



RON CHAPMAN, MD, MPH
Director & State Health Officer

State of California—Health and Human Services Agency
California Department of Public Health



EDMUND G. BROWN JR.
Governor

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TO: Vaccines for Children (VFC) Providers

FROM: John Talarico, D.O., M.P.H., Chief *Talarico, D.O.*
Center for Infectious Diseases
Division of Communicable Disease Control, Immunization Branch

SUBJECT: Recommended ACIP Childhood and Adolescent Immunizations Schedules, 2012; Reminder, Ongoing Pertussis (Tdap) School Requirements for 7th Grade Entry; Vaccine Ordering

The Federal Advisory Committee on Immunization Practices (ACIP) has summarized its recommendations for routine immunizations by specific age or risk groups in its 2012 annual schedules posted at <http://www.cdc.gov/vaccines/recs/schedules/child-schedule.htm>. A “catch-up” schedule is also provided for those who have fallen behind or have special circumstances.

Recent ACIP recommendations reflected in the 2012 schedules include:

- MCV4 – routine adolescent booster dose
- [MCV4 – expanded age indications and two-dose primary series for certain high-risk conditions](#)
- [HPV vaccine - routine use for males](#)
- [PCV13 - supplemental dose\(s\) for those who received PCV7](#)
- PCV13 - for certain high-risk conditions
- [Tdap - use in pregnant women. This recommendation is on the adult schedule but is applicable to pregnant teens.](#)
- MMR - A footnote reminds providers of the longstanding recommendation for immunization of infants 6 through 11 months of age before international travel.

Many of these recommendations are described in VFC letters posted at <http://eziz.org/>.

In keeping with your VFC provider agreement, all ACIP immunization recommendations, including those listed in the 2012 schedules should be fully implemented. The schedule footnotes contain important information and should also be carefully reviewed. We encourage you to review the 2012 schedules with all staff, especially those who order and administer vaccines. The 2012 schedules should be posted in the office.

Ongoing Pertussis (Tdap) School Requirements for 7th Grade Entry

We would like to thank you again for your unprecedented efforts in protecting more than three million 7th-12th grade students in California with Tdap for the 2011-2012 school year.

For 2012-2013 and future school years, all pupils entering 7th grade will need documentation from their provider of immunization with Tdap. Preteens may be exposed to pertussis and other diseases at any time -- immunize them now with Tdap and other recommended vaccines they haven't already received.

VACCINE ORDERING

On-line Ordering Reminder

Since the introduction of VFC's on-line ordering system in November 2011, over 60% of providers have made the switch to electronic submission of their VFC vaccine requests. If your clinic has not taken advantage of the system and its multiple benefits, encourage your clinic staff to submit your next vaccine order through [MyVFCVaccines](#).

Added Products and Presentations

The following products have recently been added to VFC's Order system:

- Merck's rotavirus vaccine, RotaTeq[®] is now available in the following packaging:
 - A box of 10 single-dose tubes
 - A box of 25 single-dose tubes

Combination Vaccines

- Merck's Hepatitis B and Hib combination vaccine, COMVAX[®], is now available in the following packaging:
 - A box of 10 single dose vials

COMVAX[®] is indicated for vaccination of infants 6 weeks to 15 months of age born to HBsAg-negative mothers. The first two doses are routinely administered at 2 months and 4 months of age with a booster dose administered at 12 months of age. COMVAX[®] should not be administered to any infant before the age of 6 weeks. Please carefully review the product indications and ACIP recommendations, including minimum ages and intervals for both hepatitis B and Hib vaccines. Also refer to footnote #4 of the 2012 ACIP Immunization schedule.

Staff Education Prior to Ordering New Brands

Vaccine administration errors occur when staff lacks knowledge of specific products and recommended schedules. To avoid errors, it is strongly suggested that you:

- Limit the brands of vaccines provided by your office.
- Use combination vaccines when possible.
- Review schedules and vaccine presentations with all staff who administer vaccines, especially after changing brands or formulations.

- Assure all staff who administer vaccines have completed the EZIZ training modules <http://eziz.org/> as part of comprehensive staff development and competency assessment.

QUESTIONS?

If you have any questions, please call your VFC Field Representative or the VFC Program at 877-243-8832 (877-2GET-VFC) or visit www.eziz.org

Enclosure

cc: CDPH Immunization Branch Field Representatives
Local Health Officers
Local Health Department Immunization Coordinators
Local Health Department CHDP Program Directors
Tanya Homman, Acting Chief, Medi-Cal Managed Care Division, DHCS
Luis Rico., Acting Chief, Children Medical Services Branch, DHCS
Susan McClair, M.D., Acting Chief, Medical Policy, Medi-Cal Managed Care, DHCS
Shabbir Ahmad, D.V.M., M.S., Ph.D., Acting Chief, MCAH Program, CDPH
Villita Lewis, Deputy Director, Benefits and Quality Monitoring, MRMIB
Lilia Coleman, Benefits and Quality Monitoring, MRMIB
Jamie Yang, Benefits and Quality Monitoring, MRMIB
Neal Kohatsu, M.D., Medical Policy Section, Medi-Cal Benefits, Waiver Analysis and Rates Division, DHCS
Steve Shih, M.D., Medical Policy Section, Medi-Cal Benefits, Waiver Analysis and Rates Division, DHCS
Alan Morita, Pharm.D., Medi-Cal Pharmacy Policy Branch, DHCS
Jill Abramson, M.D., Children Medical Services Branch, DHCS

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 | | 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 completion of at least 3 doses of the HepB series, at age 9 through 18 months (generally at the next well-child visit).
 - 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.