

FIGURE. Recommended childhood and adolescent immunization schedule,¹ by vaccine and age — United States, 2005

Vaccine	Birth	1 mo	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	24 mos	4–6 yrs	11–12 yrs	13–18 yrs
Hepatitis B ²	HepB #1	only if mother HBsAg (-)	HepB #2		HepB #3							HepB series
Diphtheria, tetanus, pertussis ³			DTaP	DTaP	DTaP		DTaP			DTaP	Td	Td
<i>Haemophilus influenzae</i> type b ⁴			Hib	Hib	Hib ⁴	Hib						
Inactivated poliovirus			IPV	IPV		IPV				IPV		
Measles, mumps, rubella ⁵						MMR #1				MMR #2		MMR #2
Varicella ⁶						Varicella				Varicella		
Pneumococcal ⁷			PCV	PCV	PCV	PCV			PCV	PPV		
Influenza ⁸						Influenza (yearly)				Influenza (yearly)		
Hepatitis A ⁹												Hepatitis A series

--- Vaccines below red line are for selected populations ---

Range of recommended ages
 Catch-up immunization
 Preadolescent assessment

1. This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2004, for children aged ≤18 years. Any dose not administered at the recommended age should be administered at any subsequent visit when indicated and feasible. Indicates age groups that warrant special effort to administer those vaccines not previously administered. Additional vaccines might be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated. Providers should consult package inserts for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System; guidance is available at <http://www.vaers.org> or by telephone, 800-822-7967.

2. **Hepatitis B (HepB) vaccine.** All infants should receive the first dose of HepB vaccine soon after birth and before hospital discharge; the first dose may also be administered by age 2 months if the mother is hepatitis B surface antigen (HBsAg) negative. Only monovalent HepB may be used for the birth dose. Monovalent or combination vaccine containing HepB may be used to complete the series. Four doses of vaccine may be administered when a birth dose is administered. The second dose should be administered 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 administered at least 16 weeks after the first dose and at least 8 weeks after the second dose. The final 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 and 0.5 mL of hepatitis B immune globulin (HBIG) at separate sites within 12 hours of birth. The second dose is recommended at age 1–2 months. The final dose in the immunization series should not be administered before age 24 weeks. These infants should be tested for HBsAg and antibody to HBsAg at age 9–15 months. **Infants born to mothers whose HBsAg status is unknown** should receive the first dose of the HepB 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 immunization series should not be administered before age 24 weeks.

3. **Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine.** The fourth dose of DTaP may be administered as early as age 12 months, provided 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 administered 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 immunization 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 administered at age ≥12 months.

5. **Measles, mumps, and rubella (MMR) vaccine.** 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 previously received the second dose should complete the schedule by age 11–12 years.

6. **Varicella vaccine.** 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 administered at least 4 weeks apart.

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

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, human immunodeficiency virus [HIV], and diabetes), health-care workers, and other persons (including household members) in close contact with persons in groups at high risk (see *MMWR* 2004;53[No. RR-6]). 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 for 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* 2004;53(No. RR-6). Children receiving TIV should be administered a dosage appropriate for their age (0.25 mL if aged 6–35 months or 0.5 mL if aged ≥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 groups at high risk; consult your local public health authority. Children and adolescents in these states, regions, and groups who have not been immunized against hepatitis A can begin the hepatitis A immunization series during any visit. The 2 doses in the series should be administered at least 6 months apart. See *MMWR* 1999;48(No. RR-12).