

Recommended Immunization Schedule for Persons Aged 0 Through 6 Years—United States • 2009

For those who fall behind or start late, see the catch-up schedule

Vaccine ▼	Age ►	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B ¹	HepB	HepB	HepB		<i>see footnote 1</i>	HepB						
Rotavirus ²				RV	RV	RV ²						
Diphtheria, Tetanus, Pertussis ³				DTaP	DTaP	DTaP	<i>see footnote 3</i>	DTaP				DTaP
<i>Haemophilus influenzae</i> type b ⁴				Hib	Hib	Hib ⁴		Hib				
Pneumococcal ⁵				PCV	PCV	PCV		PCV			PPSV	
Inactivated Poliovirus				IPV	IPV			IPV				IPV
Influenza ⁶								Influenza (Yearly)				
Measles, Mumps, Rubella ⁷								MMR		<i>see footnote 7</i>		MMR
Varicella ⁸								Varicella		<i>see footnote 8</i>		Varicella
Hepatitis A ⁹								HepA (2 doses)			HepA Series	
Meningococcal ¹⁰											MCV	

Range of recommended ages

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed vaccines, as of December 1, 2008, for children aged 0 through 6 years. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components are not contraindicated and if approved by the Food and Drug Administration for that dose of

the series. Providers should consult the relevant Advisory Committee on Immunization Practices statement for detailed recommendations, including high-risk conditions: <http://www.cdc.gov/vaccines/pubs/acip-list.htm>. Clinically significant adverse events that follow immunization 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.hhs.gov> or by telephone, 800-822-7967.

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

At birth:

- Administer monovalent HepB to all newborns before hospital discharge.
- If mother is hepatitis B surface antigen (HBsAg)-positive, administer HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
- If mother's HBsAg status is unknown, administer HepB within 12 hours of birth. Determine mother's HBsAg status as soon as possible and, if HBsAg-positive, administer HBIG (no later than age 1 week).

After the birth dose:

- The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be administered at age 1 or 2 months. The final dose should be administered no earlier than age 24 weeks.
- Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg (anti-HBs) after completion of at least 3 doses of the HepB series, at age 9 through 18 months (generally at the next well-child visit).

4-month dose:

- Administration of 4 doses of HepB to infants is permissible when combination vaccines containing HepB are administered after the birth dose.

2. Rotavirus vaccine (RV). (Minimum age: 6 weeks)

- Administer the first dose at age 6 through 14 weeks (maximum age: 14 weeks 6 days). Vaccination should not be initiated for infants aged 15 weeks or older (i.e., 15 weeks 0 days or older).
- Administer the final dose in the series by age 8 months 0 days.
- If Rotarix[®] is administered at ages 2 and 4 months, a dose at 6 months is not indicated.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)

- The fourth dose may be administered as early as age 12 months, provided at least 6 months have elapsed since the third dose.
- Administer the final dose in the series at age 4 through 6 years.

4. Haemophilus influenzae type b conjugate vaccine (Hib). (Minimum age: 6 weeks)

- If PRP-OMP (PedvaxHIB[®] or Comvax[®] [HepB-Hib]) is administered at ages 2 and 4 months, a dose at age 6 months is not indicated.
- TriHiBit[®] (DTaP/Hib) should not be used for doses at ages 2, 4, or 6 months but can be used as the final dose in children aged 12 months or older.

5. Pneumococcal vaccine. (Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPSV])

- PCV is recommended for all children aged younger than 5 years. Administer 1 dose of PCV to all healthy children aged 24 through 59 months who are not completely vaccinated for their age.

- Administer PPSV to children aged 2 years or older with certain underlying medical conditions (see *MMWR* 2000;49[No. RR-9]), including a cochlear implant.

6. Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 2 years for live, attenuated influenza vaccine [LAIV])

- Administer annually to children aged 6 months through 18 years.
- For healthy nonpregnant persons (i.e., those who do not have underlying medical conditions that predispose them to influenza complications) aged 2 through 49 years, either LAIV or TIV may be used.
- Children receiving TIV should receive 0.25 mL if aged 6 through 35 months or 0.5 mL if aged 3 years or older.
- Administer 2 doses (separated by at least 4 weeks) to children aged younger than 9 years who are receiving influenza vaccine for the first time or who were vaccinated for the first time during the previous influenza season but only received 1 dose.

7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)

- Administer the second dose at age 4 through 6 years. However, the second dose may be administered before age 4, provided at least 28 days have elapsed since the first dose.

8. Varicella vaccine. (Minimum age: 12 months)

- Administer the second dose at age 4 through 6 years. However, the second dose may be administered before age 4, provided at least 3 months have elapsed since the first dose.
- For children aged 12 months through 12 years the minimum interval between doses is 3 months. However, if the second dose was administered at least 28 days after the first dose, it can be accepted as valid.

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

- Administer to all children aged 1 year (i.e., aged 12 through 23 months). Administer 2 doses at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA also is recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See *MMWR* 2006;55[No. RR-7].

10. Meningococcal vaccine. (Minimum age: 2 years for meningococcal conjugate vaccine [MCV] and for meningococcal polysaccharide vaccine [MPSV])

- Administer MCV to children aged 2 through 10 years with terminal complement component deficiency, anatomic or functional asplenia, and certain other high-risk groups. See *MMWR* 2005;54[No. RR-7].
- Persons who received MPSV 3 or more years previously and who remain at increased risk for meningococcal disease should be revaccinated with MCV.

Recommended Immunization Schedule for Persons Aged 7 Through 18 Years—United States • 2009

For those who fall behind or start late, see the schedule below and the catch-up schedule

Vaccine ▼	Age ►	7–10 years	11–12 years	13–18 years
Tetanus, Diphtheria, Pertussis ¹		see footnote 1	Tdap	Tdap
Human Papillomavirus ²		see footnote 2	HPV (3 doses)	HPV Series
Meningococcal ³		MCV	MCV	MCV
Influenza ⁴		Influenza (Yearly)		
Pneumococcal ⁵		PPSV		
Hepatitis A ⁶		HepA Series		
Hepatitis B ⁷		HepB Series		
Inactivated Poliovirus ⁸		IPV Series		
Measles, Mumps, Rubella ⁹		MMR Series		
Varicella ¹⁰		Varicella Series		

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed vaccines, as of December 1, 2008, for children aged 7 through 18 years. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components are not contraindicated and if approved by the Food and Drug Administration for that dose of

the series. Providers should consult the relevant Advisory Committee on Immunization Practices statement for detailed recommendations, including high-risk conditions: <http://www.cdc.gov/vaccines/pubs/acip-list.htm>. Clinically significant adverse events that follow immunization 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.hhs.gov> or by telephone, 800-822-7967.

1. Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). (Minimum age: 10 years for BOOSTRIX® and 11 years for ADACEL®)

- Administer at age 11 or 12 years for those who have completed the recommended childhood DTP/DTaP vaccination series and have not received a tetanus and diphtheria toxoid (Td) booster dose.
- Persons aged 13 through 18 years who have not received Tdap should receive a dose.
- A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose; however, a shorter interval may be used if pertussis immunity is needed.

2. Human papillomavirus vaccine (HPV). (Minimum age: 9 years)

- Administer the first dose to females at age 11 or 12 years.
- Administer the second dose 2 months after the first dose and the third dose 6 months after the first dose (at least 24 weeks after the first dose).
- Administer the series to females at age 13 through 18 years if not previously vaccinated.

3. Meningococcal conjugate vaccine (MCV).

- Administer at age 11 or 12 years, or at age 13 through 18 years if not previously vaccinated.
- Administer to previously unvaccinated college freshmen living in a dormitory.
- MCV is recommended for children aged 2 through 10 years with terminal complement component deficiency, anatomic or functional asplenia, and certain other groups at high risk. See *MMWR* 2005;54(No. RR-7).
- Persons who received MPSV 5 or more years previously and remain at increased risk for meningococcal disease should be revaccinated with MCV.

4. Influenza vaccine.

- Administer annually to children aged 6 months through 18 years.
- For healthy nonpregnant persons (i.e., those who do not have underlying medical conditions that predispose them to influenza complications) aged 2 through 49 years, either LAIV or TIV may be used.
- Administer 2 doses (separated by at least 4 weeks) to children aged younger than 9 years who are receiving influenza vaccine for the first time or who were vaccinated for the first time during the previous influenza season but only received 1 dose.

5. Pneumococcal polysaccharide vaccine (PPSV).

- Administer to children with certain underlying medical conditions (see *MMWR* 1997;46[No. RR-8]), including a cochlear implant. A single revaccination should be administered to children with functional or anatomic asplenia or other immunocompromising condition after 5 years.

6. Hepatitis A vaccine (HepA).

- Administer 2 doses at least 6 months apart.
- HepA is recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See *MMWR* 2006;55(No. RR-7).

7. Hepatitis B vaccine (HepB).

- Administer the 3-dose series to those not previously vaccinated.
- A 2-dose series (separated by at least 4 months) of adult formulation Recombivax HB® is licensed for children aged 11 through 15 years.

8. Inactivated poliovirus vaccine (IPV).

- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if the third dose was administered at age 4 years or older.
- 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.

9. Measles, mumps, and rubella vaccine (MMR).

- If not previously vaccinated, administer 2 doses or the second dose for those who have received only 1 dose, with at least 28 days between doses.

10. Varicella vaccine.

- For persons aged 7 through 18 years without evidence of immunity (see *MMWR* 2007;56[No. RR-4]), administer 2 doses if not previously vaccinated or the second dose if they have received only 1 dose.
- For persons aged 7 through 12 years, the minimum interval between doses is 3 months. However, if the second dose was administered at least 28 days after the first dose, it can be accepted as valid.
- For persons aged 13 years and older, the minimum interval between doses is 28 days.

The Recommended Immunization Schedules for Persons Aged 0 Through 18 Years are approved by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/recs/acip), the American Academy of Pediatrics (<http://www.aap.org>), and the American Academy of Family Physicians (<http://www.aafp.org>).

DEPARTMENT OF HEALTH AND HUMAN SERVICES • CENTERS FOR DISEASE CONTROL AND PREVENTION

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 • 2009

The table 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.

CATCH-UP SCHEDULE FOR PERSONS AGED 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)		
Rotavirus ²	6 wks	4 weeks	4 weeks ²		
Diphtheria, Tetanus, Pertussis ³	6 wks	4 weeks	4 weeks	6 months	6 months ³
<i>Haemophilus influenzae</i> type b ⁴	6 wks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose) if first dose administered at age 12-14 months No further doses needed if first dose administered at age 15 months or older	4 weeks ⁴ if current age is younger than 12 months 8 weeks (as final dose) ⁴ if current age is 12 months or older and second dose administered at younger than age 15 months No further doses needed if previous dose administered at age 15 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 months through 59 months who received 3 doses before age 12 months	
Pneumococcal ⁵	6 wks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose for healthy children) if first dose administered at age 12 months or older or current age 24 through 59 months 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 8 weeks (as final dose for healthy children) if current age is 12 months or older 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 months through 59 months who received 3 doses before age 12 months or for high-risk children who received 3 doses at any age	
Inactivated Poliovirus ⁶	6 wks	4 weeks	4 weeks	4 weeks ⁶	
Measles, Mumps, Rubella ⁷	12 mos	4 weeks			
Varicella ⁸	12 mos	3 months			
Hepatitis A ⁹	12 mos	6 months			
CATCH-UP SCHEDULE FOR PERSONS AGED 7 THROUGH 18 YEARS					
Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis ¹⁰	7 yrs ¹⁰	4 weeks	4 weeks if first dose administered at younger than age 12 months 6 months if first dose administered at age 12 months or older	6 months if first dose administered at younger than age 12 months	
Human Papillomavirus ¹¹	9 yrs	Routine dosing intervals are recommended ¹¹			
Hepatitis A ⁹	12 mos	6 months			
Hepatitis B ¹	Birth	4 weeks	8 weeks (and at least 16 weeks after first dose)		
Inactivated Poliovirus ⁶	6 wks	4 weeks	4 weeks	4 weeks ⁶	
Measles, Mumps, Rubella ⁷	12 mos	4 weeks			
Varicella ⁸	12 mos	3 months if the person is younger than age 13 years 4 weeks if the person is aged 13 years or older			

1. Hepatitis B vaccine (HepB).

- Administer the 3-dose series to those not previously vaccinated.
- A 2-dose series (separated by at least 4 months) of adult formulation Recombivax HB[®] is licensed for children aged 11 through 15 years.

2. Rotavirus vaccine (RV).

- The maximum age for the first dose is 14 weeks 6 days. Vaccination should not be initiated for infants aged 15 weeks or older (i.e., 15 weeks 0 days or older).
- Administer the final dose in the series by age 8 months 0 days.
- If Rotarix[®] was administered for the first and second doses, a third dose is not indicated.

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

- The fifth dose is not necessary if the fourth dose was administered at age 4 years or older.

4. *Haemophilus influenzae* type b conjugate vaccine (Hib).

- Hib vaccine is not generally recommended for persons aged 5 years or older. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults. However, studies suggest good immunogenicity in persons who have sickle cell disease, leukemia, or HIV infection, or who have had a splenectomy; administering 1 dose of Hib vaccine to these persons is not contraindicated.
- If the first 2 doses were PRP-OMP (PedvaxHib[®] or Comvax[®]), and administered at age 11 months or younger, the third (and final) dose should be administered at age 12 through 15 months and at least 8 weeks after the second dose.
- If the first dose was administered at age 7 through 11 months, administer 2 doses separated by 4 weeks and a final dose at age 12 through 15 months.

5. Pneumococcal vaccine.

- Administer 1 dose of pneumococcal conjugate vaccine (PCV) to all healthy children aged 24 through 59 months who have not received at least 1 dose of PCV on or after age 12 months.
- For children aged 24 through 59 months with underlying medical conditions, administer 1 dose of PCV if 3 doses were received previously or administer 2 doses of PCV at least 8 weeks apart if fewer than 3 doses were received previously.
- Administer pneumococcal polysaccharide vaccine (PPSV) to children aged 2 years or older with certain underlying medical conditions (see *MMWR* 2000;49[No. RR-9]), including a cochlear implant, at least 8 weeks after the last dose of PCV.

6. Inactivated poliovirus vaccine (IPV).

- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if the third dose was administered at age 4 years or older.
- 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.

7. Measles, mumps, and rubella vaccine (MMR).

- Administer the second dose at age 4 through 6 years. However, the second dose may be administered before age 4, provided at least 28 days have elapsed since the first dose.
- If not previously vaccinated, administer 2 doses with at least 28 days between doses.

8. Varicella vaccine.

- Administer the second dose at age 4 through 6 years. However, the second dose may be administered before age 4, provided at least 3 months have elapsed since the first dose.
- For persons aged 12 months through 12 years, the minimum interval between doses is 3 months. However, if the second dose was administered at least 28 days after the first dose, it can be accepted as valid.
- For persons aged 13 years and older, the minimum interval between doses is 28 days.

9. Hepatitis A vaccine (HepA).

- HepA is recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk of infection. See *MMWR* 2006;55(No. RR-7).

10. Tetanus and diphtheria toxoids vaccine (Td) and tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap).

- Doses of DTaP are counted as part of the Td/Tdap series
- Tdap should be substituted for a single dose of Td in the catch-up series or as a booster for children aged 10 through 18 years; use Td for other doses.

11. Human papillomavirus vaccine (HPV).

- Administer the series to females at age 13 through 18 years if not previously vaccinated.
- Use recommended routine dosing intervals for series catch-up (i.e., the second and third doses should be administered at 2 and 6 months after the first dose). However, the minimum interval between the first and second doses is 4 weeks. The minimum interval between the second and third doses is 12 weeks, and the third dose should be given at least 24 weeks after the first dose.

Hib Vaccine Recommendations for Children Not Up-To-Date

Age at Exam	Previous Vaccination History	Recommended Regimen
7-11 months	0 doses	3 doses given with a 4 week minimum interval between dose 1 and 2; third dose given at least 8 weeks after dose 2, at 12-15 months.
	1 dose of HbOC, PRP-T, or PRP-OMP ¹	1 or 2 doses of Hib vaccine at 7-11 months (depending on age) with a booster dose given at least 8 weeks later, at 12-15 months.
	2 doses of HbOC or PRP-T	1 dose of Hib vaccine at 7-11 months with a booster dose given at least 8 weeks later, at 12-15 months of age.
12-14 months	0 doses	2 doses of any Hib vaccine, with a minimum interval of 8 weeks ²
	1 dose before 12 months of HbOC, PRP-T, or PRP-OMP ¹	2 additional doses of any Hib vaccine, with a minimum interval of 8 weeks ²
	2 doses before 12 months of HbOC, PRP-T, or PRP-OMP ¹	1 dose of any Hib vaccine ²
15-59 months	Any incomplete schedule	1 dose of any Hib vaccine ²
≥ 60 months	Any schedule	1 dose of any Hib vaccine may be considered for those at high risk ³

¹ HbOC (HibTITER®), PRP-T (ActHIB®), PRP-OMP (PedvaxHIB®).

² For children 12-59 months of age with an underlying condition predisposing them to Hib disease (e.g. sickle cell disease, asplenia, HIV infection, other immunosuppressive conditions and treatments) who are not immunized or who have received only 1 dose of conjugate vaccine before age 12 months, 2 additional doses of licensed conjugate vaccine (separated by 2 months) are recommended. If they have received 2 doses before age 12 months, only 1 dose is recommended.

³ Hib vaccine is not generally recommended for persons 5 years of age and older. No efficacy data are available on which to base recommendations for older children and adults. However, studies suggest good immunogenicity in persons who have sickle disease, leukemia or HIV infection, or who have had a splenectomy. Administering 1 dose of Hib vaccine to these individuals is not contraindicated.

Note: Children undergoing splenectomy who have received a primary series may also benefit from an additional dose given >7-10 days prior to the procedure. Additional recommendations for Hib vaccination of children at increased risk of disease as a result of immunologic or other host abnormalities can be found in the AAP's Red Book: <http://aapredbook.aappublications.org/>

PCV7 Recommendations for Children Not Up-To-Date

Age at Exam	Previous Vaccination History	Recommended Regimen ¹
2-6 months	0 doses	3 doses, 8 weeks apart; fourth dose at 12-15 months
	1 dose	2 doses, 8 weeks apart; fourth dose at 12-15 months
	2 doses	1 dose, 8 weeks after most recent dose; fourth dose at 12-15 months
7-11 months	0 doses	2 doses, 8 weeks apart; third dose at 12-15 months
	1 or 2 doses before age 7 months	1 dose at 7-11 months, with another dose at 12-15 months (≥8 weeks later)
12-23 months	0 doses	2 doses, ≥8 weeks apart
	1 dose before age 12 months	2 doses, ≥8 weeks apart
	1 dose at ≥12 months	1 dose, ≥8 weeks after the most recent dose
	2 or 3 doses before age 12 months	1 dose, ≥8 weeks after the most recent dose
24-59 months	Healthy children: Any incomplete schedule	1 dose, ≥8 weeks after the most recent dose
	High risk ² : <3 doses	2 doses, ≥8 weeks apart
	3 doses	1 dose, ≥8 weeks after the most recent dose

¹ For children vaccinated at age <1 year, the minimum interval between doses is 4 weeks. Doses administered at ≥12 months should be at least 8 weeks apart.

² Those with sickle cell disease, asplenia, chronic heart or lung disease, diabetes, cerebrospinal fluid leak, cochlear implant, HIV or another immunocompromising condition.

Vaccination with PPV23 for High-Risk Children Who Have Received PCV7

Population	Schedule for follow-up with PPV23 for children ≥2 years of age	Revaccinate with PPV23?
Healthy Children	None ¹	No
Chronic Illness (including cochlear implants)	1 dose PPV23 at age ≥2 years and ≥8 weeks after the last dose of PCV7	Not recommended
Children with sickle cell disease, or anatomic or functional asplenia; immunocompromised; HIV-infected	1 dose PPV23 at age ≥2 years and ≥8 weeks after the last dose of PCV7	Yes ²

¹ In special situations, public health authorities may recommend PPSV23 for some groups of Alaska Natives and American Indian children 24 through 50 months of age.

² Revaccination once 5 years or more after previous dose is recommended for those who are immunocompromised, have sickle cell disease or asplenia.

Immunization Best Practices

1. Assess at every visit.

Review immunization status and administer **all** immunizations due at **all** types of visits (e.g., acute care, follow-up, and well child).

2. Schedule optimally.

- Hepatitis B: Give first dose at birth. The birth dose should only be delayed if mother is HBsAg-negative and the physician's order and mother's negative HBsAg laboratory report are documented in the infant's medical record.
- Any dose of vaccine not given at the recommended age should be given at any following visit when indicated and feasible.
- Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated.
- Always schedule immunizations prior to the maximum ACIP recommended age to ensure that children have received all of the recommended antigens by age 24 months.

3. Adhere to correct intervals and ages.

(a) Minimum intervals:

- Do **not** give vaccines before the recommended minimum age or interval for that antigen.
- Decreasing the minimum age or interval between doses may interfere with antibody response and protection.
- Doses administered before the minimum age and/or minimum interval should be considered invalid and should not be included in determining the previous number of doses given.
- If an invalid dose has been given, count from the last (invalid) dose in order to determine when to give the next **valid** dose.

(b) Maximum intervals:

- There are no maximum intervals; it is **not** necessary to restart the series of any vaccine due to extended intervals between doses.

4. Follow only true contraindications.

Children who present with a mild acute illness, with or without fever, should **not** be deferred for vaccination. Follow only true contraindications as outlined by the ACIP.

5. Use Vaccine Information Statements (VIS).

Provide patient, parent, or legal representative with a copy of the VIS with **each** dose of vaccine administered, and answer any questions regarding risks and benefits of vaccines. It is the provider's responsibility to maintain copies of the most up to date VISs in their office. All VISs, in many languages, are available in print and audio format. Subscribe to CDC's e-mail update for VISs at <http://www.cdc.gov/vaccines/pubs/vis/default.htm>, click on "Get E-Mail Updates," and enter your e-mail address. Many other resources are available to help address questions about vaccine safety (see box below).

6. Give all vaccines due.

There are **no** contraindications to simultaneous administration of any of the recommended childhood vaccines.

7. Document.

- Proper documentation consists of day, month, and year an antigen was given, including the first dose of hepatitis B vaccine (i.e., "at birth" is not acceptable documentation).

- Document chickenpox disease on the immunization record.
- Document in the patient's chart the date a patient moves or goes elsewhere for care (MOGE).
- Document contraindications to vaccines.
- Document parent refusal of vaccines or deferral of any vaccine to a later date.
- Provide the patient or parent/legal guardian with an immunization card documenting the vaccines given and the date the next doses are due.

8. Carry out reminder/recall.

- Identify children who are due or overdue for immunizations (e.g., computer billing system, other electronic tracking systems, tickler system, stickers on charts).
- Send out reminder or recall notices **at least twice a year** (i.e., at 8 and 20 months of age).
- Verify patient's address and telephone number at each encounter; obtain a second contact number for back-up.

9. Develop a systematic approach.

- Formally designate one staff member as an "Immunization Champion" who is responsible for coordinating/monitoring all immunization activities. The "Immunization Champion" keeps up-to-date with the most recent information about immunization, distributes immunization schedules and advisories, and communicates current practices and policies to all staff.
- All providers in a practice should formally agree to adhere to a common immunization schedule (based on ACIP guidelines).
- Post agreed upon common schedule throughout the practice.

10. Follow appropriate procedures for vaccine storage and handling.

- Formally designate one staff member to monitor vaccine ordering, receiving and storage.
- Consult the MDPH document *Vaccine Management Checklist* for detailed instructions on proper vaccine storage and handling.
- Maintain up-to-date, written protocols for vaccine storage and handling procedures and share with all staff who handle vaccine.

11. Vaccinate staff.

All personnel who have contact with patients should be appropriately vaccinated.

12. Report adverse events.

Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form can be found on the Internet: <http://www.vaers.hhs.gov> or by calling 1-800-822-7967.

13. Report cases.

Report suspect cases of vaccine-preventable diseases to your local board of health and to the MDPH Immunization Program, 617-983-6800 or toll free 888-658-2850. More information regarding disease reporting and control measures can be found in the *Guide to Surveillance and Reporting*, available online at <http://www.mass.gov/dph/epi>.

Adapted from: National Vaccine Advisory Committee. *Standards for Child and Adolescent Immunization Practices*. Pediatrics. 2003;112:958-963.

Resources: Massachusetts Department of Public Health (MDPH): www.mass.gov/dph/imm, 888-658-2850 or 617-983-6800
National Immunization Information Hotline: 1-800-232-4636 (1-800-CDC-INFO) and 1-888-232-6348 (TTY)
National Immunization Program: www.cdc.gov/vaccines. Immunization Action Coalition: www.immunize.org
American Academy of Pediatrics: www.aap.org. Children's Hospital of Philadelphia Vaccine Education Center: www.chop.edu

Massachusetts School Immunization Requirements 2009*

	Child Care/Preschool ¹	Kindergarten	Grades 1-6	Grades 7-12	College ²
Hepatitis B³	3 doses	3 doses	3 doses	3 doses	3 doses for all health science students and all full-time undergraduate and graduate students
DTaP/DTP/DT/Td⁴	≥4 doses DTaP/DTP	5 doses DTaP/DTP	≥4 doses DTaP/DTP or ≥3 doses Td	4 doses DTaP/DTP or ≥3 doses Td; plus 1 Td booster	1 Td booster within the last 10 years
Polio⁵	≥3 doses	4 doses	≥3 doses	≥3 doses	NA
Hib⁶	1 to 4 doses ⁶	NA	NA	NA	NA
MMR⁷	1 dose	2 doses measles, 1 mumps, 1 rubella	2 doses measles, 1 mumps, 1 rubella	2 doses measles, 1 mumps, 1 rubella	2 doses measles, 1 mumps, 1 rubella
Varicella⁸	1 dose	1 dose	1 dose	<13 years old – 1 dose ≥13 years old – 2 doses	NA
Meningococcal^{9,10}	NA	NA	NA (see footnote 10)	1 dose for all new full-time residential students (see footnote 9)	1 dose for all new full-time residential students (see footnote 9)

*These requirements also apply to all new “enterers.”

NA means there is no vaccine requirement for the grades indicated.

¹**Child Care/Preschool:** Minimum requirements by 24 months; younger children should be immunized according to schedule for their age.

²**College:** Requirements apply to: 1) all full-time undergraduate and graduate students; 2) all full-time and part-time health science students; and 3) any full-time or part-time student attending any postsecondary institution while on a student or other visa, including foreign students attending or visiting classes as part of a formal academic visitation or exchange program.

³**Hepatitis B:** 3 doses are required for child care attendance and entry into preschool, kindergarten-12th grade, and college (full-time undergraduate and graduate students, as well as all full- and part-time undergraduate and graduate health science students). Laboratory proof of immunity is acceptable.

⁴**DTaP/DTP/DT/Td:** ≥4 doses are required for child care attendance and entry into preschool. 5 doses of DTaP/DTP are required for school entry unless the fourth dose is given on or after the 4th birthday. DT is only acceptable when accompanied by a letter stating a medical contraindication to DTaP/DTP. A **single** booster dose of Td is required for all students entering grades 7-12 (Tdap is also acceptable). Please note: Td is not required if it has been <5 years since their last dose of DTaP/DTP/DT.

⁵**Polio:** ≥3 doses are required for child care attendance and entry into preschool. 4 doses are required for school entry, unless the third dose of an all-IPV or all-OPV schedule is given on or after the 4th birthday, in which case only 3 doses are needed. However, if the sequential or a mixed IPV/OPV schedule was used, 4 doses are always required to complete the primary series.

⁶**Hib:** Hib vaccine is required for child care attendance and preschool entry. The number of primary doses is determined by vaccine product and age the series begins.

⁷**MMR:** 1 dose is required for child care attendance and entry into preschool. A second dose of measles vaccine, given at least 4 weeks after the first, is required for entry to all grades K-12, and college. Laboratory proof of immunity is acceptable.

⁸**Varicella:** 1 dose is required for child care attendance and for all students at entry to preschool and

kindergarten-12th grade, unless they have a physician-certified reliable history of chickenpox. If the child is ≥13 years of age at first vaccination, 2 doses are required.

A reliable history of chickenpox is defined as: 1) physician interpretation of parent/guardian description of chickenpox; 2) physician diagnosis of chickenpox; or 3) laboratory proof of immunity.

⁹**Meningococcal:** Immunization with meningococcal vaccine is required for: 1) newly enrolled full-time students attending a secondary school with grades 9-12 (in the case of ungraded classrooms, those with students 13 years or older) who will be **living in a dormitory or comparable congregate living arrangement** licensed or approved by the secondary school; and 2) newly enrolled full-time undergraduate and graduate students in a degree granting program at a postsecondary institution (e.g., colleges) who will be **living in a dormitory or comparable congregate living arrangement** licensed or approved by the postsecondary institution. These institutions are also required to supply all newly enrolled full-time students (or their parent/legal guardian) who will be **living in a dormitory or comparable congregate living arrangement** with the MDPH developed Meningococcal Information and Waiver Form.

All affected students must: 1) receive information about meningococcal disease and vaccine; and 2) provide documentation of receipt of 1 dose of meningococcal polysaccharide vaccine within the last 5 years (or a dose of meningococcal conjugate vaccine at anytime in the past).

As an alternative, affected students or their parent/legal guardian may sign the Meningococcal Information and Waiver Form developed by MDPH to indicate that they read and understood the required information related to the risks of meningococcal disease and: a) elected to decline the vaccine; or b) could not obtain meningococcal vaccine due to a shortage, but wish to receive it.

These requirements apply to **all newly enrolled full-time residential students**, regardless of grade and year of study.

¹⁰**At residential schools with lower grades:** the requirements apply to residential students in grades pre-K through 8 only if the school combines these grades in the same school or part of a school with students in grades 9-12.

Recommended Vaccines

Other vaccines are recommended, **but not currently required**, for child care and school entry. The table below indicates vaccines that are recommended, in addition to those required for child care and school entry. Please see the immunization schedules on pages one and two of this document for more detailed information on recommended vaccines and their dosing schedules.

	Child Care/Preschool	Kindergarten	Grades 1-6	Grades 7-12	College
Recommended Vaccines	<ul style="list-style-type: none"> • 3 doses rotavirus • 2 doses hepatitis A • 4 doses pneumococcal (PCV7) • Yearly influenza (after 6 months of age) 	<ul style="list-style-type: none"> • 2 doses varicella • Yearly influenza 	<ul style="list-style-type: none"> • 2 doses varicella • Yearly influenza 	<ul style="list-style-type: none"> • 1 dose Tdap • 1 dose meningococcal • 3 doses HPV (for females) • 2 doses varicella • Yearly influenza 	<ul style="list-style-type: none"> • 1 dose Tdap • 3 doses HPV (for females) • 2 doses varicella • Yearly influenza