

## This Issue

- 1 New Immunization Schedules and Updates for 2013
- 1 New Report on Social Determinants of Health
- 3 Immunization Schedule: Ages 0 through 18 years
- 4 Catch-Up Immunization Schedule Ages 4 months through 18 years
- 5 Footnotes – Immunization Schedule for Children and Adolescents
- 7 Immunization Schedule: Ages 19 Years and Older
- 8 Footnotes – Immunization Schedule for Adults
- 10 Vital Signs
  - TB in LA County
  - Latest Mortality Report Shows Leading Causes of Death on the Decline
  - New Report Summarizes Annual Morbidity in LA County
- 12 Upcoming Seminar
  - TB in High-Risk Groups in LA County
- 12 Index of Disease Reporting Forms

## New Immunization Schedules and Updates for 2013

A. Nelson El Amin, MD, MPH

In January 2013, the Advisory Committee on Immunization Practices (ACIP) published the recommended immunization schedules for children, adolescents and adults.<sup>1</sup> These schedules were revised to reflect current recommendations for licensed vaccines used in the United States. Health care providers are encouraged to review each schedule along with the footnotes to ensure they have the most current information. The schedules, which can be found on the Centers for Disease Control and Prevention (CDC) website,<sup>2</sup> are printed on the following pages.

### 2013 Immunization Schedule Updates and Changes

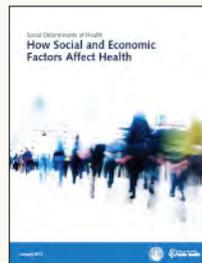
Several important updates were made to both the child and adolescent and the adult immunization schedules to reflect changes made to the recommendations within the last year. Several of the key changes are listed as follows:

### Child and Adolescent Immunization Schedule Update

- The child and adolescent schedules have been combined to create one schedule for persons aged 0 through 18 years.
- The dose number for each recommended vaccine has been added to the schedule to assist providers in tracking vaccine doses.
- Information has been added to the meningococcal conjugate vaccine footnote regarding the new Hib-MenCY (MenHibrix, GlaxoSmithKline Biologicals) vaccine for infants.
- Abbreviations for influenza vaccine were updated to incorporate the newly licensed quadrivalent influenza vaccines.
- The footnotes for each vaccine were reformatted to include “routine,” “catch-up,” and “high-risk” group recommendations in the same footnote.

*continued on page 2 >*

## New Report on Social Determinants of Health



The Los Angeles County Department of Public Health has released a new report titled “Social Determinants of Health: How Social and Economic Factors Affect Health.” Social and economic factors strongly influence health and health behaviors. These factors, which include education, economic policy, employment, and the social cohesiveness and safety of our neighborhoods, are largely responsible for the marked disparities in health and life expectancy within and across our communities.

This 24-page report ranks dozens of LA County cities and communities by key social and economic indicators, including education, housing burden, median household income, and hardship. It provides examples of communities taking action to improve social determinants of health and offers recommendations and tools for change. View the report online at [www.publichealth.lacounty.gov/epi](http://www.publichealth.lacounty.gov/epi). For a printed copy, call (213) 240-7785.



## Did You Know That Your Patients Can...

- Print easy-to-read immunization schedules (English and Spanish), which were specially designed to help patients and parents identify the vaccines that are recommended for infants, children, adolescents, and adults.
- Use interactive Online Immunization Schedulers and Quizzes to learn which specific vaccines are recommended, put together a plan for getting caught up on missing vaccine doses, and even print a personalized schedule.

Refer your patients to [www.cdc.gov/vaccines/schedules/easy-to-read/index.html](http://www.cdc.gov/vaccines/schedules/easy-to-read/index.html)

### Adult Immunization Schedule Update

- Recommendations for the use of pneumococcal conjugate vaccine (PCV13) in adults 19 years and older with specific conditions were added to the immunization schedule.
- The tetanus, diphtheria, and acellular pertussis (Tdap) footnote was updated to recommend 1 dose of Tdap for pregnant women during each pregnancy (preferably during 27 to 36 weeks of gestation) regardless of the number of years since their last dose of Tdap. Additionally, 1 lifetime dose of Tdap is now recommended for all non-pregnant adults 19 years of age and older, not only those who are expected to have contact with infants and young children.

### Additional Immunization-Related Information

#### VariZIG Recommendations for Post-exposure

#### Prophylaxis of Varicella

The Food and Drug Administration (FDA) approved a new timeline for administering VariZIG to non-immune high-risk patients exposed to varicella. The period after exposure to the varicella zoster virus during which such persons can receive VariZIG has been extended to 10 days instead of the previous 4-day limit. Although the timeline has been extended, VariZIG should be administered as soon as possible after exposure to maximize efficacy.

More information on VariZIG and recommendations for use can be found at [www.cdc.gov/mmwr/preview/mmwrhtml/mm6112a4.htm?\\_cid=mm6112a4\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6112a4.htm?_cid=mm6112a4_w).

### Tips for Implementing the New Vaccine Recommendations into Your Practice

Since vaccine recommendations change from year to year, the following tips can help you and your staff prepare to implement the new recommendations:<sup>3</sup>

- Review the schedule and provide an update for all clinic staff involved in your clinic's immunization process, including licensed and non-licensed personnel. Be sure that the

appropriate personnel in your clinic are up-to-date on vaccine administration techniques and vaccine dose requirements.

- Update staff by using the vaccine fact sheets posted by the Vaccines for Children Program at [www.eziz.org/resources/vaccinefactsheets/](http://www.eziz.org/resources/vaccinefactsheets/). Fact sheets developed by the LA County Department of Public Health Immunization Program are also available for some vaccine-preventable diseases at [www.ph.lacounty.gov/ip/vaccine/VaccineFactSheets.htm](http://www.ph.lacounty.gov/ip/vaccine/VaccineFactSheets.htm). These serve as quick reference guides and include information about routine schedules, minimum intervals, approved age ranges, administration routes, contraindications, billing codes, and storage.
- When using a new brand or type of vaccine, meet with your staff to identify a start date. Develop a protocol for administering the new vaccine and ensure that appropriate clinic personnel are aware of the protocol.
- Identify appropriate patients for vaccination. Discuss the risks and benefits of the newly recommended vaccines with the patient/parent and provide appropriate materials to educate the family.
- When immunization recommendations change, use a prompt, such as a chart sticker or a pop-up in your electronic health record, to remind providers and staff to screen eligible patients for vaccination. Recall any patients who were previously not eligible for vaccination but now are.
- If you have posted immunization schedules in your vaccination area or on your website, replace the 2012 schedules with the revised 2013 versions.
- If your office or clinic uses an electronic health record (EHR) system, confirm with your vendor whether your system has been updated to reflect the new recommendations. If changes to vaccine recommendations, minimal intervals between doses, and contraindications have not been integrated into the EHR, it may not accurately identify vaccine doses that are due or overdue. Since the California Immunization Registry (CAIR) is regularly updated to reflect new or revised immunization recommendations, CAIR users do not need to take any steps whenever a new vaccine is recommended by ACIP.

A. Nelson El Amin, MD, MPH, is Medical Director, Immunization Program, Los Angeles County Department of Public Health.

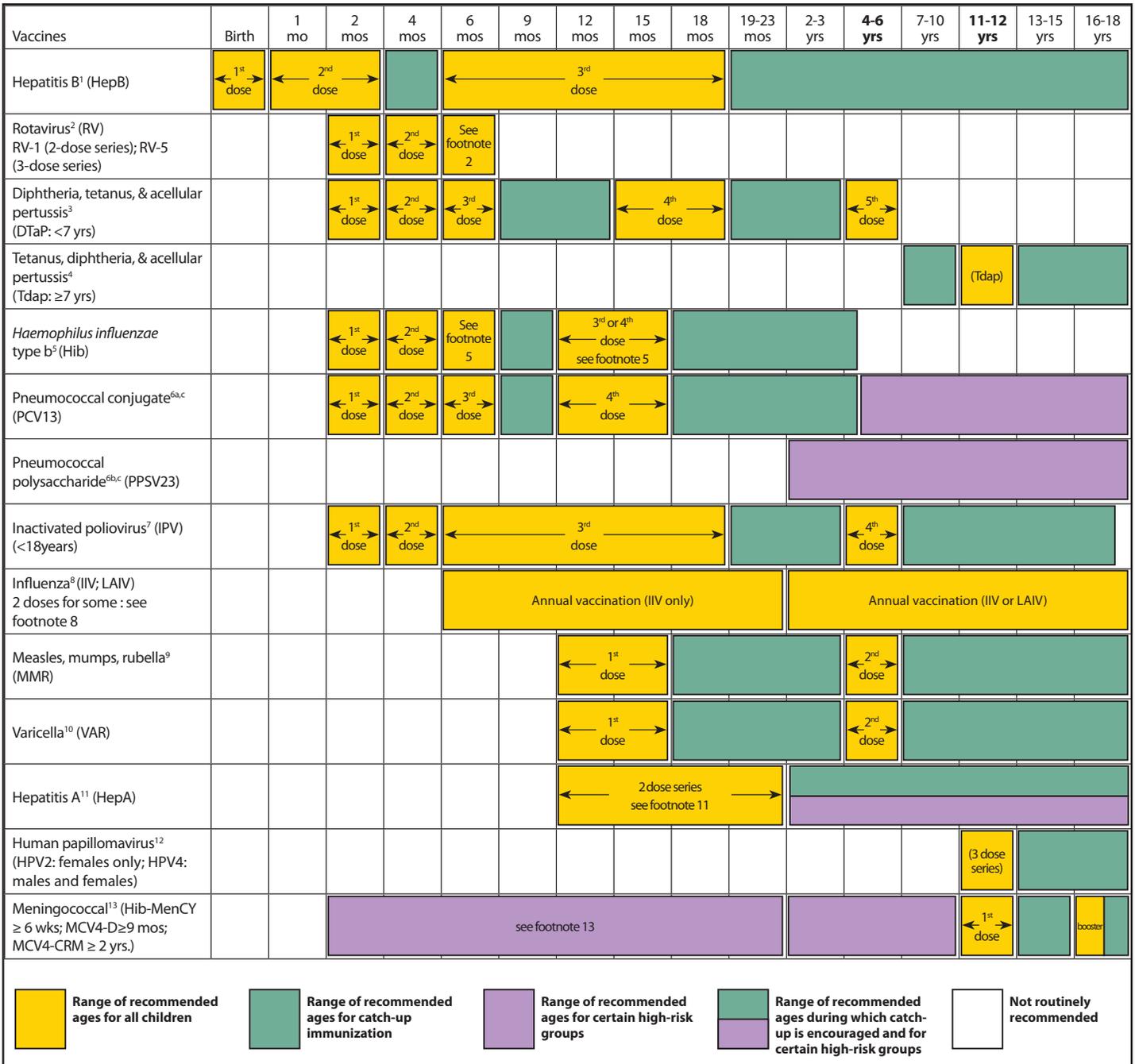
### REFERENCES

1. Recommended Immunization Schedules for Persons Aged 0 Through 18 Years and Adults Aged 19 Years and Older – United States, 2013; CDC *MMWR* Early Release. Jan 28 2013;62:1-19.
2. CDC immunization schedules page. CDC Website. <http://www.cdc.gov/vaccines/schedules/index.html>. Accessed February 28, 2013.
3. Adapted from Immunization Action Coalition. Adults Only Vaccination: A Step-by-Step Guide. 2004.

## Recommended immunization schedule for persons aged 0 through 18 years — United States, 2013

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

These recommendations must be read with the footnotes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars in this figure. To determine minimum intervals between doses, see the catch-up schedule (page 4). School entry and adolescent vaccine age groups are in bold.



This schedule includes recommendations in effect as of January 1, 2013. 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). 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]).

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

**NOTE:** The above recommendations must be read along with the footnotes

## 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, 2013

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 previous figure (page 3) and the footnotes that follow.

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 <sup>1</sup>	Birth	4 weeks	8 weeks and at least 16 weeks after first dose; minimum age for the final dose is 24 weeks		
Rotavirus <sup>2</sup>	6 weeks	4 weeks	4 weeks <sup>2</sup>		
Diphtheria, tetanus, pertussis <sup>3</sup>	6 weeks	4 weeks	4 weeks	6 months	6 months <sup>3</sup>
<i>Haemophilus influenzae</i> type b <sup>5</sup>	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 <sup>5</sup> if current age is younger than 12 months 8 weeks (as final dose) <sup>5</sup> 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 through 59 months who received 3 doses before age 12 months	
Pneumococcal <sup>6</sup>	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 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 <sup>7</sup>	6 weeks	4 weeks	4 weeks	6 months <sup>7</sup> minimum age 4 years for final dose	
Meningococcal <sup>13</sup>	6 weeks	8 weeks <sup>13</sup>	see footnote 13	see footnote 13	
Measles, mumps, rubella <sup>9</sup>	12 months	4 weeks			
Varicella <sup>10</sup>	12 months	3 months			
Hepatitis A <sup>11</sup>	12 months	6 months			
Persons aged 7 through 18 years					
Tetanus, diphtheria; tetanus, diphtheria, pertussis <sup>4</sup>	7 years <sup>4</sup>	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 <sup>12</sup>	9 years	Routine dosing intervals are recommended <sup>12</sup>			
Hepatitis A <sup>11</sup>	12 months	6 months			
Hepatitis B <sup>1</sup>	Birth	4 weeks	8 weeks (and at least 16 weeks after first dose)		
Inactivated poliovirus <sup>7</sup>	6 weeks	4 weeks	4 weeks <sup>7</sup>	6 months <sup>7</sup>	
Meningococcal <sup>13</sup>	6 weeks	8 weeks <sup>13</sup>			
Measles, mumps, rubella <sup>9</sup>	12 months	4 weeks			
Varicella <sup>10</sup>	12 months	3 months if person is younger than age 13 years 4 weeks if person is aged 13 years or older			

NOTE: The above recommendations must be read along with the footnotes

## Footnotes

### Recommended Immunization Schedule for Persons Aged 0 Through 18 Years — United States, 2013

Additional guidance for use of the vaccines described in this publication is available at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>

#### 1. Hepatitis B (HepB) vaccine. (Minimum age: birth) Routine vaccination: At birth

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

#### Doses following the birth dose

- The second dose should be administered at age 1 or 2 months. Monovalent HepB vaccine should be used for doses administered before age 6 weeks.
- Infants who did not receive a birth dose should receive 3 doses of a HepB-containing vaccine on a schedule of 0, 1 to 2 months, and 6 months starting as soon as feasible. See page 4.
- 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.
- Administration of a total of 4 doses of HepB vaccine is recommended when a combination vaccine containing HepB is administered after the birth dose.

#### Catch-up vaccination:

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

#### 2. Rotavirus (RV) vaccines. (Minimum age: 6 weeks for both RV-1 [Rotarix] and RV-5 [RotaTeq]).

##### Routine vaccination:

- Administer a series of RV vaccine to all infants as follows:
  1. If RV-1 is used, administer a 2-dose series at 2 and 4 months of age.
  2. If RV-5 is used, administer a 3-dose series at ages 2, 4, and 6 months.
  3. If any dose in series was RV-5 or vaccine product is unknown for any dose in the series, a total of 3 doses of RV vaccine should be administered.

##### Catch-up vaccination:

- The maximum age for the first dose in the series is 14 weeks, 6 days.
- Vaccination should not be initiated for infants aged 15 weeks 0 days or older.
- The maximum age for the final dose in the series is 8 months, 0 days.
- If RV-1 (Rotarix) is administered for the first and second doses, a third dose is not indicated.
- For other catch-up issues, see page 4.

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

##### Routine vaccination:

- Administer a 5-dose series of DTaP vaccine at ages 2, 4, 6, 15–18 months, and 4 through 6 years. The fourth dose may be administered as early as age 12 months, provided at least 6 months have elapsed since the third dose.

##### Catch-up vaccination:

- The fifth (booster) dose of DTaP vaccine is not necessary if the fourth dose was administered at age 4 years or older.
- For other catch-up issues, see page 4.

#### 4. Tetanus and diphtheria toxoids and acellular pertussis (Tdap) vaccine. (Minimum age: 10 years for Boostrix, 11 years for Adacel).

##### Routine vaccination:

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

##### Catch-up vaccination:

- Persons aged 7 through 10 years who are not fully immunized with the childhood DTaP vaccine series, should receive Tdap vaccine as the first dose in the catch-up series; if additional doses are needed, use Td vaccine. For these children, an adolescent Tdap vaccine should not be given.
- 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.
- 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.
- For other catch-up issues, see page 4.

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

##### Routine vaccination:

- Administer a Hib vaccine primary series and a booster dose to all infants. The primary series doses should be administered at 2, 4, and 6 months of age; however, if PRP-OMP (PedvaxHib or Comvax) is administered at 2 and 4 months of age, a dose at age 6 months is not indicated. One booster dose should be administered at age 12 through 15 months.
- Hiberix (PRP-T) should only be used for the booster (final) dose in children aged 12 months through 4 years, who have received at least 1 dose of Hib.

##### Catch-up vaccination:

- If dose 1 was administered at ages 12–14 months, administer booster (as final dose) at least 8 weeks after dose 1.
- 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, regardless of Hib vaccine (PRP-T or PRP-OMP) used for first dose.
- For unvaccinated children aged 15 months or older, administer only 1 dose.
- For other catch-up issues, see page 4.

##### Vaccination of persons with high-risk conditions:

- Hib vaccine is not routinely recommended for patients older than 5 years of age. However one dose of Hib vaccine should be administered to unvaccinated or partially vaccinated persons aged 5 years or older who have leukemia, malignant neoplasms, anatomic or functional asplenia (including sickle cell disease), human immunodeficiency virus (HIV) infection, or other immunocompromising conditions.

#### 6a. Pneumococcal conjugate vaccine (PCV). (Minimum age: 6 weeks)

##### Routine vaccination:

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

##### Catch-up vaccination:

- Administer 1 dose of PCV13 to all healthy children aged 24 through 59 months who are not completely vaccinated for their age.
- For other catch-up issues, see page 4.

##### Vaccination of persons with high-risk conditions:

- For children aged 24 through 71 months with certain underlying medical conditions (see footnote 6c), administer 1 dose of PCV13 if 3 doses of PCV were received previously, or administer 2 doses of PCV13 at least 8 weeks apart if fewer than 3 doses of PCV were received previously.
- A single dose of PCV13 may be administered to previously unvaccinated children aged 6 through 18 years who have anatomic or functional asplenia (including sickle cell disease), HIV infection or an immunocompromising condition, cochlear implant or cerebrospinal fluid leak. See *MMWR* 2010;59 (No. RR-11), available at <http://www.cdc.gov/mmwr/pdf/rr/rr5911.pdf>.
- Administer PPSV23 at least 8 weeks after the last dose of PCV to children aged 2 years or older with certain underlying medical conditions (see footnotes 6b and 6c).

*continued on page 6 >*

## Footnotes

**Recommended Immunization Schedule for Persons Aged 0 Through 18 Years — United States, 2013**Additional guidance for use of the vaccines described in this publication is available at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>**6b. Pneumococcal polysaccharide vaccine (PPSV23). (Minimum age: 2 years)**  
**Vaccination of persons with high-risk conditions:**

- Administer PPSV23 at least 8 weeks after the last dose of PCV to children aged 2 years or older with certain underlying medical conditions (see footnote 6c). A single revaccination with PPSV should be administered after 5 years to children with anatomic or functional asplenia (including sickle cell disease) or an immunocompromising condition.

**6c. Medical conditions for which PPSV23 is indicated in children aged 2 years and older and for which use of PCV13 is indicated in children aged 24 through 71 months:**

- Immunocompetent children with chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure); chronic lung disease (including asthma if treated with high-dose oral corticosteroid therapy), diabetes mellitus; cerebrospinal fluid leaks; or cochlear implant.
- Children with anatomic or functional asplenia (including sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, or splenic dysfunction);
- Children with immunocompromising conditions: HIV infection, chronic renal failure and nephrotic syndrome, diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas and Hodgkin disease; or solid organ transplantation, congenital immunodeficiency.

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

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

**Catch-up vaccination:**

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

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

- Administer influenza vaccine annually to all children beginning at age 6 months. For most healthy, nonpregnant persons aged 2 through 49 years, either LAIV or IIV may be used. However, LAIV should NOT be administered to some persons, including 1) those with asthma, 2) children 2 through 4 years who had wheezing in the past 12 months, or 3) those 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>.
- Administer 1 dose to persons aged 9 years and older.

**For children aged 6 months through 8 years:**

- For the 2012–13 season, administer 2 doses (separated by at least 4 weeks) to children who are receiving influenza vaccine for the first time. For additional guidance, follow dosing guidelines in the 2012 ACIP influenza vaccine recommendations, MMWR 2012; 61: 613–618, available at <http://www.cdc.gov/mmwr/pdf/wk/mm6132.pdf>.
- For the 2013–14 season, follow dosing guidelines in the 2013 ACIP influenza vaccine recommendations.

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

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

**Catch-up vaccination:**

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

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

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

**Catch-up vaccination:**

- Ensure that all persons aged 7 through 18 years without evidence of immunity (see MMWR 2007;56 [No. RR-4], available at <http://www.cdc.gov/mmwr/pdf/rr/rr5604.pdf>) have 2 doses of varicella vaccine. For children aged 7 through 12 years the recommended minimum interval between doses is 3 months (if the second dose was administered at least 4 weeks after the first dose, it can be accepted as valid); for persons aged 13 years and older, the minimum interval between doses is 4 weeks.

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

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

**Catch-up vaccination:**

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

**Special populations:**

- Administer 2 doses of Hep A vaccine at least 6 months apart to previously unvaccinated persons who live in areas where vaccination programs target older children, or who are at increased risk for infection.

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

- Administer a 3-dose series of HPV vaccine on a schedule of 0, 1–2, and 6 months to all adolescents aged 11–12 years. Either HPV4 or HPV2 may be used for females, and only HPV4 may be used for males.
- 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).

**Catch-up vaccination:**

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

**13. Meningococcal conjugate vaccines (MCV). (Minimum age: 6 weeks for Hib-MenCY, 9 months for Menactra [MCV4-D], 2 years for Menveo [MCV4-CRM]).**  
**Routine vaccination:**

- Administer MCV4 vaccine at age 11–12 years, with a booster dose at age 16 years.
- Adolescents aged 11 through 18 years with human immunodeficiency virus (HIV) infection should receive a 2-dose primary series of MCV4, with at least 8 weeks between doses. See MMWR 2011; 60:1018–1019 available at <http://www.cdc.gov/mmwr/pdf/wk/mm6030.pdf>.
- For children aged 9 months through 10 years with high-risk conditions, see below.

**Catch-up vaccination:**

- Administer MCV4 vaccine at age 13 through 18 years if not previously vaccinated.
- If the first dose is administered at age 13 through 15 years, a booster dose should be administered at age 16 through 18 years with a minimum interval of at least 8 weeks between doses.
- If the first dose is administered at age 16 years or older, a booster dose is not needed.
- For other catch-up issues, see page 4.

*continued on page 11 >*

## Recommended adult immunization schedule, by vaccine and age group<sup>1</sup>— United States, 2013

These recommendations must be read with the footnotes that follow.

VACCINE ▼	AGE GROUP ►	19-21 years	22-26 years	27-49 years	50-59 years	60-64 years	≥ 65 years
Influenza <sup>2,*</sup>		1 dose annually					
Tetanus, diphtheria, pertussis (Td/Tdap) <sup>3,*</sup>		Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs					
Varicella <sup>4,*</sup>		2 doses					
Human papillomavirus (HPV) Female <sup>5,*</sup>		3 doses					
Human papillomavirus (HPV) Male <sup>5,*</sup>		3 doses					
Zoster <sup>6</sup>						1 dose	
Measles, mumps, rubella (MMR) <sup>7,*</sup>		1 or 2 doses					
Pneumococcal polysaccharide (PPSV23) <sup>8,9</sup>		1 or 2 doses					1 dose
Pneumococcal 13-valent conjugate (PCV13) <sup>10</sup>		1 dose					
Meningococcal <sup>11,*</sup>		1 or more doses					
Hepatitis A <sup>12,*</sup>		2 doses					
Hepatitis B <sup>13,*</sup>		3 doses					

\*Covered by the Vaccine Injury Compensation Program

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; zoster vaccine recommended regardless of prior episode of zoster

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

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, 8:00 a.m. - 8:00 p.m. Eastern Time, Monday - Friday, excluding holidays. 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.

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 Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG) and American College of Nurse-Midwives (ACNM).

## Recommended vaccinations indicated for adults based on medical and other indications<sup>1</sup>— United States, 2013

VACCINE ▼	INDICATION ►	Pregnancy	Immuno-compromising conditions (excluding human immunodeficiency virus [HIV]) <sup>4,6,7,10,15</sup>	HIV infection CD4+ T lymphocyte count <sup>4,6,7,10,14,15</sup>		Men who have sex with men (MSM)	Heart disease, chronic lung disease, chronic alcoholism	Asplenia (including elective splenectomy and persistent complement deficiencies) <sup>10,14</sup>	Chronic liver disease	Kidney failure, end-stage renal disease, receipt of hemodialysis	Diabetes	Healthcare personnel
				< 200 cells/μL	≥ 200 cells/μL							
Influenza <sup>2,*</sup>						1 dose IIV or LAIV annually						1 dose IIV or LAIV annually
Tetanus, diphtheria, pertussis (Td/Tdap) <sup>3,*</sup>		1 dose Tdap each pregnancy										
Varicella <sup>4,*</sup>		Contraindicated										
Human papillomavirus (HPV) Female <sup>5,*</sup>												
Human papillomavirus (HPV) Male <sup>5,*</sup>												
Zoster <sup>6</sup>		Contraindicated										
Measles, mumps, rubella (MMR) <sup>7,*</sup>		Contraindicated										
Pneumococcal polysaccharide (PPSV23) <sup>8,9</sup>												
Pneumococcal 13-valent conjugate (PCV13) <sup>10</sup>												
Meningococcal <sup>11,*</sup>												
Hepatitis A <sup>12,*</sup>												
Hepatitis B <sup>13,*</sup>												

\*Covered by the Vaccine Injury Compensation Program

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; zoster vaccine recommended regardless of prior episode of zoster

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, 2013. For all vaccines being recommended on the Adult Immunization Schedule: a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. 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)). 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.

## Footnotes

## Recommended Immunization Schedule for Adults Aged 19 Years and Older — United States, 2013

**1. Additional information**

- Additional guidance for the use of the vaccines described in this supplement is available at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>.
- Information on vaccination recommendations when vaccination status is unknown and other general immunization information can be found in the General Recommendations on Immunization at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6002a1.htm>.
- Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) are available at <http://wwwnc.cdc.gov/travel/page/vaccinations.htm>.

**2. Influenza vaccination**

- Annual vaccination against influenza is recommended for all persons aged 6 months and older.
- Persons aged 6 months and older, including pregnant women, can receive the inactivated influenza vaccine (IIV).
- Healthy, nonpregnant persons aged 2–49 years without high-risk medical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV) (FluMist), or IIV. Health-care personnel who care for severely immunocompromised persons (i.e., those who require care in a protected environment) should receive IIV rather than LAIV.
- The intramuscularly or intradermally administered IIV are options for adults aged 18–64 years.
- Adults aged 65 years and older can receive the standard dose IIV or the high-dose IIV (Fluzone High-Dose).

**3. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination**

- Administer one dose of Tdap vaccine to pregnant women during each pregnancy (preferred during 27–36 weeks' gestation), regardless of number of years since prior Td or Tdap vaccination.
- Administer Tdap to all other adults who have not previously received Tdap or for whom vaccine status is unknown. Tdap can be administered regardless of interval since the most recent tetanus or diphtheria-toxoid containing vaccine.
- Adults with an unknown or incomplete history of completing a 3-dose primary vaccination series with Td-containing vaccines should begin or complete a primary vaccination series including a Tdap dose.
- For unvaccinated adults, administer the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second.
- For incompletely vaccinated (i.e., less than 3 doses) adults, administer remaining doses.
- Refer to the Advisory Committee on Immunization Practices (ACIP) statement for recommendations for administering Td/Tdap as prophylaxis in wound management (see footnote #1).

**4. Varicella vaccination**

- All adults without evidence of immunity to varicella (as defined below) should receive 2 doses of single-antigen varicella vaccine or a second dose if they have received only 1 dose.
- Special consideration for vaccination should be given to those who 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 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).
- 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.
- Evidence of immunity to varicella in adults includes any of the following:
  - documentation of 2 doses of varicella vaccine at least 4 weeks apart;
  - U.S.-born before 1980 except health-care personnel and pregnant women;
  - history of varicella based on diagnosis or verification of varicella disease by a health-care provider;
  - history of herpes zoster based on diagnosis or verification of herpes zoster disease by a health-care provider; or
  - laboratory evidence of immunity or laboratory confirmation of disease.

**5. Human papillomavirus (HPV) vaccination**

- Two vaccines are licensed for use in females, bivalent HPV vaccine (HPV2) and quadrivalent HPV vaccine (HPV4), and one HPV vaccine for use in males (HPV4).
- For females, either HPV4 or HPV2 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years, and for those aged 13 through 26 years, if not previously vaccinated.
- For males, HPV4 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years, and for those aged 13 through 21 years, if not previously vaccinated. Males aged 22 through 26 years may be vaccinated.

- HPV4 is recommended for men who have sex with men (MSM) through age 26 years for those who did not get any or all doses when they were younger.
- Vaccination is recommended for immunocompromised persons (including those with HIV infection) through age 26 years for those who did not get any or all doses when they were younger.
- A complete series for either HPV4 or HPV2 consists of 3 doses. The second dose should be administered 1–2 months after the first dose; the third dose should be administered 6 months after the first dose (at least 24 weeks after the first dose).
- HPV vaccines are not recommended for use in pregnant women. However, pregnancy testing is not needed before vaccination. If a woman is found to be pregnant after initiating the vaccination series, no intervention is needed; the remainder of the 3-dose series should be delayed until completion of pregnancy.
- Although HPV vaccination is not specifically recommended for health-care personnel (HCP) based on their occupation, HCP should receive the HPV vaccine as recommended (see above).

**6. 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. Although the vaccine is licensed by the Food and Drug Administration (FDA) for use among and can be administered to persons aged 50 years and older, ACIP recommends that vaccination begins at age 60 years.
- Persons aged 60 years and older with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.
- Although zoster vaccination is not specifically recommended for HCP, they should receive the vaccine if they are in the recommended age group.

**7. Measles, mumps, rubella (MMR) vaccination**

- Adults born before 1957 generally are considered immune to measles and mumps. All adults born in 1957 or later should have documentation of 1 or more doses of MMR vaccine unless they have a medical contraindication to the vaccine, or laboratory evidence of immunity to each of the three diseases. Documentation of provider-diagnosed disease is not considered acceptable evidence of immunity for measles, mumps, or rubella.

**Measles component:**

- A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who
  - are students in postsecondary educational institutions;
  - work in a health-care facility; or
  - plan to travel internationally.
- Persons who received inactivated (killed) measles vaccine or measles vaccine of unknown type during 1963–1967 should be revaccinated with 2 doses of MMR vaccine.

**Mumps component:**

- A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who
  - are students in a postsecondary educational institution;
  - work in a health-care facility; or
  - plan to travel internationally.
- Persons vaccinated before 1979 with either killed mumps vaccine or mumps vaccine of unknown type who are at high risk for mumps infection (e.g., persons who are working in a health-care facility) should be considered for revaccination with 2 doses of MMR vaccine.

**Rubella component:**

- For women of childbearing age, regardless of birth year, rubella immunity should be determined. If there is no evidence of immunity, women who are not pregnant should be vaccinated. Pregnant women who do not have evidence of immunity should receive MMR vaccine upon completion or termination of pregnancy and before discharge from the health-care facility.
- HCP born before 1957:**
- For unvaccinated health-care personnel born before 1957 who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, health-care facilities should consider vaccinating personnel with 2 doses of MMR vaccine at the appropriate interval for measles and mumps or 1 dose of MMR vaccine for rubella.

**8. Pneumococcal polysaccharide (PPSV23) vaccination**

- Vaccinate all persons with the following indications:
  - all adults aged 65 years and older;
  - adults younger than age 65 years with chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma); chronic cardiovascular diseases; diabetes mellitus; chronic renal failure; nephrotic syndrome; chronic liver disease (including cirrhosis); alcoholism; cochlear implants; cerebrospinal fluid leaks; immunocompromising conditions; and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]);

## Footnotes

### Recommended Immunization Schedule for Adults Aged 19 Years and Older — United States, 2013

- residents of nursing homes or long-term care facilities; and
- adults who smoke cigarettes.
- Persons with immunocompromising conditions and other selected conditions are recommended to receive PCV13 and PPSV23 vaccines. See footnote #10 for information on timing of PCV13 and PPSV23 vaccinations.
- Persons with asymptomatic or symptomatic HIV infection should be vaccinated as soon as possible after their diagnosis.
- When cancer chemotherapy or other immunosuppressive therapy is being considered, the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.
- Routine use of PPSV23 is not recommended for American Indians/Alaska Natives or other persons younger than age 65 years unless they have underlying medical conditions that are PPSV23 indications. However, public health authorities may consider recommending PPSV23 for American Indians/Alaska Natives who are living in areas where the risk for invasive pneumococcal disease is increased.
- When indicated, PPSV23 should be administered to patients who are uncertain of their vaccination status and there is no record of previous vaccination. When PCV13 is also indicated, a dose of PCV13 should be given first (see footnote #10).

#### 9. Revaccination with PPSV23

- One-time revaccination 5 years after the first dose is recommended for persons aged 19 through 64 years with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions.
- Persons who received 1 or 2 doses of PPSV23 before age 65 years for any indication should receive another dose of the vaccine at age 65 years or later if at least 5 years have passed since their previous dose.
- No further doses are needed for persons vaccinated with PPSV23 at or after age 65 years.

#### 10. Pneumococcal conjugate 13-valent vaccination (PCV13)

- Adults aged 19 years or older with immunocompromising conditions (including chronic renal failure and nephrotic syndrome), functional or anatomic asplenia, CSF leaks or cochlear implants, and who have not previously received PCV13 or PPSV23 should receive a single dose of PCV13 followed by a dose of PPSV23 at least 8 weeks later.
- Adults aged 19 years or older with the aforementioned conditions who have previously received one or more doses of PPSV23 should receive a dose of PCV13 one or more years after the last PPSV23 dose was received. For those that require additional doses of PPSV23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years since the most recent dose of PPSV23.
- When indicated, PCV13 should be administered to patients who are uncertain of their vaccination status history and there is no record of previous vaccination.
- Although PCV13 is licensed by the Food and Drug Administration (FDA) for use among and can be administered to persons aged 50 years and older, ACIP recommends PCV13 for adults aged 19 years and older with the specific medical conditions noted above.

#### 11. Meningococcal vaccination

- Administer 2 doses of meningococcal conjugate vaccine quadrivalent (MCV4) at least 2 months apart to adults with functional asplenia or persistent complement component deficiencies.
- HIV-infected persons who are vaccinated also should receive 2 doses.
- Administer a single dose of meningococcal vaccine to microbiologists 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.
- First-year college students up through age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday.
- MCV4 is preferred for adults with any of the preceding indications who are aged 55 years and younger; meningococcal polysaccharide vaccine (MPSV4) is preferred for adults aged 56 years and older.
- Revaccination with MCV4 every 5 years is recommended for adults previously vaccinated with MCV4 or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia or persistent complement component deficiencies).

#### 12. Hepatitis A vaccination

- Vaccinate any person seeking protection from hepatitis A virus (HAV) infection and persons with any of the following indications:
  - men who have sex with men and persons who use injection or noninjection illicit drugs;
  - persons working with HAV-infected primates or with HAV in a research laboratory setting;
  - persons with chronic liver disease and persons who receive clotting factor concentrates;
  - persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A; and

- unvaccinated persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. (See footnote #1 for more information on travel recommendations). The first dose of the 2-dose hepatitis A vaccine series should be administered as soon as adoption is planned, ideally 2 or more weeks before the arrival of the adoptee.
- 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 may be used, administered on days 0, 7, and 21–30, followed by a booster dose at month 12.

#### 13. Hepatitis B vaccination

- Vaccinate persons with any of the following indications and any person seeking protection from hepatitis B virus (HBV) infection:
  - sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than one 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;
  - health-care personnel and public-safety workers who are potentially exposed to blood or other infectious body fluids;
  - persons with diabetes younger than age 60 years as soon as feasible after diagnosis; persons with diabetes who are age 60 years or older at the discretion of the treating clinician based on increased need for assisted blood glucose monitoring in long-term care facilities, likelihood of acquiring hepatitis B infection, its complications or chronic sequelae, and likelihood of immune response to vaccination;
  - persons with end-stage renal disease, including patients receiving hemodialysis; persons with HIV infection; and persons with chronic liver disease;
  - household contacts and sex partners of hepatitis B surface antigen-positive persons; clients and staff members of institutions for persons with developmental disabilities; and international travelers to countries with high or intermediate prevalence of chronic HBV infection; and
  - 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.
- Administer missing doses to complete a 3-dose series of hepatitis B vaccine to those persons not vaccinated or not completely vaccinated. The second dose should be administered 1 month after the first dose; the third dose should be given at least 2 months after the second dose (and at least 4 months after the first dose). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, give 3 doses at 0, 1, and 6 months; alternatively, a 4-dose Twinrix schedule, administered on days 0, 7, and 21–30 followed by a booster dose at month 12 may be used.
- Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 µg/mL (Recombivax HB) administered on a 3-dose schedule at 0, 1, and 6 months or 2 doses of 20 µg/mL (Engerix-B) administered simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.

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

- 1 dose of Hib vaccine should be considered for persons who have sickle cell disease, leukemia, or HIV infection, or who have anatomic or functional asplenia if they have not previously received Hib vaccine.

#### 15. Immunocompromising conditions

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

## TB in LA County

The ongoing outbreak investigation of tuberculosis among the homeless in Downtown Los Angeles is an important reminder that tuberculosis still exists in our community. During the investigation period from 2007-2012, 78 cases of TB were identified for this outbreak (60 of which were among the homeless), including 11 deaths. In 2012, there were 625 total TB cases.

TB disproportionately afflicts the county's at-risk groups. These groups are composed of those born in TB-endemic countries; non-Caucasian ethnic/racial groups; those with compromised or weakened immune systems; HIV-infected individuals; injection drug users; and those in congregate living situations (such as homeless shelters, correctional facilities, and nursing homes).

Health care providers are requested to be alert to the following signs and symptoms of active TB disease among patients including the following:

- Persistent cough (>3 weeks)
- Weight loss
- Night sweats
- Fever
- Malaise
- Hemoptysis

Obtain the following diagnostic tests to evaluate patients suspected of having active TB disease:

- HIV antibody testing
- Chest X-ray
- Three sputum samples examined for acid-fast smear, collected 8 hours to 24 hours apart, with at least one being an early morning specimen
- Molecular diagnostic tests (e.g., nucleic acid amplification test) on sputum specimens for more rapid diagnosis

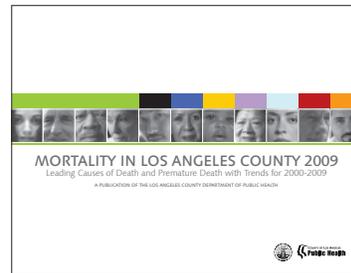
Note: Be alert to abnormalities on the chest X-ray consistent with active TB disease (e.g, cavitory lesions, miliary pattern). Patients with HIV and TB commonly have normal chest radiographs; therefore, a normal chest radiograph does not definitively rule out pulmonary TB disease.



Health care providers are required to report all patients with confirmed or suspect TB to the LA County Department of Public Health within one working day. Call the TB Control

Program to report suspected cases at (213) 745-0800. Or submit a Confidential Morbidity Report/Confidential Tuberculosis Suspect Case Report by fax at (213) 749-0926. This report form is available at [www.publichealth.lacounty.gov/tb](http://www.publichealth.lacounty.gov/tb).

For a TB-related medical consult or any additional information, call the TB Control Program at (213) 745-0800 and select option 1 from the main menu.



## Latest Mortality Report Shows Leading Causes of Death on the Decline

During the 15-year period from 1995 through 2009, the death rate in LA County decreased a notable 31%. During the same time period, the United States death rate decreased only 19% and the

California death rate decreased 24%, according to "Mortality in Los Angeles County, 2009: Leading causes of death and premature death with trends for 2000-2009."

This report from the Los Angeles County Department of Public Health also showed that injuries (homicides, motor vehicle crashes, drug overdoses, and suicide) are leading causes of premature deaths among both males and females. (Premature death is defined as death before the age of 75, a standard cut-off used in public health.)

### Data highlights for 2009

(rates are age-adjusted)

- In 2009, there were 57,620 deaths, a 0.7% decrease from 2008. The death rate was 583 deaths per 100,000 population, a 3% decrease from 2008.
- The number of deaths among men and women was nearly equal—29,342 men and 28,278 women—but overall, men died at a younger age than women. The median age at death for men was 73 years compared with 81 years for women.
- On an average day in LA County, 158 people died, including 38 from cancer, 35 from coronary heart disease, 10 from injuries (homicide, suicide, and unintentional), and 9 from stroke. Five deaths were among children and young adults less than 25 years of age.
- Of the deaths, 24% were caused by cancer (13,909 deaths). Among those who died of cancer, lung cancer was the most common cause (2,958 deaths), followed by colorectal cancer (1,388 deaths), and breast cancer (1,173 deaths).

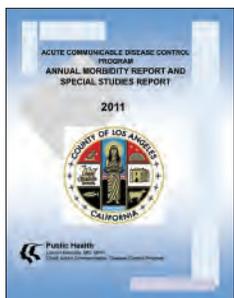
### Data highlights for 2000-2009

(rates are age-adjusted)

- During the last 10 years, the overall death rate decreased 22%, from 749 to 583 deaths per 100,000 population.

- There was a notable decrease (42%) in the death rate from coronary heart disease—the leading cause of death and premature death—from 220 to 129 deaths per 100,000 population in 2000 and 2009, respectively. The rate among women decreased 45%; among men, it dropped by 39%.
- Since 2000, the number of deaths from Alzheimer’s disease has more than doubled from 820 in 2000 to 2,125 in 2009, although from 2008 to 2009, the number of deaths was virtually unchanged.

For a printed copy of the report, call (213) 240-7785. Or view the report online at [www.publichealth.lacounty.gov/dca/dcareportspubs.htm](http://www.publichealth.lacounty.gov/dca/dcareportspubs.htm).



### New Report Summarizes Annual Morbidity in LA County

The LA County Department of Public Health has released its “Annual Morbidity and Special Studies Report, 2011.” The 329-page report, published in December, contains surveillance data of notifiable diseases and disease summaries with trends, highlights and tables of disease incidence

rates compared to previous years. Data-rich summaries are provided for 32 diseases, including amebiasis, legionellosis,

listeriosis, malaria, mumps, pertussis, salmonellosis, shigellosis, vibriosis, and West Nile virus. The report also features disease outbreak summaries for community-acquired diseases, foodborne illness, and health care-associated illnesses.

This annual report is compiled to summarize morbidity trends of many communicable diseases occurring in LA County, identify patterns of disease as a means of directing future disease prevention efforts, identify limitations of and means of improving data, and serve as a resource for health care providers, public health officials, and others seeking communicable disease data and surveillance information.

Also included is a Special Studies Report, which provides the latest data on disease surveillance, trends, and summaries; infectious disease incidents/clusters/outbreaks; and public health policies and practice in LA County.

To read the full report, go to [www.publichealth.lacounty.gov/acd/reports/annual/2011Annual.pdf](http://www.publichealth.lacounty.gov/acd/reports/annual/2011Annual.pdf). 

## FOOTNOTES: RECOMMENDED IMMUNIZATION SCHEDULE FOR PERSONS AGED 0 THROUGH 18 YEARS *from page 6*

### Vaccination of persons with high-risk conditions:

- For children younger than 19 months of age with anatomic or functional asplenia (including sickle cell disease), administer an infant series of Hib-MenCY at 2, 4, 6, and 12-15 months.
- For children aged 2 through 18 months with persistent complement component deficiency, administer either an infant series of Hib-MenCY at 2, 4, 6, and 12 through 15 months or a 2-dose primary series of MCV4-D starting at 9 months, with at least 8 weeks between doses. For children aged 19 through 23 months with persistent complement component deficiency who have not received a complete series of Hib-MenCY or MCV4-D, administer 2 primary doses of MCV4-D at least 8 weeks apart.
- For children aged 24 months and older with persistent complement component deficiency or anatomic or functional asplenia (including sickle cell disease), who have not received a complete series of Hib-MenCY or MCV4-D, administer 2 primary doses of either MCV4-D or MCV4-CRM. If MCV4-D (Menactra) is administered to a child with asplenia (including sickle cell disease), do not administer MCV4-D until 2 years of age and at least 4 weeks after the completion of all PCV13 doses. See MMWR 2011;60:1391–2, available at <http://www.cdc.gov/mmwr/pdf/wk/mm6040.pdf>.
- For children aged 9 months and older who are residents of or travelers to countries in the African meningitis belt or to the Hajj, administer an age appropriate formulation and series of MCV4 for protection against serogroups A and W-135. Prior receipt of Hib-MenCY is not sufficient for children traveling to the meningitis belt or the Hajj. See MMWR 2011;60:1391–2, available at <http://www.cdc.gov/mmwr/pdf/wk/mm6040.pdf>.
- For children who are present during outbreaks caused by a vaccine serogroup, administer or complete an age and formulation-appropriate series of Hib-MenCY or MCV4.
- For booster doses among persons with high-risk conditions refer to <http://www.cdc.gov/vaccines/pubs/acip-list.htm#mening>.

### Additional Vaccine Information

- For contraindications and precautions to use of a vaccine and for additional information regarding that vaccine, vaccination providers should consult the relevant ACIP statement available online at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>.
- For the purposes of calculating intervals between doses, 4 weeks = 28 days. Intervals of 4 months or greater are determined by calendar months.
- Information on travel vaccine requirements and recommendations is available at <http://wwwnc.cdc.gov/travel/page/vaccinations.htm>.
- For vaccination of persons with primary and secondary immunodeficiencies, see Table 13, “Vaccination of persons with primary and secondary immunodeficiencies,” in General Recommendations on Immunization (ACIP), available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6002a1.htm>; and American Academy of Pediatrics. Passive immunization. In: Pickering LK, Baker CJ, Kimberlin DW, Long SS eds. Red book: 2012 report of the Committee on Infectious Diseases. 29th ed. Elk Grove Village, IL: American Academy of Pediatrics.

*Rx for Prevention* is published 10 times a year by the Los Angeles County Department of Public Health. If you would like to receive this newsletter by e-mail, go to [www.publichealth.lacounty.gov](http://www.publichealth.lacounty.gov) and subscribe to the ListServ for *Rx for Prevention*.

# Rx for Prevention

Promoting health through prevention in Los Angeles County

## Upcoming Seminar

### TB in High-Risk Groups in LA County

March 25, 2013, 2:30 pm – 4:30 pm

TB Control Program Headquarters  
2615 S. Grand Ave., Suite 507  
Los Angeles, CA 90007

This educational seminar will focus on populations in LA County at high risk for TB, such as HIV-infected individuals, substance abusers, those who are immunocompromised, homeless individuals, and certain foreign-born persons.

For more information, visit the TB Control website at [www.publichealth.lacounty.gov/tb](http://www.publichealth.lacounty.gov/tb).



Office of the Medical Director  
241 N. Figueroa St., Suite 275  
Los Angeles, CA 90012

PRESORTED  
STANDARD  
U.S. POSTAGE  
**PAID**  
PERMIT NO. 312  
ARCADIA, CA

### LOS ANGELES COUNTY BOARD OF SUPERVISORS

Gloria Molina, First District  
Mark Ridley-Thomas, Second District  
Zev Yaroslavsky, Third District  
Don Knabe, Fourth District  
Michael D. Antonovich, Fifth District

### DEPARTMENT OF PUBLIC HEALTH

Jonathan E. Fielding, MD, MPH  
Director and Health Officer

Cynthia A. Harding, MPH  
Chief Deputy Director, Public Health

Jeffrey D. Gunzenhauser, MD, MPH  
Medical Director of Public Health

Steven Teutsch, MD, MPH  
Chief Science Officer

### EDITORS IN CHIEF

Jeffrey D. Gunzenhauser, MD, MPH  
[jgunzenhauser@ph.lacounty.gov](mailto:jgunzenhauser@ph.lacounty.gov)

Steven Teutsch, MD, MPH  
[steutsch@ph.lacounty.gov](mailto:steutsch@ph.lacounty.gov)

### MEDICAL COMMUNITY ADVISER

Thomas Horowitz, DO

### EDITORIAL BOARD

Melanie Barr, RN, MSN  
Trista Bingham, MPH, PhD  
Kevin Donovan, MPH  
Julia Heinzerling, MPH  
Susan Lesser, MPH  
Anna Long, PhD, MPH  
Paula Miller, MPH, CHES  
Sadina Reynaldo, PhD  
Carrie Tayour, MPH  
Rachel A. Tyree, MPH

Summer Nagano, Managing Editor  
Alan Albert & Kathleen Pittman, Graphic Designers  
Maria Ojeda, Administration

**Comments or Suggestions?** If so, or if you would like to suggest a topic for a future issue, e-mail Dr. Jeffrey Gunzenhauser, co-editor, at [jgunzenhauser@ph.lacounty.gov](mailto:jgunzenhauser@ph.lacounty.gov).

## Index of Disease Reporting Forms

All case reporting forms from the LA County Department of Public Health are available by telephone or Internet.

### Reportable Diseases & Conditions

**Confidential Morbidity Report**  
Morbidity Unit (888) 397-3993  
Acute Communicable Disease Control  
(213) 240-7941  
[www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf](http://www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf)

**Sexually Transmitted Disease Confidential Morbidity Report**  
(213) 744-3070

[www.publichealth.lacounty.gov/std/providers.htm](http://www.publichealth.lacounty.gov/std/providers.htm) (web page)  
[www.publichealth.lacounty.gov/std/docs/STD\\_CMR.pdf](http://www.publichealth.lacounty.gov/std/docs/STD_CMR.pdf) (form)

### Adult HIV/AIDS Case Report Form

For patients over 13 years of age at time of diagnosis  
HIV Epidemiology Program  
(213) 351-8196  
[www.publichealth.lacounty.gov/HIV/hivreporting.htm](http://www.publichealth.lacounty.gov/HIV/hivreporting.htm)

### Pediatric HIV/AIDS Case Report Form

For patients less than 13 years of age at time of diagnosis

Pediatric AIDS Surveillance Program  
(213) 351-8153

*Must first call program before reporting*  
[www.publichealth.lacounty.gov/HIV/hivreporting.htm](http://www.publichealth.lacounty.gov/HIV/hivreporting.htm)

### Tuberculosis Suspects & Cases Confidential Morbidity Report

Tuberculosis Control (213) 745-0800  
[www.publichealth.lacounty.gov/tb/forms/cmr.pdf](http://www.publichealth.lacounty.gov/tb/forms/cmr.pdf)

### Lead Reporting

No reporting form. Reports are taken over the phone.  
Lead Program (323) 869-7195

### Animal Bite Report Form

Veterinary Public Health (877) 747-2243  
[www.publichealth.lacounty.gov/vet/biteintro.htm](http://www.publichealth.lacounty.gov/vet/biteintro.htm)

### Animal Diseases and Syndrome Report Form

Veterinary Public Health (877) 747-2243  
[www.publichealth.lacounty.gov/vet/disintro.htm](http://www.publichealth.lacounty.gov/vet/disintro.htm)

Use of trade names and commercial sources in *Rx for Prevention* is for identification only and does not imply endorsement by the Los Angeles County Department of Public Health (LACDPH). References to non-LACDPH sites on the Internet are provided as a service to *Rx for Prevention* readers and do not constitute or imply endorsement of these organizations or their programs by LACDPH. The Los Angeles County Department of Public Health is not responsible for the content of these sites. URL addresses listed in *Rx for Prevention* were current as of the date of publication.