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NEEDLE TIPS

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What's In This Issue

16-Year-Old Immunization Platform Highlighted in 2017 U.S. Child/Teen Schedule 1
Ask the Experts: CDC Answers Your Questions 1
IAC's Summary of Recommendations for Child/Teen Immunization 5
IAC's Summary of Recommendations for Adult Immunization 10
2017 U.S. Recommended Immunization Schedule for Children/Teens 15
2017 U.S. Recommended Immunization Schedule for Adults 20
Guide to Contraindications and Precautions for Commonly Used Vaccines 25
New! IAC's Laminated 2017 Immunization Schedules for Children/Teens and Adults 27
Updated! *The Vaccine Handbook: A Practical Guide for Clinicians* 28
Products You Can Purchase from IAC 29
IAC's Immunization Resources Order Form 30

16-Year-Old Immunization Platform Highlighted in 2017 U.S. Child/Teen Schedule

On February 10, the Centers for Disease Control and Prevention (CDC) posted its 6-page "Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger" at www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf. The publication of this new schedule was accompanied by an article in the *Morbidity and Mortality Weekly Report* (*MMWR*) titled "ACIP Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger – US, 2017" (www.cdc.gov/mmwr/volumes/66/wr/pdfs/mm6605e1.pdf) describing the changes implemented in the 2017 immunization schedule compared to the 2016 version.

The first change highlighted in the *MMWR* article is the addition of a "16 yrs" age column to Figure 1. (Note: Figure 1 is the multicolored child/teen immunization schedule showing vaccine names along the left side and age columns listed across the top.) Previously, a single column covered the broader "16–18 years" age group. The new "16 yrs" column is further emphasized on the schedule with the addition of a gray background color in the column heading, identical to what exists for two other important vaccination age platforms, i.e., "4–6 years" and "11–12 years." So we now have three immunization platform visits indicated on the child/teen schedule: 4–6 years, 11–12 years, and 16 years.

Why the 16-Year-Old Column Is Important

The new "16 yrs" column brings much needed attention to the fact that several CDC-recommended vaccinations due to be administered at 16 years of age are being overlooked by many providers. These include:

- **MenACWY dose #2** – recommended at age 16
- **MenB dose #1** – recommended (category B) at age 16
- **HPV "catch-up"** – needed for those who have not yet completed their series
- **Tdap** – for those who have not yet received the 11–12 year-old dose
- **Influenza vaccine** – recommended seasonally
- **Other vaccines** – the 16-year-old platform provides a "catch-up" opportunity for patients who have fallen behind on other recommended vaccines (e.g., HepA, HepB, varicella).

According to CDC's recently published National Immunization Survey for Adolescents Ages 13–17 Years (www.cdc.gov/mmwr/volumes/65/wr/mm6533a4.htm), only 33% of teens (through age 17 years) have completed MenACWY dose #2, a vaccine recommended at age 16. Our nation has unacceptably low coverage rates for many vaccines recommended for adolescents, including the HPV vaccine series completion. The addition of a 16-year-old platform column provides a distinctive, visible reminder to healthcare professionals (and perhaps their patients/parents) that 16-year-olds are due for the important vaccinations listed above.

This new platform has created a perfect opportunity to consider establishing a 16-year-old vaccination visit in your medical practice. It can serve as an impetus for your staff to improve vaccination rates for 16-year-olds, a reminder to 16-year-olds (and their parents) who look at the schedule to check their need for vaccinations, and as a perfect opportunity to help bring teens in for a visit to receive other essential healthcare services they may be missing.

Ask the Experts

The Immunization Action Coalition extends thanks to our experts, medical officers Andrew T. Kroger, MD, MPH; Candice L. Robinson, MD, MPH; Raymond A. Strikas, MD, MPH, FACP, FIDSA; Jessie Wing, MD, MPH; and nurse educator Donna L. Weaver, RN, MN, all with the National Center for Immunization and Respiratory Diseases at the Centers for Disease Control and Prevention (CDC).

Influenza vaccines

I have a patient who is now 12 weeks pregnant. In September 2016, she received quadrivalent inactivated influenza vaccination (before she was pregnant). Should we give her another dose of 2016–17 influenza vaccine since she was not pregnant at the time of her first dose?

The Advisory Committee on Immunization Practices (ACIP) does not recommend more than one dose of influenza vaccine per season, except for certain children being vaccinated for the first time. The 2017–18 influenza vaccine may be available near the end of her pregnancy so she can be given a dose of next year's formulation at that time.

A nursing home resident was admitted to the hospital with influenza and treated with oseltamivir. The person is now returned to the nursing home. The residents in the facility are being treated prophylactically with oseltamivir. Should the person who was hospitalized also receive oseltamivir prophylactically?

This is a complicated issue and the exact situation you describe is not addressed in the most recent ACIP recommendations on the use of influenza antiviral drugs. Whether to continue the antiviral drug depends on why the rest of the people in the facility are being treated. Oseltamivir for treatment of influenza is usually a 5-day course. If there is continued risk of exposure in the facility, it seems reasonable to continue the prophylactic treatment accordingly. The ACIP influenza antiviral guidelines are available at www.cdc.gov/mmwr/pdf/rr/rr6001.pdf.

Ask the Experts… *continued on page 2* ▶

Immunization questions?

- Email nipinfo@cdc.gov
- Call your state health department (phone numbers at www.immunize.org/coordinators)

Needle Tips

online at www.immunize.org/nt

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Ask the Experts… *continued from page 1*

Pneumococcal vaccines

A child with selective IgA deficiency was sent by her physician to the health department to receive a dose of pneumococcal polysaccharide vaccine (PPSV23, Pneumovax; Merck). Does her illness fall under the criteria for administering PPSV23?
Selective IgA deficiency is a B-cell immunodeficiency, so PPSV23 is indicated if the child is age 2 years or older.

We have a 19-year-old patient with a history of vasculitis, nephritis, and asthma. She is on azathioprine (Imuran) and is immunosuppressed. Her rheumatologist recommends she receive pneumococcal conjugate vaccine (PCV13, Prevnar 13, Pfizer) and meningococcal B vaccine. How often should these vaccines be given? Will she require a series of PCV13 doses or just a booster?
For people with iatrogenic immunosuppression, ACIP recommends 1 dose of PCV13 followed by a dose of PPSV23 at least 8 weeks later (see www.cdc.gov/mmwr/pdf/wk/mm6434.pdf, pages 944–7). Meningococcal serogroup B vaccine (MenB) is not specifically recommended for immunosuppressed people. However, people age 16 through 23 years who are not at increased risk may receive routine MenB vaccination (a category B recommendation) of either a 2-dose series of Bexsero (GSK) 4 weeks apart, or a 2-dose series of Trumenba (Pfizer) 6 months apart.

Meningococcal ACWY vaccine

The 2013 ACIP meningococcal ACWY recommendations (www.cdc.gov/mmwr/pdf/rr/rr6202.pdf) list household crowding and both active and passive smoking as risk factors for meningococcal disease. Should I recommend MenACWY vaccine for a nonsmoker living in a crowded household of smokers?
Although second-hand smoke and other environmental conditions have been identified as risk factors for meningococcal disease, ACIP does not include them as indications for MenACWY vaccination. Providers are always free to use their clinical judgment in situations not addressed by ACIP.

We run immunization clinics at the local jail, which has a living arrangement comparable to a college residential hall. In this setting, would you recommend vaccinating incarcerated individuals who are younger than age 22, as is recommended for people living in a college dormitory?
ACIP does not identify incarceration as an indication for meningococcal vaccination. Providers are always free to use their clinical judgment in situations not addressed by ACIP.

If someone received meningococcal polysaccharide (MPSV4, Menomune; Sanofi) or MenACWY at age 9 years, will two additional doses of MenACWY be needed?
Yes. Doses of quadrivalent meningococcal vaccine (either MPSV4 or MenACWY) given before 10 years of age should not be counted as part of the series. If a child received a dose of either MPSV4 or MenACWY before age 10 years, they should receive a dose of MenACWY at 11 or 12 years and a booster dose at age 16.

If someone received MPSV4 or MenACWY vaccine at age 10 years and a dose of MenACWY before the 16th birthday, will they still need a booster dose at age 16?
Yes, they should receive a booster dose. A booster dose of MenACWY is recommended at 16 through 18 years even if 2 (or more) doses of meningococcal vaccine were received before age 16 years. People age 19 through 21 years who are entering college or are first-year students living in a residence hall, and who have not received a dose of MenACWY on or after age 16 years, should also be vaccinated.

Sanofi is discontinuing the production of Menomune (MPSV4) this year. I administer a lot of travel vaccine doses. Should I now give MenACWY (Menactra or Menveo) off-label to travelers age 56 years and older?
In its 2013 meningococcal recommendations, ACIP recommended off-label use of MenACWY vaccine (not MPSV4) for people age 56 years or older who were vaccinated previously with MenACWY and are recommended for revaccination or for whom multiple doses are anticipated (for example, people with asplenia and microbiologists). The situation of unavailability of MPSV4 is not addressed, but the use of MenACWY vaccine is appropriate when MPSV4 is not available.

In its 2016 recommendations for use of meningococcal conjugate vaccines in HIV-infected persons, ACIP states not to use MenACWY-D

Ask the Experts… *continued on page 3* ▶

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Ask the Experts… *continued from page 2*

(Menactra, Sanofi) in children younger than age 2 years. However, in Table 3 of these recommendations (page 1192), MenACWY-D is listed as an option for children 9 through 23 months of age. This seems to be a discrepancy. Please clarify.

CDC meningococcal experts prefer MenACWY-D not be used before two years of age in children at increased risk of meningococcal disease (such as those with HIV infection or asplenia) because of possible interference with the response to pneumococcal conjugate (PCV13) vaccine. However, they recognize that vaccine supply or other constraints may require its use before age two years and provided permissive language with important guidance in the Table 3 footnote. These recommendations are published in *MMWR*, Nov 4, 2016, at www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6543a3.pdf, pages 1189–94.

Meningococcal B vaccine

I have a 9-year-old patient traveling to Kenya for one week. In addition to MenACWY vaccine, should she be offered meningococcal serogroup B (MenB) vaccine?

ACIP does not recommend routine MenB vaccination for travel to countries in sub-Saharan Africa or to other countries for which MenACWY vaccine is recommended. Meningococcal disease in these areas is generally not caused by serogroup B.

Varicella and zoster vaccines

Recently we had a one-year-old with congenital heart disease and who is on chronic aspirin therapy in for a well-child check and routine vaccination. Are there any recommendations regarding varicella vaccine being given to children who are on chronic aspirin therapy?

The ACIP's varicella vaccine recommendations state that no adverse events associated with the use of salicylates after varicella vaccination have been reported, however, the vaccine manufacturer recommends that vaccine recipients avoid using salicylates for 6 weeks after receiving varicella vaccines because of the association between aspirin use and Reye syndrome after varicella disease (chickenpox). Vaccination with subsequent close monitoring should be considered for children who have rheumatoid arthritis or other conditions requiring therapeutic aspirin. The risk for serious complications associated with aspirin is likely to be greater in children in whom natural varicella develops than it is in children who receive the vaccine containing attenuated varicella zoster virus. In other words, the benefit of varicella vaccine likely outweighs the theoretical risk of Reye syndrome. See the ACIP varicella recommendations at www.cdc.gov/mmwr/PDF/rr/rr5604.pdf, page 29.

A healthcare worker with no history of chickenpox, and unknown serologic immunity, was exposed to a patient with zoster. She received varicella vaccine two days later. She developed a pruritic maculopapular rash 11 days after vaccination. Is the rash from the vaccine or from her zoster exposure?

The only way to determine whether the rash is caused by wild-type varicella or vaccine virus is to try to isolate virus from the rash and send it to a laboratory that is capable of differentiating wild and vaccine-type virus. This is generally not practical. Given the history, the conservative approach is to assume she has an active case of chickenpox and act according to your infection control guidelines.

I was told by a coworker that varicella vaccine can be stored at refrigerator temperature for up to three days and still be used. Is this true?

Ask the Experts… *continued on page 4* ▶

Ask the Experts… *continued from page 3*

According to the manufacturer, unreconstituted varicella vaccine may be stored at refrigerator temperature (2°C to 8°C, 36°F to 46°F) for up to 72 continuous hours prior to reconstitution. Vaccine stored at 2°C to 8°C that is not used within 72 hours of removal from +5°F (−15°C) storage should be discarded. See www.merck.com/product/usa/pi_circulars/v/varivax/varivax_pi.pdf.

MMR vaccine

Due to outbreaks of mumps in our state, I have been asked about college students getting a third dose of the MMR vaccine, even if there was not a mumps outbreak on their campus. My understanding is that a third dose of MMR is only recommended for students attending colleges that are experiencing an outbreak. Although I have advised families that this is the case, would there be any issues with proceeding with the third dose preemptively?

You are correct that administration of a third dose of MMR vaccine has been used as a possible mumps outbreak control strategy. To date, the evidence that this strategy is effective in mumps outbreak control is insufficient to recommend it as a routine measure for college students. However, some states experiencing mumps outbreaks may recommend a third dose of MMR for students in certain situations. There is no problem giving a third dose of MMR to a person who may already be immune to one or more of the vaccine components. Insurance is unlikely to pay for a third dose since this is not routinely recommended by CDC.

Hepatitis B vaccine

We give hepatitis B vaccine to newborns in the hospital followed by DTaP-IPV-HepB (Pediarix, GSK) at 2, 4, and 6 months of age, so our patients get 4 doses of hepatitis B vaccine. For some children, the Pediarix dose #3 is delayed and given closer to 5 months of age, so the interval is less than 8 weeks between dose #3 and #4 of the hepatitis B component of Pediarix. We are receiving conflicting information about whether their HepB dose #4 is a valid final dose because of the shortened interval between dose #3 and #4. Our electronic health record says dose #4 is valid (regardless of the short interval from dose #3) but the health department says it is not. Which is correct?

According to subject matter experts at CDC, your electronic health record is correct. The CDC website states that hepatitis B vaccine dose #4, if given, must be at 24 weeks of age or later, and at least 16 weeks from dose #1. There is no minimum interval requirement between dose #4 and the previous dose. This information is not published in any current ACIP statement but it can be found under "Hepatitis B" at www.cdc.gov/vaccines/programs/cocasa/reports/algorithm-ref.html.

Some nephrologists give a high dose (40 mcg) of hepatitis B vaccine (2 adult doses of Engerix-B, GSK, or Recombivax HB Dialysis Formulation, Merck) to all patients with renal failure with glomerular filtration rates (GFRs) of less than 30 ml/min even if the patient is not on dialysis. Is this practice advisable?

A higher dose hepatitis B vaccine is recommended for hemodialysis and other immunocompromised persons, so to the extent these patients are immunocompromised, this is within ACIP recommendations (note that "immunocompromised" is not defined in the recommendations). Regardless, this practice is appropriate for several reasons, including that these patients may be starting hemodialysis soon, and because use of the higher dose is not harmful. This is somewhat of a gray area but the clinician can use his/her clinical judgment.

DTap/Tdap/Td vaccine

The tetanus and diphtheria toxoid Tenivac (Td, Sanofi) is not currently available from the manufacturer and may not be available until later in 2017. What are we to do when someone is in need of a Td booster dose?

Although there is a shortage of Tenivac, there is another Td product available. It is produced by MassBiologics and distributed by Grifols USA LLC. More information, including prescribing information for Grifols Td vaccine, can be found at www.GrifolsTdvaccine.com.

If Td is unavailable in the work setting, Tdap should be used in its place whenever Td is indicated (e.g., for 10-year booster dose or wound management). If a person has previously received a dose of Tdap, it is acceptable to give another Tdap dose in place of Td when Td is not available.

Ask the Experts

About IAC's Question of the Week

Each week, *IAC Express* highlights a new, topical, or important-to-reiterate Q&A. This feature is a cooperative venture between IAC and CDC. William L. Atkinson, MD, MPH, IAC's associate director for immunization education, chooses a new Q&A to feature every week from a set of Q&As prepared by experts at CDC's National Center for Immunization and Respiratory Diseases.

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