



# Maryland Department of Health and Mental Hygiene

## 2007 Recommended Childhood and Adolescent Immunization Schedule

| Vaccine ▼                          | Age ►              | Birth             | 2 mos | 4 mos            | 6 mos                                                | 12 mos           | 15 mos            | 18 mos | 2 yrs                                   | 4-6 yrs                            | 11-12 yrs                                          | 13-18 yrs                                           |
|------------------------------------|--------------------|-------------------|-------|------------------|------------------------------------------------------|------------------|-------------------|--------|-----------------------------------------|------------------------------------|----------------------------------------------------|-----------------------------------------------------|
| Hepatitis B                        | Hep B <sup>1</sup> | Hep B             |       | Hep B            | If previously unvaccinated begin series <sup>2</sup> |                  |                   |        |                                         |                                    |                                                    |                                                     |
| Diphtheria, Tetanus, Pertussis     |                    | DTaP <sup>3</sup> | DTaP  | DTaP             |                                                      |                  | DTaP <sup>3</sup> |        |                                         | DTaP <sup>3</sup>                  | Tdap <sup>4</sup>                                  | Tdap <sup>5</sup>                                   |
| Haemophilus Influenza type b       |                    | Hib               | Hib   | Hib <sup>6</sup> |                                                      |                  | Hib               |        |                                         |                                    |                                                    |                                                     |
| Inactivated Polio                  |                    | IPV               | IPV   | IPV              |                                                      |                  |                   |        |                                         | IPV <sup>7</sup>                   |                                                    |                                                     |
| Measles, Mumps, Rubella            |                    |                   |       |                  |                                                      | MMR <sup>8</sup> |                   |        |                                         | MMR <sup>8</sup>                   |                                                    |                                                     |
| Varicella                          |                    |                   |       |                  |                                                      | Var <sup>9</sup> |                   |        |                                         | Var <sup>9</sup>                   | If previously unvaccinated, vaccinate <sup>9</sup> |                                                     |
| Pneumococcal <sup>10</sup>         |                    | PCV7              | PCV7  | PCV7             | PCV7                                                 |                  |                   |        |                                         |                                    |                                                    |                                                     |
| Influenza <sup>11</sup>            |                    |                   |       |                  | All children 6 months — 5 years of age               |                  |                   |        |                                         | Certain Risk Factors               |                                                    |                                                     |
| Meningococcal <sup>12</sup>        |                    |                   |       |                  |                                                      |                  |                   |        |                                         |                                    | MCV4 <sup>12</sup>                                 | If previously unvaccinated, vaccinate <sup>12</sup> |
| Hepatitis A <sup>13</sup>          |                    |                   |       |                  |                                                      | Hep A            |                   | Hep A  | If previously unvaccinated begin series | Certain Risk Factors <sup>13</sup> |                                                    |                                                     |
| Rotavirus <sup>14</sup>            |                    | RV                | RV    | RV               |                                                      |                  |                   |        |                                         |                                    |                                                    |                                                     |
| Human Papillomavirus <sup>15</sup> |                    |                   |       |                  |                                                      |                  |                   |        |                                         |                                    | HPV <sup>15</sup> (3 doses)                        | If previously unvaccinated, vaccinate <sup>15</sup> |

Catch-up Vaccination

Preadolescent Assessment

Certain Risk Factors

## Maryland 2007 Recommended Childhood and Adolescent Immunization Schedule Footnotes\*

- 1 **All newborns should receive the first dose of hepatitis B vaccine at birth, before hospital discharge.** Four doses of vaccine may be administered (i.e. when combination vaccines are given after the birth dose). The last dose in the series (3<sup>rd</sup> or 4<sup>th</sup>) should be administered  $\geq 24$  weeks. All hospitals should ensure that newborns of mothers whose hepatitis B surface antigen (HBsAg) status is unknown receive their 1<sup>st</sup> dose of hepatitis B vaccine within 12 hours of birth. Maternal blood should be drawn at the time of delivery to determine the mother's HBsAg status; if the HBsAg test is positive, the infant should receive HBIG as soon as possible (no later than one week). Infants born to HBsAg-positive mothers should receive hepatitis B vaccine and 0.5 ml hepatitis B immune globulin (HBIG) within 12 hours of birth. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody for HBsAg after completion of the Hep B vaccine series, at age 9—18 months (generally at the next well-child visit after completion of the vaccine series).
- 2 Children and adolescents who have not previously received three (3) doses of hepatitis B vaccine should initiate or complete the series. The 2<sup>nd</sup> dose should be administered at least 1 month after the 1<sup>st</sup> dose, and the 3<sup>rd</sup> dose should be administered at least 4 months after the 1<sup>st</sup> dose and at least 2 months after the 2<sup>nd</sup> dose. Previously unvaccinated adolescents aged 11-15 years may receive the two-dose schedule (using the adult dosage), with the 2<sup>nd</sup> dose being administered 4-6 months after the first (only Merck's Recombivax HB<sup>®</sup> is approved for this 2-dose schedule).
- 3 Use diphtheria tetanus toxoids (DT) pediatric vaccine when pertussis vaccine is contraindicated. The 4<sup>th</sup> dose of DTaP may be administered as early as 12 months of age provided 6 months have elapsed since the 3<sup>rd</sup> dose and the child is unlikely to return at age 15 months age. If the 4<sup>th</sup> DTaP is administered after the 4<sup>th</sup> birthday, a 5<sup>th</sup> DTaP is not necessary.
- 4 Tdap is recommended for 11-12 year olds at the preadolescent assessment visit for those who have completed the recommended childhood DTP/DTaP vaccination series and have not received a Td booster dose.
- 5 Adolescents 13 - 18 years of age who missed the 11 - 12 year Td/Tdap booster dose should also receive a single dose of Tdap if they have completed the recommended childhood DTP/DTaP vaccination series. Subsequent Td vaccination recommended every 10 years.
- 6 Three conjugate Hib vaccines are licensed for infant use. **If PRP-OMP (PedvaxHib<sup>®</sup> or ComVax<sup>®</sup> [Merck] ) is administered at ages 2 and 4 months, a dose at 6 months is not required.** DTaP/Hib combination products should not be used for primary immunization in infants at ages 2, 4, or 6 months, but can be used as boosters following any Hib vaccine. The final dose in the series should be administered at age  $\geq 12$  months. Any **unvaccinated child** 15-59 months of age should receive a single dose of vaccine and may be given any one of the three conjugate vaccines licensed for this age group.
- 7 The fourth dose of IPV is not needed if the third dose is given on or after the fourth birthday.
- 8 **MMR vaccine must be administered on or after the first birthday.** The second dose of MMR is routinely recommended at 4-6 years of age (school entry), however, it may be administered at any visit after 12 months of age, provided at least 4 weeks have elapsed since receipt of the 1<sup>st</sup> dose.
- 9 The first dose of **varicella (chickenpox) vaccine must be administered on or after the first birthday.** The second dose of varicella vaccine is routinely recommended at 4-6 years of age (school entry), provided that  $\geq 3$  months have elapsed since the first and both doses are administered at age  $\geq 12$  months. Do not repeat the second dose, if administered  $\geq 28$  following the first dose. For persons  $\geq 13$  years of age without evidence of immunity, administer 2 doses of varicella vaccine at least 4 weeks apart.
- 10 **The heptavalent pneumococcal conjugate vaccine (PCV7) is recommended for all children age 2-23 months and certain children aged 24 - 59 months of age.** The final dose in the series should be given at age  $\geq 12$  months. Pneumococcal polysaccharide vaccine (PPV) is recommended in addition to PCV for certain high risk groups 2 years of age or older. See MMWR 2000; 49(RR-9):1-38.
- 11 During the annual influenza season (October through March), **all children 6 months to 5 years of age and children 5 years of age or older with certain risk factors are recommended to receive influenza vaccine.** Children aged 8 years of age or younger who are receiving influenza vaccine for the first time should receive two (2) doses separated by at least 4 weeks for trivalent inactivated influenza vaccine (TIV) or at least 6 weeks for Live Attenuated Influenza Vaccine (LAIV).
- 12 Meningococcal conjugate vaccine (MCV4) is recommended for 11-12 year olds at the preadolescent assessment visit. Previously unvaccinated persons (13 - 18 years of age) should be vaccinated at high school entry. **Proof of vaccination is required for individuals living in on-campus student housing at Maryland institutions of higher learning (COMAR 10.06.05).** Meningococcal Polysaccharide (MPSV4) recommended for persons 2 – 10 years of age and older where medically indicated.
- 13 Hepatitis A vaccine is recommended for all children 12 - 23 months of age. Two (2) doses should be administered with the second dose given at least 6 months after the first dose. Previously unvaccinated children 2—18 years of age with certain risk factors should be vaccinated (i.e., Residents of Baltimore City, travelers, and persons with chronic liver diseases). See MMWR 2006; 55(RR-7):1-23.
- 14 Children should receive the first dose of the vaccine between 6 - 12 weeks of age and two additional doses given at 4 to 10 weeks intervals. **Do not start the series for children older than 12 weeks of age.** All doses of the vaccine should be completed by 32 weeks of age.
- 15 **HPV vaccine is routinely recommended for females aged 11 - 12 years at the preadolescent visit.** Three doses should be administered with the second dose given at least 2 months after the first and the third dose given at least six months after the first dose. The vaccination series can be started as early as nine years of age at the discretion of the physician or health care provider. Previously unvaccinated females aged 13-26 years old are recommended for vaccination. The vaccine should be administered before onset of sexual activity (i.e., before women are exposed to the viruses), but females less than 26 years of age who are sexually active can still be vaccinated. HPV vaccine is not intended to be used for the treatment of active genital warts; cervical cancer; CIN; VIN; or VaIN. HPV vaccine is not recommended for use in pregnant women.

## 2007 Recommended Adult Immunization Schedule

| Vaccine ▼                                              | Age Group ► | 19-49 Years                                                                                                   | 50-64 Years                              | 65 Years and Older                                                                    |
|--------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Tetanus, Diphtheria, acellular Pertussis (Tdap)</b> |             | If last dose of Td ≥ 10 years or with certain risk factors <sup>1</sup>                                       |                                          |                                                                                       |
| <b>Tetanus, Diphtheria (Td)</b>                        |             |                                                                                                               |                                          | 1 dose booster every 10 years <sup>1</sup>                                            |
| <b>Influenza</b>                                       |             | 1 annual dose for certain persons <sup>2</sup>                                                                | ←----- 1 annual dose <sup>2</sup> -----→ |                                                                                       |
| <b>Pneumococcal Polysaccharide</b>                     |             | 1 dose for persons with medical or other indications <sup>3,4</sup>                                           |                                          | 1 dose for unvaccinated <sup>3</sup> persons<br>1 dose for revaccination <sup>4</sup> |
| <b>Hepatitis B</b>                                     |             | 3 doses (0,1-2,4-6 months) persons with medical, behavioral, occupational, or other indications <sup>5</sup>  |                                          |                                                                                       |
| <b>Hepatitis A</b>                                     |             | 2 doses (0,6-12 months) for persons with medical, behavioral, occupational, or other indications <sup>6</sup> |                                          |                                                                                       |
| <b>Measles, Mumps, Rubella (MMR)</b>                   |             | 1 dose if history unreliable<br>2 doses for persons with certain indications <sup>7</sup>                     |                                          |                                                                                       |
| <b>Varicella</b>                                       |             | 2 doses (0, 4-8 weeks) <sup>8</sup>                                                                           |                                          |                                                                                       |
| <b>Meningococcal</b>                                   |             | 1 dose for persons with medical or other indications <sup>9</sup>                                             |                                          |                                                                                       |
| <b>Human Papillomavirus (HPV)</b>                      |             | 3 doses for females age 19-26 <sup>10</sup>                                                                   |                                          |                                                                                       |
| <b>Herpes Zoster</b>                                   |             |                                                                                                               |                                          | 1 dose for persons 60 years of age and older <sup>11</sup>                            |

Catch-up Vaccination

### 2007 Maryland Adult Immunization Schedule Footnotes\*

Select Populations

- Adults 19—64 who received their last dose of Td vaccine greater than or equal to 10 years should be vaccinated with a single dose of Tdap. Intervals shorter than 10 years since the last Td vaccination may be used; a 2 year interval between Td and Tdap is suggested to reduce the risk of reaction to vaccination. Tdap is also recommended for any adult (i.e., parents, household contacts, child care providers, healthcare providers, etc) who has or anticipates close contact with an infant less than 12 months of age.
- Influenza vaccine is recommended yearly for all persons 50 years of age or older, people who have chronic medical conditions, women who will be pregnant during flu season, health care workers with direct patient care, residents of long term care, and household members or caregivers of high-risk persons. Depending on the flu season a tiered vaccination system may be issued. Non-pregnant healthy persons aged 5-49 years without high risk conditions who are not contacts of severely immuno-compromised persons in special care units, may receive Live Attenuated Influenza Vaccine (LIAV) in lieu of inactivated vaccine.
- Pneumococcal Polysaccharide is recommended for persons with certain chronic medical conditions and residents of nursing homes. Unvaccinated persons should receive one dose at age 65.
- One time revaccination of persons who were vaccinated 5 or more years previously and with certain chronic medical conditions. For persons 65 and older, one-time revaccination if they were vaccinated 5 or more years previously and were aged less than 65 years at the time of primary vaccination. Reference *MMWR* 1997; 46 (RR-8):1-24.
- Recommended for all unvaccinated adults at risk for hepatitis B virus infection and all adults seeking protection from HBV infection. Recommended for adults in settings where a high proportion of adults are likely to have risk factors (these settings include sexually transmitted disease treatment facilities, HIV testing and treatment facilities, drug abuse treatment and prevention facilities, correctional facilities, health care settings serving men who have sex with men, chronic hemodialysis facilities and end-stage renal disease programs, and institutions and nonresidential daycare facilities for developmentally disabled persons.)
- Hepatitis A - Reference *MMWR* 2006; 55 (RR-16):1-25.
- Adults born in or after 1957 should receive at least one dose of MMR. Two (2) doses are recommended for adults who have certain risk factors. For women of child-bearing age, routinely determine rubella immunity and counsel women regarding congenital rubella syndrome. Not recommended for women who are pregnant or might become pregnant within 4 weeks of receiving the vaccine. Reference *MMWR* 1999; 47 (RR-8):1-57
- Recommended for all adults without evidence of immunity to varicella. Not recommended for women who are pregnant or might become pregnant within 4 weeks of receiving the vaccine.
- Consider vaccination for persons with medical indications and all students enrolled in institutions of higher learning. **Proof of vaccination is required for individuals living in on-campus student housing at Maryland institutions of higher learning (COMAR 10.06.05).** Two meningococcal vaccines are licensed for use. Meningococcal conjugate (MCV4) recommended for routine use in persons 11-55 years of age.
- Three doses should be administered with the second doses given at least 2 months after the first dose and the third dose given at least six months after the first dose. The vaccine should be administered before onset of sexual activity (i.e., before women are exposed to the viruses), but females less than 26 years of age who are sexually active can still be vaccinated. HPV vaccine is not intended to be used for the treatment of active genital warts; cervical cancer; CIN; VIN; or VaIN. HPV vaccine is not recommended for use in pregnant women.

## For Children and Adolescents Who Start Late or Who Are >1 Month Behind

There is no need to restart a vaccine series regardless of the time that has elapsed between doses.

### Catch-up schedule for children age 4 months through 6 years

| Vaccine                          | Minimum Age For Dose 1 | Minimum Interval Dose 1 to Dose 2                                                                                                                                                                                                                                                             | Minimum Interval Dose 2 to Dose 3                                                                                                                                                                                                              | Minimum Interval Dose 3 to Dose 4                                                                                        | Minimum Interval Dose 4 to Dose 5 |
|----------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Hepatitis B <sup>1</sup>         | Birth                  | 4 weeks                                                                                                                                                                                                                                                                                       | 8 weeks (and 16 weeks after first dose)                                                                                                                                                                                                        |                                                                                                                          |                                   |
| Rotavirus <sup>2</sup>           | 6 weeks                | 4 weeks                                                                                                                                                                                                                                                                                       | 4 weeks                                                                                                                                                                                                                                        |                                                                                                                          |                                   |
| DTaP <sup>3</sup>                | 6 weeks                | 4 weeks                                                                                                                                                                                                                                                                                       | 4 weeks                                                                                                                                                                                                                                        | 6 months                                                                                                                 | 6 months <sup>3</sup>             |
| Hib                              | 6 weeks                | 4 weeks: if 1 <sup>st</sup> dose given at age <12 mos<br>8 weeks (as final dose): if 1 <sup>st</sup> dose given at age 12-14 mos<br>No further doses needed: if first given at age 15 mos or older                                                                                            | 4 weeks <sup>4</sup> : if current age <12 mos<br>8 weeks (as final dose) <sup>4</sup> : if current age 12 mos or older and 2 <sup>nd</sup> dose given at age <15 mos<br>No further doses needed: if previous dose given at age 15 mos or older | 8 weeks (as final dose): this dose only necessary for children age 12 mos - 5 yrs who received 3 doses before age 12 mos |                                   |
| Pneumococcal <sup>5</sup> (PCV7) | 6 weeks                | 4 weeks: if 1 <sup>st</sup> dose given at age <12 mos and current age <24 mos<br>8 weeks (as final dose): if 1 <sup>st</sup> dose given at age 12 mos or older or current age 24-59 mos<br>No further doses needed: for healthy children if 1 <sup>st</sup> dose given at age 24 mos or older | 4 weeks: if current age <12 mos<br>8 weeks (as final dose) if current age 12 mos or older<br>No further doses needed: for healthy children if previous dose given at age 24 mos or older                                                       | 8 weeks (final dose): this dose only necessary for children age 12 mos - 5 yrs who received 3 doses before age 12 mos    |                                   |
| IPV <sup>6</sup>                 | 6 weeks                | 4 weeks                                                                                                                                                                                                                                                                                       | 4 week                                                                                                                                                                                                                                         | 4 weeks <sup>6</sup>                                                                                                     |                                   |
| MMR <sup>7</sup>                 | 12 months              | 4 weeks                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                |                                                                                                                          |                                   |
| Varicella <sup>8</sup>           | 12 months              | 3 months                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                |                                                                                                                          |                                   |
| Hepatitis A                      | 12 months              | 6 months                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                |                                                                                                                          |                                   |

### Catch-up Schedule for Persons Aged 7—18 Years

|                          |                      |                                                                                                                 |                                                                                                                   |                                                         |  |
|--------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--|
| Tdap, Td <sup>9</sup>    | 7 years <sup>9</sup> | 4 weeks                                                                                                         | 8 weeks: if first dose administered at age < 12 months<br>6 months: If first dose administered at age ≥ 12 months | 6 months: If first dose administered at age < 12 months |  |
| HPV <sup>10</sup>        | 9 years              | 4 weeks                                                                                                         | 12 weeks                                                                                                          |                                                         |  |
| Hepatitis A              | 12 months            | 6 months                                                                                                        |                                                                                                                   |                                                         |  |
| Hepatitis B <sup>1</sup> | Birth                | 4 weeks                                                                                                         | 8 weeks (and 16 weeks after the first dose)                                                                       |                                                         |  |
| IPV <sup>6</sup>         | 6 weeks              | 4 weeks                                                                                                         | 4 weeks                                                                                                           | 4 weeks <sup>6</sup>                                    |  |
| MMR <sup>7</sup>         | 12 months            | 4 weeks                                                                                                         |                                                                                                                   |                                                         |  |
| Varicella <sup>8</sup>   | 12 months            | 4 weeks: if first dose administered at age ≥ 13 years<br>3 months: if first dose administered at age < 13 years |                                                                                                                   |                                                         |  |

**1. Hepatitis B:** Administer the 3 dose series to those who were not previously vaccinated. A 2-dose series of Recombivax HB® is licensed for children aged 11-15 years.

**2. Rotavirus:** Do not start the series later than 12 weeks. Administer the final dose in the series by 32 weeks. Do not administer after 32 weeks.

**3. DTaP:** The fifth dose is not necessary if the fourth dose was administered at age ≥4 years. DTaP is not indicated for persons age ≥7 years.

**4. Hib:** Vaccine is not generally recommended for children age 5 years or older. If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB® or ComVax®), the third (and final) dose should be given at

age 12-15 months and at least 8 weeks after the second dose.

**5. PCV7:** Vaccine is not generally recommended for children age 5 years or older.

**6. IPV:** For children who received an all-IPV or all-OPV series, a fourth dose is not necessary if third dose was given at age 4 years or older. If both OPV and IPV were given as part of a series, a total of four doses should be given, regardless of the child's current age.

**7. MMR:** The second dose of MMR is recommended routinely at age 4-6 years, but may be given earlier if desired.

**8. Varicella:** The second dose of Varicella vaccine is recommended routinely at age 4-6 years, but may be

given earlier if desired. Do not repeat the second dose in persons aged < 13 years if administered ≥ 28 days after the first dose.

**9. Tdap, Td:** Tdap should be substituted for a single dose of Td in the primary catch-up series or as a booster if age appropriate; use Td for the other doses. A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose. A booster (fourth) dose is needed if any of the previous doses were administered at age < 12 months. See MMR 2006: 55 (No. RR-3).

**10. HPV:** Administer the HPV vaccine series to females at age 13—18 years if not previously vaccinated.