

- For any person age 2 years and older who has not already received the HepA vaccine series, 2 doses of HepA vaccine separated by 6 to 18 months may be administered if immunity against hepatitis A virus infection is desired.

Catch-up vaccination:

- The minimum interval between the 2 doses is 6 months.

Special populations:

- Administer 2 doses of HepA vaccine at least 6 months apart to previously unvaccinated persons who live in areas where vaccination programs target older children, or who are at increased risk for infection. This includes persons traveling to or working in countries that have high or intermediate endemicity of infection; men having sex with men; users of injection and non-injection illicit drugs; persons who work with HAV-infected primates or with HAV in a research laboratory; persons with clotting-factor disorders; persons with chronic liver disease; and persons who anticipate close, personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. The first dose should be administered as soon as the adoption is planned, ideally, 2 or more weeks before arrival of the adoptee.

11. Meningococcal vaccines. (Minimum age: 6 weeks for Hib-MenCY [MenHibrix], 2 months for MenACWY-CRM [Menveo], 9 months for MenACWY-D [Menactra], 10 years for serogroup B meningococcal [MenB] vaccines: MenB-4C [Bexsero] and MenB-FHbp [Trumenba])

Routine vaccination:

- Administer a single dose of Menactra or Menveo vaccine at age 11 through 12 years, with a booster dose at age 16 years.
- For children ages 2 months through 18 years with high-risk conditions, see “Meningococcal conjugate ACWY vaccination of persons with high-risk conditions and other persons at increased risk” and “Meningococcal B vaccination of persons with high-risk conditions and other persons at increased risk of disease” below.

Catch-up vaccination:

- Administer Menactra or Menveo vaccine at age 13 through 18 years if not previously vaccinated.
- If the first dose is administered at age 13 through 15 years, a booster dose should be administered at age 16 through 18 years with a minimum interval of at least 8 weeks between doses.
- If the first dose is administered at age 16 years or older, a booster dose is not needed.
- For other catch-up guidance, see Figure 2.

Clinical discretion:

- Young adults ages 16 through 23 years (preferred age range is 16 through 18 years) who are not at increased risk for meningococcal disease may be vaccinated with a 2-dose series of either Bexsero (0, ≥1 month) or Trumenba (0, 6 months) vaccine to provide short-term protection against most strains of serogroup B meningococcal disease. The two MenB vaccines are not interchangeable; the same vaccine product must be used for all doses.
- If the second dose of Trumenba is given at an interval of <6 months, a third dose should be given at least 6 months after the first dose; the minimum interval between the second and third doses is 4 weeks.

Meningococcal conjugate ACWY vaccination of persons with high-risk conditions and other persons at increased risk of disease:

Children with anatomic or functional asplenia (including sickle cell disease), children with HIV infection, or children with persistent complement component deficiency (includes persons with inherited or chronic deficiencies in C3, C5–9, properdin, factor D, factor H, or taking eculizumab [Soliris]):

- Menveo
 - Children who initiate vaccination at age 8 weeks: Administer doses at ages 2, 4, 6, and 12 months.
 - Unvaccinated children who initiate vaccination at 7 through 23 months: Administer 2 primary doses, with the second dose at least 12 weeks after the first dose AND after the first birthday.
 - Children 24 months and older who have not received a complete series: Administer 2 primary doses at least 8 weeks apart.
- MenHibrix
 - Children who initiate vaccination at age 6 weeks: Administer doses at ages 2, 4, 6, and 12 through 15 months.
 - If the first dose of MenHibrix is given at or after age 12 months, a total of 2 doses should be given at least 8 weeks apart to ensure protection against serogroups C and Y meningococcal disease.
- Menactra
 - Children with anatomic or functional asplenia or HIV infection:
 - Children 24 months or older who have not received a complete series: Administer 2 primary doses at least 8 weeks apart. If Menactra is administered to a child with asplenia (including sickle cell disease) or HIV infection, do not administer Menactra until age 2 years and at least 4 weeks after the completion of all PCV13 doses.
 - Children with persistent complement component deficiency:
 - Children 9 through 23 months: Administer 2 primary doses at least 12 weeks apart.
 - Children 24 months and older who have not received a complete series: Administer 2 primary doses at least 8 weeks apart.
 - All high-risk children:
 - If Menactra is to be administered to a child at high risk for meningococcal disease, it is recommended that Menactra be given either before or at the same time as DTaP.

Meningococcal B vaccination of persons with high-risk conditions and other persons at increased risk of disease:

Children with anatomic or functional asplenia (including sickle cell disease) or children with persistent complement component deficiency (includes persons with inherited or chronic deficiencies in C3, C5–9, properdin, factor D, factor H, or taking eculizumab [Soliris]):

- Bexsero or Trumenba
 - Persons 10 years or older who have not received a complete series: Administer a 2-dose series of Bexsero, with doses at least 1 month apart, or a 3-dose series of Trumenba, with

the second dose at least 1–2 months after the first and the third dose at least 6 months after the first. The two MenB vaccines are not interchangeable; the same vaccine product should be used for all doses.

- For children who travel to or reside in countries in which meningococcal disease is hyper-endemic or epidemic, including countries in the African meningitis belt or the Hajj:
 - Administer an age-appropriate formulation and series of Menactra or Menveo for protection against serogroups A and W meningococcal disease. Prior receipt of MenHibrix is not sufficient for children traveling to the meningitis belt or the Hajj because it does not contain serogroups A or W.
- For children at risk during a community outbreak attributable to a vaccine serogroup:
 - For serogroup A, C, W, or Y: Administer or complete an age- and formulation-appropriate series of MenHibrix, Menactra, or Menveo.
 - For serogroup B: Administer a 2-dose series of Bexsero, with doses at least 1 month apart, or a 3-dose series of Trumenba, with the second dose at least 1–2 months after the first and the third dose at least 6 months after the first. The two MenB vaccines are not interchangeable; the same vaccine product should be used for all doses.

For MenACWY booster doses among persons with high-risk conditions, refer to *MMWR* 2013;62(RR02):1–22, at www.cdc.gov/mmwr/pdf/rr/rr6202.pdf; *MMWR* 2014;63(24):527–30 at www.cdc.gov/mmwr/pdf/wk/mm6324.pdf; and *MMWR* 2016;65(43):1189–94, at www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6543a.pdf.

For other catch-up recommendations for these persons, and complete information on use of meningococcal vaccines, including guidance related to vaccination of persons at increased risk of infection, see meningococcal *MMWR* publications, available at: www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mening.html.

12. Tetanus and diphtheria toxoids and acellular pertussis (Tdap) vaccine. (Minimum age: 10 years for both Boostrix and Adacel).

Routine vaccination:

- Administer 1 dose of Tdap vaccine to all adolescents ages 11 through 12 years.
- Tdap may be administered regardless of the interval since the last tetanus and diphtheria toxoid-containing vaccine.
- Administer 1 dose of Tdap vaccine to pregnant adolescents during each pregnancy (preferably during the early part of gestational weeks 27 through 36 weeks) regardless of time since prior Td or Tdap vaccination.

Catch-up vaccination:

- Persons ages 7 years and older who are not fully immunized with DTaP vaccine should receive Tdap vaccine as 1 dose (preferably the first) in the catch-up series; if additional doses are needed, use Td vaccine. For children age 7 through 10 years who receive a dose of Tdap as part of their catch-up series, an adolescent Tdap vaccine dose at age 11 through 12 years may be administered.
- Persons ages 11 through 18 years who have not received Tdap vaccine should receive a dose, followed by tetanus and diphtheria toxoids (Td) booster doses every 10 years thereafter.
- Inadvertent doses of DTaP vaccine:
 - If administered inadvertently to a child ages 7 through 10 years, the dose may count as part of the catch-up series. This dose may count as the adolescent Tdap dose, or the child may receive a Tdap booster dose at age 11 through 12 years.
 - If administered inadvertently to an adolescent ages 11 through 18 years, the dose should be counted as the adolescent Tdap booster.

For other catch-up guidance, see Figure 2.

13. Human papillomavirus (HPV) vaccines. (Minimum age: 9 years for 4vHPV [Gardasil] and 9vHPV [Gardasil 9])

Routine and catch-up vaccination:

- Administer a 2-dose series of HPV vaccine on a schedule of 0, 6–12 months to all adolescents ages 11 or 12 years. The vaccination series can start at age 9 years.
- Administer HPV vaccine to all adolescents through age 18 years who were not previously adequately vaccinated. The number of recommended doses is based on age at administration of the first dose.
- For persons initiating vaccination before age 15 years, the recommended immunization schedule is 2 doses of HPV vaccine at 0, 6–12 months
- For persons initiating vaccination at age 15 years or older, the recommended immunization schedule is 3 doses of HPV vaccine at 0, 1–2, 6 months.
- A vaccine dose administered at a shorter interval should be readministered at the recommended interval.
 - In a 2-dose schedule of HPV vaccine, the minimum interval is 5 months between the first and second dose. If the second dose is administered at a shorter interval, a third dose should be administered a minimum of 12 weeks after the second dose and a minimum of 5 months after the first dose.
 - In a 3-dose schedule of HPV vaccine, the minimum intervals are 4 weeks between the first and second dose, 12 weeks between the second and third dose, and 5 months between the first and third dose. If a vaccine dose is administered at a shorter interval, it should be readministered after another minimum interval has been met since the most recent dose.

Special populations:

- For children with history of sexual abuse or assault, administer HPV vaccine beginning at age 9 years.
- Immunocompromised persons*, including those with human immunodeficiency virus (HIV) infection, should receive a 3-dose series at 0, 1–2, and 6 months, regardless of age at vaccine initiation.
- Note: HPV vaccination is not recommended during pregnancy, although there is no evidence that the vaccine poses harm. If a woman is found to be pregnant after initiating the vaccination series, no intervention is needed; the remaining vaccine doses should be delayed until after the pregnancy. Pregnancy testing is not needed before HPV vaccination.

* See *MMWR* 2016;65(49):1405–08, available at www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6549a5.pdf.

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