

Child and Adolescent Immunization Schedule Update, 2015

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2015 Childhood Immunization Schedules:

Changes:

0 through 18 years

Catch-up

Footnotes

Job Aids

Figure 1. Recommended immunization schedule for persons aged 0 through 18 years – United States, 2015.

(FOR THOSE WHO FALL BEHIND OR START LATE, SEE THE CATCH-UP SCHEDULE (FIGURE 2)).

These recommendations must be read with the footnotes 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 Figure 1. To determine minimum intervals between doses, see the catch-up schedule (Figure 2). School entry and adolescent vaccine age groups are shaded.

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	16–18 yrs	
Hepatitis B ¹ (HepB)	1 st dose	← 2 nd dose →		← 3 rd dose →						[Green bar]							
Rotavirus ² (RV) RV1 (2-dose series); RV5 (3-dose series)			1 st dose	2 nd dose	See footnote 2												
Diphtheria, tetanus, & acellular pertussis ³ (DTaP: <7 yrs)			1 st dose	2 nd dose	3 rd dose	[Green bar]		← 4 th dose →		[Green bar]		5 th dose					
Tetanus, diphtheria, & acellular pertussis ⁴ (Tdap: ≥7 yrs)														(Tdap)	[Green bar]		
<i>Haemophilus influenzae</i> type b ⁵ (Hib)			1 st dose	2 nd dose	See footnote 5		← 3 rd or 4 th dose, See footnote 5 →		[Green bar]								
Pneumococcal conjugate ⁶ (PCV13)			1 st dose	2 nd dose	3 rd dose	[Green bar]		← 4 th dose →		[Green bar]							
Pneumococcal polysaccharide ⁶ (PPSV23)										[Purple bar]							
Inactivated poliovirus ⁷ (IPV: <18 yrs)			1 st dose	2 nd dose	← 3 rd dose →				[Green bar]		4 th dose	[Green bar]					
Influenza ⁸ (IIV; LAIV) 2 doses for some: See footnote 8					Annual vaccination (IIV only) 1 or 2 doses						Annual vaccination (LAIV or IIV) 1 or 2 doses		Annual vaccination (LAIV or IIV) 1 dose only				
Measles, mumps, rubella ⁹ (MMR)		← See footnote 9 →				← 1 st dose →		[Green bar]		[Green bar]		2 nd dose	[Green bar]				
Varicella ¹⁰ (VAR)							← 1 st dose →		[Green bar]		[Green bar]		2 nd dose	[Green bar]			
Hepatitis A ¹¹ (HepA)							← 2-dose series, See footnote 11 →				[Purple bar]						
Human papillomavirus ¹² (HPV2: females only; HPV4: males and females)														(3-dose series)		[Green bar]	
Meningococcal ¹³ (Hib-MenCY ≥ 6 weeks; MenACWY-D ≥ 9 mos; MenACWY-CRM ≥ 2 mos)		See footnote 13										[Green bar]		1 st dose	[Green bar]	Booster	

 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 during which catch-up is encouraged and for certain high-risk groups
 Not routinely recommended

This schedule includes recommendations in effect as of January 1, 2015. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (<http://www.vaers.hhs.gov>) or by telephone (800-822-7967). Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for vaccination, is available from CDC online (<http://www.cdc.gov/vaccines/recs/vac-admin/contraindications.htm>) or by telephone (800-CDC-INFO [800-232-4636]).

This schedule is approved by the Advisory Committee on Immunization Practices (<http://www.cdc.gov/vaccines/acip>), the American Academy of Pediatrics (<http://www.aap.org>), the American Academy of Family Physicians (<http://www.aafp.org>), and the American College of Obstetricians and Gynecologists (<http://www.acog.org>).

NOTE: The above recommendations must be read along with the footnotes of this schedule.

FIGURE 2. Catch-up immunization schedule for persons aged 4 months through 18 years who start late or who are more than 1 month behind —United States, 2015.

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 Figure 1 and the footnotes 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 ¹	Birth	4 weeks	8 weeks and at least 16 weeks after first dose. Minimum age for the final dose is 24 weeks.		
Rotavirus ²	6 weeks	4 weeks	4 weeks ²		
Diphtheria, tetanus, and acellular pertussis ³	6 weeks	4 weeks	4 weeks	6 months	6 months ³
Haemophilus influenzae type b ⁵	6 weeks	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 first dose was administered at age 15 months or older.	4 weeks ⁵ 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) or unknown. 8 weeks and age 12 through 59 months (as final dose) ⁵ • 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. No further doses needed if previous dose was administered at age 15 months or older.	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 ⁶	6 weeks	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 first 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. No further doses needed for healthy children if previous dose administered at age 24 months or older.	8 weeks (as final dose) This dose only necessary for children aged 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 ⁷	6 weeks	4 weeks ⁷	4 weeks ⁷	6 months ⁷ (minimum age 4 years for final dose).	
Meningococcal ¹³	6 weeks	8 weeks ¹³	See footnote 13	See footnote 13	
Measles, mumps, rubella ⁹	12 months	4 weeks			
Varicella ¹⁰	12 months	3 months			
Hepatitis A ¹¹	12 months	6 months			
Children and adolescents age 7 through 18 years					
Tetanus, diphtheria, tetanus, pertussis, and acellular pertussis ³	7 years ⁴	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 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 ¹²	9 years		Routine dosing intervals are recommended. ¹²		
Hepatitis A ¹¹	Not applicable (N/A)	6 months			
Hepatitis B ¹	N/A	4 weeks	8 weeks and at least 16 weeks after first dose.		
Inactivated poliovirus ⁷	N/A	4 weeks	4 weeks ⁷	6 months ⁷	
Meningococcal ¹³	N/A	8 weeks ¹³			
Measles, mumps, rubella ⁹	N/A	4 weeks			
Varicella ¹⁰	N/A	3 months if younger than age 13 years. 4 weeks if age 13 years or older.			

NOTE: The above recommendations must be read along with the footnotes of this schedule.

Footnotes — Recommended immunization schedule for persons aged 0 through 18 years—United States, 2015

For further guidance on the use of the vaccines mentioned below, see: <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>.

For vaccine recommendations for persons 19 years of age and older, see the Adult Immunization Schedule.

Additional information

- For contraindications and precautions to use of a vaccine and for additional information regarding that vaccine, vaccination providers should consult the relevant ACIP statement available online at <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>.
- For purposes of calculating intervals between doses, 4 weeks = 28 days. Intervals of 4 months or greater are determined by calendar months.
- Vaccine doses administered 4 days or less before the minimum interval are considered valid. Doses of any vaccine administered ≥ 5 days earlier than the minimum interval or minimum age should not be counted as valid doses 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 *MMWR, General Recommendations on Immunization and Reports / Vol. 60 / No. 2; Table 1. Recommended and minimum ages and intervals between vaccine doses* available online at <http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf>.
- Information on travel vaccine requirements and recommendations is available at <http://wwwnc.cdc.gov/travel/destinations/list>.
- For vaccination of persons with primary and secondary immunodeficiencies, see Table 13, "Vaccination of persons with primary and secondary immunodeficiencies," in *General Recommendations on Immunization (ACIP)*, available at <http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf>; and American Academy of Pediatrics. "Immunization in Special Clinical Circumstances," in Pickering LK, Baker CJ, Kimberlin DW, Long SS eds. *Red Book: 2012 report of the Committee on Infectious Diseases. 29th ed.* Elk Grove Village, IL: American Academy of Pediatrics.

1. Hepatitis B (HepB) vaccine. (Minimum age: birth)

Routine vaccination:

At birth:

- Administer monovalent HepB vaccine to all newborns before hospital discharge.
- For infants born to hepatitis B surface antigen (HBsAg)-positive mothers, administer HepB vaccine and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth. These infants should be tested for HBsAg and antibody to HBsAg (anti-HBs) 1 to 2 months after completion of the HepB series at age 9 through 18 months (preferably at the next well-child visit).
- If mother's HBsAg status is unknown, within 12 hours of birth administer HepB vaccine regardless of birth weight. For infants weighing less than 2,000 grams, administer HBIG in addition to HepB vaccine within 12 hours of birth. Determine mother's HBsAg status as soon as possible and, if mother is HBsAg-positive, also administer HBIG for infants weighing 2,000 grams or more as soon as possible, but no later than age 7 days.

Doses following the birth dose:

- The second dose should be administered at age 1 or 2 months. Monovalent HepB vaccine should be used for doses administered before age 6 weeks.
- Infants who did not receive a birth dose should receive 3 doses of a HepB-containing vaccine on a schedule of 0, 1 to 2 months, and 6 months starting as soon as feasible. See Figure 2.
- Administer the second dose 1 to 2 months after the first dose (minimum interval of 4 weeks), administer the third dose at least 8 weeks after the second dose AND at least 16 weeks after the first dose. The final (third or fourth) dose in the HepB vaccine series should be administered **no earlier than age 24 weeks**.
- Administration of a total of 4 doses of HepB vaccine is permitted when a combination vaccine containing HepB is administered after the birth dose.

Catch-up vaccination:

- Unvaccinated persons should complete a 3-dose series.
- A 2-dose series (doses separated by at least 4 months) of adult formulation Recombivax HB is licensed for use in children aged 11 through 15 years.
- For other catch-up guidance, see Figure 2.

2. Rotavirus (RV) vaccines. (Minimum age: 6 weeks for both RV1 [Rotarix] and RV5 [RotaTeq])

Routine vaccination:

Administer a series of RV vaccine to all infants as follows:

1. If Rotarix is used, administer a 2-dose series at 2 and 4 months of age.
2. If RotaTeq is used, administer a 3-dose series at ages 2, 4, and 6 months.
3. If any dose in the series was RotaTeq or vaccine product is unknown for any dose in the series, a total of 3 doses of RV vaccine should be administered.

Catch-up vaccination:

- The maximum age for the first dose in the series is 14 weeks, 6 days; vaccination should not be initiated for infants aged 15 weeks, 0 days or older.
- The maximum age for the final dose in the series is 8 months, 0 days.
- For other catch-up guidance, see Figure 2.

3. Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine. (Minimum age: 6 weeks. Exception: DTaP-IPV [Kinrix]: 4 years)

Routine vaccination:

- Administer a 5-dose series of DTaP vaccine at ages 2, 4, 6, 15 through 18 months, and 4 through 6 years. The fourth dose may be administered as early as age 12 months, provided at least 6 months have elapsed since the third dose. However, the fourth dose of DTaP need not be repeated if it was administered at least 4 months after the third dose of DTaP.

3. Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine (cont'd)

Catch-up vaccination:

- The fifth dose of DTaP vaccine is not necessary if the fourth dose was administered at age 4 years or older.
- For other catch-up guidance, see Figure 2.

4. Tetanus and diphtheria toxoids and acellular pertussis (Tdap) vaccine. (Minimum age: 10 years for both Boostrix and Adacel)

Routine vaccination:

- Administer 1 dose of Tdap vaccine to all adolescents aged 11 through 12 years.
- Tdap may be administered regardless of the interval since the last tetanus and diphtheria toxoid-containing vaccine.
- Administer 1 dose of Tdap vaccine to pregnant adolescents during each pregnancy (preferred during 27 through 36 weeks' gestation) regardless of time since prior Td or Tdap vaccination.

Catch-up vaccination:

- Persons aged 7 years and older who are not fully immunized with DTaP vaccine should receive Tdap vaccine as 1 dose (preferably the first) in the catch-up series; if additional doses are needed, use Td vaccine. For children 7 through 10 years who receive a dose of Tdap as part of the catch-up series, an adolescent Tdap vaccine dose at age 11 through 12 years should NOT be administered. Td should be administered instead 10 years after the Tdap dose.
- Persons aged 11 through 18 years who have not received Tdap vaccine should receive a dose followed by tetanus and diphtheria toxoid (Td) booster doses every 10 years thereafter.
- Inadvertent doses of DTaP vaccine:
 - If administered inadvertently to a child aged 7 through 10 years may count as part of the catch-up series. This dose may count as the adolescent Tdap dose, or the child can later receive a Tdap booster dose at age 11 through 12 years.
 - If administered inadvertently to an adolescent aged 11 through 18 years, the dose should be counted as the adolescent Tdap booster.
- For other catch-up guidance, see Figure 2.

5. Haemophilus influenzae type b (Hib) conjugate vaccine. (Minimum age: 6 weeks for PRP-T [ACTHIB, DTaP-IPV/Hib (Pentacel) and Hib-MenCY (MenHibrix)], PRP-OMP [PedvaxHIB or COMVAX], 12 months for PRP-T [Hiberix])

Routine vaccination:

- Administer a 2- or 3-dose Hib vaccine primary series and a booster dose (dose 3 or 4 depending on vaccine used in primary series) at age 12 through 15 months to complete a full Hib vaccine series.
- The primary series with ActHib, MenHibrix, or Pentacel consists of 3 doses and should be administered at 2, 4, and 6 months of age. The primary series with PedvaxHib or COMVAX consists of 2 doses and should be administered at 2 and 4 months of age; a dose at age 6 months is not indicated.
- One booster dose (dose 3 or 4 depending on vaccine used in primary series) of any Hib vaccine should be administered at age 12 through 15 months. An exception is Hiberix vaccine. Hiberix should only be used for the booster (final) dose in children aged 12 months through 4 years who have received at least 1 prior dose of Hib-containing vaccine.
- For recommendations on the use of MenHibrix in patients at increased risk for meningococcal disease, please refer to the meningococcal vaccine footnotes and also to *MMWR* February 28, 2014 / 63(RR01);1-13, available at <http://www.cdc.gov/mmwr/PDF/rr/rr6301.pdf>.

For further guidance on the use of the vaccines mentioned below, see: <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>.

5. *Haemophilus influenzae* type b (Hib) conjugate vaccine (cont'd)

Catch-up vaccination:

- If dose 1 was administered at ages 12 through 14 months, administer a second (final) dose at least 8 weeks after dose 1, regardless of Hib vaccine used in the primary series.
- If both doses were PRP-OMP (PedvaxHIB or COMVAX), and were administered before the first birthday, the third (and final) dose should be administered at age 12 through 59 months and at least 8 weeks after the second dose.
- If the first dose was administered at age 7 through 11 months, administer the second dose at least 4 weeks later and a third (and final) dose at age 12 through 15 months or 8 weeks after second dose, whichever is later.
- If first dose is administered before the first birthday and second dose administered at younger than 15 months, a third (and final) dose should be given 8 weeks later.
- For unvaccinated children aged 15 months or older, administer only 1 dose.
- For other catch-up guidance, see Figure 2. For catch-up guidance related to MenHibrix, please see the meningococcal vaccine footnotes and also *MMWR* February 28, 2014 / 63(RR01);1-13, available at <http://www.cdc.gov/mmwr/PDF/rr/r6301.pdf>.

Vaccination of persons with high-risk conditions:

- Children aged 12 through 59 months who are at increased risk for Hib disease, including chemotherapy recipients and those with anatomic or functional asplenia (including sickle cell disease), human immunodeficiency virus (HIV) infection, immunoglobulin deficiency, or early component complement deficiency, who have received either no doses or only 1 dose of Hib vaccine before 12 months of age, should receive 2 additional doses of Hib vaccine 8 weeks apart; children who received 2 or more doses of Hib vaccine before 12 months of age should receive 1 additional dose.
- For patients younger than 5 years of age undergoing chemotherapy or radiation treatment who received a Hib vaccine dose(s) within 14 days of starting therapy or during therapy, repeat the dose(s) at least 3 months following therapy completion.
- Recipients of hematopoietic stem cell transplant (HSCT) should be revaccinated with a 3-dose regimen of Hib vaccine starting 6 to 12 months after successful transplant, regardless of vaccination history; doses should be administered at least 4 weeks apart.
- A single dose of any Hib-containing vaccine should be administered to unimmunized* children and adolescents 15 months of age and older undergoing an elective splenectomy; if possible, vaccine should be administered at least 14 days before procedure.
- Hib vaccine is not routinely recommended for patients 5 years or older. However, 1 dose of Hib vaccine should be administered to unimmunized* persons aged 5 years or older who have anatomic or functional asplenia (including sickle cell disease) and unvaccinated persons 5 through 18 years of age with human immunodeficiency virus (HIV) infection.

*Patients who have not received a primary series and booster dose or at least 1 dose of Hib vaccine after 14 months of age are considered unimmunized.

6. Pneumococcal vaccines. (Minimum age: 6 weeks for PCV13, 2 years for PPSV23)

Routine vaccination with PCV13:

- Administer a 4-dose series of PCV13 vaccine at ages 2, 4, and 6 months and at age 12 through 15 months.
- For children aged 14 through 59 months who have received an age-appropriate series of 7-valent PCV (PCV7), administer a single supplemental dose of 13-valent PCV (PCV13).

Catch-up vaccination with PCV13:

- Administer 1 dose of PCV13 to all healthy children aged 24 through 59 months who are not completely vaccinated for their age.
- For other catch-up guidance, see Figure 2.

Vaccination of persons with high-risk conditions with PCV13 and PPSV23:

- All recommended PCV13 doses should be administered prior to PPSV23 vaccination if possible.
- For children 2 through 5 years of age with any of the following conditions: chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure); chronic lung disease (including asthma if treated with high-dose oral corticosteroid therapy); diabetes mellitus; cerebrospinal fluid leak; cochlear implant; sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin's disease; solid organ transplantation; or congenital immunodeficiency.

1. Administer 1 dose of PCV13 if any incomplete schedule of 3 doses of PCV (PCV7 and/or PCV13) were received previously.
2. Administer 2 doses of PCV13 at least 8 weeks apart if unvaccinated or any incomplete schedule of fewer than 3 doses of PCV (PCV7 and/or PCV13) were received previously.
3. Administer 1 supplemental dose of PCV13 if 4 doses of PCV7 or other age-appropriate complete PCV7 series was received previously.
4. The minimum interval between doses of PCV (PCV7 or PCV13) is 8 weeks.
5. For children with no history of PPSV23 vaccination, administer PPSV23 at least 8 weeks after the most recent dose of PCV13.

6. Pneumococcal vaccines (cont'd)

- For children aged 6 through 18 years who have cerebrospinal fluid leak; cochlear implant; sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiencies; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin's disease; generalized malignancy; solid organ transplantation; or multiple myeloma:
 1. If neither PCV13 nor PPSV23 has been received previously, administer 1 dose of PCV13 now and 1 dose of PPSV23 at least 8 weeks later.
 2. If PCV13 has been received previously but PPSV23 has not, administer 1 dose of PPSV23 at least 8 weeks after the most recent dose of PCV13.
 3. If PPSV23 has been received but PCV13 has not, administer 1 dose of PCV13 at least 8 weeks after the most recent dose of PPSV23.
- For children aged 6 through 18 years with chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure), chronic lung disease (including asthma if treated with high-dose oral corticosteroid therapy), diabetes mellitus, alcoholism, or chronic liver disease, who have not received PPSV23, administer 1 dose of PPSV23. If PCV13 has been received previously, then PPSV23 should be administered at least 8 weeks after any prior PCV13 dose.
- A single revaccination with PPSV23 should be administered 5 years after the first dose to children with sickle cell disease or other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiencies; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin's disease; generalized malignancy; solid organ transplantation; or multiple myeloma.

7. Inactivated poliovirus vaccine (IPV). (Minimum age: 6 weeks)

Routine vaccination:

- Administer a 4-dose series of IPV at ages 2, 4, 6 through 18 months, and 4 through 6 years. The final dose in the series should be administered on or after the fourth birthday and at least 6 months after the previous dose.

Catch-up vaccination:

- In the first 6 months of life, minimum age and minimum intervals are only recommended if the person is at risk of imminent exposure to circulating poliovirus (i.e., travel to a polio-endemic region or during an outbreak).
- If 4 or more doses are administered before age 4 years, an additional dose should be administered at age 4 through 6 years and at least 6 months after the previous dose.
- 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.
- If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age. IPV is not routinely recommended for U.S. residents aged 18 years or older.
- For other catch-up guidance, see Figure 2.

8. Influenza vaccines. (Minimum age: 6 months for inactivated influenza vaccine [IIV], 2 years for live, attenuated influenza vaccine [LAIV])

Routine vaccination:

- Administer influenza vaccine annually to all children beginning at age 6 months. For most healthy, nonpregnant persons aged 2 through 49 years, either LAIV or IIV may be used. However, LAIV should NOT be administered to some persons, including 1) persons who have experienced severe allergic reactions to LAIV, any of its components, or to a previous dose of any other influenza vaccine; 2) children 2 through 17 years receiving aspirin or aspirin-containing products; 3) persons who are allergic to eggs; 4) pregnant women; 5) immunosuppressed persons; 6) children 2 through 4 years of age with asthma or who had wheezing in the past 12 months; or 7) persons who have taken influenza antiviral medications in the previous 48 hours. For all other contraindications and precautions to use of LAIV, see *MMWR* August 15, 2014 / 63(32);691-697 [40 pages] available at <http://www.cdc.gov/mmwr/pdf/wk/mm6332.pdf>.

For children aged 6 months through 8 years:

- For the 2014-15 season, administer 2 doses (separated by at least 4 weeks) to children who are receiving influenza vaccine for the first time. Some children in this age group who have been vaccinated previously will also need 2 doses. For additional guidance, follow dosing guidelines in the 2014-15 ACIP influenza vaccine recommendations, *MMWR* August 15, 2014 / 63(32);691-697 [40 pages] available at <http://www.cdc.gov/mmwr/pdf/wk/mm6332.pdf>.
- For the 2015-16 season, follow dosing guidelines in the 2015 ACIP influenza vaccine recommendations.

For persons aged 9 years and older:

- Administer 1 dose.

For further guidance on the use of the vaccines mentioned below, see: <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>.

9. Measles, mumps, and rubella (MMR) vaccine. (Minimum age: 12 months for routine vaccination)

Routine vaccination:

- Administer a 2-dose series of MMR vaccine at ages 12 through 15 months and 4 through 6 years. The second dose may be administered before age 4 years, provided at least 4 weeks have elapsed since the first dose.
- Administer 1 dose of MMR vaccine to infants aged 6 through 11 months before departure from the United States for international travel. These children should be revaccinated with 2 doses of MMR vaccine, the first at age 12 through 15 months (12 months if the child remains in an area where disease risk is high), and the second dose at least 4 weeks later.
- Administer 2 doses of MMR vaccine to children aged 12 months and older before departure from the United States for international travel. The first dose should be administered on or after age 12 months and the second dose at least 4 weeks later.

Catch-up vaccination:

- Ensure that all school-aged children and adolescents have had 2 doses of MMR vaccine; the minimum interval between the 2 doses is 4 weeks.

10. Varicella (VAR) vaccine. (Minimum age: 12 months)

Routine vaccination:

- Administer a 2-dose series of VAR vaccine at ages 12 through 15 months and 4 through 6 years. The second dose may be administered before age 4 years, provided at least 3 months have elapsed since the first dose. If the second dose was administered at least 4 weeks after the first dose, it can be accepted as valid.

Catch-up vaccination:

- Ensure that all persons aged 7 through 18 years without evidence of immunity (see *MMWR* 2007 / 56 [No. RR-4], available at <http://www.cdc.gov/mmwr/pdf/rr/r5604.pdf>) have 2 doses of varicella vaccine. For children aged 7 through 12 years, the recommended minimum interval between doses is 3 months (if the second dose was administered at least 4 weeks after the first dose, it can be accepted as valid); for persons aged 13 years and older, the minimum interval between doses is 4 weeks.

11. Hepatitis A (HepA) vaccine. (Minimum age: 12 months)

Routine vaccination:

- Initiate the 2-dose HepA vaccine series at 12 through 23 months; separate the 2 doses by 6 to 18 months.
- Children who have received 1 dose of HepA vaccine before age 24 months should receive a second dose 6 to 18 months after the first dose.
- For any person aged 2 years and older who has not already received the HepA vaccine series, 2 doses of HepA vaccine separated by 6 to 18 months may be administered if immunity against hepatitis A virus infection is desired.

Catch-up vaccination:

- The minimum interval between the two doses is 6 months.

Special populations:

- Administer 2 doses of HepA vaccine at least 6 months apart to previously unvaccinated persons who live in areas where vaccination programs target older children, or who are at increased risk for infection. This includes persons traveling to or working in countries that have high or intermediate endemicity of infection; men having sex with men; users of injection and non-injection illicit drugs; persons who work with HAV-infected primates or with HAV in a research laboratory; persons with clotting-factor disorders; persons with chronic liver disease; and persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. The first dose should be administered as soon as the adoption is planned, ideally 2 or more weeks before the arrival of the adoptee.

12. Human papillomavirus (HPV) vaccines. (Minimum age: 9 years for HPV2 [Cervarix] and HPV4 [Gardasil])

Routine vaccination:

- Administer a 3-dose series of HPV vaccine on a schedule of 0, 1-2, and 6 months to all adolescents aged 11 through 12 years. Either HPV4 or HPV2 may be used for females, and only HPV4 may be used for males.
- The vaccine series may be started at age 9 years.
- Administer the second dose 1 to 2 months after the first dose (minimum interval of 4 weeks); administer the third dose 24 weeks after the first dose and 16 weeks after the second dose (minimum interval of 12 weeks).

Catch-up vaccination:

- Administer the vaccine series to females (either HPV2 or HPV4) and males (HPV4) at age 13 through 18 years if not previously vaccinated.
- Use recommended routine dosing intervals (see Routine vaccination above) for vaccine series catch-up.

13. Meningococcal conjugate vaccines. (Minimum age: 6 weeks for Hib-MenCY [MenHibrix], 9 months for MenACWY-D [Menactra], 2 months for MenACWY-CRM [Menveo])

Routine vaccination:

- Administer a single dose of Menactra or Menveo vaccine at age 11 through 12 years, with a booster dose at age 16 years.
- Adolescents aged 11 through 18 years with human immunodeficiency virus (HIV) infection should receive a 2-dose primary series of Menactra or Menveo with at least 8 weeks between doses.
- For children aged 2 months through 18 years with high-risk conditions, see below.

Catch-up vaccination:

- Administer Menactra or Menveo vaccine at age 13 through 18 years if not previously vaccinated.
- If the first dose is administered at age 13 through 15 years, a booster dose should be administered at age 16 through 18 years with a minimum interval of at least 8 weeks between doses.
- If the first dose is administered at age 16 years or older, a booster dose is not needed.
- For other catch-up guidance, see Figure 2.

Vaccination of persons with high-risk conditions and other persons at increased risk of disease:

- Children with anatomic or functional asplenia (including sickle cell disease):

1. Menveo

- o *Children who initiate vaccination at 8 weeks through 6 months:* Administer doses at 2, 4, 6, and 12 months of age.
- o *Unvaccinated children 7 through 23 months:* Administer 2 doses, with the second dose at least 12 weeks after the first dose AND after the first birthday.
- o *Children 24 months and older who have not received a complete series:* Administer 2 primary doses at least 8 weeks apart.

2. MenHibrix

- o *Children 6 weeks through 18 months:* Administer doses at 2, 4, 6, and 12 through 15 months of age.
- o If the first dose of MenHibrix is given at or after 12 months of age, a total of 2 doses should be given at least 8 weeks apart to ensure protection against serogroups C and Y meningococcal disease.

3. Menactra

- o *Children 24 months and older who have not received a complete series:* Administer 2 primary doses at least 8 weeks apart. If Menactra is administered to a child with asplenia (including sickle cell disease), do not administer Menactra until 2 years of age and at least 4 weeks after the completion of all PCV13 doses.

- Children with persistent complement component deficiency:

1. Menveo

- o *Children who initiate vaccination at 8 weeks through 6 months:* Administer doses at 2, 4, 6, and 12 months of age.
- o *Unvaccinated children 7 through 23 months:* Administer 2 doses, with the second dose at least 12 weeks after the first dose AND after the first birthday.
- o *Children 24 months and older who have not received a complete series:* Administer 2 primary doses at least 8 weeks apart.

2. MenHibrix

- o *Children 6 weeks through 18 months:* Administer doses at 2, 4, 6, and 12 through 15 months of age.
- o If the first dose of MenHibrix is given at or after 12 months of age, a total of 2 doses should be given at least 8 weeks apart to ensure protection against serogroups C and Y meningococcal disease.

3. Menactra

- o *Children 9 through 23 months:* Administer 2 primary doses at least 12 weeks apart.
- o *Children 24 months and older who have not received a complete series:* Administer 2 primary doses at least 8 weeks apart.

- For children who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic, including countries in the African meningitis belt or the Hajj, administer an age-appropriate formulation and series of Menactra or Menveo for protection against serogroups A and W meningococcal disease. Prior receipt of MenHibrix is not sufficient for children traveling to the meningitis belt or the Hajj because it does not contain serogroups A or W.

- For children at risk during a community outbreak attributable to a vaccine serogroup, administer or complete an age- and formulation-appropriate series of MenHibrix, Menactra, or Menveo.

- For booster doses among persons with high-risk conditions, refer to *MMWR* 2013 / 62(RR02);1-22, available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6202a1.htm>.

For other catch-up recommendations for these persons, and complete information on use of meningococcal vaccines, including guidance related to vaccination of persons at increased risk of infection, see *MMWR* March 22, 2013 / 62(RR02);1-22, available at <http://www.cdc.gov/mmwr/pdf/rr/rr6202.pdf>.

Childhood/Adolescent Immunization Schedule Job Aids

- ❑ To improve childhood and adolescent immunization schedules, CDC and partner organizations developed job aids to use with the current catch-up schedule.
- ❑ CDC interviewed practicing providers about:
 - Current usage of the catch-up schedule
 - Ease of use
 - How to improve the catch-up schedule to be more user-friendly for complex vaccine recommendations

Job Aids - 2

- ❑ Job aids for three vaccine groups were created, tested, and completed:
 - *Haemophilus influenzae* type b (Hib)
 - Pneumococcal conjugate (PCV13)
 - Diphtheria, tetanus, and acellular pertussis (DTaP); tetanus, diphtheria, and acellular pertussis (Tdap); tetanus and diphtheria (Td)

- ❑ Drafts were tested with healthcare providers to assess ease of use, comprehensibility, manner of use, and how they can be improved.

<http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html#job-aids>

Job Aids - 3

IF current age is	AND # of previous doses is	AND	AND	THEN	NEXT DOSE DUE
12-23 months	0	→	→	Give Dose 1 today	Give Dose 2 at least 8 weeks after Dose 1 (Final Dose)
	1	Dose 1 was given before 12 months of age	It has been at least 4 weeks since Dose 1	Give Dose 2 today	Give Dose 3 at least 8 weeks after Dose 2 (Final Dose)
			It has not been 4 weeks since Dose 1	No dose today	Give Dose 2 at least 4 weeks after Dose 1
		Dose 1 was given at 12 months of age or older	It has been at least 8 weeks since Dose 1	Give Dose 2 today (Final Dose)	No additional doses needed
			It has not been 8 weeks since Dose 1	No dose today	Give Dose 2 at least 8 weeks after dose 1 (Final Dose)
	2	Both doses were given before 12 months of age	It has been at least 8 weeks since Dose 2	Give Dose 3 today (Final dose)	No additional doses needed
			It has not been 8 weeks since Dose 2	No dose today	Give Dose 3 at least 8 weeks after Dose 2 (Final Dose)
		At least one dose was given at 12 months or older	It has been at least 8 weeks since Dose 2	Give Dose 3 today (Final Dose)	No additional doses needed
			It has not been 8 weeks since Dose 2	No dose today	Give Dose 3 at least 8 weeks after Dose 2 (Final Dose)
	3	All doses were given before 12 months of age	It has been at least 8 weeks since Dose 3	Give Dose 4 today (Final Dose)	No additional doses needed
			It has not been 8 weeks since Dose 3	No dose today	Give Dose 4 at least 8 weeks after Dose 3 (Final Dose)
		1 or more doses was given at 12 months of age or older	→	No dose today	No additional doses needed

<http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html#job-aids>



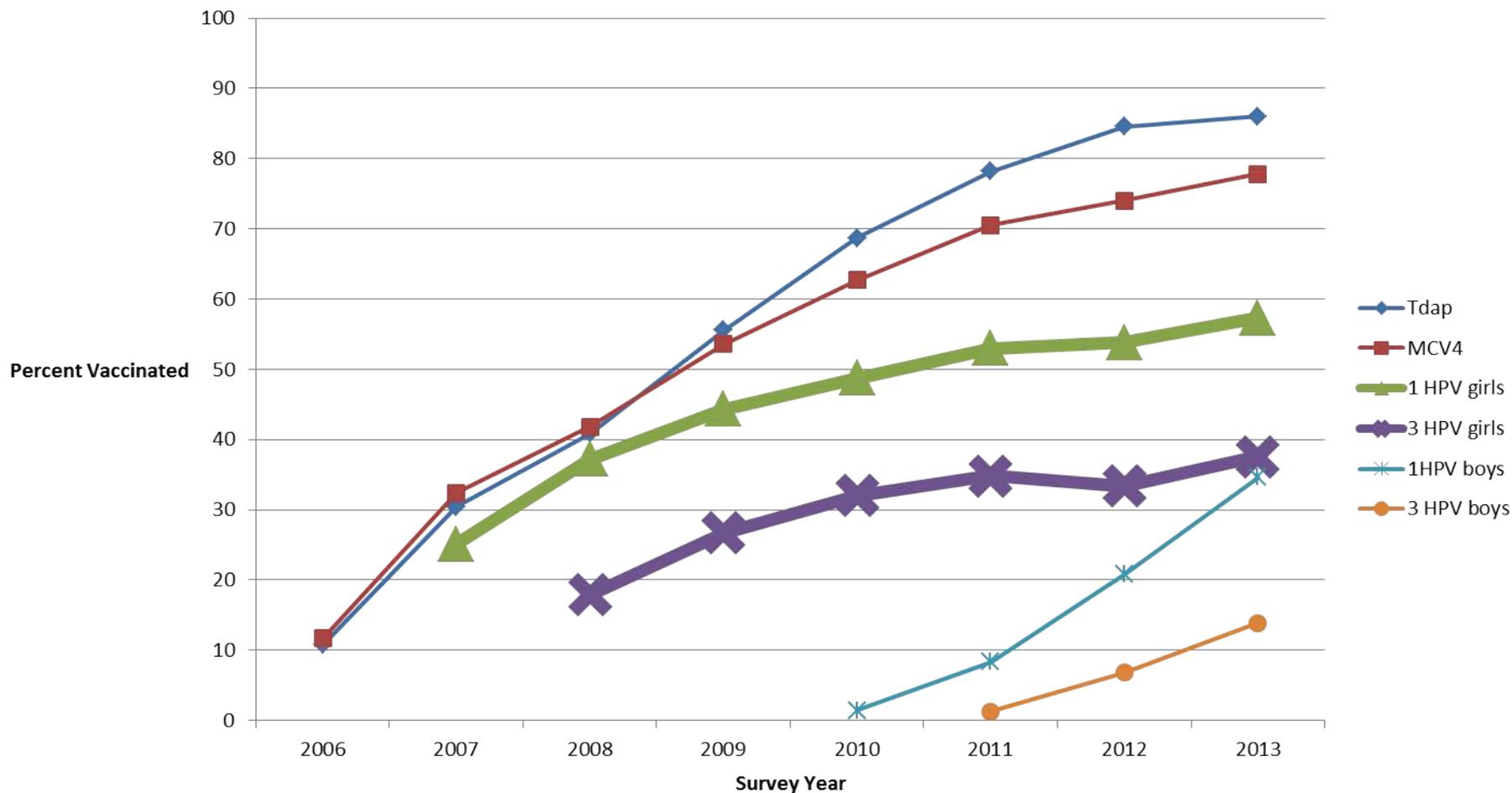
CHILD AND ADOLESCENT IMMUNIZATION COVERAGE

Estimated Coverage of Vaccines Among Children Aged 19-35 Months, NIS, U.S., 2013

State/Area	Vaccine Series*
United States	4:3:1:4:3:1:4 70.4%

*Includes ≥ 4 doses DTaP/DT/DTP, ≥ 3 doses polio, ≥ 1 dose MMR, ≥ 3 doses Hep B, ≥ 3 or ≥ 4 doses Hib, > 1 varicella, and ≥ 4 PCV.

National Estimated Vaccination Coverage Levels among Adolescents 13-17 Years, National Immunization Survey-Teen, 2006-2013



Institute of Medicine Report: The Childhood Immunization Schedule and Safety

REPORT BRIEF JANUARY 2013

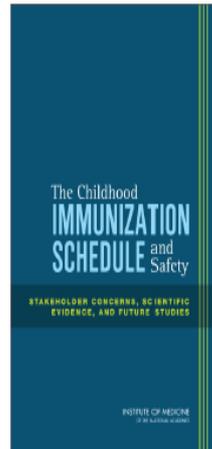
INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

Advising the nation • Improving health

For more information visit www.iom.edu/childimmunizationschedule

The Childhood Immunization Schedule and Safety

Stakeholder Concerns, Scientific Evidence, and Future Studies



Upon reviewing stakeholder concerns and scientific literature regarding the entire childhood immunization schedule, the IOM committee finds no evidence that the schedule is unsafe

http://www.cdc.gov/vaccinesafety/Concerns/childhood_immunization_iomstudies.html



SEARCH

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Vaccine Safety

Monitoring health problems after vaccination is essential to ensure the United States continues to have the safest, most effective vaccine supply in history. CDC's [Immunization Safety Office](#) identifies possible vaccine side effects and conducts studies to determine whether a health problem is caused by a specific vaccine.



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IOM Report

Influenza

Rotarix [»](#)

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About Vaccine Safety

Vaccines Safety Basics

Vaccines: Hib, HPV, MMR, MMRV, Rotavirus...

Addressing Common Concerns

Autism, GBS, SIDS, Fainting (Syncope), MS, Thimerosal, FAQs...

How Vaccines are Monitored

How Vaccines are Tested, Vaccine Monitoring Activities in the U.S. and Common Questions, etc...

Activities

About CISA Network, Emergency Preparedness, VAERS, VAU, VSD...

Special Populations

Information for Healthcare Providers, Parents, Researchers...

Resource Library

Articles, Fact Sheets, FAQs, Research...

Quick Links

- [FDA News: Rotarix Label Update](#)
- [VSD study on RV5 vaccine](#)
- [ISO Scientific Agenda](#)
- [Seasonal Influenza](#)
- [Immunization Schedules](#)
- [Traveler's Health/International](#)
- [CDC en Español: Inmunización](#)

DO YOUR PART
 for Vaccine Safety —
 Report to **VAERS.**
 Vaccine Adverse Event Reporting System



www.vaers.hhs.gov

Contact Us:

- Centers for Disease Control and Prevention
 1600 Clifton Rd
 Atlanta, GA 30333
- 800-CDC-INFO
 (800-232-4636)
 TTY: (888) 232-6348
[Contact CDC-INFO](#)

<http://www.cdc.gov/vaccinesafety/index.html>



Provider Resources for Vaccine Conversations with Parents



Conversations Home

Talking to Parents about Vaccines

Understanding Vaccines and Vaccine Safety

Vaccine-preventable Diseases

About Vaccine Conversations with Parents

Provider Resources Web Tools

Related Links

[Immunization Schedules](#)

[NIIW Educational Resources](#)

[For Parents: Vaccines for Your Children](#)

[Vaccines Home](#) > [Conversations Home](#)

Recommend Tweet 3 Share

Talking to Parents about Vaccines

Talking with Parents about Vaccines for Infants

For health care professionals



Offers communication strategies for successful vaccine conversations with parents and caregivers.

- [Color for office printing](#) [657KB, 4 pages]
 NOTE: Color, PDF is Section 508-compatible.
- [Black & white for office printing](#) [251 KB, 4 pages]

Printed size: 8-1/2"x 11", 4 pages
Commercial printer files available [upon request](#)

If You Choose Not to Vaccinate Your Child, Understand the Risks and Responsibilities

For parents and caregivers



Outlines possible risks for parents who choose to delay or decline a vaccine; offers steps for parents to take to protect their child, family and others.

- [Color for office printing](#) [547 KB , 2 pages]
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 NOTE: B&W (black & white), PDF is Section 508-compatible.

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Contact Us:

Centers for Disease Control and Prevention
 1600 Clifton Rd
 Atlanta, GA 30333

800-CDC-INFO
 (800-232-4636)
 TTY: (888) 232-6348
[Contact CDC-INFO](#)

The Journey of Your Child's Vaccine - Infographic

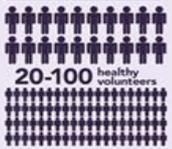
THE JOURNEY of YOUR CHILD'S VACCINE

Before a new vaccine is ever given to people, extensive lab testing is done that can take several years. Once testing in people begins, it can take several more years before clinical studies are complete and the vaccine is licensed.

HOW A NEW VACCINE IS DEVELOPED, APPROVED AND MANUFACTURED

Food and Drug Administration (FDA) sets rules for the ensure the safety of the volunteers. Researchers test v

PHASE 1



Is this vaccine safe?
Does this vaccine seem to work?
Are there any serious side effects?
How is the size of the dose related to side effects?

PHASE 2



What are the most common short-term side effects?
How are the volunteers' immune systems responding to the vaccine?

FDA licenses the vaccine only if:



FOR MORE INFORMATION, VISIT [HTTP://WWW.CDC.GOV](http://www.cdc.gov)

HOW A VACCINE IS ADDED TO THE U.S. RECOMMENDED IMMUNIZATION SCHEDULE

The Advisory Committee on Immunization Practices (ACIP) is a group of medical and public health experts. Members of the American Academy of Pediatrics (AAP) and American Academy of Family Physicians (AAFP) are among some of the groups that also bring related information to the committee. This group carefully reviews all available data about the vaccine and other studies to develop recommendations for vaccine use.

When making recommendations, ACIP considers:



How safe is the vaccine when given at specific ages?
How well does the vaccine work at specific ages?
How serious is the disease this vaccine prevents?
How many children would get the disease the vaccine prevents if we didn't have the vaccine?

ACIP not official review and These become official

New vaccine to protect your child against a disease is added

FOR MORE INFORMATION, VISIT [HTTP://WWW.CDC.GOV/VACCINES](http://www.cdc.gov/vaccines)

After being added to the U.S. Recommended Immunization Schedule, health experts continue to monitor the vaccine's safety and effectiveness.

FDA and CDC closely monitor vaccine safety after the public begins using the vaccine.

The purpose of monitoring is to watch for adverse events (possible side effects).



Monitoring a vaccine after it is licensed helps ensure that possible risks associated with the vaccine are identified.

VACCINE ADVERSE EVENT REPORTING SYSTEM

VAERS collects and analyzes reports of adverse events that happen after vaccination. Anyone can submit a report, including parents, patients and healthcare professionals.

VACCINE SAFETY DATALINK



Network of healthcare organizations across the U.S.



Healthcare information available for a population of over 9 million people.

Scientists use VSD to conduct studies to evaluate the safety of vaccines and determine if possible side effects are actually associated with vaccination.

Vaccine recommendations may change if safety monitoring shows that the vaccine risks outweigh the benefits (like if scientists detect a new serious side effect).

FOR MORE INFORMATION, VISIT [HTTP://WWW.CDC.GOV/VACCINESAFETY](http://www.cdc.gov/vaccinesafety)

The United States currently has the safest vaccine supply in its history. These vaccines keep children, families and communities protected from serious diseases.



<http://www.cdc.gov/vaccines/parents/infographics/journey-of-child-vaccine.html>

How to Have a Successful Dialogue with Parents

- ❑ Take time to listen
- ❑ Solicit and welcome questions
- ❑ Keep the conversation going
- ❑ Balance science with anecdotal information
- ❑ Acknowledge benefits and risks

How to Have a Successful Dialogue with Parents

- ❑ Respect parents' authority
- ❑ Reduce the stress of shots
- ❑ Document parents' questions and concerns
- ❑ Follow up
- ❑ Don't give up

Cost-Effectiveness of Childhood Vaccination

- Compared to no vaccination, Zhou et al demonstrated routine childhood vaccines used in 2009
 - Prevent
 - ~42,000 early deaths
 - 20 million cases of disease
 - Save
 - \$13.5 billion in direct medical costs
 - \$68.8 billion in total societal costs

CDC Vaccines and Immunization Contact Information

- Telephone and general email:

800-CDC-INFO (800-232-4636)
www.cdc.gov/info (for patients/parents)

- Email for providers

nipinfo@cdc.gov

- Website

www.cdc.gov/vaccines/

- Twitter

[@CDCizlearn](https://twitter.com/CDCizlearn)

- Vaccine Safety

www.cdc.gov/vaccinesafety/