ACIP Votes to Update Recommendations for HPV, Tdap, MenB, and HepB Vaccines

On October 19–20, CDC’s Advisory Committee on Immunization Practices (ACIP) met in Atlanta and voted to update several of its existing vaccine recommendations. Some of the changes are described below.

**Human Papillomavirus (HPV) Vaccine**
ACIP voted to change the HPV vaccination schedule from a 3-dose to a 2-dose series for adolescents who begin the HPV series at 9 through 14 years of age, regardless of age at series completion. Those who start the series later, at 15 through 26 years of age, or who are immunocompromised, will continue to need 3 doses.

The 9vHPV vaccine (HPV9, Gardasil 9, Merck) will soon be the only HPV vaccine available in the U.S. As of October 2016, Merck is distributing only HPV9, and supplies of 2vHPV (Cervarix, GSK) in the U.S. are now depleted. HPV9 may be used to complete a series begun with 4vHPV (HPV4, Gardasil, Merck) or 2vHPV.

**Meningococcal Serogroup B Vaccine**
Bexsero (MenB-4C, GSK) has previously been recommended by ACIP for use as a 2-dose series for high-risk individuals and in outbreak settings, and may also be administered to healthy individuals age 16 through 23 years. In April, FDA approved a label change giving MenB-FHbp (Trumenba, Pfizer) as either a 2-dose (0, 6 months) or 3-dose (0, 1–2, 6 months) series. ACIP voted to recommend that healthcare providers who use Trumenba continue to use the 3-dose series when vaccinating people at increased risk of meningococcal serogroup B disease (e.g., people with persistent complement component deficiencies or anatomical or functional asplenia) or during serogroup B outbreaks. The 2-dose series of Trumenba can be used for routine vaccination for healthy people age 16 through 23 years.

**Tdap Vaccine**
Previous ACIP recommendations called for prenatal care providers to vaccinate all pregnant women with Tdap vaccine during each pregnancy with optimal timing for this dose designated between 27 and 36 weeks gestation. In October, ACIP voted to recommend administering Tdap vaccination early in the 27- to 36-week “window” to maximize passive antibody transfer to the infant. The new recommendations also clarify that children age 7 through 10 years who receive Tdap as part of a catch-up series may be given an additional Tdap for the routinely recommended adolescent dose at 11–12 years of age.

**Hepatitis B Vaccine**
ACIP voted to approve a new guidance document that consolidates all previously published recommendations into a comprehensive statement.

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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).

**HPV vaccine**

What is the new HPV vaccine schedule recommendation?
In October 2016, the Advisory Committee on Immunization Practices (ACIP) voted to recommend a routine 2-dose HPV vaccine schedule for adolescents who start the vaccination series before the 15th birthday. The two doses should be separated by 6–12 months (the minimum interval between doses is 5 months). A 3-dose schedule continues to be recommended for people who start the series on or after the 15th birthday and for people with certain immunocompromising conditions (such as cancer, HIV infection, or taking immunosuppressive drugs). An updated ACIP statement was published on December 15, and is available at www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6549.pdf, pages 1405–8.

Has ACIP expressed a preference for the 2-dose over the 3-dose schedule for adolescents 9 through 14 years of age?
Yes. ACIP recommends the 2-dose schedule for people starting the HPV vaccination series before the 15th birthday, as long as they are immunocompetent.

Does the 2-dose HPV vaccine schedule need to be completed with the same vaccine, or can it include different vaccines (such as bivalent or quadrivalent vaccine)?
The 2-dose schedule can be completed with any combination of HPV vaccine brands as long as dose #1 was given before age 15 years. Dose #2 should be administered 6–12 months after dose #1.

**Immunization questions?**
- Email nipinfo@cdc.gov
- Call your state health department (phone numbers at www.immunize.org/ coordinators)
Ask the Experts… continued from page 1

series 1 or 2 months apart according to the 3-dose schedule. Can we consider their HPV vaccine series to be complete or do we need to give these patients a third dose?

People who have received 2 doses of HPV vaccine separated by less than 5 months should receive a third dose 6–12 months after dose #1 and at least 12 weeks after dose #2.

Will the 2-dose recommendation be retroactive for children and teens vaccinated prior to 2016?

Yes. Any person who ever received 2 doses of any combination of HPV vaccines can be considered fully vaccinated if dose #1 was given before the 15th birthday and the 2 doses were separated by at least 5 months.

MenACWY vaccine

Please review the new recommendations for use of MenACWY vaccine in people with human immunodeficiency virus (HIV) infection.

A growing body of evidence supports an increased risk for meningococcal disease in HIV-infected people. The Advisory Committee on Immunization Practices (ACIP) recommends that all HIV-infected people 2 months of age and older should routinely receive an age-appropriate MenACWY vaccine (Menactra, Sanofi Pasteur; Menvio, GSK).

People age 2 years and older with HIV infection who have not been previously vaccinated should receive a 2-dose primary series of MenACWY vaccine (doses separated by 8–12 weeks). People with HIV infection who have previously received one dose of MenACWY should receive a second dose at the earliest opportunity (at least 8 weeks after the previous dose). Adolescents and adults should receive a booster dose of MenACWY vaccine every 5 years throughout life.

I have an HIV-positive 64-year-old patient who received MenACWY vaccine last week. Was this the correct vaccine for this patient or should he have gotten meningococcal polysaccharide vaccine (MPSV4, Sanofi Pasteur) due to his age? Also, should this patient get another dose in 2 months?

MenACWY was the correct vaccine in this situation. The 2013 ACIP recommendations on MenACWY vaccination recommend the use of meningococcal conjugate vaccine in adults age 56 years and older who were vaccinated previously with MenACWY and now need revaccination, or are recommended to receive multiple doses. A person of this age with HIV infection 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.

MenB vaccine

Which individuals in risk groups are recommended to be vaccinated against meningococcal serogroup B disease?

CDC’s Advisory Committee on Immunization Practices (ACIP) recommends routine MenB vaccination of the following individuals in certain risk groups:

- People age 10 years and older who have functional or anatomic asplenia
- People age 10 years and older who have persistent complement component deficiency, including people taking eculizumab (Soliris)
- People age 10 years and older who are at risk during an outbreak caused by a vaccine serogroup, such as on a college campus
- Microbiologists who work with meningococcus bacteria in a laboratory

Both MenB vaccines are licensed for use in people through age 25 years, which means that the use of these vaccines in people age 26 and older is off-label but recommended by ACIP.

Which individuals are recommended to be vaccinated against meningococcal serogroup B disease who are not in risk groups?

ACIP recommends that a MenB vaccine series (Bexsero, MenB–4C, GSK; Trumenba, MenB–FHbp, Pfizer) may be administered to people 16 through 23 years of age with a preferred age of vaccination of 16 through 18 years. This Category B recommendation gives clinicians an opportunity to discuss the value of MenB vaccination with their patients and to make a decision together about the individual’s need or desire for the vaccine based on risks, benefits, and wish for protection from the disease. Because it is a Category B recommendation, MenB vaccination is covered by the Vaccines for Children Program for anyone who is eligible. Under the Affordable Care Act, private insurance must also cover the costs of both Category A and B recommended vaccines.

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ACIP recommendations for MenB vaccine say the vaccine will provide “short term protection.” What does “short term protection” mean? MenB vaccines were approved based on the serologic response to the vaccine. No data are available on vaccine effectiveness against clinical disease or duration of protection against clinical disease. Short term protection refers to the known duration of the antibody response. Available data indicate that a protective antibody level should persist in most recipients for 24–48 months after vaccination. This issue will continue to be monitored. For more information, see the ACIP recommendations at www.cdc.gov/mmwr/pdf/ww/mm6441.pdf, pages 1171–5.

Can the MenB series be completed with a different MenB brand from the one the series was begun with? No. You may not switch MenB vaccines in order to complete a series. The series must be started and completed with the same MenB brand.

Can meningococcal conjugate (MenACWY) and MenB vaccines be given at the same visit? Yes. Meningococcal conjugate and MenB vaccines can be given at the same visit or at any time before or after the other.

Which groups of patients should receive a booster dose of MenB vaccine after completion of the series? ACIP does not currently recommend booster doses of MenB vaccine for any group. ♦

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

Ask the Experts…continued from page 2

What is the new schedule for Trumenba MenB vaccine? The Food and Drug Administration approved a 2-dose schedule for Trumenba in April 2016. At its October 2016 meeting, ACIP voted to recommend a 2-dose schedule of Trumenba for people not at increased risk of MenB (for example, healthy adolescents). The two doses should be administered at least 6 months apart. ACIP recommends that people at increased risk of MenB disease (complement component deficiency, functional or anatomic asplenia, at risk during an outbreak of meningococcal B disease, and certain microbiologists) receive a 3-dose Trumenba series with dose #2 and dose #3 administered 2 and 6 months after dose #1.

The schedule for Bexsero has not changed. Bexsero is a 2-dose series with dose #2 given at least 1 month after dose #1.

Should college students be vaccinated against meningococcal B disease? Although several small meningococcal serogroup B disease outbreaks have occurred on college campuses since 2013, college students in general are not at higher risk of meningococcal B disease then people of the same age who are not college students. Consequently, ACIP does not routinely recommend MenB vaccination for college students. However, college students may choose to receive MenB vaccine to reduce their risk of serogroup B meningococcal disease.

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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. 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 Feb. 22–23 and June 21–22, 2017. For more information, visit www.cdc.gov/vaccines/acip.

ACIP periodically issues recommendations on the use of vaccines; they are published and readily available at the ACIP web site: www.cdc.gov/vaccines/acip/meetings/index.html.


On October 7, the Food and Drug Administration approved a 2-dose schedule for Gardasil 9 HPV vaccine (Merck) for people 9 through 14 years of age. The approval was based on a clinical trial that demonstrated a non-inferior response to 2 doses of Gardasil 9 among girls and boys through 14 years of age compared to a 3-dose schedule among women 16 through 26 years of age. The revised package insert and Summary Basis for Regulatory Action is available on the FDA website at www.fda.gov/BiologicsBloodVaccines/Vaccines/Approved-Products/ucm426445.htm.

On December 2, CDC released an updated human papillomavirus (HPV) vaccine VIS. It is similar to the previous 9-valent HPV vaccine VIS, except that it contains information about the recently approved 2-dose schedule. Providers are encouraged to begin using the new VIS now but may use up stocks of the previous version, especially for patients still using the 3-dose schedule.

The new VIS no longer has “Gardasil-9” in its title because the other two HPV vaccines (Cervarix and quadrivalent Gardasil) are no longer distributed in the U.S. The last doses of Cervarix have already expired, and the last doses of Gardasil will expire in May 2017. At that point Gardasil-9 will be the only HPV vaccine available in the U.S. and this will be the only VIS. The new VIS is available on the on the IAC VIS website at www.immunize.org/vis/vis_hp_gardasil.asp. Translations of the HPV9 VIS are acceptable to use until new translations become available.

MenACWY vaccine news

On November 4, CDC published “Recommendations for Use of Meningococcal Conjugate Vaccines in HIV-Infected Persons – ACIP, 2016” in MMWR. The document is available at www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6543.pdf, pages 1189–94. Routine meningococcal conjugate (MenACWY) vaccination is now recommended for all HIV-infected people age 2 months and older. HIV-infected adolescents and adults should receive 2 doses of MenACWY separated by 8 weeks followed by a booster dose every 5 years throughout their life.

Current VIS dates

Check the dates on your supply of Vaccine Information Statements (VISs). If they are out of date, obtain the most up-to-date versions as well as VIS translations in more than 30 languages at www.immunize.org/vis.

Apply for IAC’s Influenza Vaccination Honor Roll

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MenACWY vaccine news

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Adenovirus...........6/11/14
Anthrax..............3/10/10
Chickenpox.........3/13/08
DTaP..................5/17/07
Hib .................4/2/15
Hepatitis A...........7/20/16
Hepatitis B...........7/20/16
HPV...............12/2/16
Influenza............8/7/15
Japanese enceph...1/24/14
MCV4/MPSV4........3/31/16
MenB...............8/9/16
MMR...............4/20/12
Mumps..............11/5/16
Meningococcus C....7/21/15
Meningococcus B....10/3/16
Hepatitis A Vaccine...........7/19/16
Pertussis.........1/17/12
HIV-infected adolescents and adults should receive 2 doses of MenACWY separated by 8 weeks followed by a booster dose every 5 years throughout their life.

For further information about the Honor Roll, or to apply, visit www.immunize.org/subscribe.
Meningococcal B Vaccine: Q&A

CDC Answers Your Questions

Experts from the National Center for Immunization and Respiratory Diseases at the Centers for Disease Control and Prevention answer your questions about meningococcal serogroup B (MenB) vaccine.

Which meningococcal vaccines are available in the United States?

Since 2005, two types of meningococcal vaccines have been available in the United States that protect against meningococcal serogroups A, C, W, and Y: 1) meningococcal polysaccharide vaccine (MPSV4, Menomune, Sanofi Pasteur) which is made up of polysaccharide (sugar molecules) from the surface of the meningococcal bacteria; and 2) meningococcal conjugate vaccines (MenACWY, Menactra, Sanofi Pasteur; Mencevax, GSK) in which the polysaccharide is chemically bonded (“conjugated”) to a protein to produce better protection.

More recently, two vaccines have become available that offer protection from meningococcal serogroup B disease (MenB, Bexsero, GSK; Trumenba, Pfizer). These vaccines are composed of proteins also found on the surface of the bacteria. Both MenB vaccines are approved by the Food and Drug Administration for use in persons 10 through 25 years of age.

MPSV4 and MenACWY provide no protection against serogroup B disease and meningococcal serogroup B vaccines (MenB) provide no protection against serogroup A, C, W, or Y disease. For protection against all 5 serogroups of meningococcus, it is necessary to receive MenACWY or MPSV4 and MenB.

Which individuals in risk groups are recommended to be vaccinated against meningococcal serogroup B disease?

CDC’s Advisory Committee on Immunization Practices (ACIP) recommends routine MenB vaccination of the following individuals in certain risk groups:

- People age 10 years and older who have functional or anatomic asplenia
- People age 10 years and older who have persistent complement component deficiency, including people taking eculizumab (Soliris)
- People age 10 years and older who are at risk during an outbreak caused by a vaccine serogroup, such as on a college campus
- Microbiologists who work with meningococcal bacteria in a laboratory

Administration of MenB vaccine in persons older than 25 years of age is an off-label use. Clinicians may choose to use vaccines off-label if they believe it would be of benefit to their patients.

Which individuals are recommended to be vaccinated against meningococcal serogroup B disease who are not in risk groups?

ACIP recommends that a MenB vaccine series may be administered to people 16 through 23 years of age with a preferred age of vaccination of 16 through 18 years. This Category B recommendation gives clinicians an opportunity to discuss the value of MenB vaccination with their patients to make a decision together about the individual’s need or desire for the vaccine based on risks, benefits, and wish for protection from the disease. Because it is a Category B recommendation, MenB vaccination is covered by the Vaccines for Children Program for anyone who is eligible. Under the Affordable Care Act, private insurance must also cover the costs of both Category A and B recommended vaccines.

What is the difference between a Category A and Category B recommendation?

A Category A recommendation is made for all persons in an age- or risk-factor-based group. The meningococcal conjugate vaccine recommendation for all preteens at 11–12 years of age is an example of a Category A recommendation. A Category B recommendation does not apply to everyone, but in the context of a clinician-patient interaction, vaccination may be found to be appropriate for a person as noted above for MenB vaccination of healthy adolescents.

Does the Affordable Care Act (ACA) require health plans (non-grandfathered) to provide benefit coverage on Category B recommended vaccines?

Yes. ACA requires coverage of vaccines with both Category A and B recommendations. The Vaccines for Children Program also includes vaccines with a Category A and B recommendations.

Should college students be vaccinated against meningococcal B disease?

Although several small meningococcal serogroup B disease outbreaks have occurred on college campuses since 2013, college students in general are not at higher risk of meningococcal B disease than persons of the same age who are not college students. Consequently, ACIP does not routinely recommend MenB vaccination for college students. However, college students may choose to receive MenB vaccine to reduce their risk of serogroup B meningococcal disease.

Should international travelers receive both meningococcal conjugate vaccine and meningococcal serogroup B vaccine?

Travelers are not considered to be a group at increased risk for serogroup B meningococcal disease and are not recommended to receive serogroup B vaccine. Meningococcal conjugate vaccine (MenACWY) continues to be recommended for certain international travelers (residents of and travelers to Sub-Saharan Africa and the Hajj in Saudi Arabia).

What is the schedule for administering MenB vaccine?

Bexsero is a 2-dose series with dose #2 given at least 1 month after dose #1. Trumenba is either a 2-dose series with doses adminis-
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Meningococcal B Vaccine: CDC Answers Your Questions (continued)

1 dose of Bexsero and 1 of Trumenba, then pick a brand and finish a recommended schedule with that brand. Ignore the extra dose of the other product that was already administered. If you choose to use Bexsero, it should be separated from the previous dose of Bexsero by one month. If you choose to use Trumenba, it should be separated from the previous dose of Trumenba by 6 months.

We have a 1-year-old with congenital asplenia. He already received a series of meningococcal conjugate vaccine. Should we also give him MenB vaccine?

Use of either meningococcal serogroup B vaccine in persons younger than age 10 years is off-label in the U.S. There is currently no ACIP recommendation for use of this vaccine for this age group. However, Bexsero brand meningococcal B vaccine has been studied in children and is approved for children as young as 2 months of age by the European Medicines Agency (the European version of the U.S. Food and Drug Administration). It is routinely recommended for infants in the United Kingdom (see www.nhs.uk/conditions/vaccinations/pages/meningitis-b-vaccine.aspx for details). A clinician may choose to use a vaccine off-label if, in their opinion, the benefit of the vaccine exceeds the risk from the vaccine. Product information for Bexsero can be found on the European Medicines Agency website at www.ema.europa.eu/ema. These doses may not be covered by insurance.

Can meningococcal conjugate (MenACWY) and MenB vaccines be given at the same visit?

Yes. Meningococcal conjugate and MenB vaccines can be given at the same visit or at any time before or after the other.

Which groups of patients should receive a booster dose of MenB vaccine after completion of the series?

ACIP does not currently recommend booster doses of MenB vaccine for any group.

By what route should meningococcal B vaccines be administered?

MenB vaccines are given by the intramuscular route.

What are the contraindications and precautions to MenB vaccine?

As with all vaccines, a severe allergic reaction to a vaccine component or a reaction following a prior dose is a contraindication to subsequent doses. The tip caps of the Bexsero pre-filled syringes contain natural rubber latex which may cause allergic reactions in latex-sensitive individuals. The only precaution for administering MenB vaccine is the presence of a moderate or severe acute illness. Vaccination should be deferred until the illness improves.

What adverse reactions have been reported after MenB vaccine?

For both MenB vaccines the most common adverse reactions observed in clinical trials were local reactions, including pain at the injection site (83%–85%), erythema and swelling.

How should MenB vaccines be stored?

MenB vaccines should be stored refrigerated at 36°F to 46°F (2°C to 8°C). Do not freeze the vaccines. Discard any vaccine that has been exposed to freezing temperature. Protect the vaccine from light.

REFERENCES

CDC. Use of Serogroup B Meningococcal Vaccines in Persons Aged ≥10 Years at Increased Risk for Serogroup B Meningococcal Disease: Recommendations of the Advisory Committee on Immunization Practices, 2015. MMWR 2016;64(No.22):608-12.

CDC. Use of Serogroup B Meningococcal Vaccines in Adolescents and Young Adults: Recommendations of the Advisory Committee on Immunization Practices, 2015. MMWR 2015;64(No.41):1171-6.
# Meningococcal Vaccine Recommendations by Age and Risk Factor for Serogroup B Protection

## 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 2 doses of Trumenba on a 0- 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\(^2\)  
• 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 include inherited or chronic deficiencies in C3, C5–C9, properdin, factor D, and factor H, or taking ecu- lizumab (Soliris)  
2. Seek advice of local public health authorities to determine if vaccination is recommended.
Standing Orders for Administering Meningococcal B Vaccine to Adolescents and Adults (continued)

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

<table>
<thead>
<tr>
<th>Type of Vaccine</th>
<th>Age Group</th>
<th>Dose</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bexsero1 (MenB-4c, GlaxoSmithKline)</td>
<td>10 years and older</td>
<td>0.5 mL</td>
<td>Two doses, 4 weeks apart*</td>
</tr>
<tr>
<td>Trumenba1 (MenB-FHbp, Pfizer)</td>
<td>10 years and older</td>
<td>0.5 mL</td>
<td>Two doses at 0 and 6 months*</td>
</tr>
</tbody>
</table>

Notes:
1. The two brands of MenB vaccine are not interchangeable.
2. The 2-dose schedules of either Bexsero or Trumenba may be used in healthy adolescents and young adults.
3. Either the 2-dose schedule of Bexsero or the 3-dose schedule of Trumenba may be used in individuals at high risk for meningococcal disease.
4. Microbiologists routinely exposed to isolates of Neisseria meningitidis (C5–C9, properdin, factor D and factor H) or taking eculizumab (Soliris) should receive an additional dose of MenB vaccine. Other patients with risk factors for meningococcal disease should receive an additional dose if available.

6 Document Vaccination

Document each patient’s vaccination administration.

- Medical record: Record the date the vaccine was site and route, and the name and title of the person who administered the vaccine. Document the reason(s) for non-receipt of the vaccine (e.g., medical contraindication, patient refusal).

7 Be Prepared to Manage Medical Emergencies

Be prepared for management of a medical emergency associated with vaccination, as well as 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 Adults,” go to www.vaccineinformation.org.

8 Report Adverse Events to VAERS

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

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:

<table>
<thead>
<tr>
<th>Gender and Weight of Patient</th>
<th>Needle Gauge</th>
<th>Needle Length</th>
<th>Injection Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female or male less than 130 lbs</td>
<td>22–25</td>
<td>½”–1”</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Female or male 130–152 lbs</td>
<td>22–25</td>
<td>1”</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Female 153–200 lbs</td>
<td>22–25</td>
<td>1–1½”</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Male 153–240 lbs</td>
<td>22–25</td>
<td>1–1½”</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Female 200+ lbs</td>
<td>22–25</td>
<td>1½”</td>
<td>Deltoid muscle of arm</td>
</tr>
<tr>
<td>Male 260+ lbs</td>
<td>22–25</td>
<td>1½”</td>
<td>Deltoid muscle of arm</td>
</tr>
</tbody>
</table>

* A ½” needle may be used in patients weighing less than 150 lbs (≤68 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.

Visit www.immunize.org/catg.d/p3095.pdf
Meningococcal Vaccine Recommendations by Age and Risk Factor for Serogroups A, C, W, or Y Protection

### Routine Recommendations for Quadrivalent Meningococcal Conjugate Vaccine (MenACWY)

<table>
<thead>
<tr>
<th>Targeted Group by Age or Risk Factor</th>
<th>Primary Dose(s)</th>
<th>Booster Dose(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>For preteens age 11 through 12 years</td>
<td>Give dose #1 of 2-dose MenACWY series. (Dose #2 is recommended at age 16 years.)</td>
<td></td>
</tr>
<tr>
<td>For teens age 13 through 15 years</td>
<td>Give catch-up dose #1 of 2-dose MenACWY series. (Dose #2 will be due at age 16 years.)</td>
<td></td>
</tr>
<tr>
<td>For teens at age 16 years</td>
<td>Give dose #2 of MenACWY. 1  (Separate from dose #1 by at least 8 weeks.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Targeted Group by Age or Risk Factor</th>
<th>Primary Dose(s)</th>
<th>Booster Dose(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catch-up for teens age 17 through 18 years</td>
<td>If dose #2 not given at age 16 years, give dose #2 of MenACWY as catch-up.</td>
<td></td>
</tr>
<tr>
<td>Catch-up for teens age 16 through 18 years</td>
<td>If no history of prior vaccination with MenACWY, give 1 dose of MenACWY. 12</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Targeted Group by Age or Risk Factor</th>
<th>Primary Dose(s)</th>
<th>Booster Dose(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>For first year college students, age 19 through 21 years, living in residence halls</td>
<td>If no history of prior vaccination with MenACWY, give 1 dose of MenACWY. If history of 1 dose of MenACWY given when younger than age 16 years, give #2 dose of MenACWY.</td>
<td></td>
</tr>
</tbody>
</table>

### Risk-based Recommendations for Persons with Underlying Medical Conditions or Other Risk Factors

<table>
<thead>
<tr>
<th>Targeted Group by Age or Risk Factor</th>
<th>Primary Dose(s)</th>
<th>Booster Dose(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Travelers to or residents of countries where meningococcal disease is hyperendemic or epidemic,</strong> 2 people present during outbreaks caused by a vaccine serogroup, 3 and other people with prolonged increased risk for exposure (e.g., microbiologists routinely working with Neisseria meningitidis)</td>
<td>Give 3 doses of MenACWY-CRM or Hib-MenCY 4 8 weeks apart, and a 4th dose at 12–15 months. If possible, vaccination should begin at age 2 months.</td>
<td></td>
</tr>
<tr>
<td>For age 7 through 23 months who have not initiated a series of MenACWY-CRM</td>
<td>Give 2 doses of MenACWY-CRM 5 or Hib-MenCY 6 or, if 9–23 months, MenACWY-D. 7 Separate the 2 doses by at least 12 weeks. 8</td>
<td>If risk continues, give initial booster after 3 years followed by boosters every 5 years.</td>
</tr>
<tr>
<td>For age 2 through 55 years</td>
<td>Give 1 dose of MenACWY. 9</td>
<td>Boost every 5 years with MenACWY. 10</td>
</tr>
<tr>
<td>For age 56 years and older</td>
<td>If no previous MenACWY dose and either short-term travel or outbreak-related, give 1 dose of MPSV; all others, give 1 dose of MenACWY.</td>
<td>Boost every 5 years with MenACWY. 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Targeted Group by Age or Risk Factor</th>
<th>Primary Dose(s)</th>
<th>Booster Dose(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>People with persistent complement component deficiencies</strong> 1 1</td>
<td>Give 3 doses of MenACWY-CRM or Hib-MenCY, 8 weeks apart, and a 4th dose at 12–15 months. If possible, vaccination should begin at age 2 months.</td>
<td>Give MenACWY booster after 3 years followed by boosters every 5 years thereafter.</td>
</tr>
<tr>
<td>For age 7 through 23 months who have not initiated a series of MenACWY-CRM</td>
<td>Give 2 doses of MenACWY-CRM 5 or Hib-MenCY 6 or, if age 9–23 months, MenACWY-D. 7 Separate the 2 doses by at least 12 weeks.</td>
<td></td>
</tr>
<tr>
<td>For ages 2 through 55 years</td>
<td>Give 2 doses of MenACWY, 8 weeks apart.</td>
<td>Boost every 5 years with MenACWY. 9, 10</td>
</tr>
<tr>
<td>For age 56 years and older</td>
<td>Give 2 doses of MenACWY, 8 weeks apart.</td>
<td>Boost every 5 years with MenACWY. 10</td>
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<th>Primary Dose(s)</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>People with HIV infection or functional or anatomic asplenia (including sickle cell disease)</strong></td>
<td>Give 3 doses of MenACWY-CRM or Hib-MenCY, 8 weeks apart, and a 4th dose at 12–15 months. If possible, vaccination should begin at age 2 months.</td>
<td>Give MenACWY booster after 3 years followed by boosters every 5 years thereafter.</td>
</tr>
<tr>
<td>For age 7 through 23 months who have not initiated a series of MenACWY-CRM</td>
<td>Give 2 doses of MenACWY-CRM 5 or Hib-MenCY 6 Separate the 2 doses by at least 12 weeks. Or, if using MenACWY-D, give dose #1 at least 4 weeks following completion of pneumococcal conjugate vaccine series, and dose #2 at least 12 weeks after dose #1. 7</td>
<td></td>
</tr>
<tr>
<td>For ages 2 through 55 years</td>
<td>Give 2 doses of MenACWY, 8 weeks apart.</td>
<td>Boost every 5 years with MenACWY. 9, 10</td>
</tr>
<tr>
<td>For age 56 years and older</td>
<td>Give 2 doses of MenACWY, 8 weeks apart.</td>
<td>Boost every 5 years with MenACWY. 10</td>
</tr>
</tbody>
</table>

### Footnotes

1. The minimum interval between doses of MenACWY is 8 weeks.
2. Prior receipt of Hib-MenCY is not sufficient for children traveling to the Hajj or African meningitis belt as it does not provide protection against serogroups A or W.
3. Seek advice of local public health authorities to determine if vaccination is recommended.
4. Children ages 2 through 18 months who are present during outbreaks caused by serogroups C or Y may be given an age-appropriate series of Hib-MenCY.
5. If initiating vaccination with MenACWY-CRM in a child age 7 through 23 months, dose 2 should be given no younger than age 12 months.
6. Hib-MenCY is not licensed for use in children age 18 months or older.
7. If MenACWY-D is to be administered to a child with increased risk for meningococcal disease, it should be given either before or concomitantly with DTaP.
8. If child age 7 through 23 months will enter an endemic area in less than 3 months, give doses as close as 2 months apart.
9. If most recent dose given when younger than age 7 years, give booster after 3 years; if given at or after age 7 years, give booster after 5 years; then boost every 5 years thereafter. Booster doses are recommended if the person remains at increased risk.
10. Persistent complement component deficiencies include C3, C5–C9, properdin, factor D, factor H, or taking Soliris (eculizumab).
11. If the person has a history of only 1 dose, give dose 2 at least 8 weeks after dose 1, then boost every 5 years.

Technical content reviewed by the Centers for Disease Control and Prevention

Immunization Action Coalition
Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

www.immunize.org/catg.d/p2018.pdf • Item #P2018 (12/16)
Standing Orders Templates Updated for Administering MenACWY Vaccines to Adults and Children/Teens

STANDING ORDERS FOR Administering Meningococcal ACWY Vaccine to Adults

Purpose
To reduce morbidity and mortality from meningococcal disease caused by serotypes A, C, W, or Y 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 healthcare professionals (e.g., pharmacists) to assess the need for and vaccinate adults who meet any of the criteria below.

Procedure
1 Assess adults for need of vaccination against meningococcal disease according to the following criteria:

- Routine meningococcal ACWY vaccination
  - First-year college students age 19 through 21 years living in a residence hall who were never vaccinated or who were last vaccinated when younger than age 16 years

- Risk-based meningococcal ACWY vaccination
  - Diagnosis of persistent complement component deficiency
  - May also be caused by the drug Soliris (eculizumab)
  - Diagnosis of anatomic or functional asplenia (including sickle-cell disease)
  - Diagnosis of human immunodeficiency virus (HIV) infection
  - Part of an outbreak attributable to a vaccine serogroup
  - Anticipated travel to a country where meningococcal disease is epidemic (e.g., the “meningitis belt” of sub-Saharan Africa), particularly if prolonged
  - Employment as a microbiologist with routine exposure to meningococcal disease

2 Screen for contraindications and precautions

- Contraindications – Do not give MenACWY vaccine to an adult who has an anaphylactic reaction to a prior dose of the vaccine or to any of its excipients. For information on 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.
- Precaution – Moderate or severe acute illness with or without fever

3 Provide Vaccine Information Statements

Provide all patients with a copy of the most current federal Vaccine Information Statement (VIS) available at www.immunize.org/vis. You must 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 (parent/legal representative).

4 Review the vaccination schedule and criteria for MenACWY and other vaccines.

FOR ADULTS: www.immunize.org/catg.d/p3081.pdf
FOR CHILDREN/TEENS: www.immunize.org/catg.d/p3081a.pdf

For more information, including the current standing orders template, visit www.immunize.org/catg.d/p3081.pdf.

Download and use these standing orders templates “as they are,” or modify them to suit your work setting.
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 2015 National Immunization Survey–Teen, only 33% 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

- Top 10 Ways to Improve Adolescent Immunization Rates

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

“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

and much more!

MCV4 YOU’RE NOT DONE IF YOU GIVE JUST ONE
GIVE 2 DOSES to Strengthen Protection
Newly Updated Meningococcal Q&As:
Download and Copy for Your Patients

This 4-page Q&A for patients is ready for you to hand out in your medical setting. Visit www.immunize.org/catg.d/p4210.pdf

Meningococcal: Questions and Answers

Information about the Disease and Vaccines

What causes meningococcal disease?
Meningococcal disease is caused by the bacterium Neisseria meningitidis. This bacterium has at least 13 different subtypes (serogroups) of meningococcus, A, B, C, Y, and W-135. Each serogroup accounts for some of the cases of meningococcal disease.

How does meningococcal disease spread?
The disease is spread person-to-person through the exhalation of droplets containing meningococci or for up to 2 meters away. Infections can be transmitted by coughing, sneezing, or sharing eating utensils. Meningococcal disease can spread from an infected person to others who are in close contact with him or her.

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How long does it take to show signs of meningococcal disease?
Meningococcal disease causes signs and symptoms to be present within 7 to 14 days after an individual has been exposed. Signs and symptoms include fever, headache, and neck stiffness. In addition, a person who has been exposed to a meningococcal infection should be watched for these signs and symptoms for at least 14 days.

Can meningococcal disease be caused by a virus too?
The word "meningitis" refers to inflammation of the tissues covering the brain and spinal cord. This inflammation can be caused by bacteria and viruses. Meningococcal disease is caused by bacteria. A person with meningococcal disease should be watched closely to determine whether meningitis is caused by bacteria or viruses.

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How is meningococcal disease diagnosed?
The diagnosis is made by taking samples of blood and cerebrospinal fluid from a person who is sick. The sample is obtained by performing a lumbar puncture, where a needle is inserted into the lower back. Any bacteria found in the blood or spinal fluid grow in a medical laboratory and are identified.

Meningococcal disease is anemic in the United States. This condition can be spread through contact with the patient’s saliva or respiratory tract. The disease occurs in outbreaks in the United States, and is more likely to occur in areas where meningococcal infections are prevalent. Those who have been exposed to meningococcal infections should consult a healthcare provider who works with meningococcal bacteria and a biologic in a laboratory that works with meningococcal infections.

What are the symptoms of meningococcal disease?
The most common symptoms are fever, chills, headache, and muscle pain. The symptoms are similar to those of influenza, which may cause a person to have a higher fever and be more sensitive to colds.

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How soon after their first MenB vaccine dose should people who remain at risk for meningococcal disease be vaccinated again?
The time between the primary (initial) doses of MenB and the booster series is the 2-dose series or the 3-dose series. People who have received their primary MenB dose(s) before their seventh birthday should get their booster series before their 22nd birthday. People who have received the primary MenB dose(s) at or after age 7 years and all adults should get their MenB booster(s) 1 year after their primary dose.

Who should not receive meningococcal vaccine?
People who have had a serious allergic reaction to a previous dose of either meningococcal vaccine, or one of the vaccine’s components. The packaging of some meningococcal vaccines may contain latex. People with latex allergy should not receive meningococcal vaccine.

Can a pregnant woman get meningococcal vaccine?
Studies of vaccination with MenB during pregnancy have not documented adverse events among either pregnant women or newborns. Post-vaccination safety data suggest no concerns with the safety of MenB vaccine during pregnancy. Pregnancy is not considered to be a contraindication to either MenACWY or MenB vaccines. Although experience with MenB vaccines is limited, they have not been shown to be detrimental to a pregnant woman or fetus.

Can the vaccine cause meningococcal disease?
No. The vaccine contains meningococcal antigens that cannot cause meningococcal disease. Meningococcal vaccines contain the outer capsule or capsule protein of the microbe.
Here’s More Meningococcal Vaccine Information for Your Patients

An easy-to-read fact sheet for teens and adults

Protect yourself from meningococcal disease…
Get vaccinated!

What is meningococcal disease?
Meningococcal disease can be a life-threatening illness. It is caused by bacteria that can infect the blood, brain, and spinal cord. People often call it meningitis.

How do you catch it?
Meningococcus bacteria are spread through upper respiratory droplets, like saliva (kissing, living in close quarters). You can catch meningitis from a person who looks healthy.

Is it serious?
Yes! Meningococcal disease may respond to antibiotics, but quick medical attention is extremely important. Even with proper treatment, 10–15% of people with meningococcal disease die. Of the people who survive, as many as 20% suffer from some serious complication, such as loss of an arm or leg, brain damage, or permanent hearing loss.

Meningitis can cause shock, coma, and death within hours of the first symptom.

Am I at risk?
The disease most often strikes older teens and young adults. If you travel internationally or have certain medical conditions, you may also be at risk.

How can I protect myself from meningitis?
Vaccination is the best way to prevent meningococcal disease. There are different types of meningococcal vaccines: MenACWY conjugate and MenB (serogroup B). MenACWY is given to preteens and teens beginning at age 11–12 years. A second dose is needed at 16. A MenB series can also be given to teens and young adults starting at age 16.

People with certain medical conditions should get vaccinated, and some should receive booster doses throughout life. Travelers to certain countries should also get vaccinated.

For more information, visit www.vaccineinformation.org

Download from IAC’s website: www.immunize.org/catg.d/p4410.pdf

For IAC’s easy-to-read fact sheets about all vaccine-preventable diseases (including Spanish translations), visit www.immunize.org/handouts/vaccine-summaries.asp

Vaccinate Adults! • December 2016 • Immunization Action Coalition • (651) 647-9009 • www.immunize.org • www.vaccineinformation.org
This checklist helps you determine which vaccines your adult patients need.

Download and copy this screening questionnaire for your patients to fill out.

**Which Vaccines Do I Need Today?**

Vaccines are an important part of helping you stay healthy. Which of these recommended vaccines do you need? Check the boxes that apply to you, and then talk this over with your healthcare provider.

Influenza (“flu”) vaccine
- I have not had my flu vaccine this year (early fall through late spring).

Pneumococcal (“pneumonia”) vaccines [Prevnar 13 (PCV13) and Pneumovax 23 (PPSV23)]
- I am age 65 or older and:
  - I have never received any pneumonia vaccine (or I don’t remember if I have).
  - I have received 1 or 2 doses of pneumonia vaccine before I turned 65, and it’s now been more than 5 years since I received my last dose.
- I am younger than age 65 and:
  - I have never received any pneumonia vaccine AND at least one of the following applies to me:
    - I smoke cigarettes and I am age 19 years or older.
    - I have a chronic disease of the heart, lung (including asthma, if I am age 19 years or older), kidneys, or I have sickle cell disease.
    - I have diabetes or alcoholism.
    - I have a weakened immune system due to cancer, Hodgkin’s disease, leukemia, myeloma, kidney failure, HIV/AIDS or receiving radiation therapy or taking immunosuppressive medications.
    - I live in a nursing home or other long-term care facility.
  - I have had an organ or bone marrow transplant.
  - I have had my spleen removed or have had a cochlear (inner ear) implant or have had a condition that provides me with leaking spinal fluid.

Tetanus, diphtheria, and pertussis (“whooping cough”)-containing vaccine (e.g., DTaP, Tdap)
- I have never received Tdap vaccine (or don’t remember if I have.)
- I have not received at least 3 tetanus- and diphtheria-containing shots.
- I have received at least 3 tetanus- and diphtheria-containing shots in my lifetime more than 10 years since I received the last one.
- I am pregnant (and I am in my late second or third trimester of my pregnancy) and I will not receive Tdap vaccine during this pregnancy.

Measles, mumps, rubella (MMR) vaccine
- I am a woman thinking about a future pregnancy and don’t know if I’m immune to rubella.
- I am a healthcare worker. I have received 1 MMR (or I don’t remember if I have).
- I do not have a lab-confirmed report showing that I am immune to measles, mumps, and/or rubella.
- I was born in 1957 or later and:
  - I have never received MMR vaccine (or I don’t remember if I have).
  - I have received only 1 MMR and
  - I am entering college or another type of school after high school.
  - I am planning on traveling outside the U.S. 1

Hepatitis A vaccine
- I want to be vaccinated to avoid getting hepatitis A and spreading it to others.
- I might have been exposed to hepatitis A virus within the past 2 weeks.
- I received 1 dose of hepatitis A vaccine in the past, but I have not received the second dose (or I don’t remember if I have).
- I have not received hepatitis A vaccine in the past (or I don’t remember if I have) and at least one of the following applies to me:
  - I travel (or plan to travel) in countries where hepatitis A is common.
  - I have a sexual contact with a child under the age of 5 years in a country where hepatitis A is common.
  - I am a man who has sex with men.
  - I use street drugs.
  - I have chronic liver disease.
  - I have a blood clotting disorder.
  - I am an immune system transplant recipient with hepatitis A virus.

Hepatitis B vaccine
- I want to be vaccinated to avoid getting hepatitis B and spreading it to others.
- I am a man or I have had sex or IV drug use with a person infected with hepatitis B.
- I have a persistent complement component deficiency.
- I travel (or plan to travel) in countries where hepatitis B is common. 1

Human papillomavirus (HPV) vaccination
- I have not completed a series of HPV shots and
  - I am a woman age 26 or younger.
  - Age 26 through 30 and at least one of the following applies to me:
    - I want to be protected from HPV infection.
    - I have a weakened immune system due to infection (including HIV), disease, or medications.
    - I have sex with another man who has had sex with another man.
  - I am age 21 or younger and have not completed the HPV vaccine series (begun when I was age 16 or younger).

Meningococcal (serogroup B, meningitis) vaccine
- I am age 18 or younger and I have no other completed series of meningococcal B shots (or I don’t remember if I have).
- I received 1 dose of meningococcal B vaccine in the past, but I have not received the second dose (or I don’t remember if I have).
- I have never received meningococcal B vaccine since before my 16th birthday and I am a college student living in a residence hall.
- I was vaccinated more than 5 years ago and I am entering college.
- I have a risk of meningococcal disease due to an outbreak caused by serogroup B.
- I use street drugs.
- I have a persistent complement component deficiency.
- I have no risks of meningococcal disease due to an outbreak caused by serogroup B.
- I have a persistent complement component deficiency.

Zoster (“shingles”) vaccine
- I am age 60 or older and have never received a shingles vaccine (or I don’t know if I have).
- My spleen isn’t working or has been removed.
- My spleen has been removed, or I am scheduled to have it removed (“splenectomy”).
- I am age 60 or older and have never received a shingles vaccine (or I don’t know if I have).
- My spleen is normal and I have my spleen removed in the past 60 days of the child’s adoption from a country where hepatitis A is common. 2

Visit www.immunize.org/catg.d/p4036.pdf

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2. Countries where hepatitis A is common include: areas with high rates of hepatitis A include Africa, Southeast Asia, parts of the Middle East, parts of South America, and the Philippines. Some parts of Eastern Europe and the Mediterranean, and the Indian subcontinent have moderate rates of hepatitis A. Areas with low rates include South Central and Southwest Asia, and the Middle East except Israel. Areas with moderate rates include South Central and Southwest Asia, and the Caribbean (i.e., Haiti and the Dominican Republic), Central America, and most of Central and South America.

3. Areas with high rates of hepatitis A include Africa, Southeast Asia, parts of the Middle East, parts of South America, and the Philippines. Some parts of Eastern Europe and the Mediterranean, and the Indian subcontinent have moderate rates of hepatitis A. Areas with low rates include South Central and Southwest Asia, and the Middle East except Israel. Areas with moderate rates include South Central and Southwest Asia, and the Caribbean (i.e., Haiti and the Dominican Republic), Central America, and most of Central and South America.
IAC has updated its Celsius and Fahrenheit temperature logs for refrigerators and freezers. They’re ready for you to download, copy, and use. All are CDC reviewed.

**Refrigerator Temperature Logs**

Celsius [www.immunize.org/catg.d/p3037c.pdf](http://www.immunize.org/catg.d/p3037c.pdf)


**Freezer Temperature Logs**

Celsius [www.immunize.org/catg.d/p3038c.pdf](http://www.immunize.org/catg.d/p3038c.pdf)


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**Vaccine Storage Troubleshooting Record**

[Check one] Refrigerator  □ Freezer

Use this form to document any unacceptable vaccine storage event, such as exposure of refrigerated vaccines to temperatures that are outside the manufacturers’ recommended storage ranges.

**Data & Type of Event**

- Date & Time:
- Place:
- Description:
- Cause (if known):
- Action:
- Notes (if applicable):

**Storage Condition**

- Temperature:
- Humidity:
- Moisture:
- Gas:
- Vacuum:

**Freezer Temperature Logs**

- Celsius:
- Fahrenheit:

**Data Logger Probe in Glycol**

- Temp when discovered:
- Min/Max Temp:
- Average Temp:
- Sample Size:
- Sampling Frequency:

**Solution**

- Action:
- Notes (if applicable):

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**Additional Tool**

Vaccine Storage Troubleshooting Record:

Use This Checklist to Maximize Protection of Your Valuable Vaccine Supply

Are you doing everything you should to safeguard your vaccine supply? Review this 3-page checklist to see where you might make improvements.

---

Checklist for Safe Vaccine Storage and Handling

Are you doing everything you should to safeguard your vaccine supply? Review this list to see where you might make improvements in your vaccine management practices. Check each listed item with either or .

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Establish Storage and Handling Policies

1. We have designated a primary vaccine coordinator and at least one alternate coordinator to be in charge of vaccine storage and handling at our facility.
2. The primary and alternate vaccine coordinator(s) have completed all the training necessary to administer safe storage and handling of vaccines.
3. We have detailed, up-to-date, written standard operating procedures for general vaccine handling, including procedures for routine activities and an emergency vaccine retrieval and storage plan for power outages and other problems. Our procedures are based on CDC’s Vaccine Storage & Handling checklist.
4. We review these policies with all staff annually and with new staff, including temporary staff.

Log In New Vaccine Shipments

5. We maintain a vaccine inventory log that we use to document the following:
   a. Vaccine name and number of doses received
   b. Date we received the vaccine
   c. Condition of vaccine when we received it
   d. Vaccine manufacturer and lot
   e. Vaccine expiration date

Use Proper Storage Equipment

6. We store vaccines in separate, self-contained units that refrigerate or freeze only. If we must use a household-style combination unit, we use it only for storage of our refrigerated vaccines, maintaining frozen vaccines in a separate stand-alone refrigerator (often near the top shelf). In general, we try to avoid storing vaccines on the top shelf, and we avoid placing vaccines in front of the cold-air outlet that leads from the freezer to the refrigerator (e.g., glass beads), or a solid block of material (e.g., aluminum, Teflon), which disperse the cold air.
7. We use only calibrated temperature sensors and thermometers that indicate when vaccines should be stored at either refrigerated or frozen temperatures. We calibrate every 3 months or more frequently as recommended by the manufacturer.
8. We have planned back-up storage arrangements.

Maintain Correct Temperatures

9. We post signs (e.g., www.immunize.org/tg/iliac互信.pdf) on the doors of the refrigerator and freezer indicating the appropriate temperature ranges.
10. We always keep at least one accurate calibrated thermometer (±0.5°C [±1ºF]) with the vaccines in the refrigerator and a separate calibrated thermometer with the vaccines in the freezer.
11. We use a thermometer that:
   a. uses an active display to provide continuous monitoring information.
   b. is digital and has a detachable probe that has been buffed against sudden temperature changes by being immersed in a vial filled with liquid (e.g., glycerol, ethanol, glycerin), loose media (e.g., sand, glass beads), or a solid block of material (e.g., aluminum, Teflon), which disperse the cold air.
   c. includes an alarm for out-of-range temperatures.
   d. has a digital data logger that indicates current, minimum, and maximum temperatures.
   e. can measure temperatures within ±0.5ºC (±1ºF).
   f. has a low-battery indicator.
12. We maintain the refrigerator temperature at 2-8°C (36-46ºF), and we aim for 5ºC (41ºF).
13. We maintain the freezer temperature between -50ºC and -15ºC (-58ºF and -25ºF).
14. We set the thermostat for the refrigerator and the freezer at the factory-set midpoint temperatures.
15. We keep extra containers of water in the refrigerator (e.g., in the door and/or on the floor of the unit where the vegetable bins were located) to help maintain cool temperatures. We keep ice packs, ice-filled containers, or frozen water bottles in the freezer to help maintain cold temperatures and to have frozen water bottles available for conditioning in the event of an emergency.

Maintain Daily Temperature Logs

16. On days when our practice is open, we visually inspect the vaccine storage unit twice a day (first thing in the morning and right before our facility closes), and document refrigerator and freezer temperatures on the appropriate log. (See selections at www.immunize.org/tg/clinic/storage-handling.asp.)
17. We document the minimum and maximum temperature readings in the refrigerator and freezer once each day, preferably in the morning.
18. We consistently record temperatures on the log (e.g., Fahrenheit or Celsius). We never mix temperature scales when we record our temperatures.
19. If the temperature log prompts us to insert an “X” by the temperature that is reported on the form, we do not attempt to write in the actual temperature.
20. We follow the directions on the temperature log to call appropriate personnel if the temperature in a storage unit goes out of range.
21. If out-of-range temperatures occur in the unit, we complete the Vaccine Storage Troubleshooting Record (www.immunize.org/tg/iliac互信.pdf) to document actions taken when the problem was discovered and what was done to prevent a recurrence of the problem.

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Visit www.immunize.org/catg.d/p3035.pdf
Vaccine Handling Tips

**REMEMBER:** Improperly stored or outdated vaccines won’t protect your patients!

**Freezer**
- MMR
- MMRV
- Varicella
- Zoster

**Maintain freezer temperature between **
-50° and -15°C (-58° and 5°F).

**Refrigerator**
- DTaP, Tdap, Td, DT
- Hepatitis A
- Hepatitis B
- H. influenzae type b (Hib)
- Human papillomavirus
- Influenza
- Polio (IPV)
- MMR
- Meningococcal
- Pneumococcal
- Rotavirus

**Maintain refrigerator temperature between**
2° and 8°C (36° and 46°F), Aim for 5°C (40°F).

**Manage vaccine inventories.**
Inventory your vaccine supplies at least monthly and before placing an order. Expired vaccine must never be used and it becomes “cash in the trash!”

**Always use the vaccine with the soonest expiration date first.**
Move vaccine with the soonest expiration date to the front of the storage unit and mark it to be used first. These actions help ensure it will be picked up first by someone selecting vaccine from the unit.

**Store vaccine appropriately.**
Place vaccines in refrigerator or freezer immediately upon receiving shipment. Keep vaccine vials in their original packaging. Place vaccine in clearly labeled wire baskets or other open containers with a 2–3” separation between baskets and 4” from wall of unit. Separate or clearly mark vaccines to distinguish those that were supplied from your state’s Vaccines for Children program (or other state-funded source) from those that were privately purchased. Do not store vaccines in the door or on the floor of the unit.

**Stabilize temperatures.**
Store ice packs in the freezer and large jugs of water in the refrigerator along with the vaccines. This will help maintain a stable, cold temperature in case of a power failure or if the refrigerator or freezer doors are opened frequently or are accidentally left open. Because frequent opening of either the refrigerator or freezer door can lead to temperature variations that could affect vaccine efficacy, you should not store food or beverages in the refrigerator or freezer.

**Safeguard the electrical supply to the refrigerator.**
Make sure the refrigerator and freezer are plugged into outlets in a protected area where they cannot be disconnected accidentally. Label the refrigerator, freezer, electrical outlets, fuses, and circuit breakers on the power circuit with information that clearly identifies the perishable nature of vaccines and the immediate steps to be taken in case of interruption of power.† If your building has auxiliary power, use the outlet supplied by that system.

*MMR may be stored in either the freezer or the refrigerator.
†Refer to package insert for specific instructions on the storage of each vaccine.
If you have questions about the condition of the vaccine upon arrival, immediately place the vaccine in recommended storage, mark it “do not use,” and then call your state health department or the vaccine manufacturer(s) to determine whether the potency of the vaccine(s) has been affected. For other questions, call the immunization program at your state or local health department.
‡For easy help with labeling units and power supplies, see IAC signs “Do Not Unplug Refrigerator or Freezer” (www.immunize.org/catg.d/p2090.pdf) and “Do Not Stop Power to Circuit Breaker” (www.immunize.org/catg.d/p2091.pdf). For guidance on steps to take during a power interruption, see IAC’s “Emergency Response Worksheet” (www.immunize.org/catg.d/p3051.pdf).
These products are available for purchase from the Immunization Action Coalition

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

To order, visit www.immunize.org/shop, or use the order form on page 20. Coming in March 2017: The ACIP/AAFP/ACOG/ACNM-approved schedule for adults (8-sided) and the ACIP/AAP/AAFP-approved immunization schedule for people ages 0 through 18 years (8-sided). Both are laminated and washable for heavy-duty use, complete with essential footnotes, and printed in color for easy reading.

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Training Video: “Immunization Techniques – Best Practices with Infants, Children, and Adults”

DVD: $17 each

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


Purchase The Vaccine Handbook (560 pages) from IAC at www.immunize.org/vaccine-handbook. $29.95 + shipping - Discount pricing available.

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
**Help Us Increase Immunization Rates!**

The Immunization Action Coalition (IAC) is the nation’s premier source of immunization information for healthcare professionals. Your contribution directly funds our websites, publications, email news service, and handouts that improve the delivery of vaccines and motivate patients to get immunized!

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