ADOLESCENT IMMUNIZATION INITIATIVE

Adolescent Immunization Initiative (*AII*) Members

Litjen (LJ) Tan, MS, PhD[a] (*AII* co-chair)
Immunization Action Coalition

David P. Greenberg, MD (*AII* co-chair)
Sanofi Pasteur

Oliver Brooks, MD, FAAP
Watts Healthcare Corporation, Los Angeles

W. Michael Brown, MD, FAAP
Bayfront Health St. Petersburg, Florida

Joanna Colbourne, CAE
National Foundation for Infectious Diseases

Marla Dalton, PE, CAE
National Foundation for Infectious Diseases

Amanda Dempsey, MD, PhD, MPH
University of Colorado, Denver

Jeffery Goad, PharmD, MPH, FAPhA, FCPhA, FCSHP
Chapman University School of Pharmacy, California

Claire Hannan, MPH[a]
Association of Immunization Managers

David Kaplan, MD, MPH[a]
University of Colorado School of Medicine, Denver

Daryl A. Lynch, MD[a]
Children's Mercy Hospital, Kansas City

Gary S. Marshall, MD[a]
University of Louisville School of Medicine

Donna Mazyck, MS, RN, CAE
National Association of School Nurses

Amy Middleman, MD, MSEd, MPH[a,b]
University of Oklahoma Health Sciences Center

Donald Middleton, MD[a]
UPMC St. Margaret, Pittsburgh

Carole Moloney, RN, MSN, CPNP
Boston Medical Center

Frank Roemisch, MD, FAAP
Parkside Pediatrics, Park Ridge, Illinois

Audrey Stevenson, PhD, MPH, MSN, FNP-BC
Salt Lake County Health Department, Utah

Tina Tan, MD, FAAP, FIDSA, FPIDS
Northwestern University Feinberg School of Medicine

Deborah Wexler, MD
Immunization Action Coalition

Gregory Zimet, PhD
Indiana University School of Medicine

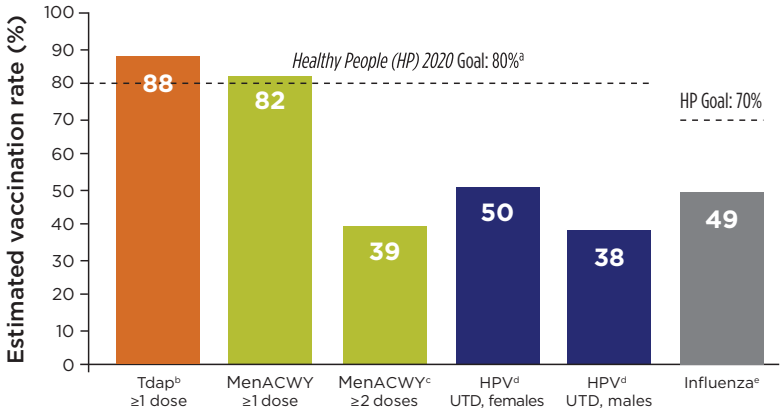
[a] Steering committee member.
[b] Receives no reimbursements or remuneration of any kind from Sanofi Pasteur.

IMPLEMENTING THE ADOLESCENT 16-YEAR-OLD IMMUNIZATION PLATFORM IN YOUR PRACTICE

The Advisory Committee on Immunization Practices (ACIP) created a separate 16-year age column on the immunization schedule in February 2017, thus identifying the 16-year-old vaccination visit as a standard of care. Firmly establishing this visit in practice requires widespread recognition by practitioners that 16 years is a priority age for a preventive health visit and that vaccination is an important intervention for that visit. This paper describes key elements of the new adolescent 16-year-old immunization platform and presents steps to implement this visit in your practice.

According to data collected by the Centers for Disease Control and Prevention (CDC) in 2016, only 39% of adolescents eligible for the second dose of quadrivalent meningococcal conjugate vaccine (MenACWY) had received it by the time they turned 18.[1] Adolescent immunization rates for other vaccines, such as those for influenza and human papillomavirus (HPV) vaccines, are also well below public health goals (**Figure 1**).[1,2] Spurred by the low rates, ACIP made a significant format change to the child and adolescent immunization

2016 Immunization Rates in Adolescents 13 through 17 Years of Age[1,2]



[a] No HP goal has been established for 2 doses of MenACWY; [b] Tdap = Tetanus, diphtheria, and acellular pertussis; [c] second-dose rate is based on 17-year-olds; [d] HPV up-to-date (UTD) rate for series completion; [e] 2016-2017 influenza season.

Figure 1: Rates for many immunizations recommended during adolescence are far below desired levels, leaving millions of teens unprotected or underprotected against vaccine-preventable diseases. For example, based on population estimates, the 39% rate for 2 doses of MenACWY extrapolates to a potential pool of 2.6 million 17-year-olds who have not completed the MenACWY vaccine series; the 49% rate for influenza immunization translates to potentially 10.6 million teens 13 through 17 years of age unvaccinated against influenza during the 2016-2017 season.

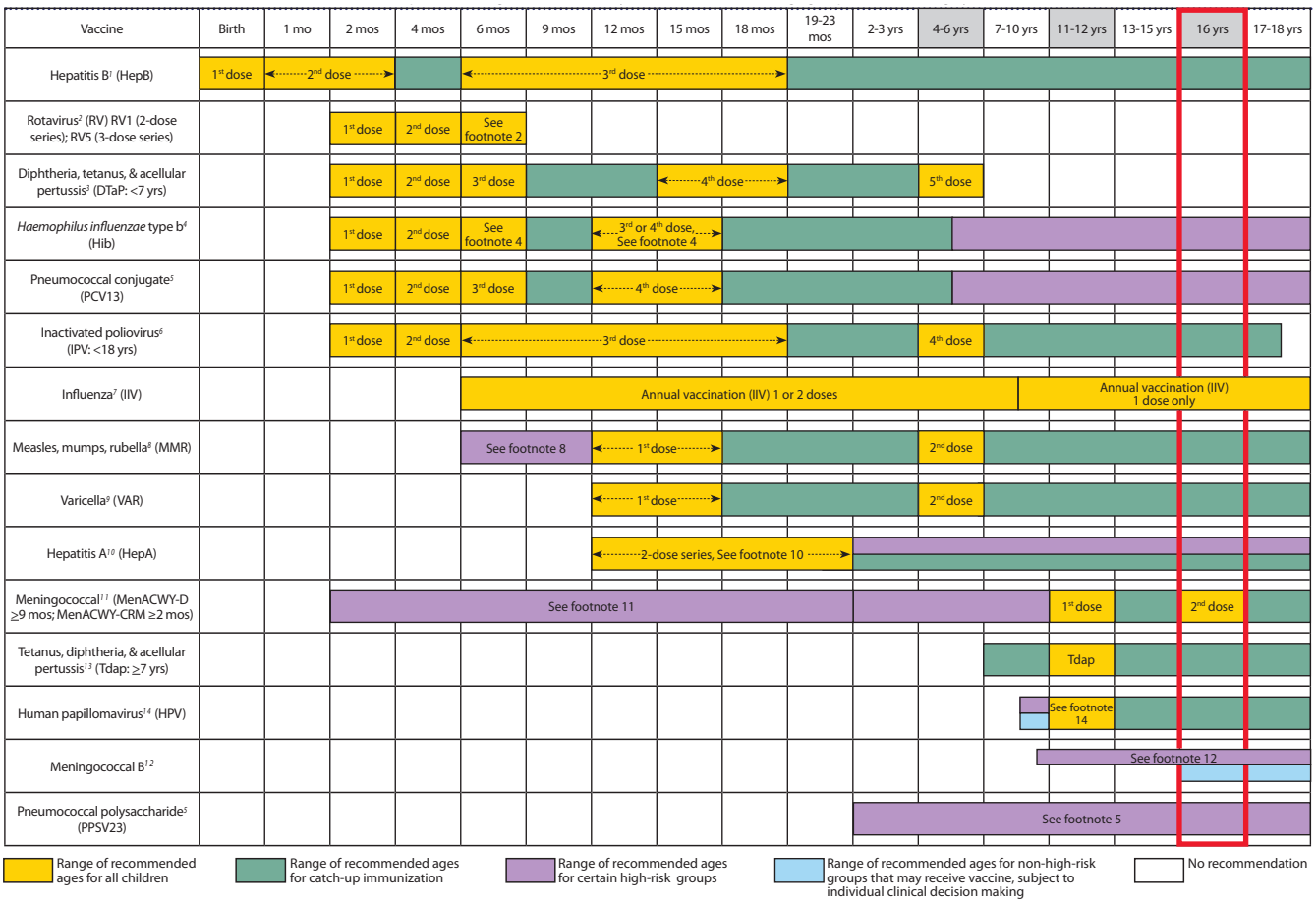
schedule in 2017: adding a column specifically for 16-year-olds, unbundling this group from adolescents 17 and 18 years of age. The column serves to emphasize the importance of administering immunizations recommended at 16 years of age, including MenACWY, meningococcal B (MenB; a category B vaccine[a]), and influenza (seasonally), as well as catching up adolescents on vaccines or doses they may have missed, such as HPV vaccine.[3,4]

A distinct column for 16-year-olds on the ACIP immunization schedule is a step toward establishing a recognized immunization "platform" at age 16, similar to the platform that now exists for adolescents 11–12 years of age (**Figure 2**). But that will only happen if health care providers (HCPs) take action to firmly establish a 16-year-old vaccination visit in practice. Beyond immunization, this visit creates the opportunity to continue to provide preventive services targeted to the health needs of these adolescents. Those services include guidance to promote safe sexual behaviors, safe driving, good nutrition, exercise, emotional health, and avoidance of substance abuse, to name a few topics. The visit can help instill a preventive care mindset—one that is hopefully lifelong—in an age group whose members typically come to the medical office for reasons other than well care. And it is a prime opportunity to prepare teenagers for the transition from pediatric to young adult care, empowering them to take ownership of their health, including vaccinations.

Several organizations have released information and guidance on the immunization platform at 16 years of age, including the Immunization Action Coalition (IAC), National Foundation for Infectious Diseases (NFID), Society for Adolescent Health and Medicine (SAHM), and Unity Consortium.[6-9]

[a] For adolescents who are not at increased risk for meningococcal B disease, MenB vaccination is at the clinician's discretion. The American Academy of Pediatrics (AAP) encourages pediatricians to discuss the availability of MenB vaccines with families.[5]

Recommended Immunization Schedule for Children and Adolescents 18 Years of Age or Younger, 2018



NOTE: The above recommendations must be read along with the footnotes of this schedule.

Figure 2: The immunization schedule for children and adolescents includes a distinct column for 16 years of age, added in 2017. The ACIP uses gray column headings—at 4-6 years, 11-12 years, and 16 years—to highlight school entry and adolescent vaccine age groups. (Full schedule with footnotes: https://www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf. Accessed April 2, 2018.)

Adding to these efforts are those of the *Adolescent Immunization Initiative (AII)*. *AII* is a multidisciplinary group of experts in adolescent health and immunization, assembled under the sponsorship of Sanofi Pasteur, whose mission is to collaborate with stakeholders to establish an immunization platform at 16 years of age. *AII*'s 2017 white paper, *Rationale for an Immunization Platform at 16 Years of Age,* reviews the reasons for low adolescent immunization rates and makes the case for establishing a platform that combines vaccination with preventive services focused on the overall well-being of the older adolescent (16 through 18 years of age).[10] Now, in this follow-up paper, *AII* describes what it considers to be key elements of the immunization platform visit at 16 years of age and how to implement that visit in your health care practice.

What Constitutes the New Immunization Platform?

In *AII*'s view, the platform encompasses all of the steps that HCPs and their practices should take during and, crucially, before the 16-year-old visit to make certain the patient receives all appropriate services. The platform demands a proactive approach. For example, does your practice typically send out reminder and recall notices rather than rely on external factors, such as sports physicals, to bring 16-year-olds in? Once the patient is in the office, is there an established process for getting him or her vaccinated? Key components of the platform for 16-year-olds, as envisioned by *AII*, are outlined below in **Table 1**.

Implementing the 16-Year-Old Visit

The steps presented in this section reflect a proactive approach to vaccination and are among those that have helped health care practices achieve high adolescent immunization rates.[11]

Efforts to establish the platform at 16 years of age should not detract from the continued importance of the 11- to 12-year-old visit or of catching up 17- and 18-year-olds who miss the 16-year-old visit. Indeed, the platform for 16-year-olds is a chance to refocus attention on the need for immunizations and preventive care throughout life.

Elements of the Adolescent 16-Year-Old Immunization Platform

Proactive approach

- Measure adolescent immunization rates to determine a baseline, and set goals for improvement
- Identify and reach out to vaccine-eligible adolescent patients (eg, remind and recall)
- Adopt a team approach and a routine vaccination workflow (eg, use standing orders)
- Capitalize on opportunities to provide the platform services (eg, check immunization status at *every* patient visit)
- Foster a culture of prevention (eg, schedule annual preventive health visits for all teens)
- Educate families about the milestone 16-year-old visit well in advance (as early as the 11- to 12-year-old immunization visit)

Well-care services with immunizations as a priority

- Review and administer vaccines:
  - MenACWY
  - MenB
  - Influenza (seasonal)
  - Catch-up (eg, HPV vaccine, Tdap vaccine)
  - Vaccinations based on high-risk conditions
- Perform annual physical examination and screenings as recommended, eg:
  - Sexually transmitted infections (eg, HIV, chlamydia, and gonorrhea)
  - Obesity
- Provide psychosocial assessment and counseling, eg:
  - Emotional health/depression
  - Sexual health
  - School academic performance
  - Safe driving
  - Drugs, alcohol, tobacco, and vaping
  - Nutrition, exercise, and sleep

Preparation for transition to young adulthood

- Educate adolescents about the importance of preventive care; empower them to embrace a greater role in their own wellness, including adherence to immunization recommendations such as annual flu vaccination
- Provide practical information, such as self-care management, to patients to aid transition, eg:
  - A copy of the patient's care plan and insurance coverage
  - Location of the patient's pharmacy and how to fill prescriptions
- Take advantage of customizable tools to assist practices with the transition process (such as those at www.gottransition.org)

Table 1: The *AII* views the immunization platform at 16 years of age as having three overarching elements: the HCP and the practice take a proactive approach to implementing the platform; the visit addresses the patient's immunization needs while providing other recommended well-care services; and the visit is an opportunity to help prepare the adolescent for the transition to young adulthood.

1 Start by measuring your rates.

Knowing what percentage of your adolescent patients have been immunized enables you to pinpoint where improvements may be needed and can be an eye opener and a motivator. Most pediatricians overestimate the proportion of fully immunized children in their practice.[12] Practices may be doing a good job immunizing those adolescents who come to the office; however, many older adolescents fail to come in for an annual checkup, making it difficult to ensure that all teenage patients are fully immunized and receive all the services of a yearly preventive care visit.

Your office can measure immunization rates by using the capabilities of an immunization information system (IIS) or electronic medical record (EMR) or by auditing paper charts, for example. State or local health departments can help offices measure rates and provide assistance using the CDC-supported program Assessment, Feedback, Incentives, and eXchange (AFIX), www.cdc.gov/vaccines/programs/afix.

To increase rates, consider doing a quality improvement (QI) project, which could also help fulfill maintenance of certification (MOC) requirements. Providers often choose immunization as the focus of QI projects because, as the CDC notes, it is a "dynamic, critical, and measurable area of health care."[13] QI resources for providers are available at www.cdc.gov/vaccines/ed/quality-improvement-proj.html.

Action steps

- Measure immunization rates in your practice to get a baseline; eg, how many 16-year-olds have received the second dose of MenACWY?
- Reassess rates periodically to benchmark improvement efforts.

2 Identify and reach out to vaccine-eligible patients.

Do not rely solely on pre-college visits and sports physicals to bring teens into your office. Nationwide, 30% of students who graduated from high school in 2016 (900,000 adolescents) did not enroll in college,[14] and 42% of high school students in 2015 (potentially 6 to 7 million teens[15]) did not play on a school or community sports team during the course of a year.[16]

Determine the immunization needs of all teens in your practice; then notify those patients who are due or overdue for vaccinations. Strong evidence shows the effectiveness of reminder and recall in improving vaccination coverage among adolescents as well as children and adults.[17] EMR systems and IISs can support this intervention. If you have an EMR, avoid the pitfall of assuming that this technology automatically assures high immunization rates, thus failing to take advantage of the system's built-in features to identify unvaccinated teens.

Action steps

- Systematically check patients' immunization status on state or city IISs. Supplement with periodic checks of your practice's own immunization records.
- Use reminder-recall. Use EMR best practice alerts to generate notifications to patients, as well as internal reminders to staff.
- Update both the practice's medical record and the IIS after a patient is immunized to improve tracking and continuity of care.[18]

3 Adopt a team approach.

Given the time constraints of an office visit, no single HCP can easily provide all the services of a platform visit. One solution is to use a team-based workflow, delegating certain responsibilities to members of staff. For example, the care team could handle services related to immunization, with the physician focusing on psychosocial assessments and other preventive care.

A "vaccine champion" can lead the practice's immunization efforts. Such advocates can establish and oversee processes, provide ongoing feedback, and train and motivate staff.[9]

Action steps

- Hold an all-hands meeting to make sure that all clinic staff understand the importance of the new platform at 16 years of age and its details; hand out supplementary material to support staff education.
- Designate a vaccine champion or team of champions.
- Develop a routine vaccination process with specifically assigned responsibilities for staff members (eg, check immunization status, issue reminders and recalls, update records, speak to parents and patients about vaccines).
- Use standing orders. Templates of standing orders, which allow appropriately trained personnel to independently screen patients and administer recommended vaccines, are available at www.immunize.org/standing-orders.

4 Capitalize on opportunities to immunize.

Consider *every* patient encounter a potential opportunity to vaccinate, including visits for a minor illness, ongoing care of a chronic illness, and sports physicals. Have a medical assistant or other designated staff member determine the patient's immunization status, ideally in advance of his or her arrival, and flag the record if immunizations are due. If the patient is not yet 16 years of age, use the opportunity to schedule the 16-year-old visit if that appointment has not already been made.

Be creative in converting visits that are not for well care into ones where well care can be provided. When a

16-year-old who has not been in for an annual visit phones to make an appointment to manage his or her acne, for example, the staff could suggest extending the length of the visit to accommodate vaccinations and other preventive care. If the patient's or office's schedule cannot accommodate the extra time, try to at least administer vaccinations during the visit and book a separate visit, either while the patient is on the phone or when he comes in for the appointment, for annual well care.

Consider offering vaccination-only appointments and evening and weekend hours to expand adolescents' access to immunization services. From a community perspective, all health care professionals, including the primary care provider and pharmacist, should work collaboratively to ensure that the immunization neighborhood supporting the adolescent provides the patient with all appropriate vaccinations in a timely fashion.[18]

Action steps

- Check immunization status before or during every patient visit.
- Use EMR alerts or "immunization due" clips on paper charts to notify staff at the point of care that vaccinations are needed.
- Adopt standing orders.

5 Foster a culture of prevention.

All practice staff, regardless of whether they have clinical responsibility, should emphasize the importance of vaccination. Clinical staff should also understand and be comfortable discussing the potential morbidity and mortality caused by vaccine-preventable diseases.

Create an office culture that is not only pro-immunization but pro-well care in general. Young children are expected to have regular health assessments that include immunizations; set the same expectations for teenagers and young adults.

Action steps

- Develop a set of talking points to use with patients about the potential severity of meningococcal disease, HPV, influenza, and pertussis, and the availability of safe and effective vaccines.
- Unequivocally recommend vaccination.
- Schedule annual preventive health visits for all adolescents through 18 years of age.
- Encourage parents to proactively schedule the 16-year-old office visit.

6 Educate about the 16-year-old visit far in advance.

While informing families about the importance of annual visits, help parents anticipate their child's need for vaccinations beyond the elementary-school age. At the 11- to 12-year-old visit, let the parent and patient know that there is a second immunization platform for adolescents—at 16 years of age. (See the box above, "If You Don't Tell Parents, They May Never Know.")

If You Don't Tell Parents, They May Never Know

Many parents not only welcome reminders about vaccination from the office where their child receives health care—they depend on them. In a recent nationwide survey of 614 parents of at least one teen 13-17 years of age, respondents reported that they learned their child needed an immunization when the office scheduled a vaccine appointment (44%), a doctor or nurse mentioned vaccination to the parent or teen during a visit (40%), or the office sent a reminder notice (11%).[19]

The more places that families and adolescents see and hear information about the immunization platform for 16-year-olds, and the more consistent the message, the more effective that message is likely to be. Develop a slogan about the 16-year-old visit and convey it in on-hold phone messages. End visits with younger teens by reminding them to make an appointment for the 16-year-old visit on their way out the door. Print the handout *You're 16...We Recommend These Vaccines for You*, produced by IAC and SAHM and available at www.immunize.org/catg.d/p4022.pdf, and put copies in the waiting room.

Also engage teens where they "live": on social media (taking care not to break privacy rules of the Health Insurance Portability and Accountability Act). Social media templates and other teen vaccine resources are available from the American Academy of Family Physicians Foundation at http://bit.ly/2DQYz3N and from NFID at www.adolescentvaccination.org.

Action steps

- Provide short, clear messages about the milestone 16-year-old visit, and deliver them early and often.
- Add content on the 16-year-old visit to your practice's website and post to Twitter, Facebook, and other social media channels.

Empower Adolescents

Sixteen-year-olds will soon be able to legally make all of their own health care decisions. The clinician can use the 16-year-old visit to educate and empower adolescents to embrace a greater role in their own wellness as they transition to adulthood. Raising the subject at 16 years of age gives HCPs the opportunity to reinforce and

expand on this message at subsequent encounters, before the patient transitions to adult care.

Work with parents to prepare adolescents to take responsibility for their health care, such as by informing them about the phone app Thrive—Teen/Young Adult Health Resources, Information & Vaccine Education; www.unity4teenvax.org/resources/thrive-app/. Also directly engage teens in conversations about taking ownership of their care. The AAP recommends that a portion of the adolescent visit include a discussion between the HCP and patient alone, without the parent present.[20]

The National Alliance to Advance Adolescent Health operates the nationally recognized model *Got Transition* to improve the transition from pediatric to adult health care. The website www.gottransition.org offers customizable tools to assist practices with this process.

Action steps

- Ask 16-year-olds to tell you their diagnoses, medications and doses, and immunization status to help prepare them in the event they enter a medical setting without their parents.
- Provide self-care management information, such as how to fill prescriptions.
- Suggest practical tools, such as a vaccine-tracker cell phone app that can track the patient's immunization history and remind the patient when vaccines are due.

Be the Catalyst for Change

Immunization rates in older adolescents are critically low. The ACIP immunization schedule, with its separate column for 16 years of age, makes clear that an immunization visit at that age is the standard of care. This visit is an opportunity to provide other preventive services important to the overall well-being of the adolescent, such as medical screening and counseling to reduce risk behaviors. Ideally, such a visit would stimulate a preventive care mindset in adolescents, one that reaches into adulthood and could ultimately improve immunization rates in the adult population, which are also below United States public health targets for a number of vaccines.

Being proactive is key. Use the strategies for implementing an immunization platform at 16 years of age as outlined in this paper. Begin the process by measuring immunization rates in your practice, determining the rate for the entire population, not just for those adolescents who are coming into your office for well-care visits. Identify 16-year-olds in your practice who are due for vaccinations and an annual visit and reach out to them. Print out and share with your staff the IAC's *Top 10 Ways to Improve Adolescent Immunization Rates* at www.give2menacwy.org/improve-your-rates/top-10/.

Every health care practice can take action to make the immunization platform visit at 16 years of age a reality and to create an expectation among teens, parents, and HCPs that 16 years is an age when vaccines and other well-care services are routinely provided—and that such services are vital. Raise awareness, educate, and spread the word!

References

1. Centers for Disease Control and Prevention (CDC). National, regional, state, and selected local area vaccination coverage among adolescents aged 13-17 years—United States, 2016. *MMWR*. 2017;66(33):874–882.

2. CDC. Flu vaccination coverage, United States, 2016-17 influenza season. https://www.cdc.gov/flu/fluvaxview/coverage-1617estimates.htm. Accessed April 27, 2018.

3. CDC. Advisory Committee on Immunization Practices recommended immunization schedule for children and adolescents aged 18 years or younger — United States, 2017. *MMWR*. 2017;66(5):134-135.

4. CDC. Advisory Committee on Immunization Practices. Summary report, October 19-20, 2016, Atlanta, Georgia. https://www.cdc.gov/vaccines/acip/meetings/downloads/min-archive/min-2016-10.pdf. Accessed April 27, 2018.

5. American Academy of Pediatrics Committee on Infectious Diseases. Recommendations for serogroup B meningococcal vaccine for persons 10 years and older. *Pediatrics*. 2016;138(3):e20161890.

6. Immunization Action Coalition. Adolescent immunization update and the 16-year-old platform. Webinar presented on: July 10, 2017. http://www.immunize.org/webinars/atkinson2. Accessed April 27, 2018.

7. National Foundation for Infectious Diseases. *Call to Action: Addressing New and Ongoing Adolescent Vaccination Challenges*. March 2016. http://www.adolescentvaccination.org/resources/call-to-action-adolescent-vaccination-challenges.pdf. Accessed April 27, 2018.

8. Auslander B, Middleman A, Coyne-Beasley T, et al. Position statement: establishing an immunization platform for 16-year-olds in the United States. The Society for Adolescent Health and Medicine. *J Adolesc Health*. 2017;60(4):475-476.

9. Unity Consortium. *Adolescent Immunization: Understanding Challenges and Framing Solutions for Healthcare Providers*. http://www.unity4teenvax.org/wp-content/uploads/2017/05/Unity-Whitepaper-FINAL-May-2017.pdf. Accessed April 27, 2018.

10. Adolescent Immunization Initiative. *Rationale for an Immunization Platform at 16 Years of Age*. February 2017. https://www.give2menacwy.org/content/uploads/2017/03/rationale-for-16-year-old-immunization-platform.pdf. Accessed April 27, 2018.

11. Sanofi Pasteur. Data on file. (*Best Practices in Meningococcal Immunization: How Colleagues Are Getting It Done*), January 2018. MKT29666-1R.

12. CDC. Immunization strategies for healthcare practices and providers. In: Hamborsky J, Kroger A, Wolfe S, eds. *Epidemiology and Prevention of Vaccine-Preventable Diseases. (The Pink Book)*. 13th edition. Washington, DC: Public Health Foundation; 2015:33-46.

13. CDC. Quality improvement projects targeting immunization. https://www.cdc.gov/vaccines/ed/quality-improvement-proj.html. Accessed April 27, 2018.

14. United States Department of Labor. College enrollment and work activity of 2016 high school graduates. Bureau of Labor Statistics. https://www.bls.gov/news.release/hsgec.nr0.htm. Accessed April 27, 2018.

15. National Center for Education and Statistics. Enrollment in grades 9 through 12 in public and private schools compared with population 14 to 17 years of age: selected years, 1889-90 through fall 2015. https://nces.ed.gov/programs/digest/d15/tables/dt15_201.20.asp. Accessed April 27, 2018.

16. CDC. Youth risk behavior surveillance—United States, 2015. *MMWR*. 2016;65(SS-6):1–174.

17. Community Preventive Services Task Force. Increasing appropriate vaccination: client reminder and recall systems. https://www.thecommunityguide.org/sites/default/files/assets/Vaccination-Client-Reminders.pdf. Accessed April 27, 2018.

18. Klein J, Tan L, Zimet GD. Improving adolescent immunization coverage: the time to act is now. *J Adolesc Health*. 2017;61(5):541-543.

19. CS Mott Children's Hospital. National poll on children's health (July 17, 2017): parents not keeping up with teen vaccines. https://www.mottnpch.org/reports-surveys/parents-not-keeping-teen-vaccines. Accessed April 27, 2018.

20. American Academy of Pediatrics. American Academy of Pediatrics urges improvement in teen vaccination rates. [press release.] February 6, 2017. https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/American-Academy-of-Pediatrics-Urges-Improvement-in-Teen-Vaccination-Rates.aspx. Accessed April 27, 2018.

Brought to you as an educational service by Sanofi Pasteur Inc.

MKT32625-1 5/18