IMMUNIZATION TOOL KIT

Adult, Military and Childhood Immunizations





Fifth Edition 2007

DEVELOPED AND DISTRIBUTED BY

VHC
Vaccine Healthcare Centers Network

VACCINE HEALTHCARE CENTERS NETWORK

AUTHENTICATED U.S. GOVERNMENT INFORMATION GPO

Immunization Tool Kit
Adult, Military, and Childhood Immunizations
Fifth Edition

The information in this Immunization Tool Kit (ITK) is based on national guidelines, peer-reviewed published medical literature, and clinical guidelines. These guidelines are based on data and lessons learned through Adverse Events Following Immunizations (AEFI) case management and causality assessments within the Vaccine Healthcare Centers Network (www.VHCinfo.org; www.who.int/vaccines-documents/DocsPDF05/815.pdf). However, the ITK is a reference and should always be used with

- manufacturers' package inserts (approved by the Food and Drug Administration),
- Centers for Disease Control and Prevention Vaccine Information Sheets (VIS),
- proper screening for individual patient health risk factors and medical problems, and
- healthcare providers' orders.

Screening for individual vaccine benefits and risks is the responsibility of a credentialed healthcare provider. If standing orders are used, the screening process (e.g., standardized health risk assessment questionnaire) is responsible for ensuring identification of individuals who require expanded evaluation and potentially direct, face-to-face provider evaluation before immunization. In some cases, a person will need referral to a consultant or healthcare provider. This provider will evaluate the risks and benefits related to the immunization and medical exemption status. In some cases, such as severe large local reactions, modified strategies for how to administer the vaccine may be indicated and require a written order from the healthcare provider (e.g., giving anthrax vaccine by the intramuscular route reduces the severity of local reactions and their complications).

The Vaccine Healthcare Centers (VHC) Network clinical staff is available for expert consultations for both healthcare workers and service members/beneficiaries when there are questions about vaccine effectiveness, safety, and acceptability. In addition, the VHC supports a Vaccine Adverse Events Reporting System (VAERS) registry for long-term clinical case management and medical exemption tracking.

ACCESS for CLINICAL CONSULTATION SERVICES:

- 24/7 DOD Clinical Vaccine Call Center: 1-866-210-6469
- Secure internet based consultation services via Ask VHC: https://ASKVHC.wramc.amedd.army.mil
- VHC Info: www.VHCinfo.org or Call at 202-782-0411
- Direct access to Other VHC Regional Sites: See page xi

Project Design and Development (1999-2007)
COL Renata J. M. Engler, MD
Director, Vaccine Healthcare Centers Network
Walter Reed Army Medical Center
P.O. Box 59606
Washington, DC 20307-5001, U.S.A.

Project Development and Review Team for 2007

Vaccine Healthcare Centers Network
Limone C. Collins, Jr., MD, Medical Director; Mary Alice Willis, RN, MSN; Toni Massenburg, RN; DeLisa Crosby, MEd; Amanda Williams, MS; Tom Rampy, RN, BSN, MPA; Sherice Thomas, RN, BSN; Christina Spooner, MS; Christina Armstrong; Lorne McCoy, IT Program Office

Walter Reed Immunization-Allergy Department, Including Clinical Services and the Immunization-Allergy Specialty Course:
COL Bryan L. Martin, DO, Course Director; MAJ Cecilia P. Mikita, Director; LTC (P) Michael R. Nelson, MD, PhD, Director

Military Vaccine Office (MILVAX):
COL Randall G. Anderson, MSC, Director; CPT Allison Christ, RN, Clinical Education Coordinator; Tara Reavey, RN, Clinical Education Coordinator

For listing of past contributors to this educational project, see the VHC website at http://www.VHCinfo.org

Every attempt was made by the project clinical working group to assure accuracy of content. Changes in immunization healthcare guidelines and vaccine-related alerts occur frequently. It is important for users of this resource to understand that full review of the vaccine package insert and relevant alerts at www.vaccines.mil is required by clinical staff responsible for vaccine administration. Competency training should not be limited to the use of this resource in the delivery of immunization healthcare.

For additional copies of the Tool Kit go to:
www.vhcinfo.org

U.S. Government Official Edition Notice



Use of ISBN Prefix

This is the Official U.S. Government edition of this publication and is herein identified to certify its authenticity. Use of the 0-16 ISBN prefix is for U.S. Government Printing Office Official Editions only. The Superintendent of Documents of the U.S. Government Printing Office requests that any reprinted edition clearly be labeled as a copy of the authentic work with a new ISBN.



About the Vaccine Healthcare Centers Network

The Walter Reed National Vaccine Health Care Center (WRNVHC) is the lead agent for the Network of regional Vaccine Healthcare Centers (VHC). The VHC Network supports Department of Defense (DoD) immunization programs through expert clinical, investigational, educational and consultative services for individual service members, beneficiaries, and healthcare workers, as well as other government-associated stakeholders. The VHC Network was initially developed as a congressionally-sponsored program in collaboration with the Centers for Disease Control and Prevention (CDC) in 2001. The VHC Network became a division of the Military Vaccine Office (MILVAX) on 1 October 2007. Additional information about this program is available online through a congressionally sponsored Government Accountability Office (GAO) review published at www.gao.gov (GAO-07-787R, "Military Health: DoD's Vaccine Healthcare Centers Network," dated June 29, 2007; GAO Code 290549).

The VHC Network provides global outreach supporting specialized expertise in immunization healthcare (with a focus on adult, travel, and biodefense vaccines) that is dedicated to enhanced vaccine effectiveness, safety and acceptability. The Network supports adverse events evaluations and reporting through the Vaccine Adverse Events Reporting System (VAERS-http://vaers.hhs.gov/). It also provides enhanced individual case management and causality assessments for medical exemptions and adverse events. In addition, the staff of the VHC Network is dedicated to the development of new adverse events case definitions, clinical guidelines for diagnostics, treatments and follow-up care, immunization healthcare research, and continuous quality improvement through improved competency training and consultation resources.

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2250 Mail: Stop SSOP, Washington, DC 20402-0001

ISBN 0-16-075227-2

Table of Contents

	PAGE
Project Development, Message From the Director & Foreword	ii-ix
Vaccine Healthcare Centers Network	x-xi
Additional Resources for Providers	xii-xiii
Know the Facts About Immunization	1-1
Risk Communication	1-2
Standards for Military Immunization	1-3
Missed Opportunities for Immunization	1-5
Safe Handling and Storage of Vaccines	1-6
Vaccines and Their True and Untrue Contraindications and Precautions	1-7
Antibody-Containing Products and Duration of Interference with Varicella or Measles Vaccine Immune Response	1-9
Vaccine Products Licensed for Use in the United States	1-11
Vaccine Company Contact Information	1-12
How To Administer Intramuscular (IM) Injections	1-13
How To Administer Subcutaneous (SC) Injections	1-14
Sample Screening Questionnaire	1-15
Anaphylaxis	1-17
Principles of Anaphylaxis Management	1-19
Caring for Adverse Events After Vaccination and VICP	1-23
Medical Exemptions	1-29
Administrative Exemptions	1-30

ADULT & MILITARY IMMUNIZATIONS

	Page
Adult Immunization Schedule	2-2
Anthrax	2-7
Hepatitis A and Twinrix®	2-9
Hepatitis B and Twinrix®	2-11
Haemophilus influenzae type b (Hib)	2-12
Human Papillomavirus (HPV)	2-14
Influenza	2-15
Influenza (FluMist®)	2-17
Japanese Encephalitis	2-19
Measles, Mumps and Rubella (MMR)	2-21
Measles	2-23
Meningococcal	2-25
Mumps	2-27
Pneumococcal Polysaccharide (PPV23)	2-29
Poliovirus	2-31
Rabies	2-33
Rubella	2-35
Smallpox (Vaccinia)	2-37
Td (Tetanus and Diphtheria Toxoids)	2-45
Tdap (Tetanus and Diphtheria Toxoids and Acellular Pertussis)	2-46
TT (Tetanus Toxoid)	2-48
Typhoid	2-49
Varicella (Chickenpox)	2-51
Yellow Fever	2-53
Zoster (Shingles)	2-54

PEDIATRIC IMMUNIZATIONS **Page**

Childhood/Adolescent Immunization Schedule..... 3-3
Summary of Recommendations for Immunization..... 3-11
DTaP (Diphtheria, Tetanus, and Acellular Pertussis)..... 3-15
DT (Diphtheria and Tetanus)..... 3-17
Td (Tetanus and Diphtheria)..... 3-18
Tdap (Tetanus, Diphtheria, and Acellular Pertussis)..... 3-19
Hepatitis A (Havrix®, Vaqta®)..... 3-21
Hepatitis B (Engerix B®, Recombivax HB®)..... 3-23
Haemophilus influenzae type b (Hib)..... 3-25
Human Papillomavirus (HPV)..... 3-27
Influenza..... 3-28
Influenza (FluMist®)..... 3-29
Measles, Mumps and Rubella (MMR)..... 3-31
Measles, Mumps, Rubella, and Varicella (MMRV): Proquad®..... 3-33
Measles..... 3-35
Meningococcal..... 3-37
Mumps..... 3-39
Pediarix®..... 3-41
Pneumococcal Conjugate (PCV7)..... 3-43
Pneumococcal Polysaccharide (PPV23)..... 3-45
Poliovirus..... 3-46
Rotavirus..... 3-47
Rubella..... 3-49
Varicella (Chickenpox)..... 3-51

STORAGE AND HANDLING INSTRUCTIONS

Storage and Handling Section: CDC..... 4-1
Storage and Handling Section: Military and Travel..... 4-14

Message From the Director:

Welcome to the Fifth Edition of the Immunization Tool Kit (ITK). The ITK provides a practical reference that facilitates and enhances the delivery of quality immunization healthcare to Department of Defense (DoD) beneficiaries and employees. As both active and passive vaccines increase in number and complexity, competency training and sustainment with adherence to best practices presents a significant challenge. Standards for quality care are detailed in the most recent joint regulations for "Medical Services Immunizations and Chemoprophylaxis" (published September 29, 2006 at www.vaccines.mil/documents/969r40_562.pdf) and in national guidelines published by the National Vaccine Advisory Committee in March 2000 ("Adult Immunization Programs in Nontraditional Settings: Quality Standards and Guidance for Program Evaluation" at www.cdc.gov/mmwr/preview/mmwrhtml/rr4901a1.htm).

The Military Health System (MHS) is dedicated to providing excellence in healthcare services and the content of this tool kit represents one of several educational resources developed by the Vaccine Healthcare Centers Network in collaboration with MILVAX and the new Immunization University Program (www.vaccines.mil) to enhance vaccine efficacy, safety and acceptability. The role of the VHC is to serve healthcare workers who serve DOD personnel as well as service members, their families or advocates, and other beneficiaries with special issues related to vaccines, medical exemptions, adverse events evaluation, reporting and care management,

For more information regarding VHC Network services and a downloadable format of the Tool Kit, please visit our web site: www.VHCinfo.org. A program for obtaining continuing education credit based on studying the information in the ITK is under development and will be made available through www.VHCinfo.org in late 2007. We want to highlight for our users the excellent one-stop Quick Reference Chart that provides easy access to policy, CDC guidelines documents and service-specific messages by vaccine at www.vaccines.mil/default.aspx?cnt=resource/quickReferenceChartHome.

If you have specific clinical concerns or are interested in participating in our medical exemption/adverse events registry, call our 24/7 Clinical Call Center at 1-866-210-6469 or send your questions or requests for help to the secure web-based consultation service at https://askvhc.wramc.army.mil. For information about vaccine research protocols, call 202-782-0411. We appreciate your feedback and suggestions for quality improvements in this resource.

Please take a moment and complete our ITK survey online at www.VHCinfo.org. Sustainment of this resource is based on information that validates the utility to you and those you serve.

We look forward to serving you!

Renata J. M. Engler, MD
COL, MC

Foreward From the Director

The Vaccine Healthcare Centers Network (VHC) compiled the material in this Immunization Tool Kit (ITK) in conformity with its mission to support continuous quality improvement of immunization healthcare delivery throughout the DoD. The ITK is intended to be a pocket-sized, readily available source of essential information on vaccines and immunization recommendations for all levels of healthcare workers. It is not a comprehensive reference for initial competency training.

Vaccines are prescription drugs. The guidelines and directions for safe administration of this special group of drugs are detailed in the manufacturers' package inserts (approved by the Food and Drug Administration or FDA) with supplemental information from national consensus guidelines detailed in the Recommendations of the Advisory Committee on Immunization Practices (ACIP) published in the Morbidity and Mortality Weekly Reports (MMWR). MMWR can be found online at www.cdc.gov/mmwr/ (requests for complete set: 800-232-2522). It is important to remember for quality care of individual service members and beneficiaries that this information applies to populations. It does not eliminate the need to evaluate individual medical history and clinical status (ill or well).

Also "safe and effective" does not mean that there are NO adverse events or rare serious reactions. Myopericarditis after smallpox vaccine is one example of a new adverse event that has been defined as probably causally linked to the vaccine. In response, the VHC Network creates clinical guidelines for diagnosis, care, and follow up to assure that the newest information is provided to healthcare workers and vaccinees. In addition, direct consultation with the VHC Network and enrollment in the adverse events registry of affected patients ensures access to information that may not be found in the standard resources.

The VHC gratefully acknowledges the invaluable feedback and focus group critiques provided by reviewers from all the services and the staff and students of the Walter Reed Immunization-Allergy Specialty Course. For a complete list of contributors, go to www.VHCinfo.org.

Vaccine Healthcare Centers Network

What is the VHC Network?
The Walter Reed National Vaccine Healthcare Center is the lead agent for the (VHC) Network. The four Regional Centers include: Walter Reed Army Medical Center, Washington, DC; Naval Medical Center Portsmouth, Portsmouth, VA; Womack Army Medical Center, Fort Bragg, NC; and Wilford Hall Medical Center, Lackland Air Force Base, TX.

Vision:
The Vaccine Healthcare Centers (VHC) Network envisions a collaborative network of expert resources that supports Department of Defense service members and their families, beneficiaries, health care workers, and employees through clinical consultation and services for vaccine efficacy and safety, case management, research, surveillance & reporting, immune readiness education, and advocacy for quality immunization healthcare standards.

Mission:
The mission of the Vaccine Healthcare Centers (VHC) Network is to enhance quality immunization healthcare and vaccine safety surveillance by acting as a specialized expert clinical support system with global outreach and 24/7 availability for consultation services as well as the development and implementation of programs, research, and services that enhance vaccine safety, efficacy and acceptability.

Mailing Address:
Vaccine Healthcare Centers Network
Walter Reed Army Medical Center
P.O. Box 59606 - Old Red Cross Bldg - Suite 21
6900 Georgia Avenue, NW
Washington, DC 20012-0606
Phone: (202) 782-0411; DSN: 662-0411
Fax: (202) 782-4658/5161
Website: www.vhcinfo.org
24/7 Clinical Call Center: 1-866-210-6469
General e-mail: AskVHC@amedd.army.mil
Secure and confidential website for vaccine-related questions or problems:
https://askvhc.wramc.amedd.army.mil

Regional Vaccine Healthcare Centers

Walter Reed Regional Vaccine Healthcare Center
6900 Georgia Avenue NW
Washington, DC 20307-5001
Phone (202) 782-0411; DSN: 662-0411
Fax: (202) 782-4658/5161
e-mail: AskVHC@amedd.army.mil

Richard E. Shope Regional Vaccine Healthcare Center
Naval Medical Center Portsmouth
620 John Paul Jones Circle, Bldg. 1C-107
Portsmouth, VA 23708-2197
Phone: (757) 953-9150; DSN: 377-9150
Fax: (757) 953-5887

Fort Bragg Regional Vaccine Healthcare Center
Womack Army Medical Center
1-2539 Hamilton Street, Bldg. 1
Fort Bragg, NC 28310-0001
Phone: (910) 432-4015; DSN: 239-4015
Fax: (910) 432-4054

Wilford Hall Regional Vaccine Healthcare Center
Wilford Hall Medical Center
2131 Pepperrell Street, Bldg. 3350, Ste. 1
Lackland AFB, TX 78236-5314
Phone: (210) 292-0482; DSN: 554-0482
Fax: (210) 292-0493

Additional Resources for Providers

Military Vaccine Agency (MILVAX)

www.vaccines.mil

The official web site for military vaccines. This site provides access to current immunization program information for DoD and the Military Services. Because DoD immunization programs are built on the foundation of national standards of immunization practice, this site provides links to other government and non-government sites dedicated to vaccines, immunization practices, and vaccine safety.

Joint Instruction on Immunization and Chemoprophylaxis:

dated 29 September 2006

http://www.vaccines.mil/documents/969r40_562.pdf

National Vaccine Injury Compensation Program

http://www.hrsa.gov/vaccinecompensation

A federal program that provides compensation for people who have been injured through rare but serious adverse events linked to certain vaccines. For further information, contact the VICP at:
5600 Fishers Lane
Rockville, MD 20857
1-800-338-2382

Centers for Disease Control and Prevention (CDC)
National Center for Immunization and Respiratory Diseases

www.cdc.gov/vaccines 1-888-232-3228
National Immunization Hotline
1-800-232-4636 (English); 1-888-232-6348 (TTY)

Deployment Health

www.pdhealth.mil

PDHealth.mil was developed by the Deployment Health Clinical Center as a resource for clinicians, veterans, and their families.

Immune Readiness Courseware

www.vhcinfo.org

Free online continuing education immunization training modules covering a variety of topics. Earn credits to support competency documentation requirements

Immunization Action Coalition

www.immunize.org 651-647-9009
Download ACIP statements, MMWRs, and other vaccine news
Sign up for *IAC Express* (FREE e-mail newsletter on immunizations)
View the Directory of National Immunization Resources online

ImmunoFacts: The Immunization Gateway, Your Vaccine Fact Finder

www.immunofacts.com
U.S. and Canadian Vaccine Recommendations
State and International Vaccine Information
Practice and Safety Issues
Government Databases
Industry Links
Publications and Handouts
Other Resources

Naval Medical Logistics

www.nmlc.med.navy.mil

National Network for Immunization Information

www.immunizationinfo.org
This partnership of professional medical organizations provides the public, health professionals, policy makers, and the media with up-to-date, scientifically valid information related to immunizations to help them understand the issues and to make informed decisions. NNII offers a resource kit for clinicians: “Communicating with Patients about Immunization.” For more information, call 409-772-0199.

Vaccine Adverse Event Reporting System (VAERS)

http://vaers.hhs.gov
Call toll-free VAERS information line at 1-800-822-7967.

Know The Facts About Immunization

- Immunizations are one of the most important ways people can protect themselves against serious, preventable infectious diseases.

- Immunizations are safe for the majority of the population because of advances in medical research and ongoing review by doctors, researchers, and public health officials.

- Immunizations are recommended for infants, young children, adolescents, adults, the elderly, and those with chronic health problems (who are particularly vulnerable to infectious diseases).

- While rare risks can accompany any immunization (like any other drug), people are far more likely to be seriously harmed by vaccine-preventable diseases than by the recommended immunizations that prevent them.

- Medical advances have resulted in the availability of an increasing number of progressively more effective and safer vaccines. Now, people can be protected against a greater number of serious diseases than ever before.

- Immunization benefits not just the individual, but also the community. Communicable infectious diseases spread among people who have not been immunized and among the small percentage of people for whom an immunization may not have been fully effective. When you get immunized, you help others as well as yourself!

- Immunizations work by strengthening the body's own immune defenses in specific ways.

- While breastfeeding and taking vitamins have general health benefits, they do not replace the specific benefits of vaccines in preventing infectious diseases.

- Without immunizations, the diseases from which we are now protected could easily return to infect, disable, and even kill, many people of all ages.

Source:
Adapted with permission from The National Network for Immunization Information: www.immunizationinfo.org

Risk Communication Approach to Explain Immunization

1. Listen, evaluate, and define concerns
2. Recognize and validate concerns (acknowledge patient's perspective)
3. Provide context for immunization recommendation (what are the disease risks)
4. Identify and address misinformation (avoiding confrontational or adversarial approach and/or attitude)
5. Provide balanced information: what we know, what we do not know
6. Recognize the importance of the patient's/advocate's/parent's partnership in clinical decision
7. Educate about potential consequences in the context of risk-benefit issues
8. Make a clear recommendation that addresses concerns and allows for a second opinion if needed

Adapted with revisions from Halperin, S., MD. Addressing doubts about immunization.Canadian Immunization Awareness Program. Canadian Public Health Association: www.immunize.cpha.ca

If a patient requests a **second opinion**, provide him or her with a local specialty consultation referral or contact the Vaccine Healthcare Centers Network:

- at a Regional Vaccine Healthcare Center (see www.vhcinfo.org)
- at the Clinical Call Center (24/7 support) 1-866-210-6469
- by phone for a referral to a VHC clinical consultant: 1-202-782-0411
- by web to a VHC clinical consultant: https://askvhc.wramc.amedd.army.mil

Standards for Military Immunization

Standard 1: Immunization Availability

a. Immunizations are available with minimum disruption of deployment or training schedules.
b. Immunizations are available at convenient times, without unnecessary barriers. Immunization services are available on a walk-in basis, as staffing permits. Physical examinations and temperature measurements before immunization are not routinely required if they would delay or impede the timely receipt of immunizations. As clinically appropriate, beneficiaries receive simultaneously the vaccine doses required.
c. Immunization services are responsive to the needs of beneficiaries.
d. Providers incorporate immunization screening and services as a routine part of clinical care for all beneficiaries. Standing orders with quality-assurance procedures are implemented, rather than depending on individual written orders or referral from a primary care provider.

Standard 2: Information and Education Before Immunization

a. Current versions of DOD information brochures or CDC VISs are provided before immunization and conspicuously available in waiting areas of immunization clinics.
b. Immunization personnel know how to readily obtain answers to patients' immunization questions. Personnel are available to accurately address questions and concerns posed by the vaccinee.
c. Before immunization, the vaccinee (individually or collectively) is given information about benefits and risks associated with immunization. For complicated topics (for example, anthrax, smallpox), detailed educational programs and brochures are provided. This information is culturally appropriate and at an appropriate level.

Standard 3: Vaccine Storage and Handling

a. Staff members adhere to cold-chain management principles, including both transportation and storage. A temperature monitoring process is used.
b. Vaccine inventories exceeding $25,000 are connected to temperature recording devices and alarm systems.

Standard 4: Indications and Contraindications to Immunization

a. Each patient is asked about allergies, health status, and previous adverse events before immunization. Each patient is provided an opportunity to ask questions about potential contraindications. Patients are referred for appropriate medical evaluation as needed.
b. During screening, the patient receives a comprehensive screening for all vaccine needs.
c. Immunization personnel understand the patient's personal situation before immunization. If a contraindication to immunization exists, this information is documented in the health record and immunization tracking system. Women are screened with regard to pregnancy.

Standard 5: Immunization Record Keeping

a. Immunizations are recorded accurately in a DOD-approved electronic tracking system according to Service-specific policy. Immunization records are updated at the time of immunization.
b. The immunization clinic or military unit has one or more mechanisms for notifying patients when the next dose of an immunization series is needed (that is, a reminder system).
c. The immunization clinic or military unit has one or more mechanisms for notifying patients when they are overdue for immunization (that is, a recall system).
d. Electronic ITSs are the preferred immunization record for DOD and USCG personnel. All Services record military immunization data into an electronic database that communicates with a centralized DOD registry. Reminder and recall systems may be automated or manual and may include mailed, e-mailed, or telephone messages.

Standard 6: Training

a. Persons who administer vaccines must be appropriately trained.
b. Medical personnel administer vaccines after training to a standard acceptable to the MTF commander, command surgeon, or other appropriate medical authority. Training will include vaccine storage and handling, vaccine characteristics, patient interviewing techniques, distinguishing valid and invalid contraindications, injection technique, documentation, managing and reporting of adverse events, and anaphylaxis.
c. Persons who administer vaccines complete at least 8 hours of annual continuing education and training on current immunization recommendations, schedules, and techniques. Training resources include resident courses, the self-paced Project Immune Readiness (www.vhcinfo.org), and video training from CDC.
d. Persons who administer vaccines have ready access to information resources regarding current recommendations for childhood, general adult, travel, and military-specific immunizations.

Standard 7: Adverse Events After Immunization

a. Epinephrine (such as auto-injectable epinephrine), properly stored, is readily available, along with other supplies determined locally.
b. Staff members have ready access to reporting options for the VAERS.
c. A quality improvement process assures adverse events are reported to VAERS promptly.
d. Persons who administer vaccines are close to a telephone or radio, so emergency medical personnel can be summoned. Medical providers document adverse events in the health record at the time of the event or as soon as possible thereafter.

Standard 8: Vaccine Advocacy to Protect the Military Family

a. The medical facility knows the extent of influenza and pneumococcal immunization coverage among its high-risk patients and has a plan to optimize that level.
b. The medical facility implements a plan to optimize immunization rates among cardiac, pulmonary, diabetic, asplenic, and other patient groups at elevated risk of complications from vaccine-preventable infectious diseases.
c. The medical facility conducts a quality improvement program to optimize its performance in immunizing children, adolescents, and adults against the preventable infections that most threaten them.
d. Commanders use immunization databases to identify and resolve the vulnerabilities of their units.
e. Commanders have plans to help their beneficiaries optimize their personal protection against preventable infectious diseases and meet national goals for optimal delivery of influenza and pneumococcal vaccines. All healthcare providers (not just those in immunization clinics) routinely determine the immunization status of their patients, offer vaccines to those for whom they are indicated, and maintain complete immunization records.

Quality and clinical standards derived from:

1. National Vaccine Advisory Committee (NVAC): http://www.cdc.gov/mmwr/PDF/RR/RR4901.PDF http://www.cdc.gov/mmwr/preview/mmwrhtml/rr4901a1.htm
2. Standards for Immunization Practice. National Coalition for Adult Immunization
3. Quality Standards for Immunization. Guidelines from the Infectious Diseases Society of America
4. JCAHO Standards for Accreditation

Training tool supporting immunization education: "Project Immune Readiness." Available at www.vhcinfo.org. CME and CE credit available. Civilian access to this education is available at www.vhcpir.org.

Missed Opportunities for Immunizations

Opportunities missed by providers to immunize can significantly contribute to undervaccination. Missed opportunities usually arise when the provider:

- Presumes that his or her immunization practices do not need improvement.

- Does not attempt to obtain immunization information from prior providers.

- Has no access to client immunization records; for example, the parent or client forgets to bring the immunization card to the visit. The clinic or physician's office does not maintain adequate, accessible, and up-to-date immunization records on all patients, or the patient presents at the emergency department where his or her immunization record is not on file.

- Does not review or incorrectly assesses client immunization status; for example, the provider does not check the patient's records or think to ask the patient (or his or her parent) whether he or she is up to date on his or her immunizations, or the provider does not obtain immunization history from the patient's prior providers. This kind of missed opportunity has special implications for the elderly who are often discharged from hospitals without any assessment of their immunization status or risk of vaccine-preventable diseases. Hospital care is a marker for identifying many patients who are destined to be re-admitted with pneumococcal infections and influenza-associated respiratory conditions.

- Does not understand indications; for example, the provider does not administer all recommended vaccines during a single visit.

- Has no actively implemented system in place for reminding clients of upcoming immunization needs and recalling clients who have missed immunization visits.

- Misinterprets contraindications; for example, the provider does not immunize a child with a mild illness, even though that illness does not constitute a true contraindication to immunization.

- Refers clients to public health clinics and other sources of free or low-cost immunizations. For some people, especially those outside of metropolitan areas, such referrals pose problems of availability and access to immunizations.

Missed Visits

Missed visits also account for a large percentage of children, adolescents, and adults who fail to receive age-appropriate vaccinations. A missed visit is a function of both provider-related (e.g., failure to schedule visits) and consumer-related (e.g., failure to keep appointments) factors. Some contributing factors to missed visits include lack of flexibility in scheduling and limited services (e.g., few providers, limited hours of operation). For example, a family that calls to schedule an appointment and finds that they must wait several weeks may be likely to forget the appointment when it comes around or refuse to schedule because it is so far in the future.

Source: Adapted with revisions from the Teaching Immunization Practices (TIP) For Nurses Association of Teachers of Preventive Medicine: www.ATPM.org

Safe Handling and Storage of Vaccines

Proper handling and storage of vaccines is critical to the effectiveness and safety of immunizations. Adequate training of personnel and regular review of storage and handling procedures using a standardized checklist is essential. Both CDC and JCAHO emphasize proper handling and storage to ensure vaccine effectiveness and safety. A vaccine handling and storage checklist is available from the Immunization Action Coalition: **http://www.immunize.org/catg.d/p3035chk.pdf**

Resources

Vaccine Management.

- Recommendations for Handling and Storage of Selected Biologicals: http://www.cdc.gov/vaccines/pubs/vac-mgt-book.htm
- USAMMA cold-chain management: http://www.usamma.army.mil/vaccines/CCM/cold_chain_management.cfm

"Vaccine Storage & Handling" online tutorial: http://www.vhcinfo.org
Click on the Project Immune Readiness button and complete registration
(2 hours CE/CME)

Vaccines and Their True and Untrue Contraindications and Precautions

Adapted and Updated from MMWR 2006;55(RR15):1-48*

Vaccine	Contraindications & Precautions	Untrue Contraindications (Vaccine can be administered)
General for all vaccines. Inactivated vaccines: Anthrax, DTaP, DT, HAV, HBV, Hib, HPV, IPV, JE-VAX, MCV. MPSV, PCV, PPV, Rabies, Td, TT, Tdap, ViCPS, TIV	Contraindications (Need further evaluation) · Prior serious allergic reaction · Serious allergic reaction to a vaccine component · (Tdap only) encephalopathy within 7 days of pertussis-containing vaccine without other known cause Precautions (Need further evaluation) · Moderate or severe acute illness, with or without fever · (For DTaP only) any of the following events after prior DTaP vaccination: T greater than 40.5°C within 48 hours; continuous crying for more than 3 hours within 48 hours; pale or limp episode or collapse within 48 hours; unstable, underlying neurologic problems (defer until stable)	· Mild acute illness · Prior vaccine reaction: mild-moderate, local, mild systemic · Convalescent illness phase · Premature birth if indicated · Recent infection exposure · Immune deficiency - although response to vaccine may be suboptimal · Pregnancy - not an absolute contraindication for non-live vaccines with exceptions such as anthrax vaccine unless the benefit-risk ratio favors immunization compared to the risk of disease · Breastfeeding · TB skin testing · Concurrent antibiotic use · Immune deficiency in household contact
Live virus: LAIV (FluMist), MMR, MMRV, Rotavirus, VAR, YF-VAX, Zoster	Contraindications (Evaluate further) · Prior serious allergic reaction · Serious allergic reaction to a vaccine component Precautions (Need further evaluation) · Moderate or severe acute illness · Immune-globulin containing products within up to 11 months before vaccination (see card 1-9, 1-10), except for YF-VAX and LAIV · Vaccinee has close contact at risk from vaccine strain of virus · Immune deficiency (primary or secondary); immune-suppressing treatments · Pregnancy · Thrombocytopenia (MMR) · (For LAIV only) any of the following: people with chronic medical conditions, children or adolescents on chronic aspirin therapy, people with history of Guillain-Barré syndrome · (For rotavirus only) history of gastrointestinal problem or current GI illness	· MMR: asymptomatic HIV infection · Varicella: avoidance of salicylates for 6 weeks following vaccine recommended by manufacturer but not a contraindication if needed · TB skin testing ** · Low dose oral or inhaled corticosteroid therapy

Vaccines and Their True and Untrue Contraindications and Precautions

Adapted from MMWR 2006 / 55(RR15);1-48

Vaccine	Contraindications & Precautions	Untrue Contraindications (Vaccine can be administered)
Live bacteria: BCG, Typhoid Ty21a (Oral)	Contraindications/Precautions · Same as for live virus (except for use of IgG-containing products) · Vaccinee has close contact at risk from vaccine strain of bacteria · Concurrent antibiotic use (Ty21a) · Acute gastrointestinal illness (Ty21a) · Immune deficiency (use ViCPS) · Certain skin conditions (BCG)	· For Ty21a: use of antimalarial medication (except proguanil if used within 10 days of final dose)
Smallpox/Vaccinia in non-outbreak scenario In outbreak situation vaccinate all exposed to virus - there are no contraindications in this case	Contraindications (Need further evaluation) · Same as for live virus · Current atopic dermatitis or eczema, or hx of either Precautions (Need further evaluation) · Same as for live virus · Skin conditions or topical anti-inflammatory therapy · Household contact with atopic dermatitis or immune deficiency · Physician-diagnosed heart disease, or significant heart disease risk factors	· Low dose oral or inhaled corticosteroid therapy

* Modified according to the clinical experience of the Department of Allergy-Immunology, Walter Reed Army Medical Center.

** Apply tuberculin skin test (TST also known as PPD) at same visit as live virus vaccines; or, delay TST for more than 4 weeks if a live virus vaccine is given first; or, apply TST first, and give the live virus vaccine when TST is read.



"Up-to-date on our immunizations and ready for deployment!"

Antibody-containing products and duration of interference with varicella or MMR vaccine immune response.

Adapted from MMWR 2006 / 55(RR02);1-48

Indication	Dose (Per kg)	Dose (mg IgG/ kg)	Route	Time interval before measles- or varicella-containing vaccine
Respiratory syncytial virus (RSV) prophylaxis	15 mg		IM	0 months
Tetanus (TIG) prophylaxis	250 units	10	IM	3 months
Hepatitis A (IG) • Contact prophylaxis • International travel	 0.02 mL 0.06 mL	 3.3 10	IM	3 months
Hepatitis B prophylaxis (HBIG)	0.06 mL	10	IM	3 months
Rabies immune globulin (HRIG)	20 international units/kg	22	IM	4 months
Measles prophylaxis (IG) • Nonimmunocompromised contact • Immunocompromised contact	 0.25 mL 0.50 mL	 40 80	 IM IM	 5 months 6 months
Vaccinia immune globulin IV	100-500 mg	100-500	IV	6 months
RBCs, washed	10 mL	negligible	IV	0 months
RBCs, adenine-saline added	10 mL	10	IV	3 months
Packed RBCs (Hct 65%)*	10 mL	60	IV	6 months
Whole blood (Hct 35%-50%)*	10 mL	80-100	IV	6 months

Antibody-containing products and duration of interference with varicella or MMR vaccine immune response. (Adapted from MMWR 2006 / 55(RR15);1-48)

Indication	Dose (Per kg)	Dose (mg IgG/kg)	Route	Time interval before measles- or varicella-containing vaccine
Plasma/platelet products	10	160	IV	7 months
CMV (IGIV)	150 (max)		IV	6 months
Replacement therapy for immune deficiencies (IGIV) **	300-400		IV	8 months
ITP (IGIV)	400 1000		IV	8 months 10 months
Postexposure varicella prophylaxis (IGIV)^	400		IV	8 months
Kawasaki disease (IGIV)	2000		IV	11 months

Unvaccinated people may not be fully protected against measles during the entire suggested time interval, and additional doses of immune globulin and/or measles vaccine might be indicated after measles exposure. The concentration of measles antibody in a particular immune globulin preparation can vary by its manufacturer's lot. Rates of antibody clearance after receipt of an immune globulin preparation also might vary. Recommended intervals are taken 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.

* Assumes a serum IgG concentration of 16 mg/mL.
** Measles and varicella vaccination are recommended for most HIV-infected children (mild and/or asymptomatic) who do not have evidence of severe immune suppression, but it is contraindicated for patients who have congenital disorders of the immune system.
^ This investigational product VariZIG, similar to licensed VZIG, is purified human immune globulin preparation made from plasma containing high levels of anti-varicella antibodies. When indicated, healthcare providers should make every effort to obtain and administer VariZIG. Administration of IGIV should be considered as an alternative.

Vaccine Products Licensed for Use in the United States, 2007

Product Name	Trade Name	Manufacturer	Type	Usual Dose (volume)
Anthrax, adsorbed	Biothrax	Emergent Biosolutions	I	0.5 mL
DT	No Trade Name	sanofi pasteur	I	0.5 mL
DTaP	Tripedia	sanofi pasteur	I	0.5 mL
DTaP	Infanrix	GlaxoSmithKline	I	0.5 mL
DTaP	Daptacel	sanofi pasteur	I	0.5 mL
DTaP + Hep B + IPV	Pediarix	GlaxoSmithKline	I	0.5 mL
DTaP + Hib	TriHIBit	sanofi pasteur	I	0.5 mL
Hib (HbOC)	HibTITER	Wyeth	I	0.5 mL
Hib (PRP-OMP)	PedvaxHIB	Merck	I	0.5 mL
Hib (PRP-T)	ActHIB	sanofi pasteur	I	0.5 mL
Hib + Hep B	Comvax	Merck	I	0.5 mL
Hep A	Havrix	GlaxoSmithKline	I	0.5 mL/1 mL
Hep A	Vaqta	Merck	I	0.5 mL/1 mL
Hep A + Hep B	Twinrix	GlaxoSmithKline	I	1 mL
Hep B	Recombivax HB	Merck	I	0.5 mL/1 mL
Hep B	Engerix-B	GlaxoSmithKline	I	0.5 mL/1 mL
HPV	Gardasil	Merck	I	0.5 mL
Influenza (TIV)	Fluarix	GlaxoSmithKline	I	0.25 mL/0.5 mL
Influenza (TIV)	Fluvirin	Novartis Vaccines	I	0.25 mL/0.5 mL
Influenza (TIV)	Fluzone	sanofi pasteur	I	0.25 mL/0.5 mL
Influenza (TIV)	FluLaval	GlaxoSmithKline	I	0.25 mL/0.5 mL
Influenza (LAIV)	FluMist	MedImmune	LA	0.2 mL/0.5 mL*
Japanese Encephalitis	JE-Vax	sanofi pasteur	I	1 mL
MMR	M-M-R II	Merck	LA	0.5 mL
MMRV	ProQuad	Merck	LA	0,5 mL

I = Inactivated LA = Live attenuated

***** New LAIV formulation will be 0.2 mL

The above list is not exhaustive; refer to ImmunoFacts: www.immunofacts.com

Source: U.S. Food and Drug Administration (www.fda.gov/cber/vaccine/licvacc.htm)

Vaccine Products, 2007 (Continued)

Product Name	Trade Name	Manufacturer	Type	Usual Dose (volume)
PCV	Prevnar	Wyeth	I	0.5 mL
PPV	Pneumovax 23	Merck	I	0.5 mL
IPV (Polio)	IPOL	sanofi pasteur	I	0.5 mL
Rabies	Imovax	sanofi pasteur	I	1 mL
Rabies	RabAvert	Novartis Vaccines	I	1 mL
Rotavirus	RotaTeq	Merck	LA	0.5 mL
Smallpox	Dryvax	Wyeth	L	3/15 jabs
Td	Decavax	sanofi pasteur	I	0.5 mL
Tdap	Adacel	sanofi pasteur	I	0.5 mL
Tdap	Boostrix	GlaxoSmithKline	I	0.5 mL
TT	No Trade Name	sanofi pasteur	I	0.5 mL
Typhoid Oral (Ty21a)	Vivotif	Berna	LA	4 capsules
Typhoid Vi	Typhim Vi	sanofi pasteur	I	0.5 mL
Varicella	Varivax	Merck	LA	0.5 mL
Yellow Fever	YF-Vax	sanofi pasteur	LA	0.5 mL
Zoster	Zostavax	Merck	LA	0.65 mL

I = Inactivated L = Live LA = Live attenuated

This list is not exhaustive; refer to ImmunoFacts: www.immunofacts.com
Source: U.S. Food and Drug Administration (www.fda.gov/cber/vaccine/licvacc.htm)

Vaccine Company Contact Information

- Berna Products Corp. (www.bernaproducts.com) (800) 533-5899
- Emergent Biosolutions. (www.emergentbiosolutions.com) (877) 246-8429
- GlaxoSmithKline (www.GSKvaccines.com) (866) 475-8222
- MedImmune Vaccines, Inc. (www.medimmune.com) (877) 633-4411
- Merck & Co. (www.merckvaccines.com) (800) 672-6372
- Novartis Vaccines (www.novartisvaccines.com) (800) 244-7668
- sanofi pasteur (www.sanofipasteur.us) (800) 822-2463
- Wyeth Vaccines (www.wyeth.com) (800) 934-5556

How to Administer Intramuscular (IM) Injections

Administer these vaccines via intramuscular (IM) route: Diphtheria-tetanus (DT, Td) with pertussis (DTaP, Tdap); Hib; hepatitis A; hepatitis B; human papillomavirus (HPV); inactivated influenza; meningococcal conjugate (MCV4); and pneumococcal conjugate (PCV). Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPV) either IM or SC.

Patient age	Site	Needle size
Birth to 12 mos.	Anterolateral thigh muscle	5/8"* needle (newborns only), 1" (older infants), 22–25 gauge
12 mos. to 10 yrs.	Thickest portion of deltoid muscle—above level of axilla and below acromion (if adequate muscle mass). The anterolateral thigh may also be used.	5/8"*† to 1" needle, 22–25 gauge
Children and adults 11 yrs. and older	Thickest portion of deltoid muscle—above level of axilla and below acromion	1"–1½"*† needle, 22–25 gauge

*A 5/8" needle can be used if the skin is stretched tight and the subcutaneous tissue is not bunched.
†A 5/8" needle may be used in the deltoid muscle in children ages 12 mos. or older and in adults weighing less than 130 lbs.

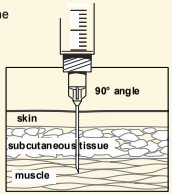
Needle insertion

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, it is not necessary to aspirate, i.e., to pull back on the syringe plunger after needle insertion.[1])

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



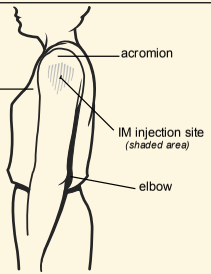
[1]CDC. "ACIP General Recommendations on Immunization" at www.cdc.gov/nip/publications/ACIP-list.htm.

IM site for infants



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

IM site for children (after the 1st birthday) and adults



Insert needle at a 90° angle into thickest portion of deltoid muscle—above the level of the axilla and below the acromion.

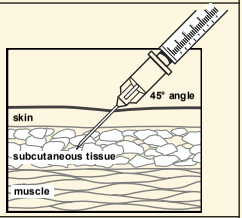
Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy

Adapted by the Immunization Action Coalition, courtesy of the Minnesota Department of Health

How to Administer Subcutaneous (SC) Injections

Administer these vaccines via subcutaneous (SC) route: MMR, varicella, meningococcal polysaccharide (MPSV), and zoster (shingles). Administer inactivated polio (IPV) and pneumococcal polysaccharide (PPV) vaccines either SC or IM.

Patient age	Site	Needle size	Needle insertion
Birth to 12 mos.	Fatty tissue over the anterolateral thigh	5/8" needle, 23–25 gauge	Pinch up on SC tissue to prevent injection into muscle. Insert needle at 45° angle to the skin. (Before administering an injection, 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. "ACIP General Recommendations on Immunization" at www.cdc.gov/nip/publications/ACIP-list.htm.
12 mos. and older	Fatty tissue over the triceps	5/8" needle, 23–25 gauge	

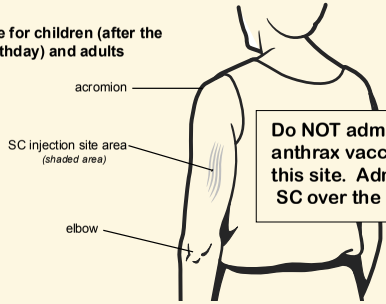


SC site for infants



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

SC site for children (after the 1st birthday) and adults



Do NOT administer anthrax vaccine at this site. Administer SC over the deltoid.

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

Adapted by the Immunization Action Coalition, courtesy of the Minnesota Department of Health

Pre-Immunization Screening - Sample Form

This form is not comprehensive. Individual vaccine issues may need to be added.

MEDICAL RECORD	CHRONOLOGICAL RECORD OF MEDICAL CARE
DATE	SYMPTOMS, DIAGNOSIS, TREATMENT, TREATING ORGANIZATION *(Sign each entry)*
	IMMUNIZATION SCREENING FORM ***
PATIENT USE	*The following questions will help us determine which vaccines may be given today. If a question is not clear, please ask your health care provider to explain it.*
	1. Are you sick today? Y N Unsure
	2. Do you have any allergies to medications, food, latex or any vaccine? Y N Unsure If yes, please list allergies and describe what happened and when.
	3. Have you ever had a serious reaction after receiving a vaccine? Y N Unsure If yes, please describe what happened and when.
	4. Do you have cancer, leukemia, AIDS, or any other immune system problem? Y N Unsure
	5. Do you take cortisone, prednisone, other steroids, or anticancer drugs (chemotherapy), or have you had x-ray treatments (radiation therapy)? Y N Unsure
	6. During the past year, have you received a transfusion of blood or blood products, or been given a medicine called immune globulin (gamma globulin)? Y N Unsure
	7. For women: When was the first day of your last normal menstrual period? __/__/__ Was your last menstrual period normal and on time? Y N Unsure
	8. Have you received any vaccines in the past 4 weeks? Y N Unsure If yes, which vaccines did you receive and when?

	9. Did you bring your immunization record with you?	Y N
	**It is important for you to have a personal record of your immunizations. If you don't have a record, it may be possible for the clinic to print out or photo copy your updated records from today. Please ask.*	
	***After receiving your vaccine, and during the next 3-4 weeks, if you should need to go to sick call or see a provider for any reason, mention that you received vaccines today.*	
CLINIC USE ONLY	Screening form reviewed by _____ / _____ Date _____ (name) (title)	
	******For smallpox screening, please use forms located at http://www.smallpox.mil/resource/forms.asp***	

HOSPITAL OR MEDICAL FACILITY	STATUS	DEPART./SERVICE	RECORDS MAINTAINED AT
SPONSOR'S NAME	SSN/ID NO.	RELATIONSHIP TO SPONSOR	
PATIENT'S IDENTIFICATION: *(For typed or written entries, give: Name - last, first, middle; ID No or SSN; Sex; Date of Birth; Rank/Grade.)*		REGISTER NO.	WARD NO.

CHRONOLOGICAL RECORD OF MEDICAL CARE
Medical Record
STANDARD FORM 600 (REV. 6-97)
Prescribed by GSA/ICMR
FIRMR (41 CFR) 201-9.202-1 USAPA V2.00

ANAPHYLAXIS: Signs and Symptoms

in the context of administering medications, immunizations, or allergen immunotherapy

Generalized urticaria	Chest tightness or cough
Angioedema	Wheezing
Pruritus	Dyspnea
Hoarseness	Dizziness
Laryngeal edema	Stridor
Tachycardia	Syncope
Cramps, nausea	Sense of impending doom
Disorientation	Shock

ANAPHYLAXIS: DIFFERENTIAL DIAGNOSIS

Anaphylaxis: a generalized allergic reaction affecting one or more organ systems (e.g., skin, respiratory, gastrointestinal, cardiovascular), but not including a local reaction.

Syndromes that may present similar signs or symptoms include:

Vasovagal reaction - usually secondary to anxiety or painful situations (but is NOT under voluntary control) and frequently in physically fit individuals with a history of fainting easily. The patient appears pale and may complain of nausea before syncope (fainting), but does not become pruritic (itchy), flushed (redness in face, neck), or cyanotic (blue discoloration). There may be a significant fall in blood pressure and/or slowed heart rate. Patients usually experience profuse diaphoresis (sweating). These patients usually improve spontaneously without medication. Rarely, a low heart rate causes blood pressure to fall, which may result in fainting. If fainting does occur, monitor the patient until symptoms resolve. If a patient is at risk for this type of reaction, administer shot in such a way as to reduce the risk of injury related to a fall (e.g., place patient in a reclining position with feet elevated).

Hyperventilation – may also cause breathlessness and collapse. Peripheral tingling sensations are experienced without any other associated signs or symptoms. Blood pressure and pulse are maintained, unless associated with a vasovagal reaction.

Hypoglycemic reaction – usually secondary to a fall in blood sugar and may be related to not having had breakfast and prolonged standing or activity prior to the immunization. Symptoms may be mild or severe and may range from mild weakness or dizziness to symptoms that can be mistaken for a vasovagal reaction or a stroke (nervousness, sweating, intense hunger, trembling, weakness, palpitations, trouble speaking). Asking patients if they have eaten (particularly if they have diabetes or it is later in the morning) and if they have problems with this type of reaction may allow for prevention of a reaction after immunization by encouraging a snack or sugar containing drink. In large immunization programs, it may be advisable to have some emergency snacks or drinks available.

Differential Diagnosis*

	ANAPHYLAXIS	VASOVAGAL REACTION
Respiratory	Shortness of breath	Hyperventilation (rapid breathing)
	Hoarse, lump in throat, difficulty swallowing	
	Wheezing, chest tightness	
	Oxygen saturation: normal or ↓	Oxygen saturation: normal or ↑
	Nasal congestion, rhinorrhea	
Cardiovascular	Tachycardia	Normal or bradycardia
	Normotensive or Hypotensive Systolic ↑ or ↓ Diastolic ↓	Normotensive or hypotensive
Skin	Flushing	Pallor
	Urticaria (hives), angioedema	Cool, clammy diaphoresis
CNS	Feeling of impending doom	Anxious, tense, fearful
GI	Nausea/vomiting	Nausea/vomiting
	Abdominal cramps/ diarrhea	

*It is not always easy to discriminate between vasovagal and anaphylaxis reactions. Flushing (limited to the head and neck) and panic disorders, in the absence of other signs and symptoms, also may be confused with anaphylaxis.

Principles of Anaphylaxis Management

CLINICAL PRESENTATION OF ANAPHYLAXIS: Anaphylaxis may develop gradually over minutes or hours after exposure to a trigger. The first signs may be a sensation of warmth or flushing, followed by development of generalized pruritus (itching), urticaria (hives), and angioedema (deep tissue swelling often of the face) or nasal congestion and/or rhinorrhea (runny nose) with conjunctival injection (red, prominent blood vessels in the whites of the eyes frequently associated with watery discharge). Voice change and/or respiratory stridor may indicate pharyngeal edema. Wheezing, a sign of bronchospasm, may progress to severe respiratory distress. All this may be complicated by the development of shock or vascular collapse. The reaction may have an accelerated time course often described as "severe rapidly progressive anaphylaxis." Respiratory and/or cardiovascular arrest may occur within minutes. The reaction may improve and then recur with even greater severity many hours after the initial symptoms.

Anaphylaxis may present in many ways and with varying levels of severity. With severe rapidly progressive anaphylaxis, speed of epinephrine administration is critical for survival. Anaphylaxis may occur with a delayed onset of several hours (or even days) after Japanese encephalitis vaccination. A b-tryptase blood level between 1 and 5 hours after the reaction may confirm the diagnosis.

Subjective symptoms of anaphylaxis only (may or may not be true anaphylaxis):
- Consider symptoms to be anaphylaxis until proven otherwise in a high-risk situation (e.g., allergen immunotherapy or parenteral medication administration, such as a vaccine).

Cutaneous anaphylaxis (itching, hives, angioedema and/or flushing only with no respiratory or cardiovascular compromise):
- Treat with epinephrine, although recovery may occur spontaneously or with symptomatic treatment (antihistamine alone).
- Do not delay treatment with epinephrine because more severe anaphylaxis may occur.

Systemic anaphylaxis (symptoms and/or signs of respiratory and/or cardiovascular involvement):
- Immediately administer IM epinephrine, preferably into the vastus lateralis muscle (anterolateral thigh) for optimal blood level.
- Use deltoid muscle as alternative site if thigh is inaccessible.

Severe rapidly progressive anaphylaxis:
- Administer IM epinephrine immediately into the vastus lateralis muscle, even through clothing.
- Simultaneously with epinephrine injection, start IV line and begin oxygen therapy.
- Repeat epinephrine dose every 1 to 5 minutes, as needed.
- Administer topical epinephrine to the posterior pharynx (back of throat) if laryngeal edema is present.

Beta-blocker therapy is associated with a poor response to epinephrine in the setting of anaphylaxis. Glucagon therapy may be life-saving in this setting and should be considered.

Principles of Anaphylaxis Management (Continued)

Immediate intervention following diagnosis of anaphylaxis

Rapidly assess airway, breathing, circulation, and mental status

- Avoid patient movement, if possible. Walking may increase rate of anaphylaxis progression.
- Place patient in a supine position and elevate legs, if clinical condition allows. With symptoms of asthma or laryngeal edema, place patient in position that facilitates breathing (not supine).

- For adults: Administer **epinephrine**: use 1:1000 (aqueous, 1 mg/mL) 0.3 to 0.5 mL IM into anterolateral thigh or deltoid OR, if available, use autoinjectable epinephrine (EpiPen® Adult 0.3 mg)*
- For children: Administer epinephrine 0.01 mg/kg body weight IM to a maximum of 0.3 mg OR, if available, use autoinjectable epinephrine (EpiPen Junior® 0.15 mg)*
- **Repeat every 10 to 15 minutes** unless symptoms progress or compromise breathing or blood pressure. If symptoms progress or breathing or blood pressure are compromised, repeat every 1 to 5 minutes while establishing an intravenous line and preparing for aggressive resuscitation.

*EpiPens® are convenient and suited to rapid injection while other preparations for treatment are underway. Caution: Hold EpiPen® in place for 10 seconds after injection to avoid injecting the epinephrine into the air. There is a time delay in firing.

- If the patient is in anaphylactic shock: **Intravenous epinephrine can be used using 1:10,000 dilution for optimum safety. Infuse at 1 mcg/min** initially, then 2 to 10 mcg/min, unless higher doses are indicated in an ACLS* setting. May use 1:100,000 dilution for titration of dose to clinical response by diluting 0.1 mL of 1:1,000 in 10 mL of normal saline (=1:100,000 dilution)
- Repeat as necessary in anaphylaxis not responding to epinephrine injections and volume resuscitation. **Continuous hemodynamic monitoring is essential.**
- If unresponsive to treatment, consider complicating factors, such as beta-blocker therapy, and the need for glucagon.

- For **severe rapidly progressive anaphylaxis with no IV access**, consider administration of epinephrine via the pharyngeal mucosa, by nebulization, or by the intraosseous route.

* ACLS (advanced cardiac life support). For advanced cardiac management see: http://www.fpnotebook.com/CVCh1.htm

Principles of Anaphylaxis Management (Continued)

Assess patient status continuously and assure that adequate support personnel, including resuscitation team, are available if patient has any cardiac or respiratory compromise.

Important Components of Anaphylaxis Care

- **Oxygen**: 6 to 8 L/min (to keep saturation greater than 90%). If patient has chronic obstructive lung disease, 2 to 4 L/min to avoid respiratory arrest.
- **Fluids**: Administer normal saline intravenously for fluid replacement and venous access. If patient is severely hypotensive, rapidly infuse volume expanders (colloid-containing solutions).

- **Bronchodilator therapy** for asthma: Nebulized albuterol 0.5 mL of 0.5% solution in 2.5 mL of saline, or levalbuterol (Xopenex) 0.63 to 1.25 mg unit dose, and repeat as necessary.
- **Systemic corticosteroids**, such as methylprednisolone 1 to 2 mg/kg per 24 hours, are usually not helpful acutely but might prevent prolonged reactions or relapses. Use to prevent delayed or biphasic anaphylaxis in patients with cardiopulmonary compromise.
- **H1 blocker:** Administer diphenhydramine 25 to 50 mg or more in divided doses orally or intravenously, with maximum daily dose of 400 mg for adults and 300 mg (5 mg/kg) for children. Non-sedating antihistamines may be preferred.
- **H2 blockers**: Dilute ranitidine 50 mg for adults and 12.5 to 50 mg (1 mg/kg) for children in 5% dextrose to a total volume of 20 mL and inject intravenously over 5 minutes. Alternately, administer cimetidine 4 mg/kg to adults, but no pediatric dosage in anaphylaxis has been established.
- **Refractory hypotension and beta-blocker**: Administer glucagon 1 to 5 mg (20 to 30 mcg/kg [maximum 1 mg] for children) intravenously over 5 minutes, followed by an infusion of 5 to 15 mcg/min. Observe aspiration precautions because glucagon may cause nausea and emesis.

Principles of Anaphylaxis Management (Continued)

Additional Therapeutic Interventions

Reduce allergen absorption: A venous tourniquet above the reaction site might decrease absorption of an injected allergen or venom (evidence to support this is limited).

- Use extreme caution to avoid injury caused by reduced blood flow from the tourniquet or sudden rapid antigen release when the tourniquet is removed.
- Administration of local epinephrine to delay absorption is a controversial recommendation.

Hypotension refractory to volume replacement, epinephrine, H1 and H2 blockers, and glucagon injections:

- Administer dopamine 400 mg in 500 mL of 5% dextrose in water intravenously at 2 to 20 mcg/kg/minute, titrated to maintain adequate blood pressure. Monitor hemodynamic status.
- **High-dose epinephrine IV in adults**: 1 to 3 mg (1:10,000 dilution) slowly over 3 minutes, 3 to 5 mg over 3 minutes, and then 4 to 10 mcg/min infusion.
- **High-dose epinephrine IV in children**: 0.01 mg/kg (0.1 mL/kg of a 1:10,000 solution) repeated every 3 to 5 minutes for ongoing arrest. Consider higher subsequent doses (0.1 to 0.2 mg/kg, 0.1 mL/kg of a 1:1,000 solution) for unresponsive asystole or pulseless electrical activity.

Advanced cardiac life support interventions and guidelines apply if cardiovascular compromise worsens or results in cardiopulmonary arrest.

- Maintain prolonged resuscitation efforts. Efforts are more likely to be successful in anaphylaxis, because the subject is often a young person with a healthy cardiovascular system.
- Administer atropine and begin transcutaneous pacing if asystole or pulseless electrical activity is present.

Vasovagal reaction with hypotension: Nonallergic reaction characterized by slow pulse, nausea, pallor, sweating, clammy skin, and hypotension.

- Place patient in a supine position with elevation of the lower extremities and monitor vital signs.
- Atropine for bradycardia with hypotension: 0.3 to 0.5 mg (0.02 mg/kg) SC every 10 minutes (maximum 2 mg for adults and 1 mg for children) or per ACLS guidelines.

Adapted and modified by RJM Engler, MD from Kemp, SF, Lockey, RF. Anaphylaxis: A review of causes and mechanisms. Journal of Allergy and Clinical Immunology. 2002; 110: 341-8. Detailed Standard Operating Procedure with training guidelines available from AskAllergy@na.amedd.army.mil

Adverse Events After Vaccination

(Information for Patients)

Do vaccines have side effects?
Vaccines are prescription drugs. Like all drugs, vaccines can cause side effects. Some side effects after vaccination are common but usually not serious. These side effects are often expected to occur and although usually mild, some people and may interfere with work or play for a few days. Other side effects are less common or unexpected and may have more serious or long-lasting effects. More serious or long-lasting side effects, also known as vaccine adverse events or adverse events after immunization (AEFI), occur less commonly but should be evaluated and documented for medical exemption assessment.

Is there anything that I can do to prevent side effects after vaccination?
While most vaccine side effects are minor, you can help to prevent some of the more serious side effects if you:

- LEARN about the vaccine.
- ASK
  - o if there are any reasons why you should not receive the vaccine.
  - o what possible side effects need medical care and when to call the healthcare provider if they occur.

You can request more information from the Vaccine Healthcare Centers (VHC) Network by calling the Vaccine Clinical Call Center at 1-866-210-6469 (available 24 hours/day, 7 days/week), or online: **https://askvhc.wramc.amedd.army.mil**

How can I learn about the vaccines that I am going to get?
Ask your healthcare provider for vaccine-specific fact sheets. These fact sheets explain the disease and describe common and rare side effects, as well as the benefits of the vaccine. The fact sheets also describe reasons (contraindications) why certain people should not get a vaccine.

Fact sheets from the Centers for Disease Control and Prevention (CDC) are called Vaccine Information Statements (VIS). You can find copies in English at **www.cdc.gov/vaccines/pubs/vis/downloads/default.htm** or in a variety of languages at **www.immunize.org/vis/index.htm**). The Department of Defense (DoD) has similar brochures for vaccines such as anthrax and smallpox. Clinics may provide additional information. Read the information carefully and save it in your personal records. If you think you should not get a vaccine, or that it might lead to a serious side effect, discuss this with your healthcare provider or contact the VHC Network *before* you are vaccinated.

What are expected side effects after vaccination?
The most common side effects are local (occur where the vaccine is injected). Local side effects include itching, burning, redness, minor swelling, and/or discomfort. Other common side effects may include headache, body aches, chills, fatigue, and muscle and/or joint aches. These short-term expected side effects do not pose a risk to your health and do not require reporting to the Vaccine Adverse Events Reporting System (VAERS) discussed on page 1-25. You can reduce aches, pains, and fever with Tylenol®, ibuprofen, or aspirin-like medications, unless you should avoid these drugs.

What should I do if I have unexpected or more serious side effects, or if my side effects do not go away?
Report any chest pain, numbness (tingling or burning), ulcers (sores), blisters, or skin rashes to your healthcare provider RIGHT AWAY. If these symptoms, or any other side effects such as muscle and/or joint aches, last for more than a few days or become severe, contact your healthcare provider RIGHT AWAY.

When you see your healthcare provider:
* LIST what vaccines you received.
* DESCRIBE (or LIST) your symptoms and when they started or got worse
* SEPARATE new symptoms from old health problems that may have gotten worse.

The vaccination may not be the cause of your symptoms. For example, a health problem unrelated to the vaccine, such as diabetes, lung disease, or infection might be causing symptoms that need medical treatment. On the other hand, if your symptoms are due to a vaccine, do not assume that serious or persistent side effects will go away if you just wait. You know your body – if you think that something is wrong, ask your healthcare provider to evaluate you. Medical treatment can make you more comfortable and may prevent more serious illness.

What if I ask my healthcare provider about a side effect and am still concerned, or if I want to talk with a vaccine expert?
If you continue to have concerns or need additional help after an evaluation has been completed, you may:
· REQUEST referral to a specialist for the medical problem (such as an allergist for an allergic reaction or a dermatologist for a persistent rash).
· CONTACT yourself or ASK your healthcare provider to contact the Vaccine Healthcare Centers (VHC) Network for vaccine safety expert consultation at **www.vhcinfo.org**, 1-202-782-0411, DSN 662-0411, or online: **https://askvhc.wramc.amedd.army.mil**
· CONTACT the DoD Clinical Call Center directly toll-free at 1-866-210-6469 or online: **https://askvhc.wramc.amedd.army.mil**

What is the Vaccine Healthcare Centers (VHC) Network?
The Department of Defense Healthcare System is committed to quality vaccination services and care. It established the VHC Network in 2001 to promote vaccination safety and to provide expert consultation for patients and providers, especially for side effects that are unexpected, prolonged, or serious. VHC experts care about your concerns and want to make sure that you get the proper treatment. The VHC Network provides clinical support services, education, research, and quality improvement programs that enhance vaccine safety, efficacy, and acceptability.

How can I make sure that my side effect is reported to people who monitor vaccine safety?
Severe side effects are also called adverse events. The CDC and Food and Drug Administration jointly manage the Vaccine Adverse Events Reporting System (VAERS). The main purpose of VAERS is to identify important new safety concerns and to ensure that the benefits of vaccines continue to be far greater than the risks. The VHC staff helps patients and healthcare workers to complete detailed VAERS reports.

A detailed and accurate report of serious side effects after vaccination is important in monitoring vaccine safety. Even so, it may be impossible to prove or disprove that a vaccination caused any individual problem. Rare side effects may not have been recognized before a vaccine was licensed, because these side effects may occur only a few times for every million persons vaccinated. For more information about VAERS, go to: **vaers.hhs.gov** or call **1-800-822-7967.** Your detailed reporting of adverse events helps to make the program better.

What if I am worried about getting the next dose in a vaccination series?
If you are due to receive another dose of a vaccine to which you had a previous reaction, tell your healthcare provider as soon as possible. Keep a written copy of your past medical evaluations and bring it to your healthcare provider's office. If, for some reason, you cannot be evaluated before the next vaccination is due, any healthcare provider can grant a temporary exemption for up to one year or until the final determination has been made about your case. If you disagree with the exemption decision, you have the right to request a referral to a medical specialist.

What are vaccine exemptions?
There are two kinds of vaccine exemptions (reasons for not receiving a vaccine or delaying the next dose): administrative and medical. Descriptions of these exemptions are available at: **www.vaccines.mil** and **www.vhcinfo.org**.
Reasons for exemptions include a:
- CONDITION (such as pregnancy or an acute illness) that might interfere with how the vaccine works.
- CONTRAINDICATION, which is a medical condition that increases the risk of a serious adverse event after a vaccination.

What happens if I receive a vaccine and then find out that I had a contraindication to that vaccine?
Tell your healthcare provider about the contraindication as soon as possible to see whether you need treatment. In most cases like this, the vaccinated person does well and has no serious problems. The contraindication should be

evaluated and documented. A medical exemption should be recorded in your official record after the evaluation is completed. Before each vaccination you receive, during medical screening for contraindications, make sure you provide information about your other medical conditions, and any past history of adverse events with vaccines, drugs, or foods.

For clinical consultation support for you, your family, or your healthcare provider CALL **1-866-210-6469** or online: **https://askvhc.wramc.amedd.army.mil**.

For more information about vaccine safety and adverse event guidelines: Go to **www.vhcinfo.org**, **www.vaccines.mil**, **www.cdc.gov/vaccines**, and **vaers.hhs.gov**.

What is the National Vaccine Injury Compensation Program?

The VICP is a Federal "no-fault" system that compensates individuals or families of individuals who have been injured by vaccines covered under this program. Compensation is available for both children and adults who receive certain covered vaccines, whether the vaccine is administered in the private or public sector.

What vaccines are covered under VICP?

Currently, **diphtheria, tetanus, pertussis** (DTP, DTaP, DT, TT, Td, or Tdap), **measles, mumps, rubella** (MMR, MMRV, or any components), **polio** (OPV or IPV), **hepatitis A, hepatitis B, *Haemophilus influenzae* type b** (Hib), **varicella** (chicken pox), **rotavirus, influenza**, **meningococcal** (MCV4 and MPSV4), **human papillomavirus** (HPV), and **pneumococcal conjugate** vaccines are covered. Eight years' retroactive coverage is provided for any vaccine or vaccine-related adverse event added for coverage under the VICP. This retroactive coverage includes both currently covered vaccines and childhood vaccines that are newly added. Anthrax and smallpox vaccines, as well as many travel vaccines, are not covered under the program because they are not in the routine schedule of childhood vaccines.

Who may file a VICP claim?

Any child or a parent, legal guardian, or trustee of an injured child or an incapacitated person may file a claim. A claim may be made for any injury or death thought to be a result of a covered vaccine. These injuries may include, but are not limited to: **anaphylaxis, paralytic polio, and encephalopathy**. Adults can apply for coverage if they received a covered vaccine. In addition, claims must be filed within a certain time frame. For specific filing information and deadlines please go to the VICP website at:
http://www.hrsa.gov/vaccinecompensation/

What is the National Vaccine Injury Compensation Program? (Continued)

Where can I learn more about VICP?
To learn about the time frame in which to file a claim, how eligibility for compensation is determined, what documentation is required, and other VICP information, go to: **www.hrsa.gov/vaccinecompensation**, or call the National Vaccine Injury Compensation Program at 1-800-338-2382 to obtain an information packet detailing how to file a claim, criteria for eligibility, and the documentation required. Or, for further information, write to:
National Vaccine Injury Compensation Program
Parklawn Building
5600 Fishers Lane
Rockville, Maryland 20857

What is the Smallpox Vaccine Injury Compensation Program?

Congress established the Smallpox Injury Compensation Program in January 2003. This program is available for smallpox vaccine recipients in the civilian public health setting for first responders, but not for Department of Defense personnel who receive their vaccinations within the Military Healthcare System. For more information about the Smallpox Vaccine Injury Compensation Program, go to: **www.hrsa.gov/smallpoxinjury**.



Medical Exemption from Further Vaccination:

Date: _____

Vaccine(s) to be Exempted: _____

Medical	Definitions of Classifications	SELECT
Exemption	**Medical Indication for Delay of or Avoidance from Future Immunization with a Specific Vaccine**	
MA	**Medical, Assumed**: prior immunization reasonably inferred from individual's past experiences (for example, basic medical training), but documentation missing. Code used to avoid superfluous immunization. Code can be reversed upon further review.	
MI	**Medical, Immune**: evidence of serologic immunity.	
MR	**Medical, Reactive**: adverse reactions associated with vaccine where clinical benefit-risk ratio does NOT support continued immunization with specific vaccine.	
MS	**Medical, Supply**: Exempt due to lack of vaccine supply.	
MT	**Medical, Temporary** (e.g., pregnancy, hospitalization, convalescent leave); can also be used where clinical scenario suggests benefit from delay in vaccination but does NOT require permanent vaccine avoidance **Duration**: specified period.	
MP	**Medical, Permanent** (e.g., HIV infection; other chronic disease complicating vaccine tolerance or efficacy); **Duration: Indefinite** unless medical status changes and allows for safe continued vaccination (physician evaluation and order required).	
MD	**Medical, Declined** (e.g., religious waivers, declination of optional vaccinations). Does not apply to anthrax vaccine for Active Duty.	

CURRENT MEDICAL DIAGNOSES: (See health record for detailed evaluation and history)

1. Vaccine-Related Adverse Event: _____
2. _____
3. _____
4. _____
5. _____

VAERS (Vaccine Adverse Event Reporting System) filed: (circle) YES NO

- **Source** (circle): Medical Patient Family Member **Name** (if available): _____
  Date filed: _____ **Comments**: _____

Vaccine Exemption Recommendation: _____ for ____ months (re-evaluate exemption by _____).
Prior exemptions: _____
Comments: _____

Report medical exemptions to Vaccine Healthcare Center (VHC) Network:
askVHC@na.amedd.army.mil or **askanthrax@na.amedd.army.mil** or via **www.vhcinfo.org** or call **202-782-0411** or Fax **202-782-4658/7093** (Other Fax: _____) for confidential delivery to VHC.

_____

Credentialed Provider Signature, Last 4 of SSN, Contact Information, e-mail

Identification Stamp:

Developed by RJM Engler, Allergy-Immunology, WRAMC May 2000.

Administrative Exemption from Further Vaccination:

A copy of this document should go into the medical record of the service member so that the immunization clinics have documentation of the administrative vaccine exemption status.

Please note that these categories are generic and can be used for any vaccine waiver. Granting of an Administrative Exemption is a non-medical function, usually controlled by the military unit to which a service member belongs. Entry into the appropriate DEERS-linked database vehicle will reflect currency and will reduce the percentages of non-compliance for a given unit.

Vaccine(s) to be Exempted: _____

Administrative	Definitions of Classifications	SELECT
Exemption	**Administrative Exemption/Waiver from Future Specific Vaccination**	
AD	**Administrative, Deceased**	
AL	**Administrative, Emergency Leave**: (maximum 30-60 days)	
AM	**Administrative, Missing**: (e.g., MIA, POW)	
AP	**Administrative, PCS**: (e.g., permanent change of station)	
AR	**Administrative, Refusal**: (e.g., UCMJ actions)	
AS	**Administrative, Separation**: (e.g., within 60 days of discharge or separation, within 180 days of retirement)	
AT	**Administrative, Temporary**: (e.g., AWOL, legal action pending)	
NR	**Not Required**: Not required	

COMMENTS:_____

UNIT Verification and/or STAMP of Responsible Official: *Please include contact information.*

_____

Signature & Printed Last Name of Official Authorizing Exemption with last 4 of SSN

Identification Stamp: Date: _____

Developed by RJM Engler, Allergy-Immunology, WRAMC May 2000.



Adult & Military Immunizations

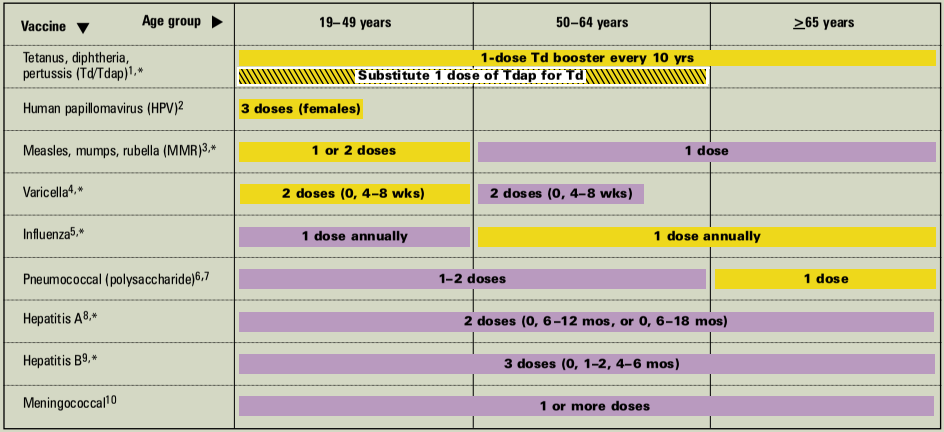
Vaccine Healthcare Centers Network

Based on the Recommendations of the Advisory Committee on Immunization Practices (ACIP), Centers for Disease Control and Prevention (CDC).

Refer to manufacturer's package insert (available at www.vaccines.mil/default.aspx?cnt=resource/quickReferenceChartHome) and ACIP guidelines for specific vaccine recommendations and precautions as only absolute contraindications are listed herein. Links to VIS (Vaccine Information Sheet, created by CDC) are provided where applicable under each vaccine.

Recommended Adult Immunization Schedule, by Vaccine and Age Group

UNITED STATES • OCTOBER 2006–SEPTEMBER 2007



*Covered by the Vaccine Injury Compensation Program. NOTE: These recommendations must be read with the footnotes (see reverse).

For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

This schedule indicates the recommended age groups and medical indications for routine administration of currently licensed vaccines for persons aged ≥19 years, as of October 1, 2006. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (www.cdc.gov/nip/publications/acip-list.htm).

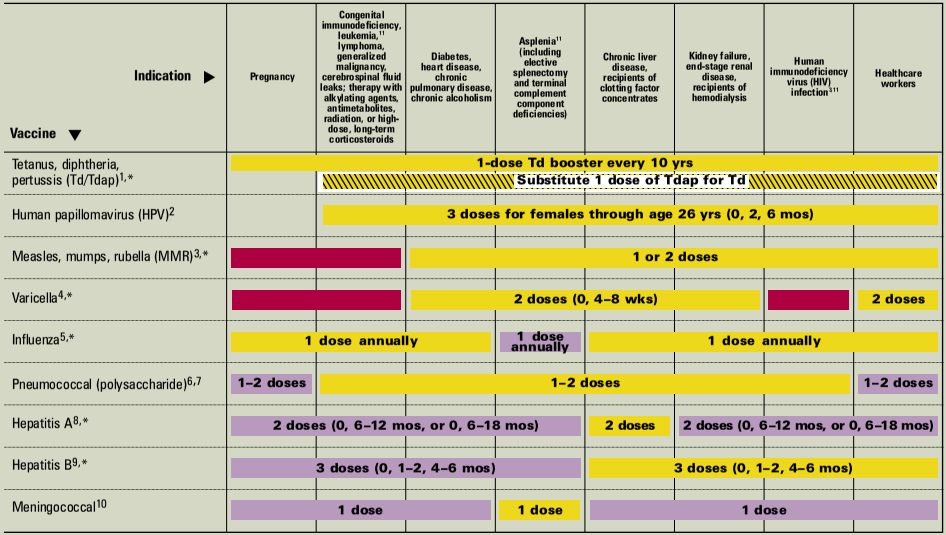
Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule and contraindications for vaccination is also available at www.cdc.gov/nip or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 24 hours a day, 7 days a week.

Recommended Adult Immunization Schedule, by Vaccine and Medical and Other Indications

UNITED STATES • OCTOBER 2006–SEPTEMBER 2007



overed by the Vaccine Injury Compensation Program. NOTE: These recommendations must be read with the footnotes (see reverse).

For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

Contraindicated

Approved by
the Advisory Committee on Immunization Practices,
American College of Obstetricians and Gynecologists,
the American Academy of Family Physicians,
and the American College of Physicians

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

CDC

1. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination. Adults with uncertain histories of a complete primary vaccination series with diphtheria and tetanus toxoid–containing vaccines should begin or complete a primary vaccination series. A primary series for adults is 3 doses; administer the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second. Administer a booster dose to adults who have completed a primary series and if the last vaccination was received >10 years previously. Tdap or tetanus and diphtheria (Td) vaccine may be used; Tdap should replace a single dose of Td for adults aged <65 years who have not previously received a dose of Tdap (either in the primary series, as a booster, or for wound management). Only one of two Tdap products (Adacel® [sanofi pasteur, Swiftwater, Pennsylvania]) is licensed for use in adults. If the person is pregnant, and received the last Td vaccination >10 years since, administer Tdap during the second or third trimester; if the person received the last Td vaccination in <10 years, administer Tdap during the immediate postpartum period. A one-time administration of 1 dose of Tdap when an inconsistent or as short as 2 years from a previous Td vaccination is recommended for postpartum women, close contacts of infants aged <12 months, and all healthcare workers with direct patient contact. In certain situations, Td can be covered during pregnancy and Tdap substituted in the immediate postpartum period; or Tdap can be given instead of Td to a pregnant woman after an informed discussion with the woman (see http://www.cdc.gov/vaccines/pubs/acip-list.htm). Consult the ACIP statement for recommendations for administering Tdap as prophylaxis in wound management (http://www.cdc.gov/mmwr/preview/mmwrhtml/00041645.htm)

2. Human Papillomavirus (HPV) vaccination. HPV vaccination is recommended for all women aged ≤26 years who have not completed the vaccine series. Ideally vaccine should be administered before potential exposure to HPV through sexual activity; however, women who are sexually active should still be vaccinated. Sexually active women who have not been infected with any of the HPV vaccine types receive the full benefit of the vaccination. Vaccination is less beneficial for women who have already been infected with one or more of the four HPV vaccine types. A complete series consists of 3 doses. The second dose should be administered 2 months after the first dose; the third dose should be administered 6 months after the first dose. Vaccination is not recommended during pregnancy. If a woman is found to be pregnant after initiating the vaccination series, the remainder of the 3-dose regimen should be delayed until after completion of the pregnancy.

3. Measles, Mumps, Rubella (MMR) vaccination. Measles component adults born before 1957 can be considered immune to measles. Adults born during or after 1957 should receive ≥1 dose of MMR unless they have a medical contraindication, documentation of ≥1 dose, history of measles based on healthcare provider diagnosis, or laboratory evidence of immunity. A second dose of MMR is recommended for adults who 1) have been recently exposed to measles or in an outbreak setting; 2) were previously vaccinated with killed measles vaccine; 3) have been vaccinated with an unknown type of measles vaccine during 1963–1967; 4) are students in postsecondary educational institutions; 5) work in a health-care facility; or 6) plan to travel internationally. With few exceptions, MMR or other measles-containing vaccines from HIV-infected persons with severe immunosuppression. Mumps component adults born before 1957 can generally be considered immune to mumps. Adults born during or after 1957 should receive 1 dose of MMR unless they have a medical contraindication, history of mumps based on health-care provider diagnosis, or laboratory evidence of immunity. A second dose of MMR is recommended for adults who 1) are in an age group that is affected during a mumps outbreak; 2) are students in postsecondary educational institutions; 3) work in a health care facility; or 4) plan to travel internationally. For unvaccinated health-care workers born before 1957 who do not have other evidence of mumps immunity, consider giving 1 dose on a routine basis and strongly consider giving a second dose during an outbreak. Rubella component: administer 1 dose of MMR vaccine to women whose rubella vaccination history is unreliable or who lack laboratory evidence of immunity. For women of childbearing age, regardless of birth year, routinely determine rubella immunity and counsel women regarding congenital rubella syndrome. Do not vaccinate women who are pregnant or who might become pregnant within 4 weeks of receiving vaccine. Women who do not have evidence of immunity should receive MMR vaccine upon cessation or termination of pregnancy and before discharge from the health-care facility.

4. Varicella vaccination. All adults without evidence of immunity to varicella should receive 2 doses of varicella vaccine. Special consideration should be given to those who: 1) have close contact with persons at high risk for severe disease (e.g., health-care workers and family contacts of immunocompromised persons); or 2) are at high risk for exposure or transmission (e.g., teachers of young children, child care employees, residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers). Evidence of immunity to varicella in adults includes any of the following: 1) documentation of 2 doses of varicella vaccine at least 4 weeks apart; 2) U.S.-born before 1980 (although for health-care workers and pregnant women, birth before 1980 should not be considered evidence of immunity); 3) history of varicella based on diagnosis or verification of varicella by a health-care provider (not a patient reporting a history of or presenting with an atypical case, a mild case, or both, health care providers should seek either an epidemiologic link with a typical varicella case or evidence of laboratory confirmation if it was performed at the time of acute disease); 4) history of herpes zoster based on health-care provider diagnosis; or 5) laboratory evidence of immunity or laboratory confirmation of disease. Do not vaccinate women who are pregnant or might become pregnant within 4 weeks of receiving the vaccine. Assess pregnant women for evidence of varicella immunity. Women who do not have evidence of immunity should receive dose 1 of varicella vaccine upon completion or termination of pregnancy and before discharge from the health-care facility. Dose 2 should be administered 4–8 weeks after dose 1.

5. Influenza vaccination: *Medical indications:* chronic disorders of the cardiovascular or pulmonary systems, including asthma; chronic metabolic diseases, including diabetes mellitus, renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or HIV); any condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration (e.g., cognitive dysfunction, spinal cord injury, or seizure disorder or other neuromuscular disorder); and pregnancy during the influenza season. No data exist on the risk for severe or complicated influenza disease among persons with asplenia; however, influenza is a risk factor for secondary bacterial infections that can cause severe disease among persons with asplenia. *Occupational indications:* health-care workers and employees of long-term-care and assisted living facilities. *Other indications:* residents of nursing homes and other long-term-care and assisted living facilities; persons likely to transmit influenza to persons at high risk (i.e., in-home household contacts and caregivers of children aged 0–59 months, or persons of all ages with high-risk conditions); and anyone who would like to be vaccinated. Healthy, nonpregnant persons aged 5–49 years without high-risk medical conditions who are not contacts of severely immunocompromised persons in special care units can receive either intranasally administered influenza vaccine (FluMist®) or inactivated vaccine. Other persons should receive the inactivated vaccine.

Footnotes

6. Pneumococcal polysaccharide vaccination. *Medical indications:* chronic disorders of the pulmonary system (excluding asthma); cardiovascular diseases; diabetes mellitus; chronic liver diseases, including liver disease as a result of alcohol abuse (e.g., cirrhosis); chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]); immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection [vaccinate as close to diagnosis as possible when CD4 cell counts are highest], leukemia, lymphoma, multiple myeloma, Hodgkin disease, generalized malignancy, organ or bone marrow transplantation); chemotherapy with alkylating agents, antimetabolites, or high-dose, long-term corticosteroids; and cochlear implants. *Other indications:* Alaska Natives and certain American Indian populations and residents of nursing homes or other long-term-care facilities.

7. Revaccination with pneumococcal polysaccharide vaccine. One-time revaccination after 5 years for persons with chronic renal failure or nephrotic syndrome, functional or anatomic asplenia (e.g., sickle cell disease or splenectomy), immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection, leukemia, lymphoma, multiple myeloma, Hodgkin disease, generalized malignancy, or organ or bone marrow transplantation); or chemotherapy with alkylating agents, antimetabolites, or high-dose, long-term corticosteroids. For persons aged ≥65 years, one-time revaccination if they were vaccinated ≥5 years previously and were aged <65 years at the time of primary vaccination.

8. Hepatitis A vaccination. *Medical indications:* persons with chronic liver disease and persons who receive clotting factor concentrates. *Behavioral indications:* men who have sex with men and persons who use illegal drugs. *Occupational indications:* persons working with hepatitis A virus (HAV)–infected primates or with HAV in a research laboratory setting. *Other indications:* persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A (a list of countries is available at http://www.cdc.gov/travel/diseases.htm); and any person who would like to obtain immunity. Current vaccines should be administered in a 2-dose schedule at either 0 and 6–12 months, or 0 and 6–18 months. If the combined hepatitis A and hepatitis B vaccine is used, administer 3 doses at 0, 1, and 6 months.

9. Hepatitis B vaccination. *Medical indications:* Persons with end-stage renal disease, including patients receiving hemodialysis; persons seeking evaluation or treatment for a sexually transmitted disease (STD); persons with HIV infection; persons with chronic liver disease; and persons who receive clotting factor concentrates. *Occupational indications:* health care workers and public safety workers who are exposed to blood or other potentially infectious body fluids. *Behavioral indications:* sexually active persons who are not in a long-term, mutually monogamous relationship (i.e., persons with >1 sex partner during the previous 6 months); current or recent injection-drug users; and men who have sex with men. *Other indications:* household contacts and sex partners of persons with chronic hepatitis B virus (HBV) infection; clients and staff members of institutions for persons with developmental disabilities; all clients of STD clinics; international travelers to countries with high or intermediate prevalence of chronic HBV infection (a list of countries is available at http://www.cdc.gov/travel/diseases.htm); and any adult seeking protection from HBV infection. Settings where hepatitis B vaccination is recommended for all adults: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; health-care settings providing services for injection-drug users or men who have sex with men; correctional facilities; end-stage renal disease programs and facilities for chronic hemodialysis patients; and institutions and noninstitutional daycare facilities for persons with developmental disabilities. *Special formulation indications:* for adult patients receiving hemodialysis and other immunocompromised adults, 1 dose of 40 µg/mL (Recombivax HB®) or 2 doses of 20 µg/mL (Engerix-B®).

10. Meningococcal vaccination. *Medical indications:* adults with anatomic or functional asplenia or terminal complement component deficiencies. *Other indications:* first-year college students living in dormitories; microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*; military recruits; and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of Sub-Saharan Africa during the dry season [December–June]), particularly if contact with local populations will be prolonged. Vaccination is required by the government of Saudi Arabia for all travelers to Mecca during the annual Hajj. Meningococcal conjugate vaccine is preferred for adults with any of the preceding indications who are aged ≤55 years, although meningococcal polysaccharide vaccine (MPSV4) is an acceptable alternative. Revaccination after 5 years might be indicated for adults previously vaccinated with MPSV4 who remain at high risk for infection (e.g., persons residing in areas in which disease is epidemic).

11. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccination may be used. Hib conjugate vaccines are licensed for children aged 6 weeks–71 months. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults with the chronic conditions associated with an increased risk for Hib disease. However, studies suggest good immunogenicity in patients who have sickle cell disease, leukemia, or HIV infection or have had splenectomies; administering vaccine to these patients is not contraindicated.

This schedule indicates the recommended age groups and medical indications for routine administration of currently licensed vaccines for persons aged >19 years as of October 1, 2006. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are licensed during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (http://www.cdc.gov/nip/publications/acip-list.htm).

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at http://www.vaers.hhs.gov or by telephone 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at http://www.hrsa.gov/vaccinecompensation or by telephone, 800 338 2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule and contraindications for vaccination is also available at http://www.cdc.gov/nip or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 24 hours a day, 7 days a week.

Approved by the Advisory Committee on Immunization Practices, the American College of Obstetricians and Gynecologists, the American Academy of Family Physicians, and the American College of Physicians

Immunizations for Military Personnel (see individual vaccines in this tool kit for schedules)

Immunizing Agent	Army	Navy	Air Force	Marine Corps	Coast Guard
Anthrax	S	S	S	S	S
Hepatitis A	All	All	All	All	All
Hepatitis B	Acc,Occ,S,T	Acc,Occ,S,T	Acc,Occ,S,T	Acc,Occ,S,T	All
Influenza	All	All	All	All	All
Japanese encephalitis	S,T	S,T	S,T	S,T	S,T
Measles	All	All	All	All	All
Meningococcal	Acc,S,T	Acc,S,T	Acc,S,T	Acc,S,T	Acc,S,T
Mumps	All	All	All	All	All
Poliovirus	All	All	All	All	All
Rabies	Occ,S	Occ,S	Occ,S	Occ,S	Occ,S
Rubella	All	All	All	All	All
Smallpox (vaccinia)	S	S	S	S	S
Tetanus-diphtheria (preferably with pertussis)	All	All	All	All	All
Typhoid	S,T	S,T	S,T	S,T	S,T
Varicella	Acc,Occ,S	Acc,Occ,S	Acc,Occ,S	Acc,Occ,S	Acc,Occ,S
Yellow fever	S,T	S,T	S,T	All	Acc,S,T

Acc: Accessions in initial entry training, academies, and other officer training. See text for discussion of two clusters of immunization.
AD: Active Duty personnel
All: All personnel, including accessions and all Active and Reserve Component personnel
Occ: High-Risk Occupational Groups
S: Specified by DoD, USCG, Service or Combatant Command policy for identified subpopulations (for example, early deployers, special operations, alert forces). See text for expanded discussion.
T: Traveling or deploying to high-risk areas based on threat assessment or host country requirement

Anthrax Vaccine

<table>
<tr><td>Vaccine
Description</td><td colspan="2">• Inactivated vaccine
• Anthrax vaccine (also known as ANT or AVA) is absorbed to aluminum hydroxide as adjuvant; vial stopper contains dry natural rubber (latex)
• See package insert</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL Route: SC over the DELTOID region. Do NOT give into the triceps area to avoid complications of LARGE LOCAL reactions and secondary nerve compression. (IM in deltoid muscle, if large local reaction to previous anthrax vaccination.)
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="2">• Age 18 to 65 years according to current military guidelines
• People with occupational risk
• As adjunct treatment after exposure to anthrax bacillus
• Interruption of the vaccination schedule does not require restarting the entire anthrax vaccine series nor addition of extra doses
• Off-label administration requires physician order and clearance from MILVAX-VHC</td></tr>
<tr><td rowspan="8">Administration
Schedule

Note: Delays do NOT interfere with vaccine response and may increase immune response, particularly for dose #2 [Pittman et al. Vaccine. 2000 Sep 15;19:213-6]</td><td>Dose</td><td>Dose Recommended Interval</td></tr>
<tr><td>#1</td><td>0</td></tr>
<tr><td>#2</td><td>2 weeks after dose #1</td></tr>
<tr><td>#3</td><td>2 weeks after dose #2</td></tr>
<tr><td>#4</td><td>5 months after dose #3</td></tr>
<tr><td>#5</td><td>6 months after dose #4</td></tr>
<tr><td>#6</td><td>6 months after dose #5</td></tr>
<tr><td>Booster</td><td></td><td>Annually (every 12 months)</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction to prior dose or vaccine component
• Prior serious adverse event (e.g., new onset disabling muscle and/or joint pains, headache, fatigue), particularly if reproducible and/or worsening with more than one dose of vaccine
• Anyone who has recovered from cutaneous anthrax should not get the vaccine
• Pregnant women should not be routinely vaccinated pre-exposure
• Breastfeeding is not a contraindication
• Refer to VHC Network for recommendations related to medical exemptions</td></tr>
</table>

Anthrax Vaccine (Continued)

Precautions	• Prior adverse events or hypersensitivity reactions • History of Guillain-Barré Syndrome (GBS), an autoimmune neurologic disorder, unless there is a clear benefit that outweighs the potential risk of a recurrence • Pregnancy unless the potential benefits of vaccination clearly outweigh the potential risks to the fetus • Prior anthrax disease may increase the potential for severe local adverse reactions • Vaccination during chemotherapy, high dose corticosteroid therapy of greater than 2-week duration, or radiation therapy may result in a suboptimal response. Deferral of vaccination for 3 months after completion of such therapy may be considered • Concurrent moderate or severe illness with or without fever - postponed until recovery
Special Considerations	• **Do not restart the primary series for any reason.** Resume the primary series with administration of the next dose in the series. Administer subsequent doses of vaccine at intervals based on the date the last dose was given, not when it was originally scheduled. • If an annual booster has not been administered on time, administer the booster dose at the earliest possible date, adjusting the subsequent booster schedule accordingly. Once the primary series of six doses is complete, the primary series is never repeated. • See Storage and Handling Section • For severe large local reactions (greter than 10 cm or extending below a joint), contact the VHC for consultation regarding optimum treatment and medical exemptions • Verify current policy recommendations regarding booster dose requirements via www.vaccines.mil as dosage route and numbers may change in late 2007 or 2008
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-anthrax.pdf Bioterrorism: http://www.bt.cdc.gov http://www.anthrax.mil	



Hepatitis A Vaccine

Vaccine Description	• Inactivated whole virus • Adjuvant: aluminum hydroxide • Vial stopper and/or the syringe plunger stopper may contain dry natural latex rubber (check package insert) • See package insert for other contents	
Route	• IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Vaccine	**Age**	**Dose**
Vaqta®	1-18 years	25 units (0.5 mL)
	19 years and older	50 units (1 mL)
Havrix®	1-18 years	720 EL.U. (0.5 mL)
	19 years and older	1440 EL.U. (1 mL)
Indications	• Children 1 year of age and older • Travelers to high- or intermediate-risk countries • Men who have sex with men • Illicit drug users • People with clotting-factor disorders • People at occupational risk for exposure • People with chronic liver disease, including people with hepatitis B or C • All military personnel	
Administration Schedule	**Dose**	**Recommended Interval**
	#1	0
	#2	6 to 12 months later
Routine Schedule Booster	None	

Hepatitis A Vaccine (Continued)

<table>
<tr><td rowspan="2">Twinrix® (Hepatitis A and B combination) for people 18 years and older: Dose: 1 mL Route: IM

If mixing schedule of Twinrix® with individual doses of HepA and HepB, see info paper for number of doses needed (www.vaccines.mil/documents/1031MIP-Twinrix.pdf)</td><td>Routine schedule: 3 doses at 0, 1m, 6m</td><td>Minimal interval between the 2nd and 3rd dose of Twinrix is 5 months. Separate the first and last dose of Twinrix by at least 6 months.</td></tr>
<tr><td>Accelerated schedule: 3 doses at 0, 7d, 21-30d with a booster at 12m</td><td></td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction to prior dose or vaccine component
• Moderate or severe acute illness</td></tr>
<tr><td>Special Considerations</td><td colspan="2">• Start vaccine series at least one month before traveling
• If first dose is given less than 4 weeks before travel, consider giving IG as well as vaccine
• If dose #2 is delayed, do not repeat dose #1. Just give dose #2.
• See Storage and Handling Section</td></tr>
<tr><td colspan="3">VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hep-a.pdf
Pregnancy registry for Twinrix®: 1-888-825-5249 (GlaxoSmithKline)
also notify VHC Networks for long-term support and follow-up</td></tr>
</table>



Hepatitis B Vaccine

Vaccine Description	• Inactive viral antigen • Contains thimerosal and aluminum hydroxide; The tip cap and the rubber plunger of the needleless prefilled syringes contain dry natural latex rubber • See package insert	
Route	• IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Vaccine	**Age**	**Dose**
Recombivax HB® * This is a special dose only for this age group and is given on a different schedule covered in the peds section	0-19 years	5 mcg (0.5 mL)
	11-15 years	10 mcg (1 mL)*
	20 years or older	10 mcg (1 mL)
	Adult on dialysis or immune compromised (dialysis formulation)	40 mcg (1 mL)
Engerix-B®	0-19 years	10 mcg (0.5 mL)
	20 years or older	20 mcg (1 mL)
	Adult on dialysis or immune compromised (adult formulation)	40 mcg (2 mL)
Indications	• All children and adolescents • All military personnel • Household members and sexual partners of HBV carriers (test and if susceptible, vaccinate) • Intravenous drug users • Any person with more than one sex partner in 6 months • Men who have sex with men • People with recently diagnosed sexually transmitted diseases (STDs) • Patients receiving hemodialysis and patients with renal disease that may result in dialysis • Recipients of certain blood products • Healthcare workers with frequent blood contact • Staff of institutions for people with developmental disabilities • Long-term prison inmates • Certain international travelers (determine risk by checking CDC or Army Knowledge Online resources) • People who want to decrease their risk for hepatitis B	

Hepatitis B Vaccine (Continued)

<table>
<tr><td>Administration Schedule</td><td colspan="2"></td></tr>
<tr><td>Routine</td><td colspan="2">• 3 doses: 0, 1, 6 months</td></tr>
<tr><td>Dialysis or immune compromised</td><td colspan="2">• Using Recombivax HB® dialysis formulation give 3 doses at 0, 1, and 6 months
• Using Engerix-B® adult formulation give 4 doses at 0, 1, 2, and 6 months
• Note: May need additional doses based on response with immunization expert consultation</td></tr>
<tr><td>Routine Booster</td><td colspan="2">None</td></tr>
<tr><td rowspan="2">Twinrix® (Hepatitis A and B combination) for people 18 years and older: Dose: 1 mL Route: IM

If mixing schedule of Twinrix® with individual doses of HepA and HepB, see info paper for number of doses needed (www.vaccines.mil/documents/1031MIP-Twinrix.pdf)</td><td>Routine schedule: 3 doses at 0, 1m, 6m</td><td>Minimal interval between the 2nd and 3rd dose of Twinrix is 5 months. Separate the first and last dose of Twinrix by at least 6 months</td></tr>
<tr><td>Accelerated schedule: 3 doses at 0, 7d, 21-30d with a booster at 12m</td><td></td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction, hypersensitivity or adverse reaction to prior dose or vaccine component
• Moderate or severe acute illness
• Any serious reaction possibly linked to vaccine unless evaluation indicates need to continue
• Pregnancy and breastfeeding are NOT contraindications</td></tr>
<tr><td>Special Considerations</td><td colspan="2">• Separate first and third doses by no fewer than 4 months
• If the series is delayed between doses, DO NOT start the series over.
• For vaccine non-responders, consult VHC Network for options
• See Storage and Handling Section</td></tr>
<tr><td colspan="3">VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hep-b.pdf
Pregnancy registry for Twinrix®: 1-888-825-5249 (GlaxoSmithKline); also notify VHC Networks for long-term support and follow-up</td></tr>
</table>

Haemophilus influenzae type b (HIB) Vaccine

Vaccine Description	• Inactivated protein conjugate vaccine • Vaccine or diluent vial stopper may contain dry natural latex rubber (see package insert)
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • Brands: PedvaxHIB® (Merck), ActHIB® (sanofi pasteur), HibTITER® (Wyeth) • See package insert
Indications	• Children 2 months to 5 years of age • People over 5 years of age who are at risk, including people with: • anatomical or functional asplenia • cancer treated with chemotherapy (give at least 2 weeks before or 3 months after completion) • immune suppression • post bone marrow or stem cell transplant (1 year post transplant)
Administration Schedule	• For people older than 5 years of age, one dose of Hib vaccine is usually enough. A healthcare provider will decide if an adolescent or adult needs a second dose.
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness
Special Considerations	• Refer pregnant women to a healthcare provider for evaluation • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hib.pdf	

Human Papillomavirus (HPV) Vaccine

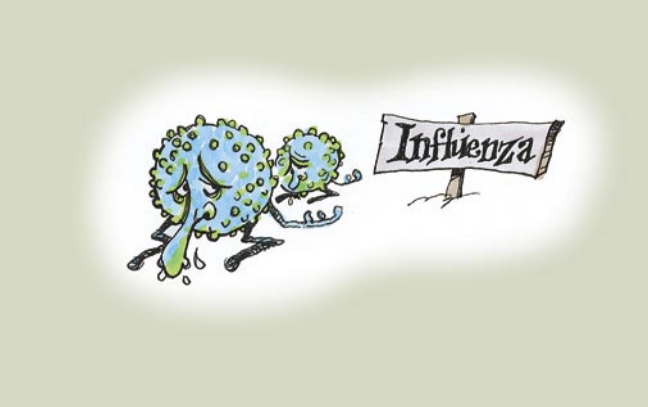
Vaccine Description	• Inactivated viral vaccine: Gardasil® (Merck) • Contains aluminum and yeast • See package insert	
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • Shake vigorously before giving resulting in cloudy liquid	
Indications	• Girls and women 9 to 26 years of age (routinely given at 11-12 year old visit)	
Administration Schedule	**Dose**	**Recommended Interval**
	#1	
	#2	2 months after dose 1
	#3	6 months after dose 1
Booster	None	
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Pregnancy - due to lack of safety studies; if given and women is pregnant, Merck has set up a pregnancy registry at www.merckpregnancyregistries.com/gardasil.htm; also register cases with VHC Network for long-term support and follow-up	
Special Considerations	• 3 cases of bronchospasm 1-15 days after HPV vaccine given not reported in placebo group • See Storage and Handling Section	
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hpv.pdf Pregnancy registry: 1-800-986-8999 (Merck); also notify the VHC Network for long-term support and follow-up		

Inactivated Influenza Vaccine (2007-08 season)

Vaccine Description	• Inactivated virus/viral components • Contains egg protein, thimerosal*; The tip cap and the rubber plunger of the needleless prefilled syringes may contain dry natural latex rubber (see package insert) *Thimerosal content varies. Preservative-free formulations are available.	
Dose & Route	• Dose: 0.5 mL annually in the fall • Dose: 0.25 mL for children 6 to 35 months • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• All people 50 years or older • People younger than 50 years with chronic illness • People working or living with at-risk people • All healthcare workers and those who provide key community services • All women who will be pregnant any time during influenza season • Foreign travelers • All military personnel • People with weakened immune systems from: 1. HIV/AIDS or other diseases that affect the immune system 2. Long-term, high-dose corticosteroid therapy 3. Cancer treatment with x-rays or drugs • Close contacts of children 0 to 59 months of age • Children 6 to 59 months of age • Anyone who wishes to reduce the likelihood of becoming ill with influenza	
Administration Schedule	**Dose**	**Recommended Interval**
Adults	0.5 mL	Annually in the fall

Inactivated Influenza Vaccine (continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component, or to eggs. • Moderate or severe acute illness • Serious adverse event or history of Guillain-Barré syndrome (GBS)
Special Considerations	See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-flu.pdf	



FluMist (2007-08 season)

Vaccine Description	• Live trivalent nasally administered vaccine (LAIV) • Contains egg protein. See package insert.		
Dose & Route	• Dose: 0.2 mL Route: intranasal • See package insert		
Indications	• Indicated for active immunization against influenza A & B viruses in healthy children and adolescents (age 2 years to 17 years) and healthy adults (age 18 years to 49 years) • Not indicated for people younger than age 2 years or older than age 49 years		
Administration Schedule	**Age Groups**	**Vaccination Status**	**Dosage Schedule**
	Children: Age 2 years through 8 years	Not previously vaccinated against influenza or only one dose in first year of vaccination	2 doses (0.2 mL* each) ≥ 6 weeks apart
	Children: Age 2 years through 8 years	Previously vaccinated against influenza with two doses in the first year of vaccination	1 dose (0.2 mL*) per season
	Children and adults: Age 9 years through 49 years	Not applicable	1 dose (0.2 mL*) per season

* Dose for FluMist formulation approved in January 2007 is 0.2 mL instead of 0.5 mL

FluMist (Continued)

Contraindications	Do not administer to people: • who are younger than 2 or older than 49 years of age • who have had a serious allergic reaction to prior dose or vaccine component, including eggs • with moderate or severe acute illness • who have a history of Guillain-Barrè syndrome • with known or suspected immune deficiency diseases, such as combined immunodeficiency, agammaglobulinemia, and thymic abnormalities • with conditions such as immunodeficiency virus infection, malignancy, leukemia, or lymphoma • who may be immune suppressed or have compromised immune status caused by treatment with systemic corticosteroids, alkylating drugs, antimetabolites, radiation, or other immune suppressing therapies • who are pregnant • who have asthma, reactive airway disease, or other chronic pulmonary disease OR other chronic conditions that place them at high risk for complications from influenza illness (e.g., heart disease, diabetes, renal disease, sickle cell anemia)
Special Considerations	• It is advisable that people who care for others who are severely immune compromised and require a protective environment should receive inactivated influenza vaccine instead of LAIV. • Defer administration if nasal congestion might prevent LAIV from reaching nasopharygeal mucosa. • LAIV may be given at the same time as other live vaccines, including MMR or varicella. But if two live vaccines are not given on the same day, they should be given at least 4 weeks apart. • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/dwonloads/vis-flulive.pdf http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5213a1.htm Insert for new formulation: http://www.fda.gov/cber/label/inflmed010507LB.pdf	

Japanese Encephalitis Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Inactivated
• Contains mouse serum protein, formaldehyde, gelatin, thimerosal
• See package insert</td></tr>
<tr><td>Dose and Route</td><td colspan="2">• Dose: 1 mL Route: SC
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="2">• Travelers spending a month or longer in endemic areas (especially rural) during transmission season (determine risk by checking CDC or Army Knowledge Online resources)
• Laboratory workers exposed to JE virus</td></tr>
<tr><td rowspan="4">Administration Schedule</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td>#1</td><td>0</td></tr>
<tr><td>#2</td><td>7 days later</td></tr>
<tr><td>#3</td><td>30 days later</td></tr>
<tr><td rowspan="3">Accelerated Schedule
Use only if there are time constraints</td><td>#1</td><td>0</td></tr>
<tr><td>#2</td><td>7 days later (can give just two doses in unusual circumstances)</td></tr>
<tr><td>#3</td><td>7 days later</td></tr>
<tr><td>Booster</td><td></td><td>After 2-3 years</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction to prior dose or vaccine component
• People with multiple allergies, especially a history of allergic urticaria or angioedema
• Pregnancy
• Breastfeeding: discuss with physician
• Moderate or severe acute illness</td></tr>
</table>

Japanese Encephalitis Vaccine (Continued)

Special Considerations	• Advise vaccinees to remain in areas with ready access to medical care for 10 days after receiving a dose of JEV. Possibility of delayed allergic reaction. Observe vaccinee for 30 minutes after vaccination. • Temporary flying restrictions: Aviation personnel will be grounded for 12 hours after immunization (the procedure after any immunization) or according to the instructions of their flight surgeon. Personnel who previously experienced urticaria or hypersensitivity phenomena of any type after Japanese-encephalitis vaccine will be exempt from flying duties for at least 72 hours after dose one, five days after dose two, and 72 hours after dose three. • **NOTE:** Risk of anaphylaxis more likely in people who are allergic to bee venom • Use within 8 hours of reconstitution • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-je.pdf	

Measles, Mumps, and Rubella (MMR) Vaccine

Vaccine Description	• Live attenuated virus • Contains egg protein, neomycin, gelatin • Also available as individual components	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications	• Adults born in 1957 or later and who are older than 18 years of age • College students • International travelers • Healthcare personnel • All women of childbearing age who do not have evidence of immunity or vaccination • All children and adolescents 1 year and older	
Administration Schedule	**Dose**	**Recommended Interval**
	#1	
	#2 (if recommended*)	Minimum 4 weeks after #1

* All children and adolescents 1 year of age and older and the following adults will need a second dose of MMR vaccine:

- Service members
- College students
- International travelers
- Healthcare personnel



Measles, Mumps, and Rubella (MMR) Vaccine (Continued)

Contraindications Refer to table on card #1-9 for MMR administration intervals after blood products Allergy to "eggs" is no longer a valid contraindication to MMR	• Serious allergic reaction to prior dose or vaccine component • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). Document counseling on service-appropriate form. • People who are immune compromised (cancer, leukemia, lymphoma). Note: HIV positivity NOT a contraindication, except for severely immune compromised people (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm) • Immune suppression (e.g., from high-dose steroids, chemotherapy, radiation therapy) • Moderate or severe acute illness • Blood products or immune globulin administered during past 11 months (consult ACIP recommendations)
Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as MMR. Delay TST for more than 4 wks if MMR given first OR apply TST first, then give MMR when PPD is read. • If another live vaccine and MMR are both needed and not administered on the same day, space them at least 4 weeks apart • MMR is preferred, but may be given as separate, single-antigen vaccines • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf	

Measles Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Live virus
• Contains egg protein, neomycin, gelatin
• See package insert</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL Route: SC
• See package insert</td></tr>
<tr><td>Indications*

*ACIP recommends that MMR be used when any of the individual components is indicated.</td><td colspan="2">• Adults born in 1957 or later and who are older than 18 years of age
• College students
• International travelers
• Healthcare personnel
• All women of childbearing age who do not have evidence of immunity or vaccination
• All children and adolescents 1 year and older</td></tr>
<tr><td>Administration Schedule*</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td rowspan="2"></td><td>#1</td><td></td></tr>
<tr><td>#2 (if recommended)</td><td>Minimum 4 wks after #1</td></tr>
<tr><td>Contraindications

Non-anaphylactic reacgtion to “eggs” is no longer a valid contraindication to administration</td><td colspan="2">• Serious allergic reaction to prior dose or vaccine component.
• Pregnancy or possibility of pregnancy within 4 weeks (use contraception). Document counseling via SF600/medical records.
• People who are immune compromised (cancer, leukemia, lymphoma) Note: HIV positivity NOT a contraindication except for those who are severely immune compromised. (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm)
• Immune suppression (high-dose steroids, antimetabolites, radiation therapy).
• Moderate or severe acute illness.
• Blood products or immune globulin administered during past 11 months (see card #1-9 and ACIP recommendations)</td></tr>
</table>

Measles Vaccine (Continued)

Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as measles vaccine. Delay TST for more than 4 wks if measles vaccine given first OR apply TST first, then give measles vaccine when TST is read. • If other live vaccine and measles vaccine are both needed and not administered on the same day, space them at least 4 weeks apart • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf	



Meningococcal Vaccine

Vaccine Description	• Inactivated, bacterial polysaccharide (Menomune®) • Inactivated, bacterial polysaccharide conjugate (Menactra®) - licensed in 2005 • Contains thimerosal and latex (stopper only for Menactra®) • See package insert	
Dose & Route	• Dose: 0.5 mL • Route: SC (Menomune®) and IM (Menactra®)-(Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert	
Indications	• U.S. military basic trainees • People who might be infected during an outbreak of certain types of meningococcal disease • Anyone traveling to, or living in, a part of the world where meningococcal disease is common, such as sub-Saharan Africa • Anyone who has a non-functioning spleen, or whose spleen has been removed • Anyone who has terminal complement component deficiency (an immune system disorder) • People at occupational risk • College freshmen, especially those who live in dormitories • Menactra is preferred, but is only licensed for use in people between the ages of 11 to 55 years • Children at the 11-12 year of age visit or at subsequent visit	
Administration Schedule	**Dose**	**Recommended Interval**
	One dose	
Booster		Menomune®: 3-5 years Menactra®: not yet known
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe illness • Menactra is only licensed for use in people between the ages of 11 to 55 years. • History of Guillain-Barré syndrome (Menactra®)	

Meningococcal Vaccine (Continued)

Special Considerations	• There have been rare reports of Guillain-Barrè syndrome (GBS) after Menactra® but population-based increase of disease related to vaccine has not been documented • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mening.pdf Pregnancy registry for Menactra®: 1-800-822-2463 (sanofi pasteur); also notify VHC Networks for long-term support and follow-up	



Mumps Vaccine

Vaccine Description	• Live attenuated virus • Contains egg protein, neomycin, sorbitol, gelatin • See package insert	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications* * ACIP recommends that MMR be used when any of the individual components are indicated.	• Adults born in 1957 or later and who are older than 18 years of age • College students • International travelers • Healthcare personnel • All women of childbearing age who do not have evidence of immunity or vaccination • All children and adolescents 1 year and older	
Administration Schedule*	**Dose**	**Recommended Interval**
	#1	
	#2 (if recommended)	Minimum 4 wks after #1
Contraindications Non-anaphylactic reacgtion to "eggs" is no longer a valid contraindication to administration.	• Serious allergic reaction to prior dose or vaccine component • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). Document counseling via SF600/medical records • People who are immune compromised (cancer, leukemia, lymphoma) **Note:** HIV positivity NOT a contraindication except for those who are severely immune compromised (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm) • Immune suppression (high-dose steroids, chemotherapy, radiation therapy) • Moderate or severe acute illness • Blood products or immune globulin administered during past 11 months (see card #1-9 and consult ACIP recommendations)	

Mumps Vaccine (Continued)

Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as mumps vaccine. Delay TST for more than 4 wks if mumps vaccine given first OR apply TST first, then give mumps vaccine when TST is read. • If other live vaccines and mumps vaccine are both needed and not administered on the same day, space them at least 4 weeks apart • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf	



Pneumococcal Polysaccharide Vaccine (PPV23)

Vaccine Description	• Inactivated; bacterial polysaccharide • Contains phenol • See package insert	
Dose & Route	• Dose: 0.5 mL Route: SC or IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert	
Indications	• Basic trainees and other accessions if needed based on local disease incidence • Adults 65 years of age and older • Adults with normal immune systems who have chronic illness • Immune compromised adults • People with HIV infection • People in environments or settings with increased risk for infection • Transplant recipients • People without a functional spleen or anatomic asplenia • People who have or who will be receiving cochlear implants	
Administration Schedule	**Dose**	**Recommended Interval**
	One-time dose	
Booster	One-time revaccination	5 years after dose #1 for high-risk people and those older than 65 if dose #1 was given before age 65 and 5 years have elapsed

Pneumococcal Polysaccharide Vaccine (PPV23) (Continued)

Contraindications/ Precautions	• Serious allergic reaction to prior dose or vaccine component • Severe cardiovascular or pulmonary disease where a hypersensitive reaction poses a significant risk (screen for current health status, prior vaccination history, and prior reactions) • Moderate or severe acute illness
Special Considerations	• Administer vaccine before cancer chemotherapy, immunosuppressive therapies, or splenectomy for best effect (See timing in package insert) • Safety of PPV23 vaccine for pregnant women has not been studied. Can be given to pregnant women with medical indications for vaccination after provider evaluation. • Vaccinate candidates for pneumococcal vaccine before pregnancy • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-ppv.pdf	

Poliovirus Vaccine

Vaccine Description	• Inactivated virus (IPV) • Live attenuated virus vaccine (OPV) no longer available in the US • Contains neomycin, streptomycin, polymyxin B, formaldehyde, calf serum proteins, and 2-phenoxyethanol; needle cover contains dry natural latex rubber	
Dose & Route	• Dose: 0.5 mL • Route: SC or IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert	
Indications	• All military personnel • Routine vaccination of U.S. residents older than 18 years of age not necessary • Consider vaccination of some adults at greater risk of exposure to poliovirus: - selected laboratory workers - selected healthcare workers - travelers to endemic areas • Previously vaccinated adults can receive one booster dose if traveling to polio-endemic areas. • All children and adolescents 2 months of age and older	
Administration Schedule*	**Dose**	**Recommended Interval**
*only for previously unvaccinated people	#1	0
	#2	1 to 2 months later
	#3	6 to 12 months after dose #2

Poliovirus Vaccine (Continued)

Booster	• Previously complete series: administer one IPV dose • Incomplete series: administer remaining required IPV doses. Do not restart series
Contraindications	• Serious allergic reaction to prior dose or vaccine component (IPV), including neomycin, streptomycin and polymyxin B • Moderate or severe acute illness
Special Considerations	• Vaccine-associated paralytic poliomyelitis (VAPP) associated with OPV, so OPV no longer used in U.S. • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-IPV.pdf	



Rabies Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">Inactivated virus vaccine
• PCEC (RabAvert®: Chiron)
• HDCV (Imovax®: sanofi pasteur)
• Some products may contain bovine and chicken proteins, human albumin, neomycin, and amphotericin B (but no other preservatives); see package inserts for additional detail</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 1 mL
• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="2">• High-risk groups (veterinarians, animal handlers, certain laboratory workers)
• People spending time (e.g., one month) in foreign countries where canine rabies is endemic
• People at high risk of exposure in countries where locally available rabies vaccines may carry a high risk of adverse reactions</td></tr>
<tr><td>Pre-Exposure Schedule</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td rowspan="3"></td><td>#1</td><td>0</td></tr>
<tr><td>#2</td><td>Day 7</td></tr>
<tr><td>#3</td><td>Day 21 - 28 (after dose #1)</td></tr>
<tr><td>Booster</td><td colspan="2">• Depends on exposure risk category – see ACIP recommendations
• Every 2 to 5 years when antibody titer falls below acceptable level</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction to previous dose or vaccine component
• Immune-suppressive illness
• High-dose systemic corticosteroids
• Pregnancy: administer only if clearly needed</td></tr>
<tr><td>Special Considerations</td><td colspan="2">• See Storage and Handling Section</td></tr>
<tr><td colspan="3">VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-rabies.pdf</td></tr>
</table>

Rabies Vaccine (Continued)

Postexposure prophylaxis schedule-United States, 1999

Vaccination Status	Treatment	Regimen*
Not previously vaccinated	Wound cleansing	• Begin all postexposure treatment with immediate thorough cleansing of all wounds with soap and water. If available, irrigate wounds with a virucidal agent such as a povidone-iodine solution.
	RIG	• Administer 20 international units per kg body weight. If anatomically feasible, infiltrate the full dose around the wound(s). Administer IM any remaining volume at an anatomical site distant from vaccine administration. Do NOT administered RIG in the same syringe as rabies vaccine. Because RIG might partially suppress active production of antibody, give no more than the recommended dose.
	Rabies Vaccine	• Administer 1 mL of rabies vaccine IM (deltoid area†) on days 0 ,3, 7, 14, and 28
Previously vaccinated¶	Wound cleansing	• Begin all postexposure treatment with immediate thorough cleansing of all wounds with soap and water. If available, irrigate the wounds with a virucidal agent such as a povidone-iodine solution.
	RIG	• Do NOT administer RIG; it is not needed because the person has some immunity from prior rabies vaccine
	Rabies Vaccine	• Administer 1 mL of rabies vaccine IM (deltoid area†) on days 0 and 3

HDCV=human diploid cell vaccine; PCEC=purified chick embryo cell vaccine; RIG=rabies immune globulin; IM, intramuscular.

*These regimens are applicable for all age groups, including children.

† The deltoid area is the only acceptable site of vaccination for adults and older children. For younger children, the outer aspect of the thigh may be used. Vaccine should never be administered in the gluteal area.

¶Any person with a history of pre-exposure vaccination with HDCV or PCEC; prior post-exposure prophylaxis with HDCV or PCEC; or previous vaccination with any other type of rabies vaccine and a documented history of antibody response to the prior vaccination

Rubella Vaccine

Vaccine Description	• Live attenuated virus • Contains neomycin, gelatin	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications* *ACIP recommends that MMR be used when any of the individual components is indicated.	• Adults born in 1957 or later and who are older than 18 years of age • College students • International travelers • Healthcare personnel • All women of childbearing age who do not have evidence of immunity or vaccination • All children and adolescents 1 year and older	
Administration Schedule*	**Dose**	**Recommended Interval**
	#1	
	#2 (if recommended)	Minimum 4 wks after #1
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). Document counseling in service-appropriate record. • People who are immune compromised (cancer, leukemia, lymphoma) **Note:** HIV positivity NOT a contraindication except for those who are severely immune compromised. (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm) • Immune suppression (high-dose steroids, chemotherapy, radiation therapy) • Moderate or severe acute illness • Blood products or immune globulin administered during past 11 months (see card #1-9 and consult ACIP recommendations)	

Rubella Vaccine (Continued)

Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as rubella vaccine. Delay TST for more than 4 wks if rubella vaccine given first OR apply TST first, then give rubella vaccine when TST is read. • If other live vaccine and rubella vaccine are both needed and not administered on the same day, space them at least 4 weeks apart • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf	

Smallpox (Vaccinia) Vaccine
Walter Reed Lessons Learned

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Live vaccinia virus
• Dryvax® (Wyeth) (FDA approved) and ACAM2000™ (Acambis) (FDA approved August 2007) - both about 100 doses/vial
• Vial stopper contains dry natural rubber</td></tr>
<tr><td>Dose and Route</td><td colspan="2">• For primary vaccination - 3 punctures for Dryvax® or 15 for ACAM2000™
• For re-vaccinees (prior dose or doses of vaccine, usually associated with birth before 1972 or military service before 1982) or 2nd dose for prior NO TAKE vaccinee - 15 punctures or jabs
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="2">Pre-Event (No Smallpox Disease Outbreak)
• Laboratory workers who handle cultures or animals contaminated or infected with vaccinia or other related viruses (e.g., monkeypox, cowpox, variola)
• Emergency response personnel and healthcare workers involved in potential care of smallpox patients
• Military personnel with operational or other job-related indications
• People at risk of exposure to smallpox virus
• People administering smallpox vaccine

Emergency Use (Smallpox Outbreak)
Anyone directly exposed to smallpox virus, give one dose as soon as possible after exposure. Most effective within 3 to 5 days of exposure.</td></tr>
<tr><td>Administration Schedule</td><td>Dose
3 (primary-Dryvax®)
or 15 (primary-ACAM2000™)
or 15 (re-vacination - both) jabs/punctures</td><td>Recommended Interval
• 10 years for Dryvax®
• 3 years for ACAM2000™</td></tr>
</table>

Smallpox (Vaccinia) Vaccine (Continued)

Contraindications **Medical Exemptions** Temporary or Permanent May require consultation with medical specialist • Dermatology • Allergy-Immunology • Neurology • Cardiology • Others relevant to patient's disease	**Pre-Event** • Pregnancy or breastfeeding • Moderate or severe illness, with or without fever • Serious allergic reaction to prior dose or vaccine component (may include: polymyxin B, streptomycin, chlortetracycline, neomycin, glycerin, possibly latex) – see product insert and refer to allergist for evaluation and exemption status • Atopic dermatitis or eczema, current or history of this problem (refer to dermatologist to determine if exemption is necessary) • Immune problem (e.g., HIV, congenital immune deficiency, illness, drugs, or chronic infection) • Heart or blood vessel disease – see **www.smallpox.mil** for changes in forms - see Adverse Event Info. • **Close contact person with risk factors for vaccine virus complications** UNLESS alternative care and/or lodging arrangements can be made or home situation allows for avoidance of contact risk
Contraindications Post-smallpox exposure	There are NO absolute contraindications post-smallpox exposure • Some patients may be at greater risk for vaccine complications than disease and may require special handling or quarantine; also the healthcare provider may determine that those with immune system dysfunction may not benefit from the vaccine

Smallpox (Vaccinia) Vaccine (Continued)

Precautions and Issues Not absolute contraindications Temporary medical exemption may be needed May require consultation and treatment before vaccination	Acute or chronic and active skin condition with breaks in skin: wait until cleared or optimally managed • Examples: allergic rash, severe burn, severe, acne, chickenpox, or shingles • Topical immune-suppressive therapy • Weakened immune system may be present in different disease states, but may require special evaluation to assess risk in relation to smallpox vaccination • Systemic lupus and other collagen vascular disease, particularly if on immune-suppressive therapy • High-dose steroids for more than 2 weeks, less than 1 month ago • Other acute or chronic diseases may require consult • Do not administer with varicella vaccine
Education and Screening	Do NOT administer vaccine without patient education and medical screening for contraindications and/or precautions, including consideration of close contact risk factors. Also caution women to avoid pregnancy for 4 weeks after smallpox vaccination. **Resources: www.vhcinfo.org www.vaccines.mil** and **www.smallpox.mil** - See educational Toolkit.
Vaccinator Education & Competency Assessment	• Assure that training and competency assessment has been completed by vaccinator. Education available at: **www.vaccines.mil** and as part of Project Immune Readiness (**www.projectimmunereadiness.amedd.army.mil/** or **www.vhcpir.org**) • Practice vaccinating with saline before actual vaccine administration • Validate vaccinator's take rate (Goal: greater than 95% TAKE rate)

Smallpox (Vaccinia) Vaccine (Continued)

After Vaccination, Patient-Specific Education Special Precautions Care and Follow-up *Caution:* *Several cases of autoinoculation reported caused by lack of site covering during sleep or contact sports, and spread from uncovered site during bathing with washcloth in contact with site and then other parts of the body.* *Suggest wrapping site with plastic wrap during shower, then replacing moist bandage with a dry bandage or allowing site to air dry.* *In addition, when not alone maintain covering for at least 30 days (with complete healing of vaccination site) or longer if site still has scab or skin changes*	• Avoid or minimize person-to-person contact with high-risk people who are otherwise medically exempt from smallpox immunization, including: ∗ People with atopic dermatitis or eczema now or in childhood ∗ People who are immune deficient • Wash your hands thoroughly before caring for infants younger than one year of age and young children. Avoid direct contact between the infant or child and the vaccination site. • Be aware that virus imay be present until 30 days after vaccination or until site heals • Do not touch the vaccination site • If you touch the site by accident, wash your hands immediately and then clean clothing or towels/wash cloths. • Wash your hands before and after dressing changes • Do not let others (including pets) touch your vaccination site or materials that touched the site Keep site dry. Cover with waterproof bandage or plastic wrap when bathing. Avoid rubbing the site. Launder items that have touched the site with hot soapy water, taking care to avoid risk to others from contact with contaminated laundry.

Smallpox (Vaccinia) Vaccine (Continued)

Location of vaccine administration *Follow package insert instructions carefully when reconstituting vaccine	• Usually over the deltoid upper arm; some prefer non-dominant arm (left if right handed or vice versa) • Place low enough to allow for non-adhesive circumferential bandaging for those with hypersensitivity to standard bandage tape • Although deltoid site preferred (encouraged), some may request alternative sites (not absolutely contraindicated) (e.g., forearm or lateral hip) • Avoid locations that are hard to care for or associated with sweating or clothing irritation • Do NOT vaccinate directly on old scar • Avoid tattoo areas if possible
Patient Preparation Note: With 2-person vaccination teams, this procedure may be performed by assistant who is completing the paper work while vaccinator is performing the procedure	• Ask the patient if they have received the educational materials, have any other questions, or have new information relevant to vaccination • Position patient for comfort during procedure; avoid contact with vial • Cleanse site with soap and water and let dry; if alcohol is used, make sure all alcohol has evaporated before skin punctures/jabs to avoid inactivating the vaccinia virus • Mark a 1 cm area with 4 dots spaced at 1 cm in perpendicular diameter using a skin marking pen. Administer vaccine in the middle of this area.



Smallpox (Vaccinia) Vaccine (Continued)

Method for Proper Administration	**Steps for proper administration (WRAMC 2002)**
Caution: Vaccine vial should be handled carefully to avoid contamination while opening and handling • Use blue cool pack from refrigerator NOT freezer • Use cooling NOT freezing tray with holder for vial *Place vaccination low enough to allow for coban-like wrap if tape reaction occurs*	• Wear gloves, particularly if not vaccinated or have broken skin on hands (not an absolute requirement) • Position vial securely in a vial holder to avoid accidental tipping or skin contact • Open sterile 4X4 gauze package so that sterile surface of package wrapper and gauze are conveniently located near vial • Open vial and place stopper on its side on the sterile gauze; position to avoid accidental contact (e.g., with sleeve, hand) • Open needle package, or have assistant open • Dip bifurcated needle into vial, checking to make sure that fluid is held by surface tension between posts of needle. (Do NOT hold over head to inspect) • Hold patient's upper arm with one hand under the arm pit area for maximum comfort • Position the wrist of the hand holding the needle on the vaccine arm just below the marked area of administration so that the needle tips are perpendicular over skin area to be vaccinated • Administer appropriate number of jabs counting (1-2-3 OR 1-2-3-4-5 three times) • Discard needle in biohazard materials container • Inspect vaccination area for evidence of adequate administration technique (see next card) • If indicated, repeat administration steps • Bandage after procedure is completed

Smallpox (Vaccinia) Vaccine (Continued)

Data Recording Patient Specific	• SF 601 Immunization Record • PHS 731 Yellow Shot Record • DoD Smallpox Vaccination Administration Form • DD Form 2766 • Automated medical registry per service-specific guidelines/immunization tracking system
Quality Assurance Step 1	Before bandaging, inspect the vaccination site and make sure there is evidence of skin surface penetration: • Trace blood or clear abrasion/breaks in skin surface • Some evidence of blood under the skin (petechiae) • Frank bleeding (may reflect too forceful technique) Note: If no evidence of skin penetration and if patient did not feel needle penetration (i.e., felt dull pressure sensation only), repeat procedure with NEW needle and same vaccine dose (3 or 15 jabs as appropriate)
Quality Assurance Step 2	Maintain a Site-Specific Smallpox Vaccination Log • Maintain log of smallpox vials, date opened, date discarded or moved to another location, site-specific vial tracking number (sequential) - keep for up to 7 years • Patient-specific tracking: record name, date of administration, locally assigned site-patient specific smallpox vaccination number, site vial number • Number of doses from each vial for accountability • Track contamination or inactivation issues raised • Vaccinator competence assessment & tracking • TAKES should be greater than 95%
Tips on Bandaging Avoiding autoinoculation and spread to contacts	Use non-stick, breathable bandages unless draining. Vary bandage size to reduce tape irritation. Use latex-free products. Consider using skin protector to decrease tape irritation on sensitive skin. Sleep with covering to protect against spread. Latest recommendation: Continue to cover the site with non-sticking bandage for 30 days making sure surface remains dry. Patient teaching is critical. Hand out the MILVAX trifolds, *What You Need to Know About Smallpox Vaccine* and *Someone in Your Household Just Got Vaccinated Against Smallpox*.

Smallpox (Vaccinia) Vaccine (Continued)

Vaccine TAKE Evaluation MAJOR REACTION Or "NO TAKE" Reading LATER than Day 6-8 *If classic pustule, vesicle, or scab formation, or evidence of clear induration with prior scab site healing, consider a MAJOR REACTION*	Assess site for major reaction (take) on 6 to 8 days post vaccination • Repeat vaccination if no pustular lesion or definite induration with central crusting, scabbing, and/or papular skin changes, particularly in darker skin • Palpate with gloved finger for induration and surface skin changes and/or use magnifying glass to help differentiate **MAJOR REACTION** from **EQUIVOCAL or NO RESPONSE** • Re-vaccinees may have had peak skin reaction on day 4 to 5, rather than on day 6 to 8. Also may occur later in some people (ask vaccinee what site looked like a few days ago) • Obtain second opinion in reading if unclear or consider for re-vaccination • Take a digital picture, if possible, and record • All vaccinated healthcare workers must have documented TAKE • If **"NO TAKE"**: Repeat vaccination procedure with 15 jabs • **SECOND "NO TAKE or MAJOR REACTION"**: Decision for additional immunization (beyond 2nd immunization) based on benefit-risk assessment and consideration of cause for NO TAKE (improper technique, vaccine viability) by local provider.
Additional Notes	Most recent screening forms available: www.smallpox.mil - Resource Center, Forms

For more information: Military Vaccines: **www.smallpox.mil**
DoD/CDC Vaccine Healthcare Center Network: **www.VHCinfo.org**
CDC: **www.bt.cdc.gov/agent/smallpox/**
Pregnancy registry: 1-877-554-4625 (CDC); also notify VHC Networks for long-term support and follow-up

Developed December 2002 - April 2003 by RJM Engler, MD and the Walter Reed Smallpox Process Action Team
Updated in August 2007 to include ACAM2000™

Tetanus and Diphtheria (Td) Toxoid Vaccine

Vaccine Description	• Inactivated vaccine • Td contains thimerosal; The stopper, needle cover, and plunger contain dry natural latex rubber; See package insert • New vaccine: Tdap (tetanus, diphtheria, and pertussis vaccine) for use in adolescents and adults as a one time booster dose; DO NOT USE more than one dose of Tdap in adulthood - convert to Td every 10 years. • Boostrix® for ages 10-18 • Adacel® for ages 11-64 **See next card for information on Tdap**	
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• Td is recommended for all adolescents and adults • Tdap is recommended for use in people 10 to 64 years as a one time 0.5 mL booster dose IM; • See package insert	
Administration Schedule	**Dose**	**Recommended Interval**
Primary Schedule* *only for previously unvaccinated patients 7 years of age and older	Td #1	
	Td #2	4 to 8 weeks after dose #1
	Td #3	6 to 12 months after dose #2
Booster	Td	Every 10 years
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Neurological reaction after prior dose of tetanus-containing vaccine	
Special Considerations	• **DO NOT** restart the series, no matter how long since previous dose • History of Arthus reaction following a tetanus or diphtheria toxoid-containing vaccine (do not give TT, Td, or Tdap until at least ten years have elapsed since last dose) • See Storage and Handling Section	
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-td.pdf		

Tetanus and Diphtheria Toxoids and Acellular Pertussis (Tdap) Vaccine

Vaccine Description	• Inactivated vaccine • Brands: Boostrix® (ages 10 to 18) and Adacel® (ages 11 to 64) • The tip cap and the rubber plunger of the needleless prefilled syringes of Boostrix® contain dry natural latex rubber; Adacel is latex free; see product insert for other contents of each vaccine	
Dose & Route	• Dose: 0.5 mL Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• A single booster dose of Tdap is recommended for use in people 10 to 64 years • If the primary series of Td has not been given or completed, Tdap can be used for one of the missing doses, preferably the first dose • See package insert	
Administration Schedule	**Dose**	**Recommended Interval**
	Single dose	
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Neurological reaction following tetanus-containing vaccine • Encephalopathy within 7 days of a pertussis-containing vaccine and not due to another identifiable cause • Pregnancy (give before or after; OK to give Td) • Unstable central nervous system disorder • See package insert for further information	

Tetanus and Diphtheria Toxoids and Acellular Pertussis (Tdap) Vaccine (continued)

Special Considerations	Tdap can be given with an interval as short as 2 years from a previous Td vaccination for people who: • are healthcare personnel in hospitals and ambulatory care settings who have direct patient contact, especially if caring for infants younger than 12 months of age • are women planning to become pregnant • have close contact with infants younger than 12 months of age • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-tdap.pdf Pregnancy registry: Adacel® 1-800-822-2463 (sanofi pasteur) or Boostrix® 1-888-825-5249 (GlaxoSmithKline); also notify VHC Networks for long-term support and follow-up	



Tetanus Toxoid (TT) Vaccine

Vaccine Description	• Inactivated vaccine • Two types: Adsorbed vaccine, which contains aluminum adjuvant, and fluid tetanus toxoid, which can be used to immunize patients hypersensitive to aluminum adjuvant • The stopper to the vial contains dry natural latex rubber; See package insert for other contents	
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert	
Indications* *Tetanus and diphtheria toxoids for adult use (Td) is the preferred immunizing agent for most adults and older children.	• All adolescents and adults who cannot receive Td or Tdap	
Administration Schedule	**Dose**	**Recommended Interval**
Primary Schedule*	TT #1	
	TT #2	4 to 8 weeks after dose #1
	TT #3	6 to 12 months after dose #2
Booster	Every 10 years	
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Neurological reaction following tetanus-containing vaccine	
Special Considerations	• Do not restart series, no matter how long since previous dose • History of Arthus reaction following a tetanus or diphtheria toxoid-containing vaccine (do not give TT, Td, or Tdap until at least ten years have elapsed since last dose) • See Storage and Handling Section	

Typhoid Vaccine

Vaccine Description	• Oral live-attenuated - Ty21a (only for people older than 6 years); Contains lactose • Vi capsular polysaccharide - ViCPS (2 years of age and older); Contains phenol (ViCPS only) • See package insert; neither product contains latex	
Dose & Route	• Dose: 4 capsules Route: Oral (Ty21a) • Dose: 0.5 mL Route: IM (ViCPS) - (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert	
Indications	• Travelers to areas where there is a recognized risk of exposure (see CDC website or Army Knowledge online website to check for risk) • People with intimate exposure to carrier • Microbiology laboratorians who work frequently with *S. typhi* • Alert military forces (mobility)	
Administrative Schedule	**Dose**	**Recommended Interval**
	Oral Ty21a: 4 capsules	1 capsule every 48 hours before meals. Take only with cool or luke warm fluids
	ViCPS: 1 dose	
Booster under conditions of repeated or continued high exposure	Oral ViCPS	Every 5 years Every 2 years

Typhoid Vaccine (Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Give ViCPS if person has gastrointestinal illness but is not moderately or severely ill • Do not administer Ty21a to people who are immune compromised • Pregnancy: Do not administer Ty21a; refer to provider to determine if ViCPS should be given
Special Considerations	• Avoid oral antibiotics use with Ty21a (can kill vaccine bacteria) • Give ViCPS if person is taking an antimalarial medication that contains proquanil • Caution travelers that typhoid vaccination is not a substitute for careful selection of food and drink • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-typhoid.pdf	



Varicella Vaccine

Vaccine Description	• Live attenuated virus • Contains gelatin, neomycin; See package insert • May also be given as MMRV - See card in pediatric section	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications	• Vaccinate all susceptible adults and adolescents, particularly those likely to expose people at high risk for severe illness • Healthcare workers • Family members of people who are immune compromised	
Administration Schedule	**Dose**	**Recommended Interval**
	#1	0
	#2	4 to 8 weeks later
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Pregnancy, or possibility of pregnancy within one month • Immune suppression • Moderate or severe acute illness • Recent receipt of blood product (see table on card 1-9 for intervals between vaccines and various products) • Active, untreated tuberculosis	

Varicella Vaccine (Continued)

Special Considerations	• If varicella vaccine and another live vaccine are both needed and not administered on the same day, space them at least 4 weeks apart • Recommended that smallpox vaccine and varicella vaccine not be given at the same time because varicella vaccine can cause lesions that can be confused with smallpox adverse reactions • Manufacturer recommends that salicylates be avoided for 6 wks after receiving varicella vaccine because of a theoretical risk of Reye syndrome. • If second dose is delayed, do not repeat dose #1, just give dose #2 • OK to apply tuberculin skin test (TST or PPD) at same visit as varicella vaccine. Delay TST for more than 4 wks if varicella vaccine given first OR apply TST first, then give varicella vaccine when TST is read. • Note: Discard if not used within 30 minutes after reconstitution • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-varicella.pdf Pregnancy registry: 1-800-986-8999 (Merck); also notify VHC Networks for long-term support and follow-up	



Yellow Fever

Vaccine Description	• Live attenuated virus vaccine: YF-VAX® • Contains egg protein and gelatin; Stopper contains dry, natural latex rubber; See package insert for other content information	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications	• People living or traveling in endemic areas (consult CDC website of Army Knowledge Online website for travel vaccine needs) • Laboratory personnel who might be exposed to virus • Alerted military forces (mobility)	
Administration Schedule	**Dose**	**Recommended Interval**
	One dose	
Booster		Every 10 years
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Infants younger than 6 months of age • Pregnancy: no evidence of adverse effects, but avoid when possible. If travel unavoidable, healthcare provider may recommend vaccination • People hypersensitive to eggs or gelatin • People with immune-suppressed condition or altered immune state	
Special Considerations	• People 65 years of age and older are at increased risk for systemic adverse events following YF-VAX® • People who do not have a functional thymus gland are at risk for meningitis and death following YF-VAX® • If YF-VAX® vaccine and another live vaccine are both needed and not administered on the same day, space them at least 4 weeks apart • Must be used within one hour of reconstitution • See Storage and Handling Section	
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-yf.pdf		

Zoster (Shingles)

Vaccine Description	• Live attenuated virus vaccine: Zostavax® • Contains neomycin, bovine serum, and gelatin • See package insert	
Dose & Route	• Dose: 0.65 mL Route: SC • See package insert	
Indications	• People 60 years of age and older	
Administration Schedule	**Dose**	**Recommended Interval**
	One dose	
Contraindications	• Serious allergic reaction to vaccine component • People with immune-suppressed condition or altered immune state • Untreated, active tuberculosis • Pregnancy or planning pregnancy within 4 weeks	
Special Considerations	• If zoster vaccine and another live vaccine are both needed and not administered on the same day, space them at least 4 weeks apart • Must be used within 30 minutes of reconstitution • See Storage and Handling Section	
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-yf.pdf Pregnancy registry: 1-800-986-8999 (Merck); also notify VHC Networks for long-term support and follow-up		

Pediatric Immunizations

Vaccine Healthcare Centers Network



Based on the Recommendations of the Advisory Committee on Immunization Practices (ACIP), Centers for Disease Control and Prevention (CDC).

Refer to manufacturer's package insert (available at www.vaccines.mil/default.aspx?cnt=resource/quickReferenceChartHome) and ACIP guidelines for specific vaccine recommendations and precautions as only absolute contraindications are listed herein. Links to VIS (Vaccine Information Sheet, created by CDC) are provided where applicable under each vaccine.



Recommended Immunization Schedule for Persons Aged 0–6 Years—UNITED STATES • 2007

Vaccine ▼ Age ►	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B[1]	HepB	HepB		*see footnote 1*	HepB				HepB Series		
Rotavirus[2]			Rota	Rota	Rota						
Diphtheria, Tetanus, Pertussis[3]			DTaP	DTaP	DTaP		DTaP				DTaP
Haemophilus influenzae type b[4]			Hib	Hib	*Hib*[4]	Hib		Hib			
Pneumococcal[5]			PCV	PCV	PCV	PCV				PCV PPV	
Inactivated Poliovirus			IPV	IPV	IPV						IPV
Influenza[6]					Influenza (Yearly)						
Measles, Mumps, Rubella[7]						MMR					MMR
Varicella[8]						Varicella					Varicella
Hepatitis A[9]						HepA (2 doses)				HepA Series	
Meningococcal[10]										MPSV4	

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 0–6 years. Additional information is available at http://www.cdc.gov/nip/recs/child-schedule.htm. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at **http://www.vaers, hhs.gov** or by telephone, **800-822-7967**.

1. Hepatitis B vaccine (HepB). *(Minimum age: birth)*

At birth:

- Administer monovalent HepB to all newborns before hospital discharge.
- If mother is hepatitis surface antigen (HBsAg)-positive, administer HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
- If mother's HBsAg status is unknown, administer HepB within 12 hours of birth. Determine the HBsAg status as soon as possible and if HBsAg-positive, administer HBIG (no later than age 1 week).
- If mother is HBsAg-negative, the birth dose can only be delayed with physician's order and mother's negative HBsAg laboratory report documented in the infant's medical record.

After the birth dose:

- The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be administered at age 1–2 months. The final dose should be administered at age ≥24 weeks. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg after completion of ≥3 doses of a licensed HepB series, at age 9–18 months (generally at the next well-child visit).

4-month dose:

- It is permissible to administer 4 doses of HepB when combination vaccines are administered after the birth dose. If monovalent HepB is used for doses after the birth dose, a dose at age 4 months is not needed.

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

- Administer the first dose at age 6–12 weeks. Do not start the series later than age 12 weeks.
- Administer the final dose in the series by age 32 weeks. Do not administer a dose later than age 32 weeks.
- Data on safety and efficacy outside of these age ranges are insufficient.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). *(Minimum age: 6 weeks)*

- The fourth dose of DTaP may be administered as early as age 12 months, provided 6 months have elapsed since the third dose.
- Administer the final dose in the series at age 4–6 years.

4. *Haemophilus influenzae* type b conjugate vaccine (Hib). *(Minimum age: 6 weeks)*

- If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at age 6 months is not required.
- TriHiBit® (DTaP/Hib) combination products should not be used for primary immunization but can be used as boosters following any Hib vaccine in children aged ≥12 months.

5. Pneumococcal vaccine. *(Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPV])*

- Administer PCV at ages 24–59 months in certain high-risk groups. Administer PPV to children aged ≥2 years in certain high-risk groups. See *MMWR* 2000;49(No. RR-9):1–35.

6. Influenza vaccine. *(Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])*

- All children aged 6–59 months and close contacts of all children aged 0–59 months are recommended to receive influenza vaccine.
- Influenza vaccine is recommended annually for children aged ≥59 months with certain risk factors, health-care workers, and other persons (including household members) in close contact with persons in groups at high risk. See *MMWR* 2006;55(No. RR-10):1–41.
- For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
- Children receiving TIV should receive 0.25 mL if aged 6–35 months or 0.5 mL if aged ≥3 years.
- Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

7. Measles, mumps, and rubella vaccine (MMR). *(Minimum age: 12 months)*

- Administer the second dose of MMR at age 4–6 years. MMR may be administered before age 4–6 years, provided ≥4 weeks have elapsed since the first dose and both doses are administered at age ≥12 months.

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

- Administer the second dose of varicella vaccine at age 4–6 years. Varicella vaccine may be administered before age 4–6 years, provided that ≥3 months have elapsed since the first dose and both doses are administered at age ≥12 months. If second dose was administered ≥28 days following the first dose, the second dose does not need to be repeated.

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

- HepA is recommended for all children aged 1 year (i.e., aged 12–23 months). The 2 doses in the series should be administered at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA is recommended for certain other groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.

10. Meningococcal polysaccharide vaccine (MPSV4). *(Minimum age: 2 years)*

- Administer MPSV4 to children aged 2–10 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups. See *MMWR* 2005;54(No. RR-7):1–21.

Recommended Immunization Schedule for Persons Aged 7–18 Years—UNITED STATES • 2007

Vaccine ▼ / Age ▶	7–10 years	11–12 YEARS	13–14 years	15 years	16–18 years
Tetanus, Diphtheria, Pertussis[1]	see footnote 1	Tdap	Tdap		
Human Papillomavirus[2]	see footnote 2	HPV (3 doses)	HPV Series		
Meningococcal[3]	MPSV4	MCV4	MCV4[3] / MCV4		
Pneumococcal[4]	PPV				
Influenza[5]	Influenza (Yearly)				
Hepatitis A[6]	HepA Series				
Hepatitis B[7]	HepB Series				
Inactivated Poliovirus[8]	IPV Series				
Measles, Mumps, Rubella[9]	MMR Series				
Varicella[10]	Varicella Series				

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 7–18 years. Additional information is available at http://www.cdc.gov/nip/recs/child-schedule.htm. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at http://www.vaers.hhs.gov or by telephone, 800-822-7967.

1. **Hepatitis B vaccine (HepB).** *(Minimum age: birth)*
   At birth:
   - Administer monovalent HepB to all newborns before hospital discharge.
   - If mother is hepatitis surface antigen (HBsAg)-positive, administer HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
   - If mother's HBsAg status is unknown, administer HepB within 12 hours of birth. Determine the HBsAg status as soon as possible and if HBsAg-positive, administer HBIG (no later than age 1 week).
   - If mother is HBsAg-negative, the birth dose can only be delayed with physician's order and mother's negative HBsAg laboratory report documented in the infant's medical record.

   After the birth dose:
   - The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be administered at age 1–2 months. The final dose should be administered at age ≥24 weeks. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg after completion of ≥3 doses of a licensed HepB series, at age 9–18 months (generally at the next well-child visit).

   4-month dose:
   - It is permissible to administer 4 doses of HepB when combination vaccines are administered after the birth dose. If monovalent HepB is used for doses after the birth dose, a dose at age 4 months is not needed.

2. **Rotavirus vaccine (Rota).** *(Minimum age: 6 weeks)*
   - Administer the first dose at age 6–12 weeks. Do not start the series later than age 12 weeks.
   - Administer the final dose in the series by age 32 weeks. Do not administer a dose later than age 32 weeks.
   - Data on safety and efficacy outside of these age ranges are insufficient.

3. **Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP).** *(Minimum age: 6 weeks)*
   - The fourth dose of DTaP may be administered as early as age 12 months, provided 6 months have elapsed since the third dose.
   - Administer the final dose in the series at age 4–6 years.

4. ***Haemophilus influenzae* type b conjugate vaccine (Hib).** *(Minimum age: 6 weeks)*
   - If PRP-OMP (PedvaxHIB® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at age 6 months is not required.
   - TriHiBit® (DTaP/Hib) combination products should not be used for primary immunization but can be used as boosters following any Hib vaccine in children aged ≥12 months.

5. **Pneumococcal vaccine.** *(Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPV])*
   - Administer PCV at ages 24–59 months in certain high-risk groups. Administer PPV to children aged ≥2 years in certain high-risk groups. See *MMWR* 2000;49(No. RR-9):1–35.

6. **Influenza vaccine.** *(Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])*
   - All children aged 6–59 months and close contacts of all children aged 0–59 months are recommended to receive influenza vaccine.
   - Influenza vaccine is recommended annually for children aged ≥59 months with certain risk factors, health-care workers, and other persons (including household members) in close contact with persons in groups at high risk. See *MMWR* 2006;55(No. RR-10):1–41.
   - For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
   - Children receiving TIV should receive 0.25 mL if aged 6–35 months or 0.5 mL if aged ≥3 years.
   - Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

7. **Measles, mumps, and rubella vaccine (MMR).** *(Minimum age: 12 months)*
   - Administer the second dose of MMR at age 4–6 years. MMR may be administered before age 4–6 years, provided ≥4 weeks have elapsed since the first dose and both doses are administered at age ≥12 months.

8. **Varicella vaccine.** *(Minimum age: 12 months)*
   - Administer the second dose of varicella vaccine at age 4–6 years. Varicella vaccine may be administered before age 4–6 years, provided that ≥3 months have elapsed since the first dose and both doses are administered at age ≥12 months. If second dose was administered ≥28 days following the first dose, the second dose does not need to be repeated.

9. **Hepatitis A vaccine (HepA).** *(Minimum age: 12 months)*
   - HepA is recommended for all children aged 1 year (i.e., aged 12–23 months). The 2 doses in the series should be administered at least 6 months apart.
   - Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
   - HepA is recommended for certain other groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.

10. **Meningococcal polysaccharide vaccine (MPSV4).** *(Minimum age: 2 years)*
    - Administer MPSV4 to children aged 2–10 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups. See *MMWR* 2005;54(No. RR-7):1–21.

Catch-up Immunization Schedule
for Persons Aged 4 Months–18 Years Who Start Late or Who Are More Than 1 Month Behind

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age.

CATCH-UP SCHEDULE FOR PERSONS AGED 4 MONTHS–6 YEARS

Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B[1]	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Rotavirus[2]	6 wks	4 weeks	4 weeks		
Diphtheria, Tetanus, Pertussis[3]	6 wks	4 weeks	4 weeks	6 months	6 months[3]
Haemophilus influenzae type b[4]	6 wks	4 weeks if first dose administered at age <12 months 8 weeks (as final dose) if first dose administered at age 12-14 months No further doses needed if first dose administered at age ≥15 months	4 weeks[4] if current age <12 months 8 weeks (as final dose)[4] if current age ≥12 months and second dose administered at age <15 months No further doses needed if previous dose administered at age ≥15 months	8 weeks (as final dose) This dose only necessary for children aged 12 months–5 years who received 3 doses before age 12 months	
Pneumococcal[5]	6 wks	4 weeks if first dose administered at age <12 months and current age <24 months 8 weeks (as final dose) if first dose administered at age ≥12 months or current age 24–59 months No further doses needed for healthy children if first dose administered at age ≥24 months	4 weeks if current age <12 months 8 weeks (as final dose) if current age ≥12 months No further doses needed for healthy children if previous dose administered at age ≥24 months	8 weeks (as final dose) This dose only necessary for children aged 12 months–5 years who received 3 doses before age 12 months	
Inactivated Poliovirus[6]	6 wks	4 weeks	4 weeks	4 weeks[6]	
Measles, Mumps, Rubella[7]	12 mos	4 weeks			
Varicella[8]	12 mos	3 months			
Hepatitis A[9]	12 mos	6 months			

CATCH-UP SCHEDULE FOR PERSONS AGED 7–18 YEARS

Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis[10]	7 yrs[10]	4 weeks	8 weeks if first dose administered at age <12 months 6 months if first dose administered at age ≥12 months	6 months if first dose administered at age <12 months	
Human Papillomavirus[11]	9 yrs	4 weeks	12 weeks		
Hepatitis A[9]	12 mos	6 months			
Hepatitis B[1]	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Inactivated Poliovirus[6]	6 wks	4 weeks	4 weeks	4 weeks[6]	
Measles, Mumps, Rubella[7]	12 mos	4 weeks			
Varicella[8]	12 mos	4 weeks if first dose administered at age ≥13 years 3 months if first dose administered at age <13 years			

1. Hepatitis B vaccine (HepB). *(Minimum age: birth)*
- Administer the 3-dose series to those who were not previously vaccinated.
- A 2-dose series of Recombivax HB® is licensed for children aged 11–15 years.

2. Rotavirus vaccine (Rota). *(Minimum age: 6 weeks)*
- Do not start the series later than age 12 weeks.
- Administer the final dose in the series by age 32 weeks. Do not administer a dose later than age 32 weeks.
- Data on safety and efficacy outside of these age ranges are insufficient.

3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). *(Minimum age: 6 weeks)*
- The fifth dose is not necessary if the fourth dose was administered at age ≥4 years.
- DTaP is not indicated for persons aged ≥7 years.

4. *Haemophilus influenzae* type b conjugate vaccine (Hib). *(Minimum age: 6 weeks)*
- Vaccine is not generally recommended for children aged ≥5 years.
- If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB® or ComVax® [Merck]), the third (and final) dose should be administered at age 12– 15 months and at least 8 weeks after the second dose.
- If first dose was administered at age 7–11 months, administer 2 doses separated by 4 weeks plus a booster at age 12–15 months.

5. Pneumococcal conjugate vaccine (PCV). *(Minimum age: 6 weeks)*
- Vaccine is not generally recommended for children aged ≥5 years.

6. Inactivated poliovirus vaccine (IPV). *(Minimum age: 6 weeks)*
- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if third dose was administered at age ≥4 years.
- If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.

7. Measles, mumps, and rubella vaccine (MMR). *(Minimum age: 12 months)*
- The second dose of MMR is recommended routinely at age 4–6 years but may be administered earlier if desired.
- If not previously vaccinated, administer 2 doses of MMR during any visit with ≥4 weeks between the doses.

8. Varicella vaccine. *(Minimum age: 12 months)*
- The second dose of varicella vaccine is recommended routinely at age 4–6 years but may be administered earlier if desired.
- Do not repeat the second dose in persons aged <13 years if administered ≥28 days after the first dose.

9. Hepatitis A vaccine (HepA). *(Minimum age: 12 months)*
- HepA is recommended for certain groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.

10. Tetanus and diphtheria toxoids vaccine (Td) and tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap). *(Minimum ages: 7 years for Td, 10 years for BOOSTRIX®, and 11 years for ADACEL™)*
- Tdap should be substituted for a single dose of Td in the primary catch-up series or as a booster if age appropriate; use Td for other doses.
- A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose. A booster (fourth) dose is needed if any of the previous doses were administered at age <12 months. Refer to ACIP recommendations for further information. See *MMWR* 2006;55(No. RR-3).

11. Human papillomavirus vaccine (HPV). *(Minimum age: 9 years)*
- Administer the HPV vaccine series to females at age 13–18 years if not previously vaccinated.

Recommended and Minimum Ages and Intervals Between Vaccine Doses

TABLE 1. Recommended and minimum ages and intervals between vaccine doses of routinely recommended vaccines*

Vaccine and dose no.	Recommended age for this dose	Minimum age for this dose	Recommended interval to next dose	Minimum inter to next dose
Hepatitis B (HepB)-1†	Birth	Birth	1–4 months	4 weeks
HepB-2	1–2 months	4 weeks	2–17 months	8 weeks
HepB-3§	6–18 months	24 weeks	—	—
Diphtheria-tetanus-acellular pertussis (DTaP)-1¶	2 months	6 weeks	2 months	4 weeks
DTaP-2	4 months	10 weeks	2 months	4 weeks
DTaP-3	6 months	14 weeks	6–12 months**	6 months**
DTaP-4	15–18 months	12 months	3 years	6 months**
DTaP-5	4–6 years	4 years	—	—
Haemophilus influenzae type b (Hib)-1†,††	2 months	6 weeks	2 months	4 weeks
Hib-2	4 months	10 weeks	2 months	4 weeks
Hib-3§§	6 months	14 weeks	6–9 months¶	8 weeks
Hib-4	12–15 months	12 months	—	—
Inactivated poliovirus (IPV)-1†	2 months	6 weeks	2 months	4 weeks
IPV-2	4 months	10 weeks	2–14 months	4 weeks
IPV-3	6–18 months	14 weeks	3–5 years	4 weeks
IPV-4	4–6 years	16 weeks		
Pneumococcal conjugate (PCV)-1†	2 months	6 weeks	2 months	4 weeks
PCV-2	4 months	10 weeks	2 months	4 weeks
PCV-3	6 months	14 weeks	6 months	6 weeks
PCV-4	12–15 months	12 months	—	—
Measles, mumps, rubella (MMR)-1¶	12–15 months	12 months	3–5 years	4 weeks
MMR-2¶	4–6 years	15 months	—	—
Varicella (Var)-1¶	12–15 months	12 months	3–5 years	12 weeks**
Var-2¶	4–6 years	15 months	—	—
Hepatitis A (HepA)-1†	12–23 months	12 months	6–18 months¶	6 months¶
HepA-2	18–24 months	18 months	—	—
Influenza inactivated†	6–59 months	6 months§§§	1 month	4 weeks
Influenza live attenuated††	—	5 years	6–10 weeks	6 weeks
Meningococcal conjugate†	11–12 years	11 years		
Meningococcal polysaccharide (MPSV)-1	—	2 years	5 years§§§	5 years¶¶
MPSV-2***	—	7 years	—	—
Tetanus-diphtheria	11–12 years	7 years	10 years	5 years
Tetanus-diphtheria acellular pertussis (Tdap)††††	≥11 years	10 years	—	—
Pneumococcal polysaccharide (PPV) 1		2 years	5 years	5 years
PPV-2§§§	—	7 years	—	—
Human papillomavirus (HPV)-1¶¶	11–12 years	9 years	2 months	4 weeks
HPV-2	11–12 years (+2 months)	100 months	4 months	12 weeks
HPV-3	11–12 years (+6 months)	112 months	—	—
Rotavirus (RV)-1****	2 months	6 weeks	2 months	4 weeks
RV-2	4 months	10 weeks	2 months	4 weeks
RV-3	6 months	14 weeks	—	—
Zoster††††	60 years	60 years		

Footnotes

¯ Combination vaccines containing the Hepatitis B component are available (HepB-Hib, DTaP-HepB-IPV, and HepA-HepB). These vaccines should not be administered to infants aged <6 weeks because of the other components (i.e., Hib, DTaP, HepA, and IPV).

§ 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 age 24 weeks.

¶ Calendar months.

** 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.

†¯ For Hib and PCV, children receiving the first dose of vaccine at age ≥7 months require fewer doses to complete the series (CDC. Recommended childhood and adolescent immunization schedule—United States, 2006. MMWR 2006; 54 [Nos. 51 & 52]:Q1–Q4).

§§ If PRP-OMP (Pedvax-Hib®, Merck Vaccine Division) was administered at age 2 and 4 months, a dose at age 6 months is not required.

¶¶ Combination measles-mumps-rubella-varicella (MMRV) vaccine can be used for children aged 12 months–12 years.

*** The minimum interval from VAR-1 to VAR-2 for persons beginning the series at age ≥13 years is 4 weeks.

††† Two doses of influenza vaccine are recommended for children aged <9 years who are receiving the vaccine for the first time. Children aged <9 years who have previously received influenza vaccine, and persons aged >9 years require only 1 dose per influenza season.

§§§ The minimum age for inactivated influenza vaccine varies by vaccine manufacturer. Only Fluzone (manufactured by sanofi pasteur) is approved for children aged 6–35 months. The minimum age for Fluvirin (manufactured by Novartis) is 4 years. For Fluarix and FluLaval (manufactured by GlaxoSmithKline), the minimum age is 18 years.

¶¶¶ Certain experts recommend a second dose of MPSV 3 years after the first dose for persons at increased risk for meningococcal disease.

**** A second dose of meningococcal vaccine is recommended for persons previously vaccinated with MPSV who remain at high risk for meningococcal disease. MCV4 is preferred when revaccinating persons aged 11–55 years, but a second dose of MPSV is acceptable. (**Source:** CDC. Prevention and control of meningococcal disease: recommendations of the Advisory Committee on Immunization Practices [ACIP]. MMWR 2005;54[No. RR-7]).

†††† Only 1 dose of Tdap is recommended. Subsequent doses should be administered as Td. If vaccination to prevent tetanus and/or diphtheria disease is required for children aged 7–9 years, Td should be administered (minimum age for Td is 7 years). For one brand of Tdap, the minimum age is 11 years. The preferred interval between Tdap and a previous dose of Td is 5 years. In persons who have received a primary series of tetanus-toxoid–containing vaccine, for management of a tetanus-prone wound, the minimum interval after a previous dose of any tetanus-containing vaccine is 5 years.

§§§§ A second dose of PPV is recommended for persons at highest risk for serious pneumococcal infection and those who are likely to have a rapid decline in pneumococcal antibody concentration. Revaccination 3 years after the previous dose can be considered for children at highest risk for severe pneumococcal infection who would be aged <10 years of age at the time of revaccination. (**Source:** CDC. Prevention of pneumococcal disease: recommendations of the Advisory Committee on Immunization Practices [ACIP]. MMWR 1997;46[No. RR 8]).

¶¶¶¶ HPV is approved only for females aged 9–26 years.

***** The first dose of RV must be administered at age 6–12 weeks. The vaccine series should not be started at age ≥15 weeks. RV should not be administered to children aged >32 weeks regardless of the number of doses received at age 6–32 weeks.

††††† Herpes zoster vaccine is approved as a single dose for persons who are aged ≥60 years with a history of varicella.

Summary of Recommendations for Childhood and Adolescent Immunization

Adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP)* by the Immunization Action Coalition, November 2006

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and other related issues	Contraindications and precautions (mild illness is not a contraindication)
Hepatitis B *Give IM*	• Vaccinate all children ages 0 through 18yrs. • Vaccinate all newborns with monovalent vaccine prior to hospital discharge. Give dose #2 at 1–2m and the final dose at 6–18m (the last dose in the infant series should not be given earlier than age 24wks). After the birth dose, the series may be completed using 2 doses of single-antigen vaccine or up to 3 doses of Comvax (ages 2m, 4m, 12–15m) or Pediarix (ages 2m, 4m, 6m), which may result in giving a total of 4 doses of hepatitis B vaccine. • **If mother is HBsAg-positive:** give the newborn HBIG + dose #1 within 12hrs of birth; complete series at age 6m or, if using Comvax, at 12–15m. • **If mother's HBsAg status is unknown:** give the newborn dose #1 within 12hrs of birth. If mother is subsequently found to be HBsAg positive, give infant HBIG within 7d of birth and follow the schedule for infants born to HBsAg-positive mothers.	• Do not restart series, no matter how long since previous dose. • 3-dose series can be started at any age. • Minimum spacing between doses: 4wks between #1 and #2, 8wks between #2 and #3, and at least 16wks between #1 and #3 (e.g., 0-, 2-, 4m; 0-, 1-, 4m). **Special Notes on Hepatitis B Vaccine (HepB)** **Dosing of HepB:** Vaccine brands are interchangeable. For persons ages 0 through 19yrs, give 0.5 mL of either Engerix-B or Recombivax HB. **Alternative dosing schedule for unvaccinated adolescents ages 11 through 15yrs:** Give 2 doses Recombivax HB 1.0mL (adult formulation) spaced 4–6m apart. (Engerix-B is not licensed for a 2-dose schedule.) **For preterm infants:** Consult ACIP hepatitis B recommendations (*MMWR* 2005; 54 [RR-16]).	**Contraindication:** Previous anaphylaxis to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
DTaP, DT (Diphtheria, tetanus, acellular pertussis) *Give IM*	• Give to children at ages 2m, 4m, 6m, 15–18m, 4–6yrs. • May give dose #1 as early as age 6wks. • May give #4 as early as age 12m if 6m have elapsed since #3 and the child is unlikely to return at age 15–18m. • Do not give DTaP/DT to children age 7yrs and older. • If possible, use the same DTaP product for all doses.	• #2 and #3 may be given 4wks after previous dose. • #4 may be given 6m after #3. • If #4 is given before 4th birthday, wait at least 6m for #5 (age 4–6yrs). • If #4 is given after 4th birthday, #5 is not needed.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • For DTaP/Tdap only: encephalopathy within 7d after DTP/DTaP. **Precautions** • Moderate or severe acute illness. • Guillain-Barré syndrome within 6wks after previous dose of tetanus toxoid-containing vaccine.
Td, Tdap (Tetanus, diphtheria, acellular pertussis) *Give IM*	• Give Tdap booster dose to adolescents age 11–12yrs if 5yrs have elapsed since last dose DTaP/DTP; boost every 10yrs with Td. • Give 1-time Tdap to all adolescents who have not received previous Tdap. Special efforts should be made to give Tdap to persons age 11yrs and older who are - in contact with infants younger than age 12m. - healthcare workers with direct patient contact. • In pregnancy, when indicated, give Td or Tdap in 2nd or 3rd trimester. If not administered during pregnancy, give Tdap in immediate postpartum period.	• If never vaccinated with tetanus- and diphtheria-containing vaccine: give Td dose #1 now, dose #2 4wks later, and dose #3 6m after #2, then give booster every 10yrs. A 1-time Tdap may be substituted for any dose in the series. • Intervals of 2yrs or less between Td and Tdap may be used if needed.	• For DTaP only: Any of these occurrences following a previous dose of DTP/DTaP: 1) temperature of 105°F (40.5°C) or higher within 48hrs; 2) continuous crying for 3hrs or more within 48hrs; 3) collapse or shock-like state within 48hrs; 4) convulsion with or without fever within 3d. • For DTaP/Tdap only: Unstable neurologic disorder. **Note:** Use of Td or Tdap is not contraindicated in pregnancy. At the provider's discretion, either vaccine may be administered during the 2nd or 3rd trimester.
Polio (IPV) *Give SC or IM*	• Give to children at ages 2m, 4m, 6–18m, 4–6yrs. • May give #1 as early as age 6wks. • Not routinely recommended for those age18yrs and older (except certain travelers).	• All doses should be separated by at least 4wks. • If dose #3 is given after 4th birthday, dose #4 is not needed.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.
Human Papillomavirus (HPV) *Give IM*	• Give 3-dose series to girls at age 11–12yrs on a 0, 2, 6m schedule. • May be given as early as age 9yrs. • Vaccinate all older females (through age 26yrs) not previously vaccinated.	• Dose #2 may be given 4wks after dose #1. • Dose #3 may be given 12wks after dose #2.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Pregnancy.

*For specific ACIP recommendations, refer to the official ACIP statements published in *MMWR*. To obtain copies of these statements, call the CDC-INFO Contact Center at (800) 232-4636; visit CDC's website at www.cdc.gov/nip/publications/ACIP-list.htm; or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip.

This table is revised periodically. Visit IAC's website at www.immunize.org/childrules to make sure you have the most current version. IAC thanks William Atkinson, MD, MPH, from CDC's National Center for Immunization and Respiratory Diseases for his assistance. For more information, contact IAC at 1573 Selby Avenue, St. Paul, MN 55104, (651) 647-9009, or email admin@immunize.org.

Technical content reviewed by the Centers for Disease Control and Prevention, Nov. 2006.

Summary of Recommendations for Childhood and Adolescent Immunization

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccine administration and other related issues	Contraindications and precautions (mild illness is not a contraindication)
Varicella (Var) (Chickenpox) *Give SC*	• Give dose #1 at age 12–15m. • Give dose #2 at age 4–6yrs. Dose #2 may be given earlier if at least 3m since dose #1. • Give a routine second dose to all older children and adolescents with history of only 1 dose. • MMRV may be used in children 12m through 12yrs.	• If younger than age 13yrs, space dose #1 and #2 at least 3m apart. If age 13yrs or older, space 4–8wks apart. • May use as postexposure prophylaxis if given within 3–5d. • If Var and either MMR, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • Children immunocompromised because of high doses of systemic steroids, cancer, leukemia, lymphoma, or immunodeficiency. **Note:** For patients with humoral immunodeficiency, HIV infection, or leukemia, or for patients on high doses of systemic steroids, see ACIP recommendations*. **Precautions** • Moderate or severe acute illness. • If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP statement *General Recommendations on Immunization** regarding time to wait before vaccinating.
MMR (Measles, mumps, rubella) *Give SC*	• Give dose #1 at age 12–15m. • Give dose #2 at age 4–6yrs. Dose #2 may be given earlier if at least 4wks since dose #1. • If a dose was given before age12m, it doesn't count as the first dose, so give #1 at age 12–15m with a minimum interval of 4wks between the invalid dose and dose #1. • MMRV may be used in children 12m through 12yrs.	• If MMR and either Var, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart. • When using MMR (not MMRV) for both doses, minimum interval is 4wks.	**Contraindications** • Previous anaphylaxis to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • Severe immunodeficiency (e.g., hematologic and solid tumors; congenital immunodeficiency; long-term immunosuppressive therapy, or severely symptomatic HIV). **Precautions** • Moderate or severe acute illness. • If blood, plasma, or immune globulin given in past 11m or if on high-dose immunosuppressive therapy, see ACIP statement *General Recommendations on Immunization** regarding delay time. • History of thrombocytopenia or thrombocytopenic purpura. **Note:** MMR is not contraindicated if a PPD (tuberculosis skin test) was recently applied. If PPD and MMR not given on same day, delay PPD for 4–6wks after MMR.
Influenza Trivalent inactivated influenza vaccine (TIV) *Give IM* Live attenuated influenza vaccine (LAIV) *Give intranasally*	• On an annual basis, vaccinate all children ages 6–59m, as well as all siblings and household contacts of children ages 0–59m. • Vaccinate persons 5yrs and older who - have a risk factor (e.g., pregnancy, heart disease, lung disease, diabetes, renal dysfunction, hemoglobinopathy, immunosuppression, on long-term aspirin therapy, or have a condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration) or live in a chronic-care facility. - live or work with at-risk people as listed above. • Vaccinate any person wishing to reduce the likelihood of becoming ill with influenza. • LAIV may be given to healthy, non-pregnant persons ages 5–49yrs. • Give 2 doses to first-time vaccinees ages 6m through 8yrs. For TIV, space 4wks apart; for LAIV, space 6wks apart (no younger than age 5yrs). • For TIV, give 0.25 mL dose to children ages 6–35m and 0.5 mL dose if age 3yrs and older.		**Contraindications** • Previous anaphylaxis to this vaccine, to any of its components, or to eggs. • For LAIV only: Pregnancy, asthma, reactive airway disease, or other chronic disorder of the pulmonary or cardiovascular systems; an underlying medical condition, including metabolic diseases such as diabetes, renal dysfunction, and hemoglobinopathies; a known or suspected immune deficiency disease or receiving immunosuppressive therapy; history of Guillain-Barré syndrome. **Precautions** • Moderate or severe acute illness. • For TIV only: History of Guillain-Barré syndrome within 6wks of previous TIV.
Rotavirus (Rota) *Give orally*	• Give a 3-dose series at ages 2m, 4m, 6m. • May give dose #1 as early as age 6wks. • Give dose #3 no later than age 32wks.	• Do not begin series in infants older than age 12wks. • Dose #2 and #3 may be given 4wks after previous dose.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness. • Altered immunocompetence. • Moderate to severe acute gastroenteritis or chronic gastrointestinal disease. • History of intussusception.

Summary of Recommendations for Childhood and Adolescent Immunization

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another)	Schedule for catch-up vaccination and other related issues	Contraindications and precautions (mild illness is not a contraindication)
Hib (*Haemophilus influenzae* type b) *Give IM*	• HibTITER (HbOC) and ActHib (PRP-T): give at 2m, 4m, 6m, 12–15m (booster dose). • PedvaxHIB or Comvax (containing PRP-OMP): give at 2m, 4m, 12–15m. • Dose #1 of Hib vaccine may be given no earlier than age 6wks. • The last dose (booster dose) is given no earlier than age 12m and a minimum of 8wks after the previous dose. • Hib vaccines are interchangeable; however, if different brands of Hib vaccines are administered, a total of three doses are necessary to complete the primary series in infants. • Any Hib vaccine may be used for the booster dose. • Hib is not routinely given to children age 5yrs and older.	**All Hib vaccines:** • If #1 was given at 12–14m, give booster in 8wks. • Give only 1 dose to unvaccinated children from age 15m to 5yrs. **HibTITER and ActHib:** • #2 and #3 may be given 4 wks after previous dose. • If #1 was given at 7–11m, only 3 doses are needed; #2 is given 4–8wks after #1, then boost at 12–15m (wait at least 8wks after dose #2). **PedvaxHIB and Comvax:** • #2 may be given 4wks after dose #1.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Pneumo. conjugate (PCV) *Give IM*	• Give at ages 2m, 4m, 6m, 12–15m. • Dose #1 may be given as early as age 6wks. • Give 1 dose to unvaccinated healthy children ages 24–59m. • Give 2 doses at least 8wks apart to unvaccinated high-risk** children ages 24–59m. • PCV is not routinely given to children age 5yrs and older. ****High-risk:** Those with sickle cell disease; anatomic/functional asplenia; chronic cardiac, pulmonary, or renal disease; diabetes; cerebrospinal fluid leaks; HIV infection; immunosuppression; or who have or will have a cochlear implant.	• For ages 7–11m: If history of 0–2 doses, give additional doses 4wks apart with no more than 3 total doses by age 12m; then give booster 8wks later. • For ages 12–23m: If 0–1 dose before age 12m, give 2 doses at least 8wks apart. If 2–3 doses before age 12m, give 1 dose at least 8wks after previous dose. • For ages 24–59m: If patient has had no previous doses, or has a history of 1–3 doses given before age 12m but no booster dose, or has a history of only 1 dose given at 12–23m, give 1 dose now.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Pneumo. polysacch. (PPV) *Give IM or SC*	• Give 1 dose at least 8wks after final dose of PCV to high-risk children age 2yrs and older. • For children who are immunocompromised or have sickle cell disease or functional or anatomic asplenia, give a 2nd dose of PPV 3–5yrs after previous PPV (consult ACIP PPV recommendations [*MMWR* 1997;46 [RR-8] for details*).		**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Hepatitis A *Give IM*	• Give 2 doses to all children at age 1yr (12–23m) spaced 6m apart. • Vaccinate all children and adolescents age 2 years and older who - Live in a state, county, or community with a routine vaccination program already in place for children ages 2yrs and older. - Travel anywhere except U.S., W. Europe, N. Zealand, Australia, Canada, or Japan. - Wish to be protected from HAV infection. - Have chronic liver disease, clotting factor disorder, or are MSM adolescents.	• Minimum interval between doses is 6m. • Consider routine vaccination of children ages 2yrs and older in areas with no existing program.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness.
Meningococcal conjugate (MCV4) *Give IM* **polysaccharide** (MPSV4) *Give SC*	• Give 1-time dose of MCV4 to adolescents ages 11–12yrs, to adolescents at high school entry (approximately age 15yrs), and to college freshmen living in dormitories. • Vaccinate all children age 2yrs and older who have any of the following risk factors (use MPSV4 if age younger than 11yrs and MCV4 if age 11yrs and older): - Anatomic or functional asplenia, or terminal complement component deficiencies. - Travel to, or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of Sub-Saharan Africa). **Note:** Other adolescents who wish to decrease their risk of meningococcal disease may be vaccinated with MCV4.	If previously vaccinated with MPSV4 and risk continues, give MCV4 5yrs after MPSV4.	**Contraindication** Previous anaphylaxis to this vaccine or to any of its components, including diphtheria toxoid (for MCV4). **Precaution** Moderate or severe acute illness. **Note:** MCV4 is not licensed for use in children younger than age 11 yrs.



Diphtheria Toxoid, Tetanus Toxoid and Acellular Pertussis (DTaP) Vaccine

Vaccine Description	• Inactivated vaccine • See package inserts for contents; for some brands the stopper of the vial, tip cap, or the rubber plunger may contain dry natural latex rubber • DTaP also contained in TriHIBit and Pediarix • New vaccine: Tdap for prevention of tetanus, diphtheria, and pertussis in adolescents and adults. (Boostrix® [10-18 years] and Adacel® [11-64 years]) See Td and Tdap cards for details.	
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• DTaP is recommended for all children 2 months through 6 years of age. • Do NOT use in children 7 years of age and older (use Td or Tdap as appropriate; see Td and Tdap cards for details).	
Administration Schedule	**Dose**	**Recommended Age**
Primary Schedule *Minimum age is 6 weeks **Can be administered as early as age 12 months **IF** it has been 6 months since DTaP3 and child is unlikely to return at age 15 to 18 months	DTaP #1	2 months*
	DTaP #2	4 months
	DTaP #3	6 months
	DTaP #4	15 to 18 months**
	DTaP #5	4 to 6 years
Minimum Intervals	**Doses**	**Minimum Interval**
	DTaP 1---DTaP 2	4 weeks
	DTaP 2---DTaP 3	4 weeks
	DTaP 3---DTaP 4	6 months
	DTaP 4---DTaP 5	6 months

DTaP Vaccine (Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Encephalopathy without known cause within 7 days of a prior dose
Precautions	Generally when these conditions are present, DTaP should not be given. But in situations when the benefit outweighs the risk (e.g., community pertussis outbreak), vaccination should be considered after evaluation by a healthcare provider: • T greater than 105°F (40.5°C) within 48 hrs after previous dose • Continuous crying lasting more than 3 hrs within 48 hrs after previous dose • Previous convulsion within 3 days after DTaP dose • Pale or limp episode or collapse within 48 hrs after previous dose. • Unstable underlying neurologic problem (defer until stable)
Special Considerations	• DO NOT use in children age 7 years and older – use Td or Tdap instead. Tdap is recommended as single, one time booster dose in people 10 to 64 years of age. • DO NOT use when valid contraindication to DTaP vaccine exists – use DT*** • If dose #4 is given after 4th birthday, dose #5 is not needed • DO NOT restart series, no matter how long since previous dose
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-dtp.pdf	

***Pediatric DT is used for children younger than 7 years of age when the pertussis component of DTaP is contraindicated.

Diphtheria and Tetanus (DT) Toxoid Vaccine

Vaccine Description	• Inactivated vaccine • See package insert	
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• Pediatric DT used if a valid contraindication to pertussis vaccine exists • Use DT in children with reactions to DTaP or with refusal of pertussis vaccine by parents • Do not use in children 7 years of age and older	
Administration Schedule	**Dose**	**Recommended Interval**
Primary Schedule	DT #1	2 months
	DT #2	4 months
	DT #3	6 months
	DT #4	15 to 18 months
	DT #5	4 to 6 years
Booster	Refer to Td and Tdap Cards.	
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness	
Special Considerations	• DO NOT restart series, no matter how long since previous dose	

Tetanus and Diphtheria (Td) Toxoid Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Inactivated vaccine
• Td contains thimerosal; The stopper, needle cover, and plunger contain dry natural latex rubber; See package insert
• New vaccine: Tdap (tetanus, diphtheria, and pertussis vaccine) for use in adolescents and adults as a one time booster dose; See next card for information on Tdap</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL
• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)</td></tr>
<tr><td>Indications</td><td colspan="2">• People 7 years of age and older
• Tdap is recommended recommended at 11-12 year old visit as a single, one time booster dose
• See package insert</td></tr>
<tr><td>Administration Schedule</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td rowspan="3">Primary Schedule*

*only for previously unvaccinated patients 7 years of age and older</td><td>Td #1**</td><td>** Use Tdap for dose 1 if older than 10 yo</td></tr>
<tr><td>Td #2</td><td>4 to 8 weeks after dose #1</td></tr>
<tr><td>Td #3</td><td>6 to 12 months after dose #2</td></tr>
<tr><td>Booster</td><td>Td (or Tdap if not received already)</td><td>First booster may be given at 11 to 12 years of age if at least 5 years have elapsed since the last dose of DTP, DTaP, or DT</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction to prior dose or vaccine component
• Moderate or severe acute illness
• Neurological reaction after prior dose of tetanus-containing vaccine</td></tr>
<tr><td>Special Considerations</td><td colspan="2">• DO NOT restart the series, no matter how long since previous dose
• History of Arthus reaction following a tetanus or diphtheria toxoid-containing vaccine (do not give TT, Td, or Tdap until at least ten years have elapsed since last dose)
• See Storage and Handling Section</td></tr>
<tr><td colspan="3">VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-td.pdf</td></tr>
</table>

Tetanus and Diphtheria Toxoids and Acellular Pertussis (Tdap) Vaccine

Vaccine Description	• Inactivated vaccine • Boostrix® (ages 10 to 18) and Adacel® (ages 11 to 64) • The tip cap and the rubber plunger of the needleless prefilled syringes of Boostrix® contain dry natural latex rubber; Adacel is latex free; see product insert for other contents of each vaccine	
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• A single, one time booster dose of Tdap is recommended for use in people 10 to 64 years, with recommendation of giving at 11-12 year visit • If the primary series of Td has not been given or completed, Tdap can be used for one of the missing doses, preferably the first dose if 10 years or older • See package insert	
Administration Schedule	**Dose**	**Recommended Interval**
	Single one time dose	Dose may be given at 11 to 12 years of age if at least 5 years have elapsed since the last dose of DTP, DTaP, or DT
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Neurological reaction following tetanus-containing vaccine • Encephalopathy within 7 days of a pertussis-containing vaccine and not due to another identifiable cause • Pregnancy (give before or after; OK to give Td) • Unstable central nervous system disorder • See package insert for further information	

Tetanus and Diphtheria Toxoids and Acellular Pertussis (Tdap) Vaccine (continued)

Special Considerations	Tdap can be given with an interval as short as 2 years from a previous Td vaccination for people who: • are healthcare personnel in hospitals and ambulatory care settings who have direct patient contact, especially if caring for infants younger than 12 months of age • are women planning to become pregnant • have close contact with infants younger than 12 months of age
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-tdap.pdf Pregnancy registry: Adacel® 1-800-822-2463 (sanofi pasteur) or Boostrix® 1-888-825-5249 (GlaxoSmithKline); also notify VHC Networks for long-term support and follow-up	



Hepatitis A Vaccine

Vaccine Description	• Inactivated whole virus • Adjuvant: aluminum hydroxide • Vial stopper and/or the syringe plunger stopper may contain dry natural latex rubber (check package insert) • See package insert for other contents	
Route	• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Dose	• Vaqta (1-18 years): 25 units (0.5 mL) • Havrix (1-18 years): 720 EL.U. (0.5 mL)	
Indications	• **All children 12 to 23 months of age.** • Children not vaccinated by 2 years of age can be vaccinated at subsequent visits. This is especially important for children who will be traveling internationally or who live in areas with historically higher rates of hepatitis A (average 10 or more cases per 100,000 persons from 1987 to 1997) including: AL, AZ, AK, CA, CO, ID, MO, MT, NV, NM, OK, OR, SD, TX, UT, WA, and WY	
Administration Schedule	**Dose**	**Recommended Interval**
	Havrix #1 Vaqta #1	First dose of either brand at 1 to 18 years
	Havrix #2 Vaqta #2	Havrix: 6 to 12 months after dose #1 Vaqta: 6 to 18 months after dose #1
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness	
Special Considerations	• Consider simultaneous immune globulin administration if person is traveling to highly endemic area sooner than 4 weeks after administration • You may interchange brands • DO NOT restart series, no matter how long since previous dose	
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hep-a.pdf Pregnancy registry for Twinrix®: 1-888-825-5249 (GlaxoSmithKline); also notify VHC Networks for long-term support and follow-up		


Hepatitis A

Hepatitis B Vaccine

Vaccine Description	• Inactive viral antigen • Contains yeast and aluminum hydroxide; The tip cap and the rubber plunger of the needleless prefilled syringes contain dry natural latex rubber • HepB for peds use also available as combined: • Engerix-B® + Hib (Comvax®) • DTaP, Engerix-B®, and IPV (Pediarix®)	
Route	• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • Vaccine brands interchangeable for 3-dose schedule	
Vaccine	**Age**	**Dose**
Engerix-B®	0-19 years	10 mcg (0.5 mL)
Recombivax HB®	0-19 years	5 mcg (0.5 mL)
	11-15 years	10 mcg (1 mL) - *This is a special dose for this age group and is given on a special schedule on back of card*
Indications	• Birth to 18 years of age • Vaccinate all newborns with monovalent vaccine before hospital discharge. After dose #1, the series may be completed with single-antigen vaccine or up to 3 doses of Comvax (at 2m, 4m, 12 to 15m of age) or Pediarix (at 2m, 4m, 6m of age) • **If mother is HBsAg-positive:** give the newborn HBIG and dose #1 within 12 hours of birth, dose #2 at 1 to 2 months of age, and dose #3 at 6 months of age • **If mother's HBsAg status is unknown:** give newborn dose #1 within 12 hours of birth, dose #2 at 1 to 2 months of age, and dose #3 at 6 months of age. If mother is subsequently found to be HBsAg positive, give infant HBIG as soon as possible (no later than age 1 week). • Comvax®: Use when both Hep B and Hib antigens are indicated. Do not give to infants younger than 6 weeks of age. • Pediarix®: Use when Hep B, DTaP, and polio antigens are indicated. Do not give to infants younger than 6 weeks of age.	

Hepatitis B Vaccine (Continued)

<table>
<tr><td rowspan="4">Administration Schedule

Recommended schedule for routine infant immunization is
Dose #1: birth
Dose #2: 1-4 months
Dose #3: 6-18 months</td><td>Dose</td><td>Minimum Age</td></tr>
<tr><td>#1</td><td>Birth (thimerosal-free)*</td></tr>
<tr><td>#2</td><td>1 month (thimerosal-free)</td></tr>
<tr><td>#3</td><td>6 months</td></tr>
<tr><td colspan="3">*Thimerosal-free vaccine recommended for use in infants younger than 6 months old</td></tr>
<tr><td rowspan="3">Minimum Intervals
DO NOT restart series, no matter how long since previous dose

Doses administered sooner than minimum intervals may reduce efficacy</td><td>Dose</td><td>Minimum Intervals</td></tr>
<tr><td># 1-2</td><td>4 weeks</td></tr>
<tr><td># 2-3</td><td>At least 8 weeks IF it has been at least 16 weeks since dose #1 AND child is at least 6 months of age</td></tr>
<tr><td>Schedule for 11-15 year olds with Recombivax HB®</td><td colspan="2">2 doses of 10 mcg (1 mL): 0 and 4-6 months</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction or adverse reaction to prior dose or vaccine component
• Moderate or severe acute illness</td></tr>
<tr><td>Special Considerations</td><td colspan="2">• Neonates weighing less than 2000 grams respond poorly to vaccine. If mother is HBsAg negative, wait until hospital discharge or age 1 month to administer vaccine. If mother is HBsAg positive, administer vaccine and HBIG at birth, but do not count this vaccine dose toward the three dose series
• Do not use Comvax® or Pediarix® in infants younger than 6 weeks of age
• DO NOT restart series, no matter how long since previous dose</td></tr>
<tr><td colspan="3">VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hep-b.pdf</td></tr>
</table>

Haemophilus influenzae type b (Hib) Vaccine

Vaccine Description	• Inactivated protein conjugate vaccine • Vaccine or diluent vial stopper may contain dry natural latex rubber (see package insert for components)				
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • Brands: PedvaxHIB® (Merck), ActHIB® (sanofi pasteur), HibTITER® (Wyeth) • Hib vaccine is also available as combined: • Engerix-B + Hib (Comvax®) • DTaP +Hib (TriHIBit®)				
Indications	• All children 2 months - 5 years, including those born prematurely • People older than 5 yrs who are at risk, including those with: • anatomical or functional asplenia • cancer treated with chemotherapy (give at least 2 weeks before or 3 months after completion) • immune suppression • post bone marrow or stem cell transplant (1 year post transplant)				
Administration Schedule		**Dose #1**	**Dose #2**	**Dose #3**	**Booster**
* Minimum age is 6 weeks. Maximum age is 59 months.	PedvaxHIB®	2* months	4 months		12 to 15 months
	All other Hib vaccine brands	2* months	4 months	6 months	12 to 15 months
The number of recommended doses varies if the series is started after age 7 months. See other side of card.	• **Rules for all Hib vaccines:** Give the last dose (booster dose) at no earlier than 12 months of age and a minimum of 2 months after the previous dose • If using PedvaxHib® for the first two doses, only 3 doses are needed to complete series. The series can be completed with any brand vaccine. • If using Comvax® (Hib + Hep B) give doses at 2, 4, and 12-15 months. • TriHIBit® (Hib + DTaP) can only be used for the booster dose at 15 months of age. • If any other Hib vaccine was used within a primary series or if the brand used is unknown, the 4-dose schedule is recommended, depending on the age of child				

Hib Vaccine (Continued)

Minimum Intervals	• The minimum interval between all doses is 4 weeks as long as age restrictions are met		
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness		
Special Considerations	• May give simultaneously with all other vaccines but at a separate injection site • Hib vaccines are interchangeable • DO NOT restart series, no matter how long since previous dose		
Recommended "Catch-Up" Schedule	**Current Age**	**Prior Vaccination Hx**	**Recommended Regimen**
	7 to 11 months	No prior doses	Two doses of vaccine, 2 months apart, followed by booster at 12 to 15 mos, at least 2 months after last dose
	7 to 11 months	1 dose	1 dose at 7 to 11 mos, booster at least 2 mos later at 12 to 15 mos
	7 to 11 months	2 doses of Act-Hib® or HibTiter®	Same as above
	12 to 14 months	2 doses before 12 mos	1 dose of any licensed conjugate vaccine
	12 to 14 months	1 dose before 12 mos	2 doses of any licensed conjugate separated by 2 mos
	15 to 59 months	Any incomplete schedule	1 dose of any licensed conjugate
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hib.pdf			

Human Papillomavirus (HPV) Vaccine

Vaccine Description	• Inactivated viral vaccine: Gardasil® (Merck) • Contains aluminum and yeast • See package insert	
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• Girls and women 9 to 26 years of age (routinely given at 11-12 year old visit)	
Administration Schedule	**Dose**	**Recommended Interval**
	#1	
	#2	2 months after dose 1
	#3	6 months after dose 1
Booster	None	
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Pregnancy - due to lack of safety studies; if given and women is pregnant,	
Special Considerations	• Shake vigorously before giving resulting in cloudy liquid (see Storage and Handling Section for more details) • 3 cases of bronchospasm 1-15 days after HPV vaccine given not reported in placebo group	
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hpv.pdf Pregnancy registry: 1-800-986-8999 (Merck); also notify the VHC Network for long-term support and follow-up		

Inactivated Influenza Vaccine (2006-07 season)

Vaccine Description	• Trivalent inactivated influenza vaccine (TIV) • Brands: Fluvirin® (Chiron) and Fluzone® (sanofi pasteur); Fluzone® also available preservative-free for use in children 6 to 35 months of age • The tip cap and rubber plunger of needleless prefilled syringes may contain dry natural latex rubber (see package inserts)	
Dose & Route	• Dose for age 6 months to 35 months: 0.25 mL • Dose for age 3 years and older: 0.5 mL • Route for all doses: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• Children from 6 months to 59 months of age • All people older than 6 months of age with chronic illness or weak immune system • All people older than 6 months of age in close contact with others at risk for serious illness if infected with influenza virus • All people older than 6 months of age planning foreign travel • People 6 months to 18 of age years receiving chronic aspirin therapy (because of Reye syndrome risk)	
Administration Schedule	**Dose**	**Recommended Interval**
6 months through 8 years of age	6 to 35 months: 0.25 mL Older than 3 years: 0.5 mL	First time vaccinees or those who received only one dose in first year of vaccination: Give 2 doses separated by at least 4 weeks
Older than 9 years	One dose: 0.5 mL	Annually
Contraindications	• Serious allergic reaction to prior dose or vaccine component, or to eggs • Moderate or severe acute illness • Serious adverse event or history of Guillain-Barré syndrome (GBS)	
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-flu.pdf		

FluMist (LAIV) 2007-08 Season

Vaccine Description	• Live, trivalent, nasally administered influenza vaccine • Contains egg protein. See package insert.		
Dose & Route	• Dose: 0.2 mL* Route: Intranasal (half per nostril) • See package insert for FluMist®		
Indications	• Active immunization for the prevention of disease caused by influenza A & B viruses in healthy children and adolescents (2 to 17 years of age) and healthy adults (18 to 49 years of age) • NOT indicated for immunization of people younger than 2 years or older than 49 years, nor for treatment of influenza, nor will it protect against infection and illness caused by infectious agents other than influenza A or B viruses		
Administration Schedule	**Age Groups**	**Vaccination Status**	**Dosage Schedule**
	Children ages 2 years through 8 years	Not previously vaccinated against influenza or only one dose in the first year of vaccination	2 doses (0.2* mL each) ≥ 6 weeks apart
	Children ages 2 years through 8 years	Previously vaccinated against influenza and who received two doses in the first year of vaccination	1 dose (0.2 mL) per season
	Children and Adults ages 9 through 49 years	Not applicable	1 dose (0.2 mL) per season
Contraindications	• Do NOT give LAIV to people with a history of hypersensitivity, especially anaphylactic reactions, to any component, including eggs or egg products • Do not give to children and adolescents (2 to 17 years of age) receiving chronic aspirin or salicylate-containing medication therapy because of the risk for Reye syndrome		

* Dose for FluMist® formulation approved in January 2007 is 0.2 mL instead of 0.5 mL

FluMist (Continued)

Contraindications (continued)	Do not administer to people: • who have a history of Guillain-Barré syndrome • with known or suspected immune-deficiency diseases, such as combined immunodeficiency, agammaglobulinemia, and thymic abnormalities • with conditions such as immunodeficiency virus infection, malignancy, leukemia, or lymphoma • who may be immune suppressed or have compromised immune status caused by treatment with systemic corticosteroids, alkylating drugs, antimetabolites, radiation, or other immune suppressing therapies • who are pregnant • who have asthma, reactive airway disease, or other chronic pulmonary disease OR other chronic conditions that place them at high risk for complications from influenza illness (e.g., heart disease, diabetes, renal disease, sickle cell anemia)
Special Considerations	• Give inactivated influenza vaccine instead or LAIV to people who care for others who are severely immune compromised and who require a protective environment • Defer administration if nasal congestion might prevent LAIV from reaching nasopharygeal mucosa • Live, intranasal flu vaccine may be given at the same time as other live vaccines, including MMR or varicella. If two live vaccines are not given on the same day, they should be given at least 4 weeks apart. • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-flulive.pdf http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5213a1.htm Insert for new formulation: http://www.fda.gov/cber/label/inflmed010507LB.pdf	

Measles, Mumps, Rubella (MMR) Vaccine

Vaccine Description	• Live attenuated combined vaccine • Contains egg protein, neomycin, gelatin (see package insert) • Also available as individual components • Also available as combined MMR and varicella (ProQuad®) for use when both vaccines are indicated for children 12 months to 12 years of age	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications	• All infants 12 months of age and older • Susceptible adolescents without documented evidence of immunity	
Administration Schedule ProQuad® (MMRV) may be used when both MMR and varicella vaccines are indicated for children 12 months to 12 years of age	**Dose**	**Recommended Age**
	#1	12 to 15 months
	#2	4 to 6 years
Minimum Intervals	**Dose**	**Minimum Interval**
	#1	MUST be at least 12 months of age [May be administered sooner in an outbreak situation, but should NOT be counted as a valid dose: revaccinate after 12 months of age]
	#2	At least 28 days after dose #1. Usually given at 4 to 6 years of age. Catch-up opportunity at 11 to 18 years of age for dose #2.

Measles, Mumps, Rubella (MMR) (Continued)

Contraindications Refer to table on card #1-9 for MMR administration intervals after blood products Allergy to "eggs" is no longer a valid contraindication to MMR	• Serious allergic reaction to prior dose or vaccine component • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). • People who are immune compromised (cancer, leukemia, lymphoma). Note: HIV positivity NOT a contraindication, except for severely immune-compromised people. (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm) • Immune suppression (e.g., from high-dose steroids, chemotherapy, radiation therapy) • Moderate or severe acute illness • Blood products or immune globulin administered during past 11 months (see card #1-9)
Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as MMR. Delay TST for more than 4 wks if MMR given first OR apply TST first, then give MMR when TST is read • If another live vaccine and MMR are both needed and not administered on the same day, space them at least 4 weeks apart • MMR is preferred, but may be given as separate, single-antigen vaccines • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf	

Measles, Mumps, Rubella, Varicella (MMRV) Vaccine: ProQuad®

Vaccine Description	• Live attenuated combined vaccine • Contains neomycin, gelatin • See package insert	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications	• Children 12 months to 12 years of age who have an indication for both MMR and varicella vaccines.	
Administration Schedule	**Dose**	**Recommended Age**
	#1	12 to 15 months
	#2	4 to 6 years of age
Minimum Intervals	**Dose**	**Minimum Interval**
	#1	MUST be at least 12 months of age
	#2	At least 3 months between doses

Measles, Mumps, Rubella, Varicella (MMRV) Vaccine: ProQuad (Continued)

Contraindications Refer to table on card #1-9 for MMR administration intervals after blood products Allergy to "eggs" is no longer a valid contraindication to MMR	• Serious allergic reaction to prior dose or vaccine component • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). • People who are immune compromised (cancer, leukemia, lymphoma). Note: HIV positivity NOT a contraindication, except for severely immune-compromised people. (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm) • Immune suppression (e.g., from high-dose steroids, chemotherapy, radiation therapy) • Moderate or severe acute illness • Blood products or immune globulin administered during past 11 months (see card #1-9)
Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as MMRV. Delay TST for more than 4 wks if MMRV given first OR apply TST first, then give MMRV when TST is read • If another live vaccine and MMRV are both needed and not administered on the same day, space them at least 4 weeks apart • See Storage and Handling Section
VIS for MMR: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf VIS for Varicella: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-varicella.pdf	

Measles Vaccine

Vaccine Description	• Live attenuated single-antigen vaccine • Contains egg protein, neomycin, gelatin • See package insert	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications* *ACIP recommends that MMR be used when any of the individual components is indicated.	• All infants and children 12 months of age and older • Susceptible adolescents without documented evidence of immunity	
Administration Schedule	**Dose**	**Recommended Age**
	#1	12 to 15 months
	#2	4 to 6 years
Minimum intervals	**Dose**	**Minimum Interval**
	#1	MUST be at least 12 months of age [May be administered sooner in an outbreak situation but should not be counted as a valid dose: revaccinate after 12 months of age]
	#2	At least 28 days after dose #1. Usually given at 4 to 6 years of age. Catch-up opportunity at 11 to 18 years of age for dose #2.

Measles Vaccine (Continued)

Contraindications Allergy to "eggs" is no longer a valid contraindication to administration Refer to table on card #1-9 for MMR administration intervals after blood products	• Serious allergic reaction to prior dose or vaccine component • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). • People who are immune compromised (cancer, leukemia, lymphoma). Note: HIV positivity NOT a contraindication, except for severely immune-compromised people. (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm) • Immune suppression (e.g., from high-dose steroids, chemotherapy, radiation therapy) • Moderate or severe acute illness • Blood products or immune globulin administered during past 11 months (see card #1-9)
Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as measles vaccine. Delay TST for more than 4 wks if measles vaccine given first OR apply TST first, then give measles vaccine when TST is read • If 2 live vaccines are needed and not administered on the same day, space them at least 4 weeks apart • DO NOT restart series, no matter how long since previous dose • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf	



Meningococcal Vaccines
Polysaccharide and Conjugate

Vaccine Description	• Inactivated, bacterial polysaccharide: Menomune® • Inactivated, bacterial polysaccharide conjugate: Menactra® - licensed in 2005 • Contains thimerosal and latex (stopper only for Menactra®) • See package insert	
Dose & Route	• Dose: 0.5 mL • Route: SC (Menomune®) and IM (Menactra®) (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert	
Indications	• All children at age 11 to 12 years as well as unvaccinated adolescents at subsequent visit • College freshmen living in dormitories • Children older than 2 years who: - have functional or anatomic asplenia - are traveling to or living in an endemic area - have certain immune system disorders - have been exposed to meningitis during an outbreak • Menactra® (conjugate), when available, should be used for people 11 to 55 years of age. Children 2 to 10 years should receive Menomune®.	
Administration Schedule	**Dose**	**Recommended Interval**
	One dose, if 2 years or older Two doses, if 3 months to 2 years of age	One dose 3 months apart
Booster		Menomune®: 3-5 years Menactra®: not yet known

Meningococcal Vaccines Polysaccharide and Conjugate (Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • History of Guillain-Barré syndrome (Menactra®) • Children younger than 3 months of age
Special Considerations	• Additional doses may be indicated for certain patients at continued risk • Refer children 3 to 59 months to a provider to determine whether Menomune® should be given • Menactra is only licensed for use in people between the ages of 11 to 55 years • There have been rare reports of Guillain-Barrè syndrome (GBS) after Menactra® but population based increase of disease related to vaccine has not been documented
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mening.pdf Pregnancy registry for Menactra®: 1-800-822-2463 (sanofi pasteur); also notify VHC Networks for long-term support and follow-up	

Mumps Vaccine

Vaccine Description	• Live attenuated single-antigen vaccine • Contains egg protein, neomycin, sorbitol, gelatin • See package insert	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications* *ACIP recommends that MMR be used when any of the individual components is indicated.	• All infants and children 12 months of age and older • Susceptible adolescents without documented evidence of immunity	
Administration Schedule	**Dose**	**Recommended Age**
	#1	12 to 15 months
	#2	4 to 6 years
Minimum intervals	**Dose**	**Minimum Interval**
	#1	MUST be at least 12 months of age. (May be administered sooner in an outbreak situation but should not be counted as a valid dose: revaccinate after 12 months of age).
	#2	At least 28 days after dose #1. Usually given at 4 to 6 years of age. Catch-up opportunity at 11-18 years to administer dose #2.

Mumps Vaccine (Continued)

Contraindications Allergy to "eggs" is no longer a valid contraindication to administration. Refer to table on card #1-9 for MMR administration intervals after blood products	• Serious allergic reaction to prior dose or vaccine component • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). Document counseling on service-appropriate form. • People who are immune compromised (cancer, leukemia, lymphoma). Note: HIV positivity NOT a contraindication, except for severely immune-compromised people. (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm) • Immune suppression (e.g., from high-dose steroids, chemotherapy, radiation therapy) • Moderate or severe acute illness • Blood products or immune globulin administered during past 11 months (see card #1-9)
Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as mumps vaccine. Delay TST for more than 4 wks if mumps vaccine given first OR apply TST first, then give mumps vaccine when TST is read • If 2 live vaccines are needed and not administered on the same day, space them at least 4 weeks apart • Do not restart series, no matter how long since previous dose • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf	



Pediarix® Vaccine

Vaccine Description	• Combination product containing DTaP, hepatitis B vaccine, and inactivated polio vaccine (IPV) • Manufacturer: GlaxoSmithKline. • The tip cap and the rubber plunger of the needleless prefilled syringes contain dry natural latex rubber (see package insert for vaccine components)	
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert	
Indications	• Indicated for active immunization against diphtheria, tetanus, pertussis, all known subtypes of hepatitis B virus, and poliomyelitis caused by all three serotypes of poliovirus • Indicated for 3-dose primary series in infants born of HBsAg-negative mothers, beginning as early as 6 weeks of age. ***Pediarix® should not be administered to any infant before the age of 6 weeks or to people 7 years or older.***	
Administration Schedule	**Dose**	**Recommended Interval**
	#1	Customary age for dose #1 is 2 months of age, but it may be given starting at 6 weeks
	#2	Given 6 to 8 weeks after dose #1 (preferably 8 weeks)
	#3	Given 6 to 8 weeks after dose #2 (preferably 8 weeks)

Pediarix® Vaccine (Continued)

Contraindications	• See contraindications for DTaP vaccine, hepatitis B vaccine, and inactivated polio vaccine (IPV)
Special Considerations	• Not approved for dose #4 or dose #5 (booster doses) • Approved for use through 6 years of age; however a child who is behind schedule can still receive Pediarix® as long as it is given for doses #1, #2, and #3, and the child is less than 7 years of age. • Can be given to infants who received a birth dose of hepatitis B vaccine (total 4 doses of hepatitis B vaccine) • May be used in infants whose mothers are HBsAg positive or whose antigen status is unknown • May be used interchangeably with other pertussis-containing vaccines, if necessary

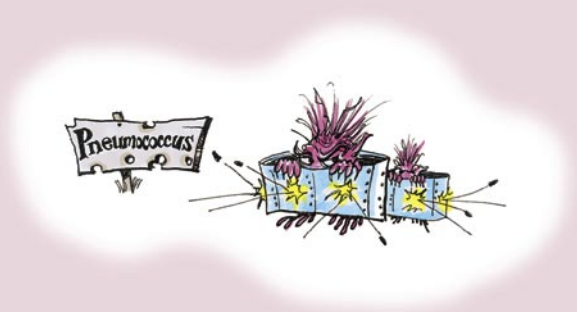
Pneumococcal Conjugate Vaccine (PCV7)

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Inactivated polysaccharide conjugate vaccine: Prevnar® (Wyeth)
• Contains diphtheria protein and aluminum; The vial stopper, the syringe plunger stopper and the syringe tip cap contain dry natural rubber (see package insert for other contents)</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL
• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)
• Shake vial vigorously prior to use</td></tr>
<tr><td>Indications</td><td colspan="2">• All children younger than 24 months of age
• Children 24 to 59 months who have high-risk medical conditions (see back of card for examples)</td></tr>
<tr><td>Administration Schedule</td><td>Dose</td><td>Recommended Age</td></tr>
<tr><td rowspan="4">*Minimum age: 6 wks

No. of doses varies if initiating series after age 7 months (see “catch-up” schedule below)</td><td>#1</td><td>2 months</td></tr>
<tr><td>#2</td><td>4 months</td></tr>
<tr><td>#3</td><td>6 months</td></tr>
<tr><td>#4</td><td>12 to 15 months</td></tr>
<tr><td rowspan="4">Recommended “Catch-up” Schedule</td><td>Age at first dose</td><td># of Doses Needed: Schedule</td></tr>
<tr><td>7 to 11 months</td><td>3 doses: Two doses at least 4 wks apart; third dose after age 12 months and at least 2 months after second dose</td></tr>
<tr><td>12 to 23 months</td><td>2 doses: Two doses at least 2 months apart</td></tr>
<tr><td>24 to 59 months</td><td>1 dose
2 doses separated by 8 weeks if at high risk</td></tr>
</table>

Pneumococcal Conjugate Vaccine (PCV7) (Continued)

• If both PCV7 and pneumococcal polysaccharide vaccine (PPV23) are indicated, give PPV23 more than 8 wks after last dose of PCV7 • PCV7 not routinely given to children 5 years of age and older	
• **High-risk children:** Those with sickle cell disease; anatomic or functional asplenia; chronic cardiac, pulmonary, or renal disease; diabetes mellitus; CSF leak; HIV infection; or immune suppression. • **Moderate risk children:** Children aged 24 to 35 months; 24 to 59 months who attend group day-care centers, or are of Alaskan-Native, American-Indian, or African-American descent • **Chronic illness with recurrent infection:** may benefit from additional doses; immunology evaluation required	
Contraindications	• Serious allergic reaction to a prior dose or vaccine component • Moderate or severe acute illness
Special Considerations	• May give with all other vaccines but as a separate injection • DO NOT restart series, no matter how long since previous dose
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-PneumoConjugate.pdf	



Pneumococcal Polysaccharide Vaccine PPV23

Vaccine Description	• Inactivated polysaccharide vaccine: Pneumovax 23® (Merck) • Contains phenol (see package insert)	
Dose & Route	• Dose: 0.5 mL • Route: SC or IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Indications	• Children 2 years of age and older at high risk of invasive disease: - functional or anatomic asplenia - sickle cell disease - nephrotic syndrome - CSF leaks - immune suppression, including HIV infection - cochlear implants - consider in the setting of any chronic illness	
Administration Schedule	**Dose**	**Recommended Interval**
	High-risk children	No sooner than 2 months after last dose of PCV7
Booster	One PPV23 revaccination dose recommended for high-risk people 2 years of age and older	After 3 years if child will be 10 years or younger at the time of revaccination, otherwise 5 years after the original dose
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness	
Special Considerations	• Additional doses may be indicated for certain patients. Immunology evaluation recommended for patients with recurrent infections. • Administer before immunusuppressive therapies or splenectomy for best effect (see package insert for timing)	
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-ppv.pdf		

IPV-Inactivated Poliovirus Vaccine (IPV)

<table>
<tr><td>Vaccine Description</td><td colspan="3">• Inactive virus (IPV) preferred
• Live attenuated virus (OPV) is no longer distributed in US
• Contains neomycin, streptomycin, polymyxin B, formaldehyde, calf serum proteins, and 2-phenoxyethanol; needle cover contains dry natural latex rubber (see package insert)
• Also available as combined DTaP, Engerix-B®, and IPV (Pediarix®)</td></tr>
<tr><td>Dose & Route</td><td colspan="3">• Dose: 0.5 mL
• Route: SC or IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)</td></tr>
<tr><td>Indications</td><td colspan="3">• Give routinely to all infants and children 2 months of age and older</td></tr>
<tr><td rowspan="5">Administration Schedule</td><td>Dose</td><td>Age</td><td>Minimum Interval</td></tr>
<tr><td>#1</td><td>2 months</td><td></td></tr>
<tr><td>#2</td><td>4 months</td><td>4 weeks</td></tr>
<tr><td>#3</td><td>6 to 18 months</td><td>4 weeks</td></tr>
<tr><td>#4</td><td>4 to 6 years</td><td>4 weeks</td></tr>
<tr><td>Contraindications</td><td colspan="3">• Serious allergic reaction to prior dose or vaccine component
• Moderate or severe acute illness</td></tr>
<tr><td>Special Considerations</td><td colspan="3">• DO NOT restart series, no matter how long since previous dose
• May give dose #1 as early as 6 weeks of age
• Dose #4 is not needed if dose #3 is given on or after the 4th birthday
• If person previously given OPV, finish series with IPV
• 4 doses of any combination of OPV or IPV by 4 to 6 years of age constitutes a complete series</td></tr>
<tr><td colspan="4">VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-IPV.pdf</td></tr>
</table>

Rotavirus Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="3">• Live, oral pentavalent vaccine
• Brand: RotaTeq®
• See package insert</td></tr>
<tr><td>Dose & Route</td><td colspan="3">• Dose: 2 mL
• Route: Orally
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="3">• Licensed for the prevention of rotavirus gastroenteritis in infants. Given between 6 to 32 weeks of age.</td></tr>
<tr><td rowspan="4">Administration Schedule

* Vaccinations should not be started for infants older than 12 weeks of age because there is not sufficient data on the safety or the effectiveness of the vaccine in older infants.</td><td>Dose</td><td>Age</td><td>Minimum Interval</td></tr>
<tr><td>#1</td><td>2 months*</td><td></td></tr>
<tr><td>#2</td><td>4 months</td><td>4 weeks</td></tr>
<tr><td>#3</td><td>6 months</td><td>4 weeks</td></tr>
<tr><td>Contraindications</td><td colspan="3">• Serious allergic reaction to prior dose or vaccine component
• Moderate or severe acute illness
• Not indicated for children younger than 6 weeks or older than 32 weeks
• Immune suppression
• Caution is advised when administering vaccine to infants with history of gastrointestinal disorders or acute gastrointestinal illness</td></tr>
<tr><td>Special Considerations</td><td colspan="3">• DO NOT restart series, no matter how long since previous dose
• May give dose #1 as early as 6 weeks of age
• Dose #3 should not be given after 32 weeks of age</td></tr>
<tr><td colspan="4">VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-rotavirus.pdf</td></tr>
</table>

Rubella Vaccine

Vaccine Description	• Live attenuated viral vaccine • contains neomycin, gelatin (see package insert)	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications* *ACIP recommends that MMR be used when any of the individual components is indicated.	• All infants and children 12 months of age and older • Susceptible adolescents without documented evidence of immunity	
Administration Schedule	**Dose**	**Recommended Age**
	#1	12 to 15 months
	#2	4 to 6 years
Minimum Intervals	**Dose**	**Minimum Interval**
	#1	MUST be at least 12 months of age. (May be administered sooner in outbreak situations, but should NOT be counted as a valid dose: revaccinate after 12 months of age)
	#2	At least 28 days after dose #1. Usually given at 4 to 6 years of age. Catch-up opportunity at 11 to 18 years to administer dose #2.

Rubella Vaccine (Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Pregnancy or possibility of pregnancy within 4 weeks (use contraception). • People who are immune compromised (cancer, leukemia, lymphoma). Note: HIV positivity NOT a contraindication, except for severely immune-compromised people. (MMWR: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5515a1.htm) • Immune suppression (e.g., from high-dose steroids, chemotherapy, radiation therapy) • Moderate or severe acute illness • Blood products or immune globulin administered during past 11 months (see card #1-9 for ACIP recommendations)
Special Considerations	• OK to apply tuberculin skin test (TST or PPD) at same visit as rubella vaccine. Delay TST for more than 4 wks if rubella vaccine given first OR apply TST first, then give rubella vaccine when TST is read • If other live vaccines are needed and not administered on the same day, space them at least 4 weeks apart • DO NOT restart series, no matter how long since previous dose • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf	



Varicella Vaccine

Vaccine Description	• Live attenuated viral vaccine • Contains gelatin, neomycin (see package insert) • Also available as combined MMR and varicella (ProQuad®) for use when both vaccines are indicated for children 12 months to 12 years of age	
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert	
Indications	• All children 12 months of age and older, including all adolescents without evidence of immunity should receive two doses • May use as post-exposure prophylaxis if given within 3 days of exposure	
Administration Schedule	**Dose**	**Recommended Age**
	#1	12 to 15 months
	#2	4 to 6 years
Minimum Intervals	**Dose**	**Minimum Interval**
	#1	Must be at least 12 months of age
	#2	4 weeks after dose #1



Varicella Vaccine (Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Pregnancy, or possibility of pregnancy within one month • Immune suppression (see ACIP recommendations). • Active, untreated tuberculosis • Can give to people with isolated humoral immune deficiency, but NOT to those with cellular immune deficiency; immunology consultation recommended • If blood, plasma, or immune globulin (IG or VZIG) were given in past 5 months, see ACIP recommendations for time to wait before vaccinating • For use in children taking salicylates, consult ACIP recommendations
Special Considerations	• May give with all other vaccines but as a separate injection • If other live vaccines are needed and not administered on the same day, space them at least 4 weeks apart • OK to apply tuberculin skin test (TST or PPD) at same visit as varicella vaccine. Delay TST for more than 4 wks if varicella vaccine given first OR apply TST first, then give varicella vaccine when TST is read • 4% to 6% of recipients get a "varicella-like" rash that may be contagious to people who are not immune to varicella • DO NOT restart series, no matter how long since previous dose • Note: Discard if not used within 30 minutes after reconstitution; See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-varicella.pdf Pregnancy registry: 1-800-986-8999 (Merck); also notify VHC Networks for long-term support and follow-up	

Storage and Handling Instructions

Based on manufacturer product inserts, DoD resources, and Vaccine Management: Recommendations for Handling and Storage of Selected Biologicals January 2007 from the Department of Health and Human Services (DHHS) and Centers for Disease Control and Prevention (CDC).

Refer to product inserts and the following links for more information:

- USAMMA cold-chain management: http://www.usamma.army.mil/vaccines/CCM/Cold_chain_management.cfm
- Vaccine Management: Recommendations for Handling and Storage of Selected Biologicals: http://www.cdc.gov/vaccines/pubs/vac-mgt-book.htm
- Vaccine Storage and Handling Toolkit: http://www2a.cdc.gov/nip/isd/shtoolkit/splash.html

CONTACT MILVAX-UASMMA before discarding vaccines to determine options if deviation in best practice for storage & handling.

CDC Storage and Handling Instructions for Commonly Recommended Vaccines

DT: Diphtheria, Tetanus Toxoids—Pediatric
Td: Tetanus, Diphtheria Toxoids—Adult

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life
Check expiration date on vial or container.

Instructions for Use
Shake vial vigorously before withdrawal and use.

Shelf Life After Opening
The vaccine should be administered shortly after withdrawal from the vial. Unused portions of multidose vials may be refrigerated at 35° to 46°F (2° to 8°C) and used until outdated, if not contaminated.

Special Instructions
Rotate stock so that the earliest dated material is used first.

---

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program.

CDC Storage and Handling Instructions (Continued)

DTaP: Diphtheria Toxoid, Tetanus Toxoid, Acellular Pertussis Vaccine
DTaP/Hib: Diphtheria Toxoid, Tetanus Toxoid, Acellular Pertussis Vaccine Combined with Haemophilus influenzae type b Conjugate Vaccine*
DTaP/HepB/IPV: Diphtheria Toxoid, Tetanus Toxoid, Acellular Pertussis Vaccine, Hepatitis B Vaccine,Inactivated Polio Vaccine
Tdap: Tetanus Toxoid, Diphtheria Toxoid, Acellular Pertussis Vaccine

Shipping Requirements

Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival**

Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements

Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life

Check expiration date on vial, container, or manufacturer-filled syringe.

Instructions for Reconstitution* or Use

Shake well before withdrawal and use. Do not use if resuspension does not occur with vigorous shaking.

Shelf Life After Reconstitution*or Opening

Single-Dose Vials: The vaccine should be administered shortly after withdrawal from the vial.

Manufacturer-Filled Syringes: The vaccine should be administered shortly after the needle is attached to the syringe.

Special Instructions

Rotate stock so that the earliest dated material is used first.

---

* ActHIB® (Aventis Pasteur) should be used within 24 hours of reconstitution if used alone. If Aventis Pasteur DTaP is used to reconstitute ActHIB®, the TriHibit® vaccine must be used within 30 minutes of reconstitution. Only Aventis Pasteur DTaP-Tripedia® or the diluent shipped with the product may be used to reconstitute the Aventis Pasteur ActHIB® product. Aventis Pasteur DAPTACEL® is not licensed for use in reconstitution of ActHIB®.

** If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program.

CDC Storage and Handling Instructions (Continued)

HBIG: Hepatitis B Immune Globulin

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life
Check expiration date on vial or container.

Instructions for Use
Shake vial vigorously before withdrawal and use.

Shelf Life After Reconstitution or Opening
Use until outdated, if not contaminated.

Special Instructions
Rotate stock so that the earliest dated material is used first.

Hepatitis Vaccines: Hepatitis A, Hepatitis B, Hepatitis A/B

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life
Check expiration date on vial, container or manufacturer-filled syringe.

Instructions for Use
Shake vial vigorously before withdrawal and use.

Shelf Life After Opening
Single-Dose Vials: The vaccine should be administered shortly after withdrawal from the vial.

Manufacturer-Filled Syringes: The vaccine should be administered shortly after the needle is attached to the syringe.

Special Instructions
Rotate stock so that the earliest dated material is used first.

---

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program.

CDC Storage and Handling Instructions (Continued)

Hib: Haemophilus influenzae type b Conjugate Vaccine

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life
Check expiration date on vial or container.

Instructions for Reconstitution** or Use
Shake vial vigorously before withdrawal and use. Do not use if resuspension does not occur with vigorous shaking.

Shelf Life After Reconstitution** or Opening
The vaccine should be administered shortly after withdrawal from the vial.

Special Instructions
Rotate stock so that the earliest dated material is used first.

HPV: Human Papillomavirus Vaccine

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures.**

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate upon arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures.** Protect from light at all times.

Shelf Life
Check expiration date on vial or container.

Instructions for Use
Shake well before use. Thorough agitation immediately before administration is necessary to maintain suspension of the vaccine. After thorough agitation, the vaccine is white, cloudy liquid. Inspect visually for particulate matter and discoloration prior to administration. Do not use the product if particulates are present or if it appears discolored.

Shelf Life After Opening
The vaccine should be administered shortly after withdrawal from the vial. Doses remaining in the vial may be used until outdated if not contaminated.

Special Instructions
Rotate stock so that the earliest dated material is used first.

NOTE: When using Manufacturer-Filled Syringes, use the enclosed needle for administration. If a different needle is chosen, it should fit securely on the syringe and be no longer than 1 inch to ensure proper functioning of the needle guard device.

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program if vaccine was publicly purchased vaccine .

**ActHIB® (sanofi pasteur) should be used within 24 hours of reconstitution if used alone. If sanofi pasteur DTaP is used to reconstitute ActHIB®, the TriHibit® vaccine must be used within 30 minutes of reconstitution. Only sanofi pasteur DTaP-Tripedia® or the diluent shipped with the product may be used to reconstitute the sanofi pasteur ActHIB® product. Sanofi pasteur DAPTACEL® is not licensed for use in reconstitution of ActHIB®.

CDC Storage and Handling Instructions (Continued)

IPV: Inactivated Polio Vaccine

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life
Check expiration date on vial or container.

Instructions for Use
Multidose Vials: Shake vial vigorously before withdrawal and use. Withdraw 0.5 mL of vaccine into separate sterile needle and syringe for each immunization.

Shelf Life After Opening
The vaccine should be administered shortly after withdrawal from the vial. Doses remaining in the vial may be used until outdated if not contaminated.

Special Instructions
Rotate stock so that the earliest dated material is used first.

TIV: Trivalent Inactivated Influenza Vaccine

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life
Formulated for use during current influenza season.

Instructions for Use
Shake vial vigorously before withdrawal and use.

Shelf Life After Opening
Multidose Vials: The vaccine should be administered shortly after withdrawal from the vial.

Manufacturer-Filled Syringes: Sterile until removal of hub cap.

Special Instructions
Rotate stock so that the earliest dated material is used first.

---

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program.

CDC Storage and Handling Instructions (Continued)

LAIV: Live Attenuated Influenza Vaccine

Shipping Requirements
Should be shipped frozen.

Conditions upon Arrival*
Should be shipped frozen and should be stored in a refrigerator between 2° to 8°C (35° to 46°F).

Storage Requirements
On arrival, immediately store in refrigerator between 2° to 8°C (35° to 46°F).

Shelf Life
Formulated for use during current influenza season.

Instructions for Use
Administer half dose into one nostril, remove dose clip and administer remaining half into other nostril.

Special Instructions
Rotate stock so that the earliest dated material is used first.

NOTE: all materials used for administering live virus vaccines should be burned, boiled, or autoclaved prior to disposal.

These changes are effective beginning with the 2007-2008 LAIV formulation.

---

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program.

NOTE: A new formulation of LAIV (FluMist) was approved in January 2007. This new formulation will be stored in the refrigerator. Check product insert for complete storage and handling information.

CDC Storage and Handling Instructions (Continued)

MMR: Measles/Mumps/Rubella Vaccine, MR: Measles/Rubella Vaccine, Measles Virus Vaccine, Mumps Virus Vaccine, Rubella Virus Vaccine

Shipping Requirements

Vaccine: Use insulated container. Must be shipped with refrigerant. Maintain at 10°C (50°F) or less. If shipped with dry ice, diluent must be shipped separately.

Diluent: May be shipped with vaccine, but do not place in container with dry ice.

Conditions upon Arrival*

Should be at or below 50°F (10°C). If above this temperature, see instructions (*) below. Do not use warm vaccine. Refrigerate on arrival.

Storage Requirements

Vaccine may be stored separately from diluent. Store as follows:

Vaccine: Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). Protect from light at all times, since such exposure may inactivate the virus.

Diluent: May be refrigerated or stored at room temperature (68° to 77°F [20° to 25°C]). **Do not freeze or expose to freezing temperatures**.

NOTE: Freeze-dried (lyophilized) MMR vaccine may be maintained at freezer temperatures.

Shelf Life

Check expiration date on container or vial.

Instructions for Reconstitution and Use

Reconstitute just before using. Use only the diluent supplied to reconstitute the vaccine. Inject diluent into the vial of lyophilized vaccine and agitate to ensure thorough mixing. Withdraw entire contents into syringe and inject total volume of vaccine subcutaneously.

Shelf Life After Reconstitution, Thawing or Opening

After reconstitution, use immediately or store in a dark place at 35° to 46°F (2° to 8°C). **Discard if not used within 8 hours**.

Special Instructions

Rotate stock so that the earliest dated material is used first.

NOTE: all materials used for administering live virus vaccines should be burned, boiled, or autoclaved prior to disposal.

---

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program.

CDC Storage and Handling Instructions (Continued)

MMRV: Measles/Mumps/Rubella/Varicella Vaccine

Shipping Requirements

Vaccine: Use insulated container. Must be shipped with dry ice only, at 4°F (-20°C) or colder. Should be delivered within 2 days.

Diluent: May be shipped with vaccine, but do not place in container with dry ice.

Conditions upon Arrival*

Should be frozen. Vaccine should remain at 4°F (-20°C) or colder until arrival at the healthcare facility. Dry ice should still be present in the shipping container when vaccine is delivered.

Storage Requirements

Vaccine: Freeze immediately upon arrival. Maintain vaccine in a continuously frozen state at 5°F (-15°C) or colder. **No freeze/thaw cycles are allowed with this vaccine.** Vaccine should only be stored in freezers or refrigerator/freezers with separate doors and compartments. Acceptable storage may be achieved in standard household freezers purchased in the last 10 years, and standard household refrigerator/freezers with a separate, sealed freezer compartment. Dormitory-style units are not appropriate for the storage of MMRV vaccine. **Do not store lyophilized vaccine in the refrigerator. If lyophilized vaccine is inadvertently stored in the refrigerator, it should be discarded.**

Protect the vaccine from light at all times since such exposure may inactivate the vaccine viruses.

In order to maintain temperatures of 5°F (-15°C) or colder, it will be necessary in most refrigerator/freezer models to turn the temperature dial down to the coldest setting. This may result in the refrigerator compartment temperature being lowered as well. Careful monitoring of the refrigerator temperature will be necessary to avoid freezing killed or inactivated vaccines.

Diluent: May be refrigerated or stored at room temperature (68° to 77°F [20° to 25°C]). **Do not freeze or expose to freezing temperatures.**

Shelf Life

Check expiration date on container or vial.

Instructions for Use

Reconstituted just before using. Use only the diluent supplied to reconstitute the vaccine.

Shelf Life After Reconstitution, Thawing, or Opening

Discard reconstituted vaccine if it is not used within 30 minutes. Do not freeze reconstituted vaccine.

Special Instructions

Rotate stock so that the earliest dated material is used first.

NOTE: All materials used for administering live virus vaccines should be burned, boiled, or autoclaved prior to disposal.

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program if vaccine was publicly purchased vaccine

CDC Storage and Handling Instructions (Continued)

Meningococcal Conjugate Vaccine, Groups A, C, Y, W-135

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures.**

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures.**

Shelf Life
Check expiration date on container or vial.

Instructions for Use
Follow manufacturer's directions.

Shelf Life After Reconstitution or Opening
The vaccine should be administered shortly after withdrawal from the vial.

Special Instructions
Rotate stock so that the earliest dated material is used first. Vaccine should be injected by the intramuscular route. Do not inject intradermally, subcutaneously, or intravenously.

Meningococcal Polysaccharide Vaccine, Groups A, C, Y, W-135

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures.**

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures.**

Shelf Life
Check expiration date on container or vial.

Instructions for Reconstitution and Use
Reconstitute gently. This is a white powder that yields a clear, colorless liquid when reconstituted with 0.6 ml (single-dose vial) or 6 ml (10-dose vial) of sterile distilled water.

Shelf Life After Reconstitution or Opening
Single-Dose Vials: Use within 30 minutes of reconstitution.

Multidose Vials: Unused portions of multidose vials may be refrigerated at 35° to 46°F (2° to 8°C) and used up to 35 days after reconstitution.

Special Instructions
Diluent to be used is sterile, distilled water for injection; diluent for 10-dose vial also contains 0.01% thimerosal. Reconstituted vaccine should be injected subcutaneously. Do not inject intradermally, intramuscularly, or intravenously.

Rotate stock so that the earliest dated material is used first.

---

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program.

CDC Storage and Handling Instructions (Continued)

PCV: Pneumococcal Conjugate Vaccine (7-Valent)

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life
Check expiration date on vial or container.

Instructions for Use
Vaccine should appear as a homogenous white suspension after vigorous shaking. The vaccine should be administered intramuscularly only.

Shelf Life After Opening
The vaccine should be administered shortly after withdrawal from the vial.

Special Instructions
This vaccine is a suspension containing adjuvant and should not be used if the particles cannot be resuspended after vigorous shaking.

Rotate stock so that the earliest dated material is used first.

PPV: Pneumococcal Polysaccharide Vaccine (Polyvalent)

Shipping Requirements
Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Conditions upon Arrival*
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures**.

Shelf Life
Check expiration date on vial or container.

Instructions for Use
Follow manufacturer's directions.

Shelf Life After Opening
Single-Dose Vials: The vaccine should be administered shortly after withdrawal from the vial.

Multidose Vials: Unused portions of multidose vials may be refrigerated at 35° to 46°F (2° to 8°C) and used until outdated, if not contaminated.

Special Instructions
Do not inject intravenously. Intradermal administration may cause severe local reactions and should be avoided.

Rotate stock so that the earliest dated material is used first.

---

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program.

CDC Storage and Handling Instructions (Continued)

Rotavirus Vaccine

Shipping Requirements

Should be shipped in insulated container. Maintain temperature at 35° to 46°F (2° to 8°C). Do not freeze or expose to freezing temperatures.

Conditions upon Arrival*

Should not have been frozen or exposed to freezing temperatures. Refrigerate upon arrival.

Storage Requirements

Refrigerate immediately upon arrival. Store at 35° to 46°F (2° to 8°C). **Do not freeze or expose to freezing temperatures.** Protect from light at all times.

Shelf Life

Check expiration date on container.

Instructions for Use

Each dose is supplied in a container consisting of a squeezable plastic, latex-free dosing tube with a twist-off cap, allowing for direct oral administration. The dosing tube is contained in a pouch. Remove the dosing tube from the pouch, screw the cap clockwise to puncture the tube, and screw the cap off counter-clockwise so that the liquid can be squeezed from the tube during oral administration of the vaccine.

Shelf Life After Opening

Single-Dose Pouches: The vaccine should be administered shortly after withdrawal from the refrigerator. The dosing tube should not be returned to the refrigerator once the screw cap has been removed.

Special Instructions

Rotate stock so that the earliest dated material is used first.

NOTE: All materials used for administering live virus vaccines should be burned, boiled, or autoclaved prior to disposal.

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program if vaccine was publicly purchased vaccine.

CDC Storage and Handling Instructions (Continued)

Varicella (Chickenpox) Vaccine

Shipping Requirements

Vaccine: Use insulated container. Must be shipped with dry ice only, at 4°F (-20°C) or colder. Should be delivered within 2 days.

Diluent: May be shipped with vaccine, but do not place in container with dry ice.

Conditions upon Arrival*

Should be frozen. Vaccine should remain at 4°F (-20°C) or colder until arrival at the healthcare facility. Dry ice should still be present in the shipping container when vaccine is delivered.

Storage Requirements

Vaccine: Freeze immediately upon arrival. Maintain vaccine in a continuously frozen state at 5°F (-15°C) or colder. **No freeze/thaw cycles are allowed with this vaccine.** Vaccine should only be stored in freezers or refrigerator/freezers with separate doors and compartments. Acceptable storage may be achieved in standard household freezers purchased in the last 10 years, and standard household refrigerator/freezers with a separate, sealed freezer compartment. Dormitory-style units are not appropriate for the storage of varicella vaccine.

In order to maintain temperatures of 5°F (-15°C) or colder, it will be necessary in most refrigerator/freezer models to turn the temperature dial down to the coldest setting. This may result in the refrigerator compartment temperature being lowered as well. Careful monitoring of the refrigerator temperature will be necessary to avoid freezing killed or inactivated vaccines.

Diluent: May be refrigerated or stored at room temperature (68° to 77°F [20° to 25°C]). **Do not freeze or expose to freezing temperatures.**

Shelf Life

Check expiration date on container or vial.

Instructions for Use

Reconstituted just before using. Use only the diluent supplied to reconstitute the vaccine.

Shelf Life After Reconstitution, Thawing, or Opening

Protect from light. Discard if not used within **30 minutes** of reconstitution.

Special Instructions

If this vaccine is stored at a temperature warmer than 5°F (-15°C), it will result in a loss of potency and a reduced shelf life. If a power outage or some other situation occurs that results in the vaccine storage temperature rising above the recommended temperature, the healthcare provider should contact Merck, the vaccine manufacturer, at 1-800-609-4618 for a reevaluation of the product potency before using the vaccine. Rotate stock so that the earliest dated material is used first.

Single-antigen varicella vaccine **only** may be stored at refrigerator temperature 36°-46°F (2°-8°C), for up to 72 continuous hours prior to reconstitution. Single-antigen varicella vaccine stored at 36°-46°F (2°-8°C) that is not used within 72 hours of removal from 5°F (-15°C) storage should be discarded.

NOTE: All materials used for administering live virus vaccines should be burned, boiled, or autoclaved prior to disposal.

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program if vaccine was publicly purchased vaccine

CDC Storage and Handling Instructions (Continued)

Zoster (Shingles) Vaccine

Shipping Requirements

Vaccine: Use insulated container. Must be shipped with dry ice only, at 4°F (-20°C) or colder. Should be delivered within 2 days.

Diluent: May be shipped with vaccine, but do not place in container with dry ice.

Conditions upon Arrival*

Should be frozen. Vaccine should remain at 4°F (-20°C) or colder until arrival at the healthcare facility. Dry ice should still be present in the shipping container when vaccine is delivered.

Storage Requirements

Vaccine: Freeze immediately upon arrival. Maintain vaccine in a continuously frozen state at 5°F (-15°C) or colder. **No freeze/thaw cycles are allowed with this vaccine.** Vaccine should only be stored in freezers or refrigerator/freezers with separate doors and compartments. Acceptable storage may be achieved in standard household freezers purchased in the last 10 years, and standard household refrigerator/freezers with a separate, sealed freezer compartment. Dormitory-style units are not appropriate for the storage of zoster vaccine. **Do not store lyophilized vaccine in the refrigerator.** Protect the vaccine from light at all times since such exposure may inactivate the vaccine viruses.

In order to maintain temperatures of 5°F (-15°C) or colder, it will be necessary in most refrigerator/freezer models to turn the temperature dial down to the coldest setting. This may result in the refrigerator compartment temperature being lowered as well. Careful monitoring of the refrigerator temperature will be necessary to avoid freezing killed or inactivated vaccines.

Diluent: May be refrigerated or stored at room temperature (68° to 77°F [20° to 25°C]). **Do not freeze or expose to freezing temperatures.**

Shelf Life

Check expiration date on container or vial.

Instructions for Reconstituteion and Use

Reconstituted just before using. Use only the diluent supplied to reconstitute the vaccine.

Shelf Life After Reconstitution, Thawing, or Opening

Discard reconstituted vaccine if it is not used within 30 minutes. Do not freeze reconstituted vaccine.

Special Instructions

If this vaccine is stored at a temperature warmer than 5°F (-15°C), it will result in a loss of potency and a reduced shelf life. If a power outage or some other situation occurs that results in the vaccine storage temperature rising above the recommended temperature, the healthcare provider should contact Merck, the vaccine manufacturer, at 1-800-MERCK-90 for a reevaluation of the product potency before using the vaccine. Rotate stock so that the earliest dated material is used first.

NOTE: All materials used for administering live virus vaccines should be burned, boiled, or autoclaved prior to disposal.

* If you have questions about the condition of the material at the time of delivery, you should 1) immediately place material in recommended storage; and 2) notify the Quality Control office at the vaccine manufacturer; and 3) notify your state health department immunization program if vaccine was publicly purchased vaccine

Storage and Handling Instructions for Military and Travel Vaccines

Anthrax Vaccine

Shipping Requirements
Should be shipped in insulated container. Maintain temperature of 35º to 46ºF (2º to 8ºC). **Do not freeze or expose to freezing temperatures.**

Conditions upon Arrival
Should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate immediately upon arrival. Store at 35º to 46ºF (2º to 8ºC). **Do not freeze or expose to freezing temperatures.** If exposed to temperatures above or below 35º to 46ºF (2º to 8ºC) for longer than one hour, contact USAMMA at DSN 343-4128/4121/4411/4198 or 301-619-4128/4121/4411/4198 for disposition instructions.

Shelf Life
Check expiration date on vial or container.

Instructions for Reconstitution or Use
Agitate well before withdrawing and before administering each dose, but do not shake to the point of foaming.

Shelf Life After Reconstitution or Opening
Use until outdated, if not contaminated.

Special Instructions
Rotate stock so that earliest dated material is used first. USAMMA provides guidance on unusual storage conditions or distribution emergencies.

Japanese Encephalitis Vaccine

Shipping Requirements
Vaccine should be shipped in insulated container. Maintain temperature of 35º to 46ºF (2º to 8ºC). **Do not freeze or expose vaccine to freezing temperatures.** Diluent does not require refrigeration.

Conditions upon Arrival
Vaccine should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate vaccine immediately upon arrival. Store at 35º to 46ºF (2º to 8ºC). Diluent can be refrigerated or left at room temperature. **Do not freeze or expose vaccine to freezing temperatures.**

Shelf Life
Check expiration date on vial or container.

Instructions for Reconstitution or Use
Reconstitute just before using. Use only the diluent supplied to reconstitute the vaccine. Diluent must be no warmer than room temperature. Agitate the vaccine thoroughly after reconstitution, before withdrawing each dose, and before administering each dose.

Shelf Life After Reconstitution or Opening
Vaccine must be refrigerated and used within 8 hours of reconstitution.

Special Instructions
Rotate stock so that earliest dated material is used first.

Storage and Handling Instructions for Military and Travel Vaccines (Continued)

Rabies Vaccine

Shipping Requirements
Vaccine should be shipped in insulated container. Maintain temperature of 35º to 46ºF (2º to 8ºC). **Do not freeze or expose vaccine to freezing temperatures.** Diluent does not require refrigeration.

Conditions upon Arrival
Vaccine should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate vaccine immediately upon arrival. Store at 35º to 46ºF (2º to 8ºC). Diluent can be refrigerated or left at room temperature.
Do not freeze or expose vaccine to freezing temperatures.

Shelf Life
Check expiration date on vial or container.

Instructions for Reconstitution or Use
Reconstitute just before using. Use only the diluent supplied to reconstitute the vaccine. Gently swirl the contents until completely dissolved. Avoid causing foaming of the solution.

Shelf Life After Reconstitution or Opening
The reconstituted vaccine should be used immediately.

Special Instructions
Rotate stock so that earliest dated material is used first.

Smallpox Vaccine

Shipping Requirements
Vaccine should be shipped in insulated container. Maintain temperature of 36º to 46ºF (2º to 8ºC). **Do not freeze or expose vaccine to freezing temperatures.** Diluent does not require refrigeration.

Conditions upon Arrival
Vaccine should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate vaccine immediately upon arrival. Store at 36º to 46ºF (2º to 8ºC). Leave diluent at room temperature.
Do not freeze or expose vaccine to freezing temperatures.

Shelf Life
Check expiration date on vial or container.

Instructions for Reconstitution or Use
See next page for more details.

Shelf Life After Reconstitution or Opening
The reconstituted vaccine should be refrigerated when not in actual use. Use or discard as biohazardous waste any unused reconstituted vaccine after 90 days for Dryvax® or 30 days for ACAM2000™ if kept refrigerated.

Special Instructions
Rotate stock so that earliest dated material is used first. For addition information refer to the CDC smallpox storage and handling course: http://www2.cdc.gov/nip/isd/spoxvsh/launch1.html

Smallpox Reconstitution

Directions for Reconstitution:
Note: The healthcare provider must have available a sterile 21 gauge or smaller needle to release the vacuum in the vials prior to adding diluent. This needle must only be used to release the vacuum. The needle to release the vacuum is NOT included in the kit.

1. Lift up tab of aluminum seal on vaccine vial. DO NOT BREAK OFF OR TEAR DOWN TAB.



2. Wipe off vial stopper with an alcohol sponge and allow to dry.



3. Place vaccine vial upright on a hard, flat surface. Insert a sterile 21 gauge or smaller needle into the rubber stopper to release the vacuum from the vaccine vial. Discard the needle in biohazard waste container.



4. To reduce viscosity of cold diluent, warm by holding diluent-cartridge in palm of hand for a minute or so.
5. Peel open the vented needle package (provided with the kit) and aseptically remove the vented needle.
6. Remove rubber cover from end of the diluent syringe.



7. With a twisting motion, aseptically attach the vented needle to the hub of the diluent syringe.
8. Remove protective cover from the vented needle and expel the air from the diluent syringe.
9. Aseptically insert the needle through the rubber stopper into the vaccine vial up to the first hub.



10. Depress the plunger to ensure the entire volume of diluent is delivered into the vial.



11. Withdraw diluent syringe/vented needle and discard in biohazard waste container.
12. Allow vaccine vial to stand undisturbed for 3 to 5 minutes. Then if necessary, swirl vial gently to effect complete reconstitution.
13. Record date of reconstitution.
14. Store reconstituted vaccine at 2º to 8ºC (36º to 46ºF) when not in actual use. The vaccine may be stored for no more than 30 or 90 days (as appropriate) after reconstitution based on viral potency testing.

Storage and Handling Instructions for Military and Travel Vaccines (Continued)

Typhoid (Ty21a) Vaccine

Shipping Requirements
Vaccine should be shipped in insulated container. Maintain temperature of 35º to 46ºF (2º to 8ºC). **Do not freeze or expose vaccine to freezing temperatures.**

Conditions upon Arrival
Vaccine should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate vaccine immediately upon arrival. Store at 35º to 46ºF (2º to 8ºC). **Do not freeze or expose vaccine to freezing temperatures.** If the vaccine has been kept out of refrigeration at 80ºF (27ºC) or below, not in a car, and not exposed to direct sunlight for up to 48 hours, it may be used. This is provided that the vaccine is used within a reasonably short period of time (e.g., within 30 days). If the lot is within 60 days prior to expiration, please refer to Berna Products Medical Inquiries at 1-800-533-5899.

Shelf Life
Check expiration date on package or container.

Instructions for Use
The entire dose pack should be taken as directed (one capsule every other day). Should be taken with cool or lukewarm water. Do not chew, crush, or break the capsule.

Shelf Life After Opening
May be used until outdated.

Special Instructions
Rotate stock so that earliest dated material is used first.

Typhoid (ViCPS) Vaccine

Shipping Requirements
Vaccine should be shipped in insulated container. Maintain temperature of 35º to 46ºF (2º to 8ºC). **Do not freeze or expose vaccine to freezing temperatures.**

Conditions upon Arrival
Vaccine should not have been frozen or exposed to freezing temperatures. Refrigerate on arrival.

Storage Requirements
Refrigerate vaccine immediately upon arrival. Store at 35º to 46ºF (2º to 8ºC). **Do not freeze or expose vaccine to freezing temperatures.**

Shelf Life
Check expiration date on package or container.

Instructions for Use
Inspect syringe or vial for particulate matter and/or discoloration. If either is present, do not administer.

Shelf Life After Opening
Multi-use vial can be refrigerated and used until the expiration date, if not contaminated.

Special Instructions
Rotate stock so that earliest dated material is used first.

Storage and Handling Instructions for Military and Travel Vaccines (Continued)

Yellow Fever Vaccine

Shipping Requirements
Vaccine should be shipped in insulated container. Maintain temperature of 2° to 8°C (35° to 46°F). Diluent does not need to be refrigerated.

Conditions upon Arrival
Store at 2° to 8°C (35° to 46°F) on arrival.

Storage Requirements
Vaccine must be maintained continuously at 2° to 8°C (35° to 46°F). **Do not refreeze.** Diluent may be refrigerated or stored at room temperature.

Shelf Life
Check expiration date on the vial.

Instructions for Use
Reconstitute before use with the diluent supplied by the manufacturer. Allow the vaccine to set for a minute or two after injecting the diluent. Carefully swirl (not shake) the vaccine vial to mix, and swirl vial before drawing up each dose. The reconstituted vaccine will be slightly opalescent and light orange in color.

Shelf Life After Opening
Vaccine must be used within 60 minutes of reconstitution or discarded as hazardous waste.

Special Instructions
Rotate stock so that earliest dated material is used first.

This reference does not eliminate the requirement to review the package insert of any vaccine administered and to check periodically at www.vaccines.mil for recent updates and/or alerts related to specific vaccines.

Medical/Reference

Immunization Tool Kit
Design and Development (1999-2007)

COL Renata J. M. Engler, MD
Director, Vaccine Healthcare Centers Network
Walter Reed Army Medical Center
P.O. Box 59606
Washington, DC 20307-5001, U.S.A.

www.vhcinfo.org

ISBN 0-16-075227-2

