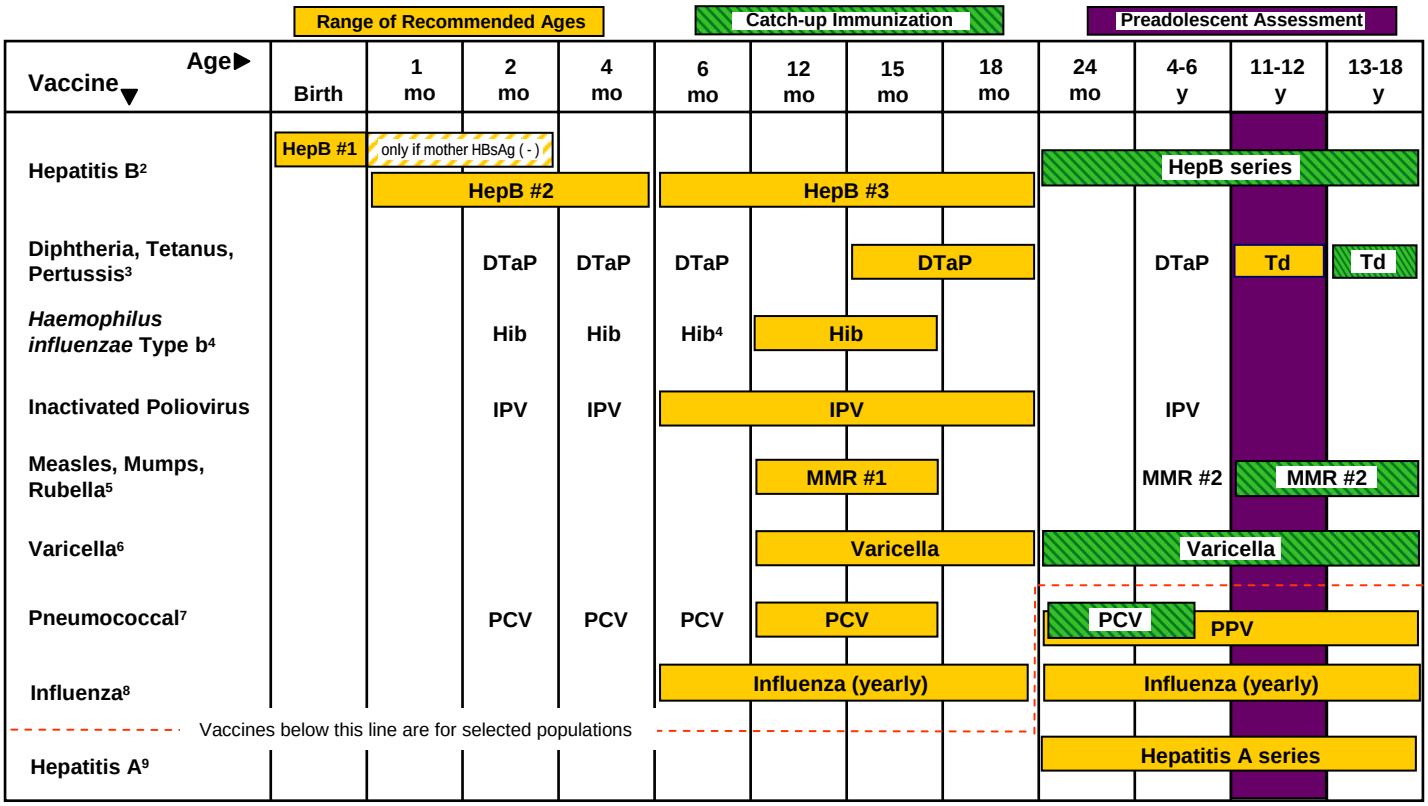
Recommended childhood and adolescent immunization schedule[1] — United States, July-December 2004



1. Indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of April 1, 2004, for children through age 18 years. Any dose not given at the recommended age should be given at any subsequent visit when indicated and feasible. ▨ Indicates age groups that warrant special effort to administer those vaccines not given previously. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and the vaccine's other components are not contraindicated. Providers should consult the manufacturers' package inserts for detailed recommendations. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at http://www.vaers.org/ or by telephone, 1-800-822-7967.

2. **Hepatitis B vaccine (HepB).** All infants should receive the first dose of HepB vaccine soon after birth and before hospital discharge; the first dose may also be given by age 2 months if the infant's mother is HBsAg-negative. Only monovalent HepB vaccine can be used for the birth dose. Monovalent or combination vaccine containing HepB may be used to complete the series; 4 doses of vaccine may be administered when a birth dose is given. The second dose should be given at least 4 weeks after the first dose except for combination vaccines, which cannot be administered before age 6 weeks. The third dose should be given at least 16 weeks after the first dose and at least 8 weeks after the second dose. The last dose in the vaccination series (third or fourth dose) should not be administered before age 24 weeks. Infants born to HBsAg-positive mothers should receive HepB vaccine and 0.5 mL hepatitis B immune globulin (HBIG) within 12 hours of birth at separate sites. The second dose is recommended at age 1-2 months. The last dose in the vaccination series should not be administered before age 24 weeks. These infants should be tested for HBsAg and anti-HBs at 9-15 months of age. Infants born to mothers whose HBsAg status is unknown should receive the first dose of the HepB vaccine series within 12 hours of birth. Maternal blood should be drawn as soon as possible to determine the mother's HBsAg status; if the HBsAg test is positive, the infant should receive HBIG as soon as possible (no later than age 1 week). The second dose is recommended at age 1-2 months. The last dose in the vaccination series should not be administered before age 24 weeks.

3. **Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP).** The fourth dose of DTaP may be administered at age 12 months provided that 6 months have elapsed since the third dose and the child is unlikely to return at age 15-18 months. The final dose in the series should be given at age ≥4 years. **Tetanus and diphtheria toxoids (Td)** is recommended at age 11-12 years if at least 5 years have elapsed since the last dose of tetanus and diphtheria toxoid-containing vaccine. Subsequent routine Td boosters are recommended every 10 years.

4. ***Haemophilus influenzae* type b (Hib) conjugate vaccine.** Three Hib conjugate vaccines are licensed for infant use. If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at age 6 months is not required. DTaP/Hib combination products should not be used for primary vaccination in infants at ages 2, 4, or 6 months but can be used as boosters after any Hib vaccine. The final dose in the series should be given at age ≥12 months.

5. **Measles, mumps, and rubella vaccine (MMR).** The second dose of MMR is recommended routinely at age 4-6 years but may be administered during any visit, provided at least 4 weeks have elapsed since the first dose and both doses are administered beginning at or after age 12 months. Those who have not received the second dose previously should complete the schedule by the visit at age 11-12 years.

6. **Varicella vaccine (VAR).** Varicella vaccine is recommended at any visit at or after age 12 months for susceptible children (i.e., those who lack a reliable history of chickenpox). Susceptible persons aged ≥13 years should receive 2 doses given at least 4 weeks apart.

7. **Pneumococcal vaccine.** The heptavalent **pneumococcal conjugate vaccine (PCV)** is recommended for all children aged 2-23 months. It is also recommended for certain children aged 24-59 months. The final dose in the series should be given at age ≥12 months. **Pneumococcal polysaccharide vaccine (PPV)** is recommended in addition to PCV for certain high-risk groups. See *MMWR* 2000;49(No. RR-9):1-35.

8. **Influenza vaccine.** Influenza vaccine is recommended annually for children aged ≥6 months with certain risk factors (including but not limited to asthma, cardiac disease, sickle cell disease, HIV, and diabetes), health care workers, and other persons (including household members) in close contact with persons in groups at high-risk (see CDC. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2004;53[No. RR-] (in press).) and can be administered to all others wishing to obtain immunity. In addition, healthy children aged 6-23 months and close contacts of healthy children aged 0-23 months are recommended to receive influenza vaccine, because children in this age group are at substantially increased risk of influenza-related hospitalizations. For healthy persons aged 5-49 years, the intranasally administered live, attenuated influenza vaccine (LAIV) is an acceptable alternative to the intramuscular trivalent inactivated influenza vaccine (TIV). See *MMWR* 2003;52(No. RR-13):1-8. Children receiving TIV should be administered a dosage appropriate for their age (0.25 mL if 6-35 months or 0.5 mL if ≥3 years). Children aged ≤8 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by at least 4 weeks for TIV and at least 6 weeks for LAIV).

9. **Hepatitis A vaccine.** Hepatitis A vaccine is recommended for children and adolescents in selected states and regions and for certain high-risk groups. Consult your local public health authority and *MMWR* 1999;48(No.RR-12):1-37. Children and adolescents in these states, regions, and high-risk groups who have not been immunized against hepatitis A can begin the hepatitis A vaccination series during any visit. The two doses in the series should be administered at least 6 months apart.

Additional information about vaccines, including precautions and contraindications for vaccination and vaccine shortages is available at http://www.cdc.gov/nip or from the National Immunization Information Hotline, 800-232-2522 (English) or 800-232-0233 (Spanish). Approved by the **Advisory Committee on Immunization Practices** (http://www.cdc.gov/nip/acip), the **American Academy of Pediatrics** (http://www.aap.org), and the **American Academy of Family Physicians** (http://www.aafp.org).

For Children and Adolescents Who Start Late or Who Are >1 Month Behind

The tables below give catch-up schedules and minimum intervals between doses for children who have delayed immunizations. There is no need to restart a vaccine series regardless of the time that has elapsed between doses. Use the chart appropriate for the child's age.

Catch-up schedule for children age 4 months through 6 years

Dose 1 (Minimum Age)	Minimum Interval Between Doses			
	Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
DTaP (6 wk)	**4 wk**	**4 wk**	**6 mo**	**6 mo**[1]
IPV (6 wk)	**4 wk**	**4 wk**	**4 wk**[2]	
HepB[3] (birth)	**4 wk**	**8 wk** (and 16 wk after first dose)		
MMR (12 mo)	**4 wk**[4]			
Varicella (12 mo)				
Hib[5] (6 wk)	**4 wk:** if first dose given at age <12 mo **8 wk (as final dose):** if first dose given at age 12-14 mo **No further doses needed:** if first dose given at age ≥15 mo	**4 wk**[6]**:** if current age <12 mo **8 wk (as final dose)**[6]**:** if current age ≥12 mo and second dose given at age <15 mo **No further doses needed:** if previous dose given at age ≥15 mo	**8 wk (as final dose):** this dose only necessary for children age 12 mo–5 y who received 3 doses before age 12 mo	
PCV[7]**:** (6 wk)	**4 wk:** if first dose given at age <12 mo and current age <24 mo **8 wk (as final dose):** if first dose given at age ≥12 mo or current age 24-59 mo **No further doses needed:** for healthy children if first dose given at age ≥24 mo	**4 wk:** if current age <12 mo **8 wk (as final dose):** if current age ≥12 mo **No further doses needed:** for healthy children if previous dose given at age ≥24 mo	**8 wk (as final dose):** this dose only necessary for children age 12 mo–5 y who received 3 doses before age 12 mo	

Catch-up schedule for children age 7 through 18 years

Minimum Interval Between Doses		
Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Booster Dose
Td: **4 wk**	**Td:** **6 mo**	**Td**[8]**:** **6 mo:** if first dose given at age <12 mo and current age <11 y **5 y:** if first dose given at age ≥12 mo and third dose given at age <7 y and current age ≥11 y **10 y:** if third dose given at age ≥7 y
IPV[9]**:** **4 wk**	**IPV**[9]**:** **4 wk**	**IPV**[2,9]
HepB: **4 wk**	**HepB:** **8 wk** (and 16 wk after first dose)	
MMR: **4 wk**		
Varicella[10]**:** **4 wk**		

1. **DTaP:** The fifth dose is not necessary if the fourth dose was given after the fourth birthday.
2. **IPV:** For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if third dose was given at age ≥4 years. If both OPV and IPV were given as part of a series, a total of 4 doses should be given, regardless of the child's current age.
3. **HepB:** All children and adolescents who have not been immunized against hepatitis B should begin the HepB immunization series during any visit. Providers should make special efforts to immunize children who were born in, or whose parents were born in, areas of the world where hepatitis B virus infection is moderately or highly endemic.
4. **MMR:** The second dose of MMR is recommended routinely at age 4 to 6 years but may be given earlier if desired.
5. **Hib:** Vaccine is not generally recommended for children age ≥5 years.
6. **Hib:** If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB or ComVax [Merck]), the third (and final) dose should be given at age 12 to 15 months and at least 8 weeks after the second dose.
7. **PCV:** Vaccine is not generally recommended for children age ≥5 years.
8. **Td:** For children age 7 to 10 years, the interval between the third and booster dose is determined by the age when the first dose was given. For adolescents age 11 to 18 years, the interval is determined by the age when the third dose was given.
9. **IPV:** Vaccine is not generally recommended for persons age ≥18 years.
10. **Varicella:** Give 2-dose series to all susceptible adolescents age ≥13 years.

Reporting Adverse Reactions
Report adverse reactions to vaccines through the federal Vaccine Adverse Event Reporting System. For information on reporting reactions following immunization, please visit www.vaers.org or call the 24-hour national toll-free information line (800) 822-7967.

Disease Reporting
Report suspected cases of vaccine-preventable diseases to your state or local health department.

For additional information about vaccines, including precautions and contraindications for immunization and vaccine shortages, please visit the National Immunization Program Web site at www.cdc.gov/nip or call the National Immunization Information Hotline at 800-232-2522 (English) or 800-232-0233 (Spanish).