

# Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger

UNITED STATES  
**2020**

## Vaccines in the Child and Adolescent Immunization Schedule\*

Vaccines	Abbreviations	Trade names
Diphtheria, tetanus, and acellular pertussis vaccine	DTap <sup>†</sup>	Daptacel <sup>®</sup> Infanrix <sup>®</sup>
Diphtheria, tetanus vaccine	DT	No trade name
Haemophilus influenzae type b vaccine	Hib (PRP-T) Hib (PRP-OMP)	ActiHib <sup>®</sup> Hiberix <sup>®</sup> ProQuadHib <sup>®</sup>
Hepatitis A vaccine	HepA	Havrix <sup>®</sup> Vaqta <sup>®</sup>
Hepatitis B vaccine	HepB	Engerix-B <sup>®</sup> Recombivax HB <sup>®</sup>
Human papillomavirus vaccine	HPV	Gardasil 9 <sup>®</sup>
Influenza vaccine (inactivated)	IV	Multiple
Influenza vaccine (live, attenuated)	LAIV	FluMist <sup>®</sup> -Quadrivalent
Measles, mumps, and rubella vaccine	MMR	M-M-R <sup>®</sup> II
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D	Menactra <sup>®</sup>
Meningococcal serogroup B vaccine	MenACWY-CRM MenB-4C MenB-FHbp	Menveo <sup>®</sup> Bexsero <sup>®</sup> Trumenb <sup>®</sup>
Pneumococcal 13-valent conjugate vaccine	PCV13	Pneum 13 <sup>®</sup>
Pneumococcal 23-valent polysaccharide vaccine	PPSV23	Pneumovax <sup>®</sup> 23
Poliovirus vaccine (inactivated)	IPV	IPOL <sup>®</sup>
Rotavirus vaccine	RV1 RV5	Rotarix <sup>®</sup> RotaTeq <sup>®</sup>
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adcel <sup>®</sup> Boostrix <sup>®</sup>
Tetanus and diphtheria vaccine	Td	Teniva <sup>®</sup> Tdmax <sup>®</sup>
Varicella vaccine	VAR	Varivax <sup>®</sup>

## Combination vaccines (use combination vaccines instead of separate injections when appropriate)

DTaP, hepatitis B, and inactivated poliovirus vaccine	DTaP-HepB-IPV	Pediarix <sup>®</sup>
DTaP, inactivated poliovirus, and Haemophilus influenzae type b vaccine	DTaP-IPV/Hib	Pentacel <sup>®</sup>
DTaP and inactivated poliovirus vaccine	DTaP-IPV	Kindrix <sup>®</sup> Quadricel <sup>®</sup>
Measles, mumps, rubella, and varicella vaccine	MMRV	ProQuad <sup>®</sup>

\*Administer recommended vaccines if immunization history is incomplete or unknown. Do not start or add doses to vaccine series for extended time periods. This is a not intended as a replacement for the current immunization schedule. Administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the ACP or CDC.

## How to use the child/adolescent immunization schedule

- Determine recommended vaccine by age (Table 1)
- Determine recommended interval for catch-up vaccination (Table 2)
- Assess need for additional recommended vaccines by medical condition and other indications (Table 3)
- Review vaccine types, frequencies, intervals, and special considerations for special situations (Notes)

Recommended by the Advisory Committee on Immunization Practices ([www.cdc.gov/vaccines/acip](http://www.cdc.gov/vaccines/acip)) and approved by the Centers for Disease Control and Prevention ([www.cdc.gov](http://www.cdc.gov)), American Academy of Pediatrics ([www.aap.org](http://www.aap.org)), American Academy of Family Physicians ([www.aafp.org](http://www.aafp.org)), American College of Obstetricians and Gynecologists ([www.acog.org](http://www.acog.org)), and American College of Nurse-Midwives ([www.midwife.org](http://www.midwife.org)).

## Report

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or 800-822-7967



Download the CDC Vaccine Schedules App for providers at [www.cdc.gov/vaccines/schedules/hcp/schedule-app.html](http://www.cdc.gov/vaccines/schedules/hcp/schedule-app.html).

## Helpful information

- Complete ACP recommendations: [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html)
- General Best Practice guidelines for Immunization: [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html)
- Outbreak information (including case identification and outbreak response), see Manual for the Surveillance of Vaccine-Preventable Diseases: [www.cdc.gov/vaccines/pubs/surv-manual](http://www.cdc.gov/vaccines/pubs/surv-manual)



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

**Table 1**

**Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2020**

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2). School entry and adolescent vaccine age groups are shaded in gray.

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs	
Hepatitis B (HepB)	1 <sup>st</sup> dose	2 <sup>nd</sup> dose					3 <sup>rd</sup> dose											
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	See Notes													
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose			4 <sup>th</sup> dose	5 <sup>th</sup> dose									
Haemophilus influenzae type b (Hib)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	See Notes		3 <sup>rd</sup> or 4 <sup>th</sup> dose See Notes											
Pneumococcal conjugate (PCV13)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose	3 <sup>rd</sup> dose		4 <sup>th</sup> dose											
Inactivated poliovirus (IPV <18 yrs)			1 <sup>st</sup> dose	2 <sup>nd</sup> dose			3 <sup>rd</sup> dose					4 <sup>th</sup> dose						
Influenza (IV)																		Annual vaccination 1 dose only
Influenza (LAIV)																		Annual vaccination 1 dose only
Measles, mumps, rubella (MMR)						See Notes	1 <sup>st</sup> dose											2 <sup>nd</sup> dose
Varicella (VAR)							1 <sup>st</sup> dose											2 <sup>nd</sup> dose
Hepatitis A (HepA)					See Notes													2-dose series, See Notes
Tetanus, diphtheria, acellular pertussis (Tdap <7 yrs)																		Tdap
Human papillomavirus (HPV)																		See Notes
Meningococcal (MenACWY-D ≥9 mos, MenACWY-CRM ≥2 mos)																		1 <sup>st</sup> dose
Meningococcal B																		2 <sup>nd</sup> dose
Pneumococcal polysaccharide (PPSV23)																		See Notes

Range of recommended ages for catch-up immunization

Range of recommended ages for certain high-risk groups

Recommended based on shared clinical decision-making or \*can be used in this age group

No recommendation or not applicable

See Notes

## Table 2

### Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who are More than 1 month Behind, United States, 2020

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. Always use this table in conjunction with Table 1 and the notes that follow.

Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5	
Hepatitis B	Birth	8 weeks and at least 16 weeks after first dose. Minimum age for the final dose is 24 weeks.			
Rotavirus	6 weeks Maximum age for first dose is 14 weeks, 6 days 6 weeks	4 weeks Maximum age for final dose is 8 months, 0 days.	4 weeks	6 months	
Diphtheria, tetanus, and acellular pertussis	6 weeks	4 weeks	6 months	6 months	
Haemophilus influenzae type B	6 weeks	No further doses needed if first dose administered at age 15 months or older. 4 weeks if first dose was administered before the 1 <sup>st</sup> birthday. 8 weeks (as final dose) if first dose was administered at age 12 through 14 months.	4 weeks No further doses needed if previous dose was administered at age 15 months or older. 4 weeks if current age is younger than 12 months, and first dose was administered at younger than age 7 months and at least 1 previous dose was given (AC-ElB, Pertacel, HibEas) or unknown. 8 weeks and age 12 through 59 months (as final dose) if current age is younger than 12 months, and first dose was administered at age 7 through 11 months; OR if current age is 12 through 59 months, and first dose was administered before the 1 <sup>st</sup> birthday, and second dose administered at a younger than 15 months; OR if both doses were PRIP-CMP (PedvaxIM, Comvax) and were administered before the 1 <sup>st</sup> birthday.	6 months 8 weeks (as final dose) for children age 12 through 59 months who received 3 doses before the 1 <sup>st</sup> birthday.	
Pneumococcal conjugate	6 weeks	No further doses needed for healthy children if first dose was administered at age 24 months or older. 4 weeks if first dose was administered before the 1 <sup>st</sup> birthday. 8 weeks (as final dose for healthy children) if first dose was administered at the 1 <sup>st</sup> birthday or a febr.	No further doses needed for healthy children if previous dose administered at age 24 months or older. 4 weeks if current age is younger than 12 months and previous dose was administered at <7 months old. 8 weeks (as final dose for healthy children) if previous dose was administered between 7-11 months (wait until at least 12 months old); OR if current age is 12 months or older and at least 1 dose was given before age 12 months.	8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before age 12 months who who received 3 doses at any age.	
Inactivated poliovirus	6 weeks	4 weeks	4 weeks if current age is < 4 years. 6 months (as final dose) if current age is 4 years or older.	6 months (minimum age 4 years for final dose).	
Measles, mumps, rubella	12 months	4 weeks	See Notes	See Notes	
Varicella	12 months	6 months			
Hepatitis A	12 months	6 months			
Meningococcal ACWY	2 months MenACWY- CBM 9 months MenACWYD	8 weeks			
Meningococcal ACWY	Not applicable (N/A)	8 weeks			
Tetanus, diphtheria, and acellular pertussis	7 years	4 weeks			
Human papillomavirus	9 years	Routine dosing intervals are recommended.			
Hepatitis A	N/A	6 months			
Hepatitis B	N/A	4 weeks			
Inactivated poliovirus	N/A	4 weeks			
Measles, mumps, rubella	N/A	4 weeks			
Varicella	N/A	3 months if younger than age 13 years. 4 weeks if age 13 years or older.			

### Children and adolescents age 7 through 18 years

4 weeks if first dose of DTaP/DT was administered before the 1<sup>st</sup> birthday.  
6 months (as final dose) if first dose of DTaP/DT or Tdap/Td was administered at or after the 1<sup>st</sup> birthday.

8 weeks and at least 16 weeks after first dose.  
A fourth dose of IPV is indicated if all previous doses were administered at <4 years or if the second dose was administered >6 months after the second dose.

4 weeks if current age is < 4 years.  
6 months (as final dose) if current age is 4 years or older.

See Notes

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# Table 3

## Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2020

Always use this table in conjunction with Table 1 and the notes that follow.

VACCINE	INDICATION									
	Pregnancy	Immunocompromised status (excluding HIV infection)	HIV infection CD4+ count <sup>1</sup> <15% and total CD4 cell count of <200/mm <sup>3</sup>	HIV infection CD4+ count <sup>1</sup> ≥15% and total CD4 cell count of ≥200/mm <sup>3</sup>	Kidney failure, end-stage renal disease, or on hemodialysis	Heart disease or chronic lung disease	CSF leaks or cochlear implants	Asplenia or persistent complement deficiencies	Chronic liver disease	Diabetes
Hepatitis B	Yellow									
Rotavirus	Light blue	Red	Orange							
Diphtheria, tetanus, & acellular pertussis (DTaP)	Light blue									
Haemophilus influenzae type b	Light blue									
Pneumococcal conjugate	Light blue									
Inactivated poliovirus	Orange									
Influenza (IV)	Light blue									
Influenza (LAV)	Light blue					Red				
Measles, mumps, rubella	Light blue					Red				
Varicella	Light blue					Red				
Hepatitis A	Light blue									
Tetanus, diphtheria, & acellular pertussis (Tdap)	Light blue									
Human papillomavirus	Pink									
Meningococcal ACWY	Light blue									
Meningococcal B	Light blue									
Pneumococcal polysaccharide	Light blue									

1 For additional information regarding HIV/laboratory parameters and use of live vaccines, see the General Best Practice Guidelines for Immunization. [www.cdc.gov/vaccines/imz/downloads/pdf/gbpi/gbpi-general-recs/contraindications.html](http://www.cdc.gov/vaccines/imz/downloads/pdf/gbpi/gbpi-general-recs/contraindications.html).  
 2 Severe Combined Immunodeficiency  
 3 LAV contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months.

## Notes

## Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2020

For vaccine recommendations for persons 19 years of age or older, see the Recommended Adult Immunization Schedule.

### Additional information

- Consult relevant ACIP statements for detailed recommendations at [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html).
- For information on contraindications and precautions for the use of a vaccine, consult the General Best Practice Guidelines for Immunization at [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html) and relevant ACIP statements at [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html).
- For calculating intervals between doses, 4 weeks = 28 days. Intervals of  $\geq 4$  months are determined by calendar months. Within a number range (e.g., 12–18), a dash (–) should be read as “through.”
- Vaccine doses administered  $\leq 4$  days before the minimum age or interval are considered valid. Doses of any vaccine administered  $\geq 5$  days earlier than the minimum age or minimum interval should not be counted as valid and should be repeated as age-appropriate. The repeat dose should be spaced after the invalid dose by the recommended minimum interval. For further details, see table 3-1. Recommended and minimum ages and intervals between vaccine doses, in General Best Practice Guidelines for Immunization at [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html).
- Information on travel vaccine requirements and recommendations is available at [www.cdc.gov/travel/](http://www.cdc.gov/travel/).
- For vaccination of persons with immunodeficiencies, see Table 8-1, Vaccination of persons with primary and secondary immunodeficiencies, in General Best Practice Guidelines for Immunization at [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html), and Immunization in Special Clinical Circumstances (in: Kimberlin DW, Brady MT, Jackson MA, Long SS, eds. *Red Book: 2018 Report of the Committee on Infectious Diseases*, 31<sup>st</sup> ed. Itasca, IL: American Academy of Pediatrics; 2018:67–111).
- For information regarding vaccination in the setting of a vaccine-preventable disease outbreak, contact your state or local health department.
- The National Vaccine Injury Compensation Program (VICP) is a no-fault alternative to the traditional legal system for resolving vaccine injury claims. All routine child and adolescent vaccines are covered by VICP except for pneumococcal polysaccharide vaccine (PPSV23). For more information, see [www.hrsa.gov/vaccinecompensation/index.html](http://www.hrsa.gov/vaccinecompensation/index.html).

### Diphtheria, tetanus, and pertussis (DTaP) vaccination (minimum age: 6 weeks [4 years for Kinrix or Quadrix])

#### Routine vaccination

- 5-dose series at 2, 4, 6, 15–18 months, 4–6 years
- **Prospectively:** Dose 4 may be administered as early as age 12 months if at least 6 months have elapsed since dose 3.
- **Retrospectively:** A 4<sup>th</sup> dose that was inadvertently administered as early as 12 months may be counted if at least 4 months have elapsed since dose 3.

#### Catch-up vaccination

- Dose 5 is not necessary if dose 4 was administered at age 4 years or older and at least 6 months after dose 3.
- For other catch-up guidance, see Table 2.

### Haemophilus influenzae type b vaccination (minimum age: 6 weeks)

#### Routine vaccination

- **ActHIB, Hibervik, or Pentacet:** 4-dose series at 2, 4, 6, 12–15 months
- **ProQuadHIB:** 3-dose series at 2, 4, 12–15 months

#### Catch-up vaccination

- **Dose 1 at 7–11 months:** Administer dose 2 at least 4 weeks later and dose 3 (final dose) at 12–15 months or 8 weeks after dose 2 (whichever is later).
- **Dose 1 at 12–14 months:** Administer dose 2 (final dose) at least 8 weeks after dose 1.
- **Dose 1 before 12 months and dose 2 before 15 months:** Administer dose 3 (final dose) 8 weeks after dose 2.
- **2 doses of ProQuadHIB before 12 months:** Administer dose 3 (final dose) at 12–59 months and at least 8 weeks after dose 2.
- **Unvaccinated at 15–59 months:** 1 dose.
- **Previously unvaccinated children age 60 months or older** who are not considered high risk do not require catch-up vaccination.
- For other catch-up guidance, see Table 2.

#### Special situations

##### Chemotherapy or radiation treatment

- 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose
- Doses administered within 14 days of starting therapy or during therapy should be repeated at least 3 months after therapy completion.

#### • Hematopoietic stem cell transplant (HSCT):

- 3-dose series 4 weeks apart starting 6 to 12 months after successful transplant, regardless of Hib vaccination history
- **Anatomic or functional asplenia (including sickle cell disease):**

- 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose
- *Unvaccinated\* persons age 5 years or older*

#### • Elective splenectomy:

- Unvaccinated\* persons age 15 months or older

- 1 dose (preferably at least 14 days before procedure)

#### • HIV infection:

- 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose
- *Unvaccinated\* persons age 5–18 years*

- **Immunoglobulin deficiency, early component complement deficiency:**

- 12–59 months

- Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
- 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

- *Unvaccinated* = Less than routine series (through 14 months) OR no doses (15 months or older)

## Notes

# Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2020

**Hepatitis A vaccination**  
(minimum age: 12 months for routine vaccination)

**Routine vaccination**

- 12-month series (minimum interval: 6 months) beginning at age 12 months

**Catch-up vaccination**

- Unvaccinated persons through 18 years should complete a 2-dose series (minimum interval: 6 months).
- Persons who previously received 1 dose at age 12 months or older should receive dose 2 at least 6 months after dose 1.
- Adolescents 18 years and older may receive the combined HepA and HepB vaccine, **Twinrix**, as a 3-dose series (0, 1, and 6 months) or 4-dose series (0, 7, and 21–30 days, followed by a dose at 12 months).

**International travel**

- Persons traveling to or working in countries with high or intermediate endemic hepatitis A ([www.cdc.gov/travel/](http://www.cdc.gov/travel/)):
  - **Infants age 6–11 months:** 1 dose before departure; revaccinate with 2 doses, separated by at least 6 months, between 12 and 23 months of age
  - **Unvaccinated age 12 months and older:** Administer dose 1 as soon as travel is considered.

**Hepatitis B vaccination**

(minimum age: birth)

**Birth dose (monovalent HepB vaccine only)**

- **Mother is HBsAg-negative:** 1 dose within 24 hours of birth for all medically stable infants >2,000 grams; infants <2,000 grams: Administer 1 dose at chronological age 1 month or hospital discharge.
- **Mother is HBsAg-positive:**
  - Administer **HepB vaccine** and **hepatitis B immune globulin (HBIG)** (in separate limbs) within 12 hours of birth, regardless of birth weight. For infants <2,000 grams, administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose.
- **Mother's HBsAg status is unknown:**
  - Administer **HepB vaccine** within 12 hours of birth, regardless of birth weight.
  - For infants <2,000 grams, administer **HBIG** in addition to HepB vaccine (in separate limbs) within 12 hours of birth. Administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Determine mother's HBsAg status as soon as possible. If mother is HBsAg-positive, administer **HBIG** to infants >2,000 grams as soon as possible, but no later than 7 days of age.

**Routine series**

- 3-dose series at 0, 1–2, 6–18 months (use monovalent HepB vaccine for doses administered before age 6 weeks)

- Infants who did not receive a birth dose should begin the series as soon as feasible (see Table 2).
- Administration of **4 doses** is permitted when a combination vaccine containing HepB is used after the birth dose.

- **Minimum age for the final (3<sup>rd</sup> or 4<sup>th</sup>) dose:** 24 weeks
- **Minimum intervals:** dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks (when 4 doses are administered, substitute “dose 4” for “dose 3” in these calculations)

**Catch-up vaccination**

- Unvaccinated persons should complete a 3-dose series at 0, 1–2, 6 months.
- Adolescents age 11–15 years may use an alternative 2-dose schedule with at least 4 months between doses (adult formulation **Recombivax HB** only).
- Adolescents 18 years and older may receive a 2-dose series of **HepB (HepBav-9<sup>®</sup>)** at least 4 weeks apart.
- Adolescents 18 years and older may receive the combined HepA and HepB vaccine, **Twinrix**, as a 3-dose series (0, 1, and 6 months) or 4-dose series (0, 7, and 21–30 days, followed by a dose at 12 months).
- For other catch-up guidance, see Table 2.

**Special situations**

- Revaccination is not generally recommended for persons with a normal immune status who were vaccinated as infants, children, adolescents, or adults.
- **Revaccination** may be recommended for certain populations, including:
  - **Infants born to HBsAg-positive mothers**
  - **Hemodialysis patients**
  - **Other immunocompromised persons**
- For detailed revaccination recommendations, see [www.cdc.gov/vaccines/hqp/acip-rcs/vacc-specific/hepb.html](http://www.cdc.gov/vaccines/hqp/acip-rcs/vacc-specific/hepb.html).

**Human papillomavirus vaccination**

(minimum age: 9 years)

**Routine and catch-up vaccination**

- HPV vaccination routinely recommended at age 11–12 years (can start at age 9 years) and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated
- 2- or 3-dose series depending on age at initial vaccination:
  - **Age 9 through 14 years at initial vaccination:** 2-dose series at 0, 6–12 months (minimum interval: 5 months); repeat dose if administered “too soon”
  - **Age 15 years or older at initial vaccination:** 3-dose series at 0, 1–2 months, 6 months (minimum interval: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months repeat dose if administered too soon)
- If completed valid vaccination series with any HPV vaccine, no additional doses needed

**Special situations**

- **Immunocompromising conditions, including HIV infection:** 3-dose series as above
- **History of sexual abuse or assault:** Start at age 9 years.
- **Pregnancy:** HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant; pregnancy testing not needed before vaccination

**Influenza vaccination**

(minimum age: 6 months (IV), 2 years (LAIV), 18 years (recombinant influenza vaccine, RV))

**Routine vaccination**

- Use any influenza vaccine appropriate for age and health status annually.
  - 2 doses, separated by at least 4 weeks, for **children age 6 months–5 years** who have received fewer than 2 influenza vaccine doses before July 1, 2019, or whose influenza vaccination history is unknown (administer dose 2 even if the child turns 9 between receipt of dose 1 and dose 2)
  - 1 dose for **children age 6 months–5 years** who have received at least 2 influenza vaccine doses before July 1, 2019
  - 1 dose for **all persons age 9 years and older**
- For the 2020–21 season, see the 2020–21 ACIP influenza vaccine recommendations.

**Special situations**

- **Egg allergy, HIV only:** Any influenza vaccine appropriate for age and health status annually
- **Egg allergy with symptoms other than hives** (e.g., angioedema, respiratory distress, need for emergency medical services or epinephrine): Any influenza vaccine appropriate for age and health status annually in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions
- **LAIV should not be used** in persons with the following conditions or situations:
  - History of severe allergic reaction to a previous dose of any influenza vaccine or to any vaccine component (excluding egg; see details above)
  - Receiving aspirin or salicylate-containing medications
  - Age 2–4 years with history of asthma or wheezing
  - Immunocompromised due to any cause (including medications and HIV infection)
  - Anatomic or functional asplenia
  - Cochlear implant
  - Cross-prosopical fluid-opharyngeal communication
  - Close contacts or caregivers of severely immunosuppressed persons who require a protected environment
  - Pregnancy
  - Received influenza antiviral medications within the previous 48 hours

## Notes

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**Measles, mumps, and rubella vaccination**  
(minimum age: 12 months for routine vaccination)

### Routine vaccination

- 2-dose series at 12–15 months, 4–6 years
- Dose 2 may be administered as early as 4 weeks after dose 1.

### Catch-up vaccination

- Unvaccinated children and adolescents: 2-dose series at least 4 weeks apart
- The maximum age for use of MMRV is 12 years.

### Special situations

#### International travel

- **Infants age 6–11 months:** 1 dose before departure; revaccinate with 2-dose series with dose 1 at 12–15 months (12 months for children in high-risk areas) and dose 2, as early as 4 weeks later.
- **Unvaccinated children age 12 months and older:** 2-dose series at least 4 weeks apart before departure

**Meningococcal serogroup A,C,W,Y vaccination**  
(minimum age: 2 months [MenACWY-CRM, Menvevo], 9 months [MenACWY-D, Menactra])

### Routine vaccination

- 2-dose series at 11–12 months, 16 years

### Catch-up vaccination

- Age 13–15 years: 1 dose now and booster at age 16–18 years (minimum interval: 8 weeks)
- Age 16–18 years: 1 dose

### Special situations

- **Anatomic or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:**
  - Dose 1 at age 8 weeks, 4-dose series at 2, 4, 6, 12 months
  - Dose 1 at age 7–23 months; 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Dose 1 at age 24 months or older; 2-dose series at least 8 weeks apart

#### Menactra

- **Persistent complement component deficiency or complement inhibitor use:**
  - Age 9–23 months; 2-dose series at least 12 weeks apart
  - Age 24 months or older; 2-dose series at least 8 weeks apart

#### Anatomic or functional asplenia, sickle cell disease, or HIV infection:

- Age 9–23 months: Not recommended
- Age 24 months or older: 2-dose series at least 8 weeks apart

• Menactra must be administered at least 4 weeks after completion of PCV13 series.

**Travel in countries with hyperendemic or epidemic meningococcal disease, including countries in the African meningitis belt or during the Hajj** ([www.cdc.gov/travel/](http://www.cdc.gov/travel/)):

- Children less than age 24 months:
  - **Menvevo (age 2–23 months):**
    - Dose 1 at 8 weeks, 4–6 months; 2, 4, 6, 12 months
    - Dose 1 at 7–23 months; 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - **Menactra (age 9–23 months):**
    - 2-dose series (dose 2 at least 12 weeks after dose 1; dose 2 may be administered as early as 8 weeks after dose 1 in travelers)
- Children age 2 years or older: 1 dose Menvevo or Menactra

**First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:**

- 1 dose Menvevo or Menactra

**Adolescent vaccination of children who received MenACWY prior to age 10 years:**

- **Children for whom boosters are recommended** because of an ongoing increased risk of meningococcal disease (e.g., those with complement deficiency, HIV, or asplenia) follow the booster schedule for persons at increased risk (see below).
- **Children for whom boosters are not recommended** (e.g., those who received a single dose for travel to a country where meningococcal disease is endemic): Administer MenACWY according to the recommended adolescent schedule with dose 1 at age 11–12 years and dose 2 at age 16 years.

**Note:** Menactra should be administered either before or at the same time as DTap:For MenACWY booster dose recommendations for groups listed under “Special situations” and in an outbreak setting and for additional meningococcal vaccination information, see [www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mening.html](http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mening.html).

**Meningococcal serogroup B vaccination**  
(minimum age: 10 years [MenB-4C, Bexsero; MenB-FHbp, Trumenban])

### Shared clinical decision-making

- **Adolescents not at increased risk** age 16–23 years (preferred age 16–18 years) based on shared clinical decision-making:
  - **Bexsero:** 2-dose series at least 1 month apart
  - **Trumenban:** 2-dose series at least 6 months apart; if dose 2 is administered earlier than 6 months, administer a 3<sup>rd</sup> dose at least 2 months after dose 2.

### Special situations

- **Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:**
  - Bexsero: 2-dose series at least 1 month apart
  - Trumenban: 3-dose series at 0, 1–2, 6 months

**Bexsero** and **Trumenban** are not interchangeable; the same product should be used for all doses in a series. For MenB **booster dose recommendations** for groups listed under “Special situations” and in an outbreak setting and for additional meningococcal vaccination information, see [www.cdc.gov/vaccines/acip/recs/vacc-specific/mening.html](http://www.cdc.gov/vaccines/acip/recs/vacc-specific/mening.html).

### Pneumococcal vaccination

(minimum age: 6 weeks [PCV13], 2 years [PPSV23])

### Routine vaccination with PCV13

- 4-dose series at 2, 4, 6, 12–15 months

### Catch-up vaccination with PCV13

- 1 dose for healthy children age 24–59 months with any incomplete<sup>a</sup> PCV13 series
- For other catch-up guidance, see Table 2.

### Special situations

**High-risk conditions below:** When both PCV13 and PPSV23 are indicated, administer PCV13 first; PCV13 and PPSV23 should not be administered during the same visit.

**Chronic heart disease** (particularly synoptic congenital heart disease and cardiac failure), chronic lung disease (including asthma treated with high-dose, oral corticosteroids), diabetes mellitus

Age 2–5 years

- Any incomplete<sup>a</sup> series with:
  - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

Age 6–18 years

- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

### Cerebrospinal fluid leak, cochlear implant:

Age 2–5 years

- Any incomplete<sup>a</sup> series with:
  - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

Age 6–18 years

- No history of either PCV13 or PPSV23: 1 dose PCV13, 1 dose PPSV23 at least 8 weeks later
- Any PCV13 but no PPSV23: 1 dose PPSV23 at least 8 weeks after the most recent dose of PCV13
- PPSV23 but no PCV13: 1 dose PCV13 at least 8 weeks after the most recent dose of PPSV23

**Sickle cell disease and other hemoglobinopathies;**

**anatomic or functional asplenia; congenital or acquired immunodeficiency; HIV infection; chronic renal failure; nephrotic syndrome; malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and other diseases associated with treatment with immunosuppressive drugs or radiation therapy; solid organ transplantation; multiple myeloma** **z**

Age: 2–5 years

- Any incomplete\* series with:
  - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - Less than 3 PCV13 doses: 2 doses PCV13 18 weeks after the most recent dose and administered 8 weeks apart
  - No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose) and a 2<sup>nd</sup> dose of PPSV23 5 years later
- Age 6–18 years
  - No history of either PCV13 or PPSV23: 1 dose PCV13, 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after PCV13 and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
  - Any PCV13 but no PPSV23: 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after the most recent dose of PCV13 and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
  - PPSV23 but no PCV13: 1 dose PCV13 at least 8 weeks after the most recent PPSV23 dose and a 2<sup>nd</sup> dose of PPSV23 administered 5 years after dose 1 of PPSV23 and at least 8 weeks after a dose of PCV13

**Chronic liver disease, alcoholism:**

Age: 6–18 years

- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)
- \*Incomplete series = Not having received all doses in either the recommended series or an age-appropriate catch-up series. See Tables 8, 9, and 11 in the ACIP pneumococcal vaccine recommendations at [www.cdc.gov/mmwr/pdf/r/r15911.pdf](http://www.cdc.gov/mmwr/pdf/r/r15911.pdf) for complete schedule details.

**Poliovirus vaccination**

(minimum age: 6 weeks)

**Routine vaccination**

- 4-dose series at ages 2, 4, 6–18 months, 4–6 years; administer the final dose at or after age 4 years and at least 6 months after the previous dose.
- 4 or more doses of IPV can be administered before age 4 years when a combination vaccine containing IPV is used. However, a dose is still recommended at or after age 4 years and at least 6 months after the previous dose.

**Catch-up vaccination**

- In the first 6 months of life, use minimum ages and intervals only for travel to a polio-endemic region or during an outbreak.
- IPV is not routinely recommended for U.S. residents 18 years and older.

**Series containing oral polio vaccine (OPV), either mixed OPV-IPV or OPV-only series:**

- Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See [www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm](http://www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm), [www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm](http://www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm), [www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm](http://www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm).
- Only trivalent OPV (OPV) counts toward the U.S. vaccination requirements.
- Doses of OPV administered before April 1, 2016, should be counted (unless specifically noted as administered during a campaign).
- Doses of OPV administered on or after April 1, 2016, should not be counted.
- For guidance to assess doses documented as “OPV,” see [www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm](http://www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm), [www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm](http://www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm), [www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm](http://www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm).
- For other catch-up guidance, see Table 2.

**Rotavirus vaccination**

(minimum age: 6 weeks)

**Routine vaccination**

- **Rotarix:** 2-dose series at 2 and 4 months
- **Rotateq:** 3-dose series at 2, 4, and 6 months
- If any dose in the series is either **Rotarix** or unknown, default to 3-dose series.

**Catch-up vaccination**

- Do not start the series on or after age 18 weeks, 0 days.
- The maximum age for the final dose is 8 months, 0 days.
- For other catch-up guidance, see Table 2.

**Tetanus, diphtheria, and pertussis (Tdap) vaccination**

(minimum age: 11 years for routine vaccination, 7 years for catch-up vaccination)

**Routine vaccination**

- **Adolescents age 11–12 years:** 1 dose Tdap
- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- Tdap may be administered regardless of the interval since the last tetanus- and diphtheria-toxoid-containing vaccine.

**Catch-up vaccination**

- **Adolescents age 13–18 years who have not received Tdap:** 1 dose Tdap, then 1 or 2 Tdap boosters every 10 years
  - **Persons age 7–18 years not fully vaccinated\* with DTaP:** 1 dose Tdap as part of the catch-up series (preferably the first dose); if additional doses are needed, use Td or Tdap.
  - **Tdap administered at 7–10 years:**
    - Children age 7–9 years who receive Tdap should receive the routine Tdap dose at age 11–12 years.
    - Children age 10 years who receive Tdap do not need to receive the routine Tdap dose at age 11–12 years.
  - **DTaP inadvertently administered at or after age 7 years:**
    - Children age 7–9 years: DTaP may count as part of catch-up series. Routine Tdap dose at age 11–12 years should be administered.
    - Children age 10–18 years: Count dose of DTaP as the adolescent Tdap booster.
  - For other catch-up guidance, see Table 2.
  - For information on use of Tdap or Td as tetanus prophylaxis in wound management, see [www.cdc.gov/mmwr/volumes/67/rr/r6702a1.htm](http://www.cdc.gov/mmwr/volumes/67/rr/r6702a1.htm).
- \*Fully vaccinated = 5 valid doses of DTaP OR 4 valid doses of DTaP if dose 4 was administered at age 4 years or older

**Varicella vaccination**

(minimum age: 12 months)

**Routine vaccination**

- 2-dose series at 12–15 months, 4–6 years
- Dose 2 may be administered as early as 3 months after dose 1 or dose administered after a 4-week interval may be counted).

**Catch-up vaccination**

- Ensure persons age 7–18 years without evidence of immunity (see [www.cdc.gov/mmwr/pdf/r/r1504.pdf](http://www.cdc.gov/mmwr/pdf/r/r1504.pdf)) have 2-dose series:
  - Age 7–12 years: routine interval: 3 months (a dose administered after a 4-week interval may be counted)
  - Age 13 years and older: routine interval: 4–8 weeks (minimum interval: 4 weeks)
- The maximum age for use of MMRV is 12 years.