

# Recommended Childhood and Adolescent Immunization Schedule -- United States, 2003

Vaccine	Age	range of recommended ages				catch-up vaccination				preadolescent assessment			
		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 <sup>1</sup>		HepB #1	only if mother HBsAg (-)										
			HepB #2		HepB #3				HepB series				
Diphtheria, Tetanus, Pertussis <sup>2</sup>			DTaP	DTaP	DTaP		DTaP			DTaP		Td	
<i>Haemophilus influenzae</i> Type b <sup>3</sup>			Hib	Hib	Hib		Hib						
Inactivated Polio			IPV	IPV	IPV				IPV				
Measles, Mumps, Rubella <sup>4</sup>						MMR #1			MMR #2		MMR #2		
Varicella <sup>5</sup>						Varicella			Varicella				
Pneumococcal <sup>6</sup>			PCV	PCV	PCV	PCV			PCV		PPV		
----- Vaccines below this line are for selected populations -----													
Hepatitis A <sup>7</sup>									Hepatitis A series				
Influenza <sup>8</sup>					Influenza (yearly)								

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2002, 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 previously given. 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.

**1. Hepatitis B vaccine (HepB).** All infants should receive the first dose of hepatitis B 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 can 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 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 6 months.

Infants born to HBsAg-positive mothers should receive HepB 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 6 months. 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 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 6 months.

**2. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP).** 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. **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.

**3. *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 following any Hib vaccine.

**4. 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 that 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 the 11-12 year old visit.

**5. 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 two doses, given at least 4 weeks apart.

**6. Pneumococcal vaccine.** The heptavalent pneumococcal conjugate vaccine (PCV) is recommended for all children age 2-23 months. It is also recommended for certain children age 24-59 months. **Pneumococcal polysaccharide vaccine (PPV)** is recommended in addition to PCV for certain high-risk groups. See *MMWR* 2000;49(RR-9);1-38.

**7. 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. 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. See *MMWR* 1999;48(RR-12);1-37.

**8. Influenza vaccine.** Influenza vaccine is recommended annually for children age ≥6 months with certain risk factors (including but not limited to asthma, cardiac disease, sickle cell disease, HIV, diabetes, and household members of persons in groups at high risk; see *MMWR* 2002;51(RR-3);1-31), and can be administered to all others wishing to obtain immunity. In addition, healthy children age 6-23 months are encouraged to receive influenza vaccine if feasible because children in this age group are at substantially increased risk for influenza-related hospitalizations. Children aged ≤12 years should receive vaccine in a dosage appropriate for their age (0.25 mL if age 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 two doses separated by at least 4 weeks.

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

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

Tables 1 and 2 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.

**Table 1. Catch-up schedule for children age 4 months through 6 years**

Dose One (Minimum Age)	Minimum Interval Between Doses			
	Dose One to Dose Two	Dose Two to Dose Three	Dose Three to Dose Four	Dose Four to Dose Five
<b>DTaP</b> (6 wks)	<b>4 weeks</b>	<b>4 weeks</b>	<b>6 months</b>	<b>6 months<sup>1</sup></b>
<b>IPV</b> (6 wks)	<b>4 weeks</b>	<b>4 weeks</b>	<b>4 weeks<sup>2</sup></b>	
<b>HepB<sup>3</sup></b> (birth)	<b>4 weeks</b>	<b>8 weeks</b> (and 16 weeks after first dose)		
<b>MMR</b> (12 mos)	<b>4 weeks<sup>4</sup></b>			
<b>Varicella</b> (12 mos)				
<b>Hib<sup>5</sup></b> (6 wks)	<b>4 weeks:</b> if 1 <sup>st</sup> dose given at age <12 mos <b>8 weeks (as final dose):</b> if 1 <sup>st</sup> dose given at age 12-14 mos <b>No further doses needed:</b> if first dose given at age ≥15 mos	<b>4 weeks<sup>6</sup>:</b> if current age <12 mos <b>8 weeks (as final dose)<sup>6</sup>:</b> if current age ≥12 mos and 2 <sup>nd</sup> dose given at age <15 mos <b>No further doses needed:</b> if previous dose given at age ≥15 mos	<b>8 weeks (as final dose):</b> this dose only necessary for children age 12 mos - 5 yrs who received 3 doses before age 12 mos	
<b>PCV<sup>7</sup>:</b> (6 wks)	<b>4 weeks:</b> if 1 <sup>st</sup> dose given at age <12 mos and current age <24 mos <b>8 weeks (as final dose):</b> if 1 <sup>st</sup> dose given at age ≥ 12 mos or current age 24-59 mos <b>No further doses needed:</b> for healthy children if 1 <sup>st</sup> dose given at age ≥24 mos	<b>4 weeks:</b> if current age <12 mos <b>8 weeks (as final dose):</b> if current age ≥12 mos <b>No further doses needed:</b> for healthy children if previous dose given at age ≥24 mos	<b>8 weeks (as final dose):</b> this dose only necessary for children age 12 mos – 5 yrs who received 3 doses before age 12 mos	

**Table 2. Catch-up schedule for children age 7 through 18 years**

Minimum Interval Between Doses		
Dose One to Dose Two	Dose Two to Dose Three	Dose Three to Booster Dose
<b>Td:</b> 4weeks	<b>Td:</b> 6 months	<b>Td<sup>8</sup>:</b> <b>6 months:</b> if 1 <sup>st</sup> dose given at age <12 mos and current age <11 yrs <b>5 years:</b> if 1 <sup>st</sup> dose given at age ≥12 mos and 3 <sup>rd</sup> dose given at age <7 yrs and current age ≥11 yrs <b>10 years:</b> if 3 <sup>rd</sup> dose given at age ≥7 yrs
<b>IPV<sup>9</sup>:</b> 4 weeks	<b>IPV<sup>9</sup>:</b> 4 weeks	<b>IPV<sup>9</sup></b>
<b>HepB:</b> 4 weeks	<b>HepB:</b> 8 weeks (and 16 weeks after first dose)	
<b>MMR:</b> 4 weeks		
<b>Varicella<sup>10</sup>:</b> 4 weeks		

- DTaP:** The fifth dose is not necessary if the fourth dose was given after the 4th birthday.
- IPV:** For children who received an all-IPV or all-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 four doses should be given, regardless of the child's current age.
- HepB:** All children and adolescents who have not been immunized against hepatitis B should begin the hepatitis B vaccination 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.
- MMR:** The second dose of MMR is recommended routinely at age 4-6 years, but may be given earlier if desired.
- Hib:** Vaccine is not generally recommended for children age ≥5 years.
- Hib:** If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB or ComVax), the third (and final) dose should be given at age 12-15 months and at least 8 weeks after the second dose.
- PCV:** Vaccine is not generally recommended for children age ≥5 years.
- Td:** For children age 7-10 years, the interval between the third and booster dose is determined by the age when the first dose was given. For adolescents age 11-18 years, the interval is determined by the age when the third dose was given.
- IPV:** Vaccine is not generally recommended for persons age ≥18 years.
- 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 vaccines, please visit [www.vaers.org](http://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.

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