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NEEDLE TIPS

from the Immunization Action Coalition — www.immunize.org

Let's Review! Healthy Patients Age 65 and Older Need Two Pneumococcal Vaccines Spaced One Year Apart

Despite the fact that more than a year has elapsed since the Centers for Disease Control and Prevention (CDC) first published its recommendations for use of two different pneumococcal vaccines (Prevnar [pneumococcal conjugate vaccine, PCV13, Pfizer] and Pneumovax [pneumococcal polysaccharide vaccine, PPSV23, Merck]) in healthy adults age 65 years and older, confusion abounds about the details of these recommendations.

The Immunization Action Coalition (IAC) receives frequent inquiries about the use of pneumococcal vaccines in older adults, including "Can I give the two vaccines at the same visit?" or "How many months should I wait between doses of the two vaccines?" IAC's website for healthcare professionals, www.immunize.org, continues to receive large numbers of visitors to its feature section "Ask the Experts" (ATE) (www.immunize.org/askexperts), where CDC experts answer questions about vaccines. The pneumococcal section of ATE has been visited at a rate nearly three times that of any other ATE section, with more than 20,000 visits in January alone.

Let's review the details of these recommendations. In 2014, followed by an update in 2015, CDC published the following recommendations for the use of two pneumococcal vaccines in healthy adults age 65 years and older:[1]

- Administer 1 dose of **Prevnar** (PCV13) to people age 65 years and older if they have not received a dose in the past.
  - One year later, administer 1 dose of **Pneumovax** (PPSV23).
- If your patient already received a dose of **Pneumovax** at *age 65 or older*:
  - You don't need to repeat **Pneumovax**.
  - However, make sure that all your patients age 65 and older who have not yet had **Prevnar** receive one dose at least a year after the **Pneumovax** dose.

(For patients who received any pneumococcal vaccine doses prior to age 65, see footnote 2.)

In February, CDC published "Recommended Adult Immunization Schedule, U.S., 2016 (see www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf). The pneumococcal vaccine recommendations are fully documented in the schedule and its highly detailed footnotes.

Medicare Part B fully covers pneumococcal vaccines. Both Prevnar and Pneumovax are covered under Part B for Medicare recipients age 65 years and older, as long as recommended spacing intervals are honored between vaccine doses.

Please make sure your patients are vaccinated according to CDC recommendations with pneumococcal vaccines. And patients 65 and older may be behind on other routinely recommended vaccines. Remember to check your patient's immunization status for zoster and Tdap, as well as annual influenza vaccine.

FOOTNOTES

1 The 2014 recommendations titled "Use of 13-Valent Pneumococcal Conjugate Vaccine and 23-Valent Pneumococcal Polysaccharide Vaccine Among Adults Aged ≥65 Years: Recommendations of ACIP" are available at www.cdc.gov/mmwr/preview/mmwrhtml/mm6337a4.htm. The 2015 recommendations titled "Intervals Between PCV13 and PPSV23 Vaccines: Recommendations of ACIP" are available at www.cdc.gov/mmwr/preview/mmwrhtml/mm6434a4.htm.

2 For patients vaccinated prior to age 65 due to high-risk conditions:
- If your patient received a dose of **Prevnar** at an *age younger than 65*:
  - You do not need to repeat **Prevnar**.
  - Administer **Pneumovax** at age 65 years, allowing at least a 1-year interval between it and the earlier dose of **Prevnar**.
- If your patient received **Pneumovax** at an *age younger than 65*:
  - You need to administer another dose of **Pneumovax** at age 65 or later (and at least 5 years after the last dose), but first administer **Prevnar** if your patient hasn't had a dose, and then administer **Pneumovax** one year after the **Prevnar** dose.

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Ask the Experts

The Immunization Action Coalition extends thanks to our experts, medical officer Andrew T. Kroger, MD, MPH, and nurse educator Donna L. Weaver, RN, MN, both with the National Center for Immunization and Respiratory Diseases at the Centers for Disease Control and Prevention (CDC).

Pneumococcal vaccines

If a provider does not yet stock pneumococcal conjugate vaccine (PCV13, Prevnar 13, Pfizer) for adults age 65 years and older but stocks pneumococcal polysaccharide vaccine (PPSV23, Pneumovax 23, Merck), should that provider refer patients to another provider to ensure they receive the PCV13 dose first? Or should the provider not miss an opportunity to give the PPSV23 and refer patients elsewhere for PCV13 in a year?

The Advisory Committee on Immunization Practices (ACIP) recommends that pneumococcal vaccine-naïve people age 65 years and older should

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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*

receive PCV13 first, followed by PPSV23 one year later. If the provider is unwilling to stock PCV13, then patients should be referred elsewhere to get PCV13 first. The solution, of course, is to stock PCV13 **and** PPSV23, both of which are covered by Medicare Part B.

We have a healthy 66-year-old patient who received a dose of PPSV23 in January then received a dose of PCV13 five months later at a different facility. Should the PCV13 dose be repeated since it was given earlier than the 1-year interval recommended by ACIP?

ACIP recommends that healthy people age 65 years and older receive PCV13 first, then PPSV23 one year later. When PPSV23 has been given first, ACIP recommends an interval of one year before giving PCV13. What to do when doses of PPSV23 and PCV13 are given without the recommended minimum interval is not addressed in the ACIP recommendations. The CDC subject matter experts have advised that in such a case, the dose given second does not need to be repeated. This is an exception to the usual procedure for a minimum interval violation as described in ACIP's *General Recommendations on Immunization* (see www.cdc.gov/mmwr/pdf/rr/rr6002.pdf, page 5). There is no evidence to support that there are benefits to repeating the dose of PCV13. Information about the recommended intervals between pneumococcal vaccines can be found at www.cdc.gov/mmwr/pdf/wk/mm6434.pdf, pages 944–7.

Diabetes is an indication for giving PPSV23 to patients younger than age 65 years. Does this include both insulin- and non-insulin-dependent diabetes?

Any diagnosis of diabetes, whether type 1 or type 2, is an indication for PPSV23. However, gestational diabetes does not qualify as an indication for PPSV23.

For adults without high-risk conditions, a 1-year interval is recommended between PCV13 and PPSV23 vaccines. What is the definition of a year? Does it need to be exactly one year? We have provided PCV13 to some individuals during flu season this year and told them to get the PPSV23 next year when they get their flu shot. What if they received their flu shot in November this year, but return for their flu shot in October next year?

What you describe is an excellent strategy for administration of PCV13 and PPSV23 to people age 65 years and older. ACIP does not define "one year" but this is assumed to be one calendar year. Receiving PPSV23 a few days or weeks earlier than one calendar year after PCV13 is not a medical problem. However, it could be a problem for reimbursement since Medicare will only pay for both vaccines if they are given at least 11 months apart. Private insurance may have similar rules. Here is the wording from the Centers for Medicare and Medicaid (CMS):

> "An initial pneumococcal vaccine may be administered to all Medicare beneficiaries who have never received a pneumococcal vaccine under Medicare Part B. A different, second pneumococcal vaccine may be administered 1 year after the first vaccine was administered (i.e., 11 full months have passed following the month in which the last pneumococcal vaccine was administered)."

Why is there no recommendation for patients older than 65 years to get a booster dose of PPSV23 if they first received it at age 65 years or older? It seems to me that their protection against pneumococcal disease would benefit from a booster dose of PPSV23 five or ten years after the first dose.

People age 65 and older should be given a second dose of PPSV23 if they received the first dose 5 or more years previously and were younger than 65 years at the time of the first vaccination. Protection from a single dose of PPSV23 at age 65 years or older is believed to persist for 5–10 years. The benefit and safety of a second dose given after age 65 years is uncertain. Until such data are available, ACIP recommends only a single dose at age 65 years or older.

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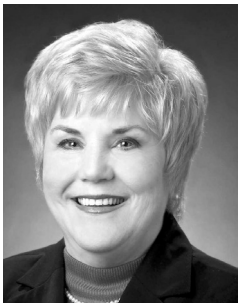
IAC's "Ask the Experts" team from the Centers for Disease Control and Prevention

Andrew T. Kroger, MD, MPH



Donna L. Weaver, RN, MN

Ask the Experts… *continued from page 2*

I have a patient who takes adalimumab (Humira) for rheumatoid arthritis. Does a person who takes adalimumab meet the definition of immunosuppression for the purposes of PCV13 vaccination?
Adalimumab is a potent anti-inflammatory drug that blocks the activity of tumor necrosis factor (TNF). Adalimumab is considered immunosuppressive because serious infections have been reported in people taking the drug, including tuberculosis and infections caused by viruses, fungi, or bacteria. Consequently, a person taking adalimumab or other drugs that affect TNF activity (such as infliximab [Remicade], certolizumab pegol [Cimzia], golimumab [Simponi], or etanercept [Enbrel]) should be considered to have immunosuppression and receive PCV13.

A healthy child received only one dose of PCV at age 10 months. She is now 6 years old. Our state requires one dose of PCV13 after the first birthday for school attendance. Her physician says because she is older than 59 months, she does not need another dose of PCV13. What should we do in this situation?
ACIP does not recommend routine PCV13 vaccination of healthy children 60 months of age or older. If there is a school requirement, the simplest solution is to give the child one dose of PCV13. However, health insurance may not pay for this dose. For more information on the ACIP recommendations for pneumococcal vaccination of children, go to www.cdc.gov/mmwr/pdf/rr/rr5911.pdf.

Hepatitis B vaccine

An 18-year-old with a documented hepatitis B series as a child was seen for a school-required titer of antibody to hepatitis B surface antigen (anti-HBs). She has juvenile rheumatoid arthritis and receives immunoglobulin (IG) infusions every month. Her last treatment with an IG infusion was three weeks prior to her blood draw. The anti-HBs titer was positive. Could the IG infusion from three weeks ago cause her anti-HBs to be false positive? If so, how long should she wait to have another anti-HBs drawn?
ACIP does not address this issue but it is not likely that standard IG (as opposed to hepatitis B immune globulin [HBIG]) would cause a false positive anti-HBs. So if the anti-HBs was 10 mIU/mL or higher, the patient can be assumed to be immune to hepatitis B.

A physician ordered a 40-mcg dose of hepatitis B vaccine for a hemodialysis patient. The clinic does not stock the Recombivax HB 40-mcg/dose dialysis formulation (Merck) and would like to give 2 doses of Engerix-B 20-mcg/dose (GSK) for each dose in the series. Is this acceptable?
Yes. If given on the same day as separate injections in separate sites, two Engerix-B 20-mcg doses can be counted as the equivalent of one Recombivax HB 40-mcg dose. According to the package insert, Engerix-B is licensed for use in this manner. Vaccine package inserts for all vaccines are available at www.immunize.org/packageinserts.

Meningococcal ACWY vaccines

I have an HIV-positive 64-year-old patient who received meningococcal conjugate vaccine last week. Was this the correct vaccine for this patient or should he have gotten MPSV4 due to his age? Also, should this patient get another dose in 2 months?
Quadrivalent meningococcal conjugate vaccine (MenACWY [MCV4]: Menactra, Sanofi Pasteur; Menveo, GSK) was the correct vaccine in this situation. The 2013 ACIP recommendations on meningococcal vaccination recommend the use of meningococcal conjugate vaccine in adults age 56 years and older who (1) were vaccinated previously with MenACWY and now need revaccination, or (2) are recommended to receive multiple doses. ACIP does not consider HIV infection alone to be an indication for MenACWY vaccine. However, if the decision is made to vaccinate a person with HIV infection, the patient should receive 2 doses of MenACWY separated by 8–12 weeks. Both MenACWY vaccines are licensed for use in people through age 55 years, which means that the use of these vaccines in people age 56 and older is off-label but recommended by ACIP.

We have a 68-year-old who has been asplenic since 2009. She had one dose of meningococcal polysaccharide vaccine (MPSV4, Menomune, Sanofi Pasteur) in 2009, but no subsequent dose. She is now due for a booster. Should she receive 2 doses of MenACWY, 2 months apart, to catch up, or just one dose?
This situation is not addressed in the most recent ACIP guidelines for meningococcal conjugate vaccine. It is the CDC meningococcal subject matter expert's opinion that this patient should receive 2 doses of MenACWY separated by at least 8 weeks, followed by a booster dose of MenACWY every 5 years thereafter. The concern is that having had only MPSV4 previously, she may not have an adequate booster response to a single dose of MenACWY.

Ask the Experts… *continued on page 4* ▶

Ask the Experts… *continued from page 3*

Meningococcal B vaccines

I know the schedule for Trumenba (meningococcal serogroup B vaccine, Pfizer) is 0, 2, and 6 months. What are the MINIMUM intervals between doses of Trumenba and Bexsero (meningococcal serogroup B vaccine, GSK)? Our immunization information system needs to know the minimum intervals in order to assure that patients are appropriately vaccinated.

Neither ACIP nor the CDC meningococcal subject matter experts have addressed this issue. Given the lack of guidance, we must assume that the routine intervals are also the minimum intervals: for Trumenba, 8 weeks between doses 1 and 2, 4 months between doses 2 and 3, and 6 months between doses 1 and 3; for Bexsero, 4 weeks between doses 1 and 2. It is important to use these intervals when scheduling doses. However, if these intervals are violated, the doses still count and do not need to be repeated.

I have a patient who was given Trumenba in August. Two months later she was given a dose of Bexsero. How should I proceed with her MenB vaccination series? We stock both vaccines.

The ACIP meningococcal serogroup B vaccine recommendations (www.cdc.gov/mmwr/pdf/wk/mm6441.pdf, pages 1171–6) state that the same vaccine must be used for all doses in the MenB series. So the clinician needs to complete a series with one or the other vaccine. If a person has already received 1 dose of Bexsero and one of Trumenba, then pick a brand and finish a recommended schedule with that brand. Ignore the extra dose of the other product. The next dose in the series (either Trumenba or Bexsero) should be separated from the previous dose of Bexsero by at least 1 month.

My 8-year-old patient had a bone marrow transplant and has just finished the post-transplant re-vaccination process. Should I offer her vaccination with a MenB vaccine now or wait two years until she is 10 years old?

Neither brand of meningococcal B vaccine is approved by FDA or recommended by ACIP for people younger than age 10 years. You should defer meningococcal B vaccination until she is 10 years of age.

Needle Tips correction policy

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DTaP/Tdap vaccines

Can Quadracel (DTaP-IPV, Sanofi Pasteur) be used to complete a series with vaccines other than Daptacel (DTaP, Sanofi Pasteur) or Pentacel (DTaP-IPV-Hib, Sanofi Pasteur)?

ACIP recommends the same brand of DTaP be used for all doses but that a different brand can be used if necessary. So Quadracel can be used in a series with another brand of DTaP if necessary. CDC published a short *MMWR* article about Quadracel on Sept. 4, 2015 (www.cdc.gov/mmwr/pdf/wk/mm6434.pdf, pages 948–9).

There is a debate within my clinical department about not allowing influenza vaccine to be given with DTaP and PCV13. Are there data that state these should not be given concomitantly?

A CDC study has shown a small increased risk for febrile seizures during the 24 hours after a child receives the inactivated influenza vaccine at the same time as the PCV13 vaccine or DTaP vaccine. However, the risk of febrile seizure with any combination of these vaccines is small and ACIP recommends giving these vaccines at the same visit if indicated. See www.cdc.gov/vaccinesafety/concerns/febrile-seizures.html for more information.

One of our staff inadvertently gave Tdap to an infant instead of DTaP. Now what should be done?

If Tdap was inadvertently administered to a child younger than 7 years of age, it should not be counted as either the first, second, or third dose of DTaP. The dose should be repeated with DTaP. Continue vaccinating on schedule. If the dose of Tdap was administered for the fourth or fifth DTaP dose, the Tdap dose can be counted as valid. Please remind your staff to always check the vaccine vial at least three times before administering any vaccine.

We would like to avoid stocking both Tdap and Td vaccines. Is CDC likely to recommend that Tdap completely replace Td in the immunization schedule in the near future?

Currently, ACIP recommends giving only 1 dose of Tdap to adolescents and adults who have not previously received the vaccine, with the exception of pregnant women, who should be vaccinated during each pregnancy. ACIP is unlikely to recommend routine Tdap revaccination for groups other than pregnant women. Vaccine providers will need to continue to stock Td vaccine in order to administer it to patients who need to complete the full primary 3-dose tetanus and diphtheria series and also to administer 10-year booster doses of Td throughout the lifetime of those who have completed the primary series. Note that if a person who previously received Tdap needs a booster dose of Td (as a routine booster dose or for wound management), it is acceptable to administer Tdap if Td is not available.

Zoster vaccine

I know that ACIP only recommends zoster vaccine for adults age 60 years and older, although it is licensed for use in those 50 years and older. If I choose to vaccinate patients age 50–59 years, are there any criteria as to which patients in this age group might benefit most from zoster vaccination?

For vaccination providers who choose to use zoster vaccine among certain patients age 50 through 59 years despite the absence of an ACIP recommendation, factors that might be considered include particularly poor anticipated tolerance of herpes zoster or postherpetic neuralgia symptoms (e.g., attributable to preexisting chronic pain, severe depression, or other comorbid conditions; or inability to tolerate treatment medications because of hypersensitivity or interactions with other chronic medications). More information on this issue is available at www.cdc.gov/mmwr/pdf/wk/mm6044.pdf, page 1528.

We have an 18-year-old male patient with a history of chickenpox disease. He now has shingles. We are unsure what to advise for future vaccination. Should we administer zoster vaccine?

ACIP does not recommend zoster vaccination for people younger than age 60 years regardless of their history of shingles. Zoster vaccine is licensed by FDA for people age 50 years and older so a clinician may choose to vaccinate a person 50–59 years of age. Insurance may not pay for a dose of zoster vaccine given to a person younger than age 60 years.

My patient is a 66-year-old male with a condition that requires treatment with intravenous immune globulin (IVIG) once a month. Can he receive zoster vaccine?

Yes. The concern about interference by circulating antibody (from the IVIG) with varicella vaccine does not apply to zoster vaccine. The amount of antigen in zoster vaccine is high enough to offset any effect of circulating antibody. Also, studies of zoster vaccine were performed on patients who had circulating antibody (because they had varicella earlier in life) or who had received antibody-containing blood products and there was no appreciable effect on efficacy. Some patients who receive IVIG are immunosuppressed. Since immunosuppression is a contraindication to zoster vaccine, it is important to screen to ensure a patient is not immunosuppressed when administering zoster vaccine.

Before administering zoster vaccine is it necessary to ask if the person has ever had chickenpox or shingles?

No. All people age 60 years or older, whether they have a history of chickenpox or shingles or not, should be given zoster vaccine unless they have a medical contraindication to vaccination.

Ask the Experts… *continued on page 5* ▶

Ask the Experts… *continued from page 4*

For patients age 60 or older who don't remember having chickenpox in the past, should we test them for varicella immunity before giving zoster vaccine?
No. Simply vaccinate them with zoster vaccine according to the ACIP recommendations.

We weren't familiar with the recommendation (not to test) and tested a 60-year-old for varicella antibody because she said she never had chickenpox. Her result was negative. Should this patient receive zoster vaccine or varicella vaccine?
In this situation, since you've tested the patient and the results were negative, the patient should receive varicella vaccine. A person age 60 years or older who has no medical contraindications is eligible for zoster vaccine, regardless of their memory of having had chickenpox. However, if an adult age 60 years or older is tested for varicella immunity for whatever reason, and the test is negative, he/she should be given 2 doses of varicella vaccine at least 4 weeks apart, not zoster vaccine. It is important to note that at the current time, zoster vaccine is not recommended for individuals whose varicella immunity is based on vaccination. See www.cdc.gov/vaccines/vpd-vac/shingles/hcp-vaccination.htm for more information.

General vaccine questions

We have a question concerning delaying vaccinations for an infant born to a heroin-addicted mother. We had a foster parent come into our health department requesting only certain vaccines for a 3-month-old, stating that the private physician recommends delaying the schedule due to the possible residual effects of the heroin. The baby appeared to be healthy.
Heroin use or addiction of the mother is not a reason to delay vaccination of an otherwise healthy infant.

What is the provider's liability when using standing order protocols?
While you did not say this explicitly, we assume the concern is about a vaccine injury in a person who was vaccinated using a standing order. Of course, as long as the person is properly screened for contraindications and precautions, an injury from a vaccine is very unlikely. In the event that an injury does occur, the National Vaccine Injury Compensation Program (VICP) provides liability protection for the vaccinator and the clinician who signed the standing order for any vaccine that is covered by the vaccine injury compensation program (all vaccines that are routinely administered to children are covered by the program for all ages of patients). More information about the VICP is available on their website at www.hrsa.gov/vaccinecompensation/index.html.

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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To read position statements supporting mandatory HCP vaccination from leading healthcare organizations and professional medical societies or to apply, visit www.immunize.org/honor-roll/influenza-mandates

The protective cap on a single-dose vial was removed but the vaccine was not needed. No needle punctured the rubber seal. According to CDC's Vaccine Storage & Handling Toolkit, the vial without the cap should be discarded at the end of workday. If no needle punctured the seal, what is the reasoning for discarding the vaccine?
Removing the protective cap increases the likelihood the septum or stopper could be punctured. The puncture may not be visible. It is important to ensure that the rubber seal on single-dose vials is not punctured because single-dose vials do not contain a preservative. Once the protective cap has been removed, the vaccine should be discarded at the end of the workday because it may not be possible to determine if the rubber seal has been punctured. CDC's Vaccine Storage & Handling Toolkit is available at www.cdc.gov/vaccines/recs/storage/toolkit.

Vaccine Highlights

Recommendations, schedules, and more

Editor's note: The information in Vaccine Highlights is current as of March 11, 2016.

Next ACIP meetings

The Advisory Committee on Immunization Practices (ACIP) is comprised of 15 national experts who advise CDC on the appropriate use of vaccines. At its most recent meeting, held on Feb. 24, the committee discussed HPV, influenza, cholera, meningococcal, and Japanese encephalitis vaccines. The only vote taken during the meeting was to approve the 2016–17 influenza vaccination recommendations.

ACIP meets three times a year in Atlanta; meetings are open to the public and viewable online via live webcast. The next meetings will be held on June 22–23 and Oct. 19–20. For more information, visit www.cdc.gov/vaccines/acip.

ACIP periodically issues recommendations on the use of vaccines; they are published and readily available in the *Morbidity and Mortality Weekly Report* (*MMWR*). Clinicians who vaccinate should have a current set for reference. Here are sources::

- Download from IAC's website: www.immunize.org/acip
- Download from CDC's website: www.cdc.gov/vaccines/hcp/acip-recs

CDC immunization schedules

Each year, CDC's Advisory Committee on Immunization Practices publishes U.S. immunization schedules for children/teens and adults to reflect current recommendations for the use of licensed vaccines.

FOR CHILDREN AND TEENS

On Feb. 1, CDC released the "Recommended Immunization Schedules for Persons Aged 0 Through 18 Years, U.S., 2016" online at www.cdc.gov/vaccines/schedules/downloads/child/0-18yrs-child-combined-schedule.pdf. The Feb. 5 issue of *MMWR* included a summary article about the changes made for 2016. See www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6504.pdf, pages 86–87.

FOR ADULTS

On Feb. 1, CDC published "Recommended Immunization Schedule for Adults Aged 19 Years or Older–U.S., 2016" online at www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf. The Feb. 5 issue of *MMWR* also included an article summarizing the changes in the 2016 adult schedule. It is available at www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6504.pdf, pages 88–90.

More CDC news

On Feb. 19, CDC published "Notes from the Field: Administration Error Involving a Meningococcal Conjugate Vaccine—U.S., Mar. 1, 2010–Sept. 22, 2015 in *MMWR*. In this report which examined data from VAERS, the researchers found 407 recipients in whom the meningococcal conjugate vaccine Menveo (GSK) had being improperly reconstituted and administered. See www.cdc.gov/mmwr/volumes/65/wr/mm6506a4.htm.

On Feb. 5, CDC published "Surveillance of Vaccination Coverage Among Adult Populations—U.S., 2014," in *MMWR Surveillance Summary* (www.cdc.gov/mmwr/volumes/65/ss/pdfs/ss6501.pdf).

This report is based on data from CDC's National Health Interview Survey (NHIS) and shows that vaccination coverage overall remained low for adults and that there continue to be missed opportunities to vaccinate.

On Dec. 18, 2015, CDC published "Notes from the Field: Injection Safety and Vaccine Administration Errors at an Employee Influenza Vaccination Clinic—New Jersey, 2015," in *MMWR* (www.cdc.gov/mmwr/pdf/wk/mm6449.pdf, pages 1363-4). This article details the vaccine administration and vaccine storage and handling errors committed by a contracted health services company at an employee influenza vaccination clinic and how the state immunization program responded to the situation.

April 16–23 is National Infant Immunization Week (NIIW), an annual observance to highlight the importance of protecting infants from vaccine-preventable diseases. Information is available at www.cdc.gov/vaccines/events/niiw/index.html.

CDC's 47th National Immunization Conference will be held Sept. 13–15, in Atlanta. For more information, visit www.cdc.gov/vaccines/events/nic/index.html.

FDA vaccine news

On Jan. 14, FDA announced the expanded indication for Hiberix (Hib, GSK) to include children from ages 6 weeks through 14 months. See www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm179527.htm.

On Dec. 22, 2015, FDA announced approval of Fluad (Novartis), a new injectable influenza vaccine for use in people 65 years and older, the first seasonal influenza vaccine containing an adjuvant. See www.fda.gov/biologicsbloodvaccines/safetyavailability/vaccinesafety/ucm473989.htm.

On Dec. 14, 2015, FDA announced the expanded indication of Gardasil 9 (HPV9, Merck) to include males age 16–26 years. See detailed information at www.fda.gov/biologicsbloodvaccines/vaccines/approvedproducts/ucm426445.htm.

AAP news

The American Academy of Pediatrics published the policy statement "Influenza Immunization for All Health Care Personnel: Keep It Mandatory" in the October issue of *Pediatrics* and on its website at http://pediatrics.aappublications.org/content/pediatrics/136/4/809.full.pdf.

HHS news

On Feb. 5, the National Vaccine Program Office (NVPO), part of the U.S. Department of Health and Human Services (HHS), released a National Adult Immunization Plan. It is available at www.hhs.gov/nvpo/national-adult-immunization-plan/naip.pdf.

Current VIS dates

Check the dates on your supply of Vaccine Information Statements (VISs). If any are outdated, get current versions and VISs in more than 30 languages at www.immunize.org/vis.

Adenovirus	6/11/14	MMR	4/20/12
Anthrax	3/10/10	MMRV	5/21/10
Chickenpox	3/13/08	Multi-vaccine	11/5/15
DTaP	5/17/07	PCV13	11/5/15
Hib	4/2/15	PPSV	4/24/15
Hepatitis A	10/25/11	Polio	11/8/11
Hepatitis B	2/2/12	Rabies	10/6/09
HPV-Cervarix	5/3/11	Rotavirus	4/15/15
HPV-Gardasil	5/17/13	Shingles	10/6/09
HPV-Gardasil 9	4/15/15	Td	2/24/15
Influenza	8/7/15	Tdap	2/24/15
Japanese enceph.	1/24/14	Typhoid	5/29/12
MCV4/MPSV4	10/14/11	Yellow fever	3/30/11
MenB	8/14/15		

For a ready-to-print version of this table for posting in your practice, go to www.immunize.org/catg.d/p2029.pdf.

Great Resources on www.Give2MCV4.org to Help Protect Preteens and Teens from Meningococcal A, C, W, Y Disease

- Meningococcal conjugate vaccine (MCV4) provides safe and effective protection against meningococcal disease caused by serogroups A, C, W, and Y.
- MCV4 is recommended at ages 11–12 followed by a second (booster) vaccination at age 16.
- According to CDC's 2014 National Immunization Survey–Teen, **only 29% of teens had received their recommended booster dose by 17 years of age**.

Valuable Resource! Downloadable **slide deck and speaker notes** for healthcare professionals

www.Give2MCV4.org

More Resources

Visit www.Give2MCV4.org to view the full collection of resources designed to help healthcare professionals improve rates for MCV4 and all recommended adolescent vaccines, including:

Recommending MCV4: What to Say and How to Say It
www.give2mcv4.org/wp-content/uploads/2015/07/Toolkit-Recommending-MCV4.pdf

Top 10 Ways to Improve Adolescent Immunization Rates
www.give2mcv4.org/wp-content/uploads/2015/07/Toolkit-Top-10-Ways.pdf

Screening Checklist for Contraindications to HPV, MCV4, and Tdap
www.immunize.org/catg.d/p4062.pdf

and much more!

"Dear Colleague" Letter: Call-to-Action from IAC, CDC, and professional societies emphasizing the importance of the second dose of MCV4
www.immunize.org/mcv4letter

MCV4 YOU'RE NOT DONE IF YOU GIVE JUST ONE
GIVE 2 DOSES to Strengthen Protection

Use This Checklist to Screen for Contraindications and Precautions to Vaccines for Children and Teens

Screening Checklist for Contraindications to Vaccines for Children and Teens

PATIENT NAME _____

DATE OF BIRTH ____ / ____ / ____
month day year

For parents/guardians: The following questions will help us determine which vaccines your child may be given today. If you answer "yes" to any question, it does not necessarily mean your child should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

	yes	no	don't know
1. Is the child sick today?	☐	☐	☐
2. Does the child have allergies to medications, food, a vaccine component, or latex?	☐	☐	☐
3. Has the child had a serious reaction to a vaccine in the past?	☐	☐	☐
4. Has the child had a health problem with lung, heart, kidney or metabolic disease (e.g., diabetes), asthma, or a blood disorder? Is he/she on long-term aspirin therapy?	☐	☐	☐
5. If the child to be vaccinated is 2 through 4 years of age, has a healthcare provider told you that the child had wheezing or asthma in the past 12 months?	☐	☐	☐
6. If your child is a baby, have you ever been told he or she has had intussusception?	☐	☐	☐
7. Has the child, a sibling, or a parent had a seizure; has the child had brain or other nervous system problems?	☐	☐	☐
8. Does the child have cancer, leukemia, HIV/AIDS, or any other immune system problem?	☐	☐	☐
9. In the past 3 months, has the child taken medications that affect the immune system such as prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments?	☐	☐	☐
10. In the past year, has the child received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?	☐		
11. Is the child/teen pregnant or is there a chance she could become pregnant during the next month?	☐		
12. Has the child received vaccinations in the past 4 weeks?	☐		

FORM COMPLETED BY _____ DATE_____

FORM REVIEWED BY _____ DATE_____

Did you bring your immunization record card with you? yes ☐ no ☐

It is important to have a personal record of your child's vaccinations. If you don't have one, as healthcare provider to give you one with all your child's vaccinations on it. Keep it in a safe pla it with you every time you seek medical care for your child. Your child will need this document care or school, for employment, or for international travel.

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www.immunize.org/catg.d/p4060.pdf • I

Information for Healthcare Professionals about the Screening Checklist for Contraindications (Children and Teens)

Are you interested in knowing why we included a certain question on the screening checklist? If so, read the information below. If you want to find out even more, consult the references listed at the end.

1. Is the child sick today? *[all vaccines]*

There is no evidence that acute illness reduces vaccine efficacy or increases vaccine adverse events (1, 2). However, as a precaution with moderate or severe acute illness, all vaccines should be delayed until the illness has improved. Mild illnesses (such as otitis media, upper respiratory infections, and diarrhea) are NOT contraindications to vaccination. Do not withhold vaccination if a person is taking antibiotics.

2. Does the child have allergies to medications, food, a vaccine component, or latex? *[all vaccines]*

An anaphylactic reaction to latex is a contraindication to vaccines that contain latex as a component or as part of the packaging (e.g., vial stoppers, prefilled syringe plungers, prefilled syringe caps). If a person has anaphylaxis after eating gelatin, do not administer vaccines containing gelatin. A local reaction to a prior vaccine dose or vaccine component, including latex, is not a contraindication to a subsequent dose or vaccine containing that component. For information on vaccines supplied in vials or syringes containing latex, see reference 3; for an extensive list of vaccine components, see reference 4. An egg-free recombinant influenza vaccine (RIV3) may be used in people age 18 years and older with egg allergy of any severity who have no other contraindications. Children and teens younger than age 18 years who have experienced a serious systemic or anaphylactic reaction (e.g., hives, swelling of the lips or tongue, acute respiratory distress, or collapse) after eating eggs can usually be vaccinated with inactivated influenza vaccine (IIV); consult ACIP recommendations (see reference 4).

3. Has the child had a serious reaction to a vaccine in the past? *[all vaccines]*

History of anaphylactic reaction (see question 2) to a previous dose of vaccine or vaccine component is a contraindication for subsequent doses (1). History of encephalopathy within 7 days following DTP/DTaP is a contraindication for further doses of pertussis-containing vaccine. Precautions to DTaP (not Tdap) include the following: (a) seizure within 3 days of a dose, (b) pale or limp episode or collapse within 48 hours of a dose, (c) continuous crying for 3 or more hours within 48 hours of a dose, and (d) fever of 105°F (40°C) within 48 hours of a previous dose. There are other adverse events that might have occurred following vaccination that constitute contraindications or precautions to future doses. Under normal circumstances, vaccines are deferred when a precaution is present. However, situations may arise when the benefit outweighs the risk (e.g., during a community pertussis outbreak).

4. Has the child had a health problem with lung, heart, kidney, or metabolic disease (e.g., diabetes), asthma, or a blood disorder? Is he/she on long-term aspirin therapy? *[LAIV]*

The safety of LAIV in children and teens with lung, heart, kidney, or metabolic disease (e.g., diabetes), or a blood disorder has not been established. These conditions, including asthma in children ages 5 years and older, should be considered precautions for the use of LAIV. Children on long-term aspirin therapy should not be given LAIV; instead, they should be given IIV.

5. If the child to be vaccinated is 2 through 4 years of age, has a healthcare provider told you that the child had wheezing or asthma in the past 12 months? *[LAIV]*

Children ages 2 through 4 years who have had a wheezing episode within the past 12 months should not be given LAIV. Instead, these children should be given IIV.

6. If your child is a baby, have you ever been told that he or she has had intussusception? *[Rotavirus]*

Infants who have a history of intussusception (i.e., the telescoping of one portion of the intestine into another) should not be given rotavirus vaccine.

7. Has the child, a sibling, or a parent had a seizure; has the child had brain or other nervous system problem? *[DTaP, Td, Tdap, IIV, LAIV, MMRV]*

DTaP and Tdap are contraindicated in children who have a history of encephalopathy within 7 days following DTP/DTaP. An unstable progressive neurologic problem is a precaution to the use of DTaP and Tdap. For children with stable neurologic disorders (including seizures) unrelated to vaccination, or for children with a family history of seizures, vaccinate as usual (exception: children with a personal or family [i.e., parent or sibling] history of seizures generally should not be vaccinated with MMRV; they should receive separate MMR and VAR vaccines). A history of Guillain-Barré syndrome (GBS) is a consideration with the following: 1) Td/Tdap: if GBS has occurred within 6 weeks of a tetanus-containing vaccine and decision is made to continue vaccination, give age-appropriate Tdap instead of Td if no history of prior Tdap, to improve pertussis protection; 2) Influenza vaccine (IIV or LAIV): if GBS has occurred within 6 weeks of a prior influenza vaccination, vaccinate with IIV if at high risk for severe influenza complications.

8. Does the child have cancer, leukemia, HIV/AIDS, or any other immune system problem? *[LAIV, MMR, MMRV, RV, VAR]*

Live virus vaccines (e.g., MMR, MMRV, varicella, rotavirus, and the intranasal live, attenuated influenza vaccine [LAIV]) are usually contraindicated in immunocompromised children. However, there are exceptions. For example, MMR is recommended for asymptomatic HIV-infected children who do not have evidence of severe immunosuppression. Likewise, varicella vaccine should be considered for HIV-infected children with age-specific CD4+ T-lymphocyte percentage at 15% or greater and may be considered for children age 8 years and older with CD4+ T-lymphocyte counts of greater than or equal to 200 cells/µL. Immunosuppressed children should not receive LAIV. Infants who have been diagnosed with severe combined immunodeficiency (SCID) should not be given a live virus vaccine, including rotavirus (RV) vaccine. Other forms of immunosuppression are a precaution, not a contraindication, to rotavirus vaccine. For details, consult the ACIP recommendations (1, 6, 7, 8).

9. In the past 3 months, has the child taken medications that affect the immune system such as prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments? *[LAIV, MMR, MMRV, VAR]*

Live virus vaccines (e.g., LAIV, MMR, VAR, ZOS) should be postponed until after chemotherapy or long-term high-dose steroid therapy has ended. For details and length of time to postpone, consult the ACIP statement (1). Some immune mediator and immune modulator drugs (especially the antitumor-necrosis factor agents adalimumab, infliximab, and etanercept) may be immunosuppressive. The use of live vaccines should be avoided in persons taking these drugs (MMWR 2011;60 [RR2]:23). To find specific vaccination schedules for stem cell transplant (bone marrow transplant) patients, see reference 9. LAIV can be given only to healthy non-pregnant people ages 2 through 49 years.

10. In the past year, has the child received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug? *[LAIV, MMR, MMRV, VAR]*

Certain live virus vaccines (e.g., LAIV, MMR, MMRV, varicella) may need to be deferred, depending on several variables. Consult the most current ACIP recommendations or the current Red Book for the most current information on intervals between antiviral drugs, immune globulin or blood product administration and live virus vaccines (1, 2).

11. Is the child/teen pregnant or is there a chance she could become pregnant during the next month? *[LAIV, MMR, MMRV, VAR]*

Live virus vaccines (e.g., MMR, MMRV, varicella, LAIV) are contraindicated one month before and during pregnancy because of the theoretical risk of virus transmission to the fetus (1, 2). Sexually active young women who receive a live virus vaccine should be instructed to practice careful contraception for one month following receipt of the vaccine (7, 10). On theoretical grounds, inactivated poliovirus vaccine should not be given during pregnancy; however, it may be given if risk of exposure is imminent (e.g., travel to endemic areas) and immediate protection is needed. Use of Td or Tdap is not contraindicated in pregnancy. At the provider's discretion, either vaccine may be administered during the 2nd or 3rd trimester (5, 11)

12. Has the child received vaccinations in the past 4 weeks? *[LAIV, MMR, MMRV, VAR, yellow fever]*

Children who were given either LAIV or an injectable live virus vaccine (e.g., MMR, MMRV, varicella, yellow fever) should wait 28 days before receiving another vaccination of this type. Inactivated vaccines may be given at the same time or at any spacing interval.

REFERENCES

1. CDC. General recommendations on immunization, at www.cdc.gov/mmwr/pdf/rr/rr6002.pdf.
2. AAP. Red Book: Report of the Committee on Infectious Diseases at www.aapredbook.org.
3. Latex in Vaccine Packaging: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/latex-table.pdf
4. Table of Vaccine Components: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.
5. CDC. Prevention and control of influenza with vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP), United States, 2015–16 Influenza Season at www.cdc.gov/mmwr/pdf/wk/mm6430.pdf, pages 818–825.
6. CDC. Measles, mumps, and rubella – vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps. MMWR 1998; 47 (RR-8).
7. CDC. Prevention of varicella: Recommendations of the Advisory Committee on Immunization Practices. MMWR 2007; 56 (RR-4).
8. Rubin LG, Levin MJ, Ljungman P. 2013 IDSA Clinical practice guideline for vaccination of the immunocompromised host. Clinical Infectious Diseases 2014;58(3):e44–100.
9. Tomblyn M, Einsele H, et al. Guidelines for preventing infectious complications among hematopoietic stem cell transplant recipients: a global perspective. BioBloodMarrow Transplant 15:1143–1238; 2009 at www.cdc.gov/vaccines/pubs/hemato-cell-transplts.htm.
10. CDC. Notice to readers: Revised ACIP recommendation for avoiding pregnancy after receiving a rubella-containing vaccine. MMWR 2001; 50 (49).
11. CDC. Prevention of pertussis, tetanus, and diphtheria among pregnant and postpartum women and their infants: Recommendations of the ACIP. MMWR 2008; 57 (RR-4).

- This checklist covers precautions and contraindications to vaccines for children and teens.
- Patients or their parents complete the checklist on page 1.
- Page 2 provides detailed information for healthcare professionals about why each question is asked.

For a ready-to-copy 8½ x 11" of this two-page screening checklist, visit www.immunize.org/catg.d/p4060.pdf

Use This Checklist to Screen for Contraindications and Precautions to Vaccines for Adults

Screening Checklist for Contraindications to Vaccines for Adults

PATIENT NAME _____

DATE OF BIRTH ____ / ____ / ____
month day year

For patients: The following questions will help us determine which vaccines you may be given today. If you answer "yes" to any question, it does not necessarily mean you should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

	yes	no	don't know
1. Are you sick today?	☐	☐	☐
2. Do you have allergies to medications, food, a vaccine component, or latex?	☐	☐	☐
3. Have you ever had a serious reaction after receiving a vaccination?	☐	☐	☐
4. Do you have a long-term health problem with heart disease, lung disease, asthma, kidney disease, metabolic disease (e.g., diabetes), anemia, or other blood disorder?	☐	☐	☐
5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem?	☐	☐	☐
6. In the past 3 months, have you taken medications that affect your immune system, such as prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or have you had radiation treatments?	☐	☐	☐
7. Have you had a seizure or a brain or other nervous system problem?	☐	☐	☐
8. During the past year, have you received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?	☐	☐	☐
9. For women: Are you pregnant or is there a chance you could become pregnant during the next month?	☐	☐	☐
10. Have you received any vaccinations in the past 4 weeks?	☐	☐	☐

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

Did you bring your immunization record card with you? yes ☐ no ☐

It is important for you to have a personal record of your vaccinations. If you don't have a pers
ask your healthcare provider to give you one. Keep this record in a safe place and bring it with yo
you seek medical care. Make sure your health care provider records all your vaccinations on it

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www.immunize.org/catg.d/p4065.pdf • I

- This checklist covers precautions and contraindications to vaccines for adults.
- Patients complete the checklist on page 1.
- Page 2 provides detailed information for healthcare professionals about why each question is asked.

For a ready-to-copy 8½ x 11" of this two-page screening checklist, visit www.immunize.org/catg.d/p4065.pdf

Information for Healthcare Professionals about the Screening Checklist for Contraindications to Vaccines for Adults

Are you interested in knowing why we included a certain question on the screening checklist? If so, read the information below. If you want to find out even more, consult the references listed at the end.

1. Are you sick today? *[all vaccines]*

There is no evidence that acute illness reduces vaccine efficacy or increases vaccine adverse events (1). However, as a precaution with moderate or severe acute illness, all vaccines should be delayed until the illness has improved. Mild illnesses (such as upper respiratory infections or diarrhea) are NOT contraindications to vaccination. Do not withhold vaccination if a person is taking antibiotics.

2. Do you have allergies to medications, food, a vaccine component, or latex? *[all vaccines]*

An anaphylactic reaction to latex is a contraindication to vaccines that contain latex as a component or as part of the packaging (e.g., vial stoppers, prefilled syringe plungers, prefilled syringe caps). If a person has anaphylaxis after eating gelatin, do not administer vaccines containing gelatin. A local reaction to a prior vaccine dose or vaccine component, including latex, is not a contraindication to a subsequent dose or vaccine containing that component. For information on vaccines supplied in vials or syringes containing latex, see reference 2; for an extensive list of vaccine components, see reference 3.

An egg-free recombinant influenza vaccine (RIV3) may be used in people age 18 years and older with egg allergy of any severity who have no other contraindications. People younger than age 18 years who have experienced a serious systemic or anaphylactic reaction (e.g., hives, swelling of the lips or tongue, acute respiratory distress, or collapse) after eating eggs can usually be vaccinated with inactivated influenza vaccine (IIV); consult ACIP recommendations (see reference 4).

3. Have you ever had a serious reaction after receiving a vaccination? *[all vaccines]*

History of anaphylactic reaction (see question 2) to a previous dose of vaccine or vaccine component is a contraindication for subsequent doses (1). Under normal circumstances, vaccines are deferred when a precaution is present. However, situations may arise when the benefit outweighs the risk (e.g., during a community pertussis outbreak).

4. Do you have a long-term health problem with heart disease, lung disease, asthma, kidney disease, metabolic disease (e.g., diabetes), anemia, or other blood disorder? *[LAIV]*

The safety of intranasal live attenuated influenza vaccine (LAIV) in people with these conditions has not been established. These conditions, including asthma in adults, should be considered precautions for the use of LAIV.

5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem? *[LAIV, MMR, VAR, ZOS]*

Live virus vaccines (e.g., LAIV, measles-mumps-rubella [MMR], varicella [VAR], zoster [ZOS]) are usually contraindicated in immunocompromised people. However, there are exceptions. For example, MMR vaccine is recommended and varicella vaccine should be considered for adults with CD4+ T-lymphocyte counts of greater than or equal to 200 cells/µL. Immunosuppressed people should not receive LAIV. For details, consult the ACIP recommendations (4, 5, 6).

6. In the past 3 months, have you taken medications that affect your immune system, such as cortisone, prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or have you had radiation treatments? *[LAIV, MMR, VAR, ZOS]*

Live virus vaccines (e.g., LAIV, MMR, VAR, ZOS) should be postponed until after chemotherapy or long-term high-dose steroid therapy has ended. For details and length of time to postpone, consult the ACIP statement (1, 5). Some immune mediator and immune modulator drugs (especially the antitumor-necrosis factor agents adalimumab, infliximab, and etanercept) may be immunosuppressive. The use of live vaccines should be avoided in persons taking these drugs (*MMWR* 2011;60 [RR2]:23). To find specific vaccination schedules for stem cell transplant (bone marrow transplant) patients, see reference 7. LAIV can be given only to healthy non-pregnant people ages 2 through 49 years.

7. Have you had a seizure or a brain or other nervous system problem? *[influenza, Td/Tdap]*

Tdap is contraindicated in people who have a history of encephalopathy within 7 days following DTP/DTaP given before age 7 years. An unstable progressive neurologic problem is a precaution to the use of Tdap. For people with stable neurologic disorders (including seizures) unrelated to vaccination, or for people with a family history of seizure, vaccinate as usual. A history of Guillain-Barré syndrome (GBS) is a consideration with the following: 1) Td/Tdap: if GBS has occurred within 6 weeks of a tetanus-containing vaccine and decision is made to continue vaccination, give Tdap instead of Td if no history of prior Tdap; 2) Influenza vaccine (IIV/LAIV): if GBS has occurred within 6 weeks of a prior influenza vaccine, vaccinate with IIV if at increased risk for severe influenza complications.

8. During the past year, have you received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug? *[LAIV, MMR, VAR, ZOS]*

Certain live virus vaccines (e.g., LAIV, MMR, VAR, ZOS) may need to be deferred, depending on several variables. Consult the most current ACIP recommendations for current information on intervals between antiviral drugs, immune globulin or blood product administration and live virus vaccines. (1)

9. For women: Are you pregnant or is there a chance you could become pregnant during the next month? *[MMR, LAIV, VAR, ZOS]*

Live virus vaccines (e.g., MMR, VAR, ZOS, LAIV) are contraindicated one month before and during pregnancy because of the theoretical risk of virus transmission to the fetus. Sexually active women in their childbearing years who receive live virus vaccines should be instructed to practice careful contraception for one month following receipt of the vaccine. On theoretical grounds, inactivated poliovirus vaccine should not be given during pregnancy; however, it may be given if risk of exposure is imminent and immediate protection is needed (e.g., travel to endemic areas). Inactivated influenza vaccine and Tdap are both recommended during pregnancy. Both vaccines may be given at any time during pregnancy but the preferred time for Tdap administration is at 27–36 weeks' gestation. (1, 4, 5, 6, 8, 9)

10. Have you received any vaccinations in the past 4 weeks? *[LAIV, MMR, VAR, yellow fever]*

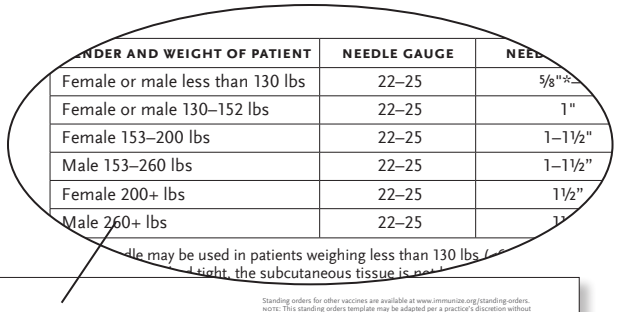
People who were given either LAIV or an injectable live virus vaccine (e.g., MMR, VAR, ZOS, yellow fever) should wait 28 days before receiving another vaccination of this type. Inactivated vaccines may be given at any spacing interval if they are not administered simultaneously.

REFERENCES

1. CDC. General recommendations on immunization, at www.cdc.gov/mmwr/pdf/rr/rr6002.pdf.
2. Latex in Vaccine Packaging: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/latex-table.pdf
3. Table of Vaccine Components: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.
4. CDC. Prevention and control of influenza with vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP), United States, 2015–16 Influenza Season at www.cdc.gov/mmwr/pdf/wk/mm6430.pdf, pages 818–825.
5. CDC. Measles, mumps, and rubella – vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps. *MMWR* 1998; 47 (RR-8).
6. CDC. Prevention of varicella: Recommendations of the Advisory Committee on Immunization Practices. *MMWR* 2007; 56 (RR-4).
7. Tomblyn M, Einsele H, et al. Guidelines for preventing infectious complications among hematopoietic stem cell transplant recipients: a global perspective. *Biol Blood Marrow Transplant* 15:1143–1238; 2009 at www.cdc.gov/vaccines/pubs/hemato-cell-transplts.htm.
8. CDC. Notice to readers: Revised ACIP recommendation for avoiding pregnancy after receiving a rubella-containing vaccine. *MMWR* 2001; 50 (49).
9. CDC. Updated recommendations for use of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap) in pregnant women: Recommendations of the ACIP. *MMWR* 2012; 62 (7):131–4.

Standing Orders Template for Administering Vaccines to Children/Teens and Adults

Download these standing orders and use them "as is" or modify them to suit your work setting.



…NDER AND WEIGHT OF PATIENT	NEEDLE GAUGE	NEE…
Female or male less than 130 lbs	22–25	5/8"…
Female or male 130–152 lbs	22–25	1"
Female 153–200 lbs	22–25	1–1½"
Male 153–260 lbs	22–25	1–1½"
Female 200+ lbs	22–25	1½"
Male 260+ lbs	22–25	1…

…dle may be used in patients weighing less than 130 lbs (…
…tight, the subcutaneous tissue is not…

Standing orders for other vaccines are available at www.immunize.org/standing-orders. NOTE: This standing orders template may be adapted per a practice's discretion without obtaining permission from IAC. As a courtesy, please acknowledge IAC as its source.

STANDING ORDERS FOR
Administering Pneumococcal Vaccines (PCV13 and PPSV23) to Adults

Purpose

To reduce morbidity and mortality from pneumococcal disease by vaccinating all adults who meet the criteria established by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices.

Policy

Where allowed by state law, standing orders enable eligible nurses and other health care professionals (e.g., pharmacists) to assess the need for vaccination and to vaccinate adults who meet any of the criteria below.

Procedure

1 Assess Adults for Need of Vaccination against *Streptococcus pneumoniae* (pneumococcus) infection according to the following criteria:

Routine pneumococcal vaccination – Assess adults age 65 years or older for need of pneumococcal vaccination. Pneumococcal conjugate vaccine (PCV13) should be administered routinely to all previously unvaccinated adults age 65 years and older. Pneumococcal polysaccharide vaccine (PPSV23) is recommended for all adults ages 65 years or older. For complete details, see section 5 (page 2).

Risk-based pneumococcal vaccination – Age 19 through 64 years with an underlying medical condition or other risk factor as described in the following table:

CATEGORY OF UNDERLYING MEDICAL CONDITION OR OTHER RISK FACTOR	RECOMMENDED VACCINES ARE MARKED "x" BELOW		
	PCV13	PPSV23	PPSV23 booster*
Chronic heart disease,[1] chronic lung disease[2]		x	
Diabetes mellitus		x	
Chronic liver disease, cirrhosis		x	
Cigarette smoking		x	
Alcoholism		x	
Cochlear implant, cerebrospinal fluid leak	x	x	
Sickle cell disease, other hemoglobinopathy	x	x	x
Congenital or acquired asplenia	x	x	x
Congenital or acquired immunodeficiency,[3] HIV	x	x	x
Chronic renal failure, nephrotic syndrome	x	x	x
Leukemia, lymphoma	x	x	x
Generalized malignancy, Hodgkin disease	x	x	x
Iatrogenic immunosuppression[4]	x	x	x
Solid organ transplant, multiple myeloma	x	x	x

* a second dose 5 years after the first dose of PPSV23

1 Excluding hypertension
2 Including asthma
3 Including B- (humoral) or T-lymphocyte deficiency, complement deficiencies (particularly C1, C2, C3, and C4 deficiencies), and phagocytic disorders (excluding chronic granulomatous disease)
4 Diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy

2 Screen for Contraindications and Precautions

Contraindications – Do not give pneumococcal vaccine (PCV13 or PPSV23) to a person who has experienced a serious systemic or anaphylactic reaction to a prior dose of the vaccine or to any of its components. For a list of vaccine components, refer to the manufacturer's package insert (www.immunize.org/packageinserts) or go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.

Precautions – Moderate or severe acute illness with or without fever

CONTINUED ON THE NEXT PAGE ▶

Technical content reviewed by the Centers for Disease Control and Prevention

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www.immunize.org/catg.d/p3075.pdf • Item #P3075 (11/15)

All sets of standing orders for routinely recommended vaccines are available at www.immunize.org/standing-orders

Visit www.immunize.org/standing-orders for all sets.

Click blue text to view standing orders documents

STANDING ORDER (date of latest revision)	VACCINES	STANDING ORDER (date of latest revision)
child (OCT 2012)	DTaP	–
child/teen (JUNE 2013)	HepA	adult (JUNE 2013)
child/teen (OCT 2012)	HepB	adult (OCT 2015)
child (JUNE 2015)	Hib	adult (JUNE 2015)
child/teen (MAY 2015)	HPV	adult (MAY 2015)
child/teen (OCT 2014)	IPV (polio)	–
child/teen (SEPT 2015)	Influenza	adult (AUG 2015)
child/teen (JUNE 2013)	MMR	adult (JUNE 2013)
child/teen (JULY 2015)	MenACWY (MCV4), MPSV	adult (JUNE 2013)
teen (DEC 2015)	MenB	adult (DEC 2015)
child/teen (FEB 2013)	PCV	adult (NOV 2015)
child (MAY 2015)	PPSV	
child (FEB 2014)	Rotavirus	–
–	Tdap	pregnant woman (FEB 2014)
child/teen (APRIL 2013)	Tdap/Td	adult (OCT 2015)
child/teen (FEB 2014)	Varicella	adult (FEB 2014)
–	Zoster	adult (NOV 2015)

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Alexandra Stewart, JD, Associate Professor, George Washington University

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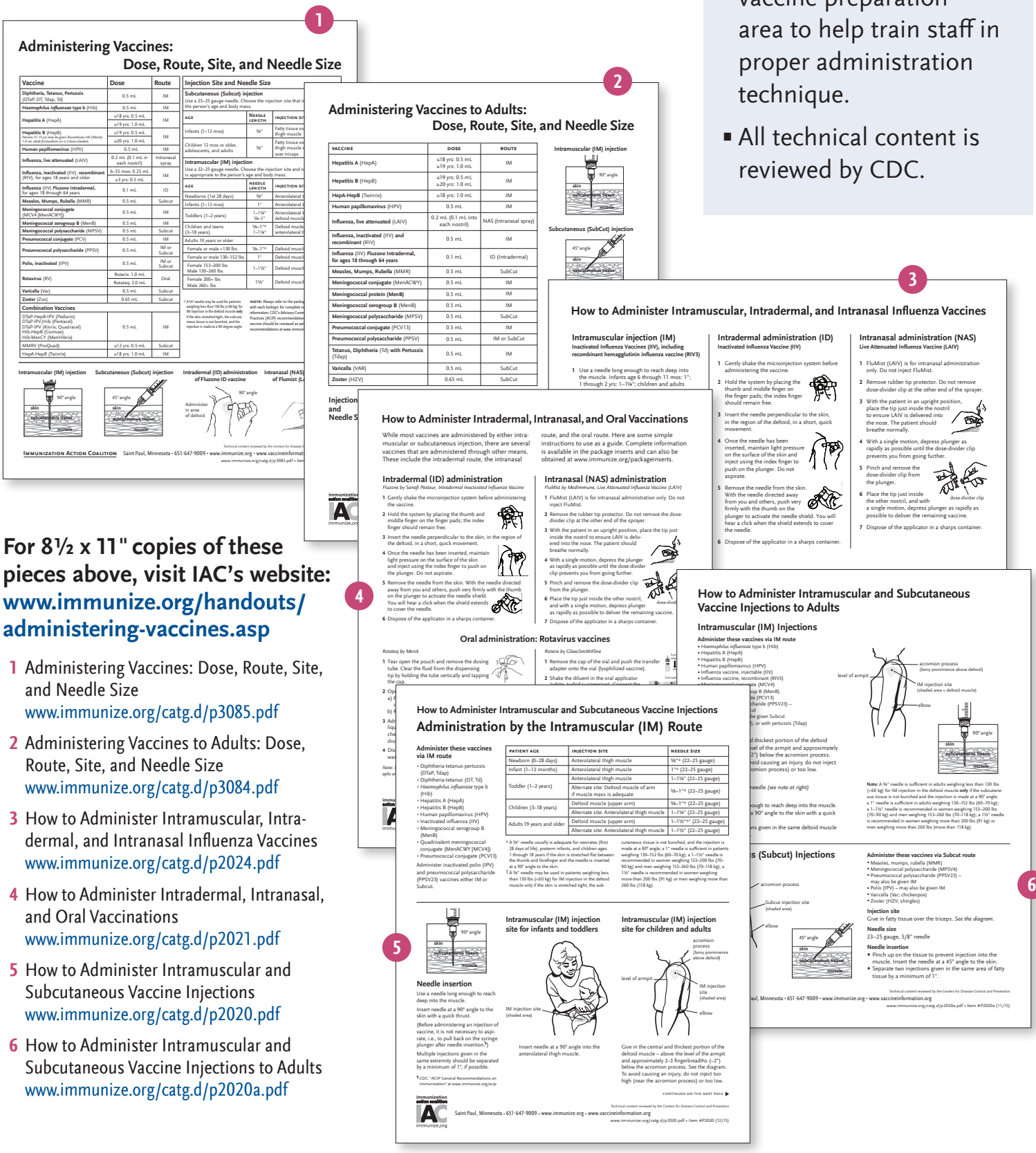
Use These Handy Guides to Help Your Practice Administer Vaccines Properly

- Post these sheets in your vaccine preparation area to help train staff in proper administration technique.
- All technical content is reviewed by CDC.



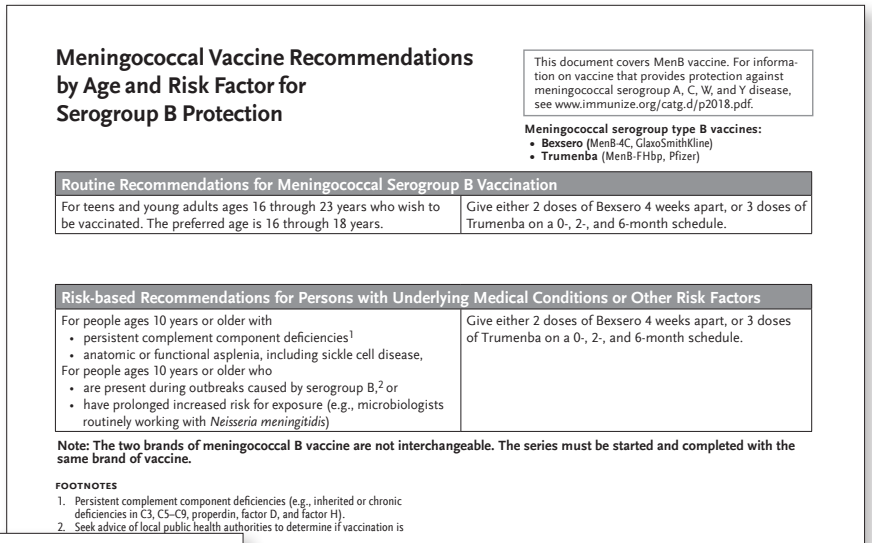
For 8½ x 11" copies of these pieces above, visit IAC's website: www.immunize.org/handouts/administering-vaccines.asp

1. Administering Vaccines: Dose, Route, Site, and Needle Size
   www.immunize.org/catg.d/p3085.pdf
2. Administering Vaccines to Adults: Dose, Route, Site, and Needle Size
   www.immunize.org/catg.d/p3084.pdf
3. How to Administer Intramuscular, Intradermal, and Intranasal Influenza Vaccines
   www.immunize.org/catg.d/p2024.pdf
4. How to Administer Intradermal, Intranasal, and Oral Vaccinations
   www.immunize.org/catg.d/p2021.pdf
5. How to Administer Intramuscular and Subcutaneous Vaccine Injections
   www.immunize.org/catg.d/p2020.pdf
6. How to Administer Intramuscular and Subcutaneous Vaccine Injections to Adults
   www.immunize.org/catg.d/p2020a.pdf

Make Sure Your Patients Are Protected from Meningococcal Disease Caused by Serogroup B

This 1-page guide describes MenB vaccine recommendations by age group, medical condition, or other risk factors.

www.immunize.org/catg.d/p2035.pdf



Meningococcal Vaccine Recommendations by Age and Risk Factor for Serogroup B Protection

This document covers MenB vaccine. For information on vaccine that provides protection against meningococcal serogroup A, C, W, and Y disease, see www.immunize.org/catg.d/p2018.pdf.

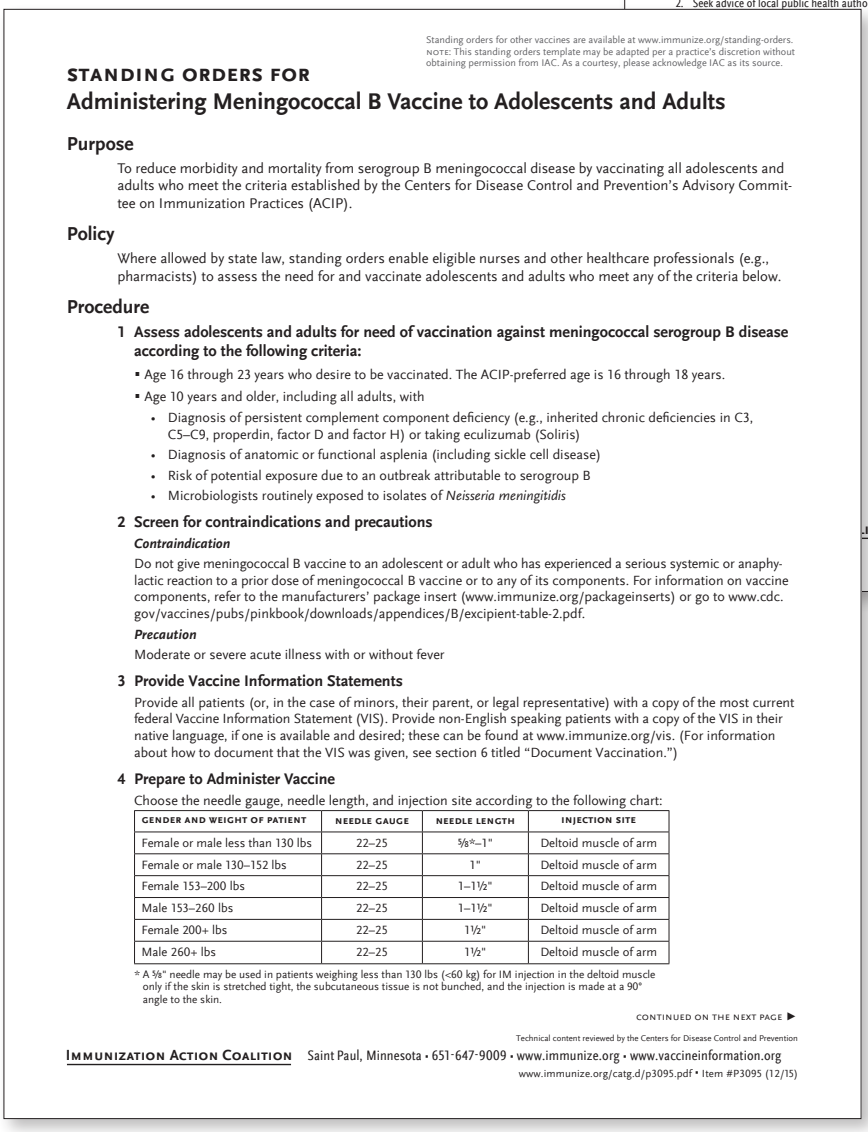
Meningococcal serogroup type B vaccines:
- **Bexsero** (MenB-4C, GlaxoSmithKline)
- **Trumenba** (MenB-FHbp, Pfizer)

Routine Recommendations for Meningococcal Serogroup B Vaccination	
For teens and young adults ages 16 through 23 years who wish to be vaccinated. The preferred age is 16 through 18 years.	Give either 2 doses of Bexsero 4 weeks apart, or 3 doses of Trumenba on a 0-, 2-, and 6-month schedule.

Risk-based Recommendations for Persons with Underlying Medical Conditions or Other Risk Factors	
For people ages 10 years or older with • persistent complement component deficiencies[1] • anatomic or functional asplenia, including sickle cell disease, For people ages 10 years or older who • are present during outbreaks caused by serogroup B,[2] or • have prolonged increased risk for exposure (e.g., microbiologists routinely working with *Neisseria meningitidis*)	Give either 2 doses of Bexsero 4 weeks apart, or 3 doses of Trumenba on a 0-, 2-, and 6-month schedule.

Note: The two brands of meningococcal B vaccine are not interchangeable. The series must be started and completed with the same brand of vaccine.

FOOTNOTES
1. Persistent complement component deficiencies (e.g., inherited or chronic deficiencies in C3, C5–C9, properdin, factor D, and factor H).
2. Seek advice of local public health authorities to determine if vaccination is



Standing orders for other vaccines are available at www.immunize.org/standing-orders. NOTE: This standing orders template may be adapted per a practice's discretion without obtaining permission from IAC. As a courtesy, please acknowledge IAC as its source.

STANDING ORDERS FOR
Administering Meningococcal B Vaccine to Adolescents and Adults

Purpose

To reduce morbidity and mortality from serogroup B meningococcal disease by vaccinating all adolescents and adults who meet the criteria established by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices (ACIP).

Policy

Where allowed by state law, standing orders enable eligible nurses and other healthcare professionals (e.g., pharmacists) to assess the need for and vaccinate adolescents and adults who meet any of the criteria below.

Procedure

1 Assess adolescents and adults for need of vaccination against meningococcal serogroup B disease according to the following criteria:
- Age 16 through 23 years who desire to be vaccinated. The ACIP-preferred age is 16 through 18 years.
- Age 10 years and older, including all adults, with
  - Diagnosis of persistent complement component deficiency (e.g., inherited chronic deficiencies in C3, C5–C9, properdin, factor D and factor H) or taking eculizumab (Soliris)
  - Diagnosis of anatomic or functional asplenia (including sickle cell disease)
  - Risk of potential exposure due to an outbreak attributable to serogroup B
  - Microbiologists routinely exposed to isolates of *Neisseria meningitidis*

2 Screen for contraindications and precautions

Contraindication

Do not give meningococcal B vaccine to an adolescent or adult who has experienced a serious systemic or anaphylactic reaction to a prior dose of meningococcal B vaccine or to any of its components. For information on vaccine components, refer to the manufacturers' package insert (www.immunize.org/packageinserts) or go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.

Precaution

Moderate or severe acute illness with or without fever

3 Provide Vaccine Information Statements

Provide all patients (or, in the case of minors, their parent, or legal representative) with a copy of the most current federal Vaccine Information Statement (VIS). Provide non-English speaking patients with a copy of the VIS in their native language, if one is available and desired; these can be found at www.immunize.org/vis. (For information about how to document that the VIS was given, see section 6 titled "Document Vaccination.")

4 Prepare to Administer Vaccine

Choose the needle gauge, needle length, and injection site according to the following chart:

GENDER AND WEIGHT OF PATIENT	NEEDLE GAUGE	NEEDLE LENGTH	INJECTION SITE
Female or male less than 130 lbs	22–25	⅝"–1"	Deltoid muscle of arm
Female or male 130–152 lbs	22–25	1"	Deltoid muscle of arm
Female 153–200 lbs	22–25	1–1½"	Deltoid muscle of arm
Male 153–260 lbs	22–25	1–1½"	Deltoid muscle of arm
Female 200+ lbs	22–25	1½"	Deltoid muscle of arm
Male 260+ lbs	22–25	1½"	Deltoid muscle of arm

* A ⅝" needle may be used in patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the skin is stretched tight, the subcutaneous tissue is not bunched, and the injection is made at a 90° angle to the skin.

CONTINUED ON THE NEXT PAGE ▶

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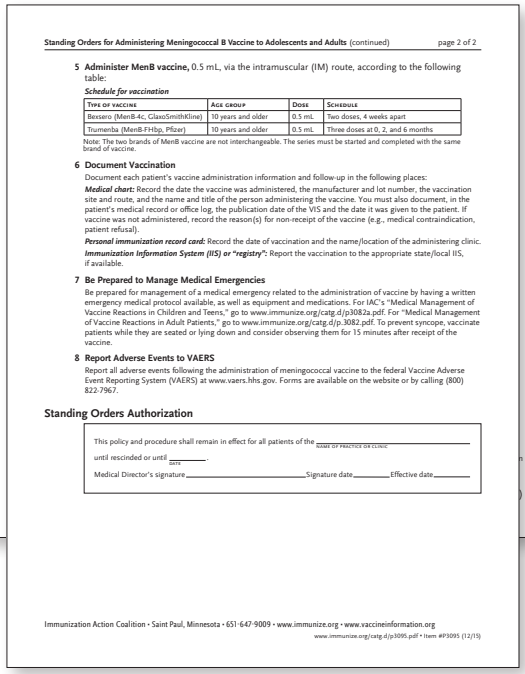
www.immunize.org/catg.d/p3095.pdf • Item #P3095 (12/15)



5 Administer MenB vaccine, 0.5 mL, via the intramuscular (IM) route, according to the following table:

Schedule for vaccination

TYPE OF VACCINE	AGE GROUP	DOSE	SCHEDULE
Bexsero (MenB-4c, GlaxoSmithKline)	10 years and older	0.5 mL	Two doses, 4 weeks apart
Trumenba (MenB-FHbp, Pfizer)	10 years and older	0.5 mL	Three doses at 0, 2, and 6 months

Note: The two brands of MenB vaccine are not interchangeable. The series must be started and completed with the same brand of vaccine.

6 Document Vaccination

Document each patient's vaccine administration information and follow-up in the following places:

Medical chart: Record the date the vaccine was administered, the manufacturer and lot number, the vaccination site and route, and the name and title of the person administering the vaccine. You must also document, in the patient's medical record or office log, the publication date of the VIS and the date it was given to the patient. If vaccine was not administered, record the reason(s) for non-receipt of the vaccine (e.g., medical contraindication, patient refusal).

Personal immunization record card: Record the date of vaccination and the name/location of the administering clinic.

Immunization Information System (IIS) or "registry": Report the vaccination to the appropriate state/local IIS, if available.

7 Be Prepared to Manage Medical Emergencies

Be prepared for management of a medical emergency related to the administration of vaccine by having a written emergency medical protocol available, as well as equipment and medications. For IAC's "Medical Management of Vaccine Reactions in Children and Teens," go to www.immunize.org/catg.d/p3082a.pdf. For "Medical Management of Vaccine Reactions in Adult Patients," go to www.immunize.org/catg.d/p.3082.pdf. To prevent syncope, vaccinate patients while they are seated or lying down and consider observing them for 15 minutes after receipt of the vaccine.

8 Report Adverse Events to VAERS

Report all adverse events following the administration of meningococcal vaccine to the federal Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov. Forms are available on the website or by calling (800) 822-7967.

Standing Orders Authorization

This policy and procedure shall remain in effect for all patients of the _____ NAME OF PRACTICE OR CLINIC
until rescinded or until _____ DATE.
Medical Director's signature _____ Signature date _____ Effective date _____

Use this 2-page MenB standing orders template for adolescents and adults to streamline vaccination in your practice setting.

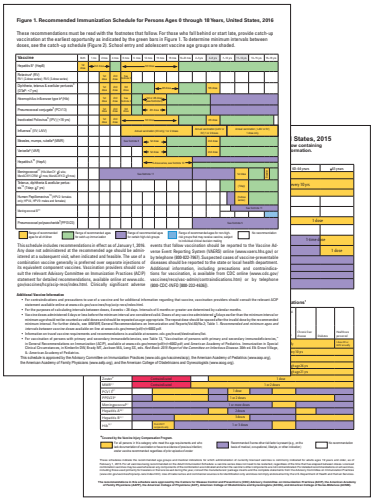
www.immunize.org/catg.d/p3095.pdf

These products are available for purchase from the Immunization Action Coalition

Laminated child/teen and adult immunization schedules — Order one of each for every exam room

▶ To order, visit www.immunize.org/shop, or use the order form on page 16.

NEW for 2016! The ACIP/AAP/AAFP-approved immunization schedule for people ages 0 through 18 years (8-sided) and the ACIP/AAFP/ACOG/ACNM-approved schedule for adults (8-sided). Both are laminated and washable for heavy-duty use, complete with essential footnotes, and printed in color for easy reading.



Schedules: $7.50 each
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Wallet-sized immunization record cards for all ages: For children and teens, for adults, and for a lifetime!

Record Cards: $45/box

Now you can give any patient a permanent vaccination record card designed specifically for their age group: child and teen, adult, or lifetime. These brightly colored cards are printed on durable rip-, smudge-, and water-proof paper. Each box contains 250 cards.

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Quantity discounts are available. To receive sample cards, contact us: admininfo@immunize.org

DVD: $17 each
Quantity discounts are available.

Training Video: "Immunization Techniques — Best Practices with Infants, Children, and Adults"

The California Department of Public Health, Immunization Branch, updated its award-winning training video, "Immunization Techniques: Best Practices with Infants, Children, and Adults." The 25-minute DVD can be used to train new employees and to refresh the skills of experienced staff on administering injectable, oral, and nasal-spray vaccines to children, teens, and adults.

▶ To order, visit www.immunize.org/shop, or use the order form on page 16.

For healthcare settings in California, contact your local health department immunization program for a free copy.

The Vaccine Handbook: A Practical Guide for Clinicians ("The Purple Book") by Gary S. Marshall, MD

During my more than 25 years in the field of immunization education, I have not seen another book that is so brimming with state-of-the-science information. – Deborah L. Wexler, MD, Executive Director, IAC

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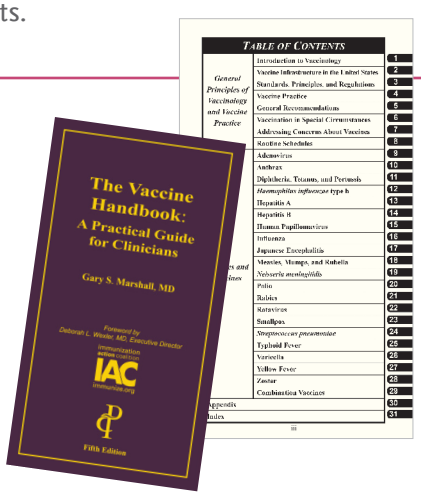
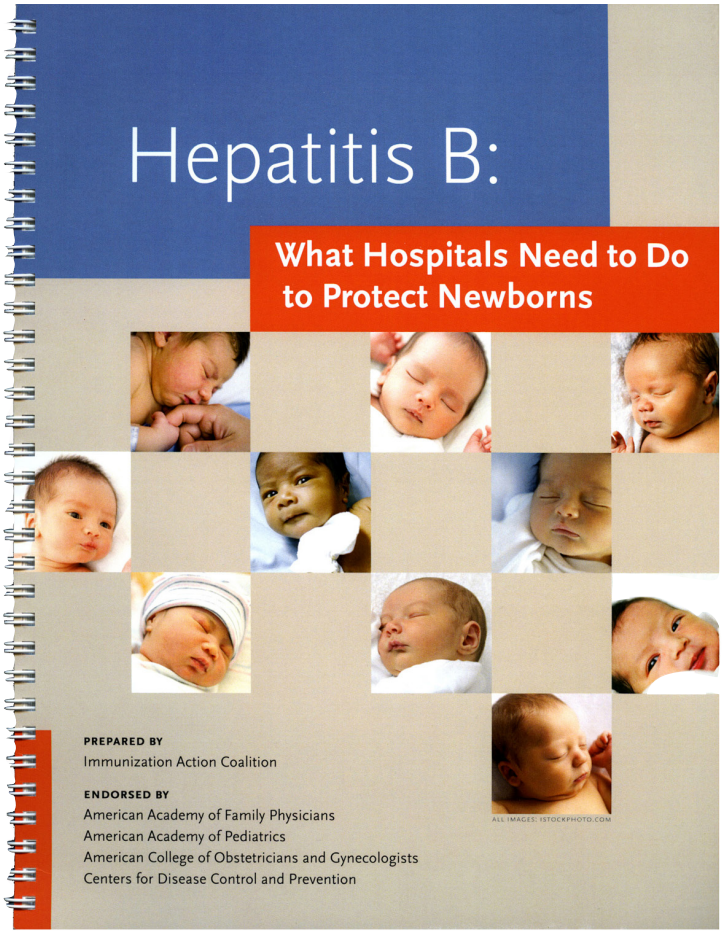


NEW SOFT-COVER EDITION!

Hepatitis B: What Hospitals Need to Do to Protect Newborns



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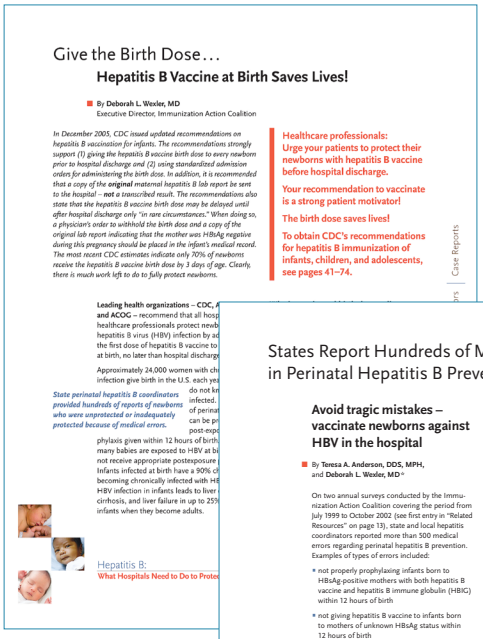

Give the Birth Dose…

Hepatitis B Vaccine at Birth Saves Lives!

By Deborah L. Wexler, MD
Executive Director, Immunization Action Coalition

In December 2005, CDC issued updated recommendations on hepatitis B vaccination for infants. The recommendations strongly support (1) giving the hepatitis B vaccine birth dose to every newborn prior to hospital discharge and (2) using standardized admission orders for administering the birth dose. In addition, it is recommended that a copy of the ***original*** *maternal hepatitis B lab report be sent to the hospital – not a transcribed result. The recommendations also state that the hepatitis B vaccine birth dose may be delayed until after hospital discharge only "in rare circumstances." When doing so, a physician's order to withhold the birth dose and a copy of the original lab report indicating that the mother was HBsAg negative during this pregnancy should be placed in the infant's medical record. The most recent CDC estimates indicate only 70% of newborns receive the hepatitis B vaccine birth dose by 3 days of age. Clearly, there is much work left to do to fully protect newborns.*

Healthcare professionals: Urge your patients to protect their newborns with hepatitis B vaccine before hospital discharge.

Your recommendation to vaccinate is a strong patient motivator!

The birth dose saves lives!

To obtain CDC's recommendations for hepatitis B immunization of infants, children, and adolescents, see pages 41–74.

Case Reports

Leading health organizations – CDC, A… and ACOG – recommend that all hosp… healthcare professionals protect newb… hepatitis B virus (HBV) infection by ad… the first dose of hepatitis B vaccine to… at birth, no later than hospital discharg…

Approximately 24,000 women with ch… infection give birth in the U.S. each ye… do not kn… infected. … of perinat… can be pr… post-expo…

State perinatal hepatitis B coordinators provided hundreds of reports of newborns who were unprotected or inadequately protected because of medical errors.

phylaxis given within 12 hours of birth… many babies are exposed to HBV at bi… not receive appropriate postexposure … Infants infected at birth have a 90% ch… becoming chronically infected with HE… HBV infection in infants leads to liver … cirrhosis, and liver failure in up to 25% … infants when they become adults.

Hepatitis B:
What Hospitals Need to Do to Protec…

States Report Hundreds of Medical Errors in Perinatal Hepatitis B Prevention

Avoid tragic mistakes – vaccinate newborns against HBV in the hospital

By Teresa A. Anderson, DDS, MPH, and Deborah L. Wexler, MD*

On two annual surveys conducted by the Immunization Action Coalition covering the period from July 1999 to October 2002 (see first entry in "Related Resources" on page 13), state and local hepatitis coordinators reported more than 500 medical errors regarding perinatal hepatitis B prevention. Examples of types of errors included:

- not properly prophylaxing infants born to HBsAg-positive mothers with both hepatitis B vaccine and hepatitis B immune globulin (HBIG) within 12 hours of birth
- not giving hepatitis B vaccine to infants born to mothers of unknown HBsAg status within 12 hours of birth
- misinterpreting or mistranscribing hepatitis B screening test results, or failing to communicate results to or within the hospital
- ordering the wrong hepatitis B screening test for pregnant women

Because of these types of errors, many children are now chronically infected with hepatitis B virus (HBV) and at least one infant has died. Children infected when less than one year of age have a 90% chance of developing chronic HBV infection with all its serious potential sequelae, such as cirrhosis and liver cancer.

Consider the following examples of medical errors reported by the nation's hepatitis coordinators where infants were needlessly put at risk for perinatal HBV infection.

MEDICAL ERROR TYPE #1

Infants born to HBsAg-positive mothers did not receive both hepatitis B vaccine and HBIG within 12 hours of birth.

Recommendation of the Centers for Disease Control and Prevention (CDC), American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), and the American College of Obstetricians and Gynecologists (ACOG): All infants of HBsAg-positive mothers (including premature infants) should receive hepatitis B vaccine and HBIG within 12 hours of birth.

CASE REPORT EXAMPLES

"The mother had been diagnosed with chronic hepatitis B in 1994. In her prenatal record she was documented to be HBsAg and HBeAg positive, and this information appeared in several places on the record that was sent to the hospital. Despite this, her baby did not receive HBIG or the first dose of hepatitis B vaccine in the hospital. In fact, the hepatitis B vaccine order was crossed out in the infant's chart. Follow-up with the pediatrician on day six indicated that the baby still had not received any prophylaxis. The first dose of vaccine was given when the infant was three weeks of age, the second dose three months after the first, and the third dose six months after the first. The child's current status is unfortunate. Diagnosed HBsAg-positive at 19 months of age, the child is now being followed by a liver specialist for chronic hepatitis B."

"We have two cases where infants born to carrier mothers received the first dose of hepatitis B vaccine three weeks after birth and no HBIG. In one of the cases, a resident interviewed the mother who claimed she was not HBsAg positive."

"In 2000, we had 25 cases where the babies of positive moms did not receive HBIG at birth. Three of these babies are now infected. In one of the cases, the mother's status was erroneously

Case Reports
Reducing Medical Errors

Hepatitis B:
What Hospitals Need to Do to Protect Newborns
10
www.immunize.org/protect-newborns

The Immunization Action Coalition's (IAC) comprehensive guidebook **Hepatitis B: What Hospitals Need to Do to Protect Newborns** is a complete resource for helping hospitals and birthing centers establish, implement, and optimize their birth dose policies.

The American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American College of Obstetricians and Gynecologists (ACOG), and the Centers for Disease Control and Prevention (CDC) endorse administering hepatitis B vaccine at birth prior to hospital discharge, and all four have provided a review of this guide.

▶ To order, visit www.immunize.org/shop. Quantity discounts are available. Questions? Contact admininfo@immunize.org

Cost: $20 per copy + shipping
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Shipping cost: 1 copy $5.75; 2–10 copies $11.95

84 pages / Dimensions: 9 x 11 x 0.5"

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2016 Laminated U.S. Immunization Schedules – both child/teen and adult versions available!

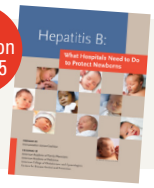
IAC has two laminated immunization schedules for 2016 – one for children/teens and one for adults. Based on CDC's immunization schedules, these laminated schedules are covered with a tough, wash-able coating. This allows them to stand up to a year's worth of use as at-your-fingertips guides to immunization and as teaching tools you can use to give patients and parents authoritative information. Plus, each schedule includes a guide to vaccine contraindications and precautions, an additional feature that will help you make on-the-spot determinations about the safety of vaccinating patients of any age. ▮ To order any of our essential immunization resources listed below, print out and mail or fax this page, or place your order online at www.immunize.org/shop.

It's convenient to shop IAC online at www.immunize.org/shop

■ ***Hepatitis B: What Hospitals Need to Do to Protect Newborns***

Soft-cover edition • 2013 • 84 pages • $20 + shipping
Order online at www.immunize.org/shop

see details on page 15



■ ***The Vaccine Handbook: A Practical Guide for Clinicians* ("The Purple Book") by Gary Marshall, MD**

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■ **Laminated 2016 U.S. Immunization Schedules** (details p. 14; call for discounts on bulk orders)

Qty.		1-4 copies–$7.50 each; 5-19 copies–$5.50 each	Amt.
____	R2008	Child/teen immunization schedules	$ _____
____	R2009	Adult immunization schedules	$ _____

■ **DVD – Immunization Techniques: Best Practices with Infants, Children, and Adults** (details p. 14; call for discounts on bulk orders)

1-9 copies–$17 each; 10-24 copies–$10.25 each; 25-49 copies–$7 each

____ D2021 Immunization Techniques: Best Practices with Children/Teens/Adults $ _____

■ **Patient Immunization Record Cards – for children and teens, for adults, and for a lifetime!** (all are wallet-sized; details p. 14; call for discounts on bulk orders)

250 cards/box; 1 box–$45; 2 boxes–$40 each; 3 boxes–$37.50 each; 4-7 boxes–$34.50 each

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____ R2005 Adult immunization record cards ..... $ _____
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