Maryland Department of Health and Mental Hygiene

2010 Recommended Childhood and Adolescent Immunization Schedule

Vaccine ▼ / Age ►	Birth	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	2-3 yrs	4-6 yrs	11-12 yrs	13-18 yrs
Hepatitis B[1]	**Hep B[1]**	**Hep B**		**Hep B**							
Rotavirus[2]		**RV**	**RV**	**RV**							
Diphtheria, Tetanus, Pertussis[3]		**DTaP**	**DTaP**	**DTaP**		**DTaP**			**DTaP**	**Tdap[4]**	If previously unvaccinated, vaccinate[5]
Haemophilus Influenzae type b[6]		**Hib**	**Hib**	**Hib**		**Hib**	If previously unvaccinated, vaccinate				
Pneumococcal[7]		**PCV13**	**PCV13**	**PCV13**	**PCV13**						
Polio[8]		**IPV**	**IPV**	**IPV**					**IPV**		
Influenza[9]	**All children 6 months — 18 years of age**										
Measles, Mumps, Rubella[10]					**MMR**				**MMR**		
Varicella[11]					**Var**				**Var**	Provide second dose if needed	
Hepatitis A[12]					**HepA**		**HepA**	Certain High-Risk Groups			
Meningococcal[13]								Certain High-Risk Groups		**MCV4**	If previously unvaccinated, vaccinate
Human Papillomavirus[14]										**HPV (3 doses)**	If previously unvaccinated, vaccinate

Catch-Up Vaccination

Pre-adolescent Assessment

Certain High-Risk Groups

Approved by MedChi

Maryland 2010 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 (3rd or 4th) should be administered ≥ 24 weeks. 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. All hospitals should ensure that newborns of mothers whose hepatitis B surface antigen (HBsAg) status is unknown receive their 1st 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 of age). 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. Two different rotavirus vaccine products (which differ in composition and schedule of administration) are licensed. Administer the first does of rotavirus vaccine at 6-14 weeks of age (maximum age, 14 weeks 6 days); the maximum age for the final dose is 8 months 0 days. Vaccination should not be initiated for infants age 15 weeks 0 days or older. If Rotarix® (RV1) is administered at ages 2 and 4 months, a third dose at 6 months is not indicated. If any dose in the series was RotaTeq® (RV5) or the product is unknown for any dose in the series, a total of three doses of rotavirus vaccine should be given.

3. Use diphtheria tetanus toxoids (DT) pediatric vaccine when pertussis vaccine is contraindicated. The 4th dose of DTaP may be administered as early as 12 months of age provided 6 months have elapsed since the 3rd dose and the child is unlikely to return at age 15 months age. If the 4th DTaP is administered after the 4th birthday, a 5th 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, 5 years after the last Td/DTaP dose, if they have completed the recommended childhood DTP/DTaP vaccination series. An interval of < 5 years may be used if pertussis immunity if needed. Subsequent Td vaccination is recommended every 10 years.

6. **If PRP-OMP (PedvaxHib® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at 6 months is not required.** TriHiBit® (DTaP/Hib) should not be used at 2, 4, or 6 months, but can be used as the final dose in children 12 months or older. The final dose in the series should be administered at age ≥ 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 13—valent pneumococcal conjugate vaccine (PCV13) is recommended for all children age 2-59 months and for children aged 60-71 months of age with certain medical conditions. Administer 1 dose of PCV13 to all healthy children age 24-59 months having any incomplete PCV schedule.** The **final dose in the series should be given at age ≥ 12 months. Pneumococcal polysaccharide vaccine (PPV) is recommended in addition to PCV13 for certain high risk groups 2 years of age or older. See MMWR 2000;49(RR-9):1-38.**

8. The final dose in the series should be administered on or after the fourth birthday and at least 6 months following the previous dose. The fourth dose of IPV is not needed if the third dose is given on or after the fourth birthday. If 4 doses are administered prior to age 4 years a fifth dose should be administered at age 4 though 6 years. See MMWR 2009; 58(30): 829-30.

9. During the annual influenza season, **all children 6 months to 18 years of age are recommended to receive influenza vaccine.** For healthy non-pregnant persons (i.e. those without underlying medical conditions) age 2-49 years, either LAIV or TIV may be used. Administer 2 doses (separated by ≥ 4 weeks) to children 6 months—8 years who received influenza vaccine for the first time this season or who were vaccinated for the first time in a previous season but only received 1dose of LAIV or TIV. TIV is recommended for pregnant women.

10. **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 1st dose.

11. 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 ≥ 3 months have elapsed since the first and both doses are administered at age ≥ 12 months. Do not repeat the second dose, if administered ≥ 28 days following the first dose. For persons ≥ 13 years of age without evidence of immunity or history of disease, administer 2 doses of varicella vaccine at least 4 weeks apart.

12. Hepatitis A vaccine is recommended for all children 12-23 months of age. Administer 2 doses at least 6 months apart. Children not vaccinated by age 2 years can be vaccinated at subsequent visits. Hepatitis A vaccine is also recommended for older children 2-18 years of age, who are at increased risk for infection or for whom immunity against Hepatitis A is desired. See MMWR 2006;55(RR-7):1-23.

13. 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. **Proof of vaccination is required for individuals living in on-campus student housing at Maryland institutions of higher learning (COMAR 10.06.05)**. MCV4 is recommended for persons 2 – 10 years of age and older where medically indicated. See MMWR 2007;56(48);1265-1266. Administer to children previously vaccinated with MCV4 or MPSV4 who remain at increased risk after 3 years (if first dose administered at age 2-6 years) or after 5 years (if first dose administered at age 7 or older). Persons whose only risk factor is on-campus housing are not recommended to receive an additional dose. See MMWR 2009; 58:1042-3.

14. Two HPV vaccines are licensed: a quadrivalent vaccine (HPV4) for the prevention of cervical, vaginal and vulvar cancers (in females) and genital warts (in males and females), and a bivalent (HPV2) for the prevention of cervical cancer in females. HPV vaccines are most effective for both males and females when given before exposure to HPV through sexual contact. Administer the first dose of either HPV2 or HPV4 to females at age 11 or 12 years (minimum age: 9). 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). Administer the series to females at age 13-26 if not previously vaccinated. HPV vaccine is not recommended for use in pregnant women. HPV4 may be administered in a 3-dose series to males aged 9 through 26 years to reduce their likelihood of acquiring genital warts. HPV2 is not licensed for use in males.

Maryland 2010 Catch-up schedule for children age 4 months through 18 years Footnotes*

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**: The maximum age for the first dose is 14 weeks 6 days. Vaccination should not be initiated for infants aged 15 weeks 0 days or older. Administer the final dose in the series by age 8 months 0 days. If Rotarix® was administered for the first and second doses, a third dose is not indicated.

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. However, studies suggest good immunogenicity in persons who have sickle cell disease, leukemia, or HIV infection, or who have had a splenectomy; administering 1 dose of Hib vaccine to persons who have not previously been vaccinated is not contraindicated. 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. **PCV13:** Vaccine is not generally recommended for children age 5 years or older.

6. **IPV:** The final dose in the series should be administered on or after the fourth birthday and at least 6 months following the previous dose. A fourth dose is not necessary if the third dose was administered at age 4 or older and at least 6 months following the previous dose. In the first 6 months of life, minimum age and minimum intervals are only recommended if the person is at risk for imminent exposure to circulating poliovirus (I.e., travel to a polio-endemic region or during an outbreak).

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 given at age < 12 months. See MMWR 2006; 55 (No. RR-3).

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

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[1]	**Birth**	**4 weeks**	**8 weeks** (and 16 weeks after first dose)		
Rotavirus[2]	**6 weeks**	**4 weeks**	**4 weeks**[2]		
DTaP[3]	**6 weeks**	**4 weeks**	**4 weeks**	**6 months**	**6 months**[3]
Hib[4]	**6 weeks**	• **4 weeks:** if 1st dose given at age <12 mos. • **8 weeks (as final dose):** if 1st dose given at age 12-14 mos. • **No further doses needed:** if first given at age 15 mos or older.	• **4 weeks**: if current age <12 mos. • **8 weeks (as final dose)**[4]: if current age 12 mos or older and 2nd dose given at age <15 mos. • **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[5] (PCV13)	**6 weeks**	• **4 weeks:** if 1st dose given at age <12 mos and current age <24 mos. • **8 weeks (as final dose):** if 1st dose given at age 12 mos or older or current age 24-59 mos. • **No further doses needed:** for healthy children if 1st dose given at age 24 mos or older.	• **4 weeks:** if current age <12 mos • **8 weeks (as final dose)**: if current age 12 mos or older. • **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[6]	**6 weeks**	**4 weeks**	**4 week**	**6 months**[6]	
MMR[7]	**12 months**	**4 weeks**			
Varicella[8]	**12 months**	**3 months**			
Hepatitis A	**12 months**	**6 months**			
Catch-up Schedule for Persons Aged 7—18 Years					
Tdap,Td[9]	**7 years**	**4 weeks**	• **4 weeks:** if first dose administered at age < 12 months • **6 months:** If first dose administered at age ≥ 12 months.	**6 months:** If first dose administered at age < 12 months	
HPV[10]	**9 years**	**4 weeks**	**12 weeks** (and 24 weeks after first dose)		
Hepatitis A	**12 months**	**6 months**			
Hepatitis B[1]	**Birth**	**4 weeks**	**8 weeks** (and 16 weeks after first dose)		
IPV[6]	**6 weeks**	**4 weeks**	**6 months**		
MMR[7]	**12 months**	**4 weeks**			
Varicella[8]	**12 months**	**4 weeks:** If first dose administered at age ≥ 13 years **3 months:** if first dose administered at age < 13 years			