Vaccine Update- Childhood

Hepatitis A Vaccine HepA (Give IM)
- Give 2 doses to all children at age 1 year (12-23 months) spaced 6 months apart
- Minimum age of first dose is 12 months of age
- Children not fully vaccinated by age 2 can be vaccinated at subsequent visits
- Vaccine is also recommended for children older than age 1 who live in areas where vaccination programs target older children or who are at increased risk of infection, or for whom immunity against hepatitis A is desired.
- Children generally have asymptomatic or unrecognized illness so they may serve as a source of infection, particularly for household or other close contacts.

Hepatitis B Vaccine HepB (Give IM)
- Birth dose MUST be monovalent vaccine, and administered before hospital discharge (No combination vaccines). Monovalent HepB vaccine should be used for doses administered before age 6 weeks.
- Vaccinate all children age 0 through 18 years of age
- Give at 0, 1-2, and 6 months of age
- Final Dose (6-18 months) no earlier than 24 weeks
- Do Not restart series or add doses, no matter how long since previous dose
- Administration of 4 doses of HepB vaccine to infants is permissible when combination vaccines containing HepB are administered after the birth dose. The fourth dose should be administered no earlier than age 24 weeks.
  - Pediarix (DTaP-HepB-IPV) – at 2, 4, and 6 months of age
  - COMVAX (HepB-Hib) – at 2, 4, and 12-15 months of age

Pneumococcal Conjugate Vaccine, 13-valent (PCV13) (Give IM)
- Licensed in February 2010 as Prevnar13, Pfizer
- Vaccine contains 13 serotypes- accounts for majority of invasive pneumococcal disease in US
- Health care providers should replace existing stock of PCV7 with PCV13
- Recommended for all children ages 2 months through 59 years of age
- Approved by FDA for use in children 6 weeks through 71 months of age
- Follow same 4-dose schedule as PCV7
- Administer at 2,4,6, and 12-15 months of age
- For children who have begun a series of PCV7, replace all remaining doses with PCV13.
- For children who have completed a 4-dose or other appropriate series of PCV7:
  a) Give one additional dose of PCV13 to all healthy children who have not yet reached their fifth birthday.
  b) Give one additional dose of PCV13 to children with underlying medical conditions that increase their risk for developing pneumococcal disease or complications who have not yet reached their sixth birthday.
- For children ages 6 through 18 years with functional or anatomical asplenia, including sickle cell disease, HIV infection or other immunocompromising condition, cochlear implant or CSF leak, consider giving one dose of PCV13 regardless of previous history of PCV7 or pneumococcal polysaccharide vaccine (PPSV). For full PCV13 recommendations go to www.cdc.gov/mmwr/preview/mmwrhtml/mm5909a2.htm

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Children who do not start or continue the series on time may need less doses to complete series—consult the pneumococcal catch-up schedule at www.immunize.org/shop/views/childsched_pg4.pdf

Minimum intervals = 4 weeks between doses before age 12 months and 8 weeks between doses at/after age 12 months

Poliovirus Vaccine

Updated ACIP Recommendations regarding routine poliovirus vaccination as of August, 2009, (published August 7, 2009 MMWR 58(30); 829-830 release.)

- The 4 dose IPV series should continue to be administered at ages 2 months, 4 months, 6-18 months and 4-6 years.
- The final dose in the IPV series should be administered on or after the fourth birthday and at least 6 months following the previous dose. If 4 doses are administered prior to age 4 years, a fifth dose should be administered at age 4 through 6 years. (This means that some children may receive a total of 5 doses, a practice ACIP considers acceptable.)
- The minimum interval from dose 1 to dose 2, and from dose 2 to dose 3, remains 4 weeks.
- The minimum interval from dose 3 to dose 4 is extended from 4 weeks to 6 months.
- The minimum age for dose 1 remains age 6 weeks.
- The minimum age for final dose 4 is now 4 years.
- ACIP adds a precaution for the use of minimal intervals in the first 6 months of life. Use of the minimum age and minimum intervals for vaccine administration in the first 6 months of life are recommended only if the vaccine recipient is at risk for imminent exposure to circulating poliovirus (e.g. during an outbreak or because of travel to an polio-endemic region). ACIP is making this precaution because shorter intervals and earlier start dates lead to lower seroconversion rates.

Rotavirus Vaccine RV (Give orally)

- Routine vaccination of all infants without a contraindication
- 2 or 3 dose schedule depending upon vaccine used
- Rotarix (RV 1) – 2 dose schedule – Give at 2, and 4 months of age
- RotaTeq (RV 5) – 3 dose schedule- Give at 2, 4, and 6 months of age
- Minimum age for first dose is 6 weeks
- Maximum age for first dose is 14 weeks 6 days
- Vaccination should not be initiated for infants 15 weeks 0 days or older
- The maximum age for the final dose in the series is 8 months 0 days.
- Intervals between doses may be as short as 4 weeks
- ACIP does not set a maximum interval between doses
- Do not repeat dose if infant regurgitates or spits out dose
- Suggest administering RV vaccine prior to injectable vaccines
- RV vaccine may be administered at any time, before, concurrent with, or administration of any blood product or antibody containing product

*Rotavirus vaccine (both RV5 and RV1) is contraindicated in infants diagnosed with SCID.

Varicella Vaccine Var (Give SC)

- Two dose schedule is recommended to reduce varicella breakthrough disease and decrease varicella outbreaks. Breakthrough disease can occur in up to 30% of patients receiving one dose of vaccine. Breakthrough disease is contagious.
- Give at 12 months, and routinely at 4-6 years of age
- The minimal interval between doses varies by age of child
● If 12 months through 12 years of age- minimal interval = 3 months  
● If 13 years or older – minimal interval = 4 weeks  
● Give a 2nd dose to all older children and adolescents with history of only 1 dose  
● Two doses are recommended for all persons older than 4- 6 years of age who do not have evidence of varicella immunity.  
● If Varicella, MMR, LAIV are not given on the same day, space them at least 28 days apart  
● MMRV (ProQuad) may be used when both MMR and Varicella are indicated  
● MMRV is only approved from 12 months through 12 years of age  
● ACIP does not express a preference for use of MMRV vaccine over separate injections of equivalent component vaccines i.e., MMR and Varicella Vaccine

New Combination Vaccines

The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Considerations should include provider assessment, patient preference, and the potential for adverse events. Providers should consult the relevant Advisory Committee on Immunization Practices statement for detailed recommendations: http://www.cdc.gov/vaccines/pubs/acip-list.htm.

**Pentacel (Give IM) (Sanofi Pasteur) FDA licensed June 20, 2008**  
- DTaP-IPV/Hib Combination  
- Licensed for children 6 weeks through 4 years  
- Approved for 4 doses at 2, 4, 6 and 15-18 months of age  
- Not approved for booster doses at 4-6 years of age

**Kinrix (Give IM) (GlaxoSmithKline) FDA Licensed June 24, 2008**  
- DTaP-IPV Combination  
- Approved for 5th dose of DTaP and 4th dose of IPV in children age 4- 6 years who received Infanrix and/or Pediarix for the first three doses and Infanrix for the fourth dose of DTaP

Vaccine Update- Adolescent

**Human Papillomavirus Vaccine HPV (Give IM)**  
- Routine vaccination of females with first dose at 11-12 years of age with either vaccine, Gardasil or Cervavix  
- Gardasil - ACIP’s provisional recommendations state- “The 3-dose series of quadrivalent HPV vaccine may be given to males age 9 through 26 years to reduce their likelihood of acquiring genital warts.” The schedule and minimum intervals are the same as for females.  
- Vaccination series may be started in males and females beginning at age 9 years  
- 3 dose schedule at 0, 2 and 6 months. * There is no accelerated schedule for series catch-up. Follow routine recommended schedule at 0, 2 and 6 month interval.  
- Give 2nd dose 1-2 months after 1st dose,  
- Give the 3rd dose 6 months after the 1st dose (at least 24 weeks after the first dose)  
- Gardasil Vaccine approved for 9 through 26 year olds (Females/Males)-package insert*  
- Cervavix Vaccine approved for 10 through 25 year olds (Females only)- package insert*  
  *(ACIP recommendations may differ from package inserts).  
- Vaccinate 13-26 year old females, not previously vaccinated  
- Minimum intervals between doses: 4 weeks between doses 1 and 2, 12 weeks between doses 2 and 3, 24 weeks between dose 1 and 3
Pap testing or screening for HPV DNA/Antibody prior to HPV not recommended
Vaccine not recommended for use in pregnancy

**Gardasil** = HPV4 (Give IM)
- Contains HPV types 16, 18, 6 and 11
- Prevents cervical, vaginal, vulvar cancers, genital warts in females / genital warts in males

**Cervavix** = HPV2 (Give IM)
- Contains HPV types 16 and 18
- Prevents cervical cancers in females

HPV4 or HPV2 is recommended for the prevention of cervical pre-cancers and cancers in females

*Syncope can occur after vaccination and has been observed among adolescents and young adults. To avoid serious injury related to a syncopal episode, vaccine providers should consider observing patients for 15 minutes after they are vaccinated.*

**Influenza Vaccine-Seasonal (TIV- give IM)**
- All persons aged 6 months and older should be vaccinated annually.
- Give 2 doses (separated by at least 4 wks) to all children ages 6 months through 8 years who: 1) are receiving influenza vaccine for the first time; 2) received their first dose of seasonal vaccine during the 2009-10 season but failed to get their second dose; or 3) failed to get at least 1 dose of H1N1 vaccine, regardless of their previous influenza history. If there is uncertainty about their previous season’s influenza vaccination history, give 2 doses this season to any child age 6 months through 8 years.
- Children 6 months through 8 years of age who are being vaccinated two or more seasons after receiving influenza vaccine for the first time should receive a single annual dose, regardless of the number of doses administered previously.
- 1 dose of TIV may be administered annually for persons 9 years or older
- Vaccinate persons 6 months of age and older at higher risk for influenza- related complications including:
  - all children age 6 months- 4 years (59 months)
  - all persons 50 years and older
  - Persons who have chronic:
    - metabolic disorders (i.e., diabetes)
    - Pulmonary disorders (i.e., asthma, COPD)
    - Renal dysfunction
    - Cardiovascular disorders (except hypertension)
    - Immunosuppression, including HIV
    - Hemoglobinopathy
    - Neurologic and muscular conditions - any condition that can compromise respiratory function or increase the risk of aspiration.
  - all persons 6 months-18 yrs receiving chronic aspirin therapy
  - all residents of long-term care facilities
  - American Indians/Alaska Natives
  - Persons who are morbidly obese (body-mass index ≥40)
  - Health-care personnel

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- Vaccinate women who are or will be pregnant during the influenza season.
- Contacts of all of the above should receive TIV.
- LAIV (intranasal) may be given to healthy, non-pregnant persons age 2-49 years.
- Live vaccines (LAIV) not administered on the same day should be administered at least 4 wks apart.
- LAIV should not be given to children aged 2 through 4 years who have had wheezing in the last 12 months

*On August 5, 2010, ACIP recommended that Afluria should not be used in children aged 6 months through 8 years due to increased post-marketing reports of fever and febrile seizures in children predominately younger than age 5 years as compared with previous years. Afluria may be used in persons aged ≥ 9 years. If no other age-appropriate, licensed inactivated seasonal influenza vaccine is available for a child aged 5-8 years who has a medical condition that increases the child’s risk for influenza complications, Afluria can be used, however, providers should discuss with the parents or caregivers the benefits and risks of influenza vaccination with Afluria before administering the vaccine.

Meningococcal Conjugate Vaccine MCV (Give IM)

- Give single dose to 11-12 year olds
- Administer at age 13-18yrs if not previously vaccinated
- Vaccinate all college freshmen living in dorms who have not been previously vaccinated
- (College freshmen do not need a dose, if they received a dose at 11-12years)
- Administer MCV to children aged 2 through10 years with persistent complement component deficiency, anatomic or functional asplenia, or certain other conditions placing them at high risk.
- MCV is preferred for all persons age 2-55 years, MPSV4 acceptable alternative
- Menactra = MCV or MCV4 (Give IM) Approved for 2-55 years of age
- MENVEO = MCV or MCV4 (Give IM) Approved for 11-55 years of age
- Use Meningococcal polysaccharide vaccine (MPSV or MPSV4) for at risk persons ages 56 years and older.
- Menomune = MPSV or MPSV4 (Give SC), Approved for 2 years of age and older

- MCV4 Revaccination Recommendations- Revaccination with meningococcal conjugate vaccine is now recommended for children who remain at increased risk of meningococcal disease after 3 years (if the first dose was administered at age 2 through 6 years) or after 5 years (if the first dose was administered at age 7 years or older.)
- MCV4 revaccination is NOT recommended for persons whose only risk factor is living on –campus housing (i.e. college student living in a dormitory)
- MCV4 revaccination does NOT apply to children who previously received MCV and who will be a freshman living in a dormitory.

Pertussis Vaccine Tdap (Give IM)

- One single dose of Tdap replaces Td at 11-12 years of age
- Give a one-time dose of Tdap to adolescents age 11-12 years if 5 years have elapsed since last DTaP, then boost every 10 years with Td.
- Persons aged 12 -18 yrs who have not received Tdap should receive one dose.
- Give one dose to adults age 19-64 years of age if >10 years since last Td. If contact with an infant < 12 months of age, consider giving Tdap at a shorter interval of 2 years since the last Td. Shorter intervals can be used.
- Boostrix – approved for 10- 64 yrs of age with minimum age - 10 yrs of age
- Adacel- approved for 11- 64 years of age with minimum age - 11 years of age