

# 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 <sup>1</sup>	HepB	HepB	HepB	HepB	<i>see footnote 1</i>	HepB	HepB	HepB	HepB			
Rotavirus <sup>2</sup>				RV	RV	RV <sup>2</sup>						
Diphtheria, Tetanus, Pertussis <sup>3</sup>				DTaP	DTaP	DTaP	<i>see footnote 3</i>	DTaP	DTaP			DTaP
<i>Haemophilus influenzae</i> type b <sup>4</sup>				Hib	Hib	Hib <sup>4</sup>		Hib	Hib			
Pneumococcal <sup>5</sup>				PCV	PCV	PCV		PCV	PCV		PPSV	
Inactivated Poliovirus				IPV	IPV	IPV		IPV	IPV			IPV
Influenza <sup>6</sup>								Influenza (Yearly)				
Measles, Mumps, Rubella <sup>7</sup>								MMR		<i>see footnote 7</i>		MMR
Varicella <sup>8</sup>								Varicella		<i>see footnote 8</i>		Varicella
Hepatitis A <sup>9</sup>								HepA (2 doses)			HepA Series	
Meningococcal <sup>10</sup>											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<sup>®</sup> 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<sup>®</sup> or Comvax<sup>®</sup> [HepB-Hib]) is administered at ages 2 and 4 months, a dose at age 6 months is not indicated.
- TriHiBit<sup>®</sup> (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 <sup>1</sup>		see footnote 1	<b>Tdap</b>	<b>Tdap</b>
Human Papillomavirus <sup>2</sup>		see footnote 2	<b>HPV (3 doses)</b>	<b>HPV Series</b>
Meningococcal <sup>3</sup>		<b>MCV</b>	<b>MCV</b>	<b>MCV</b>
Influenza <sup>4</sup>			<b>Influenza (Yearly)</b>	
Pneumococcal <sup>5</sup>			<b>PPSV</b>	
Hepatitis A <sup>6</sup>			<b>HepA Series</b>	
Hepatitis B <sup>7</sup>			<b>HepB Series</b>	
Inactivated Poliovirus <sup>8</sup>			<b>IPV Series</b>	
Measles, Mumps, Rubella <sup>9</sup>			<b>MMR Series</b>	
Varicella <sup>10</sup>			<b>Varicella Series</b>	

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](http://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>).

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# Recommended Adult Immunization Schedule

## UNITED STATES - 2009

Note: These recommendations *must* be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.

**Figure 1. Recommended adult immunization schedule, by vaccine and age group**

VACCINE ▼	AGE GROUP▶	19–26 years	27–49 years	50–59 years	60–64 years	≥65 years
Tetanus, diphtheria, pertussis (Td/Tdap) <sup>1,*</sup>		Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs				Td booster every 10 yrs
Human papillomavirus (HPV) <sup>2,*</sup>		3 doses (females)				
Varicella <sup>3,*</sup>		2 doses				
Zoster <sup>4</sup>					1 dose	
Measles, mumps, rubella (MMR) <sup>5,*</sup>		1 or 2 doses		1 dose		
Influenza <sup>6,*</sup>		1 dose annually				
Pneumococcal (polysaccharide) <sup>7,8</sup>		1 or 2 doses				1 dose
Hepatitis A <sup>9,*</sup>		2 doses				
Hepatitis B <sup>10,*</sup>		3 doses				
Meningococcal <sup>11,*</sup>		1 or more doses				

\*Covered by the Vaccine Injury Compensation Program.



For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)



Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)



No recommendation

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at [www.hrsa.gov/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation) or by telephone, 800-338-2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.


Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination is also available at [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines) or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 24 hours a day, 7 days a week.


Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

**Figure 2. Vaccines that might be indicated for adults based on medical and other indications**

INDICATION ▶  VACCINE ▼	Pregnancy	Immuno-compromising conditions (excluding human immunodeficiency virus [HIV]) <sup>13</sup>	HIV infection <sup>3,12,13</sup> CD4+ T lymphocyte count		Diabetes, heart disease, chronic lung disease, chronic alcoholism	Asplenia <sup>12</sup> (including elective splenectomy and terminal complement deficiencies)	Chronic liver disease	Kidney failure, end-stage renal disease, receipt of hemodialysis	Health-care personnel
			<200 cells/μL	≥200 cells/μL					
Tetanus, diphtheria, pertussis (Td/Tdap) <sup>1,*</sup>	Td	Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs							
Human papillomavirus (HPV) <sup>2,*</sup>		3 doses for females through age 26 yrs							
Varicella <sup>3,*</sup>	Contraindicated		2 doses						
Zoster <sup>4</sup>	Contraindicated		1 dose						
Measles, mumps, rubella (MMR) <sup>5,*</sup>	Contraindicated		1 or 2 doses						
Influenza <sup>6,*</sup>	1 dose TIV annually								1 dose TIV or LAIV annually
Pneumococcal (polysaccharide) <sup>7,8</sup>	1 or 2 doses								
Hepatitis A <sup>9,*</sup>	2 doses								
Hepatitis B <sup>10,*</sup>	3 doses								
Meningococcal <sup>11,*</sup>	1 or more doses								

\*Covered by the Vaccine Injury Compensation Program.

 For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)

 Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

 No recommendation

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of January 1, 2009. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices ([www.cdc.gov/vaccines/pubs/acip-list.htm](http://www.cdc.gov/vaccines/pubs/acip-list.htm)).

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), the American College of Obstetricians and Gynecologists (ACOG), and the American College of Physicians (ACP).



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# Footnotes

## Recommended Adult Immunization Schedule—UNITED STATES - 2009

For complete statements by the Advisory Committee on Immunization Practices (ACIP), visit [www.cdc.gov/vaccines/pubs/ACIP-list.htm](http://www.cdc.gov/vaccines/pubs/ACIP-list.htm).

### 1. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination

Tdap should replace a single dose of Td for adults aged 19 through 64 years who have not received a dose of Tdap previously.

Adults with uncertain or incomplete history of primary vaccination series with tetanus and diphtheria toxoid-containing vaccines should begin or complete a primary vaccination series. A primary series for adults is 3 doses of tetanus and diphtheria toxoid-containing vaccines; administer the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second. However, Tdap can substitute for any one of the doses of Td in the 3-dose primary series. The booster dose of tetanus and diphtheria toxoid-containing vaccine should be administered to adults who have completed a primary series and if the last vaccination was received 10 or more years previously. Tdap or Td vaccine may be used, as indicated.

If a woman is pregnant and received the last Td vaccination 10 or more years previously, administer Td during the second or third trimester. If the woman received the last Td vaccination less than 10 years previously, administer Tdap during the immediate postpartum period. A dose of Tdap is recommended for postpartum women, close contacts of infants aged less than 12 months, and all health-care personnel with direct patient contact if they have not previously received Tdap. An interval as short as 2 years from the last Td is suggested; shorter intervals can be used. Td may be deferred during pregnancy and Tdap substituted in the immediate postpartum period, or Tdap may be administered instead of Td to a pregnant woman after an informed discussion with the woman.

Consult the ACIP statement for recommendations for administering Td as prophylaxis in wound management.

### 2. Human papillomavirus (HPV) vaccination

HPV vaccination is recommended for all females aged 11 through 26 years (and may begin at 9 years) who have not completed the vaccine series. History of genital warts, abnormal Papanicolaou test, or positive HPV DNA test is not evidence of prior infection with all vaccine HPV types; HPV vaccination is recommended for persons with such histories.

Ideally, vaccine should be administered before potential exposure to HPV through sexual activity; however, females who are sexually active should still be vaccinated consistent with age-based recommendations. Sexually active females who have not been infected with any of the four HPV vaccine types receive the full benefit of the vaccination. Vaccination is less beneficial for females who have already been infected with one or more of the HPV vaccine types.

A complete series consists of 3 doses. The second dose should be administered 2 months after the first dose; the third dose should be administered 6 months after the first dose.

HPV vaccination is not specifically recommended for females with the medical indications described in Figure 2, "Vaccines that might be indicated for adults based on medical and other indications." Because HPV vaccine is not a live-virus vaccine, it may be administered to persons with the medical indications described in Figure 2. However, the immune response and vaccine efficacy might be less for persons with the medical indications described in Figure 2 than in persons who do not have the medical indications described or who are immunocompetent. Health-care personnel are not at increased risk because of occupational exposure, and should be vaccinated consistent with age-based recommendations.

### 3. Varicella vaccination

All adults without evidence of immunity to varicella should receive 2 doses of single-antigen varicella vaccine if not previously vaccinated or the second dose if they have received only one dose unless they have a medical contraindication. Special consideration should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., health-care personnel and family contacts of persons with immunocompromising conditions) or 2) are at high risk for exposure or transmission (e.g., teachers; child care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers).

Evidence of immunity to varicella in adults includes any of the following: 1) documentation of 2 doses of varicella vaccine at least 4 weeks apart; 2) U.S.-born before 1980 (although for health-care personnel and pregnant women, birth before 1980 should not be considered evidence of immunity); 3) history of varicella based on diagnosis or verification of varicella by a health-care provider (for a patient reporting a history of or presenting with an atypical case, a mild case, or both, health-care providers should seek either an epidemiologic link with a typical varicella case or to a laboratory-confirmed case or evidence of laboratory confirmation, if it was performed at the time of acute disease); 4) history of herpes zoster based on health-care provider diagnosis or verification of herpes zoster by a health-care provider; or 5) laboratory evidence of immunity or laboratory confirmation of disease.

Pregnant women should be assessed for evidence of varicella immunity. Women who do not have evidence of immunity should receive the first dose of varicella vaccine upon completion or termination of pregnancy and before discharge from the health-care facility. The second dose should be administered 4–8 weeks after the first dose.

### 4. Herpes zoster vaccination

A single dose of zoster vaccine is recommended for adults aged 60 years and older regardless of whether they report a prior episode of herpes zoster. Persons with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication.

### 5. Measles, mumps, rubella (MMR) vaccination

*Measles component:* Adults born before 1957 generally are considered immune to measles. Adults born during or after 1957 should receive 1 or more doses of MMR unless they have a medical contraindication, documentation of 1 or more doses, history of measles based on health-care provider diagnosis, or laboratory evidence of immunity.

A second dose of MMR is recommended for adults who 1) have been recently exposed to measles or are in an outbreak setting; 2) have been vaccinated previously with killed measles vaccine; 3) have been vaccinated with an unknown type of measles vaccine during 1963–1967; 4) are students in postsecondary educational institutions; 5) work in a health-care facility; or 6) plan to travel internationally.

*Mumps component:* Adults born before 1957 generally are considered immune to mumps. Adults born during or after 1957 should receive 1 dose of MMR unless they have a medical contraindication, history of

mumps based on health-care provider diagnosis, or laboratory evidence of immunity.

A second dose of MMR is recommended for adults who 1) live in a community experiencing a mumps outbreak and are in an affected age group; 2) are students in postsecondary educational institutions; 3) work in a health-care facility; or 4) plan to travel internationally. For unvaccinated health-care personnel born before 1957 who do not have other evidence of mumps immunity, administering 1 dose on a routine basis should be considered and administering a second dose during an outbreak should be strongly considered.

*Rubella component:* 1 dose of MMR vaccine is recommended for women whose rubella vaccination history is unreliable or who lack laboratory evidence of immunity. For women of childbearing age, regardless of birth year, rubella immunity should be determined and women should be counseled regarding congenital rubella syndrome. Women who do not have evidence of immunity should receive MMR upon completion or termination of pregnancy and before discharge from the health-care facility.

## 6. Influenza vaccination

*Medical indications:* Chronic disorders of the cardiovascular or pulmonary systems, including asthma; chronic metabolic diseases, including diabetes mellitus, renal or hepatic dysfunction, hemoglobinopathies, or immunocompromising conditions (including immunocompromising conditions caused by medications or human immunodeficiency virus [HIV]); any condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration (e.g., cognitive dysfunction, spinal cord injury, or seizure disorder or other neuromuscular disorder); and pregnancy during the influenza season. No data exist on the risk for severe or complicated influenza disease among persons with asplenia; however, influenza is a risk factor for secondary bacterial infections that can cause severe disease among persons with asplenia.

*Occupational indications:* All health-care personnel, including those employed by long-term care and assisted-living facilities, and caregivers of children less than 5 years old.

*Other indications:* Residents of nursing homes and other long-term care and assisted-living facilities; persons likely to transmit influenza to persons at high risk (e.g., in-home household contacts and caregivers of children aged less than 5 years old, persons 65 years old and older and persons of all ages with high-risk condition[s]); and anyone who would like to decrease their risk of getting influenza. Healthy, nonpregnant adults aged less than 50 years without high-risk medical conditions who are not contacts of severely immunocompromised persons in special care units can receive either intranasally administered live, attenuated influenza vaccine (FluMist®) or inactivated vaccine. Other persons should receive the inactivated vaccine.

## 7. Pneumococcal polysaccharide (PPSV) vaccination

*Medical indications:* Chronic lung disease (including asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver diseases, cirrhosis; chronic alcoholism, chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]); immunocompromising conditions; and cochlear implants and cerebrospinal fluid leaks. Vaccinate as close to HIV diagnosis as possible.

*Other indications:* Residents of nursing homes or long-term care facilities and persons who smoke cigarettes. Routine use of PPSV is not recommended for Alaska Native or American Indian persons younger than 65 years unless they have underlying medical conditions that are PPSV indications. However, public health authorities may consider recommending PPSV for Alaska Natives and American Indians aged 50 through 64 years who are living in areas in which the risk of invasive pneumococcal disease is increased.

## 8. Revaccination with PPSV

One-time revaccination after 5 years for persons with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions. For persons aged 65 years and older, one-time revaccination if they were vaccinated 5 or more years previously and were aged less than 65 years at the time of primary vaccination.

## 9. Hepatitis A vaccination

*Medical indications:* Persons with chronic liver disease and persons who receive clotting factor concentrates.

*Behavioral indications:* Men who have sex with men and persons who use illegal drugs.

*Occupational indications:* Persons working with hepatitis A virus (HAV)-infected primates or with HAV in a research laboratory setting.

*Other indications:* Persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A (a list of countries is available at [www.cdc.gov/travel/content/diseases.aspx](http://www.cdc.gov/travel/content/diseases.aspx)) and any person seeking protection from HAV infection.

Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6–12 months (Havrix®), or 0 and 6–18 months (Vaqta®). If the combined hepatitis A and hepatitis B vaccine (Twinrix®) is used, administer 3 doses at 0, 1, and 6 months; alternatively, a 4-dose schedule, administered on days 0, 7 and 21 to 30 followed by a booster dose at month 12 may be used.

## 10. Hepatitis B vaccination

*Medical indications:* Persons with end-stage renal disease, including patients receiving hemodialysis; persons with HIV infection; and persons with chronic liver disease.

*Occupational indications:* Health-care personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids.

*Behavioral indications:* Sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than 1 sex partner during the previous 6 months); persons seeking evaluation or treatment for a sexually transmitted disease (STD); current or recent injection-drug users; and men who have sex with men.

*Other indications:* Household contacts and sex partners of persons with chronic hepatitis B virus (HBV) infection; clients and staff members of institutions for persons with developmental disabilities; international travelers to countries with high or intermediate prevalence of chronic HBV infection (a list of countries is available at [www.cdc.gov/travel/content/diseases.aspx](http://www.cdc.gov/travel/content/diseases.aspx)); and any adult seeking protection from HBV infection.

Hepatitis B vaccination is recommended for all adults in the following settings: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; health-care settings targeting services to injection-drug users or men who have sex with men; correctional facilities; end-stage renal disease programs and facilities for chronic hemodialysis patients; and institutions and nonresidential daycare facilities for persons with developmental disabilities.

If the combined hepatitis A and hepatitis B vaccine (Twinrix®) is used, administer 3 doses at

0, 1, and 6 months; alternatively, a 4-dose schedule, administered on days 0, 7 and 21 to 30 followed by a booster dose at month 12 may be used.

*Special formulation indications:* For adult patients receiving hemodialysis or with other immunocompromising conditions, 1 dose of 40 µg/mL (Recombivax HB®) administered on a 3-dose schedule or 2 doses of 20 µg/mL (Engerix-B®) administered simultaneously on a 4-dose schedule at 0, 1, 2 and 6 months.

### **11. Meningococcal vaccination**

*Medical indications:* Adults with anatomic or functional asplenia, or terminal complement component deficiencies.

*Other indications:* First-year college students living in dormitories; microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*; military recruits; and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the “meningitis belt” of sub-Saharan Africa during the dry season [December–June]), particularly if their contact with local populations will be prolonged. Vaccination is required by the government of Saudi Arabia for all travelers to Mecca during the annual Hajj.

Meningococcal conjugate (MCV) vaccine is preferred for adults with any of the preceding indications who are aged 55 years or younger, although meningococcal polysaccharide vaccine (MPSV) is an acceptable alternative. Revaccination with MCV after 5 years might be indicated for adults previously vaccinated with MPSV who remain at increased risk for infection (e.g., persons residing in areas in which disease is epidemic).

### **12. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccine may be used**

Hib vaccine generally is not recommended for persons aged 5 years and 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 vaccine to these persons is not contraindicated.

### **13. Immunocompromising conditions**

Inactivated vaccines generally are acceptable (e.g., pneumococcal, meningococcal, and influenza [trivalent inactivated influenza vaccine]), and live vaccines generally are avoided in persons with immune deficiencies or immunocompromising conditions. Information on specific conditions is available at [www.cdc.gov/vaccines/pubs/acip-list.htm](http://www.cdc.gov/vaccines/pubs/acip-list.htm).

# Summary of Recommendations for Adult Immunization

Vaccine name and route	For whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
<p><b>Influenza</b> Trivalent inactivated influenza vaccine (TIV) <i>Give IM</i></p> <hr/> <p>Live attenuated influenza vaccine (LAIV) <i>Give intranasally</i></p>	<ul style="list-style-type: none"> <li>All persons who want to reduce the likelihood of becoming ill with influenza or of spreading it to others.</li> <li>Persons age 50yrs and older. [TIV only]</li> <li>Persons with medical problems (e.g., heart or lung disease, renal, hepatic, hematologic, or metabolic disorder [including diabetes], immunosuppression). [TIV only]</li> <li>Persons with any condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration (e.g., cognitive dysfunction, spinal cord injury, seizure disorder, or other neuromuscular disorder). [TIV only]</li> <li>Persons living in chronic care facilities. [TIV only]</li> <li>Persons who work or live with high-risk people.</li> <li>Women who will be pregnant during the influenza season (December–spring). [If currently pregnant, TIV only]</li> <li>All healthcare personnel and other persons who provide direct care to high-risk people.</li> <li>Household contacts and out-of-home caregivers of children age 0–59m.</li> <li>Travelers at risk for complications of influenza who go to areas where influenza activity exists or who may be among people from areas of the world where there is current influenza activity (e.g., on organized tours ). [TIV only]</li> <li>Students or other persons in institutional settings (e.g., residents of dormitories or correctional facilities).</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>Note:</b> LAIV may not be given to some of the persons listed to the left; see contraindications listed in far right column.</p> </div>	<ul style="list-style-type: none"> <li>Give 1 dose every year in the fall or winter.</li> <li>Begin vaccination services as soon as vaccine is available and continue until the supply is depleted.</li> <li>Continue to give vaccine to unvaccinated adults throughout the influenza season (including when influenza activity is present in the community) and at other times when the risk of influenza exists.</li> <li>If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, and/or yellow fever vaccine—they should be given on the same day. If they are not, space them by at least 28d.</li> </ul>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine, to any of its components, or to eggs.</li> <li>For LAIV only, age 50 years or older, pregnancy, asthma, reactive airway disease or other chronic disorder of the pulmonary or cardiovascular system; an underlying medical condition, including metabolic disease such as diabetes, renal dysfunction, and hemoglobinopathy; a known or suspected immune deficiency disease or immunosuppressed state.</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>History of Guillain-Barré syndrome (GBS) within 6wks of previous influenza vaccination.</li> </ul>
<p><b>Pneumococcal polysaccharide (PPSV)</b> <i>Give IM or SC</i></p>	<ul style="list-style-type: none"> <li>Persons age 65yrs and older.</li> <li>Persons who have chronic illness or other risk factors, including chronic cardiac or pulmonary disease, chronic liver disease, alcoholism, diabetes, CSF leaks, cigarette smoking, as well as people living in special environments or social settings (including Alaska Natives and certain American Indian populations age 50 through 64 years if recommended by local public health authorities).</li> <li>Those at highest risk of fatal pneumococcal infection, including persons who             <ul style="list-style-type: none"> <li>have anatomic asplenia, functional asplenia, or sickle cell disease</li> <li>have an immunocompromising condition, including HIV infection, leukemia, lymphoma, Hodgkin’s disease, multiple myeloma, generalized malignancy, chronic renal failure, or nephrotic syndrome</li> <li>are receiving immunosuppressive chemotherapy (including corticosteroids)</li> <li>have received an organ or bone marrow transplant</li> <li>are candidates for or recipients of cochlear implants.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Give 1 dose if unvaccinated or if previous vaccination history is unknown.</li> <li>Give a 1-time revaccination at least 5yrs after 1st dose to persons             <ul style="list-style-type: none"> <li>age 65yrs and older if the 1st dose was given prior to age 65yrs</li> <li>at highest risk of fatal pneumococcal infection or rapid antibody loss (see the 3rd bullet in the box to left for listings of persons at highest risk)</li> </ul> </li> </ul>	<p><b>Contraindication</b></p> <p>Previous anaphylactic reaction to this vaccine or to any of its components.</p> <p><b>Precaution</b></p> <p>Moderate or severe acute illness.</p>
<p><b>Zoster (shingles) (Zos)</b> <i>Give SC</i></p>	<ul style="list-style-type: none"> <li>Persons age 60yrs and older.</li> </ul>	<ul style="list-style-type: none"> <li>Give 1-time dose if unvaccinated, regardless of previous history of herpes zoster (shingles) or chickenpox.</li> </ul>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous anaphylactic reaction to any component of zoster vaccine (e.g., gelatin &amp; neomycin).</li> <li>Primary cellular or acquired immunodeficiency.</li> <li>Pregnancy.</li> </ul> <p><b>Precaution</b></p> <p>Moderate or severe acute illness.</p>

\*This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, call the CDC-INFO Contact Center at (800) 232-4636; visit CDC’s website at [www.cdc.gov/vaccines/pubs/ACIP-list.htm](http://www.cdc.gov/vaccines/pubs/ACIP-list.htm); or visit the Immunization Action Coalition

(IAC) website at [www.immunize.org/acip](http://www.immunize.org/acip). This table is revised periodically. Visit IAC’s website at [www.immunize.org/adultrules](http://www.immunize.org/adultrules) to make sure you have the most current version.

# Summary of Recommendations for Adult Immunization (continued)

Vaccine name and route	For whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
<p><b>Hepatitis B (HepB)</b> <i>Give IM</i></p> <p>Brands may be used interchangeably.</p>	<ul style="list-style-type: none"> <li>All persons through age 18yrs.</li> <li>All adults wishing to be protected from hepatitis B virus infection.</li> <li>High-risk persons, including household contacts and sex partners of HBsAg-positive persons; injecting drug users; sexually active persons not in a long-term, mutually monogamous relationship; men who have sex with men; persons with HIV; persons seeking evaluation or treatment for an STD; patients receiving hemodialysis and patients with renal disease that may result in dialysis; healthcare personnel and public safety workers who are exposed to blood; clients and staff of institutions for the developmentally disabled; inmates of long-term correctional facilities; and certain international travelers.</li> <li>Persons with chronic liver disease.</li> </ul> <p><b>Note:</b> Provide serologic screening for immigrants from endemic areas. If patient is chronically infected, assure appropriate disease management. Screen sex partners and household members; give HepB at the same visit if not already vaccinated.</p>	<ul style="list-style-type: none"> <li>Give 3 doses on a 0, 1, 6m schedule.</li> <li>Alternative timing options for vaccination include 0, 2, 4m and 0, 1, 4m.</li> <li>There must be at least 4wks between doses #1 and #2, and at least 8wks between doses #2 and #3. Overall, there must be at least 16wks between doses #1 and #3.</li> <li><b>Schedule for those who have fallen behind:</b> If the series is delayed between doses, <b>DO NOT</b> start the series over. Continue from where you left off.</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>For Twinrix® (hepatitis A and B combination vaccine [GSK]) for patients age 18yrs and older only: give 3 doses on a 0, 1, 6m schedule. There must be at least 4wks between doses #1 and #2, and at least 5m between doses #2 and #3. An alternative schedule can also be used at 0, 7d, 21–30d, and a booster at 12m.</p> </div>	<p><b>Contraindication</b> Previous anaphylactic reaction to this vaccine or to any of its components.</p> <p><b>Precaution</b> Moderate or severe acute illness.</p>
<p><b>Hepatitis A (HepA)</b> <i>Give IM</i></p> <p>Brands may be used interchangeably.</p>	<ul style="list-style-type: none"> <li>All persons wishing to be protected from hepatitis A virus (HAV) infection.</li> <li>Persons who travel or work anywhere EXCEPT the U.S., Western Europe, New Zealand, Australia, Canada, and Japan.</li> <li>Persons with chronic liver disease; injecting and non-injecting drug users; men who have sex with men; people who receive clotting-factor concentrates; persons who work with HAV in experimental lab settings (not routine medical laboratories); food handlers when health authorities or private employers determine vaccination to be appropriate.</li> <li>Unvaccinated adults age 40yrs or younger with recent (within 2 wks) exposure to HAV. For persons older than age 40yrs with recent (within 2 wks) exposure to HAV, immune globulin is preferred over HepA vaccine.</li> </ul>	<ul style="list-style-type: none"> <li>Give 2 doses.</li> <li>The minimum interval between doses #1 and #2 is 6m.</li> <li>If dose #2 is delayed, do not repeat dose #1. Just give dose #2.</li> </ul>	<p><b>Contraindication</b> Previous anaphylactic reaction to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>Safety during pregnancy has not been determined, so benefits must be weighed against potential risk.</li> </ul>
<p><b>Td, Tdap (Tetanus, diphtheria, pertussis)</b> <i>Give IM</i></p>	<ul style="list-style-type: none"> <li>All adults who lack written documentation of a primary series consisting of at least 3 doses of tetanus- and diphtheria-toxoid-containing vaccine.</li> <li>A booster dose of tetanus- and diphtheria-toxoid-containing vaccine may be needed for wound management as early as 5yrs after receiving a previous dose, so consult ACIP recommendations.*</li> <li>Using tetanus toxoid (TT) instead of Td or Tdap is <u>not</u> recommended.</li> <li>In pregnancy, when indicated, give Td or Tdap in 2nd or 3rd trimester. If not administered during pregnancy, give Tdap in immediate postpartum period.</li> </ul> <p><b>For Tdap only:</b></p> <ul style="list-style-type: none"> <li>All adults younger than age 65yrs who have not already received Tdap.</li> <li>Adults in contact with infants younger than age 12m (e.g., parents, grandparents younger than age 65yrs, childcare providers, healthcare personnel) who have not received a dose of Tdap should be prioritized for vaccination.</li> <li>Healthcare personnel who work in hospitals or ambulatory care settings and have direct patient contact and who have not received Tdap.</li> </ul>	<ul style="list-style-type: none"> <li>For persons who are unvaccinated or behind, complete the primary series with Td (spaced at 0, 1–2m, 6–12m intervals). One-time dose of Tdap may be used for any dose if younger than age 65yrs.</li> <li>Give Td booster every 10yrs after the primary series has been completed. For adults younger than age 65yrs, a 1-time dose of Tdap is recommended to replace the next Td.</li> <li>Intervals of 2yrs or less between Td and Tdap may be used.</li> </ul> <p><b>Note:</b> The two Tdap products are licensed for different age groups: Adacel™ (sanofi) for use in persons age 11–64yrs and Boostrix® (GSK) for use in persons age 10–18yrs.</p>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine or to any of its components.</li> <li>For Tdap only, history of encephalopathy within 7d following DTP/DTaP.</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>GBS within 6wks of receiving a previous dose of tetanus-toxoid-containing vaccine.</li> <li>Unstable neurologic condition.</li> <li>History of Arthus reaction following a previous dose of tetanus- and/or diphtheria-toxoid-containing vaccine, including MCV.</li> </ul> <p><b>Note:</b> Use of Td/Tdap is not contraindicated in pregnancy. Either vaccine may be given during trimester #2 or #3 at the provider's discretion.</p>
<p><b>Polio (IPV)</b> <i>Give IM or SC</i></p>	<p>Not routinely recommended for U.S. residents age 18yrs and older.</p> <p><b>Note:</b> Adults living in the U.S. who never received or completed a primary series of polio vaccine need not be vaccinated unless they intend to travel to areas where exposure to wild-type virus is likely (i.e., India, Pakistan, Afghanistan, and Nigeria). Previously vaccinated adults can receive 1 booster dose if traveling to polio endemic areas.</p>	<ul style="list-style-type: none"> <li>Refer to ACIP recommendations* regarding unique situations, schedules, and dosing information.</li> </ul>	<p><b>Contraindication</b> Previous anaphylactic or neurologic reaction to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>Pregnancy.</li> </ul>

# Summary of Recommendations for Adult Immunization (continued)

Vaccine name and route	For whom vaccination is recommended	Schedule for vaccine administration (any vaccine can be given with another)	Contraindications and precautions (mild illness is not a contraindication)
<p><b>Varicella</b> (Var) (Chickenpox) <i>Give SC</i></p>	<ul style="list-style-type: none"> <li>All adults without evidence of immunity.</li> </ul> <p><b>Note:</b> Evidence of immunity is defined as written documentation of 2 doses of varicella vaccine; a history of varicella disease or herpes zoster (shingles) based on healthcare-provider diagnosis; laboratory evidence of immunity; laboratory confirmation of disease; and/or birth in the U.S. before 1980, with the exceptions that follow. Healthcare personnel (HCP) and pregnant women born in the U.S. before 1980 who do not meet any of the criteria above should be tested. If they are not immune, give the first dose of varicella vaccine immediately (HCP) or postpartum and before hospital discharge (pregnant women). Give the second dose 4–8 wks later. Routine post-vaccination testing is not recommended.</p>	<ul style="list-style-type: none"> <li>Give 2 doses.</li> <li>Dose #2 is given 4–8wks after dose #1.</li> <li>If the second dose is delayed, do not repeat dose #1. Just give dose #2.</li> <li>If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, and/or yellow fever vaccine—they should be given on the same day. If they are not, space them by at least 28d.</li> <li>May use as postexposure prophylaxis if given within 5d.</li> </ul>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine or to any of its components.</li> <li>Pregnancy or possibility of pregnancy within 4wks.</li> <li>Persons on high-dose immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired cellular immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte counts are greater than or equal to 200 cells/μL. See <i>MMWR</i> 2007;56,RR-4).</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP statement <i>General Recommendations on Immunization*</i> regarding time to wait before vaccinating.</li> </ul>
<p><b>Meningococcal</b> Conjugate vaccine (MCV) <i>Give IM</i> Polysaccharide vaccine (MPSV) <i>Give SC</i></p>	<ul style="list-style-type: none"> <li>All persons age 11 through 18yrs.</li> <li>College freshmen living in a dormitory.</li> <li>Persons with anatomic or functional asplenia or with a terminal-complement component deficiency.</li> <li>Persons who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the “meningitis belt” of Sub-Saharan Africa).</li> <li>Microbiologists routinely exposed to isolates of <i>N. meningitidis</i>.</li> </ul>	<ul style="list-style-type: none"> <li>Give 1 dose.</li> <li>If previous vaccine was MPSV, revaccinate after 3yrs if risk continues.</li> <li>Revaccination after MCV is not recommended.</li> <li>MCV is preferred over MPSV for persons age 55yrs and younger, although MPSV is an acceptable alternative.</li> </ul>	<p><b>Contraindication</b></p> <p>Previous anaphylactic or neurologic reaction to this vaccine or to any of its components, including diphtheria toxoid (for MCV).</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>For MCV only, history of Guillain-Barré syndrome (GBS).</li> </ul>
<p><b>MMR</b> (Measles, mumps, rubella) <i>Give SC</i></p>	<ul style="list-style-type: none"> <li>Persons born in 1957 or later (especially those born outside the U.S.) should receive at least 1 dose of MMR if there is no serologic proof of immunity or documentation of a dose given on or after the first birthday.</li> <li>Persons in high-risk groups, such as healthcare personnel (paid, unpaid, or volunteer), students entering college and other post-high school educational institutions, and international travelers, should receive a total of 2 doses.</li> <li>Persons born before 1957 are usually considered immune, but proof of immunity (serology or vaccination) may be desirable for healthcare personnel.</li> <li>Women of childbearing age who do not have acceptable evidence of rubella immunity or vaccination.</li> </ul>	<ul style="list-style-type: none"> <li>Give 1 or 2 doses (see criteria in 1st and 2nd bullets in box to left).</li> <li>If dose #2 is recommended, give it no sooner than 4wks after dose #1.</li> <li>If a pregnant woman is found to be rubella susceptible, give 1 dose of MMR postpartum.</li> <li>If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, and/or yellow fever vaccine—they should be given on the same day. If they are not, space them by at least 28d.</li> <li>Within 72hrs of measles exposure, give 1 dose as postexposure prophylaxis to susceptible adults.</li> </ul>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous anaphylactic reaction to this vaccine or to any of its components.</li> <li>Pregnancy or possibility of pregnancy within 4wks.</li> <li>Severe immunodeficiency (e.g., hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy; or severely symptomatic HIV.) <b>Note:</b> HIV infection is NOT a contraindication to MMR for those who are not severely immunocompromised (i.e., CD4+ T-lymphocyte counts are greater than or equal to 200 cells/μL).</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>If blood, plasma, and/or immune globulin were given in past 11m, see ACIP statement <i>General Recommendations on Immunization*</i> regarding time to wait before vaccinating.</li> <li>History of thrombocytopenia or thrombocytopenic purpura.</li> </ul> <p><b>Note:</b> If TST (tuberculosis skin test) and MMR are both needed but not given on same day, delay TST for 4–6wks after MMR.</p>
<p><b>Human papillomavirus</b> (HPV) <i>Give IM</i></p>	<p>All previously unvaccinated women through age 26yrs.</p>	<ul style="list-style-type: none"> <li>Give 3 doses on a 0, 2, 6m schedule.</li> <li>There must be at least 4wks between doses #1 and #2 and at least 12wks between doses #2 and #3. Overall, there must be at least 24wks between doses #1 and #3.</li> </ul>	<p><b>Contraindication</b></p> <p>Previous anaphylactic reaction to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>Data on vaccination in pregnancy are limited. Vaccination should be delayed until after completion of the pregnancy.</li> </ul>

# Summary of Recommendations for Childhood and Adolescent Immunization

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
<b>Hepatitis B (HepB)</b> <i>Give IM</i>	<ul style="list-style-type: none"> <li>Vaccinate all children age 0 through 18yrs.</li> <li>Vaccinate all newborns with monovalent vaccine prior to hospital discharge. Give dose #2 at age 1–2m and the final dose at age 6–18m (the last dose in the infant series should not be given earlier than age 24wks). After the birth dose, the series may be completed using 2 doses of single-antigen vaccine or up to 3 doses of Comvax (ages 2m, 4m, 12–15m) or Pediarix (ages 2m, 4m, 6m), which may result in giving a total of 4 doses of hepatitis B vaccine.</li> <li><b>If mother is HBsAg-positive:</b> give the newborn HBIG + dose #1 within 12hrs of birth; complete series at age 6m or, if using Comvax, at age 12–15m.</li> <li><b>If mother's HBsAg status is unknown:</b> give the newborn dose #1 within 12hrs of birth. If mother is subsequently found to be HBsAg positive, give infant HBIG within 7d of birth and follow the schedule for infants born to HBsAg-positive mothers.</li> </ul>	<ul style="list-style-type: none"> <li>Do not restart series, no matter how long since previous dose.</li> <li>3-dose series can be started at any age.</li> <li>Minimum spacing between doses: 4wks between #1 and #2, 8wks between #2 and #3, and at least 16wks between #1 and #3 (e.g., 0-, 2-, 4m; 0-, 1-, 4m).</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>Special Notes on Hepatitis B Vaccine (HepB)</b>  <b>Dosing of HepB:</b> Vaccine brands are interchangeable. For persons age 0 through 19yrs, give 0.5 mL of either Engerix-B or Recombivax HB.  <b>Alternative dosing schedule for unvaccinated adolescents age 11 through 15yrs:</b> Give 2 doses Recombivax HB 1.0 mL (adult formulation) spaced 4–6m apart. (Engerix-B is not licensed for a 2-dose schedule.)  <b>For preterm infants:</b> Consult ACIP hepatitis B recommendations (<i>MMWR</i> 2005; 54 [RR-16]).*</p> </div>	<p><b>Contraindication</b>            Previous anaphylaxis to this vaccine or to any of its components.</p> <p><b>Precaution</b>            Moderate or severe acute illness.</p>
<b>DTaP, DT (Diphtheria, tetanus, acellular pertussis)</b> <i>Give IM</i>	<ul style="list-style-type: none"> <li>Give to children at ages 2m, 4m, 6m, 15–18m, 4–6yrs.</li> <li>May give dose #1 as early as age 6wks.</li> <li>May give #4 as early as age 12m if 6m have elapsed since #3 and the child is unlikely to return at age 15–18m.</li> <li>Do not give DTaP/DT to children age 7yrs and older.</li> <li>If possible, use the same DTaP product for all doses.</li> </ul>	<ul style="list-style-type: none"> <li>#2 and #3 may be given 4wks after previous dose.</li> <li>#4 may be given 6m after #3.</li> <li>If #4 is given before 4th birthday, wait at least 6m for #5 (age 4–6yrs).</li> <li>If #4 is given after 4th birthday, #5 is not needed.</li> </ul>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous anaphylaxis to this vaccine or to any of its components.</li> <li>For DTaP/Tdap only: encephalopathy within 7d after DTP/DTaP.</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>History of Arthus reaction following a prior dose of tetanus- and/or diphtheria-toxoid-containing vaccine, including MCV.</li> </ul>
<b>Td, Tdap (Tetanus, diphtheria, acellular pertussis)</b> <i>Give IM</i>	<ul style="list-style-type: none"> <li>Give 1-time Tdap dose to adolescents age 11–12yrs if 5yrs have elapsed since last dose DTaP; then boost every 10yrs with Td.</li> <li>Give 1-time dose of Tdap to all adolescents who have not received previous Tdap. Special efforts should be made to give Tdap to persons age 11yrs and older who are               <ul style="list-style-type: none"> <li>in contact with infants younger than age 12m.</li> <li>healthcare workers with direct patient contact.</li> </ul> </li> <li>In pregnancy, when indicated, give Td or Tdap in 2nd or 3rd trimester. If not administered during pregnancy, give Tdap in immediate postpartum period.</li> </ul>	<ul style="list-style-type: none"> <li>If never vaccinated with tetanus- and diphtheria-containing vaccine: give Td dose #1 now, dose #2 4wks later, and dose #3 6m after #2, then give booster every 10yrs. A 1-time Tdap may be substituted for any dose in the series, preferably as dose #1. For persons who previously received a Td booster, an interval of 2yrs or less between Td and Tdap may be used.</li> </ul>	<ul style="list-style-type: none"> <li>Guillain-Barré syndrome within 6wks after previous dose of tetanus toxoid-containing vaccine.</li> <li>For DTaP only: Any of these events following a previous dose of DTP/DTaP: 1) temperature of 105°F (40.5°C) or higher within 48hrs; 2) continuous crying for 3hrs or more within 48hrs; 3) collapse or shock-like state within 48hrs; 4) convulsion with or without fever within 3d.</li> <li>For DTaP/Tdap only: Unstable neurologic disorder.</li> </ul> <p><b>Note:</b> Use of Td or Tdap is not contraindicated in pregnancy. At the provider's discretion, either vaccine may be administered during the 2nd or 3rd trimester.</p>
<b>Polio (IPV)</b> <i>Give SC or IM</i>	<ul style="list-style-type: none"> <li>Give to children at ages 2m, 4m, 6–18m, 4–6yrs.</li> <li>May give dose #1 as early as age 6wks.</li> <li>Not routinely recommended for U.S. residents age 18yrs and older (except certain travelers).</li> </ul>	<ul style="list-style-type: none"> <li>All doses should be separated by at least 4wks.</li> <li>If dose #3 is given after 4th birthday, dose #4 is not needed.</li> </ul>	<p><b>Contraindication</b>            Previous anaphylaxis to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>Pregnancy.</li> </ul>
<b>Human papilloma-virus (HPV)</b> <i>Give IM</i>	<ul style="list-style-type: none"> <li>Give 3-dose series to girls at age 11–12yrs on a 0, 2, 6m schedule. (May be given as early as age 9yrs.)</li> <li>Vaccinate all older girls and women (through age 26yrs) who were not previously vaccinated.</li> </ul>	Minimum spacing between doses: 4wks between #1 and #2; 12 wks between #2 and #3. Overall, there must be at least 24wks between doses #1 and #3.	<p><b>Contraindication</b>            Previous anaphylaxis to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>Pregnancy.</li> </ul>

\*This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of the recommendations, call the CDC-INFO Contact Center at (800) 232-4636; visit CDC's website at [www.cdc.gov/vaccines/pubs/ACIP-list.htm](http://www.cdc.gov/vaccines/pubs/ACIP-list.htm); or visit the Immunization Action Coalition (IAC)

website at [www.immunize.org/acip](http://www.immunize.org/acip). This table is revised periodically. Visit IAC's website at [www.immunize.org/childrules](http://www.immunize.org/childrules) to make sure you have the most current version.

# Summary of Recommendations for Childhood and Adolescent Immunization

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccine administration and related issues	Contraindications and precautions (mild illness is not a contraindication)
<b>Varicella</b> (Var) (Chickenpox) <i>Give SC</i>	<ul style="list-style-type: none"> <li>• Give dose #1 at age 12–15m.</li> <li>• Give dose #2 at age 4–6yrs. Dose #2 may be given earlier if at least 3m since dose #1.</li> <li>• Give a second dose to all older children and adolescents with history of only 1 dose.</li> <li>• MMRV may be used in children age 12m through 12yrs.</li> </ul>	<ul style="list-style-type: none"> <li>• If younger than age 13yrs, space dose #1 and #2 at least 3m apart. If age 13yrs or older, space at least 4wks apart.</li> <li>• May use as postexposure prophylaxis if given within 5d.</li> <li>• If Var and either MMR, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.</li> </ul>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous anaphylaxis to this vaccine or to any of its components.</li> <li>• Pregnancy or possibility of pregnancy within 4wks.</li> <li>• Children on high-dose immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired cellular immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte percentages are either 15% or greater in children ages 1 through 8yrs or 200 cells/mL or greater in children age 9yrs or older).</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP statement <i>General Recommendations on Immunization*</i> regarding time to wait before vaccinating.</li> </ul> <p><b>Note:</b> For patients with humoral immunodeficiency or leukemia, see ACIP recommendations*.</p>
<b>MMR</b> (Measles, mumps, rubella) <i>Give SC</i>	<ul style="list-style-type: none"> <li>• Give dose #1 at age 12–15m.</li> <li>• Give dose #2 at age 4–6yrs. Dose #2 may be given earlier if at least 4wks since dose #1.</li> <li>• Give a second dose to all older children and teens with history of only 1 dose.</li> <li>• MMRV may be used in children age 12m through 12yrs.</li> </ul>	<ul style="list-style-type: none"> <li>• If MMR and either Var, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.</li> <li>• When using MMR for both doses, minimum interval is 4wks.</li> <li>• When using MMRV for both doses, minimum interval is 3m.</li> <li>• Within 72hrs of measles exposure, give 1 dose of MMR as postexposure prophylaxis to susceptible healthy children age 12m and older.</li> </ul>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous anaphylaxis to this vaccine or to any of its components.</li> <li>• Pregnancy or possibility of pregnancy within 4wks.</li> <li>• Severe immunodeficiency (e.g., hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy, or severely symptomatic HIV). Note: HIV infection is NOT a contraindication to MMR for children who are not severely immunocompromised (consult ACIP MMR recommendations [<i>MMWR</i> 1998;47 [RR-8] for details*).</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• If blood, plasma, or immune globulin given in past 11m, see ACIP statement <i>General Recommendations on Immunization*</i> regarding time to wait before vaccinating.</li> <li>• History of thrombocytopenia or thrombocytopenic purpura.</li> </ul> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content;"> <p><b>Note:</b> MMR is not contraindicated if a TST (tuberculosis skin test) was recently applied. If TST and MMR are not given on same day, delay TST for at least 4wks after MMR.</p> </div>
<b>Influenza</b> Trivalent inactivated influenza vaccine (TIV) <i>Give IM</i> <hr/> <i>Live attenuated influenza vaccine (LAIV)</i> <i>Give intranasally</i>	<ul style="list-style-type: none"> <li>• Vaccinate all children and teens age 6m through 18yrs, as well as all household contacts of infants and children through age 59m (4yrs 11m).</li> <li>• Vaccinate persons age 19yrs and older who               <ul style="list-style-type: none"> <li>- have a risk factor (e.g., pregnancy, heart or lung disease, renal, hepatic, hematologic, or metabolic disorder [including diabetes], immunosuppression, or have a condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration) or live in a chronic-care facility.</li> <li>- live or work with at-risk people as listed above.</li> </ul> </li> <li>• All other persons who want to reduce the likelihood of becoming ill with influenza or of spreading it to others.</li> <li>• LAIV may be given to healthy, non-pregnant persons age 2–49yrs.</li> <li>• Give 2 doses to first-time vaccinees age 6m through 8yrs, spaced 4wks apart.</li> <li>• For TIV, give 0.25 mL dose to children age 6–35m and 0.5 mL dose if age 3yrs and older.</li> </ul>		<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous anaphylaxis to this vaccine, to any of its components, or to eggs.</li> <li>• For LAIV only: Pregnancy, asthma, reactive airways disease, or other chronic disorder of the pulmonary or cardiovascular systems; an underlying medical condition, including metabolic diseases such as diabetes, renal dysfunction, and hemoglobinopathies; known or suspected immune deficiency diseases or immunosuppressed states; for children younger than age 5yrs, possible reactive airways disease (e.g., recurrent wheezing or a wheezing episode within the past 12m).</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• History of Guillain-Barré syndrome within 6wks of a previous influenza vaccination.</li> </ul> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; width: fit-content;"> <p><b>Note:</b> If LAIV and either MMR, Var, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.</p> </div>
<b>Rotavirus</b> (RV) <i>Give orally</i>	<ul style="list-style-type: none"> <li>• Rotarix (RV1): give at age 2m, 4m</li> <li>• RotaTeq (RV5): give at age 2m, 4m, 6m</li> <li>• May give dose #1 as early as age 6wks.</li> <li>• Give dose #3 no later than age 8m 0 days.</li> </ul>	<ul style="list-style-type: none"> <li>• Do not begin series in infants older than age 15wks 0 days.</li> <li>• Intervals between doses may be as short as 4wks.</li> <li>• If prior vaccination included use of different or unknown brand(s), a total of 3 doses should be given.</li> </ul>	<p><b>Contraindication</b></p> <p>Previous anaphylaxis to this vaccine or to any of its components, including latex for RV1.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• Altered immunocompetence.</li> <li>• Moderate to severe acute gastroenteritis or chronic gastrointestinal disease.</li> <li>• History of intussusception.</li> </ul>

# Summary of Recommendations for Childhood and Adolescent Immunization

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
<p><b>Hib</b> (<i>Haemophilus influenzae</i> type b) Give IM</p>	<ul style="list-style-type: none"> <li>• ActHib (PRP-T): give at age 2m, 4m, 6m, 12–15m (booster dose).</li> <li>• PedvaxHIB or Comvax (containing PRP-OMP): give at age 2m, 4m, 12–15m (booster dose).</li> <li>• Dose #1 of Hib vaccine should not be given earlier than age 6wks.</li> <li>• The last dose (booster dose) is given no earlier than age 12m and a minimum of 8wks after the previous dose.</li> <li>• Hib vaccines are interchangeable; however, if different brands of Hib vaccines are administered for dose #1 and dose #2, a total of 3 doses are necessary to complete the primary series in infants.</li> <li>• Any Hib vaccine may be used for the booster dose.</li> <li>• Hib is not routinely given to children age 5yrs and older.</li> </ul>	<p><b>All Hib vaccines:</b></p> <ul style="list-style-type: none"> <li>• If #1 was given at 12–14m, give booster in 8wks.</li> <li>• Give only 1 dose to unvaccinated children from age 15 through 59m.</li> </ul> <p><b>ActHib:</b></p> <ul style="list-style-type: none"> <li>• #2 and #3 may be given 4wks after previous dose.</li> <li>• If #1 was given at age 7–11m, only 3 doses are needed; #2 is given 4–8wks after #1, then boost at age 12–15m (wait at least 8wks after dose #2).</li> </ul> <p><b>PedvaxHIB and Comvax:</b></p> <ul style="list-style-type: none"> <li>• #2 may be given 4wks after dose #1.</li> </ul>	<p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous anaphylaxis to this vaccine or to any of its components.</li> <li>• Age younger than 6wks.</li> </ul> <p><b>Precaution</b></p> <p>Moderate or severe acute illness.</p>
<p><b>Pneumo. conjugate (PCV)</b> Give IM</p>	<ul style="list-style-type: none"> <li>• Give at ages 2m, 4m, 6m, 12–15m.</li> <li>• Dose #1 may be given as early as age 6wks.</li> <li>• Give 1 dose to unvaccinated healthy children age 24–59m.</li> <li>• For high-risk** children ages 24–59m, give 2 doses at least 8wks apart if previous vaccinations were fewer than 3 doses, or give 1 dose if previously received 3 doses.</li> <li>• PCV is not routinely given to children age 5yrs and older.</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>**High-risk:</b> Those with sickle cell disease; anatomic/functional asplenia; chronic cardiac, pulmonary, or renal disease; diabetes; cerebrospinal fluid leaks; HIV infection; immunosuppression; diseases associated with immunosuppressive and/or radiation therapy; or who have or will have a cochlear implant.</p> </div>	<ul style="list-style-type: none"> <li>• For age 7–11m: If history of 0–2 doses, give additional doses 4wks apart with no more than 3 total doses by age 12m; then give booster 8wks later.</li> <li>• For age 12–23m: If 0–1 dose before age 12m, give 2 doses at least 8wks apart. If 2–3 doses before age 12m, give 1 dose at least 8wks after previous dose.</li> <li>• For age 24–59m: If patient has had no previous doses, or has a history of 1–3 doses given before age 12m but no booster dose, or has a history of only 1 dose given at age 12–23m, give 1 dose now.</li> </ul>	<p><b>Contraindication</b></p> <p>Previous anaphylaxis to this vaccine or to any of its components.</p> <p><b>Precaution</b></p> <p>Moderate or severe acute illness.</p>
<p><b>Pneumo. polysacch. (PPSV)</b> Give IM or SC</p>	<ul style="list-style-type: none"> <li>• Give 1 dose at least 8wks after final dose of PCV to high-risk children age 2yrs and older.</li> <li>• For children who are immunocompromised or have sickle cell disease or functional or anatomic asplenia, give a 2nd dose of PPSV 5yrs after previous PPSV (consult ACIP PPSV recommendations at <a href="http://www.cdc.gov/vaccines/pubs/ACIP-list.htm">http://www.cdc.gov/vaccines/pubs/ACIP-list.htm</a>).</li> </ul>		<p><b>Contraindication</b></p> <p>Previous anaphylaxis to this vaccine or to any of its components.</p> <p><b>Precaution</b></p> <p>Moderate or severe acute illness.</p>
<p><b>Hepatitis A (HepA)</b> Give IM</p>	<ul style="list-style-type: none"> <li>• Give 2 doses to all children at age 1yr (12–23m) spaced 6m apart.</li> <li>• Vaccinate all previously unvaccinated children and adolescents age 2 years and older who             <ul style="list-style-type: none"> <li>- Live in a state, county, or community with a routine vaccination program already in place for children age 2yrs and older.</li> <li>- Travel anywhere except U.S., W. Europe, N. Zealand, Australia, Canada, or Japan.</li> <li>- Wish to be protected from HAV infection.</li> <li>- Have chronic liver disease, clotting factor disorder, or are MSM adolescents.</li> <li>- Are injecting or non-injecting drug users.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Minimum interval between doses is 6m.</li> <li>• Children who are not fully vaccinated by age 2yrs can be vaccinated at subsequent visits.</li> <li>• Consider routine vaccination of children age 2yrs and older in areas with no existing program.</li> <li>• Give 1 dose as postexposure prophylaxis to incompletely vaccinated children age 12m and older who have recently (during the past 2wks) been exposed to hepatitis A virus.</li> </ul>	<p><b>Contraindication</b></p> <p>Previous anaphylaxis to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• Pregnancy.</li> </ul>
<p><b>Meningococcal conjugate (MCV)</b> Give IM</p> <p><b>polysaccharide (MPSV)</b> Give SC</p>	<ul style="list-style-type: none"> <li>• Give 1-time dose of MCV to adolescents age 11 through 18yrs.</li> <li>• Vaccinate all college freshmen living in dorms who have not been vaccinated.</li> <li>• Vaccinate all children age 2yrs and older who have any of the following risk factors (MCV is preferable to MPSV):             <ul style="list-style-type: none"> <li>- Anatomic or functional asplenia, or terminal complement component deficiency.</li> <li>- Travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the “meningitis belt” of Sub-Saharan Africa).</li> </ul> </li> </ul>	<p>If previously vaccinated with MPSV and risk continues, give MCV 5yrs after MPSV.</p>	<p><b>Contraindication</b></p> <p>Previous anaphylaxis to this vaccine or to any of its components, including diphtheria toxoid (for MCV).</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• For MCV only: history of Guillain-Barré syndrome (GBS).</li> </ul>