



Department Of Public Health
Communicable Disease Section

2019 Immunization Update

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Participants will be able to:

- Identify at least four changes to the 2019 Child and Adolescent Immunization Schedule
- Understand how to use the 2019 Child and Adolescent Immunization Schedule



- The full video can be found at <https://www.youtube.com/watch?v=HAdWf7vE3zA&feature=youtu.be>.

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger UNITED STATES 2019

Vaccines in the Child and Adolescent Immunization Schedule*

Vaccines	Abbreviations	Trade names
Diphtheria, tetanus, and acellular pertussis vaccine	DTaP	Daptacel Infanrix
Diphtheria, tetanus vaccine	DT	No Trade Name
<i>Haemophilus influenzae</i> type b vaccine	Hib (PRP-T) Hib (PRP-OMP)	ActHIB Hiberix PedvaxHIB
Hepatitis A vaccine	HepA	Havrix Vaqta
Hepatitis B vaccine	HepB	Engerix-B Recombivax HB
Human papillomavirus vaccine	HPV	Gardasil 9
Influenza vaccine (inactivated)	IIV	Multiple
Influenza vaccine (live, attenuated)	LAIV	FluMist
Measles, mumps, and rubella vaccine	MMR	M-M-R II
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D MenACWY-CRM	Menactra Menveo
Meningococcal serogroup B vaccine	MenB-4C MenB-FHbp	Bexsero Trumenba
Pneumococcal 13-valent conjugate vaccine	PCV13	Prevnar 13
Pneumococcal 23-valent polysaccharide vaccine	PPSV23	Pneumovax
Poliovirus vaccine (inactivated)	IPV	IPOL
Rotavirus vaccine	RV1 RV5	Rotarix RotaTeq
Tetanus, diphtheria, and acellular pertussis vaccine	Tdap	Adacel Boostrix
Tetanus and diphtheria vaccine	Td	Tenivac Td vaccine
Varicella vaccine	VAR	Varivax
Combination Vaccines (Use combination vaccines instead of separate injections when appropriate)		
DTaP, hepatitis B, and inactivated poliovirus vaccine	DTaP-HepB-IPV	Pediarix
DTaP, inactivated poliovirus, and <i>Haemophilus influenzae</i> type b vaccine	DTaP-IPV/Hib	Pentacel
DTaP and inactivated poliovirus vaccine	DTaP-IPV	Kinrix Quadracel
Measles, mumps, rubella, and varicella vaccines	MMRV	ProQuad


*Administer recommended vaccines if immunization history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

How to use the child/adolescent immunization schedule

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

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American Academy of Pediatrics (www.aap.org), American Academy of Family Physicians (www.aafp.org), and American College of Obstetricians and Gynecologists (www.acog.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 or (800-822-7967)

 Download the CDC Vaccine Schedules App for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html

- ### Helpful information
- Complete ACIP recommendations: 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
 - Outbreak information (including case identification and outbreak response), see Manual for the Surveillance of Vaccine-Preventable Diseases: www.cdc.gov/vaccines/pubs/surv-manual



Cover page provides guidance on how to use the schedule.

Helpful information section.

2019 Recommended Child and Adolescent Immunization Schedule

★ • The influenza row is modified to reflect CDC influenza recommendations.

★ • The recommendation of hep A vaccine prior to international travel is included.

★ • The Tdap vaccine row includes advice for vaccination of pregnant adolescents 13 through 18 years.

Table 1 Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger United States, 2019

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 in Table 1. 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 st dose	2 nd dose			←----- 3 rd dose -----→													
Rotavirus (RV) RV1 (2-dose series); RV5 (3-dose series)			1 st dose	2 nd dose	See Notes													
Diphtheria, tetanus, & acellular pertussis (DTaP: <7 yrs)			1 st dose	2 nd dose	3 rd dose			←----- 4 th dose -----→				5 th dose						
<i>Haemophilus influenzae</i> type b (Hib)			1 st dose	2 nd dose	See Notes		←----- 3 rd or 4 th dose, See Notes -----→											
Pneumococcal conjugate (PCV13)			1 st dose	2 nd dose	3 rd dose		←----- 4 th dose -----→											
Inactivated poliovirus (IPV: <18 yrs)			1 st dose	2 nd dose	←----- 3 rd dose -----→							4 th dose						
Influenza (IIV)							Annual vaccination 1 or 2 doses							Annual vaccination 1 dose only				
Influenza (LAIV)												Annual vaccination 1 or 2 doses			Annual vaccination 1 dose only			
Measles, mumps, rubella (MMR)						See Notes	←----- 1 st dose -----→					2 nd dose						
Varicella (VAR)							←----- 1 st dose -----→					2 nd dose						
Hepatitis A (HepA)					See Notes		2-dose series, See Notes											
Meningococcal (MenACWY-D ≥9 mos; MenACWY-CRM ≥2 mos)							See Notes								1 st dose		2 nd dose	
Tetanus, diphtheria, & acellular pertussis (Tdap: ≥7 yrs)																		Tdap
Human papillomavirus (HPV)																		See Notes
Meningococcal B																		See Notes
Pneumococcal polysaccharide (PPSV23)																		See Notes



Range of recommended ages for all children
 Range of recommended ages for catch-up immunization
 Range of recommended ages for certain high-risk groups
 Range of recommended ages for non-high-risk groups that may receive vaccine, subject to individual clinical decision-making
 No recommendation

2019 Catch - Up Schedule

Table 2 Catch-up immunization schedule for persons aged 4 months–18 years who start late or who are more than 1 month behind, United States, 2019

The figure 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.

Children age 4 months through 6 years					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B	Birth	4 weeks	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	4 weeks	4 weeks Maximum age for final dose is 8 months, 0 days.		
Diphtheria, tetanus, and acellular pertussis	6 weeks	4 weeks	4 weeks	6 months	6 months
Haemophilus influenzae type b	6 weeks	No further doses needed if first dose was administered at age 15 months or older. 4 weeks if first dose was administered before the 1 st birthday. 8 weeks (as final dose) if first dose was administered at age 12 through 14 months.	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 PRP-T (ActHib, Pentacel, Hiberix) 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 st birthday, and second dose administered at younger than 15 months; OR if both doses were PRP-OMP (PedvaxHIB; Comvax) and were administered before the 1 st birthday.	8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before the 1 st 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 administered before the 1 st birthday. 8 weeks (as final dose for healthy children) if first dose was administered at the 1 st birthday or after.	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 given at <7 months old. 8 weeks (as final dose for healthy children) if previous dose given 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 or for children at high risk 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			
Varicella	12 months	3 months			
Hepatitis A	12 months	6 months			
Meningococcal	2 months MenACWY-CRM 9 months MenACWY-D	8 weeks	See Notes	See Notes	
Children and adolescents age 7 through 18 years					
Meningococcal	Not Applicable (N/A)	8 weeks			
Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis	7 years	4 weeks	4 weeks if first dose of DTaP/DT was administered before the 1 st birthday. 6 months (as final dose) if first dose of DTaP/DT or Tdap/Td was administered at or after the 1 st birthday.	6 months if first dose of DTaP/DT was administered before the 1 st birthday.	
Human papillomavirus	9 years	Routine dosing intervals are recommended.			
Hepatitis A	N/A	6 months			
Hepatitis B	N/A	4 weeks	8 weeks and at least 16 weeks after first dose.		
Inactivated poliovirus	N/A	4 weeks	6 months A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months after the previous dose.	A fourth dose of IPV is indicated if all previous doses were administered at <4 years or if the third dose was administered <6 months after the second dose.	
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.			

- Catch – up schedule provides minimum intervals between doses for children who have fallen behind on their vaccines.

Table 3 Recommended Child And Adolescent Immunization Schedule by Medical Indication












-  Vaccinate according to the routine schedule recommendation
-  Recommended for people with additional risk factors
-  Vaccination is recommended and additional doses may be necessary based on medical condition.
-  Contraindicated
-  Precaution
-  Delay vaccination until after pregnancy.
-  No recommendation

Table 3 Recommended Child and Adolescent Immunization Schedule by Medical Indication United States, 2019

VACCINE	INDICATION									
	Pregnancy	Immunocompromised status (excluding HIV infection)	HIV infection CD4+ count ¹		Kidney failure, end-stage renal disease, on hemodialysis	Heart disease, chronic lung disease	CSF leaks/cochlear implants	Asplenia and persistent complement component deficiencies	Chronic liver disease	Diabetes
			<15% and total CD4 cell count of <200/mm ³	≥15% and total CD4 cell count of ≥200/mm ³						
Hepatitis B	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Rotavirus		Yellow with SCID ²	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Diphtheria, tetanus, & acellular pertussis (DTaP)		Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Haemophilus influenzae type b		Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots
Pneumococcal conjugate		Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots
Inactivated poliovirus	Orange	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Influenza (IIV) <i>or</i>	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Influenza (LAIV)	Red	Red	Red	Red	Orange	Red with Asthma, wheezing: 2-4yrs ³	Red	Red	Orange	Orange
Measles, mumps, rubella	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Varicella	Red	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Hepatitis A	Purple	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow with dots	Yellow with dots	Yellow with dots
Meningococcal ACWY	Purple	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow with dots	Yellow with dots	Yellow with dots
Tetanus, diphtheria, & acellular pertussis (Tdap)	Yellow with dots	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Human papillomavirus	Pink	Yellow with dots	Yellow with dots	Yellow with dots	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Meningococcal B	Orange	Purple	Purple	Purple	Purple	Purple	Purple	Yellow with dots	Purple	Purple
Pneumococcal polysaccharide	Purple	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots	Yellow with dots

 Vaccination according to the routine schedule recommended
  Recommended for persons with an additional risk factor for which the vaccine would be indicated
  Vaccination is recommended, and additional doses may be necessary based on medical condition. See Notes.
  Contraindicated or use not recommended—vaccine should not be administered because of risk for serious adverse reaction
  Precaution—vaccine might be indicated if benefit of protection outweighs risk of adverse reaction
  Delay vaccination until after pregnancy if vaccine indicated
  No recommendation

¹ For additional information regarding HIV laboratory parameters and use of live vaccines, see the General Best Practice Guidelines for Immunization "Altered Immunocompetence" at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html, and Table 4-1 (footnote D) at: www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html.
² Severe Combined Immunodeficiency
³ LAIV contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months.

For vaccine recommendations for persons 19 years of age and 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.
- For information on contraindications and precautions for the use of a vaccine, consult the General Best Practice Guidelines for Immunization and relevant ACIP statements at www.cdc.gov/vaccines/hcp/acip-recs/index.html.
- For calculating intervals between doses, 4 weeks = 28 days. Intervals of ≥ 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 ≤ 4 days before the minimum age or interval are considered valid. Doses of any vaccine administered ≥ 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.
- Information on travel vaccine requirements and recommendations is available at wwwnc.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, 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*. 31st 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.

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

Routine vaccination

- 5-dose series at 2, 4, 6, 15–18 months, 4–6 years
 - **Prospectively:** Dose 4 may be given as early as age 12 months if at least 6 months have elapsed since dose 3.
 - **Retrospectively:** A 4th dose that was inadvertently given 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.
- For other catch-up guidance, see Table 2.

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

Routine vaccination

- **ActHIB, Hiberix, or Pentacel:** 4-dose series at 2, 4, 6, 12–15 months
- **PedvaxHIB:** 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 PedvaxHIB 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
- 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 12 months: 2 doses, 8 weeks apart
 - 2 or more doses before 12 months: 1 dose at least 8 weeks after previous dose
Unvaccinated* persons age 5 years or older
 - 1 dose

- **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
 - 1 dose

- **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 (14 months or older)

Changes To The Notes Section

- Hepatitis A vaccine (Hep A)
- Hepatitis B vaccine (Hep B)
- Influenza Vaccine
- And tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap)
- Clarification of the recommendations for inactivated poliovirus (IPV).



Hepatitis A vaccination

(minimum age: 12 months for routine vaccination)

Routine vaccination

- 2-dose series (**Havrix** 6–12 months apart or **Vaqta** 6–18 months apart, minimum interval 6 months); a series begun before the 2nd birthday should be completed even if the child turns 2 before the second dose is administered.

Catch-up vaccination

- Anyone 2 years of age or older may receive HepA vaccine if desired. Minimum interval between doses: 6 months
- 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 (wwwnc.cdc.gov/travel/):
 - **Infants age 6–11 months:** 1 dose before departure; revaccinate with 2 doses, separated by 6–18 months, between 12 to 23 months of age.
 - **Unvaccinated age 12 months and older:** 1st dose as soon as travel considered

Special situations

At risk for hepatitis A infection: 2-dose series as above

- **Chronic liver disease**
- **Clotting factor disorders**
- **Men who have sex with men**
- **Injection or non-injection drug use**
- **Homelessness**
- **Work with hepatitis A virus** in research laboratory or nonhuman primates with hepatitis A infection
- **Travel** in countries with high or intermediate endemic hepatitis A
- **Close, personal contact with international adoptee** (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival)

- Adolescents 18 years and older can receive the combined HepA-HepB vaccine.
 - Twinrix- is a 3-dose series or 4-dose series
- International travel
 - Travelers 6-11 months of age are recommended to vaccinate with one dose before departure.
 - Revaccinate with 2 doses.
 - Unvaccinated travelers aged ≥ 12 months need 1 dose as soon as travel is considered.
- Homelessness is now considered an indication for hep A vaccination.

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

Routine vaccination

- 2-dose series (**Havrix** 6–12 months apart or **Vaqta** 6–18 months apart, minimum interval 6 months); a series begun before the 2nd birthday should be completed even if the child turns 2 before the second dose is administered.

Catch-up vaccination

- Anyone 2 years of age or older may receive HepA vaccine if desired. Minimum interval between doses: 6 months
- 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).

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 - **Unvaccinated age 12 months and older:** 1st dose as soon as travel considered

Special situations

At risk for hepatitis A infection: 2-dose series as above

- **Chronic liver disease**
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- **Men who have sex with men**
- **Injection or non-injection drug use**
- **Homelessness**
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- **Travel** in countries with high or intermediate endemic hepatitis A
- **Close, personal contact with international adoptee** (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival)

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 $\geq 2,000$ grams. Infants $< 2,000$ grams: administer 1 dose at chronological age 1 month or hospital discharge.

• Mother is HBsAg-positive:

- Administer **HepB vaccine** and **0.5 mL of hepatitis B immune globulin (HBIG)** (at separate anatomic sites) 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 **0.5 mL of HBIG** in addition to HepB vaccine 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 **0.5 mL of HBIG** to infants $\geq 2,000$ 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 (3rd or 4th) 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 (**Heplisav-B**) 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.

- The HepB note includes the use of single antigen, Heplisav-B (Hep B-CpG) vaccine and combination HepA-HepB vaccine in individuals 18 years or older.

- Hep B vaccine (Heplisav-B) is a 2-dose series separated with at least 4 weeks apart.

• Combination vaccine

- Twinrix: 3-dose series administered at (0, 1, and 6 months) or 4-dose series administered at (0, 7, and 21–30 days, followed by a dose at 12 months).

- Information can be found on page 6 of the schedule.

Inactivated 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 on or after the 4th birthday and at least 6 months after the previous dose.
- 4 or more doses of IPV can be administered before the 4th birthday when a combination vaccine containing IPV is used. However, a dose is still recommended after the 4th birthday 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?s_cid=mm6601a6_w.

Information found on page 6 of the schedule.

- LAIV can be used during the 2018–19 influenza season.
- A special situations section was added with information regarding vaccination of people with a history of egg allergy and circumstances under which LAIV use is not recommended.
- This information can be found on page 7 of the schedule.

Influenza vaccination

(minimum age: 6 months [IIV], 2 years [LAIV], 18 years [RIV])

Routine vaccination

- 1 dose any influenza vaccine appropriate for age and health status annually (2 doses separated by at least 4 weeks for **children 6 months–8 years** who did not receive at least 2 doses of influenza vaccine before July 1, 2018)

Special situations

- **Egg allergy, hives only:** Any influenza vaccine appropriate for age and health status annually
- **Egg allergy more severe than hives** (e.g., angioedema, respiratory distress): 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 conditions
- **LAIV should not be used for** those with a history of severe allergic reaction to any component of the vaccine (excluding egg) or to a previous dose of any influenza vaccine, children and adolescents receiving concomitant aspirin or salicylate-containing medications, children age 2 through 4 years with a history of asthma or wheezing, those who are immunocompromised due to any cause (including immunosuppression caused by medications and HIV infection), anatomic and functional asplenia, cochlear implants, cerebrospinal fluid-oro-pharyngeal communication, close contacts and caregivers of severely immunosuppressed persons who require a protected environment, pregnancy, and persons who have received influenza antiviral medications within the previous 48 hours.

Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine (Tdap)

- **Children age 7–10 years** who receive Tdap inadvertently or as part of the catch-up series should receive the routine Tdap dose at 11–12 years.
- Information on the use of Tdap or Td as tetanus prophylaxis in wound management, can be found in the following CDC link

<https://www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm>

- The above changes can be found on page 8 of the schedule.

Morbidity and Mortality Weekly Report (MMWR)

CDC



Prevention of Pertussis, Tetanus, and Diphtheria with Vaccines in the United States: Recommendations of the Advisory Committee on Immunization Practices (ACIP)

Recommendations and Reports / April 27, 2018 / 67(2);1–44

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Summary

This report compiles and summarizes all recommendations from CDC's Advisory Committee on Immunization Practices (ACIP) regarding prevention and control of tetanus, diphtheria, and pertussis in the United States. As a comprehensive summary of previously published recommendations, this report does not contain any new recommendations and replaces all previously published reports and policy notes; it is intended for use by clinicians and public health providers as a resource. ACIP recommends routine vaccination for tetanus, diphtheria, and pertussis. Infants and young children are recommended to receive a 5-dose series of diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccines, with one adolescent booster dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine. Adults who have never received Tdap also are recommended to receive a booster dose of Tdap. Women are recommended to receive a dose of Tdap during each pregnancy, which should be administered from 27 through 36 weeks' gestation, regardless of previous receipt of Tdap. After receipt of Tdap, adolescents and adults are recommended to receive a booster tetanus and diphtheria toxoids (Td) vaccine every 10 years to assure ongoing protection against tetanus and diphtheria.

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