A Clinician's Handbook for Childhood & Adult Immunizations in Georgia

MAY 2019

EPIC® Educating Physicians in their Communities & Practices

DPH Georgia Department of Public Health

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FROM THE EDITOR

VACS FACTS was developed and produced by the EPIC (Educating Physicians & Practices In their Communities)® program at the Georgia Chapter of the American Academy of Pediatrics (GA AAP) and the Immunization Program, Georgia Department of Public Health. A special thanks to Janet McGruder, MBA, BSN and Aralis Tavarez, RN, BSN with the Immunization Program for their hard work and dedication which made this edition of VACS FACTS possible. The editors would also like to thank the Georgia Chapter – American Academy of Pediatrics and other EPIC partners, the Georgia Academy of Family Physicians, Georgia OB/Gyn Society, Georgia Chapter-American College of Physicians (Internal Medicine) and the Immunization Office for their support & participation in the EPIC Immunization Program.

The contents of this handbook were derived from the following publications & source documents:
-Department of Health & Human Services - National Vaccine Advisory Committee
-Immunization Action Coalition
-Red Book (2018) Report of the Committee on Infectious Diseases, 31st Edition, American Academy of Pediatrics
-CDC Advisory Committee on Immunization Practices recommendations

The material published in this edition of VACS FACTS is current as of May 2019. For the most up-to-date immunization information readers are advised to visit the Center for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) website at: www.cdc.gov/vaccines/acip/index.html

For more information on EPIC or to schedule an EPIC Immunization Program in your office, contact the Georgia EPIC program by calling 404-881-5054 or email: smcclain@gaaap.org or visit our website at www.GaEPIC.org

STANDARDS FOR CHILD & ADOLESCENT IMMUNIZATION PRACTICES

Availability of vaccines

1. Vaccination services are readily available.
2. Vaccinations are coordinated with other health care services and provided in a medical home when possible.
3. Barriers to vaccination are identified and minimized.
4. Patient costs are minimized.

Assessment of vaccination status

5. Health care professionals review the vaccination and health status of patients at every encounter to determine which vaccines are indicated.
6. Health care professionals assess for and follow only medically accepted contraindications.

Effective communication about vaccine benefits and risks

7. Parents/guardians and patients are educated about the benefits and risks of vaccination in a culturally appropriate manner and in easy-to-understand language.

Proper storage and administration of vaccines and documentation of vaccinations

8. Health care professionals follow appropriate procedures for vaccine storage and handling.
9. Up-to-date, written vaccination protocols are accessible at all locations where vaccines are administered.
10. People who administer vaccines and staff who manage or support vaccine administration are knowledgeable and receive ongoing education.
11. Health care professionals simultaneously administer as many indicated vaccine doses as possible.
12. Vaccination records for patients are accurate, complete, and easily accessible.
13. Health care professionals report adverse events after vaccination promptly and accurately to the Vaccine Adverse Events Reporting System (VAERS) and are aware of a separate program, the Vaccine Injury Compensation Program (VICP).
14. All personnel who have contact with patients are appropriately vaccinated.

Implementation of strategies to improve vaccination coverage

15. Systems are used to remind parents/guardians, patients, and health care professionals when vaccinations are due and to recall those who are overdue.
16. Office or clinic-based patient record reviews and vaccination coverage assessments are performed annually.
17. Health care professionals practice community-based approaches.

From the National Vaccine Advisory Committee (NVAC), 2003

Summary of 2013 National Vaccine Advisory Committee's standards for adult immunization practices

All providers

- Incorporate immunization needs assessment into every clinical encounter
- Strongly recommend needed vaccine(s) and either administer vaccine(s) or refer patient to a provider who can immunize.
- Stay up-to-date on, and educate patients about, vaccine recommendations.
- Implement systems to incorporate vaccine assessment into routine clinical care.
- Understand how to access immunization information systems (i.e., immunization registries).

Non-immunizing providers

- Routinely assess the immunization status of patients, recommend needed vaccine(s), and refer patient to an immunizing provider.
- Establish referral relationships with immunizing providers.
- Follow up to confirm patient receipt of recommended vaccine(s).

Immunizing providers

- Ensure professional competencies in immunizations.
- Assess immunization status in every patient care and counseling encounter and strongly recommend needed vaccine(s).
- Ensure that receipt of vaccination is documented in patient medical record and immunization registry.

Professional health-care related organizations/associations/health-care systems

- Provide immunization education and training of members, including trainees.
- Provide resources and assistance to implement protocols and other systems to incorporate vaccine needs assessment and vaccination or referral into routine practice.
- Encourage members to be up-to-date on their own immunizations.
- Assist members in staying up-to-date on immunization information and recommendations.
- Partner with other immunization stakeholders to educate the public.
- Seek out collaboration opportunities with other immunization stakeholders.
- Collect and share best practices for immunization.

- Advocate policies that support adult immunization standards.
- Insurers/payers/entities that cover adult immunization services should assure their network is adequate to provide timely immunization access and augment with additional vaccine providers if necessary.

Public health departments

- Determine community needs, vaccination capacity, and barriers to adult immunization.
- Provide access to all ACIP-recommended vaccinations for insured and uninsured adults and work toward becoming an in-network provider for immunization services for insured adults.
- Partner with immunization stakeholders and support activities and policies to improve awareness of adult vaccine recommendations, increase vaccination rates, and reduce barriers.
- Ensure professional competencies in immunizations.
- Collect, analyze, and disseminate immunization data.
- Provide outreach and education to providers and the public.
- Work to decrease disparities in immunization coverage and access.
- Increase immunization registry access and use by vaccine providers for adult patients.
- Develop capacity to bill for immunization of injured people.
- Ensure preparedness for identifying and responding to outbreaks of vaccine-preventable diseases
- Promote adherence to applicable laws, regulations, and standards among adult immunization stakeholders.

GENERAL RECOMMENDATIONS APPLYING TO SPACING AND ADMINISTRATION OF ROUTINELY RECOMMENDED CHILDHOOD VACCINES

1) Simultaneous administration. This recommendation states that there are no contraindications to the simultaneous administration of any of the routinely recommended vaccines included on the current ACIP schedule. The only exception to this rule is that PCV and PPV should be separated by 8 weeks.

2) No minimum time intervals between the administration of 2 different inactivated vaccines. For example, you could give a DTaP one day and a HIB the next, or 2 weeks later. Again, the one exception is for doses of PCV and PPV.

3) If 2 different live virus vaccines are not administered on the same day, they must be separated by at least 4 weeks. This would apply specifically to doses of MMR and varicella, if not administered on the same day.

4) If 2 different live injectable vaccines are given <28 days apart, the one given second should be repeated ≥ 28 days after the second or invalid dose.

5) This recommendation states that vaccine doses should not be given at intervals less than the minimum intervals or earlier than the minimum age. Table 1 of the General Recommendations gives all the minimum intervals and ages for each dose of the recommended childhood vaccines.

6) The 4 day grace period

•In 2002 the ACIP instituted what is referred to as the grace period, for use in evaluating immunization records. Basically, it states that doses given ≤4 days before the minimum age or interval may be counted as valid doses.
•The exception to this is in regard to the spacing of doses of MMR and varicella.
•This rule should be used primarily for evaluating records, NOT for scheduling visits.
•In Georgia, this rule does not conflict with the requirements for school and day care. This is not true in some states.

7) If vaccines are administered later than the recommended schedule:
•Do not start over
•Do not repeat doses
•Continue with the rest of the series according to recommended intervals and ages.

8) The importance of administering vaccines by the recommended routes and sites. It does, however, state that in evaluating records, all doses given by nonstandard routes and sites may be accepted except:
•Rabies and hepatitis B given in the gluteus
•Hepatitis B not given IM
•Continue to discard and repeat vaccines given in "divided doses"
•Do not mix vaccines unless they are licensed to be mixed.

9) 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.
*Provider assessment should include the number of injections, vaccine availability, likelihood of improved coverage, likelihood of patient return, and storage and cost consideration.

10) Contraindications and precautions are circumstances that dictate when vaccines should not be administered.
•A contraindication is a condition in the recipient that increases the risk for a serious adverse reaction.
•A precaution is a condition in the recipient that might increase the risk for a serious adverse reaction. In some circumstances it may be necessary to weigh benefits vs. risks, as in an outbreak.

IMMUNIZATION RESOURCE LIST

American College of Physicians (Internal Medicine)
www.acponline.org

CDC National Immunization Information Hotline
(800) 232-4636 (800-CDC-INFO)
www.cdc.gov/vaccines

Georgia Academy of Family Physicians
(404) 321-7445
www.gafp.org

The American Congress of Obstetricians and Gynecologists
www.acog.org

Georgia Chapter - American Academy of Pediatrics
(404) 881-5094
www.gaaap.org

Georgia Office of Immunization (Department of Public Health)
(404) 657-3158
dph.georgia.gov/immunization-section

Georgia VFC Program (Department of Public Health)
404-657-5013
(800) 848-3868
dph.georgia.gov/vaccines-children-program

GRITS (Department of Public Health)
(800) 483-2958
dph.georgia.gov/georgia-immunization-registry-grits
www.grits.state.ga.us

Health Department
Phone #: _____

Immunization Action Coalition
www.immunize.org

National Network for Immunization Information (NNII)
www.immunizationinfo.org

Screening Checklist for Contraindications to Vaccines for Children and Teens

PATIENT NAME _____

DATE OF BIRTH ___/___/___ (month / day / year)

For parents/guardians: The following questions will help us determine which vaccines your child may be given today. If you answer "yes" to any question, it does not necessarily mean your child should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

	yes	no	don't know
1. Is the child sick today?	☐	☐	☐
2. Does the child have allergies to medications, food, a vaccine component, or latex?	☐	☐	☐
3. Has the child had a serious reaction to a vaccine in the past?	☐	☐	☐
4. Does the child have lung, heart, kidney or metabolic disease (e.g., diabetes), asthma, a blood disorder, no spleen, complement component deficiency, a cochlear implant, or a spinal fluid leak? Is he/she on long-term aspirin therapy?	☐	☐	☐
5. If the child to be vaccinated is 2 through 4 years of age, has a healthcare provider told you that the child had wheezing or asthma in the past 12 months?	☐	☐	☐
6. If your child is a baby, have you ever been told he or she has had intussusception?	☐	☐	☐
7. Has the child, a sibling, or a parent had a seizure; has the child had brain or other nervous system problems?	☐	☐	☐
8. Does the child or a family member have cancer, leukemia, HIV/AIDS, or any other immune system problems?	☐	☐	☐
9. In the past 3 months, has the child taken medications that affect the immune system such as prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments?	☐	☐	☐
10. In the past year, has the child received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?	☐	☐	☐
11. Is the child/teen pregnant or is there a chance she could become pregnant during the next month?	☐	☐	☐
12. Has the child received vaccinations in the past 4 weeks?	☐	☐	☐

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

Did you bring your immunization record card with you? **yes** ☐ **no** ☐

It is important to have a personal record of your child's vaccinations. If you don't have one, ask the child's healthcare provider to give you one with all your child's vaccinations on it. Keep it in a safe place and bring it with you every time you seek medical care for your child. Your child will need this document to enter day care or school, for employment, or for international travel.

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Technical content reviewed by the Centers for Disease Control and Prevention

Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

www.immunize.org/catg.d/p4060.pdf • Item #P4060 (4/19)

Information for Healthcare Professionals about the Screening Checklist for Contraindications (Children and Teens)

Are you interested in knowing why we included a certain question on the screening checklist? If so, read the information below. If you want to find out even more, consult the references listed at the end.

1. Is the child sick today? *[all vaccines]*

There is no evidence that acute illness reduces vaccine efficacy or increases vaccine adverse events.[1,2] However, as a precaution with moderate or severe acute illness, all vaccines should be delayed until the illness has improved. Mild illnesses (such as otitis media, upper respiratory infections, and diarrhea) are NOT contraindications to vaccination. Do not withhold vaccination if a person is taking antibiotics.

2. Does the child have allergies to medications, food, a vaccine component, or latex? *[all vaccines]*

An anaphylactic reaction to latex is a contraindication to vaccines that contain latex as a component or as part of the packaging (e.g., vial stoppers, prefilled syringe plungers, prefilled syringe caps). If a person has anaphylaxis after eating gelatin, do not administer vaccines containing gelatin. A local reaction to a prior vaccine dose or vaccine component, including latex, is not a contraindication to a subsequent dose or vaccine containing that component. For information on vaccines supplied in vials or syringes containing latex, see reference 3; for an extensive list of vaccine components, see reference 4. People with egg allergy of any severity can receive any recommended influenza vaccine (i.e., any IIV, RIV, or LAIV) that is otherwise appropriate for the patient's age and health status. For people with a history of severe allergic reaction to egg involving any symptom other than hives (e.g., angioedema, respiratory distress), or who required epinephrine or another emergency medical intervention, the vaccine should be administered in a medical setting, such as a clinic, health department, or physician office. Vaccine administration should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions.[5]

3. Has the child had a serious reaction to a vaccine in the past? *[all vaccines]*

History of anaphylactic reaction (see question 2) to a previous dose of vaccine or vaccine component is a contraindication for subsequent doses.[1] History of encephalopathy within 7 days following DTP/DTaP is a contraindication for further doses of pertussis-containing vaccine. There are other adverse events that might have occurred following vaccination that constitute contraindications or precautions to future doses. Under normal circumstances, vaccines are deferred when a precaution is present. However, situations may arise when the benefit outweighs the risk (e.g., during a community pertussis outbreak).

4. Does the child have lung, heart, kidney, or metabolic disease (e.g., diabetes), asthma, a blood disorder, no spleen, complement component deficiency, a cochlear implant, or a spinal fluid leak? Is he/she on long-term aspirin therapy? *[MMR, MMRV, LAIV, VAR]*

A history of thrombocytopenia or thrombocytopenic purpura is a precaution to MMR and MMRV vaccines. The safety of live, attenuated influenza vaccine (LAIV) in children and teens with lung, heart, kidney, or metabolic disease (e.g., diabetes), or a blood disorder has not been established. These conditions, including asthma in children ages 5 years and older, should be considered precautions for the use of LAIV. Children with functional or anatomic asplenia, complement deficiency, cochlear implant, or CSF leak should not receive LAIV. Children on long-term aspirin therapy should not be given LAIV; instead, they should be given IIV. Aspirin use is a precaution to VAR.

5. If the child to be vaccinated is 2 through 4 years of age, has a healthcare provider told you that the child had wheezing or asthma in the past 12 months? *[LAIV]*

Children ages 2 through 4 years who have had a wheezing episode within the past 12 months should not be given LAIV. Instead, these children should be given IIV.

6. If your child is a baby, have you ever been told that he or she has had intussusception? *[Rotavirus]*

Infants who have a history of intussusception (i.e., the telescoping of one portion of the intestine into another) should not be given rotavirus vaccine.

7. Has the child, a sibling, or a parent had a seizure; has the child had brain or other nervous system problem? *[DTaP, Td, Tdap, IIV, LAIV, MMRV]*

DTaP and Tdap are contraindicated in children who have a history of encephalopathy within 7 days following DTP/DTaP. An unstable progressive neurologic problem is a precaution to the use of DTaP and Tdap. For children with stable neurologic disorders (including seizures) unrelated to vaccination, or for children with a family history of seizures, vaccinate as usual (exception: children with a personal or family [i.e., parent or sibling] history of seizures generally should not be vaccinated with MMRV; they should receive separate MMR and VAR vaccines). A history of Guillain-Barré syndrome (GBS) is a consideration with the following: 1) Td/Tdap: if GBS has occurred within 6 weeks of a tetanus-containing vaccine and decision is made to continue vaccination, give Tdap instead of Td if no history of prior Tdap; 2) Influenza vaccine (IIV or LAIV): if GBS has occurred within 6 weeks of a prior influenza vaccination, vaccinate with IIV if at high risk for severe influenza complications.

8. Does the child or a family member have cancer, leukemia, HIV/AIDS, or any other immune system problem? *[LAIV, MMR, MMRV, RV, VAR]*

Live virus vaccines (e.g., MMR, MMRV, varicella, rotavirus, and LAIV) are usually contraindicated in immunocompromised children. However, there are exceptions. For example, MMR is recommended for asymptomatic HIV-infected children who do not have evidence of severe immunosuppression. Likewise, varicella vaccine should be considered for HIV-infected children age 12 months through 8 years with age-specific CD4+ T-lymphocyte percentage at 15% or greater, or for children age 9 years or older with CD4+ T-lymphocyte counts of greater than or equal to 200 cell/µL. Varicella and MMR vaccines should not be given to a child or teen with a family history of congenital or hereditary immunodeficiency in first-degree relatives (e.g., parents, siblings) unless the immune competence of the potential vaccine recipient has been clinically substantiated or verified by a laboratory. Immunosuppressed children should not receive LAIV. Infants who have been diagnosed with severe combined immunodeficiency (SCID) should not be given a live virus vaccine, including rotavirus (RV) vaccine. Other forms of immunosuppression are a precaution, not a contraindication, to rotavirus vaccine. For details, consult ACIP recommendations.[1,6,7,8]

9. In the past 3 months, has the child taken medications that affect the immune system such as prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments? *[LAIV, MMR, MMRV, VAR]*

Live virus vaccines (e.g., LAIV, MMR, MMRV, VAR) should be postponed until after chemotherapy or long-term high-dose steroid therapy has ended. For details and length of time to postpone, consult the ACIP statement.[1] Some immune mediator and immune modulator drugs (especially the antitumor-necrosis factor agents adalimumab, infliximab, and etanercept) may be immunosuppressive. A comprehensive list of immunosuppressive immune modulators is available in CDC Health Information for International Travel (the "Yellow Book") available at wwwnc.cdc.gov/travel/yellowbook/2018/advising-travelers-with-specific-needs/immunocompromised-travelers The use of live vaccines should be avoided in persons taking these drugs.[1] To find specific vaccination schedules for stem cell transplant (bone marrow transplant) patients, see reference 9. LAIV, when recommended, can be given only to healthy non-pregnant people ages 2 through 49 years.

10. In the past year, has the child received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug? *[MMR, MMRV, VAR]*

Certain live virus vaccines (e.g., MMR, MMRV, varicella) may need to be deferred, depending on several variables. Consult the most current ACIP recommendations or the current Red Book for the most current information on intervals between antiviral drugs, immune globulin or blood product administration and live virus vaccines.[1,2]

11. Is the child/teen pregnant or is there a chance she could become pregnant during the next month? *[HPV, IPV, LAIV, MMR, MMRV, VAR]*

Live virus vaccines (e.g., MMR, MMRV, varicella, LAIV) are contraindicated one month before and during pregnancy because of the theoretical risk of virus transmission to the fetus.[1,2] Sexually active young women who receive a live virus vaccine should be instructed to practice careful contraception for one month following receipt of the vaccine.[1,10] On theoretical grounds, inactivated poliovirus vaccine should not be given during pregnancy; however, it may be given if risk of exposure is imminent (e.g., travel to endemic areas) and immediate protection is needed. Inactivated influenza vaccine and Tdap are both recommended during pregnancy. HPV vaccine is not recommended during pregnancy.

12. Has the child received vaccinations in the past 4 weeks? *[LAIV, MMR, MMRV, VAR, yellow fever]*

Children who were given either LAIV or an injectable live virus vaccine (e.g., MMR, MMRV, varicella, yellow fever) should wait 28 days before receiving another vaccination of this type. Inactivated vaccines may be given at the same time or at any spacing interval.

REFERENCES

1. CDC. General best practice guidelines for immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP) at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
2. AAP. Red Book: Report of the Committee on Infectious Diseases at www.aapredbook.org.
3. Latex in Vaccine Packaging: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/latex-table.pdf
4. Table of Vaccine Components: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.
5. CDC. Prevention and control of seasonal influenza with vaccines: Recommendations of the Advisory Committee on Immunization Practices – United States, . . . Access links to current ACIP recommendations at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html
6. CDC. Measles, mumps, and rubella – vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps. *MMWR* 1998; 47 (RR-8).
7. CDC. Prevention of varicella: Recommendations of the Advisory Committee on Immunization Practices. *MMWR* 2007; 56 (RR-4).
8. Rubin LG, Levin MJ, Ljungman P. 2013 IDSA Clinical practice guideline for vaccination of the immunocompromised host. Clinical Infectious Diseases 2014;58(3):e44–100.
9. Tomblyn M, Einsele H, et al. Guidelines for preventing infectious complications among hematopoietic stem cell transplant recipients: a global perspective. Biol Blood Marrow Transplant 15:1143–1238; 2009 at www.cdc.gov/vaccines/pubs/hemato-cell-transplts.htm.
10. CDC. Notice to readers: Revised ACIP recommendation for avoiding pregnancy after receiving a rubella-containing vaccine. *MMWR* 2001; 50 (49).

Screening Checklist for Contraindications to HPV, MenACWY, MenB, and Tdap Vaccines for Teens

YOUR NAME_____

DATE OF BIRTH____/____/____
month day year

For parents/guardians: The following questions will help us determine if human papillomavirus (HPV), meningococcal conjugate (MenACWY), meningococcal serogroup B (MenB), and tetanus, diphtheria, and acellular pertussis (Tdap) vaccines may be given to your teen today. If you answer "yes" to any question, it does not necessarily mean your teen should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

	yes	no	don't know
1. Is your teen sick today?	☐	☐	☐
2. Does your teen have allergies to a vaccine component or to latex?	☐	☐	☐
3. Has your teen had a serious reaction to a vaccine in the past?	☐	☐	☐
4. Has your teen had brain or other nervous system problems?	☐	☐	☐
5. For females: Is your teen pregnant?	☐	☐	☐

FORM COMPLETED BY_____ DATE_____

FORM REVIEWED BY_____ DATE_____

Did you bring your teen's immunization record card with you? yes ☐ no ☐

It is important to have a personal record of your teen's vaccinations. If you don't have one, ask your healthcare provider to give you one with all of your teen's vaccinations on it. Keep it in a safe place and be sure your teen carries it every time he/she seeks medical care. Your teen will likely need this document to enter school or college, for employment, or for international travel.

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www.immunize.org/catg.d/p4062.pdf • Item #P4062 (3/16)

Information for Healthcare Professionals about the Screening Checklist for Contraindications to HPV, MenACWY, MenB, and Tdap Vaccines for Teens

Are you interested in knowing why we included a certain question on the screening checklist? If so, read the information below. If you want to find out even more, consult the references listed at the end.

1. Is your teen sick today?
(This question applies to HPV, MenACWY, MenB, Tdap.)

There is no evidence that acute illness reduces vaccine efficacy or increases vaccine adverse events.[1,2] However, all vaccines should be delayed until a moderate or severe acute illness has improved. Mild illnesses (such as otitis media, upper respiratory infections, and diarrhea) are NOT contraindications or precautions to vaccination. Do not withhold vaccination if a teen is taking antibiotics unless he/she is moderately or severely ill.

2. Does your teen have allergies to a vaccine component or to latex?
(This question applies to HPV, MenACWY, MenB, Tdap.)

A delayed-type local reaction following a prior vaccine dose is not a contraindication to a subsequent dose. History of severe allergy to a vaccine component occurs in minutes to hours, requires medical attention, and is a contraindication. For a table of vaccine components, go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf. For a table of vaccines supplied in vials or syringes that contain latex, go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/latex-table.pdf.

3. Has your teen had a serious reaction to a vaccine in the past?
(This question applies to HPV, MenACWY, MenB, Tdap.)

A local reaction following a prior vaccine dose is not a contraindication to a subsequent dose. However, history of an anaphylactic reaction (hives, swelling of the lips or tongue, acute respiratory distress, or collapse) following a previous dose of vaccine or vaccine component is a contraindication for subsequent doses.[1]

4. Has the teen had brain or other nervous system problems?
(This question applies to Tdap.)

Tdap is contraindicated in teens who have a history of encephalopathy within 7 days following DTP/DTaP. An unstable progressive neurologic problem is a precaution to the use of Tdap. Under normal circumstances, vaccines are deferred when a precaution is present. However, situations may arise when the benefit of vaccinating outweighs the risk (e.g., during a community pertussis outbreak). For teens with stable neurologic disorders (including seizures) unrelated to vaccination, or for those with a family history of seizures, vaccinate as usual. A history of Guillain-Barré syndrome (GBS) is a consideration with Td or Tdap: if GBS occurred within 6 weeks of receipt of a tetanus-containing vaccine and a decision is made to continue vaccination, give age-appropriate Tdap instead of Td if there is no history of a prior Tdap dose, to improve pertussis protection.

5. For females; Is your teen pregnant?
(This question applies to HPV.)

Teens who are pregnant should not be given HPV vaccine. However, pregnancy is not a contraindication or precaution for administering Tdap, MenACWY, or MenB vaccine.

REFERENCES

1. CDC. *General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP)* at www.cdc.gov/vaccines/pubs/acip-list.htm.
2. AAP. *Red Book: Report of the Committee on Infectious Diseases* at www.aapredbook.org.

Screening Checklist for Contraindications to Vaccines for Adults

PATIENT NAME _____

DATE OF BIRTH ____ / ____ / ____
month / day / year

For patients: The following questions will help us determine which vaccines you may be given today. If you answer "yes" to any question, it does not necessarily mean you should not be vaccinated. It just means additional questions must be asked. If a question is not clear, please ask your healthcare provider to explain it.

	yes	no	don't know
1. Are you sick today?	☐	☐	☐
2. Do you have allergies to medications, food, a vaccine component, or latex?	☐	☐	☐
3. Have you ever had a serious reaction after receiving a vaccination?	☐	☐	☐
4. Do you have a long-term health problem with heart disease, lung disease, asthma, kidney disease, metabolic disease (e.g., diabetes), anemia, or other blood disorder?	☐	☐	☐
5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem?	☐	☐	☐
6. In the past 3 months, have you taken medications that affect your immune system, such as prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or have you had radiation treatments?	☐	☐	☐
7. Have you had a seizure or a brain or other nervous system problem?	☐	☐	☐
8. During the past year, have you received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?	☐	☐	☐
9. For women: Are you pregnant or is there a chance you could become pregnant during the next month?	☐	☐	☐
10. Have you received any vaccinations in the past 4 weeks?	☐	☐	☐

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

Did you bring your immunization record card with you? **yes** ☐ **no** ☐

It is important for you to have a personal record of your vaccinations. If you don't have a personal record, ask your healthcare provider to give you one. Keep this record in a safe place and bring it with you every time you seek medical care. Make sure your healthcare provider records all your vaccinations on it.

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www.immunize.org/catg.d/p4065.pdf • Item #P4065 (4/18)

Information for Healthcare Professionals about the Screening Checklist for Contraindications to Vaccines for Adults

Are you interested in knowing why we included a certain question on the screening checklist? If so, read the information below. If you want to find out even more, consult the references listed at the end.

1. Are you sick today? *[all vaccines]*

There is no evidence that acute illness reduces vaccine efficacy or increases vaccine adverse events.[1] However, as a precaution with moderate or severe acute illness, all vaccines should be delayed until the illness has improved. Mild illnesses (such as upper respiratory infections or diarrhea) are NOT contraindications to vaccination. Do not withhold vaccination if a person is taking antibiotics.

2. Do you have allergies to medications, food, a vaccine component, or latex? *[all vaccines]*

An anaphylactic reaction to latex is a contraindication to vaccines that contain latex as a component or as part of the packaging (e.g., vial stoppers, prefilled syringe plungers, prefilled syringe caps). If a person has anaphylaxis after eating gelatin, do not administer vaccines containing gelatin. A local reaction to a prior vaccine dose or vaccine component, including latex, is not a contraindication to a subsequent dose or vaccine containing that component. For information on vaccines supplied in vials or syringes containing latex, see reference 2; for an extensive list of vaccine components, see reference 3.

People with egg allergy of any severity can receive any IIV or RIV that is otherwise appropriate for the patient's age. The safety of LAIV in egg allergic people has not been established. For people with a history of severe allergic reaction to egg involving any symptom other than hives (e.g., angioedema, respiratory distress), or who required epinephrine or another emergency medical intervention, the vaccine should be administered in a medical setting, such as a clinic, health department, or physician office. Vaccine administration should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions.[4]

3. Have you ever had a serious reaction after receiving a vaccination? *[all vaccines]*

History of anaphylactic reaction (see question 2) to a previous dose of vaccine or vaccine component is a contraindication for subsequent doses.[1] Under normal circumstances, vaccines are deferred when a precaution is present. However, situations may arise when the benefit outweighs the risk (e.g., during a community pertussis outbreak).

4. Do you have a long-term health problem with heart disease, lung disease, asthma, kidney disease, metabolic disease (e.g., diabetes), anemia, or other blood disorder? *[MMR, LAIV]*

A history of thrombocytopenia or thrombocytopenic purpura is a precaution to MMR vaccine. The safety of intranasal live attenuated influenza vaccine (LAIV) in people with these conditions has not been established. These conditions, including asthma in adults, should be considered precautions for the use of LAIV.

5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem? *[LAIV, MMR, VAR, ZVL]*

Live virus vaccines (e.g., LAIV, measles-mumps-rubella [MMR], varicella [VAR], zoster vaccine live [ZVL]) are usually contraindicated in immunocompromised people. However, there are exceptions. For example, MMR vaccine is recommended and varicella vaccine should be considered for adults with CD4+ T-lymphocyte counts of greater than or equal to 200 cells/μL. Immunosuppressed people should not receive LAIV. For details, consult the ACIP recommendations.[4,5,6]

6. In the past 3 months, have you taken medications that affect your immune system, such as cortisone, prednisone, other steroids, or anticancer drugs; drugs for the treatment of rheumatoid arthritis, Crohn's disease, or psoriasis; or have you had radiation treatments? *[LAIV, MMR, VAR, ZVL]*

Live virus vaccines (e.g., LAIV, MMR, VAR, ZVL) should be postponed until after chemotherapy or long-term high-dose steroid therapy has ended. For details and length of time to postpone, consult the ACIP statement.[1,7] Some immune mediator and immune modulator drugs (especially the anti-tumor necrosis factor agents adalimumab, infliximab, etanercept, golimumab, and certolizumab pegol) may be immunosuppressive. The use of live vaccines should be avoided in persons taking these drugs (see www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html). To find specific vaccination schedules for stem cell transplant (bone marrow transplant) patients, see reference 7. LAIV can be given only to healthy non-pregnant people ages 2 through 49 years.

7. Have you had a seizure or a brain or other nervous system problem? *[influenza, Td/Tdap]*

Tdap is contraindicated in people who have a history of encephalopathy within 7 days following DTP/DTaP. An unstable progressive neurologic problem is a precaution to the use of Tdap. For people with stable neurologic disorders (including seizures) unrelated to vaccination, or for people with a family history of seizure, vaccinate as usual. A history of Guillain-Barré syndrome (GBS) is a consideration with the following: 1) Td/Tdap: if GBS has occurred within 6 weeks of a tetanus-toxoid vaccine and decision is made to continue vaccination, give Tdap instead of Td if no history of prior Tdap; 2) Influenza vaccine (IIV/LAIV): if GBS has occurred within 6 weeks of a prior influenza vaccine, vaccinate with IIV if at increased risk for severe influenza complications.

8. During the past year, have you received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug? *[LAIV, MMR, VAR, ZVL]*

Certain live virus vaccines (e.g., LAIV, MMR, VAR, ZVL) may need to be deferred, depending on several variables. Consult the most current ACIP recommendations for current information on intervals between antiviral drugs, immune globulin or blood product administration and live virus vaccines.[1]

9. For women: Are you pregnant or is there a chance you could become pregnant during the next month? *[HPV, IPV, MMR, LAIV, VAR, ZVL]*

Live virus vaccines (e.g., MMR, VAR, ZVL, LAIV) are contraindicated one month before and during pregnancy because of the theoretical risk of virus transmission to the fetus. Sexually active women in their childbearing years who receive live virus vaccines should be instructed to avoid pregnancy for one month following receipt of the vaccine. On theoretical grounds, inactivated poliovirus vaccine should not be given during pregnancy; however, it may be given if risk of exposure is imminent and immediate protection is needed (e.g., travel to endemic areas). Inactivated influenza vaccine and Tdap are both recommended during pregnancy. Both vaccines may be given at any time during pregnancy but the preferred time for Tdap administration is at 27–36 weeks' gestation. HPV vaccine is not recommended during pregnancy.[1,4,5,6,8,9]

10. Have you received any vaccinations in the past 4 weeks? *[LAIV, MMR, VAR, yellow fever, ZVL]*

People who were given either LAIV or an injectable live virus vaccine (e.g., MMR, VAR, ZVL, yellow fever) should wait 28 days before receiving another vaccination of this type. Inactivated vaccines may be given at any spacing interval if they are not administered simultaneously.

REFERENCES

1. CDC. General best practice guidelines for immunization. Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP) at www.cdc.gov/hcp/acip-recs/general-recs/index.html.
2. Latex in Vaccine Packaging: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/latex-table.pdf.
3. Table of Vaccine Components: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.
4. CDC. Prevention and control of seasonal influenza with vaccines: Recommendations of the Advisory Committee on Immunization Practices – United States, 2017–18 Influenza Season at www.cdc.gov/mmwr/volumes/66/rr/pdfs/rr6602.pdf.
5. CDC. Measles, mumps, and rubella – vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps. *MMWR* 1998; 47 (RR-8).
6. CDC. Prevention of varicella: Recommendations of the Advisory Committee on Immunization Practices. *MMWR* 2007; 56 (RR-4).
7. Tomblyn M, Einsele H, et al. Guidelines for preventing infectious complications among hematopoietic stem cell transplant recipients: a global perspective. Biol Blood Marrow Transplant 15:1143–1238; 2009 at www.cdc.gov/vaccines/pubs/hemato-cell-transplts.htm.
8. CDC. Notice to readers: Revised ACIP recommendation for avoiding pregnancy after receiving a rubella-containing vaccine. *MMWR* 2001; 50 (49).
9. CDC. Updated recommendations for use of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap) in pregnant women: Recommendations of the ACIP. *MMWR* 2012; 62 (7):131–4.

How to Administer Intramuscular and Subcutaneous Vaccine Injections

Administration by the Intramuscular (IM) Route

Administer these vaccines via IM route

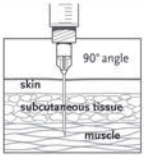
- Diphtheria-tetanus-pertussis (DTaP, Tdap)
- Diphtheria-tetanus (DT, Td)
- *Haemophilus influenzae* type b (Hib)
- Hepatitis A (HepA)
- Hepatitis B (HepB)
- Human papillomavirus (HPV)
- Inactivated influenza (IIV)
- Meningococcal serogroups A,C,W, Y (MenACWY)
- Meningococcal serogroup B (MenB)
- Pneumococcal conjugate (PCV13)
- Zoster, recombinant (RZV)

Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or subcutaneously (Subcut).

PATIENT AGE	INJECTION SITE	NEEDLE SIZE
Newborn (0–28 days)	Anterolateral thigh muscle	⅝"* (22–25 gauge)
Infant (1–12 mos)	Anterolateral thigh muscle	1" (22–25 gauge)
Toddler (1–2 years)	Anterolateral thigh muscle	1–1¼" (22–25 gauge)
	Alternate site: Deltoid muscle of arm if muscle mass is adequate	⅝*–1" (22–25 gauge)
Children (3–10 years)	Deltoid muscle (upper arm)	⅝*–1" (22–25 gauge)
	Alternate site: Anterolateral thigh muscle	1–1¼" (22–25 gauge)
Children and adults (11 years and older)	Deltoid muscle (upper arm)	⅝†–1" (22–25 gauge)
	Alternate site: Anterolateral thigh muscle	1–1½" (22–25 gauge)

* A ⅝" needle usually is adequate for neonates (first 28 days of life), preterm infants, and children ages 1 through 18 years if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin.

† A ⅝" needle may be used in patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the skin is stretched flat between the thumb and forefinger and the needle is inserted at a 90° angle to the skin; a 1" needle is sufficient in patients weighing 130–152 lbs (60–70 kg); a 1–1½" needle is recommended in women weighing 153–200 lbs (70–90 kg) and men weighing 153–260 lbs (70–118 kg); a 1½" needle is recommended in women weighing more than 200 lbs (91 kg) or men weighing more than 260 lbs (118 kg).



Needle insertion

Use a needle long enough to reach deep into the muscle.

Insert needle at a 90° angle to the skin with a quick thrust.

(Before administering an injection of vaccine, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.[¶])

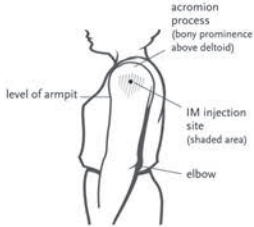
Multiple injections given in the same extremity should be separated by a minimum of 1", if possible.

¶ CDC. "General Best Practices Guidelines for Immunization: Best Practices Guidance of the ACIP" at https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf

Intramuscular (IM) injection site for infants and toddlers

Insert needle at a 90° angle into the anterolateral thigh muscle.

Intramuscular (IM) injection site for children and adults



Give in the central and thickest portion of the deltoid muscle – above the level of the armpit and approximately 2–3 fingerbreadths (~2") below the acromion process. See the diagram. To avoid causing an injury, do not inject too high (near the acromion process) or too low.

CONTINUED ON THE NEXT PAGE ▶

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Technical content reviewed by the Centers for Disease Control and Prevention

Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

www.immunize.org/catg.d/p2020.pdf • Item #P2020 (1/18)

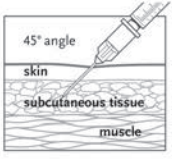
Administration by the Subcutaneous (Subcut) Route

Administer these vaccines via Subcut route

- Measles, mumps, and rubella (MMR)
- Varicella (VAR)
- Zoster, live (ZVL)

Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPSV23) vaccines either IM or Subcut.

PATIENT AGE	INJECTION SITE	NEEDLE SIZE
Birth to 12 months	Fatty tissue overlying the anterolateral thigh muscle	⅝" (23–25 gauge)
12 months and older	Fatty tissue overlying the anterolateral thigh muscle or fatty tissue over triceps	⅝" (23–25 gauge)



Needle insertion

Pinch up on subcutaneous tissue to prevent injection into muscle.

Insert needle at 45° angle to the skin.

(Before administering an injection of vaccine, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.*)

Multiple injections given in the same extremity should be separated by a minimum of 1".

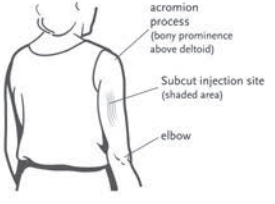
* CDC. "General Best Practices Guidelines for Immunization: Best Practices Guidance of the ACIP" at https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/

Subcutaneous (Subcut) injection site for infants

Subcut injection site (shaded area)

Insert needle at a 45° angle into fatty tissue of the anterolateral thigh. Make sure you pinch up on subcutaneous tissue to prevent injection into the muscle.

Subcutaneous (Subcut) injection site for children (after the 1st birthday) and adults



Insert needle at a 45° angle into the fatty tissue overlying the triceps muscle. Make sure you pinch up on the subcutaneous tissue to prevent injection into the muscle.

ANAPHYLAXIS

Anaphylaxis is a medical emergency. Onset and severity of anaphylaxis may vary considerably. Anaphylaxis usually begins within minutes of exposure to the causative agent, and, in general, the more rapid the onset, the more severe the overall course. Anyone administering vaccine should be prepared to recognize and treat systemic anaphylaxis.

Signs and symptoms of Anaphylactic Reactions include:

(1) *cutaneous*: pruritis, flushing, urticaria, angioedema;
(2) *respiratory*: hoarse voice and stridor, cough, wheeze, dyspnea, cyanosis;
(3) *cardiovascular*: rapid weak pulse, hypotension, arrhythmias;
(4) *gastrointestinal*: cramps, vomiting, diarrhea, dry mouth

From: Red Book (2018) Report of the Committee on Infectious Diseases, 31st Edition, American Academy of Pediatrics, p.65.

VAERS

What is VAERS?
The Vaccine Adverse Event Reporting System (VAERS) is a national vaccine safety surveillance program co-sponsored by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA). VAERS collects and analyzes information from reports of adverse events following immunization. By monitoring such events, VAERS helps to identify any important new safety concerns and thereby assists in ensuring that the benefits of vaccines continue to be far greater than the risks.

What events should I report to VAERS?
VAERS encourages the reporting of any clinically significant adverse event that occurs after the administration of any vaccine licensed in the United States. You should report clinically significant adverse events even if you are unsure whether a vaccine caused the event.

The National Childhood Vaccine Injury Act requires health care providers to report:
- Any event listed by the vaccine manufacturer as a contraindication to subsequent doses of the vaccine.
- Any event listed in the Reportable Events Table* that occurs within the specified time period after vaccination.

*A copy of the Reportable Events Table can be obtained from the VAERS web site at https://vaers.hhs.gov/resources/infoproviders.html or by calling VAERS at 1-800-822-7967.

Who can report to VAERS?
Anyone can report to VAERS: healthcare providers, vaccine manufacturers, state immunization programs, vaccine recipients and / or their families.

How do I report to VAERS?

There are two ways to submit an online Report to VAERS at https://vaers.hhs.gov/reportevent.html -
- Option 1- Report online to VAERS (preferred). The report must be completed online and submitted in one sitting and cannot be saved and returned to a later time.
- Option 2- Download the writable PDF form to a computer and complete the VAERS report offline. Once the form is completed upload and submit to VAERS.

Private health care providers should send completed VAERS forms directly to VAERS via options listed above.

Public health care providers should send completed VAERS forms to the state immunization program by fax to 404-657-1463 or mail to: 2 Peachtree Street, Atlanta, Georgia 30303.

Policy Guide 3231REQ

Vaccine Requirements for Attending Facilities and Schools in Georgia

Relative to the Certificate of Immunization (Form 3231)

Required Doses for Attendance in Facilities and Schools For Children Who Started Immunizations Before Age 7 Years*

Required Vaccines with footnote numbers in [ ]	2 Months of Age	4 Months of Age	6 Months of Age	12 Months of Age	15 Months of Age	18 Months of Age	24 Months of Age	4-6 Yrs.* (School Entry)	**Total Doses Required** For Checking Complete For School Attendance Box on Immunization Certificate**
[1] DTP, DTaP, DT	1	2	3	4				5	**4 or 5 (See Footnote [1])**
[2]Hepatitis B	1	2		3					**3 (See Footnote [2])**
[3]Hib PRP-T or	1	2	3	4					**N/A for school (See Footnote [3])**
[3]Hib PRP-OMP	1	2		3					**N/A for school (See Footnote [3])**
[4]Polio	1	2		3				4	**3 or 4 (See Footnote [4])**
[5]MMR				1				2	**2 (See Footnote [5])**
[6] Varicella				1				2	**2 (See Footnote [6])**
[7] PCV	1	2	3	4					**N/A for school (See Footnote [7])**
[8] Hepatitis A				1			2		**(See Footnote [8])**

*These requirements were established in accordance with the current Recommended Childhood and Catch-Up Immunization Schedules, United States. (See references on reverse side.) Georgia requirements for Kindergarten (5 years) include doses indicated for 4-6 years.

**Children who are behind schedule may attend while in the process of completing the requirements with minimum intervals as indicated below.

Minimum Ages For Initial Immunization And Minimum Intervals Between Doses

Vaccine	Minimum Age For For First Dose	Minimum interval from dose 1 to 2	Minimum interval from dose 2 to 3	Minimum interval from dose 3 to 4	Minimum interval from dose 4 to 5
[1] DTP/DTaP (DT)	6 weeks	1 month	1 month	6 months	See Footnote [1]
[2] Hepatitis B	birth	1 month	See Footnote [2]	N/A	N/A
[3]Hib(Primary Series)					
PRP-T (ActHIB)	6 weeks	1 month	1 month	See Footnote [3]	N/A
PRP-OMP (Pedvax)	6 weeks	1 month	See Footnote [3]	N/A	N/A
[4] Polio	6 weeks	1 month	1 month	See Footnote [4]	N/A
[5] MMR	12 months	1 month	N/A	N/A	N/A
[6] Varicella	12 months	3 months	N/A	N/A	N/A
[7] PCV	6 weeks	1 month	1 month	See Footnote [7]	N/A
[8] Hepatitis A	12 months	6 months			

With respect to these intervals, 1 month is a minimum of 4 weeks or 28 days.

Don't restart any series, no matter how long since the previous dose. Doses given ≤ 4 days before the minimum age or the minimum interval may be counted as valid. Two different live vaccines must be given on the same day or spaced at least 28 days apart.

[1] One dose of DTP/DTaP/DT must be on or after the 4th birthday. If the 4th dose was on or after the 4th birthday, the 5th dose is not needed. The 4th dose should be administered a minimum of 6 months after the 3rd dose. However, the 4th dose does not need to be repeated if administered ≥ 4 months after dose 3. Total doses of diphtheria and tetanus toxoids should not exceed 6 before the 7th birthday.

[2] The 3rd dose of Hepatitis B vaccine should be given a minimum of 4 months after the 1st dose and 2 months after the 2nd dose and not before 24 weeks of age.

[3] The number of doses of Hib depends on age at 1st dose and brand of vaccine given. The last dose in the series, whether 3rd or 4th, should be given at least 2 months after the previous dose and not before 12 months of age. Hib is required for children younger than 5 years attending facilities. Hib is not required for admission to kindergarten (5 years) through grade 12 and is not indicated for children who have reached the 5th birthday. One dose is sufficient if it is given at age 15 months or later. Brand names for PRP-T is ActHIB. The brand name for PRP-OMP is Pedvax Hib and the Hib component of Comvax(Hepatitis B-Hib) is Pedvax Hib.

[4] Booster dose must be given on or after the 4th birthday and a 6 month interval is required between the last dose of the primary series and the booster dose. If the 3rd dose of all IPV or all OPV series is given on or after the 4th birthday, a 4th dose is not required provided there is a 6 month interval since the previous dose.

[5] The MMR requirement is 2 doses of measles vaccine, 2 doses of mumps vaccine and 1 dose of rubella vaccine . The vaccines may be given as MMR or MMRV (combined antigens) or as single antigens. single antigens.

[6] The varicella requirement is for 2 doses of varicella-containing vaccine for entry into any level, K-12. **(See Side 2 of REQ, Footnote [4])**.These may be administered as single dose varicella or in combination as MMRV.

[7] The number of doses in the PCV series depends on age at 1st dose. The last dose in the series should be given at least 2 months after the previous dose and not before 12 months of age.

[8] Hepatitis A vaccine should be administered to all children born on or after 1-1-06.

Rev. 07/2014

Policy Guide 3231REQ

Vaccine Requirements for Attending Facilities and Schools in Georgia

Relative to the Certificate of Immunization (Form 3231)

Required Doses for Attendance in Schools For Children Who Started Immunizations At Age 7 Years or Older*

Required Vaccines** with footnote numbers in [ ]	First Visit	1 Month After First	1 Month After Second	1 Month After Third	4 Months After First	6 Months After Previous	Total Doses Required*** For Checking Complete For School Attendance Box on Immunization Certificate
[1]Hepatitis B Engerix 10 mcg or Recombivax 5 mcg	1	2			3		3 (See Footnote [1])
Recombivax 10 mcg (11-15 years only)	1				2		2 (See Footnote [1])
[2]Polio	1	2	3			4 or 3	4 or 3 (See Footnote [2])
[3]MMR	1	2					2 (See Footnote [3])
[4]Varicella	1	2					2 (See Footnote [4])
[5]Td/Tdap	1(Tdap)	2(Td)				3(Td)	3 (See Footnote [5])
[6] Meningococcal	1						1 (See Footnote [6])

*These requirements were established in accordance with the current Recommended Childhood Immunization Schedule, United States. See References.

**There are other vaccines included in the Childhood Immunization Schedule that are recommended routinely but are not required in GA for child care or school attendance.

***Children who are behind schedule may attend while in the process of completing requirements with minimum intervals indicated above. With respect to these intervals, 1 month is a minimum of 4 weeks or 28 days.

Footnotes:

[1] The 3rd dose of Hepatitis B Engerix-B 10 mcg or Recombivax-HB 5 mcg should be given a minimum of 4 months after the 1st dose and 2 months after the 2nd dose. A 3rd dose is not needed when 2 doses of Adult Recombivax-HB 10 mcg are given when a child is 11-15 years old and the 2 doses are at least 4 months apart. Documentation of the vaccine brand of this alternate schedule is very important, especially when issuing the 3231 certificate.

[2] If the 3rd dose of all IPV or OPV series is given on or after the 4th birthday, a 4th dose is not required provided there is a 6 month interval since the previous dose.

[3] The MMR requirement is 2 doses of measles vaccine, 2 doses of mumps vaccine and 1 dose of rubella vaccine . The vaccines may be given as MMR or MMRV (combined antigens) or as single antigens.

[4] Two doses of varicella vaccine are required for children entering school at any level, K-12, for the first time. For children already enrolled, the second dose is required at 6th grade. If given before age 12, the doses should be separated by 3 months, however, the 2nd dose does not need to be repeated if administered≥ 1 month after 1st dose. If given on or after the 13th birthday, the doses should be separated by 4 or more weeks.

[5] One dose of Tdap is required for 7th grade. Tdap can be administered regardless of the interval since the last Td. If a primary series is indicated, one dose preferably the first dose, should be Tdap. A dose of Tdap given on or after the 7th birthday meets school requirement.

[6] One dose of MCV4 is required for 7th grade; administer MCV4 vaccine routinely at age 11-12 years. A dose of MCV4 given on or after the 10th birthday meets school requirement.

References:

Official Code of Georgia Annotated, Section 20-2-771
Rules of the Department of Public Health, Chapter **511-2-2**
Georgia Immunization Program Manual
Georgia VFC Program Manual
Recommendations of the Advisory Committee on Immunization Practices (ACIP)
The Red Book - Report of the Committee on Infectious Diseases
Recommended Childhood & Catch-Up Immunization Schedules, U.S.:
Centers for Disease Control and Prevention
American Academy of Pediatrics (AAP)
Approved by ACIP, AAP and American Academy of Family Physicians (AAFP)

Rev. 07/2014

TIPS for Vaccine Storage and Handling

Assign Responsibility of Handling Vaccines

One person should take primary responsibility for handling vaccines, but a back-up person should also be designated. Every employee should know what to do if a vaccine shipment arrives.

Check Vaccine Shipments

Examine shipments carefully, checking the cooler and contents for physical damage. Compare contents to packing slips. Check the shipping date. Document vaccines received on inventory log.

Store in Appropriate Type of Refrigerator or Freezer

CDC recommends stand-alone units, meaning self-contained units that only refrigerate or freeze suitable for vaccine storage (no dorm-style refrigerators). Food and beverages should not be stored with vaccines!

Store in Appropriate Location in Refrigerator and Freezer

Vaccines should be stored in the center, allowing for proper ventilation. Do NOT store in doors, vegetable bins, loc-tight containers, on the bottom, or near the sides of the unit.

Keep Vaccines Organized

Rotate stock, routinely checking expiration dates. Label open vials. Keep VFC stock separate from privately purchased vaccines.

Check and Document Temperatures

VFC providers are required to check and record storage unit minimum and maximum temperatures at the start of each workday. If storage unit does not display **min** and **max** temperatures, then record the current temperature a minimum of 2 times per day (at the start and end of workday). This should be done even if there is a temperature alarm.

- Take all temperatures in *either* Fahrenheit or Celsius
- Record ambient room temperature as well (a standard household thermometer is sufficient for this purpose
- Keep temperature log posted on refrigerator and keep records for at least 3 years

If Temperatures are Outside of Ranges for the Refrigerator and/or Freezer, Take Appropriate Actions

- Notify primary/alternate vaccine coordinator or immediate supervisor
- Store the vaccine under proper conditions as quickly as possible
- Temporarily mark exposed vaccines **"DO NOT USE"** until you have verified whether or not the vaccine may be used
- Phone manufacturer of vaccine or VFC (404-657-5013) to check on viability of vaccine. Do NOT immediately discard vaccine!
- Document the action taken

Have a Routine Vaccine S&H Plan/Emergency Vaccine Retrieval and Storage Plan

Identify alternate personnel, locations and equipment to provide temporary storage for vaccines in the event of a power failure or natural disaster. Update plan annually!

Take Other Preventive Measures

Avoid using power outlets with built-in circuit switches. Use a safety-lock or an outlet cover. Post warning signs at the plug and on the refrigerator/freezer units. Label fuses and circuit breakers. Install a temperature alarm. Use water bottles and frozen coolant packs. Check door seals. Clean the coils and motor. Install back-up generators.

Required Temperature Ranges					
Fahrenheit	**Min**	**Max**	**Celsius**	**Min**	**Max**
Freezer	**-58**	5	**Freezer**	**-50**	-15
Refrigerator	36	46	**Refrigerator**	2	8

Recommended and Minimum Ages and Intervals Between Doses of Routinely Recommended Vaccines[1,2,3,4]

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Recommended interval to next dose	Minimum interval to next dose
Diphtheria-tetanus-acellular pertussis (DTaP)-1[5]	2 months	6 weeks	8 weeks	4 weeks
DTaP-2	4 months	10 weeks	8 weeks	4 weeks
DTaP-3	6 months	14 weeks	6-12 months[6]	6 months[6]
DTaP-4	15-18 months	15 months[6]	3 years	6 months
DTaP-5[7]	4-6 years	4 years	—	—
Haemophilus influenzae type b (Hib)-1[8]	2 months	6 weeks	8 weeks	4 weeks
Hib-2	4 months	10 weeks	8 weeks	4 weeks
Hib-3[9]	6 months	14 weeks	6-9 months	8 weeks
Hib-4	12-15 months	12 months	—	—
Hepatitis A (HepA)-1[5]	12-23 months	12 months	6-18 months	6 months
HepA-2	≥18 months	18 months	—	—
Hepatitis B (HepB)-1[10]	Birth	Birth	4 weeks-4 months	4 weeks
HepB-2	1-2 months	4 weeks	8 weeks-17 months	8 weeks
HepB-3[11]	6-18 months	24 weeks	—	—
Herpes zoster Live (ZVL)[12]	≥60 years	60 years	—	—
Herpes zoster Recombinant (RZV)-1	≥50 years	18 years	2-6 months	4 weeks
RZV-2	≥50 years (+2-6 months)	50 years	—	—
Human papillomavirus (HPV)-1[13]	11-12 years	9 years	8 weeks	4 weeks
HPV-2	11-12 years (+ 2 months)	9 years (+ 4 weeks)	4 months	12 weeks[13]
HPV-3[13,14]	11-12 years (+ 6 months)	9 years (+5 months)	—	—
Influenza, inactivated (IIV)[15]	≥6 months	6 months[16]	4 weeks	4 weeks
Influenza, live attenuated (LAIV)[15]	2-49 years	2 years	4 weeks	4 weeks
Measles-mumps-rubella (MMR)-1[17]	12-15 months	12 months	3-5 years	4 weeks
MMR-2[17]	4-6 years	13 months	—	—
Meningococcal conjugate (MenACWY)-1[18]	11-12 years	6 weeks[19]	4-5 years	8 weeks
MenACWY-2	16 years	11 years[20] (+ 8 weeks)	—	—
Pneumococcal conjugate (PCV13)-1[8]	2 months	6 weeks	8 weeks	4 weeks
PCV-2	4 months	10 weeks	8 weeks	4 weeks
PCV-3	6 months	14 weeks	6 months	8 weeks
PCV-4	12-15 months	12 months	—	—
Pneumococcal polysaccharide (PPSV)-1	—	2 years	5 years	5 years
PPSV-2[21]	—	7 years	—	—
Poliovirus, Inactivated (IPV)-1[5]	2 months	6 weeks	8 weeks	4 weeks
IPV-2	4 months	10 weeks	8 weeks-14 months	4 weeks
IPV-3	6-18 months	14 weeks	3-5 years	6 months
IPV-4[22]	4-6 years	4 years	—	—
Rotavirus (RV)-1[23]	2 months	6 weeks	8 weeks	4 weeks
RV-2	4 months	10 weeks	8 weeks	4 weeks
RV-3[23]	6 months	14 weeks	—	—
Tetanus-diphtheria (Td)	11-12 years	7 years	10 years	5 years
Tetanus-diphtheria-acellular pertussis (Tdap)[24]	≥11 years	7 years	—	—
Varicella (Var)-1[17]	12-15 months	12 months	3-5 years	12 weeks[25]
Var-2[17]	4-6 years	15 months[26]	—	—

Centers for Disease Control and Prevention
Epidemiology and Prevention of Vaccine-Preventable Diseases, 13th Edition

May 2018

1 Combination vaccines are available. Use of licensed combination vaccines is generally preferred to separate injections of their equivalent component vaccines. When administering combination vaccines, the minimum age for administration is the oldest age for any of the individual components. The minimum interval between doses is equal to the greatest interval of any of the individual components.

2 Information on travel vaccines including typhoid, Japanese encephalitis, and yellow fever, is available at www.cdc.gov/travel. Information on other vaccines that are licensed in the US but not distributed, including anthrax and smallpox, is available at https://emergency.cdc.gov/bioterrorism/.

3 "Months" refers to calendar months.

4 A hyphen used to express a range (as in "12-15 months") means "through."

5 Combination vaccines containing a hepatitis B component (Pediarix and Twinrix) are available. These vaccines should not be administered to infants younger than 6 weeks because of the other components (i.e., Hib, DTaP, HepA, and IPV).

6 The minimum recommended interval between DTaP-3 and DTaP-4 is 6 months. However, DTaP-4 need not be repeated if administered at least 4 months after DTaP-3. This is a special grace period of 2 months, which can be used when evaluating records retrospectively. An additional 4 days should not be added to this grace period prospectively, but can be added retrospectively.

7 If a fourth dose of DTaP is given on or after the fourth birthday, a fifth dose is not needed.

8 Children receiving the first dose of Hib or PCV13 vaccine at age 7 months or older require fewer doses to complete the series.

9 If PedvaxHib is administered at ages 2 and 4 months, a dose at age 6 months is not required. The minimum age for the final dose is 12 months.

10 Adjuvented Hepatitis B vaccine (Heplisav-B) can be administered to adults 18 years old and older on a two-dose schedule, the first and second doses separated by 4 weeks.

11 HepB-3 should be administered at least 8 weeks after HepB-2 and at least 16 weeks after HepB-1, and should not be administered before 24 weeks of age.

12 Herpes zoster live vaccine (Zostavax) is recommended as a single dose for persons 60 years of age and older.

13 Gardasil and Gardasil 9 are approved for males and females 9 through 26 years of age. The minimum age for HPV-3 is based on the baseline minimum age for the first dose (i.e., 9 years) and the minimum interval of 5 months between the first and third dose. Dose 3 need not be repeated if it is administered at least 5 months after the first dose, and if the intervals between doses 1 and 2, and doses 2 and 3, are 4 weeks and 12 weeks, respectively.

14 A two-dose HPV vaccine schedule is recommended for most persons who begin the series before the 15th birthday. See www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6549a5.pdf for details.

15 One dose of influenza vaccine per season is recommended for most people. Some children younger than 9 years of age should receive 2 doses in a single season. See current influenza recommendations for details.

16 The minimum age for inactivated influenza vaccine varies by vaccine manufacturer. See package inserts for vaccine-specific minimum ages.

17 Combination MMRV vaccine can be used for children 12 months through 12 years of age. See www.cdc.gov/mmwr/pdf/rr/rr5903.pdf for details.

18 Revaccination with meningococcal vaccine is recommended for previously vaccinated persons who remain at high risk for meningococcal disease. See www.cdc.gov/mmwr/pdf/rr/rr6202.pdf for details.

19 High-risk children can receive Menactra as young as 9 months and Menveo as young as 2 months. MenHibrix is given as a four-dose series at 2, 4, 6, and 12-18 months. It can be given as young as 6 weeks for high-risk children.

20 For routine, non-high risk adolescent vaccination, the minimum age for the booster dose is 16 years.

21 A second dose of PPSV23 5 years after the first dose is recommended for persons ≤65 years of age at highest risk for serious pneumococcal infection, and for those who are likely to have a rapid decline in pneumococcal antibody concentration. See www.cdc.gov/mmwr/PDF/rr/rr4608.pdf for details.

22 A fourth dose is not needed if the third dose was administered on or after the 4th birthday and at least 6 months after the previous dose.

23 The first dose of rotavirus must be administered no earlier than 6 weeks and no later than 14 weeks 6 days. The vaccine series should not be started for infants 15 weeks 0 days or older. Rotavirus vaccine should not be administered to children older than 8 months 0 days, regardless of the number of doses received before that age. If two doses of Rotarix are administered as age appropriate, a third dose is not necessary.

24 Only one dose of Tdap is recommended. Subsequent doses should be given as Td. For management of a tetanus-prone wound in a person who has received a primary series of a tetanus-toxoid containing vaccine, the minimum interval after a previous dose of any tetanus-containing vaccine is 5 years.

25 A special grace period of 2 months, based on expert opinion, can be applied to the minimum interval of 3 months, when evaluating records retrospectively, which results in an acceptable minimum interval of 4 weeks. An additional 4 days should not be added to this grace period.

26 A special grace period of 2 months, based on expert opinion, can be applied to the minimum age of 15 months when evaluating records retrospectively, which will result in an acceptable minimum age of 13 months. An additional 4 days should not be added to this grace period.

Adapted from Table 3-1, ACIP General Best Practice Guidelines for Immunization. May 2018

DTaP

Diphtheria, Tetanus, & Pertussis

Pathophysiology	**Diphtheria:** Bacteria Respiratory transmission Incubation 2-5 days **Tetanus:** Bacteria Enters the body through a wound Incubation3-21 days **Pertussis:** Bacteria Respiratory transmission Incubation 5-10 days
Vaccine Description	Inactivated polysaccharide vaccine, containing diphtheria toxoid, tetanus toxoid & acellular pertussis. **This vaccine is licensed for administration only to children 6 weeks through 6 years of age.** If child is 7 years of age or older, only Td and Tdap vaccines should be administered. (See Td/Tdap section of this booklet)
Dose & Route	0.5 mL given IM
Administration Schedule *Dose #4 may be administered at 12 months of age if separated by at least 6 months from Dose #3. Dose #4 does not need to be repeated if it has been inadvertently administered ≥ 4 months after Dose #3. The #5 Booster Dose is not needed if Dose #4 is given on or after the 4th birthday.	**Dose** **Recommended Age** 1……..2 months 2……..4 months 3……..6 months 4*……..15-18 months (1st booster dose) 5*……4-6 years (2nd booster dose) **Booster doses:** • *15-18 months of age • *4-6 years of age • 11-12 years of age ○ Tdap vaccine should be given as a booster at 11-12 years of age. Tdap may be administered regardless of the interval since the last tetanus-and diphtheria-toxoid-containing vaccine. (See Td/Tdap section of this booklet) ○ Two diphtheria, tetanus and acellular pertussis vaccines (Tdap) are licensed: ○ Boostrix™ for administration to persons 10 years of age and older ○ Adacel™ for administration to persons 10-64 years of age • Every 10 years thereafter for life ○ Td vaccine should be given every 10 years after the administration of Tdap at 11-12 years of age. (See Td/Tdap section of this booklet)

Minimum Intervals	**Dose Minimum Interval** 1……..6 weeks of age 2……..4 weeks from dose 1 3……..4 weeks from dose 2 4*……No less than 6 months from dose 3 5*……No less than 6 months from dose 4
Contraindications	• Anaphylactic reaction to any of the vaccine components. • Life threatening allergic reaction after a previous dose of DTaP or DT (Pediatric diphtheria and tetanus vaccine which is used in lieu of DTaP only if there is a contraindication to pertussis vaccine.) • Encephalopathy within 7 days of a previous dose not attributable to another identifiable cause
Precautions	• Acute, moderate or severe illness with or without fever. Immunize as soon as illness subsides. • Temperature of 105 degrees within 48 hours after a previous dose of DTP/ DTaP Collapse or shock-like state within 48 hours after receiving a previous dose of DTP/DTaP • Persistent, inconsolable crying lasting >3 hours, occurring within 48 hours • Convulsions with or without fever occurring within 3 days

Td/Tdap

Tetanus, Diphtheria & Tetanus. Diphtheria and Pertussis

Pathophysiology	**Diphtheria:** Bacteria Respiratory transmission Incubation 2-5 days **Tetanus:** Bacteria Enters the body through a wound Incubation 3-21 days **Pertussis:** Bacteria Respiratory transmission Incubation 5-10 days
Vaccine Description	• Inactivated polysaccharide vaccine, containing diphtheria toxoid, tetanus toxoid & acellular pertussis • Two diphtheria, tetanus and acellular pertussis vaccines (Tdap) are licensed: o Boostrix™ for administration to persons 10 years of age and older o Adacel™ for administration to persons 10-64 years of age
Dose & Route	0.5 mL given IM
Administration Schedule Tdap can be administered regardless of interval since the last tetanus-or diphtheria-toxoid containing vaccine. *Fully vaccinated is defined as 5 doses of DTaP or 4 doses of DTaP if the fourth dose was administered on or after the fourth birthday.	***Administration schedule for Td/ Tdap booster doses*** ***following a primary DTaP/Td series:**** • Adolescents 11-12 years: 1 dose Tdap ***Catch-up vaccination*** • Adolescents age 13-18 years who have not received Tdap: 1 dose Tdap, then Td booster every 10 years • Persons age 7-18 years not fully immunized with DTaP: 1 dose Tdap as part of catch-up series (preferably the first dose); if additional doses are needed, use Td • 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 • DTaP inadvertently given after the 7th birthday: Child age 7-10 years: DTaP may count as part of catch-up series; routine Tdap dose at 11-12 should be administered. Adolescent age 11-18 years: count dose of DTaP as the adolescent Tdap booster **Dose Minimal Dose Intervals** 1…….0 2…….4 weeks after dose #1 3…….6 months after dose #2

Adults aged 19 and older	***Administration Schedule for Td/ Tdap booster doses*** ***following a primary DTaP/Td series:**** • Td should be given every 10 years following a dose of Tdap. • Adults 19-64 years of age, especially those who have close contact with infants < 1 year of age, should receive a single dose of Tdap to replace a single dose of Td as a booster immunization if they have not already received Tdap. • Adults 65 years and older who have or anticipate having close contact with an infant aged less than 12 months should receive a single dose of Tdap. • Other adults 65 years and older may be given a single dose of Tdap.
Contraindications for Td and Tdap	**Td and Tdap:** • Anaphylactic reaction to any of the vaccine components. • Life threatening allergic reaction after a previous dose of DTP, DTaP, DT, Td or Tdap **Tdap:** • Encephalopathy not attributed to another identifiable cause within 7 days of a previous dose of a pertussis containing vaccine
Precautions	**Td, Tdap:** • Acute, moderate or severe illness with or without fever • Arthus-type hypersensitivity reactions • Guillain-Barré syndrome (GBS) within 6 wks. after a previous dose of tetanus toxoid containing vaccine **Tdap:** • Progressive neurological disorder, uncontrolled epilepsy, or progressive encephalopathy until treatment regimen has been established and condition stabilized
Special Considerations	**Pregnancy/Postpartum:** Pregnant women should receive a dose of Tdap during each pregnancy irrespective of their prior history of receiving Tdap. Optimal timing for Tdap administration is between 27 and 36 weeks of gestation for women not previously vaccinated with Tdap, If Tdap is not administered during pregnancy, Tdap should be administered immediately postpartum. **Wound management:** • For detailed guidelines, refer to wound management guidelines in the ACIP Recommendation Statements for Td and Tdap located at: http://www.cdc.gov/vaccines/hcp/acip-recs/index.html **Simultaneous Administration:** • Tdap and MCV4 should be administered to adolescents 11-18 during the same visit if both vaccines are indicated and available.

DTaP, Tdap, and Td Catch-up Vaccination Recommendations by Prior Vaccine History and Age

This table summarizes the recommendations of CDC's Advisory Committee on Immunization Practices for the use of DTaP, Tdap, and Td in children, adolescents, and adults who are unvaccinated or who have fallen behind.

For use in infants and children through age 6 years

DTaP = Diphtheria and tetanus toxoids with acellular pertussis vaccine

DT (pediatric) = Diphtheria and tetanus toxoids (no pertussis)

For use in children age 7 years and older and adults

Tdap = Tetanus and diphtheria toxoids with acellular pertussis vaccine

Td (adult) = Tetanus and diphtheria toxoids

Current Age of Child or Adult	No. of Prior Documented Doses	Minimum Interval Between Doses of DTaP, Tdap, or Td Starting from the Most Recent Dose Given			
		DOSE 1 TO DOSE 2	DOSE 2 TO DOSE 3	DOSE 3 TO DOSE 4	DOSE 4 TO DOSE 5
4 months through 6 years	Unknown	4 weeks	4 weeks	6 months[1]	6 months[2]
	0	4 weeks	4 weeks	6 months[1]	6 months[2]
	1	4 weeks	4 weeks	6 months[1]	6 months[2]
	2		4 weeks	6 months[1]	6 months[2]
	3			6 months[1]	6 months[2]
	4				6 months[2]
7 through 18 years[3] **or Adults age 19 years and older**[4]	Unknown	4 weeks	6 months		
	0	4 weeks	6 months		
	1	4 weeks	4 weeks, if dose 1 given at younger than age 12 mos; 6 months if dose 1 given at age 12 mos or older	6 months, if dose 1 given at younger than age 12 mos	
	2		4 weeks, if dose 1 given at younger than age 12 mos; 6 months if dose 1 given at age 12 mos or older	6 months, if dose 1 given at younger than age 12 mos	
	3			6 months, if dose 1 given at younger than age 12 mos	

- Children ages 2 months through 6 years should receive DTaP; the pediatric product, DT, should only be used in children with a valid contraindication to the pertussis component.
- The routine schedule for administering DTaP to children is a 3-dose series at age 2, 4, and 6 months, followed by boosters at age 15–18 months and 4–6 years. The first booster may be given at age 12–15 months as long as there is an interval of at least 6 months from the preceding dose.
- Adults who have not completed a 3-dose primary series with Td-containing vaccine, including any doses received as children, should begin or complete a series with Tdap as the first dose administered.
- For children and adults who fall behind in completion of their vaccine series, there is no need to restart the series. Simply resume where they've left off.
- Products manufactured by different companies are interchangeable.
- All adults should receive 1 dose of Tdap, if they haven't previously received Tdap.
- Pregnant women should receive Tdap during each pregnancy, preferably during the early part of gestational weeks 27–36. Women who have never received Tdap and fail to receive it during their pregnancy should receive it immediately postpartum.
- Tdap can be given with no minimum interval since the previous tetanus toxoid-containing product (e.g., DTaP, Td).
- Patients with a history of pertussis should receive DTaP or Tdap according to routine recommendations.
- Patients needing prophylaxis against tetanus should be given DTaP, Tdap, or Td, as appropriate, unless there is a contraindication to the other vaccine components.
- Adults and adolescents who have received Tdap, should be given Td as their subsequent 10-year booster doses. Tdap may be used if Td is not available.

FOOTNOTES

1 Infants should be no younger than age 12 months when receiving dose #4.

2 Dose 5 should be given no younger than age 4 years. Dose 5 is not necessary if dose 4 was given after age 4 years.

3 Children age 7 years or older with an incomplete history of DTaP should be given Tdap as the first dose in the catch-up series. For these children, an additional adolescent Tdap should be given for the routinely recommended adolescent dose at age 11–12 years.

4 Adults of all ages who have never received Tdap as an adolescent or adult, or for whom vaccine status is unknown, should receive Tdap as their first dose, followed by Td to either complete their primary series or as their 10-year boosters.

immunization action coalition
IAC immunize.org
Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org
Technical content reviewed by the Centers for Disease Control and Prevention
www.immunize.org/catg.d/p2055.pdf • Item #P2055 (10/18)

Appendix D

Guide to catch-up vaccination with Td and Tdap for adolescents aged 11–18 years*

Vaccination history before catch-up: number of pediatric DTP/DTaP/DT or Td doses administered before age 11 years		No. of Td/Tdap doses needed to catch-up*†	Minimum interval between doses of tetanus and diphtheria toxoid–containing vaccines*†			
No. doses at age <1 year	No. doses at age 1–10 years		Last dose administered at age <11 years to adolescent dose 1	Adolescent dose 1 to dose 2	Adolescent dose 2 to dose 3	Adolescent dose 3 to dose 4
Unknown	Unknown	3	NA§	4 weeks	6 months	—¶
0	0	3	NA	4 weeks	6 months	—¶
0	1	2	4 weeks	6 months	—¶	NA
0	2	1	6 months	—¶	NA	NA
0	3	0	—**	NA	NA	NA
1	0	3	NA: administer now	4 weeks	6 months	—¶
1	1	2	4 weeks	6 months	—¶	NA
1	2	1	6 months	—¶	NA	NA
1	3	0	—**	N/A	NA	NA
2	0	2	NA: administer now	6 months	—¶	NA
2	1	1	6 months	—¶	NA	NA
2	2	0	—**	NA	NA	NA
3	0	1	NA: administer now	—¶	NA	NA
3	1	0	—**	NA	NA	NA

* Adolescents aged 11–18 years with incomplete vaccination schedules for tetanus and diphtheria should receive a single dose of Tdap as part of catch-up vaccination if they have not received Tdap to add protection against pertussis; Td should be used for other doses if indicated (see text, Routine Tdap Vaccination [1-A]). Pediatric DTaP/DTP/DT vaccines are not indicated for persons aged ≥7 years. See Appendix F for a complete list of vaccine abbreviations.

† Number of doses and the minimum intervals between the last dose administered and the next dose of tetanus and diphtheria toxoid–containing vaccine needed to provide protection against tetanus and diphtheria.

§ Not applicable.

¶ To maintain protection against tetanus and diphtheria, a tetanus and diphtheria toxoid–containing vaccine is indicated 10 years after the last adolescent dose.

** If the adolescent has not received Tdap as one of the doses, a single dose of Tdap is encouraged to add protection against pertussis; an interval of at least 5 years between Td and Tdap is encouraged but shorter intervals can be used (see text, Routine Tdap Vaccination [1-A]).

Centers for Disease Control and Prevention. Preventing tetanus, diphtheria, and pertussis among adolescents: use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2006;55(no. RR-3):39.

Appendix E

Guide to catch-up vaccination with Td for children aged 7–10 years*

Vaccination history before catch-up: number of pediatric DTP/DTaP/DT or Td doses administered before age 7 years		No. of Td/ doses needed to catch-up*†	Minimum interval between doses of tetanus and diphtheria toxoid–containing vaccines*†			
No. doses at age <1 year	No. doses at age 1–6 years		Last pediatric DTP/DTaP/DT dose to Td dose 1 at age ≥7 years	Td dose 1 to Td dose 2	Td dose 2 to Td dose 3	Td dose 3 to Td dose 4
Unknown	Unknown	3	NA§	4 weeks	6 months	—¶
0	0	3	NA	4 weeks	6 months	—¶
0	1	2	4 weeks	6 months	—¶	NA
0	2	1	6 months	—¶	NA	NA
0	3	0	—¶**	NA	NA	NA
1	0	3	NA: administer now	4 weeks	6 months	—¶
1	1	2	4 weeks	6 months	—¶	NA
1	2	1	6 months	—¶	NA	NA
1	3	0	—¶**	NA	NA	NA
2	0	2	NA: administer now	6 months	—¶	NA
2	1	1	6 months	—¶	NA	NA
2	2	0	—¶**	NA	NA	NA
3	0	1	NA: administer now	—¶	NA	NA
3	1	0	—¶**	NA	NA	NA

* Td is recommended for children aged 7–10 years; a single dose of BOOSTRIX® Tdap vaccine is licensed for persons aged 10 years and can be used instead of Td for one of the doses in children aged 10 years. If BOOSTRIX® is administered to a child aged 10 years, the dose counts as the adolescent Tdap dose. Pediatric DTaP/DTP/DT vaccines are not indicated for persons aged ≥7 years. See Appendix F for a complete list of vaccine abbreviations.
† Number of doses and the minimum intervals between the last dose administered and the next dose of tetanus and diphtheria toxoid–containing vaccine needed to provide protection against tetanus and diphtheria.
§ Not applicable.
¶ These children should receive Tdap to provide protection against tetanus, diphtheria and pertussis according to the routine vaccination recommendations for adolescents who completed the pediatric DTP/DTaP series, when they become adolescents aged 11–18 years; an interval of at least 5 years between Td and Tdap is encouraged, but shorter intervals can be used (see text, Routine Tdap Vaccination [1-A]).
** Some experts suggest administering a dose of Td now to children aged 7–10 years with this vaccination history if no dose of a tetanus and diphtheria toxoid–containing vaccine was administered at age ≥4 years.

Centers for Disease Control and Prevention. Preventing tetanus, diphtheria, and pertussis among adolescents: use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2006;55(no. RR-3):40.

Hib
Haemophilus Influenzae type B

Pathophysiology	Bacteria Humans are the only known reservoir Respiratory transmission is presumed
Vaccine Description	Inactivated vaccine
Dose & Route	0.5 mL given IM
Administration Schedule	**Dose Recommended Age** 1 …… 2 months 2 …… 4 months 3 …… 6 months - ***If Pedvax HIB™ vaccines are used at 2 and 4 months of age, a dose at 6 months is not required.*** Booster …….. 12-15 months – ***Depending on which vaccine is used for primary series*** ***Hiberix*** (Haemophilus b Conjugate Vaccine [Tetanus Toxoid Conjugate]) is now approved for use as a 3-dose infant primary vaccination series at ages 2, 4, and 6 months. The first dose may be given as early as 6 weeks of age. Hiberix is also approved for the Booster dose. Booster: One dose at 15 through 18 months of age
Minimum Intervals	**Dose Minimum Interval and Ages** 1 …….. Must be at least 6 weeks of age 2 …….. 4 weeks from dose 1 3 …….. 4 weeks from dose 2 - ***if dose 3 is required*** Booster… 8 weeks from dose 2 or dose 3 and no earlier than 12 months of age
Contraindications	• Anaphylactic reaction following a prior dose of Hib • Defer vaccination in children with moderate or severe acute illness until illness subsides. • Hib conjugate vaccines are contraindicated in children younger than 6 weeks of age. • Persons known to have a severe allergic reaction to any component of the vaccine. • Hiberix prefilled syringes might contain natural rubber latex, and the vial stoppers for, ActHib, and PedvaxHIB contain natural rubber latex, which might cause allergic reactions in persons who are latex-sensitive
Special Considerations The total number of doses required depends upon the age of the child at first dose (See ACIP recommendations)	• Pentacel (combination DTaP/IPV/Hib) can also be used to vaccinate children against Hib infection. • As with all pertussis-containing vaccines, benefits and risk should be considered before administering Pentacel to persons with a history of fever ≥105 degrees F, hypotonic-hyporesponsive episode, persistent inconsolable crying lasting ≥3 hours within 48 hours after receipt of a pertussis-containing vaccine, or seizures within 3 days after receiving a pertussis-containing vaccine

ACIP-Recommended Haemophilus influenzae type b (Hib)
Routine Vaccine Schedule

Type	Vaccine	2 months	4 months	6 months	12-15 months
PRP-T	ActHIB	X (1st)	X (2nd)	X (3rd)	X
	Pentacel*	X (1st)	X (2nd)	X (3rd)	X
	Hiberix	X (1st)	X (2nd)	X (3rd)	X
PRP-OMP	PedvaxHIB	X (1st)	X (2nd)	—	X

***The recommended age for the 4th dose of Pentacel is 15-18 months, but it can be given as early as 12 months, provided at least 6 months have elapsed since the 3rd dose.**

Haemophilus influenzae type b Vaccine Detailed Schedule for
Unvaccinated Children

Vaccine	Age at 1st Dose (months)	Primary series	Booster
PRP-T	2-6	3 doses, 8 weeks apart	12-15 months
	7-11	2 doses, 4 weeks apart	12-15 months
	12-14	1 dose	2 months later
	15-59	1 dose	--
PRP-OMP	2-6	2 doses, 8 weeks apart	12-15 months
	7-11	2 doses, 4 weeks apart	12-15 months
	12-14	1 dose	2 months later
	15-59	1 dose	--

HepA
Hepatitis A (HAV)

Pathophysiology	Virus Transmitted by fecal-oral route Incubation 15-50 days	
Vaccine Description	Inactivated whole virus vaccine	
Dose & Route Note: Both brands are produced in pediatric and adult formulations and are packaged as single dose vials or pre-filled syringes	**Havrix™** Pediatric (12 mos. through 18 years) Adult (≥19 years)	0.5 mL given IM 1 mL given IM
	Vaqta™ Pediatric (12 mos. through 18 years) Adult (≥19 years)	25 units given IM 50 units given IM
	Twinrix™ (HepA & HepB) Adult (≥18 years)	1 mL given IM
Administration Schedule & Minimum Intervals	**Havrix™**	2 doses 0, 6-12 months
	Vaqta™	2 doses 0, 6-18 months
	Twinrix™ (HepA & HepB)	3 doses 0, 1, 6 months
Contraindications	• Anaphylactic reaction following a prior dose of Hep A or to any of its components (alum, 2-phenoxyethanol) • Defer vaccination in persons with moderate or severe acute illness until illness subsides.	
Special Considerations & Instructions Required for children attending child care facilities and schools.	• Recommended for all children 12-23 months of age. • International travel: infants age 6-11 months give 1 dose before departure; revaccinate with 2 doses, separated by 6-11 months between 12 to 23 months of age. Unvaccinated age 12 months and older give 1st dose as soon as travel considered • At risk groups: men who have sex with men, injection or non-injection drug use, homelessness, work with hepatitis A virus, chronic liver disease, clotting factor disorders, or contact with international adoptee • Post-exposure prophylaxis: Recommendation for PEP have been updated to include Hep A vaccine for all unvaccinated persons aged ≥ 12 months, regardless of risk group, and co-administration of IG when indicated.	

HepB
Hepatitis B Vaccine

Pathophysiology	**Hepatitis B Virus (HBV)** Transmitted by parenteral or mucosal exposure to HBsAg-positive blood and body fluids Incubation 45-160 days
Vaccine Description	Recombinant hepatitis B vaccine
Dose & Route:	Intramuscular. Hepatitis B vaccine administered by any route or site other than IM in the anterolateral thigh or deltoid muscle should not be counted as valid.

	Single-Antigen Vaccine					Combination Vaccine			
	Recombivax HB		Engerix-B		Hepit-sav-B	Pediarix		Twinrix	
Age Group	Dose (mcg)[1]	Volume (mL)	Dose (mcg)	Volume (mL)	Volume (mL)	Dose (mcg)[3]	Volume (mL)	Dose mcg)[3]	Volume (mL)
Infants (<1 yr)	5	0.5	10	0.5	N/A	10	0.5	N/A[6]	N/A
Children (1-10 yrs)	5	0.5	10	0.5	N/A	10	0.5	N/A	N/A
Adolescents 11-15 yrs	10[2]	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11-19 yrs	5	0.5	10	0.5	0.5 (18-19 yrs.)	N/A	N/A	N/A	N/A
Adults (≥ 20 yrs)	10	1.0	20	1.0	0.5	N/A	N/A	20	1.0
Hemodialysis patients and other immunocompromised persons < 20 yrs[3]	5	0.5	10	N/A	0.5	N/A	N/A	N/A	N/A
≥ 20 yrs	40[4]	1.0	40[5]	N/A	0.5	N/A	N/A	N/A	N/A
Adolescents and Adults (≥ 18 yrs)					0.5				

Administration Schedule	Dose Recommended Age Minimum Interval 1……Birth 2……1-2 months……4 weeks from dose 1 3……6-18 months……..At least 8 weeks after 2nd dose and at least 16 weeks after 1st dose and infants must be at least 24 weeks of age • All children and adolescents < 19 years and not previously vaccinated with hepatitis B series should be vaccinated at the earliest opportunity. • It is permissible to administer 4 doses of hepatitis B vaccine (e.g., when combination vaccines are given after the birth dose). • Adolescents and adults (≥ 18 years) may receive a 2-dose series of Hep B (Heplisav-B) at least 4 weeks apart. • Adults aged ≥ 20 years at risk for hepatitis B infection or lack a risk factor but want protection should receive 1 mL x 3 doses typically given at 0, 2 & 6 months.
Contraindications	• Anaphylactic reaction following a prior dose of HepB • Persons with hypersensitivity to yeast, yeast products or any vaccine component • Defer vaccination in persons with moderate or severe acute illness until illness subsides. • Prefilled syringes might contain natural rubber latex, which might cause allergic reactions in persons who are latex-sensitive

Special Instructions • **Perinatal HepB website: dph.georgia.gov/ perinatal-hepatitis-b**	Infants born to hepatitis B positive (*HBsAg)* women must receive hepatitis B vaccine and hepatitis B immune globulin (HBIG) within 12 hours of birth regardless of birth weight. Intervention Recommended Age 1st dose……Birth (within 12 hours) HBIG……..Birth (within 12 hours) 2nd dose……1-2 months 3rd dose……6 months PVT*……9-18 months *PVT: Post vaccination Test-includes Hepatitis B Surface Antigen/ HBsAg (infection) and Hepatitis B Surface Antibody/ Anti-HBs (antibody protection) Protocol available in the Georgia Immunization Program Manual For infants weighing less than **2000 grams** at birth: • If the mother is *HBsAg negative*, the 1st dose should be given **at birth or at next doctor's visit** • If the mother is *HBsAg positive or her status is unknown*, the infant should receive the 1st dose within 12 hours of birth regardless of birth weight, dose #2 at age 1 month, dose #3 at 2-4 months, and dose #4 at age 6 months. The infant should be tested at 9-12 months of age for infection and antibody. If the mother is *HBsAg positive*, the infant should also receive HBIG at birth within 12 hours of birth.
Special Populations	• Chronic liver disease • Hepatitis C virus infection • Percutaneous or mucosal risk of exposure to blood • Adults younger than age 60 years with diabetes mellitus or 60 years or older with diabetes mellitus based on individual clinical decision • Adults in pre-dialysis care or receiving hemodialysis or peritoneal dialysis • Current or recent injection drug use • Health care and public safety workers at risk for exposure to blood-contaminated body fluids • Sexual exposure risk; persons seeking evaluation or treatment for a STI; and men who have sex with men • Adults receiving care in settings where a high proportion of adults have risk for hepatitis B infection such as STD treatment center, drug abuse treatment and prevention services, hemodialysis and end-stage renal disease programs, institutions for developmentally disabled persons, health care settings targeting services to injection drug users or MSM, HIV testing and treatment facilities, and correctional facilities • Travel to countries with high or intermediate hepatitis B endemicity

Human Papillomavirus Vaccine

Pathophysiology	Certain types of human papillomavirus can cause squamous cell cervical cancer, cervical adenocarcinoma, and genital warts.
Vaccine Description	9vHPV(Gardasil™) HPV types 6,11,16,18, 31, 33, 45, 52 and 58
Dose & Route	0.5 mL given intramuscularly
Administration Schedule & Minimum Intervals If the HPV vaccine schedule is interrupted, the vaccine series does not need to be restarted.	**2 Dose Schedule (**Persons initiating the 1st dose prior to their 15th birthday**)** **Dose Minimum Interval** Dose 1……0 Dose 2……6-12 months (5 months minimal interval from dose-1) **3 Dose Schedule** (Persons initiating vaccine after their 15th birthday or immunocompromised persons) **Dose Minimum Interval** Dose 1……0 Dose 2……2 months after dose-1 (4 weeks) Dose 3……6 months after dose-1 (12 weeks minimal interval from dose-2 and 24 weeks from dose-1) • Also recommended for males 13 through 21 and females ages 13 through 26 who did not receive the vaccine previously • May be given at the same visit with other vaccines • Should be given to persons with a previous history of HPV infection • recommended for gay and bisexual men • Recommended for men and women with compromised immune systems (including people living with HIV/AIDS) through age 26, if they did not get fully vaccinated when they were younger.

Minimum Age	Minimum age for all HPV vaccine is 9 years.
Contraindications	Anaphylactic reaction to any vaccine component or to previous dose of vaccine
Precautions	• Not recommended for use in pregnant women • Not intended for treatment of active genital warts or cervical cancer • Moderate or severe acute illness with fever
Special Considerations **Remember there is a VIS just for HPV9.**	Vaccination in no way should replace: • routine, periodic cervical cancer screening • protective sexual behaviors • Syncope can occur after vaccination, most commonly among adolescents and young adults. To avoid serious injury related to syncope episode, observation for 15 minutes after administration is recommended. • HPV vaccines are most effective for both males and females when given before first exposure to HPV through sexual contact. • HPV vaccines are not recommended for use in pregnant women. However, pregnancy testing is not needed before vaccination. If a woman is found to be pregnant after initiating the vaccination series, no intervention is needed; the remainder of the 3-dose series should be delayed until completion of pregnancy.

Influenza (IIV)
Inactivated Influenza Vaccine
Recombinant Influenza (RIV) and cell culture-based (ccIIV)

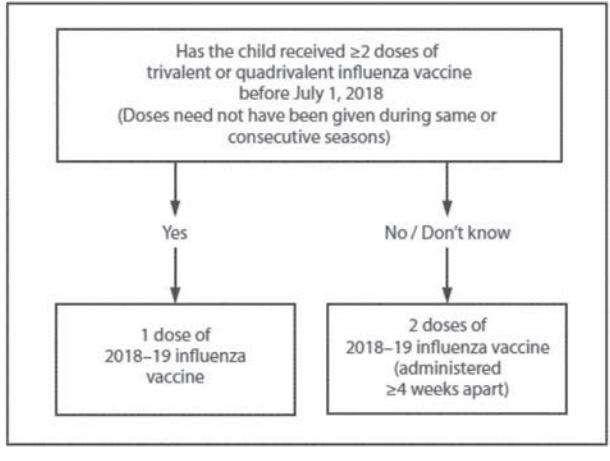
Pathophysiology	Virus Highly contagious Respiratory transmission Virus shed in respiratory secretions for 3-10 days
Vaccine Description	*IIV 3 -Trivalent-* Inactivated, split-virus vaccine composed of 3 virus strains two type A and one type B *IIV4 -Quadrivalent -*Inactivated, split-virus vaccine composed of 4 virus strains two types A and two type B *RIV3* – Recombinant influenza vaccine trivalent RIV4- Recombinant influenza vaccine quadrivalent *ccIIV4-* cell culture-based
Dose & Route	Administer an age-appropriate formulation and dose of influenza vaccine annually.
Brand Information	**Fluzone® sanofi-pasteur (0.25 mL)** Approved for persons 6 months through 35 months **Fluzone® sanofi-pasteur (0.5 mL)** Approved for persons 36 months and older **Fluzone High Dose® sanofi-pasteur (0.5 mL)** Approved for persons 65 years and older **Afluria® Seqirus (IIV3)(IIV4) (0.25 mL)** Approved for persons 6 months through 35 months **Afluria® Seqirus (IIV3)(IIV4) (0.5 mL)** Approved for person 36 months and older **Fluarix™ GSK (0.5 mL)** Approved for persons 6 months of age and older **Fluvirin® Seqirus (0.5 mL)** Approved for persons 4 years of age and older **Flulaval ™ GSK (0.5 mL)** Approved for persons 6 months of age and older **Flublok® (0.5mL)** Approved for persons 18 years and older **Flucelvax® Seqirus (0.5 mL)** Approved for persons 4 years and older **Fluad™ Seqirus (0.5 mL)** Approved for persons 65 years and older
Recommendations	Annual influenza vaccination is recommended for **all** people ages 6 months and older.
Contraindications	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine or to a vaccine component, including egg protein. • Moderate or severe acute illness with or without fever. • History of Guillain-Barre Syndrome (GBS) within 6 weeks of previous influenza vaccination.
Special Considerations	• The best time to give influenza vaccine is October – November; however, influenza vaccine can be administered through May. • It takes approximately 2 weeks for influenza vaccine to be protective. Immunity from influenza vaccine rarely exceeds 1 year and the vaccine virus strains may vary each year.

Influenza (LAIV4)
Live Attenuated Influenza - FluMist™

Pathophysiology	Virus Highly contagious Respiratory transmission Virus shed in respiratory secretions for 3-10 days
Vaccine Description	Live, attenuated, cold-adapted, 0.2ml intranasal quadrivalent vaccine composed of 4 virus strains - two type A and two type B
Dose & Route	0.2 mL dose (0.1 mL per nostril), sprayed into each nostril. If the vaccine recipient sneezes after administration, the dose should not be repeated. However, if nasal congestion is present that might impede delivery of the vaccine to the nasopharyngeal mucosa, deferral of administration should be considered until resolution of the illness, or IIV should be administered instead.
Brand Information	FluMist® MedImmune Approved for persons 2 years – 49 years of age
Recommendations	• Administer influenza vaccine annually to all children beginning at age 6 months. For most healthy, nonpregnant persons aged 2 through 49 years, either LAIV or IIV may be used. However, LAIV should NOT be administered to some persons, including 1) those with asthma, 2) children 2 through 4 years who had wheezing in the past 12 months, or 3) those who have any other underlying medical conditions that predispose them to influenza complications. • When immediately available, LAIV should be used for healthy children aged 2 through 8 years who have no contraindications or precautions.
Contraindications	• Moderate or severe acute illness with or without fever. • History of GBS within 6 weeks of previous influenza vaccination. • Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) 48 hours before vaccination. Avoid use of these antiviral drugs for 14 days after vaccination. • Persons aged <2 years or >49 years • Those with contraindications listed in the package insert • Children aged 2 through 17 years who are receiving aspirin or aspirin-containing products • Persons who have experienced severe allergic reactions to the vaccine or any of its components, or to a previous dose of any influenza vaccine • Pregnant women • Immunosuppressed persons • Persons with a history of egg allergy • Asthma in persons aged 5 years and older. • Children aged 2 through 4 years who have asthma or who have had a wheezing episode noted in the medical record within the past 12 months, or for whom parents report that a health care provider stated that they had wheezing or asthma within the last 12 months • Persons who have taken influenza antiviral medications within the previous 48 hours. • Persons who care for severely immunosuppressed persons who require a protective environment should not receive LAIV or should avoid contact with such persons for 7 days after receipt, given the theoretical risk for transmission of the live attenuated vaccine virus.

Precautions	• Persons of any age with asthma might be at increased risk for wheezing after administration of LAIV • Persons with other underlying medical conditions that might predispose them to complications after wild-type influenza infection (e.g., chronic pulmonary, cardiovascular [except isolated hypertension], renal, hepatic, neurologic, hematologic, or metabolic disorders [including diabetes mellitus] has not been established. These conditions, in addition to asthma in persons aged ≥5 years, should be considered precautions for the use of LAIV.
Special Considerations	• The best time to give influenza vaccine is October - November, however, influenza vaccine can be administered through May. http://www.cdc.gov/flu/pdf/freeresources/general/take3_step_vac.pdf • Immunity from influenza vaccine rarely exceeds 1 year and the vaccine virus strains may vary each year

Influenza vaccine dosing algorithm for children aged 6 months through 8



Recommendations regarding influenza vaccination of persons who report History or allergy to eggs*† — Advisory Committee on Immunization Practices, United States, 2018–19 influenza

For the 2019–20 influenza season, ACIP recommends the following:

1. Persons who are able to eat lightly cooked egg without reaction are unlikely to be egg-allergic.
2. Persons who have experienced only hives after exposure to egg should receive any licensed, recommended, age-appropriate influenza vaccine (i.e., IIV or RIV).
3. Persons reporting symptoms other than hives, such as angioedema, respiratory distress, lightheadedness, or recurrent emesis; or who required epinephrine or another emergency medical intervention, may also receive any licensed and recommended influenza vaccine that is otherwise appropriate.
    - Additionally, for these persons, vaccine should be administered in an inpatient or outpatient medical setting and supervised by a health care provider who is able to recognize and manage severe allergic conditions.
4. A previous severe allergic reaction to influenza vaccine, regardless of the component suspected of causing the reaction, is a contraindication to future receipt of the vaccine.

IPV
Inactivated Poliovirus

Pathophysiology	Virus Enters through the mouth Incubation 6-20 days
Vaccine Description	Inactivated poliovirus vaccine
Dose & Route	0.5 mL given subQ or IM
Administration Schedule	**Dose** **Recommended Age** 1 ..... 2 months 2 ..... 4 months 3 ..... 6 - 18 months 4 ..... 4-6 years
Final dose should be administered at ≥4 years of age regardless of the number of previous doses; the minimum interval from dose 3 to dose 4 is extended from 4 weeks to 6 months; the minimum interval from dose 1 to dose 2, and from dose 2 to dose 3, remains 4 weeks; the minimum age for dose 1 remains age 6 weeks. IPV is not routinely recommended for U.S. residents 18 years and older.	
Minimum Intervals	**Dose** **Minimum Interval and Ages** 1 ..... 6 weeks of age 2 ..... 4 weeks from dose 1 3 ..... 4 weeks from dose 2 4 ..... 6 month from dose 3
Contraindications	• Anaphylactic reaction following a prior dose of IPV or to any of its components (neomycin, streptomycin, or Polymyxin B) • Defer vaccination in persons with moderate or severe acute illness until illness subsides
Special Considerations	• The combination vaccine Pediarix® (IPV, DTaP and Hep B) is ***approved for the first 3 doses*** of the IPV and DTaP series. • Pediarix® is not approved for booster doses nor indicated for children > 6 years of age • Pediarix® should not be used for infants younger than 6 weeks of age or children over 6 years of age. • Pentacel™ is approved for the primary series and first booster dose (doses 1-4). It is not indicated for children ≥ 5 years. • Kinrix™ is approved for the booster dose at age 4-6. Not to be administered to children aged < 4 years or ≥ 7 years.

	• Measles, mumps, rubella, varicella and hepatitis serology are listed as accepted evidence of immunity in both the current editions of Pink Book and Red Book. Neither resource makes any recommendation regarding accepting serology for polio as proof of immunity. The Georgia Immunization Program requires vaccination for polio immunity for attendance in Georgia child care and school facilities.

Meningococcal Conjugate Vaccine B

Pathophysiology	Bacteria
Vaccine Description	Inactivated conjugate vaccine, containing *Neisseria meningitidis serogroup B.*
Dose & Route	0.5 mL given IM
Administration	**TRUMENBA- MenB-FHbp** When given to healthy adolescents (2-dose) **Minimum Interval** 0,6 months……If 2nd dose is given < 6 months after 1st dose, a 3rd dose must be given 6 months after 1st dose. High Risk (3-dose) **Minimum Interval** 0, 2, 6 months…….4 weeks between dose 1 and dose 2; 4 months between dose 2 and dose 3. **Bexsero- MenB-4C** 0, 1 month……. 4 weeks between dose-1 and dose-2. *Do not repeat doses if intervals are shortened. MenB vaccines may be given at clinical discretion to adolescents 16 through 23 years (Preferred age 16-18 years) who are not at increased risk.
Indications	High-risk patients for meningococcal B infection include: persons with complement deficiencies, persons presently taking eculizumab (Soliris—Alexion), persons that are asplenic, microbiologists, those exposed during outbreaks of disease.
Contraindications	Severe allergic reaction after a previous dose of Trumenba. Hypersensitivity, including severe allergic reaction, to any component of the vaccine, or after a previous dose of BEXSERO.
Precautions	The tip caps for of the pre-filled Bexsero syringes contain natural rubber latex which may cause allergic reactions in latex sensitive individuals.
Special Considerations	The 2 vaccines (Bexsero and Trumenba) are not interchangeable; the same product must be used for all doses.

Meningococcal Conjugate Vaccine (MCV4)

Pathophysiology	Bacteria Direct contact with large droplet respiratory secretions transmission Incubation 3-7 days
Vaccine Description	Inactivated conjugate vaccine, containing *N. meningitidis* serogroups A, C, Y, and W-135 **Menactra®** Minimum age 9 months **Menveo®** Minimum age 2 months Bivalent meningococcal conjugate vaccine and Haemophilus influenza type b conjugate vaccine Hib-MenCY approved for use in ages 6 weeks through 18 months.
Dose & Route	0.5 mL given IM
Administration Schedule/Dose	• 2-dose series 11-12 years and 16 years • Catch-up age 13-15 years 1 dose now and booster at age 16-18 years • Age 16-18 years 1 dose
Special Populations •For booster doses among persons with high-risk conditions refer to www.cdc.gov/vaccines/hcp/acip-recs/index.html.	• Anatomical or functional asplenia (including sickle cell disease) • HIV infection • Persistent complement component deficiency • Eculizumab use • Travel to or live in countries where meningococcal disease is hyperendemic or epidemic meningococcal disease • At risk from a meningococcal disease outbreak attributed to serogroup A, C, W, or Y • Microbiologists routinely exposed to *Neisseria meningitidis* • Military recruits • First-year college students who live in residential housing
Contraindications	• Allergy to vaccine components ○ Anaphylaxis to either MCV4 or MPSV4 or their components ○ Diphtheria toxoid ○ Previous history of **Guillain-Barré syndrome** (GBS) ○ Dry natural rubber latex • Acute, moderate, or severe illness with or without fever
Special Instructions	• Use of MCV4 has not been studied sufficiently in pregnant women. • Because vaccinees may develop syncope, sometimes resulting in falling with injury, observation for 15 minutes after administration is recommended. If syncope develops, patients should be observed until the symptoms resolve.

Meningococcal Polysaccharide Vaccine (MPSV4)

Pathophysiology	Bacteria
Vaccine Description	Inactivated polysaccharide vaccine, containing *N. meningitidis* serogroups A, C, Y, and W-135
Dose & Route	0.5 mL given subcutaneously
Administration Schedule	**Dose - See recommendations for age and/or risk factor on page 49 or at http://www.immunize.org/catg.d/p2018.pdf** • Revaccination with MCV4 every 5 years is recommended for adults previously vaccinated with MCV4 or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia or persistent complement component deficiencies).
Indications **MCV4 is preferred for adults with any of the preceding indications who are aged 55 years and younger; **Meningococcal polysaccharide vaccine (MPSV4) is preferred for adults aged 56 years and older for travel with no previous MCV4 dose and no high risk conditions.**	**Consider vaccination for: • Persons with terminal complement component deficiency or asplenia • Persons with HIV infection • College freshmen living in dormitories not previously vaccinated • Research or laboratory personnel routinely exposed to *N. meningitidis* • Military recruits • Persons traveling to countries where meningitis is hyperendemic or epidemic • Persons who might have been exposed to meningococcal disease during an outbreak
Contraindications	• Anaphylactic reaction following a prior dose of vaccine or any vaccine component • Defer vaccination in persons with moderate or severe acute illness until illness subsides.
Special Instructions	• Not effective in children under 2 years of age • See CDC ACIP Recommendation at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6202a1.htm for more information on primary & booster doses

Meningococcal ACWY Vaccine Recommendations by Age and Risk Factor

A separate vaccine is needed for protection against meningococcal serogroup B disease.

MenACWY = Menactra (Sanofi Pasteur) and **Menveo** (GlaxoSmithKline)
MenACWY-D = Menactra **MenACWY-CRM** = Menveo

Routine Recommendations for Quadrivalent Meningococcal Conjugate Vaccine (MenACWY)	
For preteens age 11 through 12 years	Give dose #1 of 2-dose MenACWY series. (Dose #2 is recommended at age 16 years.)
For teens age 13 through 15 years	Give catch-up dose #1 of 2-dose MenACWY series. (Dose #2 will be due at age 16 years.[1])
For teens at age 16 years	Give dose #2 of MenACWY.[1] (Separate from dose #1 by at least 8 weeks.)
Catch-up for teens age 17 through 18 years	If dose #2 not given at age 16 years, give dose #2 of MenACWY as catch-up.
Catch-up for teens age 16 through 18 years	If no history of prior vaccination with MenACWY, give 1 dose of MenACWY.
For first year college students, age 19 through 21 years, living in residence halls	If no history of prior vaccination with MenACWY, give 1 dose of MenACWY. If history of 1 dose of MenACWY given when younger than age 16 years, give dose #2 of MenACWY.

Risk-based Recommendations for Persons with Underlying Medical Conditions or Other Risk Factors		
TARGETED GROUP BY AGE/OR RISK FACTOR	**PRIMARY DOSE(S)**	**BOOSTER DOSE(S)**
Travelers to or residents of countries where meningococcal disease is hyperendemic or epidemic, people present during outbreaks caused by a vaccine serogroup,[2] and other people with prolonged increased risk for exposure (e.g., microbiologists routinely working with *Neisseria meningitidis*)		
For age 2 through 6 months	Give 3 doses of Menveo, 8 weeks apart, and a 4th dose[3] at 12–18 months. If possible, vaccination should begin at age 2 months.	If risk continues, give initial booster after 3 years followed by boosters every 5 years.
For age 7 through 23 months who have not initiated a series of Menveo	Give 2 doses of Menveo[4] or, if 9–23 months, give Menactra.[5] Separate the 2 doses by at least 12 weeks.[6]	
For age 2 years and older	Give 1 dose of either MenACWY vaccine.	Boost every 5 years with MenACWY.[7,8]
People with persistent complement component deficiencies[9]		
For age 2 through 6 months	Give 3 doses of Menveo, 8 weeks apart, and a 4th dose[3] at 12–18 months. If possible, vaccination should begin at age 2 months.	Give MenACWY booster after 3 years followed by boosters every 5 years thereafter.
For age 7 through 23 months who have not initiated a series of Menveo	Give 2 doses of Menveo[4] or, if age 9–23 months, give Menactra.[5] Separate the 2 doses by at least 12 weeks.	
For ages 2 years and older	Give 2 doses of MenACWY (either vaccine), 8 weeks apart.	Boost every 5 years with MenACWY.[7,10]
People with HIV infection or functional or anatomic asplenia (including sickle cell disease)		
For age 2 through 6 months	Give 3 doses of Menveo, 8 weeks apart, and a 4th dose[3] at 12–18 months. If possible vaccination should begin at age 2 months.	Give MenACWY booster after 3 years followed by boosters every 5 years thereafter.[7]
For age 7 through 23 months who have not initiated a series of Menveo	Give 2 doses of Menveo.[4] Separate the 2 doses by at least 12 weeks. Or, if using Menactra, give dose #1 at least 4 weeks following completion of pneumococcal conjugate vaccine series, and dose #2 at least 12 weeks after dose #1.[5]	
For ages 2 years and older	Give 2 doses of MenACWY (either vaccine), 8 weeks apart.	Boost every 5 years with MenACWY.[7,10]

FOOTNOTES

1. The minimum interval between doses of MenACWY is 8 weeks.
2. Seek advice of local public health authorities to determine if vaccination is recommended.
3. If available, use the same vaccine product for all doses in the series given to infants, including the booster doses.
4. If initiating vaccination with Menveo in a child age 7 through 23 months, dose 2 should be given no younger than age 12 months.
5. If Menactra is to be administered to a child with increased risk for meningococcal disease, it should be given either before or concomitantly with DTaP. Menveo can be given at any time before or after DTaP.
6. If child age 7 through 23 months will enter an endemic area in less than 3 months, give doses as close as 2 months apart.
7. If most recent dose given when younger than age 7 years, give booster after 3 years; if given at or after age 7 years, give booster after 5 years; then boost every 5 years thereafter.
8. Booster doses are recommended if the person remains at increased risk.
9. Persistent complement component deficiencies include C3, C5–C9, properdin, factor D, factor H, or taking Soliris (eculizumab).
10. If the person has a history of only 1 dose, give dose 2 at least 8 weeks after dose 1, then boost every 5 years.

Technical content reviewed by the Centers for Disease Control and Prevention

Immunization Action Coalition Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

www.immunize.org/catg.d/p2018.pdf • Item #P2018 (6/18)

MMR
Measles, Mumps, Rubella

Pathophysiology	Measles: Virus Respiratory transmission Incubation 10-12 days Mumps: Virus Respiratory transmission Incubation 14-18 days Rubella: Virus Respiratory transmission Incubation 12-23 days
Vaccine Description	Live attenuated vaccine
Dose & Route	0.5 mL reconstituted vaccine given subQ
Administration Schedule	**Dose** **Recommended Age** 1 …… 12 - 15 months (see Minimum Intervals below) 2 …… 4 - 6 years (see Minimum Intervals below)
Special Situations	Infants age 6-11 months: 1 dose before departure; revaccinate with 2 doses at 12-15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later Unvaccinated children age 12 months and older: 2-dose series at least 4 weeks apart before departure
Minimum Intervals	**Dose** **Minimum Interval and Ages** 1 ……..***MUST*** be at least 12 months of age 2*…….At least 28 days after dose #1; usually given at 4-6 years of age. *Children who have received 2 doses of MMR with dose #1 no earlier than the 1st birthday and dose #2 at least 4 weeks after dose #1 do not need an additional dose for school entry.

Combination Vaccine Administration	• *See information on MMRV / Febrile Seizures • ProQuad® (MMRV) may be used to simultaneously administer MMR and varicella vaccine to children ages 12 mos. through 12 yrs. when both vaccines are indicated. • Spacing and timing of MMRV from individual component vaccines (MMR and varicella): o At least 1 month between a dose of a measles-containing vaccine and a dose of MMRV o At least 3 months between a dose of varicella vaccine and a dose of MMRV o However, if varicella vaccine and MMRV are inadvertently given at least 28 days apart, the doses may be counted as valid.
Contraindications	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. • Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised). • Pregnancy.
Precautions	• Moderate or severe acute illness with or without fever. • Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product). • Refer to Tables 4 & 5 on page 67 & 68 as this varies depending on the blood product • History of thrombocytopenia or thrombocytopenic purpura. • Need for tuberculin skin testing.

Special Considerations & Instructions	• Vaccine should be stored in the refrigerator.
	• *Diluent* may be stored at room temperature.
	• For corticosteroid recipients: administration of MMR should be avoided for at least 1 month after cessation of high dose therapy (see Contraindications).
	• Pregnancy should be avoided for 1 month following MMR vaccine.
	• If PPD is needed and not given the same day as MMR, PPD testing should be delayed 4-6 weeks after MMR vaccination.
	• Vaccine must be used within 8 hours of reconstitution, kept refrigerated, and protected from exposure to light.
	• Mumps protection in a non-outbreak setting
	  ○ One dose of mumps-containing vaccine for pre-school children and non-high risk adults
	  ○ 2 doses of mumps-containing vaccine for children in grades K-12 (school requirement) and adults at high risk
	  ▪ Persons working in health care facilities
	  ▪ International travelers
	  ▪ Students attending post-high school educational institutions
	  ○ Birth prior to 1957
	  ○ Laboratory evidence of immunity
	  ○ Documentation of provider-diagnosed disease is not considered acceptable evidence of immunity for measles, mumps, or rubella.
	• Mumps protection in an outbreak setting (depending on the epidemiology of the outbreak)
	  ○ Second dose of vaccine should be considered for adults.
	  ○ Two doses of vaccine for children ages 1-4 years of age if affected by the outbreak
	  ▪ 1st dose should be administered at 12 months of age
	  ▪ 2nd dose should be given 28 or more days after the 1st dose
	• At this time, children K-12 must be immunized with 2 doses of a measles-containing vaccine, 2 mumps, and 1 rubella, or provide laboratory evidence of immunity to measles, mumps, and rubella. This also applies to University System of Georgia students born in 1957 or later.

MMRV
Measles, Mumps, Rubella Varicella

Pathophysiology	Measles: Virus Respiratory transmission Incubation 10-12 days Mumps: Virus Respiratory transmission Incubation 14-18 days Rubella: Virus Respiratory transmission Incubation 12-23 days Varicella Zoster Virus: Respiratory transmission Incubation 14-16 days
Vaccine Description	Live attenuated vaccine
Dose & Route	0.5 mL reconstituted vaccine given subQ
Administration Schedule Publication of ACIP recommendations for administering this vaccine is found at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5903a1.htm?s_cid=rr5903a1_e	**Dose** **Recommended Age** 1 …… 12 - 15 months* 2 …… 4 - 6 years** 3…… ≥ 12 months*** *MMRV vaccine may be administered to children 12 months through 12 years of age when all components of the vaccine are needed for completion of the vaccine series or when any single component of the vaccine series is not available at the time of immunization. **Children who received 2 doses of MMR with dose #1 no earlier than the 1st birthday and dose #2 at least 4 weeks after dose #1 do not need an additional dose for school entry. ***Persons ≥ 12 months who previously received ≤ 2 doses of mumps-containing vaccine and are identified by public health authorities to be at increased risk during a mumps outbreak should receive a dose of mumps-virus containing vaccine.
Minimum Intervals	• ProQuad® (MMRV) may be used to simultaneously administer MMR and varicella vaccine to children ages 12 mos. through 12 yrs. when both vaccines are indicated. • Spacing and timing of MMRV from individual component vaccines (MMR and varicella): ○ At least 1 month between a dose of a measles-containing vaccine and a dose of MMRV ○ At least 3 months between a dose of varicella vaccine and a dose of MMRV ○ However, if varicella vaccine and MMRV are inadvertently given ≥28 days or more apart, the doses may be counted as valid.

Contraindications	• Anaphylactic reaction following a prior dose of MMR, Varicella or to any of its components (gelatin or neomycin) • Immunosuppression • Recent recipient of blood products (See ACIP general recommendations for correct spacing) • Persons receiving large doses of corticosteroids (>2mg/kg per day or >20mg per day of prednisone) for 14 days or more • Pregnancy • Defer vaccination in persons with moderate or severe acute illness until illness subsides • TB - untreated, active • HIV Positive Children- **MMRV should not be administered to HIV infected children. Only single antigen varicella should be considered for HIV infected children in CDC class N2, A2 or B2 with CD4+ T-lymphocyte percentages ≥15%.** • Personal or family history of seizures is a precaution for MMRV vaccination.
Special Considerations & Instructions **MMRV and Febrile Seizures** http://www.cdc.gov/vaccines/vpd-vac/combo-vaccines/mmrv/vacopt-factsheet-hcp.pdf	• Vaccine must be stored frozen at 5º F. or colder. • Once reconstituted, vaccine should be discarded if not used within 30 minutes. • *Diluent* may be stored at room temperature or in the refrigerator. • For corticosteroid recipients: administration of MMRV should be avoided for at least 1 month after cessation of high dose therapy (see Contraindications). • Pregnancy should be avoided for 1 month following MMRV vaccine. • If PPD is needed and not given the same day as MMRV, PPD testing should be delayed 4-6 weeks after MMRV vaccination. • May be administered simultaneously with other vaccines recommended at ages 12 mos. through 12 yrs. **Dose 1 at Ages 12 through 47 Months** Either MMR and varicella or MMRV vaccine can be used. Providers should discuss the benefits and risks of both vaccination options with the parents or caregivers. Use of MMRV vaccine results in one fewer injection but is associated with a higher risk for fever/febrile seizures 5 through 12 days after the first dose among children aged 12 through 23 months. CDC recommends that MMR vaccine and varicella vaccine should be administered as separate injections for the first dose in children 12–47 months of age. **Dose 1 at Ages 48 Months and Older and Dose 2 at any Age:** Use of MMRV vaccine generally is preferred over separate injections of its equivalent component vaccines

Varicella
Chicken Pox Vaccine

Pathophysiology	Varicella Zoster Virus Respiratory transmission Incubation 14-16 days
Vaccine Description	Live attenuated vaccine
Dose & Route	0.5 mL reconstituted vaccine given subQ
Administration Schedule	**Dose…… Recommended Age** 1……12 months - 15 months **2**…… 4-6 years* ***The 2nd dose can be administered at an earlier age provided the interval between the 1st and 2nd dose is at least 3 months. If the 2nd dose is inadvertently given at least 28 days after the 1st dose, the 2nd dose does not need to be repeated.**
Catch-up Vaccination	Varicella vaccination is recommended for children who are older than 15 months of age and do not have evidence of immunity.
Minimum Intervals	**Minimum Age at Dose 1** — **Minimum Interval to Dose 2** 12 months — 3 mos. if Dose 1 given at <13 yrs. of age 1 mo. if Dose 1 given at ≥13 yrs. of age
Combination Vaccine Administration	ProQuad® (MMRV) may be used to simultaneously administer MMR and varicella vaccine to children ages 12 mos. through 12 yrs. when both vaccines are indicated. • Spacing and timing of MMRV from individual component vaccines (MMR and varicella): o At least 1 month between a dose of a measles-containing vaccine and a dose of MMRV o At least 3 months between a dose of varicella vaccine and a dose of MMRV o However, if varicella vaccine and MMRV are inadvertently given ≥28 days or more apart, the doses may be counted as valid.

Contraindications	• Anaphylactic reaction following a prior dose of Varicella (Varivax™) or to any of its components (gelatin or neomycin) • Immunosuppression • Recent recipient of antibody-containing blood products (Refer to *Recommended intervals between administration of immune globulin preparations and measles- or varicella-containing vaccine table after Varicella* in VACS FACTS) • Pregnancy • Defer vaccination in persons with moderate or severe acute illness until illness subsides • TB - untreated, active • Vaccination of persons who have severe illness should be postponed until recovery
Evidence of Immunity to Varicella	Documentation of age-appropriate varicella vaccination; • Preschool-age children (i.e., age 12 months through 3 years): 1 dose • School-age children, adolescents, adults: 2 doses • Laboratory evidence of immunity or laboratory confirmation of disease • Birth in the United States before 1980 (Should not be considered evidence of immunity for health care personnel, pregnant women, and **immunocompromised persons)** • Diagnosis or verification of a history of varicella or herpes zoster by a health care provider **To verify a history of varicella, health care providers should inquire about: an epidemiologic link to another typical varicella case or to a laboratory confirmed case, or evidence of laboratory confirmation, if testing was performed at the time of acute disease. Persons who have neither an epidemiologic link nor laboratory confirmation of varicella should not be considered as having a valid history of disease. For these persons, a second dose of vaccine is recommended if they previously received only one dose. If a health care provider verifies the diagnosis based on the above criteria, then vaccination is not needed.**

Special Considerations & Instructions	• Vaccine is very fragile and must be stored frozen (+5°F or -15°C or lower). • Reconstituted product must be used within 30 minutes. • Pregnancy should be avoided for 1 month following varicella vaccination. • Diluent may be stored at room temperature. • For corticosteroid recipients: administration of varicella should be avoided for at least 1 month after cessation of high dose therapy. • Treatment with low dose (<2mg/kg/day), alternate day, topical, replacement or aerosolized steroid preparations is *not a contraindication* to varicella vaccination. • For chemotherapy recipients: administration of varicella should be avoided for at least 3 months after chemo cessation. • Counsel varicella recipients: if a rash develops following vaccination, there is a possibility for these people to infect others but this is extremely rare. • Asymptomatic or mildly symptomatic HIV-infected children age ≥ 12 months with ***age-specific CD4+ T lymphocyte counts ≥ 15%*** and without evidence of varicella immunity should receive 2 doses of **single antigen** varicella vaccine 3 months apart. o *PROQUAD® should not be used in HIV infected children due to the difference in antigen composition.* • All students in Georgia schools must provide documentation of vaccination or immunity • Varicella vaccine administration is recommended as post-exposure prophylaxis for susceptible persons if given within 3-5 days of exposure to varicella disease.

Recommended intervals between administration of **antibody-containing products** and **measles-** or **varicella-containing vaccine**

Product / Indication	Dose (mg IgG/kg) and route[1]	Recommended interval before measles or varicella-containing[2] vaccine administration
Blood transfusion		
- Red blood cells (RBCs), washed	10 mL/kg (negligible IgG/kg) IV	None
- RBCs, adenine-saline added	10 mL/kg (10 mg IgG/kg) IV	3 months
- Packed RBCs (hematocrit 65%)[3]	10 mL/kg (60 mg IgG/kg) IV	6 months
- Whole blood (hematocrit 35%-50%)[3]	10 mL/kg (80-100 mg IgG/kg) IV	6 months
- Plasma/platelet products	10 mL/kg (160 mg IgG/kg) IV	7 months
Botulinum Immune Globulin Intravenous (Human)	1.0 mL/kg (50 mg IgG/kg) IV	6 months
Cytomegalovirus IGIV	150 mg/kg maximum	6 months
Hepatitis A IG		
- Contact prophylaxis	0.1 mL/kg (3.3 mg IgG/kg) IM	3 months
- International travel, <2 month stay	0.1 mL/kg (3.3 mg IgG/kg) IM	3 months
- International travel, ≥2 month stay	0.2 mL/kg (10 mg IgG/kg) IM	3 months
Hepatitis B IG (HBIG)	0.06 mL/kg (10 mg IgG/kg) IM	3 months
IGIV		
- Replacement therapy for immune deficiencies[4]	300-400 mg/kg IV	8 months
- Postexposure measles prophylaxis: immunocompromised contacts	400 mg/kg IV	8 months
- Postexposure varicella prophylaxis	400 mg/kg IV	8 months
- Immune thrombocytopenic purpura treatment	400 mg/kg IV	8 months
- Immune thrombocytopenic purpura treatment	1,000 mg/kg IV	10 months
- Kawasaki disease	2 g/kg IV	11 months
Measles prophylaxis IG - Standard (i.e., nonimmunocompromised) contact	0.50 mL/kg (80 mg IgG/kg) IM	6 months
Monoclonal antibody to respiratory syncytial virus F protein (Synagis™)[5]	15 mg/kg (IM)	None
Rabies IG (RIG)	20 IU/kg (22 mg IgG/kg) IM	4 months
Tetanus IG (TIG)	250 units (10 mg IgG/kg) IM	3 months
Varicella IG (VariZIG)	125 units/10 kg (60-200 mg IgG/kg) IM, maximum 625 units	5 months

1 This table is not intended for determining the correct indications and dosages for using antibody-containing products. Unvaccinated persons might not be protected fully against measles during the entire recommended interval, and additional doses of IG or measles vaccine might be indicated after measles exposure. Concentrations of measles antibody in an IG preparation can vary by manufacturer's lot. Rates of antibody clearance after receipt of an IG preparation also might vary. Recommended intervals are extrapolated from an estimated half-life of 30 days for passively acquired antibody and an observed interference with the immune response to measles vaccine for 5 months after a dose of 80 mg IgG/kg.

2 Does not include zoster vaccine. Zoster vaccine may be given with antibody-containing blood products.

3 Assumes a serum IgG concentration of 16 mg/mL.

4 Measles vaccination is recommended for children with mild or moderate immunosuppression from HIV infection, and varicella vaccination may be considered for children with mild or moderate immunosuppression from HIV infection, but both are contraindicated for persons with severe immunosuppression from HIV or any other immunosuppressive disorder.

5 Contains antibody only to respiratory syncytial virus.

Adapted from Table 3-5, ACIP General Best Practice Guidelines

Pediarix®
DTaP / Hep B / IPV

Pathophysiology	(See DTaP, Hepatitis B, and IPV cards)
Vaccine Description	Combined diphtheria and tetanus toxoids and acellular pertussis adsorbed (DTaP), Hepatitis B recombinant (Hep B), and inactivated polio virus vaccine (IPV)
Dose & Route	0.5 ml given IM
Administration Schedule* *Pediarix may only be used in children younger than age 7 years	**Dose Recommended Age** 1 …… 2 months 2 …… 4 months 3 …… 6 months **Booster Doses** Pediarix® ***cannot be used for booster doses***. The DTaP series (doses #4 and #5) and the IPV series (dose #4) must be completed with single antigen vaccines
Minimum Intervals	**Dose Minimum Interval and Ages** 1 …… 6 weeks of age 2 …… 4 weeks after dose 1 (10 weeks of age) 3 …… 8 weeks after dose 2 *and* 16 weeks after dose 1 *and* at least 24 weeks of age
Contraindications	• Anaphylactic reaction following a prior dose of Pediarix® or any of its component vaccines • Hypersensitivity to any component of the vaccine including yeast, neomycin and polymyxin B • History of encephalopathy within 7 days of a previous dose of any pertussis-containing vaccines • Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy or progressive encephalopathy • Guillain-Barre` syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine
Precautions	• Defer vaccination in children with moderate or severe acute illness until illness subsides • Precautions applying to any of the component vaccines • Latex sensitivity

Special Instructions	• ACIP continues to recommend the birth dose of single antigen Hep B vaccine and has approved Pediarix™ to complete the Hep B series regardless of the mother's HBsAg status, provided the minimal age and time intervals for Hep B are observed. • It is permissible to administer 4 doses of hepatitis B vaccine when Pediarix is used following a birth dose of hepatitis B vaccine. However, a dose of Hepatitis B vaccine must be administered on or after 24 weeks of age. • Pediarix™ may be given simultaneously with any other vaccine(s) at separate sites. • Pediarix™ can be used interchangeably if necessary with single antigen components (DTaP, IPV, Hep B) as long as minimal ages and intervals are observed.

Pentacel®
DTaP / Hib / IPV

Pathophysiology	(See DTaP, Hib, and IPV cards)
Vaccine Description	Combined diphtheria and tetanus toxoids and acellular pertussis adsorbed (DTaP), *Haemophilus Influenzae* type B (Hib), and inactivated polio virus vaccine (IPV)
Dose & Route	0.5 ml given IM
Administration Schedule*	**Dose** **Recommended Age** 1 …… 2 months 2 …… 4 months 3 …… 6 months **Booster Doses** 15-18 months
Minimum Intervals	**Dose** **Minimum Interval and Ages** 1……..6 weeks of age 2.....4 weeks after dose 1 (10 weeks of age) 3.....4 weeks after dose 2 (14 weeks of age) 4..... 6 months after dose 3 (12 months of age)
Contraindications	• History of severe hypersensitivity to any component of the vaccine • History of serious allergic reaction to a previous dose of vaccine for any pertussis containing vaccine including Pentacel • Encephalopathy within 7 days of a previous dose of a pertussis containing vaccine that is not attributable to another identifiable cause • Progressive neurological disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy • For Polio vaccine (IPV) contraindicated if there is a life-threatening allergy to neomycin, Streptomycin or POLYMYXIN B. Because of uncertainty as to which ingredient of the vaccine may be responsible for a severe allergic reaction, none of the ingredients should be administered and they should be referred to an allergist for evaluation if further immunizations are considered.

Precautions	• Carefully consider benefits and risks before administering Pentacel to persons with a history of: - fever ≥40.5°C (≥105°F), hypotonic-hyporesponsive episode (HHE) or persistent, inconsolable crying lasting ≥3 hours within 48 hours after a previous pertussis-containing vaccine. - seizures within 3 days after a previous pertussis-containing vaccine. • If Guillain-Barré syndrome occurred within 6 weeks of receipt of a prior vaccine containing tetanus toxoid, the risk for Guillain-Barré syndrome may be increased following Pentacel. • For infants and children with a history of previous seizures, an antipyretic may be administered (in the dosage recommended in its prescribing information) at the time of vaccination with Pentacel and for the next 24 hours. • Apnea following intramuscular vaccination has been observed in some infants born prematurely. The decision about when to administer an intramuscular vaccine, including Pentacel, to an infant born prematurely should be based on consideration of the individual infant's medical status and the potential benefits and possible risks of vaccination.
Special Instructions	• Either Pentacel or single antigen Hib vaccine may be used at 12 through 15 months of age for children who are at increased risk of Hib disease or who have not completed a primary Hib schedule. • If Pentacel is administered at 12-15 months of age, a dose of DTaP at 15-18 months of age is not needed.

Prevnar13™
Pneumococcal Conjugate Vaccine (PCV13)

Pathophysiology	Bacteria Common inhabitant of the respiratory tract Respiratory transmission: direct person-to-person via droplets or autoinoculation in persons carrying the bacteria in their upper respiratory tract. Incubation period 1-3 days
Vaccine Description	Inactivated vaccine that contains polysaccharide from 13 pneumococcal serotypes
Dose & Route	0.5 mL given IM (shake vial before drawing up)
Administration Schedule	**Dose** **Recommended Age** 1 …… 2 months 2 …… 4 months 3 …… 6 months 4 …… . 12-15 months (booster) PCV13 and PPSV23 should be administered routinely to all adults >65.
Minimum Intervals	**Dose** **Minimum Interval and Ages** 1 …… Must be at least 6 weeks of age 2 …… 4 weeks from dose 1 3 …… 4 weeks from dose 2 4 …… 8 weeks from dose 3 (booster)

Schedule for Older Infants & Children

Age @ 1st Dose	Primary Series	Booster
7-11 months	2 doses	Yes-2 months after dose 2
12-23 months	2 doses at least 8 weeks apart	No
24-59 Months		
Healthy	1 dose	No
24-71 months		
High Risk*	2 doses at least 8 weeks apart	No

	6–18 years		
	High Risk*	**1. dose**	**No**
	High Risk Adults 19 years and older		
	• **1-dose Hib if previously did not receive Hib; if elective splenectomy, 1-dose Hib, preferably at least 14 days before splenectomy** • **3-dose series Hib 4 weeks apart starting 6-12 months after successful Hematopoietic stem cell transplant (HSCT), regardless of Hib vaccination history**		
	***High Risk:** • **Chemotherapy or radiation treatment** • **Hematopoietic stem cell transplant (HSCT)** • **Anatomic or functional asplenia (including sickle cell disease)** • **Elective splenectomy** • **HIV infection** • **Immunoglobulin deficiency, early component complement deficiency**		
Contraindications	• Anaphylactic reaction following a prior dose of PCV13 • Defer vaccination in children with moderate or severe acute illness until illness subsides.		
Special Considerations	• PCV is required for children younger than 5 years attending a child care facility. • PCV13 and PPSV23 should not be administered at the same time; at least 2 mos. should separate the vaccine doses. • Children at high risk who received PCV13 should also receive PPSV23 at 2 yrs. of age. • PCV13 and DTaP should be administered in separate sites.		

Pneumococcal Polysaccharide Vaccine (PPSV23)

Pathophysiology	Bacteria Common inhabitant of the respiratory tract Respiratory transmission: direct person-to-person via droplets or autoinoculation in persons carrying the bacteria in their upper respiratory tract. Incubation period 1-3 days.
Vaccine Description	Inactivated vaccine that contains polysaccharide from 23 pneumococcal serotypes. PPSV23 contains 12 of the serotypes included in PCV13, plus 11 additional serotypes,
Dose & Route	0.5 mL given IM or subQ
Recommendations	Recommended for: • Adults ≥ 65 years of age • Persons ≥ 2 years of age with high risk medical conditions* *High risk conditions: • Chronic illness (chronic cardiovascular disease, chronic pulmonary disease, diabetes mellitus, alcoholism, chronic liver disease, CSF leaks) • Functional or anatomic asplenia (Sickle cell disease, splenectomy) • Living in special environments or social settings (residents of nursing homes or long term care facilities) • Immunocompromised persons (HIV infection, leukemia, lymphoma, Hodgkins disease, multiple myeloma, generalized malignancy, chronic renal failure, nephrotic syndrome, organ or bone marrow transplants, immunosuppressive chemotherapy and long term corticosteroids) • Cochlear implant recipients • Asthma or those who smoke cigarettes 19-64 years
Administration Schedule	**Dose** 1 dose (primary dose) PCV13 and PPSV23 should be administered routinely to all adults > 65

Re-Vaccination	• One-time revaccination 5 years after the first dose is recommended for persons aged 19 through 64 years with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions. • Persons who received 1 or 2 doses of PPSV23 before age 65 years for any indication should receive another dose of the vaccine at the age 65 years or later if at least 5 years have passed since their previous dose. • No further doses are needed for persons vaccinated with PPSV23 at or after age 65 years.
Contraindications	• Anaphylactic reaction following a prior dose of vaccine or vaccine component • Defer vaccination in patients with moderate or severe acute illness until illness subsides
Special Considerations	• Refer to PCV13 / PPSV23 chart on the following page in VACS FACTS

Use of Pneumococcal Vaccines (PPSV23, PCV13) for Adults 19 Years and Older

Risk Groups Recommended for PPSV23 (Pneumococcal Polysaccharide Vaccine)	PPSV23 Schedule
Vaccinate persons aged 19-64 years: • With asthma or who smoke cigarettes	Persons with one or more of these risk factors should receive: • 1 dose of PPSV23 between the ages of 2-64 years • 1 dose of PPSV23 at/after age 65 years Use a minimum of 5 years between PPSV23 doses
Vaccinate persons aged 2-64 years: • With chronic cardiovascular disease (including congestive heart failure, cardiomyopathies), chronic pulmonary disease (including COPD and emphysema) or diabetes mellitus • With alcoholism or chronic liver disease (including cirrhosis) • Within environments or settings with identified increased risk • Who have a cerebrospinal fluid (CSF) leak or cochlear implant[1]	Persons who are immunocompetent should receive: • 1 dose of PPSV23 between the ages of 2-64 • 1 dose of PPSV23 at/after age 65 years Use a minimum interval of 5 years between PPSV23doses PCV13 is also indicated for persons with CSF leaks and cochlear implants (see adult recommendations below)
Vaccinate persons aged 2-64 years: • With functional or anatomic asplenia (including sickle cell disease and splenectomy) • With immunocompromising conditions including HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy, chronic renal failure or nephrotic syndromes, congenital or acquired immunodeficiencies • Receiving treatment using immunosuppressive drugs, including long-term systemic corticosteroids or radiation therapy • Who have received solid organ transplantation	Persons with asplenia or who are immunocompromised should receive: • 2 doses of PPSV23 between the ages of 2-64 years • 1 dose of PPSV23 at/after age 65 years Use a minimum interval of 5 years between PPSV23 PCV13 is also indicated for persons within one of these risk groups (see adult recommendations below)
Risk Groups Recommended for PCV13 (Pneumococcal Conjugate Vaccine)	**PCV13 Schedule**
Vaccinate persons aged 19 years and older: • Who have a CSF leak or cochlear implant[1] • With functional or anatomic asplenia (including sickle cell disease and splenectomy) • With immunocompromising conditions including HIV infection, leukemia, lymphoma, Hodgkin's disease, multiple myeloma, generalized malignancy, chronic renal failure or nephrotic syndromes, congenital or acquired immunodeficiencies • Receiving treatment using immunosuppressive drugs, including long-term systemic corticosteroids or radiation therapy • Who have received solid organ transplantation	For all persons who are 19 years or older: • 1 dose of PCV13[2] Preferred that PCV13 be given before any doses of PPSV23 • If no previous doses of PPSV23, give PCV13 first & then give PPSV23 at least 8 weeks later. • If one or more doses of PPSV23 have been given, there should be a minimum interval of 1 year between the last PPSV23 & the PCV13[3] Continue to use a minimum interval of 5 years between two PPSV23 doses
Pneumococcal Vaccination for Persons Aged 65 Years and Older**	**PCV13 and PPSV23 Schedule**
Routinely vaccinate persons aged 65 years or older: • Who have never received 1 dose of PCV13[2] • Who have not received 1 dose of PPSV23 at/after age 65 years ****Persons age 65 years or older who have a condition listed under "Risk Groups Recommended for PCV13" (i.e., asplenia, cochlear implant) should follow the interval schedule between PCV13 & PPSV23 described in that section.**	Intervals for person 65 years or older who need both PCV13 and PPSV23[3]: • Administer PCV13 first (preferred) • Administer PPSV23 1 year later • If PPSV23 was administered 1st, wait 1 year to give PCV13 • If one or more doses of PPSV23 was administered prior to age 65 years, ensure a minimum interval of 5 years after most recent dose of PPSV23

[1]For purpose of pneumococcal vaccination, CSF leaks & cochlear implants are considered high-risk immunocompetent conditions

[2]If a previous dose of PCV13 has been administered, an additional dose is not recommended

[3]If both vaccines are recommended, administer at separate visits. PCV13 first (preferred) then PPSV23, ensuring recommended intervals

Resources: Use of PCV13 & PPSV23 in Adults with Immunocompromising Conditions, ACIP Recommendations, MMWR 61 (40) Oct. 12, 2012; Updated Recommendations for Prevention of Invasive Pneumococcal Disease in Adults using PPSV23, MMWR 59(24) September 10, 2010; Use of PCV13 and PPSV23 Among Adults aged 65 Years, MMWR 63(37) Sept 19, 2014 & Intervals Between PCV13 and PPSV23 Vaccines, MMWR 64(34) Sept. 4, 2015 Available at www.cdc.gov/vaccines

Rotavirus Vaccine

Pathophysiology	Virus Transmitted by fecal-oral route. However, transmission by fomites and respiratory route may also occur. Incubation 2-4 days
Vaccine Description	Live, oral pentavalent vaccine
Dose & Route	RotaTeq® (RV5) Three (3) 1-ml oral doses Rotarix® (RV1) Two (2) 1-ml oral doses
Administration Schedule & Minimum Intervals Note: If an incomplete dose is administered (i.e. infant spits or regurgitates vaccine), a replacement dose is not needed. Continue the series using the recommended intervals and complete before 33 weeks of age. Infants who have had rotavirus gastroenteritis before receiving the full course of rotavirus vaccinations should still initiate or complete the 3-dose schedule because the initial infection frequently provides only partial immunity.	**Recommended Schedule for Rotavirus Vaccines** Rotavirus vaccines are not to be started after 14 weeks, 6 days, and all doses are to be completed by 8 months. RotaTeq® / Rotarix® **Dose** — **Age** — **Age** Primary 1 — 2 months — 2 months Primary 2 — 4 months — 4 months Primary 3 — 6 months — 6 months Interchangeability of Rotavirus Vaccines ACIP recommends that the rotavirus vaccine series be completed with the same product whenever possible. However, vaccination should not be deferred if the product used for previous doses is not available or is unknown. In this situation, the provider should continue or complete the series with the product available. If any dose in the series was RotaTeq® or the manufacturer is unknown for any doses in the series, a total of three doses of rotavirus vaccine should be given.
Contraindications	Demonstrated hypersensitivity to any component of the vaccine

Precautions
 	
Note: The oral applicator of Rotarix® contains latex. Use precaution with infants with a previous hypersensitivity to latex.
	• Acute gastroenteritis
	• Moderate to severe illness
	• Preexisting chronic gastrointestinal disease
	• History of intussusception
	• Altered immunocompetence due to:
	  ○ Blood dyscrasias
	  ○ Immunosuppressive therapy
	  ○ Primary and acquired immunodeficiency such as HIV

Special Considerations	• Shedding of virus in the stool after vaccine administration is possible. Caution is advised when considering administration of vaccine to persons with immunocompromised household contacts. • Can be administered on same visit with other routinely recommended vaccines • No restrictions on infant's consumption of food or liquid, including breast milk, before or after receiving vaccine. • If an incomplete dose is administered (i.e. infant spits or regurgitates vaccine), a replacement dose is not recommended. Continue the series using intervals as outlined above. • Rotavirus may be administered at any time before, concurrent with, or after administration of any blood product including antibody containing product.

Recombinant Zoster Vaccine (RZV)
SHINGRIX®

Pathophysiology	• A manifestation of the reactivation of varicella zoster virus which, as a primary infection, produces chickenpox (varicella). Following initial infection, the virus remains latent in the dorsal root or cranial sensory ganglia until it reactivates, producing zoster. • Zoster is characterized by a unilateral, painful, vesicular cutaneous eruption with a dermatomal distribution.
Vaccine Description	Recombinant zoster vaccine, adjuvanted
Dose & Route	• 0.5 mL single dose unit given IM • Reconstituted with the accompanying vial of $ASO1_B$ adjuvanted suspension component
Administration Schedule & Minimum Intervals	**Dose Minimum Age** **1……50 years and older** **2…….2 to 6 months after dose 1** Minimum interval between doses of RZV is 4 weeks. If 2nd dose given less than 4 weeks after dose 1 then dose 2 should be repeated at 8 weeks after the invalid dose. The vaccine series need not be restarted if more than 6 months have elapsed since the first dose. The first dose of RZV should be given at least 2 months after ZVL. **RZV is preferred over ZVL.** • RZV is recommended for the prevention of herpes zoster and related complications for immunocompetent adults aged ≥ 50 years. • RZV is recommended for prevention of herpes zoster and related complications for immunocompetent adults who previously received zoster vaccine live (ZVL). • RZV may be used in adults aged ≥ is preferred over ZVL for the prevention of herpes zoster and related complications. • RZV may be used in adults aged ≥ 50 years irrespective of prior receipt of varicella vaccine or ZVL and does not require screening for a history of chickenpox (varicella).

Contraindications	• History of severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine or after a previous dose of SHINGRIX • There is not much information about use of RZV in pregnant or nursing women. Your healthcare provider might recommend delaying vaccination.
Precautions	• Moderate or severe acute illness
Special Considerations	• This vaccine is not a substitute for varicella vaccine and should never be administered to children. • Not indicated for treatment of herpes zoster (shingles) or postherpetic neuralgia • The duration of protection after vaccination is unknown. • Care should be taken not to confuse ZVL, which is stored in the freezer • RZV is stored in the refrigerator at 36˚F to 46˚F (2˚C to 8˚C) • After reconstitution, administer immediately or store refrigerated and use within 6 hours. Discard reconstituted vaccine if not used within 6 hours.

Zoster Vaccine Live (ZVL)
Zostavax®

Pathophysiology	• A manifestation of the reactivation of varicella zoster virus which, as a primary infection, produces chickenpox (varicella). Following initial infection, the virus remains latent in the dorsal root or cranial sensory ganglia until it reactivates, producing zoster. • Zoster is characterized by a unilateral, painful, vesicular cutaneous eruption with a dermatomal distribution.
Vaccine Description	Live, attenuated virus vaccine
Dose & Route	0.65 mL single dose unit given subQ Reconstituted, lyophilized vaccine
Administration Schedule & Minimum Intervals	**Dose** **Minimum Age** 1 dose Age 60 and older* *A single dose of zoster vaccine live (ZVL) is recommended for adults aged 60 years and older regardless of whether they report a prior episode of herpes zoster. Although the vaccine is licensed by the Food and Drug Administration (FDA) for use among and can be administered to persons aged 50 years and older by private providers, ACIP recommends that vaccination begins at age 60. Persons aged 60 years and older with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.
Contraindications	• History of anaphylactic reaction to gelatin, neomycin, or other vaccine components • Immunosuppression, including that due to high-dose corticosteroid or other therapy A person who has a weakened immune system because of: o HIV/AIDS or another disease that affects the immune system o cancer treatment such as radiation or chemotherapy o cancer affecting the bone marrow or lymphatic system, such as leukemia or lymphoma • Women who are or might be pregnant

Precautions	• Moderate or severe acute illness with or without fever • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination, if possible; delay resumption of these antiviral drugs for 14 days after vaccination.
Special Considerations	• This vaccine is not a substitute for varicella vaccine and should never be administered to children. • Not indicated for treatment of herpes zoster (shingles) or postherpetic neuralgia • The duration of protection after vaccination is unknown. • Must be stored frozen at a temperature of 5^{0}F or colder • Must be used within 30 minutes of reconstitution or discarded; may not be refrozen after reconstitution