, barriers to improving immunization rates for most of the world's AYA include not only implementation costs and supply issues but also misinformation and poor health literacy. Globally, work needs to be done at the community level in order to effectively address vaccine skepticism born out of a history of exploitation and mistrust.

Position 3: Age-appropriate vaccines should be coadministered with COVID-19 vaccines.

Immunization rates in pediatric (especially adolescent) populations plummeted due to various national and international restrictions as an initial response to the COVID-19 pandemic [27]. In order to effectively catch up on missed doses, it is imperative that vaccines be administered at every feasible opportunity. Hence, offering protection against other vaccine-preventable diseases as well as COVID-19 should be a priority. There is no need to delay administration of routine recommended vaccines in favor of COVID-19 vaccination and vice versa.

Position 4: Collaboration should be fostered with entities that facilitate improving AYA vaccination rates and vaccine equity.

Adolescent vaccination rates often lag behind immunization rates for younger children [28]. Clinicians should continue to be creative when designing strategies to increase adolescent immunization rates. One approach could include collaboration with social media influencers whenever feasible to combat vaccine misinformation and vaccine hesitancy. Similarly, using schools as a venue for vaccine administration could enhance vaccine access and delivery. Generally, school-based vaccination programs are effective at achieving high coverage rates for immunizations and in many countries have high levels of support from parents/guardians [29].

There are challenges to immunizing marginalized youth, and researchers have attempted different methods to increase vaccine uptake in these populations [30]. In addition to the logistical issues, such as transportation and location of vaccination centers noted above, there continues to be ongoing concerns regarding consent for immunization of adolescents. There is much need for outreach strategies to community settings where young people congregate and to work on the development of adolescent consent procedures.

Vaccine misinformation is another well-described barrier to vaccine uptake. This challenge can be addressed by encouraging the use of peer advocates to build trust, combat vaccine misinformation, and improve education efforts. One such example is the online web platform, Teens for Vaccines [31].

Efforts should be made to create avenues to enhance vaccine uptake and equitable delivery by working with groups that also have a vested interest in improving immunization rates for AYA [32]. UNITY Consortium is a US-based organization that collaborates with clinicians, researchers, and health policy experts on devising strategies to specifically improve adolescent vaccine uptake [33]. The National Institute of Allergy and Infectious Disease led a community partnership COVID-19 prevention network which ensured that community participants had information regarding COVID-19 vaccine trials and fostered discussions to

improve vaccine uptake [34]. Also, AYAs need to be codesign partners in developing strategies and messaging to assist with achieving maximal reach and engagement by young people [35].

Summary

Providers who care for AYA have unique opportunities to have positive impacts on their patients' physical and emotional health. During these challenging times, every effort to control the spread of SARS-Cov-2 should be used if deemed safe and effective. These measures include but are not limited to physical distancing, proper use of face masks, and vaccination. Protecting this vulnerable population from morbidity and mortality associated with a vaccine-preventable illness is important. Given the health inequities that are historically and currently experienced by marginalized and underrepresented AYA, it is also imperative that strategies address any barriers that this population faces. Cooperating with organizations that aim to increase equity, improve immunization rates, and that traditionally have strong community relationships is vital toward achieving the goals, as are health education and vaccine awareness campaigns to boost confidence in COVID-19 vaccination and diminish barriers due to medical mistrust and vaccine hesitancy.

The authors would like to note that as the landscape and information regarding COVID-19 and COVID-19 vaccines continue to shift and evolve quite rapidly, the specifics discussed above that may change (though current during the writing of this article) the general principles outlined for AYA remain relevant.

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