EpiVac Pink Book Web-on-Demand Series

General Best Practices Part 1-2020

Immunization Services Division
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
Atlanta, GA
Learning Objectives

- For each vaccine-preventable disease, identify those for whom routine immunization is recommended.
- For each vaccine-preventable disease, describe characteristics of the vaccine used to prevent the disease.
- Describe an emerging immunization issue.
- Locate current immunization resources to increase knowledge of team’s role in program implementation for improved team performance.
- Implement disease detection and prevention health care services (e.g., smoking cessation, weight reduction, diabetes screening, blood pressure screening, immunization services) to prevent health problems and maintain health.
Today’s Agenda

EpiVac Pink Book Web-on-Demand Series: General Best Practices
Part 1–2020

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Medical Officer
NCIRD, CDC
Continuing Education Information

- CE credit, go to: www.cdc.gov/GetCE
- Search course number: WD4344-070820
- CE credit expires: July 1, 2022
- CE instructions are available on the EpiVac Pink Book Web-on-Demand Series web page
- Questions and additional help with the online CE system, e-mail CE@cdc.gov
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Planners have reviewed content to ensure there is no bias.
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Content will not include any discussion of the unlabeled use of a product or a product under investigational use with the exception of with the exception of Dr. Freedman’s discussion of MMR vaccine in a manner recommended by the Advisory Committee on Immunization Practices, but not approved by the Food and Drug Administration.

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General Best Practice Guidelines for Immunization, Part I
EpiVac Pink Book Web-on-Demand Series

Mark S Freedman, DVM, MPH, DACVPM
CDR, U.S. Public Health Service
Veterinary Medical Officer, CDC, NCIRD
Introduction
General Best Practice Guidelines for Immunization

- Timing and spacing
- Contraindications and precautions
- Preventing and managing adverse reactions to immunization
- Vaccine administration
- Storage and handling
- Altered immunocompetence
- Special situations
- Vaccination records
- Vaccination programs
- Vaccine information sources
General Best Practice Guidelines on Immunization

- Timing and spacing

- Contraindications and precautions
Timing and Spacing Issues

- Interval between receipt of antibody-containing blood products and live vaccines
- Interval between doses of different vaccines not administered simultaneously
- Interval between subsequent doses of the same vaccine
Antibody-Containing Blood Products

- Used to restore a needed component of blood or provide a passive immune response following disease exposure

- Sometimes circumstance dictates the use of antibody-containing blood products along with a vaccine
Knowledge Check

- Which type of vaccine is affected by antibody?

- A. Live vaccines
- B. Inactivated vaccines
Answer

- A. Live vaccines
Antibody and Live Vaccines

General Rule

- Inactivated vaccines are generally not affected by circulating antibody to the antigen

- Live, attenuated vaccines might be affected by circulating antibody to the antigen—an effectiveness concern
## Antibody Products and Measles- and Varicella-Containing Vaccines

<table>
<thead>
<tr>
<th>Product given first</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccine</td>
<td>Wait 2 weeks before giving antibody</td>
</tr>
<tr>
<td>Antibody</td>
<td>Wait at least 3 months before giving vaccine</td>
</tr>
</tbody>
</table>
## Appendix A24: Interval Between Antibody-Containing Products and Measles- and Varicella-Containing Vaccines

![Table from CDC website](https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/a/mmr_ig.pdf)
## Spacing of Antibody-Containing Products and MMR and Varicella Vaccines

<table>
<thead>
<tr>
<th>Product</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washed red blood cells</td>
<td>0 months</td>
</tr>
<tr>
<td>Hepatitis A (IG)</td>
<td>3 months</td>
</tr>
<tr>
<td>Measles prophylaxis (IG) (immunocompetent recipient)</td>
<td>6 months</td>
</tr>
<tr>
<td>Plasma/platelet products</td>
<td>7 months</td>
</tr>
<tr>
<td>Intravenous immune globulin (IGIV)</td>
<td>7–11 months</td>
</tr>
</tbody>
</table>
Exceptions to the General Rule

- Antibody-vaccine spacing recommendations apply specifically to MMR and varicella-containing vaccines.

- Do NOT apply to:
  - Zoster vaccine (large amount of virus in the vaccine)
  - Yellow fever, oral typhoid vaccines (negligible antibody in the U.S. blood supply)
  - LAIV (viruses change annually)
  - Rotavirus (replication in GI tract)
Products Containing Type-Specific or Negligible Antibody

- **Palivizumab (Synagis)**
  - Contains only monoclonal RSV antibody
  - Does not interfere with live-virus vaccination

- **Red blood cells (RBCs), washed**
  - Negligible antibody content
Interval Between Doses of Different Vaccines

- Simultaneous administration
- Non-simultaneous administration
Simultaneous Administration

General Rule

- All vaccines can be administered at the same visit as all other vaccines

- Exceptions:
  - PCV13 and PPSV23: Give PCV13 first
  - MCV4-D (Menactra only) and PCV13 in asplenic or HIV-infected persons: Give PCV13 first
## Non-Simultaneous Administration: Live-Vaccine Effectiveness

<table>
<thead>
<tr>
<th>Combination</th>
<th>Minimum Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 live injected OR 1 live injected and 1 intranasal influenza vaccine</td>
<td>4 weeks</td>
</tr>
<tr>
<td>All other vaccines</td>
<td>None</td>
</tr>
<tr>
<td>One exception</td>
<td>6 months</td>
</tr>
<tr>
<td>Menactra and DTaP</td>
<td></td>
</tr>
</tbody>
</table>
Spacing of Live Vaccines Not Given Simultaneously

- If 2 live parenteral or intranasal vaccines are given less than 28 days apart, the vaccine given second should be repeated

- Antibody response from first vaccine interferes with replication of second vaccine
Intervals Between Doses

General Rule

• Increasing the interval between doses of a multidose vaccine does not diminish the effectiveness of the vaccine
Extended Interval Between Doses

- Not all variations among all schedules for all vaccines have been studied

- Available studies of extended intervals have shown no significant difference in final titer

- It is not necessary to restart the series or add doses because of an extended interval between doses
Intervals Between Doses

General Rule

- Increasing the interval between doses of a multidose vaccine does not diminish the effectiveness of the vaccine
- Decreasing the interval between doses of a multidose vaccine may interfere with antibody response and protection
<table>
<thead>
<tr>
<th>Vaccine and dose number</th>
<th>Recommended age for this dose</th>
<th>Minimum age for this dose</th>
<th>Minimum interval to next dose</th>
<th>Minimum interval to next dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria-tetanus-acellular pertussis (DTaP)</td>
<td>2 months</td>
<td>6 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>DTaP-2</td>
<td>4 months</td>
<td>10 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>DTaP-3</td>
<td>6 months</td>
<td>14 weeks</td>
<td>6-12 months</td>
<td>6 months</td>
</tr>
<tr>
<td>DTaP-4</td>
<td>10-18 months</td>
<td>15 months</td>
<td>3 years</td>
<td>6 months</td>
</tr>
<tr>
<td>DTaP-5</td>
<td>4-5 years</td>
<td>4 years</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Haemophilus influenza type b (Hib)</td>
<td>2 months</td>
<td>6 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Hib-2</td>
<td>4 months</td>
<td>10 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Hib-3</td>
<td>6 months</td>
<td>14 weeks</td>
<td>6-9 months</td>
<td>8 weeks</td>
</tr>
<tr>
<td>Hib-4</td>
<td>12-15 months</td>
<td>12 months</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td>12-23 months</td>
<td>12 months</td>
<td>18 months</td>
<td>6-18 months</td>
</tr>
<tr>
<td>HepA-2</td>
<td>15-18 months</td>
<td>18 months</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>Birth</td>
<td>Birth</td>
<td>4 weeks-4 months</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Hep-B-2</td>
<td>Birth</td>
<td>Birth</td>
<td>8 weeks-11 months</td>
<td>8 weeks</td>
</tr>
<tr>
<td>HepB-3</td>
<td>6 months</td>
<td>24 weeks</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Herpes zoster (HSV-1)</td>
<td>≥60 years</td>
<td>60 years</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Human papillomavirus (HPV)-16</td>
<td>11-12 years</td>
<td>9 years</td>
<td>5 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>HPV-2</td>
<td>11-12 years</td>
<td>9 years</td>
<td>4 months</td>
<td>12 weeks</td>
</tr>
<tr>
<td>HPV-3,5</td>
<td>11-12 years</td>
<td>9 years</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Influenza, inactivated (IIV)</td>
<td>≥6 months</td>
<td>6 months</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Influenza, live attenuated (LAIV)</td>
<td>2-4 years</td>
<td>2 years</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Measles-mumps-rubella (MMR)</td>
<td>12-15 months</td>
<td>12 months</td>
<td>3-5 years</td>
<td>4 weeks</td>
</tr>
<tr>
<td>MMR-2×</td>
<td>4-6 years</td>
<td>13 months</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Meningoococal conjugate (MenACWY)-Y</td>
<td>11-12 years</td>
<td>6 weeks</td>
<td>4-5 years</td>
<td>8 weeks</td>
</tr>
<tr>
<td>MenACWY-2</td>
<td>16 years</td>
<td>11 years</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Meningoococal polysaccharide (MPSV)</td>
<td>≥2 years</td>
<td>5 years</td>
<td>5 years</td>
<td>5 years</td>
</tr>
<tr>
<td>MPSV-2×</td>
<td>7 years</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Pneumococcal conjugate (PCV13)-P</td>
<td>2 months</td>
<td>6 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>PCV-2×</td>
<td>4 months</td>
<td>10 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>PCV-3×</td>
<td>6 months</td>
<td>14 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>PCV-4×</td>
<td>12-15 months</td>
<td>12 months</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PCV10)</td>
<td>≥2 years</td>
<td>5 years</td>
<td>3 years</td>
<td>3 years</td>
</tr>
<tr>
<td>PCV10×</td>
<td>7 years</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Poliovirus, Inactivated (IPV)-1×</td>
<td>2 months</td>
<td>6 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>IPV-2×</td>
<td>4 months</td>
<td>10 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>IPV-3×</td>
<td>6-18 months</td>
<td>14 weeks</td>
<td>3-5 years</td>
<td>6 weeks</td>
</tr>
<tr>
<td>IPV-4×</td>
<td>4-5 years</td>
<td>4 years</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Rotavirus (RV)</td>
<td>2 months</td>
<td>6 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>RV-2×</td>
<td>4 months</td>
<td>10 weeks</td>
<td>8 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>RV-3×</td>
<td>6 months</td>
<td>14 weeks</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Td</td>
<td>11-12 years</td>
<td>7 years</td>
<td>10 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Tetanus-diphtheria-acellular pertussis (Tdap)</td>
<td>≥11 years</td>
<td>7 years</td>
<td>3 years</td>
<td>3 years</td>
</tr>
<tr>
<td>Varicella (Var)-1×</td>
<td>12-15 months</td>
<td>12 months</td>
<td>3-5 years</td>
<td>12 weeks</td>
</tr>
<tr>
<td>Var-2×</td>
<td>4-6 years</td>
<td>10 weeks</td>
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</tr>
</tbody>
</table>

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<th>Minimum interval to next dose</th>
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</thead>
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<tr>
<td>Diphtheria-tetanus-acellular pertussis (DTaP)-1</td>
<td>2 months</td>
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<td>8 weeks</td>
<td>4 weeks</td>
</tr>
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<td>DTaP-2</td>
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<td>4 years</td>
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<td>—</td>
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<td>12 months</td>
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<td>Hepatitis A (HepA)-1</td>
<td>12-23 months</td>
<td>12 months</td>
<td>6-18 months</td>
<td>6 months</td>
</tr>
<tr>
<td>HepA-2</td>
<td>≥18 months</td>
<td>18 months</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Hepatitis B (HepB)-1</td>
<td>Birth</td>
<td>Birth</td>
<td>4 weeks-4 months</td>
<td>4 weeks</td>
</tr>
<tr>
<td>HepB-2</td>
<td>1-2 months</td>
<td>4 weeks</td>
<td>8 weeks-17 months</td>
<td>8 weeks</td>
</tr>
<tr>
<td>HepB-3</td>
<td>6-18 months</td>
<td>24 weeks</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

1.2.3.4. Included in Pink Book Appendix A-13
Minimum Intervals and Ages

- Vaccine doses should not be administered at intervals less than the minimum intervals or earlier than the minimum age.
When Can Minimum Intervals Be Used?

- Catch-up for a lapsed vaccination schedule
- Impending international travel
- NOT to be used routinely
The “Grace Period”

- ACIP recommends that vaccine doses given up to four days before the minimum interval or age be counted as valid

- Should not be used for scheduling future vaccination visits

- Use for reviewing vaccination records
Use of the “Grace Period”

- To schedule a future appointment: NO!
- When evaluating a vaccination record: Yes
- Client is in the office or clinic early: Maybe
Use of the “Grace Period”

Client is in the office or clinic

- Client/parent is known and dependable  
  Reschedule

- Client/parent is unknown or undependable  
  Vaccinate
Use of the “Grace Period”

- **Basic principles**
  - The recommended interval or age is preferred
  - The minimum interval can be used to catch up
  - The grace period is last resort
Violations of Minimum Intervals and Minimum Ages

- Grace period may conflict with some state school entry requirements

- Immunization programs and/or school entry requirements may not accept some or all doses given earlier than the minimum age or interval, particularly varicella and/or MMR vaccines

- Providers should comply with local and/or state immunization requirements
Violations of Minimum Intervals and Minimum Ages

- Minimum interval/age has been violated
  - Dose invalid

- The repeat dose should be administered at least a minimum interval from the invalid dose
Contraindications & Precautions
Vaccine Adverse Reaction

- Adverse reaction
  - Extraneous effect caused by vaccine
  - “Side effect"
Vaccine Adverse Reaction

- **Adverse reaction**

- **Adverse event**
  - Any medical event following vaccination
  - May be true adverse reaction
  - May be only coincidental
Vaccine Adverse Reactions

- Local
  - Pain, swelling, redness at site of injection
  - Common with inactivated vaccines
  - Usually mild and self-limited
Vaccine Adverse Reactions

- **Local**

- **Systemic**
  - Fever, malaise, headache
  - Nonspecific
  - May be unrelated to vaccine
Live, Attenuated Vaccines

- Must replicate to produce immunity
- Symptoms usually mild
- Occur after an incubation period (usually 3–21 days)
Vaccine Adverse Reactions

- Local

- Systemic

- Allergic
  - Due to vaccine or vaccine component
  - Rare
  - Risk minimized by screening
Contraindication

- A condition in a recipient that greatly increases the chance of a serious adverse event
Precaution

- A condition in a recipient that may increase the chance or severity of an adverse event

- May compromise the ability of the vaccine to produce immunity

- Might cause diagnostic confusion
Permanent Contraindications

- Severe allergic reaction to a prior dose of vaccine or to a vaccine component
Permanent Contraindications

- **Rotavirus vaccines only**
  - Severe combined immunodeficiency disease (SCID)
  - History of intussusception

- **Pertussis vaccines only**
  - Encephalopathy not due to another identifiable cause occurring within 7 days of pertussis vaccination
## Contraindications and Precautions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Live</th>
<th>Inactivated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy to component</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Encephalopathy</td>
<td>---</td>
<td>C</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>C</td>
<td>V*</td>
</tr>
<tr>
<td>Immunosuppression</td>
<td>C</td>
<td>V</td>
</tr>
<tr>
<td>Moderate/severe illness</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Recent blood product</td>
<td>P**</td>
<td>V</td>
</tr>
</tbody>
</table>

C=contraindication  
P=precaution  
V=vaccinate if indicated  
*Except HPV  
**MMR and varicella-containing (except zoster vaccine and LAIV)
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Reference</th>
<th>Contraindication</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis A</td>
<td>(39)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>(40)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Hypersensitivity to yeast.</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Hib</td>
<td>(41)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Age &lt; 6 weeks.</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>HPV</td>
<td>(42)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.</td>
<td>Pregnancy. Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>IIV</td>
<td>(43)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of influenza vaccine or to vaccine component.</td>
<td>GBS &lt; 6 weeks after a previous dose of influenza vaccine. Moderate or severe acute illness with or without fever. Egg allergy other than hives, e.g., angioedema, respiratory distress, lightheadedness, recurrent emesis, or required epinephrine or another emergency medical intervention (IIV may be administered in an inpatient or outpatient medical setting and under the supervision of a health care provider who is able to recognize and manage severe allergic conditions).</td>
</tr>
<tr>
<td>IPV</td>
<td>(44)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.</td>
<td>Pregnancy. Moderate or severe acute illness with or without fever.</td>
</tr>
</tbody>
</table>
Knowledge Check

- A 1-year-old is due for vaccines today, but she is on antibiotics for an ear infection. Can she be vaccinated?
  - A. Yes
  - B. No
Answer

- A. Yes
Vaccination During Pregnancy

- Live vaccines should not be administered to women known to be pregnant

- In general, inactivated vaccines may be administered to pregnant women for whom they are indicated

- HPV vaccine should be deferred during pregnancy
Vaccination During Pregnancy

- Inactivated vaccines – influenza and Tdap
- Other vaccines
- In general, inactivated vaccines can be administered
  - NO CONTRAINDICATIONS
  - Precautions (risk-benefit decision) – MenB, IPV
  - Special considerations: [https://www.cdc.gov/vaccines/schedules/hcp/imz/adult-conditions.html](https://www.cdc.gov/vaccines/schedules/hcp/imz/adult-conditions.html) and [https://www.cdc.gov/vaccines/schedules/hcp/imz/child-indications.html](https://www.cdc.gov/vaccines/schedules/hcp/imz/child-indications.html)

- RZV, HPV–delay
- Hib, PCV13–no recommendations language at all
- HepA, HepB, MenACWY, PPSV23 – give if another risk factor is present
Vaccination of Immunosuppressed Persons

- Live vaccines should not be administered to severely immunosuppressed persons

- Persons with isolated B-cell deficiency (i.e., deficiency in humoral immunity) may receive varicella and zoster vaccines

- Inactivated vaccines are safe to use in immunosuppressed persons, but the response to the vaccine may be decreased
Immunosuppression

- Disease
  - Congenital immunodeficiency
  - Leukemia or lymphoma
  - Generalized malignancy

- Cancer Therapy
  - Alkylating agents
  - Antimetabolites
  - Radiation
Immunosuppressive Drugs

- Immune mediators
- Immune modulators
- Iso-antibodies (therapeutic monoclonal antibodies)
  - Antitumor necrosis factor agents
  - B-lymphocyte depleting agent
- Transplant rejection suppression
- Checkpoint inhibition
Corticosteroids and Immunosuppression

- The amount or duration of corticosteroid therapy needed to increase adverse event risk is not well-defined

- Dose generally believed to be a concern:
  - 20 mg or more/day of prednisone for 2 weeks or longer
  - 2 mg/kg per day or more of prednisone for 2 weeks or longer
Corticosteroids and Immunosuppression

- Does NOT apply to aerosols, topical, alternate-day, short courses (less than 2 weeks), physiologic replacement schedules

- Delay live vaccines for at least 1 month after discontinuation of high-dose therapy
Vaccination of Immunosuppressed Persons

Safety:

- Immunocompromised persons are at increased risk of adverse events following live vaccines

- Live vaccines may be administered at least 3 months following termination of chemotherapy (at least 1 month after high-dose steroid use of 2 weeks or more)

- LAIV, MMR, varicella, and rotavirus vaccines may be administered to susceptible household and other close contacts
Vaccination of Immunosuppressed Persons

- Safety and efficacy
- Anti-tumor necrosis factor inhibitors
  - Wait 3 months after stopping medication before administering live vaccines
  - Do not initiate medication until 1 month after the live vaccine
- Other iso-antibodies (e.g., anti-B cell antibodies aka lymphocyte depleting agents, checkpoint inhibition)
  - Some experts recommend up to 6 months
Persons with HIV Infection

- Persons with HIV/AIDS are at increased risk for complications of measles, varicella, influenza, and pneumococcal disease.
## Live, Attenuated Vaccines for Persons with HIV/AIDS*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Asymptomatic</th>
<th>Symptomatic*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varicella</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Zoster</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>MMR</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>MMRV</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>LAIV</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>Consider</td>
<td>Consider</td>
</tr>
<tr>
<td>Yellow Fever</td>
<td>Consider</td>
<td>No</td>
</tr>
</tbody>
</table>

Yes=vaccinate  No=do not vaccinate

*See specific ACIP recommendations for details.
Additional General Best Practice Guidelines on Immunization

- Screening for indications, contraindications, and precautions, and

- A discussion of vaccine safety, including:
  - Vaccine safety monitoring
  - Vaccine safety concerns
Frequently Asked Questions
CE credit, go to: www.cdc.gov/GetCE

Search course number: WD4344-070820

CE credit expires: July 1, 2022

CE instructions are available on the EpiVac Pink Book Web-on-Demand Series web page

Questions and additional help with the online CE system, e-mail CE@cdc.gov
E-mail Your Immunization Questions to Us

NIPINFO@cdc.gov

Write “Web-on-Demand–GBP1” in the subject line
EpiVac Pink Book Web-on-Demand Resources

- Comprehensive list of resources for ALL sessions
- Located on the web page for this web-on-demand session at www.cdc.gov/vaccines/ed/webinar-epv/index.html
- Additional materials located on this webpage include:
  - Principles of Vaccination slide set
  - Web-on-demand questions and answers
  - Transcript of this session
  - Continuing education instructions

Course Resources

Epidemiology and Prevention of Vaccine-Preventable Diseases

- Comprehensive list of resources for ALL sessions

Located on the web page for this web-on-demand session at www.cdc.gov/vaccines/ed/webinar-epv/index.html

Additional materials located on this webpage include:

- Principles of Vaccination slide set
- Web-on-demand questions and answers
- Transcript of this session
- Continuing education instructions

Overall Resources

- Advisory Committee on Immunization Practices (ACIP) recommendations:
  - ACIP Recommendations for Immunization: www.cdc.gov/vaccines/acip/index.html
  - ACIP Recommendations for Children: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- CDC Continuing Education Information: www.cdc.gov/vaccines/ed/ce/credit-how-to.html
- Pink Book Webinar Series: www.cdc.gov/vaccines/divs/azwem/index.html
- Vaccines Licensed for Use in the United States Package Inserts: www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm091893.htm
- Your Call This Show: www.cdc.gov/vaccines/ed/yourcallthisshow.html

Course Intro and Objectives

- What is the Advisory Committee on Immunization Practices (ACIP)?
  - www.cdc.gov/vaccines/hcp/acip-reports/appendixes/appendix-6-color-office.pdf
- CDC Immunization Resources for You and Your Patients:
  - www.cdc.gov/vaccines/healthcare-providers/immunization-workbook.pdf
- Parents’ Guide to Childhood Immunizations:
  - www.cdc.gov/vaccines/parents/tools/parents-guide.html
- The History of Vaccines: How Vaccines Work:
  - www.cdc.gov/vaccines/healthcare-providers/immunization-workbook.pdf
- Online Information for Free CDC Immunization Materials for Providers and Patients:
  - www.cdc.gov/vaccines/educators/overview.html

Principles of Vaccination

- Injection System Research: www.cdc.gov/vaccines/resources/injection-system-research
- What is the Injection System?: www.cdc.gov/vaccines/resources/injection-system-research
- Understanding How Vaccines Work:
  - www.cdc.gov/vaccines/healthcare-providers/immunization-workbook.pdf
- Vaccines Work: www.cdc.gov/vaccines/healthcare-providers/immunization-workbook.pdf

General Best Practice Guidelines

- Ask the Experts: Scheduling Vaccines FAQs: www.immunize.org/askexperts/scheduling-vaccines.aspx
- Ask the Experts: Combination Vaccines FAQs: www.immunize.org/askexperts/combination-vaccines.aspx
- Foreign Language Vaccine-Preventable Disease Terms: www.cdc.gov/vaccines/foreign/pdf/foreign-products-tables.pdf
- Guidelines for Contraindications and Precautions to Commonly Used Vaccines: www.cdc.gov/vaccines/complications/30702d.pdf
- 2012 ACIP Vaccination Recommendations: www.cdc.gov/vaccines/hcp/acip-recommendations.html
- Interim Between Antibody-Containing Products and Measles- and Varicella-Containing Vaccines: www.cdc.gov/vaccines/healthcare-providers/immunization-workbook.pdf

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Thank You From Atlanta!