



Recommended Childhood and Adolescent Immunization Schedule — United States, January–June 2004

Weekly

January 16, 2004 / Vol. 53 / No. 1

Each year, CDC's Advisory Committee on Immunization Practices (ACIP) reviews the recommended childhood and adolescent immunization schedule to ensure that it is current with changes in manufacturers' vaccine formulations and reflects revised recommendations for the use of licensed vaccines, including those newly licensed. The recommended childhood and adolescent immunization schedule for January–June 2004 (Figure), recommendations, and format have been approved by ACIP, the American Academy of Family Physicians, and the American Academy of Pediatrics.

Catch-Up Childhood and Adolescent Immunization Schedule

A catch-up immunization schedule for children and adolescents who start late or who are >1 month behind was introduced in 2003 (1) and remains the same (Table). Minimum ages and minimum intervals between doses are provided for each of the routinely recommended childhood and adolescent vaccines. The schedule is divided into two age groups: children aged 4 months–6 years and children/adolescents aged 7–18 years.

Hepatitis B Vaccine

The schedule indicates a change in the recommendation for the minimum age for the last dose in the hepatitis B vaccination schedule. The last dose in the vaccination series should not be administered before age 24 weeks (updating the previous recommendation not to administer the last dose before age 6 months).

Adolescent Tetanus and Diphtheria Toxoids (Td) Vaccine

The range of recommended ages for the adolescent Td vaccine dose has been updated to emphasize a preference for

vaccinating at ages 11–12 years with ages 13–18 years to serve as a catch-up interval.

Clarification Regarding Certain Final Doses

Clarification was added to the footnotes regarding the timing of the final vaccine doses in the series for diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine, *Haemophilus influenzae* type b (Hib) conjugate vaccine, and pneumococcal conjugate vaccine (PCV). The final dose in the DTaP series should be given at age ≥ 4 years. The final doses in the Hib and PCV series should be given at age ≥ 12 months.

Influenza Vaccine

Healthy children aged 6–23 months are encouraged to receive influenza vaccine when feasible during the 2003–2004 influenza season. Children in this age group are at substantially increased risk for influenza-related hospitalizations (2). ACIP has indicated further that beginning in fall 2004, children aged 6–23 months will be recommended to receive annual influenza vaccine. An updated childhood and adolescent immunization schedule for July–December 2004 will be released to reflect this change.

An intranasally administered, live, attenuated influenza vaccine (LAIV) was approved for use in the United States in June 2003. For healthy persons aged 5–49 years, LAIV is an acceptable alternative to the intramuscular trivalent inactivated influenza vaccine (TIV) (3).

Vaccine Information Statements


The National Childhood Vaccine Injury Act requires that all health-care providers give parents or patients copies of Vaccine Information Statements before administering each dose of the vaccines listed in the schedule. Additional information is available from state health departments and at <http://www.cdc.gov/nip/publications/vis>. Detailed recommendations for using vaccines are available from the manufacturers' package inserts, ACIP statements on specific vaccines, and the 2003 *Red Book* (4). ACIP statements for each recommended childhood vaccine can be viewed, downloaded, and printed from

The Recommended Childhood and Adolescent Immunization Schedule and the Catch-up Childhood and Adolescent Immunization Schedule have been adopted by the Advisory Committee on Immunization Practices, the Academy of Pediatrics, and the Academy of Family Physicians. The standard *MMWR* footnote format has been modified for joint publication of this harmonized schedule.

Suggested citation: Centers for Disease Control and Prevention. Recommended Childhood and Adolescent Immunization Schedule—United States, 2004. *MMWR* 2004;53:Q1–4.

FIGURE. Recommended childhood and adolescent immunization schedule¹ — United States, January–June 2004

Vaccine	Range of recommended ages				Catch-up vaccination				Preadolescent assessment			
	Birth	1 mo	2 mo	4 mo	6 mo	12 mo	15 mo	18 mo	24 mo	4–6 y	11–12 y	13–18 y
Hepatitis B²	HepB #1	only if mother HBsAg (-)	HepB #2			HepB #3				HepB series		
Diphtheria, Tetanus, Pertussis			DTaP	DTaP	DTaP		DTaP			DTaP	Td	Td
<i>Haemophilus influenzae</i> type b⁴			Hib	Hib	Hib ⁴		Hib					
Inactivated Polio			IPV	IPV		IPV				IPV		
Measles, Mumps, Rubella⁵						MMR #1				MMR #2	MMR #2	
Varicella⁶						Varicella				Varicella		
Pneumococcal⁷			PCV	PCV	PCV	PCV				PCV	PPV	
Hepatitis A⁸										HepA series		
Influenza⁹						Influenza (yearly)						

1. Indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2003, 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 on how to obtain and complete a VAERS form is available at <http://www.vaers.org> or by telephone, 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 also may 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 age 9–15 months. 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.

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, telephone 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>).

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 that 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 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 and 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. **Hepatitis A vaccine.** Hepatitis A vaccine is recommended for children and adolescents in selected states and regions, and for certain high-risk groups. Consult 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 vaccinated 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.

9. **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), and household members of persons in groups at high risk (see *MMWR* 2003;52[No. RR-8]:1–36), and can be administered to all others wishing to obtain immunity. In addition, healthy children aged 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. 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).

TABLE. Catch-up immunization schedule for children and adolescents who start late or who are >1 month behind

Catch-up schedule for children aged 4 months–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 1 st dose)		
MMR (12 mo)	4 wk ⁴			
VAR (12 mo)				
Hib ⁵ (6 wk)	4 wk: if 1 st dose given at age <12 mo 8 wk (as final dose): if 1 st dose given at age 12–14 mo No further doses needed: if 1 st 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 2 nd 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 aged 12 mo–5 y who received 3 doses before age 12 mo	
PCV ⁷ (6 wk)	4 wk: if 1 st dose given at age <12 mo and current age <24 mo 8 wk (as final dose): if 1 st dose given at age ≥12 mo or current age 24–59 mo No further doses needed: for healthy children if 1 st 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 aged 12 mo–5 y who received 3 doses before age 12 mo	

Catch-up schedule for children aged 7–18 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 1 st dose given at age <12 mo and current age <11 y 5 y: if 1 st dose given at age ≥12 mo and 3 rd dose given at age <7 y and current age ≥11 y 10 y: if 3 rd 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 1 st dose)	
MMR: 4 wk		
VAR ¹⁰ : 4 wk		

Note: A vaccine series does not require restarting, regardless of the time that has elapsed between doses.

- Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP):** The fifth dose is not necessary if the fourth dose was given after the fourth birthday.
- Inactivated polio vaccine (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.
- Hepatitis B vaccine (HepB):** All children and adolescents who have not been vaccinated 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.
- Measles, mumps, and rubella vaccine (MMR):** The second dose of MMR is recommended routinely at age 4–6 years, but may be given earlier if desired.
- Haemophilus influenzae type b (Hib) conjugate vaccine:** Vaccine generally is not recommended for children aged ≥5 years.
- Hib:** If current age is <12 months and the first 2 doses were PRP-OMP (PedvaxHIB® or ComVax® [Merck]), the third (and final) dose should be given at age 12–15 months and at least 8 weeks after the second dose.
- Pneumococcal conjugate vaccine (PCV):** Vaccine generally is not recommended for children aged ≥5 years.
- Tetanus and diphtheria toxoids (Td):** For children aged 7–10 years, the interval between the third and booster dose is determined by the age when the first dose was given. For adolescents aged 11–18 years, the interval is determined by the age when the third dose was given.
- IPV:** Vaccine generally is not recommended for persons aged ≥18 years.
- Varicella vaccine (VAR):** Give 2-dose series to all susceptible adolescents aged ≥13 years.

Reporting adverse reactions. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance on completing a VAERS form is available at <http://www.vaers.org> or at telephone, 800-822-7967. **Disease reporting.** Suspected cases of vaccine-preventable diseases should be reported to state or local health departments. Additional information about vaccines, including precautions and contraindications for vaccination and vaccine shortages, is available at <http://www.cdc.gov/nip> or at the National Immunization information hotline, telephone 800-232-2522 (English) or 800-232-0233 (Spanish).

CDC's National Immunization Program website at <http://www.cdc.gov/nip/publications/acip-list.htm>; instructions on the use of the Vaccine Information Statements are available at <http://www.cdc.gov/nip/publications/vis/vis-instructions.pdf>. In addition, guidance on how to obtain and complete a Vaccine Adverse Event Reporting System (VAERS) form is available at <http://www.vaers.org> or by telephone, 800-822-7967.

References

1. CDC. Recommended childhood and adolescent immunization schedule. MMWR 2003;52:Q1-4.
2. CDC. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2003;52(No. RR-8).
3. CDC. Using live, attenuated influenza vaccine for prevention and control of influenza: supplemental recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2003;52(No. RR-13).
4. American Academy of Pediatrics. Active and passive immunization. In: Pickering LK, ed. 2003 Red Book: Report of the Committee on Infectious Diseases, 26th ed. Elk Grove Village, Illinois: American Academy of Pediatrics, 2003.

boostershot.

Need help? MMWR Online is ready.
Visit cdc.gov/mmwr, and access important
health information when and where you need it.

From the latest ACIP recommendations and immunization
schedules, to useful continuing education courses,
MMWR Online makes it easier for you to
know what matters.

Log on and sign up to receive MMWR by e-mail, free of charge.
You'll enjoy pain-free electronic delivery of all MMWR
publications, including MMWR Dispatch—the
best way to get breaking health news fast.

MMWR Online
The boost you need—right on schedule.

know what matters.

