2019 Immunization Update

Ashley Diaz
Health Education Specialist I
Objectives

Participants will be able to:

• Identify at least four changes to the 2019 Child and Adolescent Immunization Schedule
• Understand how to use the 2019 Child and Adolescent Immunization Schedule
• The full video can be found at https://www.youtube.com/watch?v=HAdWf7vE3zA&feature=youtu.be.
### 2019 Child and Adolescent Immunization Schedule

#### Recommended Child and Adolescent Immunization Schedule

**For ages 18 years or younger**

<table>
<thead>
<tr>
<th>Vaccines in the Child and Adolescent Immunization Schedule</th>
<th>Abbreviations</th>
<th>Trade names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis vaccine</td>
<td>DTaP</td>
<td>Diphtheria, Tetanus, Pertussis Vaccine (Acellular)</td>
</tr>
<tr>
<td>Diphtheria, tetanus vaccine</td>
<td>DT</td>
<td>Diphtheria, Tetanus Vaccine (Acellular)</td>
</tr>
<tr>
<td>Hemophilus influenzae type b vaccine</td>
<td>Hib (PRP-OMP)</td>
<td>Hemophilus Influenzae Type B Vaccine (PRP-OMP)</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Hepatitis A Vaccine (Recombivax-HB)</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Hepatitis B Vaccine (Engerix-B and Recombivax-HB)</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil 9</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>Flu</td>
<td>Multivax HIB, Fluvirin</td>
</tr>
<tr>
<td>Meningococcal vaccine</td>
<td>MenC</td>
<td>Menactra, Menomune, Menomune-CRM</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenCYD-MC</td>
<td>Menomune-Y, Menomune-CRM</td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate vaccine</td>
<td>PCV13</td>
<td>Prevance 13</td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide vaccine</td>
<td>PPV23</td>
<td>Pneumovax, Pneumax, PneumovaxX5</td>
</tr>
<tr>
<td>Poliovirus vaccine (inactivated)</td>
<td>IPV</td>
<td>Salk vaccine</td>
</tr>
<tr>
<td>Rotavirus vaccine</td>
<td>RV</td>
<td>Rotarix, Rotavac, Rotarix-Booster</td>
</tr>
</tbody>
</table>
| Tetanus, diphtheria, and acellular pertussis vaccine     | Tdap          | Boostrix pediatric, Infanrix Td

#### How to use the child/adolescent immunization schedule

1. **Determine recommended vaccine by age** (Table 1)
2. **Determine recommended interval for catch-up vaccination** (Table 2)
3. **Assess need for additional recommended vaccines by medical condition and other indications** (Table 3)
4. **Review vaccine types, frequencies, intervals, and considerations for special situations** (Notes)

#### Helpful Information section

- Complete ACIP recommendations: [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html)
- General Best Practice Guidelines for Immunization: [www.cdc.gov/vaccines/hcp/policy/guidelines/index.html](http://www.cdc.gov/vaccines/hcp/policy/guidelines/index.html)
- Outbreak information (including case identification and outbreak response), see Manual for the Surveillance of Vaccine-Preventable Diseases: [www.cdc.gov/vaccines/pubs/surv-manual](http://www.cdc.gov/vaccines/pubs/surv-manual)

Cover page provides guidance on how to use the schedule.

Helpful information section.
• The influenza row is modified to reflect CDC influenza recommendations.

• The recommendation of hep A vaccine prior to international travel is included.

• The Tdap vaccine row includes advice for vaccination of pregnant adolescents 13 through 18 years.
Catch-up immunization schedule for persons aged 4 months–18 years who start late or who are more than 1 month behind, United States, 2019

The figure below provides catch-up schedules and minimums 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. Always use this table in conjunction with Table 1 and the notes that follow.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age Prior to First Dose</th>
<th>Minimum Interval Between Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>Birth</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Haemophilus influenzae type b</td>
<td>6 weeks, Maximum age for first dose is 14 weeks</td>
<td>6 months</td>
</tr>
<tr>
<td>Pertussis</td>
<td>6 weeks</td>
<td>6 weeks</td>
</tr>
<tr>
<td>Pneumococcal conjugate</td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered before age 2 months or older</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered before age 2 months or older</td>
</tr>
<tr>
<td>Varicella</td>
<td>12 months</td>
<td>3 months</td>
</tr>
<tr>
<td>Haemophilus A</td>
<td>12 months</td>
<td>See Notes</td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td>12 months</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Inactivated poliovirus</td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered at the 1st birthday or after</td>
</tr>
<tr>
<td>Mumps, mumps, rubella</td>
<td>12 months</td>
<td>6 weeks</td>
</tr>
</tbody>
</table>

- Catch – up schedule provides minimum intervals between doses for children who have fallen behind on their vaccines.
Table 3 Recommended Child And Adolescent Immunization Schedule by Medical Indication

<table>
<thead>
<tr>
<th>INDICATION</th>
<th>Hepatitis B</th>
<th>Rotavirus</th>
<th>Poliovirus, diphtheria, &amp; tetanus, &amp; acellular pertussis (DtaP)</th>
<th>Hemophilus influenzae type b</th>
<th>Pneumococcal conjugate</th>
<th>Varicella</th>
<th>Measles, mumps, rubella</th>
<th>Varicella zoster virus</th>
<th>Meningococcal C</th>
<th>Meningococcal ACWY</th>
<th>Haemophilus influenzae type b</th>
<th>Human papillomavirus</th>
<th>Meningococcal B</th>
<th>Pneumococcal polysaccharide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy</td>
<td>1</td>
<td>1</td>
<td>SCID³</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>HIV infection (CD4+ count ≥15%) and total CD4+ cell count ≥200/μL</td>
<td>1</td>
<td>1</td>
<td>SCID³</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>HIV infection (CD4+ count ≥15%) and total CD4+ cell count ≥200/μL</td>
<td>1</td>
<td>1</td>
<td>SCID³</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Kidney failure, end-stage renal disease, or hemodialysis</td>
<td>1</td>
<td>1</td>
<td>SCID³</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Heart disease, chronic lung disease</td>
<td>1</td>
<td>1</td>
<td>SCID³</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>CSF leaks/ cochlear implants</td>
<td>1</td>
<td>1</td>
<td>SCID³</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Asplenia and persistent complement component deficiencies</td>
<td>1</td>
<td>1</td>
<td>SCID³</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Chronic liver disease</td>
<td>1</td>
<td>1</td>
<td>SCID³</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

1. For additional information regarding HIV laboratory parameters and use of live vaccines, see the General Best Practice Guidelines for Immunization "Altered Immunocompetence" at www.cdc.gov/vaccines/recs/ppv-recs/general-recs/immunocompetence.html, and Table 4-1 Instruct 1A at www.cdc.gov/vaccines/hcp/pwp/recs/general-recs/communicables.html.
2. Severe Combined Immunodeficiency
3. SCID: Severe Combined Immunodeficiency

Vaccinate according to the routine schedule recommendation
Recommended for people with additional risk factors
Vaccination is recommended and additional doses may be necessary based on medical condition.
Contraindicated
Precaution
Delay vaccination until after pregnancy.
No recommendation
**Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2019**

### Diphtheria, tetanus, and pertussis (DTaP) vaccination (minimum age: 6 weeks [4 years for Kinrix or Quadracel])

**Routine vaccination**
- 5 doses at 2, 4, 6, 14-18 months, 4-6 years
- **Prospectively:** Dose 4 may be given as early as age 12 months if at least 6 months have elapsed since dose 3. Retrospectively: A 4th dose that was inadvertently given as early as 12 months may be counted if at least 4 months have elapsed since dose 3.

**Catch-up vaccination**
- Dose 5 is not necessary if dose 4 was administered at age 4 years or older.
- For other catch-up guidance, see Table 2.

### Haemophilus influenzae type b vaccination (minimum age: 6 weeks)

**Routine vaccination**
- ActHib, HibTITER, or Pentacel: 4-dose series at 2, 4, 6, 12-15 months
- PedvaxHIB: 3-dose series at 2, 4, 12-15 months

**Catch-up vaccination**
- Dose 1 at 7-11 months: Administer dose 1 at least 4 weeks later and dose 2 (final dose) at 12-15 months or 8 weeks after dose 2 (whichever is later).
- Dose 2 at 12-14 months: Administer dose 2 (final dose) at least 8 weeks after dose 1.
- Dose 1 before 12 months and dose 2 before 15 months: Administer dose 1 (final dose) 8 weeks after dose 2.
- 2 doses of PedvaxHIB before 12 months: Administer dose 3 (final dose) at 12-15 months and at least 8 weeks after dose 2.
- Unvaccinated at 15-55 months: 1 dose
- For other catch-up guidance, see Table 2.

### Special situations
- **Chemotherapy or radiation treatment:** 12-23 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose
  - Doses administered within 14 days of starting therapy or during chemotherapy should be repeated at least 3 months after therapy completion.
- **Hematopoietic stem cell transplant (HSCT):**
  - 3-dose series 4 weeks apart starting 6 to 12 months after successful transplant regardless of Hib vaccination history
Changes To The Notes Section

- Hepatitis A vaccine (Hep A)
- Hepatitis B vaccine (Hep B)
- Influenza Vaccine
- And tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap)
- Clarification of the recommendations for inactivated poliovirus (IPV).
Hepatitis A Vaccine

- Adolescents 18 years and older can receive the combined HepA-HepB vaccine.
  - Twinrix- is a 3-dose series or 4-dose series

- International travel
  - Travelers 6-11 months of age are recommended to vaccinate with one dose before departure.
    - Revaccinate with 2 doses.
  - Unvaccinated travelers aged ≥12 months need 1 dose as soon as travel is considered.

- Homelessness is now considered an indication for hep A vaccination.
The HepB note includes the use of single antigen, Heplisav-B (Hep B-CpG) vaccine and combination HepA-HepB vaccine in individuals 18 years or older.

- Hep B vaccine (Heplisav-B) is a 2-dose series separated with at least 4 weeks apart.

- Combination vaccine
  - Twinrix: 3-dose series administered at (0, 1, and 6 months) or 4-dose series administered at (0, 7, and 21–30 days, followed by a dose at 12 months).

- Information can be found on page 6 of the schedule.
Clarification on Inactivated Poliovirus Vaccine Recommendation

Inactivated poliovirus vaccination
(minimum age: 6 weeks)

**Routine vaccination**
- 4-dose series at ages 2, 4, 6–18 months, 4–6 years; administer the final dose on or after the 4th birthday and at least 6 months after the previous dose.
- 4 or more doses of IPV can be administered before the 4th birthday when a combination vaccine containing IPV is used. However, a dose is still recommended after the 4th birthday and at least 6 months after the previous dose.

**Catch-up vaccination**
- In the first 6 months of life, use minimum ages and intervals only for travel to a polio-endemic region or during an outbreak.
- IPV is not routinely recommended for U.S. residents 18 years and older.

**Series containing oral polio vaccine (OPV), either mixed OPV-IPV or OPV-only series:**
- Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm?cid=mm6601a6_w.

Information found on page 6 of the schedule.
• LAIV can be used during the 2018–19 influenza season.
• A special situations section was added with information regarding vaccination of people with a history of egg allergy and circumstances under which LAIV use is not recommended.

• This information can be found on page 7 of the schedule.
• **Children age 7–10 years** who receive Tdap inadvertently or as part of the catch-up series should receive the routine Tdap dose at 11–12 years.

• Information on the use of Tdap or Td as tetanus prophylaxis in wound management, can be found in the following CDC link: [https://www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm](https://www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm)

• The above changes can be found on page 8 of the schedule.
Questions?
Communicable Disease Section
(800) 722-4794