

SHOT TALK

Visit www.sanantonio.gov/health/immunizations.html for news about the control and prevention of vaccine-preventable diseases.

2012 Recommended Immunization Schedule

The Centers for Disease Control and Prevention’s (CDC’s) Advisory Committee on Immunization Practices (ACIP) has released its 2012 recommended immunization schedules for children, adolescents, and adults as well as the new version of the catch-up schedule. Some of the more significant changes concern tetanus, diphtheria and acellular pertussis vaccine administration among health care personnel and pregnant women, administration of hepatitis B vaccine in people with diabetes, and the addition of the quadrivalent human papillomavirus vaccine for boys and young men.

In June, ACIP recommended that pregnant women who have never received Tdap vaccine should be immunized during their second or third trimester rather than in the immediate postpartum period. The 2012 schedule also reflects the ACIP’s call for health care personnel to receive a single dose of Tdap vaccine if they have not received it previously.

The ACIP also made a change to the 2012 catch-up immunization schedule with regard to Tdap, adding that children who received Tdap as a catch-up dose at age 7 through 10 years should not receive an adolescent dose. Instead they should receive a dose of Td vaccine.

In October, the ACIP voted to recommend routine hepatitis B immunization of unvaccinated adults with diabetes who are younger than age 60 and optimal use of the vaccine in diabetic adults 60 and older. The recommendation was based on evidence that patients are at increased risk for hepatitis B because of shared testing equipment.

The ACIP has also added footnotes to include routine recommendations for HPV4 vaccination in boys 11 to 12 years of age, with catch-up vaccinations at age 13 to 21 years of age. However, it is acceptable to begin HPV4 vaccination in boys as young as 9 years of age.

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CDC will publish the annually updated Recommended Immunization Schedule for Children, Adolescents, and Adults in MMWR on February 10, 2012. Copies of the 2012 ACIP Recommended Immunization Schedule for Children and Adolescents are attached to this quarter’s Shot Talk Issue. The 2012 Catch-Up Schedule is also attached.



1st National Immunization Conference Online (NICO) March 26-28, 2012

The 1st National Immunization Conference Online (NICO), a virtual conference will take place in March 2012. The conference will be entirely online. No travel is required for presenters or attendees. The goals of the Conference are to provide information that will help participants provide comprehensive immunization coverage for all age groups and explore innovative strategies for developing programs, policy, and research to promote immunization coverage for all age groups. Many topics will be presented and discussed, with special emphasis on:

- Adolescent Immunization**
- Adult Immunization**
- Health Communications**
- Epidemiology / Surveillance**
- HPV Vaccine**
- Programmatic Issues**
- Immunization Information Systems (Registries)**
- Vaccine Safety**

Registration: There is no cost to participate in the National Immunization Conference Online. Pre-registration is not available. Attendance at live workshops is limited to the first 1,000 people to log in at the start of each session. Log-in instructions will be posted on the NICO web-site when available: <http://www.cdc.gov/vaccines/events/nico/>

Workshops: Invited speakers will present remotely over the Internet and telephone in a series of live, web-based sessions attended by up to 1,000 people. Workshops will include multiple presentations, be one hour in length, and recorded. Recordings will be made available on the Internet after the conclusion of the Conference for on-demand viewing.

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Conference agenda:

<http://cdc.confex.com/cdc/nic2012/webprogram/meeting.html>

For more information about the 1st National Immunization Conference Online, please contact the **Conference Planning Team** at **(404) 639-8225** or via e-mail at NIPNIC@cdc.gov.

Serious Adverse Events Rare with Vaccines

The Institute of Medicine (IOM) has released a review of evidence regarding vaccines and adverse events that will give family physicians more resources to reassure parents concerning the safety of vaccines. A committee examined 1,000 peer-reviewed articles and weighed both epidemiologic and clinical evidence before reaching conclusions on whether a vaccine could cause a specific adverse event. The extensive review found few casual relationships.

Doug Campos-Outcalt, MD., M.P.A. Chair of the Department of Family and Community Medicine at the University of Arizona College of Medicine, Phoenix, and a member of the CDC's ACIP stated, "What they said could be summed up in three brief statements. Vaccines are one of the most effective public health interventions of all time. We give hundreds of millions of doses of vaccines. Severe adverse reactions are extremely rare." Dr. Campos-Outcalt believes the report is an excellent source of information for family physicians.

The IOM committee reviewed adverse event reports related to vaccines for hepatitis A, hepatitis B, HPV, influenza, MMR, meningococcal disease, tetanus, and varicella.

Evidence favored rejection of five vaccine and adverse event relationships:

- MMR vaccine and autism
- MMR vaccine and type 1 diabetes
- Diphtheria and tetanus toxoids and acellular pertussis, or DTaP, vaccine and type 1 diabetes
- Inactivated influenza vaccine and Bell's palsy
- Inactivated influenza vaccine and exacerbation of asthma or reactive airway disease episodes in children and adults

Evidence favored acceptance (committee found strong but not convincing evidence) of a causal relationship for four vaccines:

- HPV vaccine and anaphylaxis
- MMR vaccine and transient arthralgia in female adults
- MMR vaccine and transient arthralgia in children

- Certain trivalent inactivated influenza vaccines used in Canada in some recent years and a mild and temporary oculorespiratory syndrome, which is characterized by conjunctivitis, facial swelling and upper respiratory symptoms

If you are interested in reading the comprehensive review of evidence, you can obtain a free six page brief at:

<http://www.iom.edu/Reports/2011/Adverse-Effects-of-Vaccines-Evidence-and-Causality.aspx>

The IOM has also released a one page table that summarizes the level of evidence related to potential adverse event and a specific vaccine which can be obtained at the link above by selecting summary of causality conclusions table.

2011 Ends with a Bang for QA/AFIX

2011 was an impressive and productive year for QA/AFIX. The QA/AFIX team successfully completed a record total of **208** VFC site review visits with **194** facilities participating in the Co-CASA record review process. At this time, we would like to thank the team members of the QA/AFIX for all their hard work. Great JOB Team!

We are pleased to report that **168** facilities received certificates this year in recognition of achieving 80% or higher for their immunization coverage rate. **One hundred and forty-nine** of these VFC providers were successful in reaching and exceeding the Healthy People 2020 Goal. This goes to prove that dedication and hard work does pay off!

The QA/AFIX Team is always willing to assist you in arranging an appointment for a site visit to benefit your facility. Each visit is designed to provide assistance with identifying possible barriers to immunization that may result in low vaccination coverage or missed opportunities. The primary role of the QA/AFIX Team is to assist providers in finding practical solutions to immunization related dilemmas within their facilities.

While conducting the VFC site review visits, the QA/AFIX Team identified the following discrepancies which lead to low immunization coverage levels:

- It is important that all staff are knowledgeable of the ACIP Immunization Requirements for assessing a client's immunization status. Our team has noticed that immunization coverage levels sometimes drop in provider offices due to staff scheduling immunization appointments for clients inappropriately, causing invalid spacing between vaccine dosages.

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This can be eliminated by ensuring that front office staff know and understand the immunization schedule.

- Immunization histories documented on numerous sheets in a client's record, instead of on one uniform immunization sheet.
- Failure to transcribe immunization histories for clients that received immunizations outside of their medical home (e.g. immunizations administered at SAMHD or another medical facility).
- Failure to document a date for the birth dose of hepatitis B vaccine routinely administered before hospital discharge. "At birth or at hospital" is not acceptable documentation that the infant received the birth dose of hepatitis B. If the precise date of immunization, including the month, day, and year cannot be retrieved or verified for any dose of vaccine, it cannot be counted as a valid dose. The facility must repeat the dose when proof of vaccination is incomplete.
- Facilities that lack an effective reminder/recall system. Reminder/recall systems will help facilities identify clients who are due/past due for immunizations, helping to ensure that each child completes their immunization series on time.
- Lack of documentation for clients that have moved or gone elsewhere for services. Implementing a reminder/recall system will help to identify clients that fall into this category who have lapsed with their immunizations and may not be active in the facility anymore.
- Referring clients out for immunizations. This practice should not occur in any provider office. If the provider office does not have a specific antigen available that a client needs, we recommend the provider office to implement a reminder/recall system to assist in recalling clients to their practice when vaccine becomes available. Referring clients out for needed immunizations creates barriers to immunization and a missed window of opportunity to protect a patient from a potentially harmful disease. When circumstances arise which necessitate referring a client for immunizations it is the primary care provider's (PCP) responsibility to ensure that all needed immunizations are received.
- Capturing and recording a date for the varicella (chicken pox) vaccine. Each client's record should have a documented date for either the date the client had the disease or the date the vaccine was administered.
- Administering the 4th dose of diphtheria, tetanus, pertussis (DTaP) inappropriately.

It is important to follow the Advisory Committee on Immunization Practices (ACIP) "Recommended Childhood and Adolescent Immunization Schedule." It states, "The 4th dose of DTaP may be administered as early as age 12 months, provided 6 months have elapsed since the 3rd dose and the child is unlikely to return at age 15-18 months."

- Improper spacing when administering hepatitis B vaccine.
- It is important to remember the following rules when administering hepatitis B vaccine: there should be a 4 week minimal interval between the 1st and 2nd doses of hepatitis B; there should be an 8 week minimal interval between the 2nd and 3rd doses of hepatitis B and the child should be at least 6 months before receiving this dose and there should be at least 16 weeks between the 1st and 3rd dose of hepatitis B.

The members of the QA/AFIX Team would like to thank the following providers and their staff for participating in the QA/AFIX site review visit process during this past quarter:

Por Vida Academy, Children of Texas Pediatrics, South Alamo Pediatric Clinic, Dr. Mahendra Patel, Buena Vista Family Practice, Dr. Xavier R. Cortada, Holy Cross Family Practice, San Antonio Pediatric Associates-San Saba, Pediatrics and Adolescents, La Mision Family Health Care, CentroMed Haven for Hope, Family Clinics of San Antonio, Pediatric Care, Northeast Pediatric Associates, Family Care and Minor Emergency Center, Bexar County Juvenile Detention Center-Mission Rd., San Antonio Pediatric Associates-Walzem Rd., Gruesbeck Medical Clinic-Walzem, Westlakes Primary Care, Kellum Medical Group-Lytle, UHS-Ricardo Salinas Clinic, Dr. Malliah Shiva, UHS-South Flores Clinic, Southwest Children's Center, UHS-Westend Multi-Service Center, UHS-Kenwood Clinic, UHS-Old Hwy 90 Clinic, Tejas Pediatrics, UHS-Zarzamora Clinic, Faith Family Clinic, A thru Z Pediatrics-Stone Oak, Dr. Bhanumathi Nandakumar, Little Buddies Pediatric Clinic, Priority Pediatrics, Gruesbeck Medical Clinic-24th St., UHS-Eastside Branch, San Antonio Pediatric Associates-Culebra, Summit Children's Clinic, UHS-Naco Perrin, CentroMed Maria Castro Flores Clinic, UT Community Health Partners-Avance Clinic, South Central Texas Primary Care, Dr. Julian R. Cantu, Dr. Shantha Kesavulu, University Physicians Group-Family Health Center, CommuniCare Health Center-Dr. Frank Bryant Health Center, Jefferson Family Practice, Dr. Lucina Trevino-Seton Home, St. Mary's University, South Alamo Medical Group-Dr. Ninza Sanchez, Dr. Graciela Moreno, Dr. Howard H. Galarneau, Jr.-Castroville, Gruesbeck Family Medicine, San Antonio Institute of Medicine,

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Barlite Medical Clinic, Dr. Josephine Ruiz-Healy, Dr. Federico Ng, Dr. Abigail Barrera, Dr. Federico Padua, Trinity Family Medicine Clinic, Christus Santa Rosa Healthcare Pharmacy, Stone Oak Urgent Care FP, Step by Step Pediatrics, Kellum Medical Group-Marbach and Dr. Francisco Barrera.

Congratulations go out to the following providers that achieved outstanding immunization coverage rates during the past quarter:

Children of Texas Pediatrics (100%), South Alamo Pediatric Clinic (83%), Dr. Xavier R. Cortada (84%), Holy Cross Family Practice (88%), San Antonio Pediatric Associates-San Saba (100%), Pediatrics and Adolescents (100%), La Mision Family Health Care (86%), CentroMed Haven for Hope (100%), Family Clinics of San Antonio (100%), Pediatric Care (100%), Northeast Pediatric Associates (100%), Family Care and Minor Emergency Center (100%), Bexar County Juvenile Detention Center-Mission Rd. (95%), San Antonio Pediatric Associates-Walzem Rd. (100%), Westlakes Primary Care (100%), Kellum Medical Group-Lytle (90%), UHS-Ricardo Salinas Clinic (100%), UHS-South Flores Clinic (100%), Southwest Children’s Center (100%), UHS-Kenwood Clinic (100%), UHS-Old Hwy 90 Clinic (100%), Tejas Pediatrics (100%), UHS-Zarzamora Clinic (100%), Faith Family Clinic (100%), A thru Z Pediatrics-Stone Oak (100%), Dr. Bhanumathi Nandakumar (100%), Little Buddies Pediatric Clinic (100%), Priority Pediatrics (100%), Gruesbeck Medical Clinic-24th St. (100%), UHS-Eastside Branch (100%), San Antonio Pediatric Associates-Culebra (83%), Summit Children’s Clinic (100%), UHS-Naco Perrin (100%), CentroMed Maria Castro Flores Clinic (98%), UT Community Health Partners-Avance Clinic (100%), Dr. Julian R. Cantu (86%), Dr. Shantha Kesavulu (100%), University Physicians Group-Family Health Center (100%), CommuniCare Health Center-Dr. Frank Bryant Health Center (100%), Dr. Lucina Trevino-Seton Home (100%), St. Mary’s University (100%), Dr. Graciela Moreno (100%), Dr. Howard H. Galarneau, Jr.-Castroville (93%), Gruesbeck Family Medicine (100%), San Antonio Institute of Medicine (96%), Barlite Medical Clinic (100%), Dr. Josephine Ruiz-Healy (100%), Dr. Federico Ng (100%), Dr. Federico Padua (83%), Trinity Family Medicine Clinic (100%), Stone Oak Urgent Care FP (88%), Step by Step Pediatrics (92%), Kellum Medical Group-Marbach (100%) and Dr. Francisco Barrera (80%).

Special Congratulations go out to these “Hot Shot” Offices: Children of Texas Pediatrics, San Antonio Pediatric Associates-San Saba, Pediatrics and Adolescents, CentroMed Haven for Hope, Family Clinics of San Antonio, Pediatric Care, Northeast Pediatric Associates, Family Care and Minor Emergency Center, Bexar County Juvenile Detention Center-Mission Rd.,

San Antonio Pediatric Associates-Walzem Rd., Westlakes Primary Care, Kellum Medical Group-Lytle, UHS-Ricardo Salinas Clinic, UHS-South Flores Clinic, Southwest Children’s Center, UHS-Kenwood Clinic , UHS-Old Hwy 90 Clinic , Tejas Pediatrics, UHS-Zarzamora Clinic, Faith Family Clinic, A thru Z Pediatrics-Stone Oak, Dr. Bhanumathi Nandakumar, Little Buddies Pediatric Clinic, Priority Pediatrics, Gruesbeck Medical Clinic-24th St., UHS-Eastside Branch, Summit Children’s Clinic, UHS-Naco Perrin, CentroMed Maria Castro Flores Clinic, UT Community Health Partners-Avance Clinic, Dr. Shantha Kesavulu, University Physicians Group-Family Health Center, CommuniCare Health Center-Dr. Frank Bryant Health Center, Dr. Lucina Trevino-Seton Home, St. Mary’s University, Dr. Graciela Moreno, Dr. Howard H. Galarneau, Jr.-Castroville, Gruesbeck Family Medicine, San Antonio Institute of Medicine, Barlite Medical Clinic, Dr. Josephine Ruiz-Healy, Dr. Federico Ng, Trinity Family Medicine Clinic, Step by Step Pediatrics and Kellum Medical Group-Marbach.

All these facilities continue to invest substantial efforts towards improving children’s immunization coverage levels and surpassed the National Immunization Program (NIP) goal of 90% immunization coverage for the 4:3:1:3:3:1:4 series. Keep up the great work.



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Need Forms??

VFC Reports, Blast Fax, and In-Service Materials:

www.sanantonio.gov/health/immunizations-VFCResources.html

Consent Forms:

www.sanantonio.gov/health/immunizations-SAIRS.html

VISs:

<http://www.cdc.gov/vaccines/pubs/vis/default.htm>

Immunization Resource Sites

DSHS: www.dshs.state.tx.us/immune

CDC: www.cdc.gov/vaccines

IAC: www.immunize.org

Vaccine Education Center: <http://vaccine.chop.edu>

American Academy of Pediatrics: www.aap.org

Vaccine Information for the Public & Health Professionals: www.vaccineinformation.org

Healthy People 2020: www.healthypeople.gov



A-Z Pediatrics Stone Oak



CommuniCare Health Center



VFC Stars



San Antonio Pediatric Associates- Stone Oak



Little Buddies Pediatric Clinic

Immunization Updates

The use of the most current **Vaccine Information Statements (VIS)** is mandated by federal law. Listed below are the dates of the most current VISs.

Check your stock of VISs. If you have outdated VISs, print current ones from one of these sources: CDC's website at

www.cdc.gov/vaccines/pubs/vis (has VISs in English) or IAC's website at www.immunize.org/vis (has VISs in more than 30 languages).

DTaP/DT/DTP.....5/17/07 PCV.....4/16/10 Hepatitis A....10/25/11 PPSV.....10/6/09 Hepatitis B.....2/12/12 Polio.....11/8/11 Hib.....12/16/98

HPV (H. papillomavirus).....5/3/11 Rotavirus.....12/6/10 Meningococcal.....10/14/11 Varicella.....3/13/08 MMR.....3/13/08

Influenza (LAIV).....7/26/11 Influenza (TIV).....7/26/11 Td/Tdap...1/24/12

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CentroMed Haven for Hope



Family Clinics of San Antonio



Dr. Bhanumathi Nandakumar



Pediatric Care



Kellum Pediatric Wellness Clinic



San Antonio Pediatric Associates -Walzem



**University Physicians Group-
Family Health Center**

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Northeast Pediatric Associates



Pediatrics and Adolescents



Children of Texas Pediatrics



UHS Kenwood Clinic



Tejas Pediatrics



Northside Pediatric Clinic



**San Antonio Pediatric Associates-
San Saba**

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 **UHS Salinas Clinic**



 **UHS Naco-Perrin Clinic**



 **UHS Eastside Clinic**



 **UHS Zarzamora Clinic**



 **Southwest Children's Center**



 **Trevino Family Clinics**



 **UHS South Flores Clinic**

FIGURE 1: Recommended immunization schedule for persons aged 0 through 6 years—United States, 2012 (for those who fall behind or start late, see the catch-up schedule [Figure 3])

Vaccine ▼	Age ►	Birth	1 month	2 months	4 months	6 months	9 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years	
Hepatitis B ¹		Hep B	HepB			HepB								Range of recommended ages for all children
Rotavirus ²			RV	RV	RV ²									
Diphtheria, tetanus, pertussis ³			DTaP	DTaP	DTaP		see footnote ⁹	DTaP					DTaP	
<i>Haemophilus influenzae</i> type b ⁴			Hib	Hib	Hib ⁴			Hib						Range of recommended ages for certain high-risk groups
Pneumococcal ⁵			PCV	PCV	PCV			PCV				PPSV		
Inactivated poliovirus ⁶			IPV	IPV				IPV					IPV	
Influenza ⁷								Influenza (Yearly)						
Measles, mumps, rubella ⁸								MMR		see footnote ⁹			MMR	Range of recommended ages for all children and certain high-risk groups
Varicella ⁹								Varicella		see footnote ⁹			Varicella	
Hepatitis A ¹⁰								Dose 1 ¹⁰				HepA Series		
Meningococcal ¹¹								MCV4 — see footnote ¹¹						

This schedule includes recommendations in effect as of December 23, 2011. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (<http://www.vaers.hhs.gov>) or by telephone (800-822-7967).

- Hepatitis B (HepB) vaccine.** (Minimum age: birth)

At birth:

 - Administer monovalent HepB vaccine to all newborns before hospital discharge.
 - For infants born to hepatitis B surface antigen (HBsAg)-positive mothers, administer HepB vaccine and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth. These infants should be tested for HBsAg and antibody to HBsAg (anti-HBs) 1 to 2 months after receiving the last dose of the series.
 - If mother's HBsAg status is unknown, within 12 hours of birth administer HepB vaccine for infants weighing $\geq 2,000$ grams, and HepB vaccine plus HBIG for infants weighing $< 2,000$ grams. Determine mother's HBsAg status as soon as possible and, if she is HBsAg-positive, administer HBIG for infants weighing $\geq 2,000$ grams (no later than age 1 week).

Doses after the birth dose:

 - The second dose should be administered at age 1 to 2 months. Monovalent HepB vaccine should be used for doses administered before age 6 weeks.
 - Administration of a total of 4 doses of HepB vaccine is permissible when a combination vaccine containing HepB is administered after the birth dose.
 - Infants who did not receive a birth dose should receive 3 doses of a HepB-containing vaccine starting as soon as feasible (Figure 3).
 - The minimum interval between dose 1 and dose 2 is 4 weeks, and between dose 2 and 3 is 8 weeks. The final (third or fourth) dose in the HepB vaccine series should be administered no earlier than age 24 weeks and at least 16 weeks after the first dose.
- Rotavirus (RV) vaccines.** (Minimum age: 6 weeks for both RV-1 [Rotarix] and RV-5 [Rota Teq])
 - The maximum age for the first dose in the series is 14 weeks, 6 days; and 8 months, 0 days for the final dose in the series. Vaccination should not be initiated for infants aged 15 weeks, 0 days or older.
 - If RV-1 (Rotarix) is administered at ages 2 and 4 months, a dose at 6 months is not indicated.
- Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine.** (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.
- Haemophilus influenzae* type b (Hib) conjugate vaccine.** (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.
 - Hiberix should only be used for the booster (final) dose in children aged 12 months through 4 years.
- Pneumococcal vaccines.** (Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPSV])
 - Administer 1 dose of PCV to all healthy children aged 24 through 59 months who are not completely vaccinated for their age.
 - For children who have received an age-appropriate series of 7-valent PCV (PCV7), a single supplemental dose of 13-valent PCV (PCV13) is recommended for:
 - All children aged 14 through 59 months
 - Children aged 60 through 71 months with underlying medical conditions.
 - Administer PPSV at least 8 weeks after last dose of PCV to children aged 2 years or older with certain underlying medical conditions, including a cochlear implant. See *MMWR* 2010;59(No. RR-11), available at <http://www.cdc.gov/mmwr/pdf/rr/rr5911.pdf>.
- Inactivated poliovirus vaccine (IPV).** (Minimum age: 6 weeks)
 - If 4 or more doses are administered before age 4 years, an additional dose should be administered at age 4 through 6 years.
 - The final dose in the series should be administered on or after the fourth birthday and at least 6 months after the previous dose.
- Influenza vaccines.** (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 2 years for live, attenuated influenza vaccine [LAIV])
 - For most healthy children aged 2 years and older, either LAIV or TIV may be used. However, LAIV should not be administered to some children, including 1) children with asthma, 2) children 2 through 4 years who had wheezing in the past 12 months, or 3) children who have any other underlying medical conditions that predispose them to influenza complications. For all other contraindications to use of LAIV, see *MMWR* 2010;59(No. RR-8), available at <http://www.cdc.gov/mmwr/pdf/rr/rr5908.pdf>.
 - For children aged 6 months through 8 years:
 - For the 2011–12 season, administer 2 doses (separated by at least 4 weeks) to those who did not receive at least 1 dose of the 2010–11 vaccine. Those who received at least 1 dose of the 2010–11 vaccine require 1 dose for the 2011–12 season.
 - For the 2012–13 season, follow dosing guidelines in the 2012 ACIP influenza vaccine recommendations.
- Measles, mumps, and rubella (MMR) vaccine.** (Minimum age: 12 months)
 - The second dose may be administered before age 4 years, provided at least 4 weeks have elapsed since the first dose.
 - Administer MMR vaccine to infants aged 6 through 11 months who are traveling internationally. These children should be revaccinated with 2 doses of MMR vaccine, the first at ages 12 through 15 months and at least 4 weeks after the previous dose, and the second at ages 4 through 6 years.
- Varicella (VAR) vaccine.** (Minimum age: 12 months)
 - The second dose may be administered before age 4 years, provided at least 3 months have elapsed since the first dose.
 - For children aged 12 months through 12 years, the recommended minimum interval between doses is 3 months. However, if the second dose was administered at least 4 weeks after the first dose, it can be accepted as valid.
- Hepatitis A (HepA) vaccine.** (Minimum age: 12 months)
 - Administer the second (final) dose 6 to 18 months after the first.
 - Unvaccinated children 24 months and older at high risk should be vaccinated. See *MMWR* 2006;55(No. RR-7), available at <http://www.cdc.gov/mmwr/pdf/rr/rr5507.pdf>.
 - A 2-dose HepA vaccine series is recommended for anyone aged 24 months and older, previously unvaccinated, for whom immunity against hepatitis A virus infection is desired.
- Meningococcal conjugate vaccines, quadrivalent (MCV4).** (Minimum age: 9 months for Menactra [MCV4-D], 2 years for Menveo [MCV4-CRM])
 - For children aged 9 through 23 months 1) with persistent complement component deficiency; 2) who are residents of or travelers to countries with hyperendemic or epidemic disease; or 3) who are present during outbreaks caused by a vaccine serogroup, administer 2 primary doses of MCV4-D, ideally at ages 9 months and 12 months or at least 8 weeks apart.
 - For children aged 24 months and older with 1) persistent complement component deficiency who have not been previously vaccinated; or 2) anatomic/functional asplenia, administer 2 primary doses of either MCV4 at least 8 weeks apart.
 - For children with anatomic/functional asplenia, if MCV4-D (Menactra) is used, administer at a minimum age of 2 years and at least 4 weeks after completion of all PCV doses.
 - See *MMWR* 2011;60:72–6, available at <http://www.cdc.gov/mmwr/pdf/wk/mm6003.pdf>, and Vaccines for Children Program resolution No. 6/11-1, available at <http://www.cdc.gov/vaccines/programs/vfc/downloads/resolutions/06-11mening-mcv.pdf>, and *MMWR* 2011;60:1391–2, available at <http://www.cdc.gov/mmwr/pdf/wk/mm6040.pdf>, for further guidance, including revaccination guidelines.

FIGURE 2: Recommended immunization schedule for persons aged 7 through 18 years—United States, 2012 (for those who fall behind or start late, see the schedule below and the catch-up schedule [Figure 3])

Vaccine ▼	Age ►	7–10 years	11–12 years	13–18 years	
Tetanus, diphtheria, pertussis ¹		1 dose (if indicated)	1 dose	1 dose (if indicated)	Range of recommended ages for all children
Human papillomavirus ²		see footnote ²	3 doses	Complete 3-dose series	
Meningococcal ³		See footnote ³	Dose 1	Booster at 16 years old	
Influenza ⁴		Influenza (yearly)			
Pneumococcal ⁵		See footnote ⁵			Range of recommended ages for catch-up immunization
Hepatitis A ⁶		Complete 2-dose series			
Hepatitis B ⁷		Complete 3-dose series			
Inactivated poliovirus ⁸		Complete 3-dose series			Range of recommended ages for certain high-risk groups
Measles, mumps, rubella ⁹		Complete 2-dose series			
Varicella ¹⁰		Complete 2-dose series			

This schedule includes recommendations in effect as of December 23, 2011. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (<http://www.vaers.hhs.gov>) or by telephone (800-822-7967).

- Tetanus and diphtheria toxoids and acellular pertussis (Tdap) vaccine.** (Minimum age: 10 years for Boostrix and 11 years for Adacel)
 - Persons aged 11 through 18 years who have not received Tdap vaccine should receive a dose followed by tetanus and diphtheria toxoids (Td) booster doses every 10 years thereafter.
 - Tdap vaccine should be substituted for a single dose of Td in the catch-up series for children aged 7 through 10 years. Refer to the catch-up schedule if additional doses of tetanus and diphtheria toxoid-containing vaccine are needed.
 - Tdap vaccine can be administered regardless of the interval since the last tetanus and diphtheria toxoid-containing vaccine.
- Human papillomavirus (HPV) vaccines (HPV4 [Gardasil] and HPV2 [Cervarix]).** (Minimum age: 9 years)
 - Either HPV4 or HPV2 is recommended in a 3-dose series for females aged 11 or 12 years. HPV4 is recommended in a 3-dose series for males aged 11 or 12 years.
 - The vaccine series can be started beginning at age 9 years.
 - Administer the second dose 1 to 2 months after the first dose and the third dose 6 months after the first dose (at least 24 weeks after the first dose).
 - See *MMWR* 2010;59:626–32, available at <http://www.cdc.gov/mmwr/pdf/wk/mm5920.pdf>.
- Meningococcal conjugate vaccines, quadrivalent (MCV4).**
 - Administer MCV4 at age 11 through 12 years with a booster dose at age 16 years.
 - Administer MCV4 at age 13 through 18 years if patient is not previously vaccinated.
 - If the first dose is administered at age 13 through 15 years, a booster dose should be administered at age 16 through 18 years with a minimum interval of at least 8 weeks after the preceding dose.
 - If the first dose is administered at age 16 years or older, a booster dose is not needed.
 - Administer 2 primary doses at least 8 weeks apart to previously unvaccinated persons with persistent complement component deficiency or anatomic/functional asplenia, and 1 dose every 5 years thereafter.
 - Adolescents aged 11 through 18 years with human immunodeficiency virus (HIV) infection should receive a 2-dose primary series of MCV4, at least 8 weeks apart.
 - See *MMWR* 2011;60:72–76, available at <http://www.cdc.gov/mmwr/pdf/wk/mm6003.pdf>, and Vaccines for Children Program resolution No. 6/11-1, available at <http://www.cdc.gov/vaccines/programs/vfc/downloads/resolutions/06-11mening-mcv.pdf>, for further guidelines.
- Influenza vaccines (trivalent inactivated influenza vaccine [TIV] and live, attenuated influenza vaccine [LAIV]).**
 - For most healthy, nonpregnant persons, either LAIV or TIV may be used, except LAIV should not be used for some persons, including those with asthma or any other underlying medical conditions that predispose them to influenza complications. For all other contraindications to use of LAIV, see *MMWR* 2010;59(No. RR-8), available at <http://www.cdc.gov/mmwr/pdf/rr/rr5908.pdf>.
 - Administer 1 dose to persons aged 9 years and older.
 - For children aged 6 months through 8 years:
 - For the 2011–12 season, administer 2 doses (separated by at least 4 weeks) to those who did not receive at least 1 dose of the 2010–11 vaccine. Those who received at least 1 dose of the 2010–11 vaccine require 1 dose for the 2011–12 season.
 - For the 2012–13 season, follow dosing guidelines in the 2012 ACIP influenza vaccine recommendations.
- Pneumococcal vaccines (pneumococcal conjugate vaccine [PCV] and pneumococcal polysaccharide vaccine [PPSV]).**
 - A single dose of PCV may be administered to children aged 6 through 18 years who have anatomic/functional asplenia, HIV infection or other immunocompromising condition, cochlear implant, or cerebral spinal fluid leak. See *MMWR* 2010;59(No. RR-11), available at <http://www.cdc.gov/mmwr/pdf/rr/rr5911.pdf>.
 - Administer PPSV at least 8 weeks after the last dose of PCV to children aged 2 years or older with certain underlying medical conditions, including a cochlear implant. A single revaccination should be administered after 5 years to children with anatomic/functional asplenia or an immunocompromising condition.
- Hepatitis A (HepA) vaccine.**
 - HepA vaccine is recommended for children older than 23 months who are at increased risk for infection, or for whom immunity against hepatitis A virus infection is desired. See *MMWR* 2006;55(No. RR-7), available at <http://www.cdc.gov/mmwr/pdf/rr/rr5507.pdf>.
 - Administer 2 doses at least 6 months apart to unvaccinated persons.
- Hepatitis B (HepB) vaccine.**
 - Administer the 3-dose series to those not previously vaccinated.
 - For those with incomplete vaccination, follow the catch-up recommendations (Figure 3).
 - A 2-dose series (doses separated by at least 4 months) of adult formulation Recombivax HB is licensed for use in children aged 11 through 15 years.
- Inactivated poliovirus vaccine (IPV).**
 - The final dose in the series should be administered at least 6 months after the previous dose.
 - If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.
 - IPV is not routinely recommended for U.S. residents aged 18 years or older.
- Measles, mumps, and rubella (MMR) vaccine.**
 - The minimum interval between the 2 doses of MMR vaccine is 4 weeks.
- Varicella (VAR) vaccine.**
 - For persons without evidence of immunity (see *MMWR* 2007;56[No. RR-4], available at <http://www.cdc.gov/mmwr/pdf/rr/rr5604.pdf>), administer 2 doses if not previously vaccinated or the second dose if only 1 dose has been administered.
 - For persons aged 7 through 12 years, the recommended minimum interval between doses is 3 months. However, if the second dose was administered at least 4 weeks after the first dose, it can be accepted as valid.
 - For persons aged 13 years and older, the minimum interval between doses is 4 weeks.

FIGURE 3. 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 • 2012

The figure below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. **Always use this table in conjunction with the accompanying childhood and adolescent immunization schedules (Figures 1 and 2) and their respective footnotes.**

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	Birth	4 weeks	8 weeks and at least 16 weeks after first dose; minimum age for the final dose is 24 weeks		
Rotavirus ¹	6 weeks	4 weeks	4 weeks ¹		
Diphtheria, tetanus, pertussis ²	6 weeks	4 weeks	4 weeks	6 months	6 months ²
<i>Haemophilus influenzae</i> type b ³	6 weeks	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 ³ if current age is younger than 12 months 8 weeks (as final dose) ³ if current age is 12 months or older and first dose administered at younger than age 12 months and second dose administered at younger than 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 ⁴	6 weeks	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 children at high risk who received 3 doses at any age	
Inactivated poliovirus ⁵	6 weeks	4 weeks	4 weeks	6 months ⁵ minimum age 4 years for final dose	
Meningococcal ⁶	9 months	8 weeks ⁶			
Measles, mumps, rubella ⁷	12 months	4 weeks			
Varicella ⁸	12 months	3 months			
Hepatitis A	12 months	6 months			
Persons aged 7 through 18 years					
Tetanus, diphtheria/ tetanus, diphtheria, pertussis ⁹	7 years ⁹	4 weeks	4 weeks if first dose administered at younger than age 12 months 6 months if first dose administered at 12 months or older	6 months if first dose administered at younger than age 12 months	
Human papillomavirus ¹⁰	9 years	Routine dosing intervals are recommended ¹⁰			
Hepatitis A	12 months	6 months			
Hepatitis B	Birth	4 weeks	8 weeks (and at least 16 weeks after first dose)		
Inactivated poliovirus ⁵	6 weeks	4 weeks	4 weeks ⁵	6 months ⁵	
Meningococcal ⁶	9 months	8 weeks ⁶			
Measles, mumps, rubella ⁷	12 months	4 weeks			
Varicella ⁸	12 months	3 months if person is younger than age 13 years 4 weeks if person is aged 13 years or older			

- Rotavirus (RV) vaccines (RV-1 [Rotarix] and RV-5 [Rota Teq]).**
 - The maximum age for the first dose in the series is 14 weeks, 6 days; and 8 months, 0 days for the final dose in the series. Vaccination should not be initiated for infants aged 15 weeks, 0 days or older.
 - If RV-1 was administered for the first and second doses, a third dose is not indicated.
- Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine.**
 - The fifth dose is not necessary if the fourth dose was administered at age 4 years or older.
- Haemophilus influenzae type b (Hib) conjugate vaccine.**
 - Hib vaccine should be considered for unvaccinated persons aged 5 years or older who have sickle cell disease, leukemia, human immunodeficiency virus (HIV) infection, or anatomic/functional asplenia.
 - If the first 2 doses were PRP-OMP (PedvaxHIB or Comvax) and were 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 the second dose at least 4 weeks later and a final dose at age 12 through 15 months.
- Pneumococcal vaccines.** (Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPSV])
 - For children aged 24 through 71 months with underlying medical conditions, administer 1 dose of PCV if 3 doses of PCV were received previously, or administer 2 doses of PCV at least 8 weeks apart if fewer than 3 doses of PCV were received previously.
 - A single dose of PCV may be administered to certain children aged 6 through 18 years with underlying medical conditions. See age-specific schedules for details.
 - Administer PPSV to children aged 2 years or older with certain underlying medical conditions. See *MMWR* 2010;59(No. RR-11), available at <http://www.cdc.gov/mmwr/pdf/rr/rr5911.pdf>.
- Inactivated poliovirus vaccine (IPV).**
 - A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months after the previous dose.
 - In the first 6 months of life, minimum age and minimum intervals are only recommended if the person is at risk for imminent exposure to circulating poliovirus (i.e., travel to a polio-endemic region or during an outbreak).
 - IPV is not routinely recommended for U.S. residents aged 18 years or older.
- Meningococcal conjugate vaccines, quadrivalent (MCV4).** (Minimum age: 9 months for Menactra [MCV4-D]; 2 years for Menveo [MCV4-CRM])
 - See Figure 1 (“Recommended immunization schedule for persons aged 0 through 6 years”) and Figure 2 (“Recommended immunization schedule for persons aged 7 through 18 years”) for further guidance.
- Measles, mumps, and rubella (MMR) vaccine.**
 - Administer the second dose routinely at age 4 through 6 years.
- Varicella (VAR) vaccine.**
 - Administer the second dose routinely at age 4 through 6 years. If the second dose was administered at least 4 weeks after the first dose, it can be accepted as valid.
- Tetanus and diphtheria toxoids (Td) and tetanus and diphtheria toxoids and acellular pertussis (Tdap) vaccines.**
 - For children aged 7 through 10 years who are not fully immunized with the childhood DTaP vaccine series, Tdap vaccine should be substituted for a single dose of Td vaccine in the catch-up series; if additional doses are needed, use Td vaccine. For these children, an adolescent Tdap vaccine dose should not be given.
 - An inadvertent dose of DTaP vaccine administered to children aged 7 through 10 years can count as part of the catch-up series. This dose can count as the adolescent Tdap dose, or the child can later receive a Tdap booster dose at age 11–12 years.
- Human papillomavirus (HPV) vaccines (HPV4 [Gardasil] and HPV2 [Cervarix]).**
 - Administer the vaccine series to females (either HPV2 or HPV4) and males (HPV4) at age 13 through 18 years if patient is not previously vaccinated.
 - Use recommended routine dosing intervals for vaccine series catch-up; see Figure 2 (“Recommended immunization schedule for persons aged 7 through 18 years”).

Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (<http://www.vaers.hhs.gov>) or by telephone (800-822-7967). Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for vaccination, is available from CDC online (<http://www.cdc.gov/vaccines>) or by telephone (800-CDC-INFO [800-232-4636]).