2009 Immunization Schedules for Children 0-18 Years of Age

Cody Meissner, Chair (2008-)
Julie Morita, Chair (2004-2008)
William Atkinson, CDC lead

ACIP Meeting
October 22, 2008

Harmonized Schedule Working Group

- Cody Meissner (ACIP, chair)
- Julie Morita (ACIP, chair)
- Susan Lett (ACIP)
- Patsy Stinchfield (ACIP)
- Kris Ehresmann (ACIP)
- Lorry Rubin (AAP)
- Douglas Campos-Outcalt (AAFP)
- Jeffrey Berg (AIM)
- Joni Reynolds (AIM)
- Amy Middleman (SAM)
- Diane Peterson (IAC)
- Andrew Kroger (CDC)
- Angela Calugar (CDC)
- William Atkinson (CDC)

Activities of the Harmonized Schedule Working Group, 2009

- Monthly conference calls with WG members, liaison members and consultants
- Discussion of WG-originated revisions
- Consultation with CDC subject matter experts
- Additional discussion of CDC SME-originated revisions
- Internal CDC clearance of consolidated document

2009 Schedules

- Basic layout of the schedule unchanged
- Three schedules
  - 0 through 6 years
  - 7 through 18 years
  - "catch-up"
    - 4 months through 6 years
    - 7 through 18 years
- Each schedule has separate footnotes

General Approach to the 2009 0-18 Year Schedules

- Edits to the 2008 schedule made by MMWR were incorporated into the first draft of the 2009 schedules
- Changes made throughout the document to improve understanding by end-users
  - elimination of en dashes (hyphens used to indicate a range of numbers)
  - elimination of symbols for “greater than” (>) and “less than” (<)
  - abbreviations updated
- Numerous wording changes in all three schedules to improve clarity and readability

Specific Changes Proposed for the 2009 Schedules

Proposed Changes to the 2009 Schedules

- Rotavirus vaccine (0 through 6 and catch-up schedules)
  - footnotes rewritten to reflect new interval and age recommendations approved by ACIP in June 2008 (posted on ACIP website July 2008)

Revised Rotavirus Vaccine Footnotes

2. Rotavirus vaccine (RV). *(Minimum age: 6 weeks)*

- Administer the first dose at age 6 through 14 weeks (maximum age 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® is administered at ages 2 and 4 months, a dose at 6 months is not indicated.

Recommended Immunization Schedule for Persons Aged 0

For those who fall behind or start late, see the

Vaccine ▼ Age ▶	Birth	1 month	2 months	4 months	6 months	12 months	15 mont
Hepatitis B[1]	HepB	HepB		see footnote 1		HepB	
Rotavirus[2]			RV	RV	RV[2]		
Diphtheria, Tetanus, Pertussis[3]			DTaP	DTaP	DTaP	see footnote 3	
Haemophilus influenzae type b[4]			Hib	Hib	Hib[4]	Hib	
Pneumococcal[5]			PCV	PCV	PCV	PCV	
Inactivated Poliovirus			IPV	IPV		IPV	
Influenza[6]							In
Measles, Mumps, Rubella[7]						MMR	
Varicella[8]						Varicella	
Hepatitis A[9]							Hep
Meningococcal[10]							

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2008, for children aged 0 through 6 years. Additional information is available at http://www.cdc.gov/vaccines/recs/schedules. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components of the

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adverse events that
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VAERS form is availab

Proposed Changes to the 2009 Schedules

- Influenza vaccine (all schedules)
  - tables and footnotes now include annual vaccination of children aged 6 months through 18 years
  - recommendation for vaccination of close contacts of children aged 0 through 4 years and of children aged 5 through 18 years with underlying medical conditions
  - clarification of 2 versus 1 dose

Revised Influenza Vaccine Footnotes (1)

6. Influenza vaccine. *(Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 2 years for live, attenuated influenza vaccine [LAIV])*

- **Administer annually to children aged 6 months through 18 years and to all eligible close contacts of children aged 0 through 4 years (i.e., through age 59 months) and contacts of children 5 through 18 years who have an underlying medical condition that predisposes them to influenza complications.**

Revised Influenza Vaccine Footnotes (2)

- For healthy nonpregnant persons (*i.e.*, those who do not have underlying medical conditions that predispose them to influenza complications) aged 2 through 49 years, either LAIV or TIV may be used.
- Children receiving TIV should receive 0.25 mL if aged 6 through 35 months or 0.5 mL if aged 3 years or older.
- Administer 2 doses (separated by at least 4 weeks) to children aged younger than 9 years who are receiving influenza vaccine for the first time or who were vaccinated for the first time during the previous influenza season but only received 1 dose. All other children aged 6 months through 18 years should receive 1 dose.

Recommended Immunization Schedule for Persons Aged 0 Through 6 Years—United Stat

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

Vaccine ▼ Age ▶	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B[1]	HepB	HepB		see footnote 1	HepB						
Rotavirus[2]			RV	RV	RV[2]						
Diphtheria, Tetanus, Pertussis[3]			DTaP	DTaP	DTaP	see footnote 3	DTaP				DTaP
Haemophilus influenzae type b[4]			Hib	Hib	Hib[4]	Hib					
Pneumococcal[5]			PCV	PCV	PCV	PCV				PPSV	
Inactivated Poliovirus			IPV	IPV	IPV						IPV
Influenza[6]					Influenza (Yearly)						
Measles, Mumps, Rubella[7]						MMR					MMR
Varicella[8]						Varicella					Varicella
Hepatitis A[9]						HepA (2 doses)				HepA Series	
Meningococcal[10]										MCV	

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2008, for children aged 0 through 6 years. Additional information is available at http://www.cdc.gov/vaccines/recs/schedules. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Ad for that dose of the series. Providers should consult the respective Advisory on Immunization Practices statement for detailed recommendations, includi risk conditions: http://www.cdc.gov/vaccines/pubs/acip-list.htm. Clinically adverse events that follow immunization should be reported to the Vacci Event Reporting System (VAERS). Guidance about how to obtain and VAERS form is available at http://www.vaers.hhs.gov or by telephone, 800

Recommended Immunization Schedule for Persons Aged 7 Through 18 Years—United States • 2009

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

Vaccine ▼ Age ▶	7–10 years	11–12 years	13–18 years
Diphtheria, Tetanus, Pertussis[1]	*see footnote 1*	Tdap	Tdap
Human Papillomavirus[2]	*see footnote 2*	HPV (3 doses)	HPV Series
Meningococcal[3]	MCV	MCV	MCV
Influenza[4]	Influenza (Yearly)		
Pneumococcal[5]	PPSV		
Hepatitis A[6]	HepA Series		
Hepatitis B[7]	HepB Series		
Inactivated Poliovirus[8]	IPV Series		
Measles, Mumps, Rubella[9]	MMR Series		
Varicella[10]	Varicella Series		

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2008, for children aged 7 18 years. Additional information is available at http://www.cdc.gov/vaccines/recs/schedules. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any component of the combination is indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations, including for high-risk conditions: http://www.cdc.gov/vaccines/pubs/acip-list.htm. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at http://www.vaers.hhs.gov or by telephone, 800-822-7967.

Proposed Changes to the 2009 Schedules

- Varicella vaccine (all schedules)
  - Footnotes rewritten to more clearly state the minimum interval between doses for children aged 12 months through 12 years and persons aged 13 years and older

Revised Varicella Vaccine Footnotes (1)

8. Varicella vaccine. *(Minimum age: 12 months)*

- Administer the second dose at age 4 through 6 years. The second dose may be administered before age 4 through 6 years provided at least 3 months have elapsed since the first dose.
- For children aged 12 months through 12 years the minimum interval between two doses is 3 months. However, if the second dose was administered at least 28 days after the first dose it can be accepted as valid.

Revised Varicella Vaccine Footnotes (2)

- For persons aged 13 years and older the minimum interval between two doses is 28 days
  - this bullet included on the 7 through 18 and catch-up schedules only

Proposed Changes to the 2009 Schedules

- Hepatitis A footnotes (all schedules)
  - Footnote expanded to indicate specific groups 24 months and older that should be vaccinated

Revised Hepatitis A Vaccine Footnotes

9. Hepatitis A vaccine (HepA). *(Minimum age: 12 months)*

- Administer to all children aged 1 year (*i.e.*, aged 12 through 23 months). Administer the 2 doses in the series at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA is also recommended for children older than 1 year who live in areas where vaccination programs target older children or who are at increased risk for infection (see *MMWR* 2006;55(RR-7)

Proposed Changes to the 2009 Schedules

- Tdap footnotes (7 through 18 schedule)
  - Footnote added to better define the interval between Td and Tdap

Revised Tdap Vaccine Footnotes (7 through 18 Year Schedule)

1. Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). *(Minimum age: 10 years for BOOSTRIX® and 11 years for ADACEL®)*

- Administer at age 11 through 12 years for those who have completed the recommended childhood DTP/DTaP vaccination series and have not received a tetanus and diphtheria toxoid (Td) booster dose.
- Adolescents aged 13 through 18 years who have not received Tdap should receive a dose.
- A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose; however, a shorter interval may be used if pertussis immunity is needed.

Proposed Changes to the 2009 Schedules

- Meningococcal footnote (0-6 year and 7-18 year schedules)
  - Delete statement of MPSV as acceptable alternative
  - Retain "terminal" modifier for complement deficiency indication

Proposed Changes to the 2009 Schedules

- Pneumococcal polysaccharide (PPSV) footnote (7 through 18 schedule)
  - Footnote expanded to include cochlear implant and to clarify revaccination
  - Similar changes made to the footnote in the catch-up schedule

Revised PPSV Footnote (7 through 18 Year and Catch-up Schedules)

5. Pneumococcal polysaccharide vaccine (PPSV).

- Administer to children with certain underlying medical conditions (see *MMWR* 1997;46 [No. RR-8]) including a cochlear implant. A single revaccination should be administered to children with functional or anatomic asplenia or other immunocompromising condition after 5 years.

Proposed Changes to the 2009 Schedules

- *Haemophilus influenzae* type B (catch-up schedule only)
  - Footnote added regarding administration of Hib vaccine to persons older than 5 years
    - Footnote is a slight modification of the Hib footnote in the adult immunization schedule

Revised Hib Vaccine Footnotes (catch-up schedule only) (1)

4. *Haemophilus influenzae* type b conjugate vaccine (Hib).

- Hib vaccine is not generally recommended for persons aged 5 years or older. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults. However, studies suggest good immunogenicity in persons who have sickle cell disease, leukemia, or HIV infection or who have had a splenectomy; administering one dose of Hib vaccine to these persons is not contraindicated.

Revised Hib Vaccine Footnotes (catch-up schedule only) (2)

- If the first 2 doses were PRP-OMP (PedvaxHIB® or Comvax®), and 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 2 doses separated by 4 weeks and a final dose at age 12 through 15 months.

Proposed Changes to the 2009 Schedules

- Human papillomavirus vaccine (catch-up schedule only)
  - Minimum intervals removed from the table
  - Footnote wording modified to emphasize that routine dosing intervals should be used
  - Minimum intervals noted in the footnote

Revised HPV Vaccine Footnotes (catch-up schedule only) (1)

11. Human papillomavirus vaccine (HPV).

- Administer the series to females at age 13 through 18 years if not previously vaccinated.
- Use recommended routine dosing intervals for series catch-up (i.e., the second and third doses should be administered at 2 and 6 months after the first dose).

Revised HPV Vaccine Footnotes (catch-up schedule only) (2)

- An accelerated schedule is not recommended. However, the minimum interval between first and second doses is 4 weeks. The minimum interval between the second and third doses is 12 weeks, and the third dose must be given at least 24 weeks after the first dose.

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 • 2009

The table 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.

CATCH-UP SCHEDULE FOR 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[1]	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Rotavirus[2]	6 wks	4 weeks	4 weeks		
Diphtheria, Tetanus, Pertussis[3]	6 wks	4 weeks	4 weeks	6 months	6 months[3]
Haemophilus influenzae type b[4]	6 wks	4 weeks if first dose administered at younger than 12 months of age 8 weeks (as final dose) if first dose administered at age 12-14 months No further doses needed if first dose administered at 15 months of age or older	4 weeks[4] if current age is younger than 12 months 8 weeks (as final dose)[4] if current age is 12 months or older and second dose administered at younger than 15 months of age No further doses needed if previous dose administered at age 15 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 months through 5 years who received 3 doses before age 12 months	
Pneumococcal[5]	6 wks	4 weeks if first dose administered at younger than 12 months of age 8 weeks (as final dose for healthy children) if first dose administered at age 12 months or older or current age 24 through 59 months No further doses needed for healthy children if first dose administered at age 24 months or older	4 weeks if current age is younger than 12 months 8 weeks (as final dose for healthy children) if current age is 12 months or older No further doses needed for healthy children if previous dose administered at age 24 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 months through 5 years who received 3 doses before age 12 months or for high-risk children who received 3 doses at any age	
Inactivated Poliovirus[6]	6 wks	4 weeks	4 weeks	4 weeks[6]	
Measles, Mumps, Rubella[7]	12 mos	4 weeks			
Varicella[8]	12 mos	3 months			
Hepatitis A[9]	12 mos	6 months			

CATCH-UP SCHEDULE FOR PERSONS AGED 7 THROUGH 18 YEARS

Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis[10]	7 yrs[10]	4 weeks	4 weeks if first dose administered at younger than 12 months of age 6 months if first dose administered at age 12 months or older	6 months if first dose administered at younger than 12 months of age	
Human Papillomavirus[11]	9 yrs	Routine dosing intervals are recommended[11]			
Hepatitis A[9]	12 mos	6 months			
Hepatitis B[1]	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Inactivated Poliovirus[6]	6 wks	4 weeks	4 weeks	4 weeks[6]	
Measles, Mumps, Rubella[7]	12 mos	4 weeks			
Varicella[8]	12 mos	3 months if the person is younger than 13 years of age 4 weeks if the person is aged 13 years or older			

Hepatitis A[5]	12 mos	6 months		
CATCH-UP SCHEDULE FOR PERSONS AGED 7 THROUGH 18 YEARS				
Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis[10]	7 yrs[10]	4 weeks	4 weeks If first dose administered at younger than 12 months of age 6 months	6 months If first dose administered at younger than 12 months of age
Human Papillomavirus[11]	9 yrs	Routine dosing intervals are recommended[11]		
Hepatitis A[5]	12 mos	6 months		
Hepatitis B[1]	Birth	4 weeks	8 weeks (and 16 weeks after first dose)	
Inactivated Poliovirus[6]	6 wks	4 weeks	4 weeks	4 weeks[6]
Measles, Mumps, Rubella[7]	12 mos	4 weeks		
Varicella[8]	12 mos	3 months If the person is younger than 13 years of age 4 weeks If the person is aged 13 years or older		

Activities of the Harmonized Schedule Working Group, 2009

- Next steps
  - Approval of the schedules by ACIP at the October meeting
  - Revisions as necessary
  - Submission to Morbidity and Mortality Weekly Report by November 1 for preliminary editing
  - Submission of edited document to AAP and AAFP in November
  - Simultaneous publication in January 2009