Immunization TOOL KIT

NINTH EDITION 2019

Adult, Military and Childhood Immunizations

Defense Health Agency
Immunization Healthcare Division

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

Welcome to the Ninth Edition of the Immunization Tool Kit (ITK). The ITK provides a practical reference which facilitates and enhances the global delivery of quality immunization healthcare to Department of Defense (DoD) beneficiaries and employees. The Defense Health Agency Immunization Healthcare Division (DHA-IHD) publishes the ITK based on national recommendations, evidenced-based, peer-reviewed published medical literature, and clinical practice guidelines.

The ITK is an implementation adjunct to published DoD policy and guidance from the Centers for Disease Control and Prevention (CDC) and Food and Drug Administration (FDA). However, as these documents may intermittently be updated, the ITK should always be used in conjunction with current:

- FDA-approved manufacturer package inserts
- CDC Vaccine Information Statements (VIS) and recommendations
- Advisory Committee on Immunization Practices (ACIP) guidelines
- Screening for individual patient health risk factors and medical problems
- Healthcare provider's orders
- DoD directives, instructions, policies, and procedures. (Note: Where DoD guidance varies from CDC/FDA, DoD guidance takes precedence).

Assessment of individual vaccine benefits and risks is the responsibility of a licensed, credentialed healthcare provider. If standing orders are used, the screening process (e.g., standardized health risk assessment questionnaire) assists with identifying individuals recommended to receive a provider-expanded evaluation prior to immunization.

DHA-IHD clinical staff are immunization subject matter experts, providing timely consultative support to healthcare workers, Service members, and beneficiaries on vaccine effectiveness, safety, and acceptability. Furthermore, this team clinically supports those with concerns of adverse vaccine reactions and works with the Vaccine Adverse Events Reporting System (VAERS) registry to provide long-term clinical case management and medical exemption tracking to military beneficiaries.

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DHA-IHD CONTACT INFORMATION
DHA-IHD main website: www.health.mil/vaccines

DHA Immunization Healthcare Support Center: 1-(877) GET-VACC (438-8222) or DSN 761-4245.

- 24/7 Clinical Support Center (Option 1)
- Storage and Handling Questions (Option 2)
- General information or technical concerns (Option 3)

Non-clinical immunization-related questions – DoDVaccines@mail.mil

Headquarters: 7700 Arlington Boulevard, Falls Church, VA 22042

Defense Health Agency Immunization Healthcare Division Project Development and Review Team 2019

North Atlantic Region Vaccine Safety Hub
South Atlantic Region Vaccine Safety Hub
Central Region Vaccine Safety Hub
Pacific Region Vaccine Safety Hub
Policy and Program Management
Quality and Compliance
Communications Synchronization
Vaccine Safety and Evaluation

Every attempt was made by the project clinical working group to assure accuracy of content. It is important for users of this resource to understand that full review of the vaccine package insert and relevant alerts at www.health.mil/vaccines is required by clinical staff responsible for vaccine administration.

For additional copies of the Tool Kit, go to:
https://www.health.mil/Imm_Toolkit

Use of ISBN Prefix

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DHA-IHD Region Vaccine Safety Hubs (RVSH)

Vaccine Safety Hub	Supported Combatant Commands	Contact Information
North Atlantic Region	EUCOM AFRICOM USFLTFORCOM	***Walter Reed National Military Medical Center*** Bldg. 19, 4th Floor 4954 North Palmer Road Bethesda, MD 20889-5630 Phone: 301-319-2904 DSN: 295-2904 Fax: 301-319-8299 ***Naval Medical Center Portsmouth*** Richard E. Shope Regional DHA-IHD 620 John Paul Jones Circle Bldg. 1, Room C-107 Portsmouth, VA 23708-2197 Phone: 757-953-9150 DSN: 377-9150 Fax: 757-953-5887
South Atlantic Region	CENTCOM SOCOM SOUTHCOM JSOC Joint Expeditionary Forces	Bldg. 1-2532 Armistead Street Fort Bragg, NC 28310 Phone: 910-432-4015 DSN: 239-4015 Fax: 910-396-4932
Central Region	NORTHCOM TRANSCOM STRATCOM AMEDD Center & School METC	59 MDSP/SGMA-IHB 1100 Wilford Hall Loop, Bldg. 4554, Suite 3H013 Lackland AFB, TX 78236 Phone: 210-292-0482 DSN: 554-0482
Pacific Region	INDOPACOM USFK	Naval Medical Center San Diego Building 6, Room 4V-7C1 San Diego, CA 92134 Phone: 619-532-7664 DSN: 533-7664 Fax: 619-532-7023

Defense Health Agency
Immunization Healthcare Division

Mission

Support Force Health Protection and Readiness, and the Military Health System (MHS) by developing and promoting programs and services that enhance immunization effectiveness, safety, and acceptability. Provide evidence based solutions that improve immunization health care through policy implementation guidance, strategic communication, education, training, and clinical services worldwide.

Vision

A premier, responsive, patient centered organization promoting excellence in immunization health care practice and policy for service members and beneficiaries.

A Message from the IHD Chief

The Military Health System (MHS) is dedicated to providing timely and quality healthcare delivery to 9.4 million beneficiaries. As a component of the Assistant Director, Combat Support, DHA-IHD consults on immunization policy, authors implementation guidance, and develops educational materials for Combatant Commands, Services, and immunization sites, in addition to beneficiaries receiving immunization care within the MHS. Critical to this responsibility is developing scientifically-based, readily-available, practical resources which are beneficial to those whom manage and administer immunizations – you. We therefore hope the ITK, in addition to a wealth of educational material you may find on the on the DHA-IHD website https://health.mil/vaccines, serve as go-to references to supplement conversations on vaccine efficacy, safety, and acceptability. Additional resources to advance immunization knowledge include 24/7 online educational activities and on-site training conducted by our IHD team.

It is imperative to be mindful that vaccines are prescription drugs. The ITK is neither a substitute for pre-vaccination screening nor provider assessment and should be used as an adjunct to DoD policy, manufacturer package inserts, CDC recommendations, and FDA publications.

DHA-IHD is appreciative of your dedication towards preventative medicine and public health efforts towards a medically ready and ready medical force. We look forward to serving you!

Tonya S. Rans, MD, FACAAI
Colonel, United States Air Force, Medical Corps
Chief, Immunization Healthcare Division

Table of Contents

ADULT & MILITARY IMMUNIZATIONS

PEDIATRIC IMMUNIZATIONS **Page**

STORAGE AND HANDLING INSTRUCTIONS

Additional Resources

https://health.mil/vaccines

The official website 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.

Centers for Disease Control and Prevention (CDC)
National Center for Immunization and Respiratory Diseases
www.cdc.gov/vaccines

Epidemiology and Prevention of Vaccine-Preventable Diseases (The Pink Book): http://www.cdc.gov/vaccines/pubs/pinkbook/index.html
CDC Health Information for International Travel (The Yellow Book): http://wwwnc.cdc.gov/travel/page/yellowbook-home
National Immunization Hotline
1-800-232-4636 (English); 1-888-232-6348 (TTY)

Vaccine Adverse Event Reporting System (VAERS)
http://vaers.hhs.gov

Call toll-free VAERS information line at 1-800-822-7967.

National Vaccine Injury Compensation Program (VICP)
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

Countermeasures Injury Compensation Program (CICP)
www.hrsa.gov/cicp

The Public Readiness and Emergency Preparedness (PREP) Act provides compensation to people for serious injuries or deaths from pandemic, epidemic, or security countermeasures. The Countermeasures Injury Compensation Program (CICP) manages this compensation program. Vaccines such as anthrax, smallpox, and the 2009 novel A (H1N1) are eligible countermeasures under this program. The filing deadline to request compensation benefits is one year from the date the vaccine or other covered countermeasure was administered.

Continued on Next Page

Additional Resources

(Continued)

Joint Knowledge Online

https://jkosupport.jten.mil

Learning Content Management System for Immunization Training.

Immunization and Chemoprophylaxis for the Prevention of Infectious Diseases:

Dated 7 October 2013

http://www.health.mil/JointImmRegulation

Deployment Health

www.pdhealth.mil

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

Immunization Action Coalition

www.immunize.org

Download Vaccine Information Statements, ACIP recommendations, and other vaccine-related handouts or educational materials for health professional or for the public.

Risk Communication Approach To Explain Immunizations

1. Listen, and identify the concern(s). Take to a private area when possible to devote complete attention to the patient/advocate/parent.
2. Acknowledge and validate concerns. Remember, the concern is very important to the patient/advocate/parent so give him/her the opportunity to explain his/her perspective followed by repeating his/her concern for closed loop communication.
3. Educate on disease risk, and risk/benefit of the immunization recommendation.
4. Address misinformation. This is likely the most sensitive step in your conversation. The patient-healthcare system relationship is built upon trust. Do not minimize his/her concern or be adversarial.
5. Provide balanced information: what we know as well as acknowledge what we do not know. Consider having references available.
6. Allow for the option of a second opinion. This is not uncommon and does NOT reflect on your knowledge or capability as an immunizer. Suggestions for second opinions may include:
    - Patient discussions with his/her provider
    - DHA Immunization Healthcare Support Center: 1-877-438-8222 or DSN 761-4245, Option 1.

Standards for Military Immunizations

Standard 1: Immunization Availability

a. Ensure immunizations are available, when required, to minimize disruption of deployment or training schedules.
b. Ensure immunizations are available at convenient times without unnecessary barriers and are available on a walk-in basis, as staffing permits. As clinically appropriate, administer any vaccine doses required simultaneously to avoid missed **immunization** opportunities.
c. Ensure immunization services are responsive to the needs of beneficiaries.
d. Review the vaccination status of all beneficiaries at every health care visit to determine which vaccines are indicated.
e. Implement standing orders if written orders are unavailable. Standing orders must address vaccine dosage and administration, contraindications and precautions, and documentation procedures. Ensure standing orders are signed annually by the privileged physician who has medical oversight of the clinic.

Standard 2: Vaccine Information and Vaccinee Education

a. Educate beneficiaries about the benefits and risks of vaccination in a culturally appropriate manner and at an appropriate education level.
b. Prior to vaccination, provide all parents/guardians and vaccinees the most current Vaccine Information Statements (VISs) for each vaccine as mandated by Federal law (42 USC 300aa-26). Allow sufficient time to discuss any concerns or questions as noted by the vaccinee. Ensure VISs are accessible and visible in the patient waiting area of the clinic or activity that provides immunizations.
c. Prior to each vaccination, provide all potential vaccinees the opportunity to read the current DoD and/or FDA mandated vaccine information brochure. Additional education requirements may be required as outlined in vaccination policy.
d. Ensure immunization personnel are readily available to accurately answer patients' immunization questions and concerns about vaccines. Ensure personnel have ready access to immunization information resources.

Standard 3: Vaccine Storage and Handling

a. Ensure staff members adhere to cold-chain management principles during administration, transportation, and storage. Ensure up-to-date, written cold-chain management protocols are accessible at all locations where vaccines are stored.
b. Implement temperature monitoring processes at any clinic or activity that administers immunizations. All vaccine storage devices should have a calibrated thermometer and alarm systems that are visually monitored at a minimum of twice a day.
c. The CDC's National Center for Immunization and Respiratory Disease strongly recommends that providers draw vaccine only at the time of administration to ensure that the cold chain is maintained and that vaccine is not inappropriately exposed to light. Do not pre-draw doses; draw them when they are needed.

Standard 4: Indications and Contraindications

a. Screen each patient for allergies, health status, recent vaccinations, and previous adverse events before immunization. Provide each patient an opportunity to ask questions about potential contraindications. Refer patients for appropriate medical evaluation, as needed.
b. Screen each patient's immunization record to determine vaccine needs and requirements.
c. Ensure staff members document any contraindication to an immunization in the health record and ITS. Screen all women for pregnancy status.

Continued on Next Page

Standard 5: Immunization Recordkeeping

a. Record immunizations accurately in a DoD-and USCG-approved electronic ITS according to Service-specific policy at the time of immunization, or no later than 24 hours after administration of immunization. Transcribe all historical immunizations into the immunization tracking system.
b. Recommend any clinic or activity that administers immunizations has one or more mechanisms for notifying patients when the next dose of an immunization series is needed (a reminder system) or when doses are overdue (recall system). Reminder and recall systems may be automated or manual and may include mail, email, or telephone messages.
c. Record all military personnel immunization information in an electronic ITS record. All Services must record military immunization data into an electronic database that communicates with a centralized DoD registry.

Standard 6: Training

a. Ensure all persons who administer vaccines, including immunization augmentees, are appropriately trained and work within their appropriate scope of practice as determined by Service policies.
b. Immunization training must meet a standard acceptable to the MTF commander, command surgeon, or other appropriate medical authority. Training will include vaccine storage and handling; vaccine characteristics; recommended vaccine schedules; patient screening; contraindications; vaccine administration techniques; and treatment and reporting of adverse events to include anaphylaxis; vaccine benefit and risk communication; and documentation and management.
c. Ensure personnel who administer vaccines complete a comprehensive immunization orientation and annual continuing education that addresses training standards and competency of vaccine related topics based on an individual's role in administering and/or handling vaccines. Individuals who routinely administer vaccines should complete at least 8 hours of training annually. Training resources include resident courses, self-paced online training programs, and video training.
d. Ensure 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) must be properly stored and readily available at all vaccination locations along with other supplies determined locally to manage adverse events. Ensure all immunization personnel are trained to administer epinephrine.
b. Provide easy access to telephones or radios to persons who administer vaccines for summoning emergency medical personnel. Medical providers must document adverse events in the health record at the time of the event or as soon as possible thereafter.
c. Report all clinically significant adverse events after vaccination to VAERS. Provide staff members with ready access to reporting options for VAERS.
d. Develop a quality improvement process to assure adverse events are reported to VAERS promptly.

Continued on Next Page

Standard 8: Vaccine Advocacy to Protect the Military Family

a. Develop a mechanism at the MTF level to determine the extent of influenza and pneumococcal immunization coverage among its high-risk patients. Develop a plan to optimize vaccination uptake and coverage.
b. Implement 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. Conduct a quality improvement program to optimize the performance in immunizing children, adolescents, and adults against the preventable infections that most threaten them.
d. Ensure commanders use immunization databases to identify and resolve the vulnerabilities of their units.
e. All healthcare providers (not just those in any clinic or activity that administers immunizations) should 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). Adult Immunization Programs in Nontraditional Settings: Quality Standards and Guidance for Program Evaluation: http://www.cdc.gov/mmwr/PDF/RR/RR4901.PDF
2. Standards for Immunization Practice. National Coalition for Adult Immunization
3. Quality Standards for Immunization. Guidelines from the Infectious Diseases Society of America
4. The Joint Commission (TJC) Standards for Accreditation
5. Immunizations and Chemoprophylaxis for the Prevention of Infectious Diseases: www.health.mil/JointImmRegulation

Training tools supporting the 8 Standards for Military Immunization may be found at www.health.mil/cqiip

Vaccines and Their Untrue Contraindications And Precautions (adapted from CDC)

TABLE 4-2. Conditions incorrectly perceived as contraindications or precautions to vaccination (i.e., vaccines may be given under these conditions)

Vaccine(s)	Conditions commonly misperceived as contraindications or precautions (Vaccine can be administered)
General for all vaccines, including DTaP, pediatric DT, adult Td, adolescent-adult Tdap, IPV, MMR, Hib, hepatitis A, hepatitis B, varicella, rotavirus, PCV13, IIV, LAIV, PPSV23, MenACWY, MPSV4, HPV, and herpes zoster	· Current antimicrobial therapy [a] · Convalescent phase of illness · Premature birth (hepatitis B vaccine is an exception in certain circumstances) [b] · Recent exposure to an infectious disease · History of penicillin allergy, other nonvaccine allergies, relatives with allergies, or receiving allergen extract immunotherapy · History of GBS[c]
DTaP	· Collapse or shock-like state (e.g., hypotonic hyporesponsive episode) within 48 hours after receiving a previous dose of DTP/DTaP · Seizure ≤ 3 days after receiving a previous dose of DTP/DTaP · Persistent, inconsolable crying lasting ≥3 hours within 48 hours after receiving a previous dose of DTP/DTaP · Family history of seizures · Family history of sudden infant death syndrome · Family history of adverse event after DTP or DTaP administration · Stable neurological conditions (e.g., cerebral palsy, well-controlled seizures, or developmental delay)
Hepatitis B	· Pregnancy · Autoimmune disease (e.g., systemic lupus erythematosus or rheumatoid arthritis)
HPV	· Immunosuppression · Previous equivocal or abnormal Papanicolaou test · Known HPV infection · Breastfeeding · History of genital warts
IIV	· Nonsevere (e.g., contact) allergy to latex, thimerosal, or egg · Concurrent administration of Coumadin (generic: warfarin) or aminophylline
IPV	· Previous receipt of ≥1 dose of oral polio vaccine
LAIV	· Health-care providers that see patients with chronic diseases or altered immunocompetence (an exception is providers for severely immunocompromised patients requiring care in a protected environment · Breastfeeding · Contacts of persons with chronic disease or altered immunocompetence (an exception is contacts of severely immunocompromised patients requiring care in a protected environment)

Continued on Next Page

Vaccines and Their Untrue Contraindications And Precautions *(continued)*

Vaccine(s)	Conditions commonly misperceived as contraindications or precautions (Vaccine can be administered)
MMR[d],[e]	· Positive tuberculin skin test · Simultaneous tuberculin skin or interferon-gamma release assay (IGRA) testing[f] · Breastfeeding · Pregnancy of recipient's mother or other close or household contact · Recipient is female of child-bearing age · Immunodeficient family member or household contact · Asymptomatic or mildly symptomatic HIV infection · Allergy to eggs
$PPSV_{23}$	· History of invasive pneumococcal disease or pneumonia
Rotavirus	· Prematurity · Immunosuppressed household contacts · Pregnant household contacts
Tdap	· History of fever of ≥40.5°C (≥105°F) for <48 hours after vaccination with a previous dose of DTP or DTaP · History of collapse or shock-like state (i.e., hypotonic hyporesponsive episode) within 48 hours after receiving a previous dose of DTP/DTaP · History of seizure <3 days after receiving a previous dose of DTP/DTaP · History of persistent, inconsolable crying lasting >3 hours within 48 hours after receiving a previous dose of DTP/DTaP · History of extensive limb swelling after DTP/DTaP/Td that is not an Arthus-type reaction · History of stable neurologic disorder · History of brachial neuritis · Latex allergy that is not anaphylactic · Breastfeeding · Immunosuppression
Varicella	· Pregnancy of recipient's mother or other close or household contact · Immunodeficient family member or household contact[g] · Asymptomatic or mildly symptomatic HIV infection · Humoral immunodeficiency (e.g., agammaglobulinemia)
Zoster	· Therapy with low-dose methotrexate (≤0.4 mg/kg/week), azathioprine (≤3.0 mg/kg/day), or 6-mercaptopurine (≤1.5 mg/kg/day) for treatment of rheumatoid arthritis, psoriasis, polymyositis, sarcoidosis, inflammatory bowel disease, or other conditions · Health-care providers of patients with chronic disease or altered immunocompetence · Contacts of patients with chronic diseases or altered immunocompetence · Unknown or uncertain history of varicella in a U.S.-born person

(a) Antibacterial drugs might interfere with Ty21a oral typhoid vaccine, and certain antiviral drugs might interfere with varicella-containing vaccines and LAIV4. (b) Hepatitis B vaccination should be deferred for infants weighing <2,000 g if the mother is documented to be HBsAg negative. Vaccination should commence at chronological age 1 month or at hospital discharge. For infants born to HBsAg-positive women, hepatitis B immune globulin and hepatitis B vaccine should be administered within 12 hours after birth, regardless of weight. (c) An exception is Guillain-Barré syndrome within 6 weeks of a dose of influenza vaccine or tetanus-toxoid–containing vaccine, which are precautions for influenza vaccines and tetanus-toxoid containing vaccines, respectively. (d) MMR and varicella vaccines can be administered on the same day. If not administered on the same day, these vaccines should be separated by at least 28 days. (e) HIV-infected children should receive immune globulin after exposure to measles. HIV-infected children can receive varicella and measles vaccine if CD4+ T-lymphocyte count is >15%. (54). (f) Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine can be administered on the same day as tuberculin skin or IGRA testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for at least 4 weeks after the vaccination. If an urgent need exists to skin test or IGRA, do so with the understanding that reactivity might be reduced by the vaccine. (g) If a vaccinee experiences a presumed vaccine-related rash 7-25 days after vaccination, the person should avoid direct contact with immunocompromised persons for the duration of the rash.

Vaccination of Persons with Primary and Secondary Immune Deficiencies

PRIMARY				
Category	**Specific Immunodeficiency**	**Contraindicated Vaccines[a]**	**Risk-Specific Recommended Vaccines[a]**	**Effectiveness & Comments**
B-lymphocyte (humoral)	Severe antibody deficiencies (e.g., X-linked agammaglobulinemia and common variable immunodeficiency)	OPV[b] Smallpox[c] LAIV BCG Ty21a (live typhoid) Yellow fever MMR MMRV	Pneumococcal Hib (children 12-59 months of age)[d]	The effectiveness of any vaccine is uncertain if it depends only on the humoral response (e.g., PPSV23 or MPSV4). IGIV interferes with the immune response to measles vaccine and possibly varicella vaccine.
	Less severe antibody deficiencies (e.g., selective IgA deficiency and IgG subclass deficiency)	OPV[b] BCG Yellow fever[e] Other live vaccines appear to be safe.	Pneumococcal Hib (children 12-59 months of age)[d]	All vaccines likely effective. Immune response might be attenuated.
T-lymphocyte (cell-mediated and humoral)	Complete defects (e.g., SCID disease, complete DiGeorge syndrome)	All live vaccines[f],[g],[h]	Pneumococcal Hib (children 12-59 months of age)[d]	Vaccines likely to be effective.
	Partial defects (e.g., most patients with DiGeorge syndrome, Wiskott-Aldrich syndrome, ataxia-telangiectasia)	All live vaccines[f],[g],[h]	Pneumococcal Meningococcal Hib (children 12-59 months of age)[d]	Effectiveness of any vaccine depends on degree of immune suppression.
	Interferon-gamma/Interleukin 12 axis deficiencies	All live bacterial vaccines (All live vaccines contraindicated in Interferon-gamma or interferon-alpha deficiencies.)	None	
Complement	Persistent complement, properdin, or factor B deficiency	None	Pneumococcal Meningococcal Hib (children 12-59 months of age)[d]	All routine vaccines likely effective.
	Taking eculizumab (Soliris)	None	Meningococcal	
Phagocytic function	Chronic granulomatous disease	Live bacterial vaccines[f]	None	Live viral vaccines likely safe and effective.
	Phagocytic deficiencies that are undefined or accompanied by defects in T-cell and NK cell dysfunction (such as Chediak-Higashi syndrome, Leukocyte Adhesion Deficiency [LAD], and myeloperoxidase deficiency).	Live viral and bacterial vaccines[f],[g]	Pneumococcal	All inactivated vaccines safe and likely effective.

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Vaccination of Persons with Primary and Secondary Immune Deficiencies

SECONDARY			
Specific Immunodeficiency	**Contraindicated Vaccines[a]**	**Risk-Specific Recommended Vaccines[a]**	**Effectiveness & Comments**
HIV/AIDS	OPV[b] Smallpox BCG LAIV MMRV Withhold MMR, varicella, and zoster in severely immunocompromised persons. Yellow fever vaccine might have a contraindication or a precaution depending on clinical parameters of immune function.[f]	Pneumococcal Hib[d],[j] HepB	MMR and Varicella vaccine in those with mild immunosuppression, rotavirus, and all inactivated vaccines, including inactivated influenza as per routine vaccination schedule, might be effective.[k]
Generalized malignant neoplasm, transplantation, immunosuppressive or radiation therapy	Live viral and bacterial, depending on immune status.[f],[g],[l]	Pneumococcal Hib[m]	Effectiveness of any vaccine depends on degree of immune suppression.
Asplenia	LAIV	Pneumococcal Meningococcal Hib[d],[n]	All routine vaccines likely effective.
Chronic renal disease	LAIV	Pneumococcal HepB[o]	All routine vaccines likely effective.

Continued on Next Page

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ABBREVIATIONS: AIDS = acquired immunodeficiency syndrome; **BCG** = bacille Calmette-Guérin; **HepB** = hepatitis B; **Hib** = *Haemophilus influenzae* type b; **HIV** = human immunodeficiency virus; **IG** = immunoglobulin; **IGIV** = immune globulin intravenous; **IgA** = immune globulin A; **IgG** = immune globulin G; **LAIV** = live, attenuated influenza vaccine; **MMR** = measles, mumps, and rubella; **MMRV** = measles, mumps, rubella, and varicella; **MPSV4** = quadrivalent meningococcal polysaccharide vaccine; **OPV** = oral poliovirus vaccine (live); **PPSV23** = pneumococcal polysaccharide vaccine; **SCID** = severe combined immunodeficiency; **Ty21a** = live oral typhoid vaccine.

NOTES

(a) Other vaccines that are universally or routinely recommended should be given if not contraindicated. An exception is patients with B-cell deficiencies receiving immunoglobulins, who should not receive either live or inactivated vaccines, due to safety (live vaccines) and efficacy (live and inactivated vaccines) concerns.

(b) OPV is no longer available in the United States.

(c) This table refers to contraindications for nonemergency vaccination (i.e., the ACIP recommendations); emergency response recommendations are addressed in the clinical guidance for smallpox vaccine use in an emergency.

(d) Children 12-59 months: if unimmunized or received zero or only 1 dose, and that dose was administered before 12 months of age, should receive 2 Hib doses, 8 weeks apart; if received 2 or more doses before age 12 months, and none after 12 months, should receive 1 Hib dose 8 weeks after the last dose; if completed a primary series and received a booster dose at age 12 months or older, no additional Hib doses are recommended.

(e) There are no data to support IgA deficiency as a contraindication for yellow fever vaccine.

(f) Live bacterial vaccines: BCG, adenovirus, and oral Ty21a *Salmonella Typhi* vaccine.

(g) Live viral vaccines: MMR, MMRV, OPV, LAIV, yellow fever, zoster, rotavirus, varicella, and vaccinia (smallpox). Nonemergency smallpox vaccination is not recommended for children younger than 18 years or the general public.

(h) Regarding T-lymphocyte immunodeficiency as a contraindication for rotavirus vaccine, data exist only for SCID.

(i) Symptomatic HIV infection or CD4+ T-lymphocyte count of <200/mm3 or <15% of total lymphocytes for children aged <6 years is a contraindication to yellow fever vaccine administration. Asymptomatic HIV infection with CD4+ T-lymphocyte count of 200-499/mm3 for persons aged ≥6 years or 15%-24% of total lymphocytes for children aged <6 years is a precaution for yellow fever vaccine administration. Details of yellow fever vaccine recommendations are available from CDC (https://www.cdc.gov/mmwr/pdf/rr/rr5907.pdf)

(j) Patients 5-18 years of age who have not received a Hib primary series and a booster dose or at least one Hib dose after 14 months of age.

(k) HIV-infected children should be considered for varicella vaccine if CD4+ T-lymphocyte count is ≥15% and should receive MMR vaccine if they are aged ≥12 months and do not have 1) evidence of current severe immunosuppression (i.e., individuals aged ≤5 years must have CD4+T lymphocyte [CD4] percentages ≥15% for ≥6 months; and individuals aged >5 years must have CD4+percentages ≥15% and CD4+≥200 lymphocytes/mm3 for ≥6 months) and 2) other current evidence of measles, rubella, and mumps immunity. In cases when only CD4+cell counts or only CD4+percentages are available for those older than age 5 years, the assessment of severe immunosuppression can be based on the CD4+values (count or percentage) that are available. In cases when CD4+percentages are not available for those aged ≤5 years, the assessment of severe immunosuppression can be based on age-specific CD4+counts at the time CD4+counts were measured; i.e., absence of severe immunosuppression is defined as ≥6 months above age-specific CD4+count criteria: CD4+count >750 lymphocytes/mm3 while aged ≤12 months and CD4+count ≥500 lymphocytes/mm3 while aged 1 through 5 years (https://www.cdc.gov/mmwr/pdf/rr/rr6204.pdf).

(l) Withholding inactivated vaccines also is recommended with some forms of immunosuppressive therapy, like anti-CD20 antibodies, induction or consolidation chemotherapy, or patients with major antibody deficiencies receiving immunoglobulins. Inactivated influenza vaccine is an exception, but consideration should be given to repeating doses of any inactivated vaccine administered during these therapies.

(m) Persons younger than 60 months undergoing chemotherapy or radiation therapy who have not received a Hib primary series and a booster dose or at least one Hib dose after 14 months of age; HCT patients of any ages, regardless of Hib vaccine history.

(n) Persons older than 59 months who are asplenic and persons 15 months or older who are undergoing elective splenectomy who have not received a Hib primary series and a booster dose or at least one Hib dose after 14 months of age.

(o) Indicated based on the risk from dialysis-based bloodborne transmission.

(continued)

Adapted from Table 8-1, ACIP General Best Practice Guidelines for Immunization March 2018

Vaccine Excipient & Media Summary

Excipients Included in U.S. Vaccines, by Vaccine

In addition to weakened or killed disease antigens (viruses or bacteria), vaccines contain very small amounts of other ingredients – excipients or media.

Some excipients are added to a vaccine for a specific purpose. These include:
Preservatives, to prevent contamination. For example, thimerosal.
Adjuvants, to help stimulate a stronger immune response. For example, aluminum salts.
Stabilizers, to keep the vaccine potent during transportation and storage. For example, sugars or gelatin.

Others are residual trace amounts of materials that were used during the manufacturing process and removed. These include:
Cell culture materials, used to grow the vaccine antigens. For example, egg protein, various culture media.
Inactivating ingredients, used to kill viruses or inactivate toxins. For example, formaldehyde.
Antibiotics, used to prevent contamination by bacteria. For example, neomycin.

The following table lists all components, other than antigens, shown in the manufacturers' package insert (PI) for each vaccine. Each of these PIs, which can be found on the FDA's website (see below) contains a description of that vaccine's manufacturing process, including the amount and purpose of each substance. In most PIs, this information is found in Section 11: "Description."

All information was extracted from manufacturers' package inserts.
If in doubt about whether a PI has been updated since this table was prepared, check the FDA's website at:
http://www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm093833.htm

Vaccine	Contains
Adenovirus	human-diploid fibroblast cell cultures (strain WI-38), Dulbecco's Modified Eagle's Medium, fetal bovine serum, sodium bicarbonate, monosodium glutamate, sucrose, D-mannose, D-fructose, dextrose, human serum albumin, potassium phosphate, plasdone C, anhydrous lactose, microcrystalline cellulose, polacrilin potassium, magnesium stearate, cellulose acetate phthalate, alcohol, acetone, castor oil, FD&C Yellow #6 aluminum lake dye
Anthrax (Biothrax)	amino acids, vitamins, inorganic salts, sugars, aluminum hydroxide, sodium chloride, benzethonium chloride, formaldehyde
BCG (Tice)	glycerin, asparagine, citric acid, potassium phosphate, magnesium sulfate, iron ammonium citrate, lactose
Cholera (Vaxchora)	casamino acids, yeast extract, mineral salts, anti-foaming agent, ascorbic acid, hydrolyzed casein, sodium chloride, sucrose, dried lactose, sodium bicarbonate, sodium carbonate

Continued on Next Page

Vaccine Excipient & Media Summary

Excipients Included in U.S. Vaccines, by Vaccine (continued)

Vaccine	Contains
DT (Sanofi)	aluminum phosphate, isotonic sodium chloride, formaldehyde, casein, cystine, maltose, uracil, inorganic salts, vitamins, dextrose
DTaP (Daptacel)	aluminum phosphate, formaldehyde, glutaraldehyde, 2-phenoxyethanol, Stainer-Scholte medium, casamino acids, dimethyl-beta-cyclodextrin, Mueller's growth medium, ammonium sulfate, modified Mueller-Miller casamino acid medium without beef heart infusion
DTaP (Infanrix)	Fenton medium containing a bovine extract, modified Latham medium derived from bovine casein, formaldehyde, modified Stainer-Scholte liquid medium, glutaraldehyde, aluminum hydroxide, sodium chloride, polysorbate 80 (Tween 80)
DTaP-IPV (Kinrix)	casein, formaldehyde, modified Stainer-Scholte liquid medium, glutaraldehyde, aluminum hydroxide, VERO cells, a continuous line of monkey kidney cells, Calf serum, lactalbumin hydrolysate, sodium chloride, polysorbate 80 (Tween 80), neomycin sulfate, polymyxin B
DTaP-IPV (Quadracel)	modified Mueller's growth medium, ammonium sulfate, modified Mueller-Miller casamino acid medium without beef heart infusion, formaldehyde, aluminum phosphate, Stainer-Scholte medium, casamino acids, dimethyl-beta-cyclodextrin, MRC-5 cells, normal human diploid cells, CMRL 1969 medium supplemented with calf serum, Medium 199 without calf serum, 2-phenoxyethanol, polysorbate 80, glutaraldehyde, neomycin, polymyxin B sulfate
DTaP-HepB-IPV (Pediarix)	Fenton medium containing a bovine extract, modified Latham medium derived from bovine casein, formaldehyde, glutaraldehyde, modified Stainer-Scholte liquid medium, VERO cells, a continuous line of monkey kidney cells, calf serum and lactalbumin hydrolysate, aluminum hydroxide, aluminum phosphate, aluminum salts, sodium chloride, polysorbate 80 (Tween 80), neomycin sulfate, polymyxin B, yeast protein.

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Vaccine Excipient & Media Summary

Excipients Included in U.S. Vaccines, by Vaccine (continued)

Vaccine	Contains
DTaP-IPV/Hib (Pentacel)	aluminum phosphate, polysorbate 80, sucrose, formaldehyde, glutaraldehyde, bovine serum albumin, 2-phenoxyethanol, neomycin, polymyxin B sulfate, modified Mueller's growth medium, ammonium sulfate, modified Mueller-Miller casamino acid medium without beef heart infusion, Stainer-Scholte medium, casamino acids, dimethyl-beta-cyclodextrin. MRC-5 cells (a line of normal human diploid cells), CMRL 1969 medium supplemented with calf serum, Medium 199 without calf serum, modified Mueller and Miller medium
Hib (ActHIB)	sodium chloride, modified Mueller and Miller medium (the culture medium contains milk-derived raw materials [casein derivatives]), formaldehyde, sucrose
Hib (Hiberix)	saline, synthetic medium, formaldehyde, sodium chloride, lactose
Hib (PedvaxHIB)	complex fermentation media, amorphous aluminum hydroxyphosphate sulfate, sodium chloride
Hep A (Havrix)	MRC-5 human diploid cells, formalin, aluminum hydroxide, amino acid supplement, phosphate-buffered saline solution, polysorbate 20, neomycin sulfate, aminoglycoside antibiotic
Hep A (Vaqta)	MRC-5 diploid fibroblasts, amorphous aluminum hydroxyphosphate sulfate, non-viral protein, DNA, bovine albumin, formaldehyde, neomycin, sodium borate, sodium chloride
Hep B (Engerix-B)	aluminum hydroxide, yeast protein, sodium chloride, disodium phosphate dihydrate, sodium dihydrogen phosphate dihydrate
Hep B (Recombivax)	soy peptone, dextrose, amino acids, mineral salts, phosphate buffer, formaldehyde, potassium aluminum sulfate, amorphous aluminum hydroxyphosphate sulfate, yeast protein
Hep B (Heplisav-B)	vitamins and mineral salts, yeast protein, yeast DNA, deoxycholate, phosphorothioate linked oligodeoxynucleotide, phosphate buffered saline, sodium phosphate, dibasic dodecahydrate, monobasic dehydrate, polysorbate 80
Hep A/Hep B (Twinrix)	MRC-5 human diploid cells, formalin, aluminum phosphate, aluminum hydroxide, amino acids, sodium chloride, phosphate buffer, polysorbate 20, neomycin sulfate, yeast protein

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Vaccine Excipient & Media Summary

Excipients Included in U.S. Vaccines, by Vaccine (continued)

Vaccine	Contains
Human Papillomavirus (HPV) (Gardasil 9)	vitamins, amino acids, mineral salts, carbohydrates, amorphous aluminum hydroxyphosphate sulfate, sodium chloride, L-histidine, polysorbate 80, sodium borate, yeast protein
Influenza (Afluria) Trivalent & Quadrivalent	sodium chloride, monobasic sodium phosphate, dibasic sodium phosphate, monobasic potassium phosphate, potassium chloride, calcium chloride, sodium taurodeoxycholate, ovalbumin, sucrose, neomycin sulfate, polymyxin B, beta-propiolactone, thimerosal (multi-dose vials)
Influenza (Fluad)	squalene, polysorbate 80, sorbitan trioleate, sodium citrate dehydrate, citric acid monohydrate, neomycin, kanamycin, barium, egg proteins, cetyltrimethylammonium bromide (CTAB), formaldehyde
Influenza (Fluarix) Trivalent & Quadrivalent	octoxynol-10 (TRITON X-100), α-tocopheryl hydrogen succinate, polysorbate 80 (Tween 80), hydrocortisone, gentamicin sulfate, ovalbumin, formaldehyde, sodium deoxycholate, sodium phosphate-buffered isotonic sodium chloride
Influenza (Flublok) Trivalent & Quadrivalent	sodium chloride, monobasic sodium phosphate, dibasic sodium phosphate, polysorbate 20 (Tween 20), baculovirus and Spodoptera frugiperda cell proteins, baculovirus and cellular DNA, Triton X-100, lipids, vitamins, amino acids, mineral salts
Influenza (Flucelvax) Trivalent & Quadrivalent	Madin Darby Canine Kidney (MDCK) cell protein, protein other than HA, MDCK cell DNA, polysorbate 80, cetyltrimethlyammonium bromide, and β-propiolactone
Influenza (Flulaval) Trivalent & Quadrivalent	ovalbumin, formaldehyde, sodium deoxycholate, α-tocopheryl hydrogen succinate, polysorbate 80, thimerosal (multi-dose vials)
Influenza (Fluvirin)	ovalbumin, polymyxin, neomycin, betapropiolactone, nonylphenol ethoxylate, thimerosal
Influenza (Fluzone) Quadrivalent	formaldehyde, egg protein, octylphenol ethoxylate (Triton X-100), sodium phosphate-buffered isotonic sodium chloride solution, thimerosal (multi-dose vials), sucrose
Influenza (Fluzone) High Dose	egg protein, octylphenol ethoxylate (Triton X-100), sodium phosphate-buffered isotonic sodium chloride solution, formaldehyde, sucrose
Influenza (Fluzone) Intradermal	formaldehyde, egg protein, octylphenol ethoxylate (Triton X-100), sodium phosphate-buffered isotonic sodium chloride solution, sucrose

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Vaccine Excipient & Media Summary

Excipients Included in U.S. Vaccines, by Vaccine (continued)

Vaccine	Contains
Influenza (FluMist) Quadrivalent	monosodium glutamate, hydrolyzed porcine gelatin, arginine, sucrose, dibasic potassium phosphate, monobasic potassium phosphate, ovalbumin, gentamicin sulfate, ethylenediamine-tetraacetic acid (EDTA)
Japanese Encephalitis (Ixiaro)	aluminum hydroxide, protamine sulfate, formaldehyde, bovine serum albumin, host cell DNA, sodium metabisulphite, host cell protein
Meningococcal (MenACWY-Menactra)	Watson Scherp media containing casamino acid, modified culture medium containing hydrolyzed casein, ammonium sulfate, sodium phosphate, formaldehyde, sodium chloride
Meningococcal (MenACWY-Menveo)	formaldehyde, amino acids, yeast extract, Franz complete medium, CY medium
Meningococcal (MenB – Bexsero)	aluminum hydroxide, E. coli, histidine, sucrose, deoxycholate, kanamycin
Meningococcal (MenB – Trumenba)	defined fermentation growth media, polysorbate 80, aluminum phosphate, histidine buffered saline
MMR (MMR-II)	chick embryo cell culture, WI-38 human diploid lung fibroblasts, vitamins, amino acids, fetal bovine serum, sucrose, glutamate, recombinant human albumin, neomycin, sorbitol, hydrolyzed gelatin, sodium phosphate, sodium chloride
MMRV (ProQuad) (Frozen)	chick embryo cell culture, WI-38 human diploid lung fibroblasts, MRC-5 cells, sucrose, hydrolyzed gelatin, sodium chloride, sorbitol, monosodium L-glutamate, sodium phosphate dibasic, human albumin, sodium bicarbonate, potassium phosphate monobasic, potassium chloride; potassium phosphate dibasic, neomycin, bovine calf serum
MMRV (ProQuad) (Refrigerator Stable)	chick embryo cell culture, WI-38 human diploid lung fibroblasts, MRC-5 cells, sucrose, hydrolyzed gelatin, urea, sodium chloride, sorbitol, monosodium L-glutamate, sodium phosphate, recombinant human albumin, sodium bicarbonate, potassium phosphate, potassium chloride, neomycin, bovine serum albumin
Pneumococcal (PCV13 – Prevnar 13)	soy peptone broth, casamino acids and yeast extract-based medium, CRM_{197} carrier protein, polysorbate 80, succinate buffer, aluminum phosphate
Pneumococcal (PPSV-23 – Pneumovax)	phenol

Continued on Next Page

Vaccine Excipient & Media Summary

Excipients Included in U.S. Vaccines, by Vaccine (continued)

Vaccine	Contains
Polio (IPV – Ipol)	Eagle MEM modified medium, calf bovine serum, M-199 without calf bovine serum, vero cells (a continuous line of monkey kidney cells), phenoxy-ethanol, formaldehyde, neomycin, streptomycin, polymyxin B
Rabies (Imovax)	human albumin, neomycin sulfate, phenol red indicator, MRC-5 human diploid cells, beta-propriolactone
Rabies (RabAvert)	chicken fibroblasts, β-propiolactone, polygeline (processed bovine gelatin), human serum albumin, bovine serum, potassium glutamate, sodium EDTA, ovalbumin, neomycin, chlortetracycline, amphotericin B
Rotavirus (RotaTeq)	sucrose, sodium citrate, sodium phosphate mono-basic monohydrate, sodium hydroxide, polysorbate 80, cell culture media, fetal bovine serum, vero cells [DNA from porcine circoviruses (PCV) 1 and 2 has been detected in RotaTeq. PCV-1 and PCV-2 are not known to cause disease in humans.]
Rotavirus (Rotarix)	Vero cells, dextran, Dulbecco's Modified Eagle Medium (sodium chloride, potassium chloride, magnesium sulfate, ferric (III) nitrate, sodium phos-phate, sodium pyruvate, D-glucose, concentrated vitamin solution, L-cystine, L-tyrosine, amino acids solution, L-glutamine, calcium chloride, sodium hydrogenocarbonate, and phenol red), sorbitol, sucrose, calcium carbonate, sterile water, xanthan [Porcine circovirus type 1 (PCV-1) is present in Rotarix. PCV-1 is not known to cause disease in humans.]
Smallpox (Vaccinia) (ACAM2000)	African Green Monkey kidney (Vero) cells, HEPES, 2% human serum albumin, 0.7% sodium chloride USP, 5% Mannitol USP, neomycin, polymyxin B, 50% Glycerin USP, 0.25% phenol USP
Td (Tenivac)	aluminum phosphate, formaldehyde, modified Mueller-Miller casamino acid medium without beef heart infusion, ammonium sulfate, sodium chloride, water
Td (Mass Biologics)	aluminum phosphate, formaldehyde, thimerosal, modified Mueller's media which contains bovine extracts, ammonium sulfate

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Vaccine Excipient & Media Summary

Excipients Included in U.S. Vaccines, by Vaccine (continued)

Vaccine	Contains
Tdap (Adacel)	aluminum phosphate, formaldehyde, 2-phenoxy-ethanol, Stainer-Scholte medium, casamino acids, dimethyl-beta-cyclodextrin, glutaraldehyde, modified Mueller-Miller casamino acid medium without beef heart infusion, ammonium sulfate, modified Mueller's growth medium
Tdap (Boostrix)	modified Latham medium derived from bovine casein, Fenton medium containing a bovine extract, formaldehyde, modified Stainer-Scholte liquid medium, glutaraldehyde, aluminum hydroxide, sodium chloride, polysorbate 80
Typhoid (Typhim Vi)	hexadecyltrimethylammonium bromide, formaldehyde, phenol, polydimethylsiloxane, disodium phosphate, monosodium phosphate, semi-synthetic medium, sodium chloride
Typhoid (Vivotif Ty21a)	yeast extract, casein, dextrose, galactose, sucrose, ascorbic acid, amino acids, lactose, magnesium stearate. gelatin
Varicella (Varivax) Frozen	MRC-5 human diploid cells, including DNA & protein, sucrose, hydrolyzed gelatin, sodium chloride, monosodium L-glutamate, sodium phosphate dibasic, sodium phosphate monobasic, potassium phosphate monobasic, potassium chloride, EDTA, neomycin, fetal bovine serum
Varicella (Varivax) Refrigerator Stable	MRC-5 human diploid cells, including DNA & protein, sucrose, hydrolyzed gelatin, sodium chloride, mono-sodium L-glutamate, urea, sodium phosphate dibasic, potassium phosphate monobasic, potassium chloride, neomycin, bovine calf serum
Yellow Fever (YF-Vax)	sorbitol, gelatin, sodium chloride, egg protein
Zoster (Shingles) (Zostavax) Frozen	MRC-5 human diploid cells, including DNA & protein, sucrose, hydrolyzed porcine gelatin, sodium chloride, monosodium L-glutamate, sodium phosphate dibasic, potassium phosphate monobasic, potassium chloride; neomycin, bovine calf serum
Zoster (Shingles) (Zostavax) Refrigerator Stable	MRC-5 human diploid cells, including DNA & protein, sucrose, hydrolyzed porcine gelatin, urea, sodium chloride, monosodium L-glutamate, sodium phosphate dibasic, potassium phosphate monobasic, potassium chloride, neomycin, bovine calf serum
Zoster (Shingles) (Shingrix)	sucrose, sodium chloride, dioleoyl phosphatidyl-choline (DOPC), potassium dihydrogen phosphate, cholesterol, sodium dihydrogen phosphate dihydrate, disodium phosphate anhydrous, dipotassium phos-phate, polysorbate 80

Vaccines Licensed for Use in the United States

Product Name	Trade Name
Adenovirus Type 4 and Type 7 Vaccine, Live, Oral	No Trade Name
Anthrax Vaccine Adsorbed	Biothrax
BCG Live	BCG Vaccine TICE BCG
Cholera Vaccine Live Oral	Vaxchora
Diphtheria & Tetanus Toxoids Adsorbed	No Trade Name
Diphtheria & Tetanus Toxoids & Acellular Pertussis Vaccine Adsorbed	Infanrix DAPTACEL
Diphtheria & Tetanus Toxoids & Acellular Pertussis Vaccine Adsorbed, Hepatitis B (recombinant) and Inactivated Poliovirus Vaccine Combined	Pediarix
Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed and Inactivated Poliovirus Vaccine	KINRIX Quadracel
Diphtheria and Tetanus Toxoids and Acellular Pertussis Adsorbed, Inactivated Poliovirus and Haemophilus b Conjugate (Tetanus Toxoid Conjugate) Vaccine	Pentacel
Haemophilus b Conjugate Vaccine (Meningococcal Protein Conjugate)	PedvaxHIB
Haemophilus b Conjugate Vaccine (Tetanus Toxoid Conjugate)	ActHIB Hiberix
Hepatitis A Vaccine, Inactivated	Havrix VAQTA
Hepatitis A Inactivated and Hepatitis B (Recombinant) Vaccine	Twinrix
Hepatitis B Vaccine (Recombinant)	Recombivax HB Engerix-B
Hepatitis B Vaccine (Recombinant), Adjuvanted	HEPLISAV-B
Human Papillomavirus Quadrivalent (Types 6, 11, 16, 18) Vaccine, Recombinant	Gardasil
Human Papillomavirus 9-valent Vaccine, Recombinant	Gardasil 9
Human Papillomavirus Bivalent (Types 16, 18) Vaccine, Recombinant	Cervarix
Influenza A (H1N1) 2009 Monovalent Vaccine	No Trade Name
Influenza Virus Vaccine, H5N1 (for National Stockpile)	No Trade Name

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Vaccines Licensed for Use in the United States (continued)

Product Name	Trade Name
Influenza A (H5N1) Virus Monovalent Vaccine, Adjuvanted	No Trade Name
Influenza Vaccine, Adjuvanted	FLUAD
Influenza Vaccine	Flucelvax Quadrivalent
Influenza Virus Vaccine (Trivalent, Types A and B)	Afluria FluLaval Fluarix Fluvirin Agriflu Fluzone Fluzone High-Dose Fluzone Intradermal Flucelvax
Influenza Vaccine, Live, Intranasal (Trivalent, Types A and B)	FluMist
Influenza Vaccine (Trivalent)	Flublok
Influenza Vaccine (Quadrivalent)	Flublok Quadrivalent
Influenza Vaccine,Live, Intranasal (Quadrivalent, Types A and Types B)	FluMist Quadrivalent
Influenza Virus Vaccine (Quadrivalent, Types A and Types B)	Fluarix Quadrivalent Fluzone Quadrivalent FluLaval Quadrivalent
Japanese Encephalitis Virus Vaccine, Inactivated, Adsorbed	Ixiaro
Japanese Encephalitis Virus Vaccine Inactivated	JE-Vax
Measles and Mumps Virus Vaccine, Live	M-M-Vax
Measles, Mumps, and Rubella Virus Vaccine, Live	M-M-R II
Measles, Mumps, Rubella and Varicella Virus Vaccine Live	ProQuad
Meningococcal (Groups A, C, Y, and W-135) Oligosaccharide Diphtheria CRM197 Conjugate Vaccine	Menveo
Meningococcal (Groups A, C, Y and W-135) Polysaccharide Diphtheria Toxoid Conjugate Vaccine	Menactra

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Vaccines Licensed for Use in the United States (continued)

Product Name	Trade Name
Meningococcal Group B Vaccine	BEXSERO TRUMENBA
Meningococcal Polysaccharide Vaccine, Groups A, C, Y and W-135 Combined	Menomune-A/C/Y/W-135
Plague Vaccine	No Trade Name
Pneumococcal Vaccine, Polyvalent	Pneumovax 23
Pneumococcal 13-valent Conjugate Vaccine (Diphtheria CRM197 Protein)	Prevnar 13
Poliovirus Vaccine Inactivated (Human Diploid Cell)	Poliovax
Poliovirus Vaccine Inactivated (Monkey Kidney Cell)	IPOL
Rabies Vaccine	Imovax RabAvert
Rabies Vaccine Adsorbed	No Trade Name
Rotavirus Vaccine, Live, Oral	ROTARIX
Rotavirus Vaccine, Live, Oral, Pentavalent	RotaTeq
Smallpox (Vaccinia) Vaccine, Live	ACAM2000
Tetanus & Diphtheria Toxoids Adsorbed for Adult Use	TENIVAC
Tetanus Toxoid Adsorbed	No Trade Name
Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Adsorbed	Adacel Boostrix
Typhoid Vaccine Live Oral Ty21a	Vivotif
Typhoid Vi Polysaccharide Vaccine	TYPHIM Vi
Varicella Virus Vaccine Live	Varivax
Yellow Fever Vaccine	YF-Vax
Zoster Vaccine, Live, (Oka/Merck)	Zostavax
Zoster Vaccine Recombinant, Adjuvanted	SHINGRIX

Source: CDC, Epidemiology and Prevention of Vaccine Preventable Diseases, 13th Edition, April 2018

How to Administer IM (Intramuscular) Injections

Vaccines given IM (intramuscular) route: DTaP, DT, Hib, hepA, hepB, HPV, IIV, MCV, PCV, rabies, Td, Tdap and RZV (Shingrix).

Administer IPV and PPSV vaccines either via IM or SQ (subcutaneous) route.

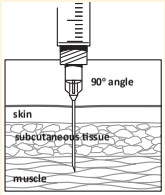
Patient's age	Site (see illustrations)	Needle size*
Newborn/infant (Birth -1 year)	• Anterolateral thigh	• 1" needle • *5/8" in premies or newborns (0-28 days old) if muscle mass inadequate*[1] • 23-25 gauge needle
Toddler (1-3 years)	• Anterolateral thigh preferred • Deltoid when adequate mass developed	• 1" – 1¼" needle for thigh • 5/8" – 1" needle for deltoid • 23-25 gauge needle
Children (3-11 years)	• Deltoid • Anterolateral thigh	• 5/8" – 1" needle for deltoid • 1" – 1¼" needle for thigh • 23-25 gauge needle
Adolescents/adults[2] (11 years and older)	• Deltoid preferred • Anterolateral thigh may be used if necessary	• 1" – 1½" needle[2] • 23-25 gauge needle

[1] A ⅝" needle may be used only if the skin is stretched tight, the subcutaneous tissue is not bunched, and injection is made at a 90° angle.

[2] A ⅞" needle is sufficient in adults weighing less than 130 lbs (60 kg).
A 1" needle is sufficient in adults weighing 130–152 lbs (60–70 kg).
A 1–1½" needle is recommended in women weighing 152–200 lbs (70–90 kg) and men weighing 152–260 lbs (70–118 kg).
A 1½" needle is recommended in women weighing more than 200 lbs (90 kg) or men weighing more than 260 lbs (118 kg).

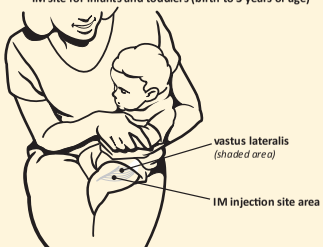
Needle insertion

- Use a needle long enough to reach deep into the muscle.
- Identify the thickest part of the deltoid muscle by having the person raise their arm to define the muscle. Once defined, have patient relax arm and proceed.
- Insert needle at a 90° angle to the skin with a quick thrust.
- Retain pressure on skin around injection site with thumb and index finger while needle is inserted.
- Aspiration is not necessary.
- Multiple injections given in the same extremity should be separated as far as possible (preferably at least 1" apart).



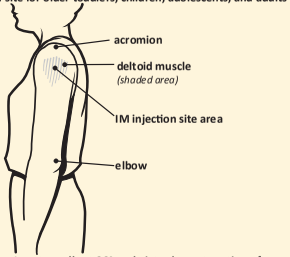
Sources: Red Book 2018, American Academy of Pediatrics & CDC, General Best Practices for Immunization, accessed 2018

IM site for infants and toddlers (birth to 3 years of age)



Insert needle at 90° angle into vastus lateralis muscle in anterolateral aspect of middle or upper thigh.

IM site for older toddlers, children, adolescents, and adults



Insert needle at 90°angle into densest portion of deltoid muscle above armpit and below acromion.

How to Administer SQ (Subcutaneous) Injections

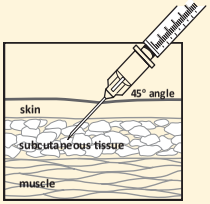
Vaccines given SQ (subcutaneous) route: MMR, MMRV, VAR, and ZVL (Zostavax).

Administer IPV and PPSV vaccines either via IM (intramuscular) or SQ route.

Patient's age	Site (see illustrations)	Needle size*
Infants (Birth -1 year)	• Fatty area of the thigh	• 5/8" needle • 23-25 gauge
Toddlers (1-3 years)	• Fatty area of the thigh or outer aspect of upper arm	• 5/8" needle • 23-25 gauge
Children (3 -11 years)	• Fatty area of the thigh or outer aspect of upper arm	• 5/8" needle • 23-25 gauge
Adolescents/adults (11 years and older)	• Outer aspect of upper arm	• 5/8" needle • 23-25 gauge

Needle insertion

- Insert needle at an 45° angle to the skin.
- Pinch up on SQ tissue to prevent injecting into muscle.
- Aspiration before injection is not required.
- Multiple injections given in the same extremity should be separated as far as possible (preferably at least 1" apart).

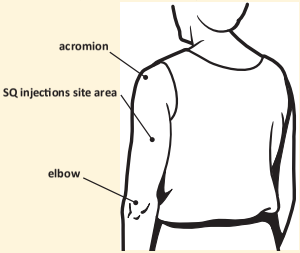


Sources: Red Book 2018, American Academy of Pediatrics & CDC, General Best Practices for Immunization, accessed 2018

SQ site for infants and toddlers (birth to 3 years of age)

Insert needle at 45° angle into fatty area of anterolateral thigh.
Make sure you pinch up on SQ tissue to prevent injecting into muscle.

SQ site for older toddlers, children, adolescents and adults



Insert needle at 45° angle into outer aspect of upper arm.
Make sure you pinch up on SQ tissue to prevent injecting into muscle.

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

Routine Immunization Screening Form: Pediatric

AUTHORITY: 10 U.S.C. 1071-1085, Medical and Dental Care; Army Regulation 40-562, Immunizations and Chemoprophylaxis for the Prevention of Infectious Disease; DoDM 6025.18, Implementation of the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule in DoD Health Care Programs.

PURPOSE: To determine whether your child can safely receive a routine immunization.

ROUTINE USES: Use and disclosure of your child's records outside of DoD may occur in accordance with the Privacy Act of 1974, as amended (5 U.S.C. 552a(b)). Collected information may be shared with entities including the Departments of Health and Human Services, Veterans Affairs, and other Federal, State, local, or foreign government agencies, or authorized private business entities. To appropriate agencies, entities, and persons when (1) the DoD suspects or has confirmed that there has been a breach of the system of records; (2) the DoD has determined that as a result of the suspected or confirmed breach there is a risk of harm to individuals, the DoD (including its information systems, programs, and operations), the Federal Government, or national security; and (3) the disclosure made to such agencies, entities, and persons is reasonably necessary to assist in connection with the DoD's efforts to respond to the suspected or confirmed breach or to prevent, minimize, or remedy such harm.

APPLICABLE SORN: EDHA 07, Military Health Information System (November 18, 2013, 78 FR 69076) https://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570672/edha-07/

DISCLOSURE: Voluntary. If you choose not to provide the requested information, no penalty may be imposed; however, failure to provide the information may result in delays in assessing contraindications for receiving vaccinations.

Patient name:	DOB *(YYYYMMDD)*:

Screening Checklist for Contraindications to Vaccines for Children and Teens

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

		Yes	No	Don't Know
1.	Is the child sick today?	☐	☐	☐
2.	Has the child had a serious reaction after receiving a vaccination?	☐	☐	☐
3.	Does the child have allergies to medication, food, a vaccine component, or latex?	☐	☐	☐
4.	Has the child, a sibling, or a parent had a seizure; has the child had brain or other nervous system problems?	☐	☐	☐
5.	Has the child had a health problem involving heart, lung (e.g. asthma), kidney, or metabolic disease (e.g., diabetes), anemia, or other blood disorder? Is he/she on long-term aspirin therapy?	☐	☐	☐
6.	Does the child have cancer, leukemia, HIV/AIDS, or does the child or family members (parents or siblings) have an immune system problem?	☐	☐	☐
7.	In the past 3 months, has the child taken medications that weaken his/her immune system, such as prednisone or other steroids; anticancer drugs; biologic drugs for autoimmune diseases such as rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments?	☐	☐	☐
8.	In the past year, has the child received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?	☐	☐	☐
9.	If your child is a baby, have you ever been told he/she has had intussusception?	☐	☐	☐
10.	If the child to be vaccinated is 2 through 4 years of age, has a healthcare provider told you that the child had wheezing or asthma in the past 12 months?	☐	☐	☐
11.	Has the child had (or is a candidate for) his/her spleen removed, or do they have sickle cell anemia?	☐	☐	☐
12.	Has the child ever passed out (had vasovagal syncope) during or after a previous immunization or blood draw?	☐	☐	☐
13.	Has the child received any vaccinations in the past 4 weeks?	☐	☐	☐
14.	Is the child/teen pregnant or is there a chance she could become pregnant during the next month? Not Applicable ☐	☐	☐	☐

Please list any medications the child is currently taking:

Form completed by:	Date *(YYYYMMDD)*:
Form reviewed by:	Date *(YYYYMMDD)*:

Did you bring your immunization record/card with you? Yes ☐ No ☐

It is important for you to have a personal record of your vaccinations. If you don't have a personal record, ask your healthcare provider to give you one. Keep this record in a safe place and bring it with you every time you seek medical care. Make sure your healthcare provider records all your vaccinations on it. For questions or concerns regarding immunizations, providers, nurses and patients may call the DHA Immunization Healthcare Support Center 24/7 at 1-877-438-8222, Option 1.

(**NOTE:** The form above is an example. The fillable, signable forms are available for individual download at the Official DoD Website for DoD Forms.)

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

Each screening question is explained in more detail below. For more information, please consult the sources referenced at the end.

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

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

2. Has the child ever had a serious reaction after receiving a vaccination? [*all vaccines*]

History of anaphylactic reaction (see question 3) to a previous dose of vaccine or vaccine component is a contraindication for subsequent doses.[1] History of encephalopathy within 7 days following DTP/DTaP is a contraindication for further doses of pertussis-containing vaccine.There are other adverse events that might have occurred following vaccination that constitute contraindications or precautions to future doses. Under normal circumstances, vaccines are deferred when a precaution is present. However, situations may arise when the benefit outweighs the risk (e.g., during a community pertussis outbreak).

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

An anaphylactic reaction to latex is a contraindication to vaccines that contain latex as a component or as part of the packaging (e.g., vial stoppers, prefilled syringe plungers or caps). If a person has anaphylaxis after eating gelatin, do not administer vaccines containing gelatin. For patients with known Alpha-gal syndrome (red meat allergy) caution should be exercised with gelatin-containing vaccines (i.e. MMR, VAR, YF-Vax), as some of these patients have demonstrated anaphylaxis with these vaccines. A local reaction to a prior vaccine dose or vaccine component, including latex, is not a contraindication to a subsequent dose or vaccine containing that component.[3,4] People with egg allergy of any severity can receive any recommended influenza vaccine (i.e., any IIV or RIV) that is otherwise appropriate for the patient's age. For people with a history of severe allergic reaction to egg involving any symptom other than hives (e.g., angioedema, respiratory distress), or who required epinephrine or another emergency medical intervention, the vaccine should be administered in a medical setting, such as a clinic, health department, or physician office. Vaccine administration should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions.[5]

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

DTaP and Tdap are contraindicated in children who have a history of encephalopathy within 7 days following DTP/DTaP. An unstable, progressive neurologic condition is a precaution to the use of DTaP and Tdap. For children with stable neurologic disorders (including seizures) unrelated to vaccination, or for children with a family history of seizures, vaccinate as usual (exception: children with a personal or family [i.e., parent or sibling] history of seizures generally should not be vaccinated with MMRV; they should receive separate MMR and VAR vaccines). A history of Guillain-Barre syndrome (GBS) is a precaution for the following:

1) Td/Tdap: if GBS has occurred within 6 weeks of a tetanus-containing vaccine and the decision is made to continue vaccination, if no history of prior Tdap, give Tdap instead of Td;
2) Influenza vaccine (IIV or LAIV): if GBS has occurred within 6 weeks of a prior influenza vaccination, vaccinate with IIV if at high risk for severe influenza complications.

5. Has the child had a health problem involving heart, lung (e.g. asthma), kidney, or metabolic disease (e.g. diabetes), anemia, or other blood disorder? Is he/she on long-term aspirin therapy? [*MMR, MMRV, LAIV*]

A history of thrombocytopenia or thrombocytopenic purpura is a precaution to MMR and MMRV vaccines. The safety of LAIV in pediatric patients with these conditions has not been established. These conditions, including asthma in children 5 years of age and older, are considered precautions for LAIV use. Patients on long-term aspirin therapy should not receive LAIV: they should receive IIV.

6. Does the child or a family member have cancer, leukemia, HIV/AIDS, or any other immune system problem? [*LAIV, MMR, MMRV, RV, Ty21a, VAR, YF-Vax*]

Live virus vaccines are usually contraindicated in immunocompromised patients; however, there are exceptions. MMR is recommended for asymptomatic HIV-infected children who do not have evidence of severe immunosuppression. VAR should be considered for HIV-infected children with age-specific CD4+ T-lymphocyte percentage at 15% or greater, or for children 6-18 years of age with CD4+ T-lymphocyte counts of greater than or equal to 200 cell/µL. MMR and VAR vaccines should not be given to a patient with a family history of congenital or hereditary immunodeficiency in first-degree relatives (i.e., parents, siblings) unless the immune competence of that patient has been clinically substantiated or verified by a laboratory. Immunosuppressed children should not receive LAIV. Infants who have been diagnosed with severe combined immunodeficiency (SCID) should not be given a live virus vaccine, including RV. Other forms of immunosuppression are a precaution, not a contraindication, to RV. For details, consult current ACIP recommendations.[1,6,7,8]

7. In the past 3 months, has the child taken medications that weaken his/her immune system, such as prednisone or other steroids; anticancer drugs; biologic drugs for autoimmune diseases such as rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments? [*Adenovirus, MMR, MMRV, Ty21a, VAR, YF-Vax*]

Live virus vaccines should be postponed until after chemotherapy or long-term high- dose steroid therapy has ended. For details and length of time to postpone, consult the current ACIP statement.[1] Some immune mediator and immune modulator drugs (especially the antitumor necrosis factor agents adalimumab, infliximab, and etanercept) may be immunosuppressive. The use of live vaccines should be avoided in persons taking these drugs.[1] Specific vaccination schedules for stem cell transplant (bone marrow transplant) patients can be found on the NIH website.[9] LAIV, when recommended, can be given only to healthy, non-pregnant people ages 2 through 49 years.

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

Certain live virus vaccines may need to be deferred, depending on several variables. Consult the most current ACIP recommendations or the current Red Book for information on intervals between receipt of antiviral drugs, immune globulin or blood products, and live virus vaccines.[1,2]

9. If your child is a baby, have you ever been told he/she has had intussusception? [*RV*]

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

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

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

11. Has the child had (or is a candidate for) his/her spleen removed, or do they have sickle cell anemia? [*Hib, LAIV, PCV13, PPSV23, MCV4, MenB*]

Patients with anatomic or functional asplenia (i.e. sickle-cell disease) are at an increased risk of certain vaccine preventable diseases, including *Haemophilus influenzae* type b, meningococcal, and pneumococcal disease. LAIV is not recommended for people with anatomic or functional asplenia. Hib, PCV13, MCV4, and MenB vaccine should be given 14 days before splenectomy, if possible. Doses given during the 14 days prior to surgery can be counted as valid. Doses that cannot be given prior to surgery should be given as soon as the patient's condition has stabilized after surgery. For patients 2 years of age and up, the first dose of PPSV23 should be administered 8 weeks after the last dose of PCV13. A second dose of PPSV23 should be administered 5 years after the first dose.

12. **Has the child ever passed out (had vasovagal syncope) during or after a previous immunization or blood draw?** [*all vaccines*]

Providers should be aware of the potential for syncope (fainting) associated with vaccination, particularly among adolescents. Appropriate measures should be taken to prevent syncope, and to readily respond to the patient who feels faint. Observe all patients for 15 minutes after vaccination for signs and symptoms that precede syncope, such as weakness, dizziness, sweatiness, and pallor. For patients prone to syncope, make sure they are either seated or lying down at the time of vaccination. (If the patient is seated during vaccination, the immunizer should be seated as well, to minimize the risk of SIRVA). If a patient becomes pre-syncopal, have them lie flat or sit with head between knees for several minutes; loosen any tight clothing and maintain an open airway; apply cool, damp cloths to the patient's face and neck. Observe the patient until symptoms completely resolve.

13. Has the child received any vaccinations in the past 4 weeks? [*LAIV, MMR, MMRV,VAR, YF-Vax*]

Patients who were given either LAIV or an injectable live virus vaccine should wait 28 days before receiving another live vaccine. Inactivated vaccines may be given at the same time or at any spacing interval.

14. Is the child/teen pregnant, or is there a chance she could become pregnant during the next month? [*Adenovirus, HPV, IPV, MMR, MMRV, LAIV, VAR, Ty21a, possibly YF-Vax*]

Live virus vaccines are contraindicated one month before and during pregnancy because of the theoretical risk of virus transmission to the fetus. Sexually active young women who receive a live virus vaccine should be instructed to practice careful contraception for one month following receipt.[7,10] On theoretical grounds, HPV and IPV should not be given during pregnancy; however, IPV may be given if risk of exposure is imminent (e.g., travel to endemic areas). Inactivated influenza vaccine and Tdap are both recommended during pregnancy.

1. ACIP General Best Practice Guidelines for Immunization: www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf.

2. AAP Red Book Report of the Committee on Infectious Diseases: www.aapredbook.org.

3. Latex in Vaccine Packaging: www.cdc.gov/vaccines/ pubs/pinkbook/downloads/appendices/B/latextable.pdf.

4. Table of Vaccine Components: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.

5. Prevention and control of seasonal influenza with vaccines: Practices. www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html.

elimination of measles, rubella, and congenital rubella syndrome and control of mumps. MMWR 1998; 47(RR-8).

7. Prevention of varicella: Recommendations of the Advisory Committee on Immunization Practices. MMWR 2007; 56(RR-4).

8. Rubin L.G., Levin M.J., Ljungman P. (2014) IDSA Clinical practice guideline for vaccination of the immunocompromised host. *Clinical Infectious Diseases*, 58(3), 309-318.

infectious complications among hematopoietic stem cell transplant recipients: a global perspective. *Marrow Transplant* 15:1143-1238.

10. Revised ACIP recommendation for avoiding pregnancy after receiving a rubella-containing vaccine. MMWR 2001; 50 (49).

Vaccine Abbreviations:

- DTaP: diphtheria/tetanus toxoids, acellular pertussis
- DTP: diphtheria/tetanus toxoids, whole-cell pertussis
- Hib: *Haemophilus influenza* type b
- HPV: human papillomavirus
- IIV: inactivated influenza
- IPV: inactivated poliovirus
- LAIV: live attenuated influenza

serogroups A, C, W, Y

- MenB: meningococcal serogroup B
- MMR: measles, mumps, rubella
- MMRV: measles, mumps, rubella, varicella
- PCV13: pneumococcal conjugate (13-valent)
- RIV: recombinant influenza
- RV: rotavirus
- SIRVA: shoulder injury related to vaccine administration
- Td: tetanus/diphtheria toxoids
- Tdap: tetanus toxoid, reduced diphtheria toxoid, acellular pertussis
- Ty21a: oral typhoid
- VAR: varicella
- YF-Vax: yellow fever

Routine Immunization Screening Form: Adult

NOTE: If cholera or smallpox vaccines are being considered, please complete their respective immunization screening forms.

AUTHORITY: 10 U.S.C. 1071-1085, Medical and Dental Care; Army Regulation 40-562, Immunizations and Chemoprophylaxis for the Prevention of Infectious Disease; DoDM 6025.18, Implementation of the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule in DoD Health Care Programs.

PURPOSE: To determine whether you can safely receive a routine immunization.

ROUTINE USES: Use and disclosure of your records outside of DoD may occur in accordance with the Privacy Act of 1974, as amended (5 U.S.C. 552a(b)). Collected information may be shared with entities including the Departments of Health and Human Services, Veterans Affairs, and other Federal, State, local, or foreign government agencies, or authorized private business entities.

To appropriate agencies, entities, and persons when (1) the DoD suspects or has confirmed that there has been a breach of the system of records; (2) the DoD has determined that as a result of the suspected or confirmed breach there is a risk of harm to individuals, the DoD (including its information systems, programs, and operations), the Federal Government, or national security; and (3) the disclosure made to such agencies, entities, and persons is reasonably necessary to assist in connection with the DoD's efforts to respond to the suspected or confirmed breach or to prevent, minimize, or remedy such harm.

APPLICABLE SORN: EDHA 07, Military Health Information System (November 18, 2013, 78 FR 69076) https://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570672/edha-07/

DISCLOSURE: Voluntary. If you choose not to provide the requested information, no penalty may be imposed; however, failure to provide the information may result in delays in assessing contraindications for receiving vaccinations.

Patient name:	DOB *(YYYYMMDD)*:

Screening Checklist for Contraindications to Vaccines for Adults

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

		Yes	No	Don't Know
1.	Are you sick today?	☐	☐	☐
2.	Have you ever had a serious reaction after receiving a vaccination?	☐	☐	☐
3.	Do you have allergies to medication, food, a vaccine component, or latex?	☐	☐	☐
4.	Have you had a seizure or a brain or other nervous system problem?	☐	☐	☐
5.	Have you had a health problem involving heart, lung (e.g., asthma), kidney, or metabolic disease (e.g., diabetes), anemia, or other blood disorder?	☐	☐	☐
6.	Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem?	☐	☐	☐
7.	In the past 3 months, have you taken medications that weaken your immune system, such as prednisone or other steroids; anticancer drugs; biologic drugs for autoimmune diseases such as rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments?	☐	☐	☐
8.	In the past year, have you received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?	☐	☐	☐
9.	Have you had (or are you a candidate for) your spleen removed, or do you have sickle cell anemia?	☐	☐	☐
10.	Have you ever passed out (had vasovagal syncope) during or after a previous immunization or blood draw?	☐	☐	☐
11.	Have you received any vaccinations in the past 4 weeks?	☐	☐	☐
12.	Are you pregnant or is there a chance you could become pregnant during the next month? Not Applicable ☐	☐	☐	☐

Please list any medications you are currently taking:

Form completed by:	Date *(YYYYMMDD)*:
Form reviewed by:	Date *(YYYYMMDD)*:

Did you bring your immunization record/card with you? **Yes** ☐ **No** ☐

It is important for you to have a personal record of your vaccinations. If you don't have a personal record, ask your healthcare provider to give you one. Keep this record in a safe place and bring it with you every time you seek medical care. Make sure your healthcare provider records all your vaccinations on it. For questions or concerns regarding immunizations, providers, nurses and patients may call the DHA Immunization Healthcare Support Center 24/7 at 1-877-438-8222, Option 1.

(**NOTE:** The form above is an example. The fillable, signable forms are available for individual download at the Official DoD Website for DoD Forms.)

Information for Healthcare Professionals about the Screening Checklist for Contraindications (Adult)

Each screening question is explained in more detail below. For more information, please consult the sources referenced at the end.

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

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

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

History of anaphylactic reaction (see question 3) to a previous dose of vaccine or vaccine component is a contraindication for subsequent doses.[1] History of encephalopathy within 7 days following DTP/DTaP is a contraindication for further doses of pertussis-containing vaccine.There are other adverse events that may occur following vaccination that constitute contraindications or precautions to future doses. Under normal circumstances, vaccines are deferred when a precaution is present. However, situations may arise when the benefit outweighs the risk (e.g., during a community pertussis outbreak).

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

An anaphylactic reaction to latex is a contraindication to vaccines that contain latex as a component or as part of the packaging (e.g., vial stoppers, prefilled syringe plungers or caps). If a person has anaphylaxis after eating gelatin, do not administer vaccines containing gelatin. For patients with known Alpha-gal syndrome (red meat allergy), caution should be exercised with gelatin-containing vaccines (i.e. MMR, VAR, YF-Vax), as some of these patients have demonstrated anaphylaxis with these vaccines. A local reaction to a prior vaccine dose or vaccine component, including latex, is not a contraindication to a subsequent dose or vaccine containing that component.[2,3] People with egg allergy of any severity can receive any recommended influenza vaccine (i.e., any IIV or RIV) that is otherwise appropriate for the patient's age. For people with a history of severe allergic reaction to egg involving any symptom other than hives (e.g., angioedema, respiratory distress), or who required epinephrine or another emergency medical intervention, the vaccine should be administered in a medical setting, such as a clinic, health department, or physician's office. Vaccine administration should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions.[4]

4. Have you had a seizure, or had brain or other nervous system problems? *[IIV, LAIV, Td, Tdap]*

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

5. Have you had a health problem involving heart, lung (e.g., asthma), kidney, or metabolic disease (e.g., diabetes), anemia, or other blood disorder? *[MMR, LAIV, SPV]*

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

6. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem? *[Adenovirus, Cholera, LAIV, MMR, SPV, Ty21a, VAR, YF-Vax, ZVL]*

Live virus vaccines are usually contraindicated in immunocompromised patients; however, there are exceptions. MMR is recommended and varicella should be considered for adults with CD4+ T-lymphocyte counts of greater than or equal to 200cell/µL. Immunosuppressed patients should not receive LAIV. For details, consult current ACIP recommendations.[1,5,7,8]

7. **In the past 3 months, have you taken medications that weaken your immune system, such as prednisone or other steroids; anticancer drugs; biologic drugs for autoimmune diseases such as rheumatoid arthritis, Crohn's disease, or psoriasis; or had radiation treatments?** *[Adenovirus, Cholera, MMR, SPV, Ty21a, VAR, YF-Vax, ZVL]*

Live virus vaccines should be postponed until after chemotherapy or long-term,high-dose steroid therapy has ended. For details and length of time to postpone, consult the current ACIP statement.[1] Some immune mediator and immune modulator drugs (especially the antitumor necrosis factor agents adalimumab, infliximab, and etanercept) may be immunosuppressive.The use of live vaccines should be avoided in persons taking these drugs.[1] Specific vaccination schedules for stem cell transplant (bone marrow transplant) patients can be found on the NIH website.[6] LAIV, when recommended, can be given only to healthy, non-pregnant people ages 2 through 49 years.

8. In the past year, have you received a transfusion of blood or blood products, or been given immune (gamma) globulin or an antiviral drug?

[MMR, VAR]

Certain live virus vaccines may need to be deferred, depending on several variables. Consult the most current ACIP recommendations for information on intervals between receipt of antiviral drugs, immune globulin or blood products, and live virus vaccines.[1,7]

9. Have you had (or are you a candidate for) your spleen removed, or do you have sickle cell anemia? *[Hib, LAIV, PCV13, PPSV23, MCV4, MenB]*

Patients with anatomic or functional asplenia (i.e. sickle-cell disease) are at an increased risk of certain vaccine preventable diseases to include Haemophilus influenzae type b , meningococcal, and pneumococcal disease. LAIV is not recommended for people with anatomic or functional asplenia. Hib, PCV13, MCV4, and MenB vaccine should be given 14 days before splenectomy, if possible. Doses given during the 14 days prior to surgery can be counted as valid. Doses that cannot be given prior to surgery should be given as soon as the patient's condition has stabilized after surgery. For patients 2 years of age and up: the first dose of PPSV23 should be administered 8 weeks after the last dose of PCV13. A second dose of PPSV23 should be administered 5 years after the first dose. A third, final dose of PPSV23 should be administered after age 65 years, if both previous doses were before the age of 65.

10. Have you ever passed out (had vasovagal syncope) during or after a previous immunization or blood draw? *[all vaccines]*

Providers should be aware of the potential for syncope (fainting) associated with vaccination, particularly among adolescents. Appropriate measures should be taken to prevent syncope, and to readily respond to the patient who feels faint. Observe all patients for 15 minutes after vaccination for signs and symptoms that precede syncope, such as weakness, dizziness, sweatiness, and pallor. For patients prone to syncope, make sure they are either seated or lying down at the time of vaccination. (If the patient is seated during vaccination, the immunizer should be seated as well, to minimize the risk of SIRVA). If a patient becomes pre-syncopal, have them lie flat or sit with head between knees for several minutes; loosen any tight clothing and maintain an open airway; apply cool, damp cloths to the patient's face and neck. Observe the patient until symptoms completely resolve.

11. Have you received any vaccinations in the past 4 weeks? *[LAIV, MMR, SPV, VAR, YF-Vax, ZVL]*

Patients who were given either LAIV, SPV, or an injectable live virus vaccine should wait 28 days before receiving another live vaccine. Inactivated vaccines may be given at the same time or at any spacing interval.

12. Are you pregnant, or is there a chance you could become pregnant during the next month? *[Adenovirus, HPV, IPV, MMR, LAIV, VAR, SPV, Ty21a, possibly YF-Vax, ZVL]*

Live virus vaccines are contraindicated one month before and during pregnancy because of the theoretical risk of virus transmission to the fetus. Sexually active women who receive a live virus vaccine should be instructed to practice careful contraception for one month following receipt.[8,9] On theoretical grounds, HPV and IPV should not be given during pregnancy; however, IPV may be given if risk of exposure is imminent (e.g., travel to endemic areas). Inactivated influenza vaccine and Tdap are both recommended during pregnancy. Both vaccines may be given at any time during pregnancy, but the preferred time for Tdap administration is at 27-36 weeks gestation.[10]

1. ACIP General Best Practice Guidelines for Immunization: www.cdc.gov/vaccines/hcp/acip-recs/general-recs/ downloads/general-recs.pdf.
2. Latex in Vaccine Packaging: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/latextable.pdf.
3.Table of Vaccine Components: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.
4. Prevention and control of seasonal influenza with vaccines: Recommendations of the Advisory Committee on Immunization Practices. www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html.
5. Measles, mumps, and rubella-vaccine use and strategies for elimination of measles, rubella, and congenital rubella syndrome and control of mumps. MMWR 1998, 47(RR-8).
6. Prevention of varicella: Recommendations of the Advisory Committee on Immunization Practices. MMWR 2007, 56(RR-4).
7. Rubin L.G., Levin M.J., Ljungman P. (2014) IDSA Clinical practice guideline for vaccination of the immunocompromised host. *Clinical Infectious Diseases*, 58(3), 309–318
8. Tomblyn M, Einsele H, et al. 2009. Guidelines for preventing infectious complications among

perspective.
15:1143-1238.
9. Revised ACIP recommendation for avoiding pregnancy after receiving a rubella-containing vaccine. MMWR 2001; 50(49).
10. Updated recommendations for use of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap) in pregnant women: ACIP. MMWR 2012 62(07);131-135.

Vaccine Abbreviations:

-Hib: *Haemophilus influenza* type b
- HPV: human papillomavirus
- IIV: inactivated influenza
- IPV: inactivated poliovirus
- LAIV: live attenuated influenza
- MCV4: meningococcal conjugate, quadrivalent, serogroups A, C, W, Y
- MenB: meningococcal serogroup B
- MMR: measles, mumps, rubella
- PPSV23: pneumococcal polysaccharide (23-valent)
- RIV: recombinant influenza
- SIRVA: shoulder injury related to vaccine administration
- SPV: vaccinia (smallpox)
- Td: tetanus/diphtheria toxoids
- Tdap: tetanus toxoid, reduced diphtheria toxoid, acellular pertussis
- Ty21a: oral typhoid
- VAR: varicella
- YF-Vax: yellow fever
- ZVL: zoster vaccine live

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
6 in 1	Diphtheria, tetanus, pertussis, polio, Hib, hepatitis B	GSK, Ireland
ADC-M (АДС-М)	Td	Russia
A.D.T.	Diphtheria, tetanus (adsorbed)	Commonwealth, Australia
A.K.D.S.	Diphtheria, tetanus, pertussis	UK
ACVax	Meningococcal (polysaccharide A & C)	GSK, UK
ACWYVax	Meningococcal (polysaccharide A, C, Y, W135)	GSK, UK
Acelluvax	Pertussis (acellular)	Chiron, Italy
ACTAcel	Diphtheria, tetanus, pertussis, Hib	Sanofi Pasteur, Argentina
Adifteper	Diphtheria, tetanus, pertussis	Ism, Italy
Adinvira A+B	Influenza (whole virus)	Imuna
Adiugrip	Influenza	Sanofi Pasteur
Admun	Influenza (whole virus)	Duncan
Admune GP	Influenza (whole virus)	Duncan
Agrippal	Influenza	Novartis
AH	HepatitisB	(Romania)
Aimmugen	Hepatitis A (inactivated)	Chemo-Sero-Therapeutic Resh Inst. Japan
Aldiana	Diphtheria (adsorbed)	Sevac, Czech Republic
Alditeana	Diphtheria, tetanus (adsorbed)	Sevac, Czech Republic
Alditerpera	Diphtheria, tetanus (adsorbed), pertussis	Sevac, Czech Republic
Almevax	Rubella	Evans
Alorbat	Influenza (whole virus)	Asta Pharma
Alteana Sevac	Tetanus	Institute of Sera and Vaccines
AM-BC	Meningococcal B & C	Cuba
Amaril	Yellow Fever	Sanofi Pasteur, France
AmBirix	Hepatitis A, Hepatitis B	GSK, Europe

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
AMC	Hib (polysaccharide)	Cuba
Anadifterall	Diphtheria (adsorbed)	Chiron, Italy
Anatetall	Tetanus (adsorbed)	Chiron, Italy
Anatoxal Di Te	Diphtheria, tetanus	Berna Biotech, Europe
Anatoxal Di Te per	Diphtheria, tetanus, pertussis	Berna Biotech, Europe
AP	Polio	(Romania)
AS	Measles	Cuba
Arilvax	Yellow fever	MEDI, UK
ATPA	Tetanus toxoid	(Romania)
AVAC-1, AVA	Anthrax	(for U.S. military use)
AVAXIM	Hepatitis A	Aventis Pasteur, France
B-Hepavac II	Hepatitis B	Merck, Singapore
Begrivac	Influenza (split virus)	Novartis
Betagen	Hepatitis B	Sanofi Pasteur
Biaflu Zonale	Influenza (whole virus)	Farmabiagini, Italy
Biken-HB	Hepatitis B	Biken, Japan
Bilive	Hepatitis A/Hepatitis B (recombinant)	Sinovac, China
Bimmugen	Hepatitis B (recombinant, adsorbed, yeast derived)	Chemo-Sero-Therapeutic Resh Inst., Japan
Biviraten Berna	Measles, mumps (live)	Berna Biotech, Switzerland
Buccopol Berna	Polio (oral)	Berna Biotech, Europe
BVAC	Botulinum antitoxin	(for U.S. military use)
B-Vaxin	HepatitisB	Laboratorios Pablo Cassara, Argentina
C.D.T.	Diphtheria, tetanus (pediatric, adsorbed)	Commonwealth, Australia
CEF	Measles (Schwarz strain)	Chiron, Italy
Cacar	Smallpox	Indonesia
Campak Kerig	Measles	Pasteur Institute, Indonesia

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Celluvax	Pertussis (acellular)	Chiron, Italy
Chiromas	Influenza (same as Fluad)	Novartis, Spain
Cinquerix	Diphtheria, tetanus, pertussis, Hib, polio	GSK, Europe
Cocquelucheau	Pertussis (adsorbed)	Sanoti Pasteur, France
Cuadruple	Diphtheria, tetanus, pertussis, Hib	Mexico
D-Immun	Diphtheria	Osterreichisches Institut, Austria
D.S.D.P.T.	Diphtheria, tetanus, pertussis (adsorbed)	Dong Shin Pharm, Korea
D.T. Bis Rudivax	Diphtheria, tetanus, rubella	Sanofi Pasteur, France
Di Anatoxal	Diphtheria	Berna Biotech, Europe
Di Te Per Pol Impfstoff	Diphtheria, tetanus, pertussis, polio	Berna Biotech, Switzerland
Di-Te-Pol SSI	Diphtheria, tetanus, polio	Statens Seruminstitut, Denmark
Dif-Tet-All	Diphtheria, tetanus	Chiron, Italy
Diftavax	Diphtheria, tetanus	Sanofi Pasteur
Ditanrix	Diphtheria, tetanus	GSK, Europe
DiTe Anatoxal	Diphtheria, tetanus (adsorbed)	Berna Biotech, Switzerland
Ditoxim	Diphtheria, tetanus (adsorbed)	Dong Shin Pharm, Korea
Double Anigen B.I.	Diphtheria, tetanus	Bengal Immunity Co., India
DT Adulte	Diphtheria, tetanus (adult)	Sanofi Pasteur, France
DT Bis	Diphtheria, tetanus (booster)	Sanofi Pasteur, France
DT Coq	Diphtheria, tetanus, pertussis	Sanofi Pasteur, France
DT Polio	Diphtheria, tetanus, polio	Sanofi Pasteur, France
DT TAB	Diphtheria, tetanus *Salmonella typhi, Paratyphi* A & B	Sanofi Pasteur, France
DT Vax	Diphtheria, tetanus (pediatric)	Sanofi Pasteur, France
DT Wellcovax	Diphtheria, tetanus (pediatric)	Chiron, UK
Dual Antigen Sii	Diphtheria, tetanus (adsorbed)	Serum Institute of India (Sii)

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Dupla	Diphtheria, tetanus	Instituto Butantan, Brazil
Duplex	Diphtheria, tetanus	Sweden
Easyfive	DTwP-Hib-HepB	India
Ecolarix	Measles, rubella (Schwarz & RA 27/3)	GSK, Europe
Elvarix	Influenza (split virus)	VEB, Sachsesches Serumwerk Dresden
EMAV	Meningococcal serogroupA	China
Encepur	Tick-borne encephalitis	Chiron, Europe
Enivac-HB	Hepatitis B (recombinant DNA)	Centro de Ingenieria Genetica Y Biotecnologia, Cuba
Enterovaccino	Typhoid (IM)	Isi
Enzira	Influenza	CSL
Eolarix	Measles, rubella (Schwartz & RA 27/3)	GSK, Europe
Epaxal Berna	Hepatitis A – virosomal vaccine	Berna Biotech, Switzerland
Ervax	Rubella (live)	GSK, Mexico
Ervevax RA 27/3	Rubella (live)	GSK, Belgium
Esavalenti	(Hexavalent) Diphtheria, tetanus, pertussis, polio, Hib, hepatitis B	Italy
Euvax-B	Hepatitis B (recombinant DNA)	LG Chemical, South Korea
Fendrix	Hepatitis B (dialysis formulation)	GSK, Europe
Fluad	Influenza (adults >65)	Novartis, Europe, Asia, NZ
Flubron	Influenza (whole virus)	Pfizer
Flugen	Influenza	UK
Fluvax	Influenza	CSL, Australia
Fluvirine	Influenza	CellTech Pharma SA
FOH-M	Polio (inactivated)	Russia
FrocuoOke	Polio (inactivated)	Russia

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
FSME-IMMUNE	Tick-borne encephalitis	Baxter, Austria
FSPD	Measles	Russia
Funed-CEME	Diphtheria, tetanus, pertussis	Belo Horizonte, Brazil
Gen H-B-Vax	Hepatitis B	Merck-Behringwerke
GenHevac B Pasteur	Hepatitis B	Sanofi Pasteur
Gene Vac-B	Hepatitis B	Serum Institute of India (Sii)
Gripax	Influenza (whole virus)	Hebrew University
Gripe	Influenza (whole virus)	Spain
Gripguard	Influenza (same as Fluad)	Novartis, France
Gripovax	Influenza (whole virus)	GSK
Gunevax	Rubella	Chiron, Italy
H-Adiftal	Diphtheria	Ism, Italy
H-Adiftetal	Diphtheria, tetanus	Ism, Italy
H-Atetal	Tetanus	Ism, Italy
HarPaBreHnr B CtauOHAP	Rubella	Russia
HAVPur	Hepatitis A	Chiron, Germany
HB Vax Pro	Hepatitis B	SP
HBY	Hepatitis B (recombinant)	KGC, Japan
HDCV	Human Diploid Cell Rabies Vaccine	
Heberbiovac HB	Hepatitis B	Heberbiotec, Cuba
Hepabest	Hepatitis A	Sanofi Pasteur, Mexico
Hepacare	Hepatitis B (recombinant)	Chiron, Europe
Hepaccine-B	Hepatitis B (plasma derived)	Chiel Jedang, South Korea
Hepagene	Hepatitis B	Chiron, Europe
Hepativax	Hepatitis B	Sanofi Pasteur, Mexico
Hepatyrix	Hepatitis A, typhoid	GSK
Hepavax-B	Hepatitis B (plasma derived)	Korea Green Cross, South Korea

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Hepavax-Gene	Hepatitis B (recombinant DNA)	Korea Green Cross, South Korea
Hepcare	Hepatitis B	Chiron, Europe
Heprecomb	Hepatitis B (yeast derived)	Berna Biotech, Switzerland
Hevac B	Hepatitis B (plasma derived)	Sanofi Pasteur, France
Hexamune	Diphtheria, Tetanus, (acellular) Pertussis, Hib, hepatitis B, polio	Aventis, Latin America
Hexavac (Hexavax)	Diphtheria, tetanus, pertussis, polio, hepatitis B, Hib	Sanofi Pasteur, Europe or Mexico
Hiberix	Hib conjugate	GSK
HIBest	Hib	Sanofi Pasteur
Hinkuys karokoe	Pertussis (adsorbed)	Natl. Public Health Institute, Finland
HIS	Influenza	Serbian Institute, Yugoslavia
IBV	Polio (inactivated)	Statens Seruminstitut, Denmark
Immravax	Measles, mumps, rubella	Sanofi Pasteur, Europe
Immugrip	Influenza	Pierre Fabre Médicament
Immunil	Pneumococcal (polysaccharide)	Batavia Biosciences
Imovax Parotiditis	Mumps	Sanofi Pasteur, Europe
Imovax Polio	Polio	Sanofi Pasteur, Europe
Imovax Sarampion	Measles	Sanofi Pasteur, Europe
Imovas D.T.	Diphtheria, tetanus (adult)	Sanofi Pasteur, Europe
Imovas Gripe	Influenza	Sanofi Pasteur, Europe
Imovax D.P.T.	Diphtheria, tetanus, pertussis	Sanofi Pasteur Mexico
Imovax R.O.R.	Measles, rubella, mumps (live)	Sanofi Pasteur, Europe
Imovax Rubeola	Measles	Sanofi Pasteur, Europe
Imovax Mumps	Mumps	Sanofi Pasteur, Europe
Imovax Oreillons	Mumps	Sanofi Pasteur, Europe
Imovax Rage	Rabies	Sanofi Pasteur, Europe

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Imovax Tetano	Tetanus	Sanofi Pasteur, Europe
Infanrix Hexa	Diphtheria, tetanus, pertussis, polio, Hib, hepatitis B	GSK, France
Infanrix Penta	Diphtheria, tetanus, pertussis, hepatitis B, polio	GSK, Europe
Infanrix Quinta	Diphtheria, tetanus, pertussis, polio, Hib	GSK, Europe
Infanrix Tetra	Diphtheria, tetanus, pertussis, polio	GSK, Europe
Inflexal	Influenza	Swiss Serum and Vaccine Institute
Influmix	Influenza (whole virus)	Schiapparelli
Influpozzi Zonale	Influenza (whole virus)	Ivp
Influsplit SSW	Influenza (split virus)	VEB Sachsecsches Serumwerk Dresden
Influvac	Influenza	Solvay-Pharma
Influvirus	Influenza	Ism, Italy
Invirin	Influenza (whole virus)	GSK
Ipad TP	Tetanus, polio	Sanofi Pasteur, France
IPV-Virelon	Polio (inactivated)	Chiron, Europe
Isiflu Zonale	Influenza (whole virus)	Isi, Italy
Istivac	Influenza	Sanofi Pasteur, Europe
Kaksoisrokote Dubbelvaccin	Diphtheria, tetanus (pediatric)	Natl. Public Health Institute, Finland
Kikhoste-Vaksine	Pertussis	Statens Institutt for Folkehelse, Norway
Koplivac	Measles (Edmonston strain)	Philips-Duphar, Australia
Kotipa	Cholera, typhoid, paratyphoid	Perum Bio Farma, Indonesia
Krztuscowi	Pertussis	Poland
Ksztu	Pertussis	Poland
Lancy Vaxina	Smallpox	Swiss Serum and Vaccine Institute, Switzerland
Lavantuu Tirokote	Typhoid	Central Pub Health La, Finland

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Liomorbillo	Measles	
Liovaxs	Smallpox	Chiron, Italy
Lirugen	Measles	Sanofi Pasteur
LM – 3 RIT	Measles, mumps, rubella (live)	Dong Shin Pharm, Korea
LM – 2 RIT	Measles, mumps (live)	Dong Shin Pharm, Korea
Lteanas Imuna	Tetanus (adsorbed)	Imuna sp., Slovakia
Lyssavac N	Rabies	Berna Biotech, Europe
M-M-Rvax	Measles, mumps, rubella	Chiron, Europe
M-M-Vax	Measles, mumps	Merck, Europe
M-Vac	Measles (live)	Serum Institute of India (Sii)
Massern-Impfstoff SSW	Measles (live)	Chiron, Germany
Massling	Measles	Sweden
MDPH-PA	Anthrax	
Measavac	Measles (Edmonston strain)	Pfizer, UK
MenAfriVac	Meningococcal A Conjugate	Africa
Mencevax A	Meningococcal Group A (polysaccharide)	SmithKline/RIT, Belgium
Mencevax ACWY	Meningococcal quadravalent	GSK
Mengivax A/C	Meningococcal Groups A & C (conjugate)	Sanofi Pasteur, Europe
Meningitec	Meningococcal Group C (conjugate)	Wyeth, UK, Australia
Meningtec	Meningococcal Group C (conjugate)	Wyeth, Canada
Meninvact	Meningococcal Group C (conjugate)	Sanofi Pasteur
Menjugate	Meningococcal Group C (conjugate)	Novartis
Menpovax 4	Meningococcal Groups A, C, Y & W135 (polysaccharide)	Chiron, Europe
Menpovax A+C	Meningococcal Groups A & C	Chiron, Italy

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
MeNZB	Meningococcal GroupB	Novartus, New Zealand
Mesavac	Measles (Edmonston strain)	Pfizer, UK
Mevilin-L	Measles (Schwarz strain)	Chiron, UK
MFV	Influenza (whole virus)	Servier, UK
MFV-Ject	Influenza (whole virus)	Sanofi Pasteur, Europe
Miniflu	Influenza	Schiapparelli, Italy
Mo-Ru Viraten	Measles, rubella	Berna Biotech, Canada
Moniarix	Pneumococcal 17-valent (polysaccharide)	GSK, Europe
Monovax / Monovac	BCG	Sanofi Pasteur, France
Mopavac	Measles, mumps (live)	Sevac, Czech Republic
Morbilvax	Measles (live)	Chiron, Italy
Morubel	Measles, rubella (live)	Chiron, Italy
Moruman Berna	Measles immunoglobulin	Berna, Switzerland
Morupar	Measles, mumps, rubella (live)	Chiron, Italy
Movivac	Measles (live)	Sevac, Czech Republic
Mumaten	Mumps (live)	Berna Biotech, Switzerland
Munevan	Influenza (whole virus)	Medeva
Mutagrip	Influenza	Sanofi Pasteur, Germany
Nasoflu	Influenza	GSK, Europe
Neis Vac-C	Meningococcal Group C (conjugate)	Baxter, Europe & Canada
Neumo Imovax	Pneumococcal 23-valent (polysaccharide)	Sanofi Pasteur, Mexico
Neotyf	Typhoid (live, oral)	Chiron, Italy
Nilgrip	Influenza	CSL
Nivgrip	Influenza (whole virus)	Nicolau Institute of Virology, Romania
NorHOMHerHTA	Polio (inactivated)	Russia
Nothav	Hepatitis A	Chiron, Italy

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Okavax	Varicella (live)	Biken / Sanofi Pasteur, Japan & Europe
Optaflu	Influenza (cell culture-based)	Novartis, Europe, Iceland, Norway
Oral Virelon	Polio (oral)	Chiron, Germany
Pariorix	Mumps (live)	GSK, Mexico & Europe
Pavivac	Mumps (live)	Sevac, Czech Republic
Pediacel	Diphtheria, tetanus, acellular pertussis, Hib, polio	Europe
Penta	Diphtheria, tetanus, acellular pertussis, Hib, polio	Sanofi Pasteur, Europe
PENT-HIBest	Diphtheria, tetanus, pertussis, polio, Hib	Sanofi Pasteur
Pentacel	Diphtheria, tetanus, pertussis, polio, Hib	Sanofi Pasteur, Canada
Pentacoq	Diphtheria, tetanus, pertussis, polio, Hib	Sanofi Pasteur
PentAct-HIB	Diphtheria, tetanus, pertussis, polio, Hib	Sanofi Pasteur, Europe
Pentavac	Diphtheria, tetanus, pertussis, polio, Hib	Sanofi Pasteur
Pentavalente	Diphtheria, tetanus, pertussis, hepatitis B, Hib	Mexico (Prior to July 2007)
Pentavalente Acelular	Diphtheria, tetanus, pertussis, polio, Hib	Mexico (August 2007 to present)
Pentavalenti	Diphtheria, tetanus, pertussis, polio, Hib OR Diphtheria, tetanus, pertussis, polio, hepatitis B	Italy
Pentaxim	Diphtheria, tetanus, pertussis, polio, Hib	Aventis Pasteur, France
Pluserix	Measles, rubella	GSK, Mexico & Europe
Pneumopur	Pneumococcal 23-valent (polysaccharide)	Chiron, Europe
POLIAcel	Diphtheria, tetanus, pertussis, polio, Hib	Sanofi Pasteur, Argentina

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Poliomyelite	Polio (inactivated)	France
Polioral	Polio (live, oral, trivalent)	Novartis
Polio Sabin	Polio (oral)	GSK, Europe
Poloral	Polio (oral)	Swiss Serum and Vaccine Institute
Prevenar	Pneumococcal 7-valent (conjugate)	Wyeth, France
Previgrip	Influenza	Chiron, France
Primavax	Diphtheria, tetanus, hepatitis B	Sanofi Pasteur, Europe
Priorix	Measles, mumps, rubella (live)	GSK, Europe & Australia
Priorix-Tetra	Measles, mumps, rubella, varicella (live)	GSK, Europe
Probivac-B	Hepatitis B	Probiomed, Mexico
Procomvax	Hib, hepatitis B	Sanofi Pasteur, Europe
PRS	MMR	Cuba
PRV	Pentavalent Rotavirus Vaccine	Palau
Pulmovax	Pneumococcal 23-valent (polysaccharide)	Merck
Q-Vac	Diphtheria, tetanus, pertussis, hepatitis B	Serum Institute of India (Sii)
Quadracel	Diphtheria, tetanus, acellular pertussis, polio	Sanofi Pasteur, Mexico
QUADRAcel/Hibest	Diphtheria, tetanus, acellular pertussis, polio, Hib	Sanofi Pasteur, Argentina
Quadravax	Diphtheria, tetanus, pertussis, polio	GSK
Quadruple	Diphtheria, tetanus, pertussis, Hib	Mexico
Quatro-Virelon	Diphtheria, tetanus, pertussis, polio	Chiron, Europe
Quinivax-IN	Diphtheria, tetanus, pertussis, polio, Hib	Valda Laboratori, Europe
Quintuple	Diphtheria, tetanus, pertussis, polio, Hib	GSK, Mexico

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Quinvaxem	Diphtheria, tetanus, pertussis, Hib, Hepatitis B	Novartis/Crucell
R-HB Vaccine	Hepatitis B (recombinant)	Mitsubishi Chem Corp, Japan
R-Vac	Rubella (live)	Serum Institute of India (Sii)
Rabdomune	Rabies	Impdfstofwerke, Germany
Rabipur	Rabies	Chiron, Germany
Rabivac	Rabies	Chiron, Germany
Rasilvax	Rabies	Chiron, Italy
RDCV	“Rabies Diploid Cell Vaccine”	
Refortrix	Diphtheria, tetanus (adult)	GSK
Repevax	Diphtheria, tetanus, pertussis, polio	Sanofi Pasteur
Revaxis	Tetanus, diphtheria, polio (adult)	Sanofi Pasteur (Europe)
Rimevax	Measles (live, Schwarz strain)	GSK, Mexico & Europe
Rimparix	Measles, mumps (live)	GSK, Europe
RIT-LM-2	Measles, mumps (live)	Dong Shin Pharm, Korea
RIT-LM-3	Measles, mumps, rubella (live)	Dong Shin Pharm, Korea
Rorvax	Measles, mumps, rubella (live)	Sanofi Pasteur, Europe & Brazil
Rosovax	Rubella	Ism, Italy
Rouvax	Measles (live)	Sanofi Pasteur, Europe
Rubavax	Rubella (live)	Sanofi Pasteur, UK
Rubeaten	Rubella (live)	Berna Biotech, Europe
Rubellovac	Rubella (live)	Chiron, Germany
Rubilin	Rubella (live)	Chiron, UK
Rudi-Rouvax	Measles, rubella (live)	Sanofi Pasteur, France
Rudivax	Rubella (live)	Sanofi Pasteur, France
Sahia	Polio (live oral)	Multiple manufacturers
Sampar	Plague	Sanofi Pasteur, Indonesia

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Sandovac	Influenza	Sandoz, Austria
Serap	Diphtheria, tetanus, pertussis	Perum Bio Farma, Indonesia
Shanvac-B	Hepatitis B	Shantha, India
SMBV	Rabies	Sanofi Pasteur, Europe
Sii Rabivax	Rabies	Serum Institute of India (Sii)
Sii Triple Antigen	Diphtheria, tetanus, pertussis	Serum Institute of India (Sii)
Stamaril	Yellow fever (live)	Sanofi Pasteur, Europe
Streptopur	Pneumococcal 23-valent (polysaccharide)	Chiron, Europe
Subinvira	Influenza (split virus)	Imuna, Czech Republic
Synflorix	Pneumococcal (10-valent, conjugate)	GSK, Europe, Australia
T. Polio	Tetanus, polio	SP (Canada)
T.A.B.	Typhoid, paratyphoid (A & B)	-Institute Pasteur, Tunisia -Egypt -Pharmaceutical Industries Corp., Burma
T-Immun	Tetanus (adsorbed)	Baxter, Germany
T-Vaccinol	Tetanus	Roehm Pharma, Germany
T-Wellcovax	Tetanus	Wellcopharm, Germany
Tanrix	Tetanus	GSK, Europe
Td-Pur	Tetanus, diphtheria (adult)	Chiron, Europe
Td-Virelon	Tetanus, diphtheria, polio	Chiron, Europe
Te Anatoxal	Tetanus	Berna Biotech, Switzerland
Telvaclptap	Tetanus	Yugoslavia
Tet-Aktiv	Tetanus	Tropon-Cutter, Germany
Tet-Tox	Tetanus	CSL Limited, Australia
Tetagrip	Tetanus, influenza	SP, France
Tetamun SSW	Tetanus (fluid, nonadsorbed)	Veb Sachsisches Serumwerk, Germany
Tetamyn	Tetanus	Bioclon, Mexico
Tetano-difter	Tetanus, diphtheria	Celltech Pharma

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Tetanol	Tetanus (adsorbed)	Chiron, Sanofi Pasteur, Europe & Mexico
Tetanovac	Tetanus	Sanofi Pasteur, Mexico
Tetasorbat SSW	Tetanus (adsorbed)	Veb Sachsisches Serumwerk, Germany
Tetatox	Tetanus (adsorbed)	Berna Biotech, Italy
Tetavax	Tetanus (adsorbed)	Sanofi Pasteur, Europe
Tetracoq 05	Diphtheria, tetanus, pertussis, polio	Sanofi Pasteur, France
TetrAct-HIB	Diphtheria, tetanus, pertussis, Hib	Sanofi Pasteur, Europe
Tetravac Acellulaire	Diphtheria, tetanus, acellular pertussis, polio	Sanofi Pasteur, Europe
Tetravalenti	Diphtheria, tetanus, pertussis, hepatitis B	Italy
Tetraxim	Tetanus, diphtheria, pertussis, polio	Sanofi Pasteur, Europe
Theracys	BCG	Aventis Pasteur, Canada
Ticovac	Tick-borne encephalitis	Baxter SA
Tifovax	Typhoid (Vi polysaccharide)	Sanofi Pasteur, Mexico
Titifica	Typhoid and paratyphoid	Italy
TOPV	Polio (oral, trivalent)	Multiple manufacturers
Trenin DPT Behring	Diphtheria, tetanus, pertussis	Chiron Behring GmbH, Germany
Tresivac	Measles, mumps, rubella (live)	Serum Institute of India (Sii)
Triacel	Diphtheria, tetanus, acellular pertussis	Sanofi Pasteur, Europe & Mexico
Triacelluvax	Diphtheria, tetanus, acellular pertussis	Chiron, Europe
Trimovax	Measles, mumps, rubella (live)	Sanofi Pasteur
Tripacel	Diphtheria, tetanus, acellular pertussis	Sanofi Pasteur, Europe
Triple antigen	Diphtheria, tetanus, pertussis	-Chowgule & Co., India -CSL Limited, Australia

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Triple Sabin	Polio (live, oral)	Mexico
Triple	Diphtheria, tetanus, pertussis	Cuba, Mexico
Triple viral	Measles, mumps, rubella	-Mexico -Immunology Institute, Croatia
Triple Virica	Measles, mumps, rubella	Dominican Republic
Triplice (VT)	Diphtheria, tetanus, pertussis	Instituto Butantan, Brazil
Triplice Viral (VTV)	Measles, mumps, rubella	Instituto Butantan, Brazil
Triplovax	Measles, mumps, rubella	Sanofi Pasteur, Europe & Brazil
Tritanrix	Diphtheria, tetanus, whole-cell pertussis	GSK
Tritanrix-HB	Diphtheria, tetanus, whole-cell pertussis, hepatitis B	GSK, Mexico
Tritanrix-HB-Hib	Diphtheria, tetanus, whole-cell pertussis, hepatitis B, Hib	GSK
Trivacuna Leti	Diphtheria, tetanus (adsorbed), pertussis	Laboratory Leti, Spain
Trivax	Diphtheria, tetanus (plain), pertussis	Chiron, UK
Trivax-AD	Diphtheria, tetanus (adsorbed), pertussis	Chiron, UK
Trivax-Hib	Diphtheria, tetanus, pertussis, Hib	GSK, Europe
Trivb	Diphtheria, tetanus, pertussis	Brazil
Triviraten	Measles, mumps, rubella (live)	Berna Biotech, Switzerland
Trivivac	Measles, mumps, rubella (live)	Sevac, Czech Republic
Trivivax	Measles, mumps, rubella	Sanofi Pasteur, Mexico
Tussitrupin Forte	Pertussis	Staatliches Institut, Germany
Tuvax	BCG	Japan BCG Laboratory, Japan
Tyne	BCG	Sweden
Typherix	Typhoid (Vi polysaccharide)	GSK, Europe & Australia
Typhopara-typhoidique	Typhoid and paratyphoid	France

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Typhoral-L	Typhoid (Ty21a oral)	Berna Biotech, Germany
Typh-Vax	Typhoid	CSL Limited, Australia
VAA	Yellow fever (vaccine anti-amaril)	Democratic Republic of Congo
Va-Diftet	Diphtheria, tetanus	Finlay Vacunas y Sueros, Cuba
Va-Mengoc-BC	Meningococcal Groups B & C	Finlay Vacunas y Sueros, Cuba
Vac-DPT	Diphtheria, tetanus, pertussis	Bioclon, Mexico
Vaccin Difteric Adsorbit	Diphtheria (adsorbed)	Cantacuzino Institute, Romania
Vaccin Rabique Pasteur	Rabies	PasteurVaccins
Vaccin Combinat Diftero-Tetanic	Diphtheria, tetanus (adsorbed)	Cantacuzino Institute, Romania
Vaccin tuberculeux attenue lyophilize	BCG	Sanofi Pasteur, France
Vaccinum Morbillorum Vivum	Measles (live)	Moscow Research Institute, Russia
Vacina Dupla	Diphtheria, tetanus	Instituto Butantan, Brazil
Vacina Triplice	Diphtheria, tetanus, pertussis	Instituto Butantan, Brazil
Vacina Triplice Viral	Measles, mumps, rubella	Brazil
Vacuna Doble	Tetanus, diphtheria	Instituto Biologico Argentino
Vacunol	Tetanus	Temis-Lostato, Brazil
Vaksin Sampar	Plague	Perum Bio Farma, Indonesia
Vaksin Cacar	Smallpox	Indonesia
Vaksin Serap	Diphtheria, tetanus, pertussis	Perum Bio Farma, Indonesia
Vaksin Campak Kerig	Measles (live)	Perum Bio Farma, Indonesia
Vaksin Kotipa	Cholera, typhoid, paratyphoid A, B & C	Perum Bio Farma, Indonesia
Vamoavax	Measles, mumps (live)	Institute of Immunology, Croatia
Varicella-RIT	Varicella	GSK, Europe

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
Varicellon	Zaricella zoster immunoglobulin	Behringwerke Aktiengesellischaft, Germany
Varie	Smallpox (lyophilized)	Institute of sera and Vaccine, Czech Republic
Varilrix	Varicella (live, Oka strain)	GSK, Australia, New Zealand
Varirix	Varicella (live, Oka strain)	GSK, Europe & Mexico
VAT	Tetanus (vaccin anatoxine tetanique)	Francophone Africa
Vax-Tet	Tetanus	Finlay Vacunas & Sueros, Cuba
Vaxem-Hib	Hib (polysaccharide)	Chiron, Europe
Vaxicoq	Pertussis (adsorbed)	Sanofi Pasteur, France
Vaxigrip	Influenza	Sanofi Pasteur, Europe & Australia
Vaxihaler-Flu	Influenza (inhaler)	Riker, UK
Vaxipar	Mumps (live)	Chiron, Italy
VCDT	Diphtheria, tetanus (pediatric)	Cantacuzino Institute, Romania
VDA Vaccin Difteric Adsorbit	Diphtheria	Cantacuzino Institute, Romania
Verorab	Rabies (purified vero cell)	Sanofi Pasteur, France
ViATIM	Hepatitis A, typhoid	Sanofi Pasteur, UK
Vibriomune	Cholera	Duncan Flockhart, UK
Viralinte	Hepatitis B	Ivax Pharmaceuticals, Mexico
Virelon C	Polio (inactivated)	Chiron, Germany
Virelon T 20	Polio (live, oral trivalent)	Chiron, Germany
Virivac	Measles, mumps, rubella (live)	Merck, Finland
Virovac Massling, Perotid, Rubella	Measles, mumps, rubella	Sweden
Vopix	Polio (oral)	PT Biofarma, Indonesia
VPH	Human Papillomavirus	Spanish
V T (Vacine Triplice)	Diphtheria, tetanus, pertussis	Instituto Butantan, Brazil

Continued on Next Page

Worldwide Names of Immunizations

Table 2. (Adopted from CDC foreign products table)(continued)

Trade Name/Abbreviation	Component(s)	Manufacturer, Country
V T V (Vacina Triplice Viral)	Measles, mumps, rubella	Brazil
V V R	Measles (live)	Cantucuzino Institute, Romania
Welltrivax Trivalente	Diphtheria, tetanus, pertussis	Spain
X-Flu	Influenza	CSL
Zaantide	Diphtheria antitoxin	Imunoloski Zavod, Croatia
Zaantite	Tetanus antitoxin	Imunoloski Zavod, Croatia
Zaditeadvax	Diphtheria, tetanus	Imunoloski Zavod, Croatia
Zaditevax	Diphtheria, tetanus	Imunoloski Zavod, Croatia
Zamevax A+C	Meningococcal Groups A & C (polysaccharide)	Imunoloski Zavod, Croatia
Zamovax	Measles (live)	Imunoloski Zavod, Croatia
Zamruvax	Measles, rubella (live)	Imunoloski Zavod, Croatia
Zapavax	Mumps	Imunoloski Zavod, Croatia
Zaruvax	Rubella (live)	Imunoloski Zavod, Croatia
Zatetravax	Diphtheria, tetanus, pertussis, parapertussis	Imunoloski Zavod, Croatia
Zatevax	Tetanus	Imunoloski Zavod, Croatia
Zatribavax	Diphtheria, tetanus, pertussis	Imunoloski Zavod, Croatia
Zatrivax	Measles, mumps, rubella (live)	Imunoloski Zavod, Croatia

This table have been adapted from (among other sources)
lists developed by
the Minnesota Department of Health Immunization Program
(now maintained by the Immunization Action Coalition)
and
Washington State Department of Health.
See also:
http://www.immunize.org/izpractices/p5121.pdf

Source: https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/b/foreign-products-tables.pdf

ANAPHYLAXIS: Signs and Symptoms

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

Generalized hives	Shortness of breath
Angioedema	Wheezing
Pruritus	Dizziness
Hoarseness	Stridor
Tachycardia	Syncope
Abdominal cramps	Sense of impending doom
Chest tightness or cough	Shock

ANAPHYLAXIS: DIFFERENTIAL DIAGNOSIS

Anaphylaxis: A generalized allergic reaction affecting more than one organ system (e.g., skin [beyond local], respiratory, gastrointestinal, cardiovascular).

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, sweating
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

Anaphylaxis may develop gradually over minutes or hours after exposure to a trigger. The first signs most commonly (around 80% of the time) involve the skin and may be a sensation of warmth or flushing, generalized pruritus (itching), urticaria (hives), with or without angioedema (deep tissue swelling often of the face). Additional symptoms may include nasal congestion and/or rhinorrhea (runny nose), conjunctival injection (red, prominent blood vessels in the whites of the eyes), and tearing. Voice change and/or stridor may indicate pharyngeal edema. Abdominal cramping may occur, and women may describe it as cramping associated with menstrual cycle. Shortness of breath, inability to speak, in full sentences, and wheezing may rapidly progress to respiratory or cardiovascular collapse.

There is no absolute contraindication for epinephrine use in anaphylaxis. Delay of epinephrine is the most common reason for poor outcome.

It is important to recognize that the initial presentation of anaphylaxis may be respiratory or cardiovascular collapse without any other symptoms. It is also important to be aware that symptoms may recur after proper anaphylaxis treatment. Therefore, patients should remain under 1:1 observation for at least 1 hour after the last dose of epinephrine and/or be transferred to a higher echelon of care for continued management.

Immediate intervention following diagnosis of anaphylaxis

Rapidly assess airway, breathing, circulation, and mental status

- Avoid patient movement, if possible. Walking may worsen reaction due to compromised circulation
- 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 (1:1000) 0.3 to 0.5 mg IM. The adult epinephrine IM auto-injector will deliver 0.3 mg of epinephrine and can go through clothing. Inject into the vastus lateralis (anterolateral thigh). Hold auto-injector in place for 10 seconds after injection.
- For children: Administer epinephrine (1:1000) 0.01 mg/kg body weight IM to a maximum of 0.3 mg OR use epinephrine auto-injector 0.15 mg for children weighing less than 66 pounds or epinephrine auto-injector adult dose 0.3 mg for children over 66 pounds. Auto-injectors can go through clothing. Inject into vastus lateralis (anterolateral thigh). Hold auto-injector in place for 10 seconds after injection.
- If symptoms and signs indicate progressive anaphylaxis, a healthcare provider may repeat doses of epinephrine. Under these circumstances, close cardiac monitoring and IV access are essential.

Guidelines for CPR & Emergency Cardiovascular Care (ECC):

- 2017 American Heart Association (AHA) Guidelines: (https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/)

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Principles of Anaphylaxis Management
(Continued)

Assess patient status continuously and ensure that adequate support personnel, including rapid response team are available. Consider transport to higher echelon of care.

Important Components of Anaphylaxis Care

- **Oxygen**: 6 to 8 L/min by Face Mask to keep saturation greater than 90%. Some patients, for example those with chronic obstructive lung disease (COPD) or congenital heart disease may require less oxygen to maintain baseline saturation.
- **Fluids**: Administer 20mL/kg of normal saline intravenously. If the patient is severely hypotensive, rapidly infuse volume expanders (colloids) if available. If not available, anticipate the possible need for additional normal saline boluses.

- **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.
- **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 for adults and 0.5 mg/kg per 24 hours for children, are usually not helpful acutely but might prevent prolonged reactions or relapses. Use may prevent delayed or biphasic anaphylaxis in patients with cardiopulmonary compromise.
- **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 infused intravenously over 5 minutes.
- **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.

Adverse Events Following Immunization

(Information for Responding to Patient Concerns)

What can I use to learn about the risks and benefits of the vaccines I am to receive?

The CDC provides fact sheets, called Vaccine Information Sheets (VIS), which describe the benefits and risks of the vaccines you'll receive. The Department of Defense provides brochures on anthrax and smallpox. It is highly encouraged that you review the VIS in detail and ask questions about the vaccines you are to receive *before* immunization. If you would like to discuss a vaccine concern with an immunization healthcare clinical specialist, please call the 24/7 DHA Immunization Healthcare Support Center at 1-877-438-8222 or DSN 761-4245 (option 1). We are happy to speak with providers, immunization administrators, beneficiaries, and those who receive military-specific vaccines.

Do vaccines have side effects?

Vaccines are prescription drugs. Like all drugs, vaccines can cause side effects. Examples of common side effects may include soreness, redness, or swelling at the injection site or mild fever. These may interfere with work or play for a few days, but are not considered serious. Although these mild symptoms don't need to be treated, you can reduce aches, pains, and fever with acetaminophen, ibuprofen, or aspirin-like medications unless you should avoid these drugs.

Severe side effects, although uncommon, may occur with any vaccine. These more serious side effects are also called adverse events following immunization (AEFI). If you are having an unexpected or serious side effect, you should immediately contact your healthcare provider. These should be documented by a healthcare provider to optimize clinical outcome and for medical exemption assessment.

How can I make sure that my side effect or AEFI is reported to people who monitor vaccine safety?

The CDC and FDA manage the Vaccine Adverse Events Reporting System (VAERS). VAERS identifies potential new safety concerns and to ensure that the benefits of vaccines continue to be far greater than the risks. VAERS reporting is voluntary except for some required side effects, examples of which include encephalopathy, anaphylaxis, or hospitalization following immunization. However, VAERS reporting is highly encouraged for prolonged or concerning symptoms. The DHA-IHD staff can help patients and healthcare workers to complete a detailed VAERS report.

It may not be possible to prove or disprove that a vaccination caused any individual problem. Rare side effects may not have recognized before a vaccine was licensed, as they may only occur a few times for every million persons vaccinated. For more information about VAERS, go to: http://vaers.hhs.gov. 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 them to your healthcare provider's office. If, for some reason, you cannot be evaluated before the next vaccination is due, a temporary exemption can be placed in your medical/readiness records until a final determination has been made about your case. If you disagree with the decision, you have the right to request a referral to an immunization specialist.

Continued on Next Page

Adverse Events Following Immunization

(Continued)

What are vaccine exemptions?

There are two kinds of vaccine exemptions (reasons for not receiving a vaccine): Administrative and Medical. Descriptions of these exemptions are available at: https://www.health.mil/vaccineexemptions.

Medical Exemptions for Vaccination

Code	Meaning	Explanation of example	Duration
MD	Medical, Declined	Declination of optional vaccine (not applicable to military required vaccinations)	Indefinite
MA	Medical, Assumed	Prior immunization, reasonably inferred from individual's past experiences, but documentation missing. Code used to avoid superflous immunization and can be reversed upon further review	Indefinite
MI	Medical, Immune	Evidence of immunity (for example, by serologic antibody test); documented previous infection (for example, chickenpox infection); natural infection presumed (for example, measles, if born before 1957)	Indefinite
MP	Medical, permanent	HIV infection, prolonged or permanent immune suppression, upper age limit, ther contraindication determined by physician. Can be reversed in the condition changes. For tuberculosis, positive tuberculousis test	Indefinite
MR	Medical, reactive	Permanent restriction from receiving additional doses of a specific vaccine. Use only after severe reaction after vaccination. Report reaction to VAERS. Code may be reversed if anaternate form of prophylaxis is available. Do not code mild, transient reactions as MR, code events referred for medical consultation as MT.	Indefinite
MS	Medical, supply	Exempt due to lack of vaccine supply	Up to 90 days
MT	Medical, temporary	Pregnancy, hospitalization, events referred for medical consultation, temporary immune suppression, convalescent leave, pending medical evaluation board, any temporary contraindication to immunization	Up to 365 days

* Unless involves a vaccine for which there is a regular booster requirement in which case, when due, the booster should be administered
Source: Immunizations and Chemoprophylaxis for the Prevention of Infectious Diseases, October 2013

Administrative Exemptions from Vaccination

Code	Meaning	Explanation of example	Duration
AD	Administrative, Deceased	Individual is deceased	Indefinite
AL	Administrative, emergency leave	Individual is on emergency leave	up to 30 days
AM	Administrative, missing	Missing in action, prisoner of war	Indefinite
AP	Administrative, PCS	Permanent change of station	Up to 90 days
AR	Administrative, refusal	Personnel involved in actions under the Uniformed Code of Military Justice, religious waiver (Indefinite though can be revoked at any time*)	Indefinite
AS	Administrative, separation	Pending discharge, separation (typically within 60 days), and retirement (typically within 180 days)	Up to 180 days
AT	Adminitrative, temporary	Absent without leave, legal action pending (other than code AR)	Up to 90 days
NR	Not required	Individuals who received immunization while eligible, subsequently changed occupational category and now serves as civilian employee or contract wokrer not otherwise required to receive the immunization	Indefinite

Source: Immunizations and Chemoprophylaxis for the Prevention of Infectious Diseases, October 2013

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Adverse Events Following Immunization
(Continued)

What happens if I receive a vaccine and then find out that I had a contraindication to that vaccine?

Tell your healthcare provider as soon as possible to see whether you need treatment. In most cases, 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 medical and readiness record, as applicable. Before each vaccination, you will be screened for contraindications. Be sure to provide information about your contraindication, other relevant 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 the 24/7 DHA Immunization Healthcare Support Center at 1-877-438-8222 or DSN 761-4245 (option 1).

For more information about vaccine safety and adverse event guidelines, go to: www.health.mil/vaccines and www.cdc.gov/vaccines.

National Vaccine Injury Compensation Program

Vaccines save lives by preventing disease.
In fact, the Centers for Disease Control and Prevention (CDC) named immunizations as one of the ten most important public health achievements of the 20th century.

Most people who get vaccines have no serious problems, but like any medicine, they can cause side effects-most of which are rare and mild. In very rare cases, a vaccine can cause a serious problem, such as a severe allergic reaction.

In those instances, the National Vaccine Injury Compensation Program (VICP) provides individuals with an opportunity to file a petition or claim for financial compensation.

The VICP is a no-fault alternative to the traditional legal system for resolving vaccine injury petitions.
The National Childhood Vaccine Injury Act of 1986 created the VICP, which began on October 1, 1988, after a series of lawsuits threatened to cause vaccine shortages and reduce U.S. vaccination rates.

The following three organizations have a role in the VICP.

- The VICP is administered through the Department of Health and Human Services (HHS).
- The Department of Justice (DOJ) represents HHS in Court.
- The U.S. Court of Federal Claims (the Court) makes the final decision regarding whether a petitioner should be compensated.

Any individual, of any age, who received a covered vaccine and believes he or she was injured as a result, can file a petition. Parents, legal guardians and legal representatives can file on behalf of children, disabled adults and individuals who are deceased.

Please note that, with limited exceptions, all petitions must be filed within 3 years after the first symptom of the alleged vaccine injury, or within 2 years of the death and 4 years after the first symptom of the alleged vaccine injury that resulted in death. For more information about additional requirements that must be met in order to pursue compensation, visit the VICP website, www.hrsa.gov/vaccinecompensation.

Continued on Next Page

Adverse Events Following Immunization
(Continued)

How the claims process works

- An individual files a petition with the Court. The Court sends a copy of the petition to DOJ and HHS.
- An HHS healthcare provider reviews the petition, determines if it meets the medical criteria for compensation and makes a preliminary recommendation to DOJ. The government's position is included in DOJ's report, which is submitted to the Court.
- The report is presented to a court-appointed special master, who decides whether the petitioner should be compensated.
- The special master's decision may be appealed.
- Petitioners who reject the decision of the Court (or those who withdraw their claims after certain timelines are met) may file a claim in civil court against the vaccine manufacturer and/or the healthcare provider who administered the vaccine.

An individual may contact the Court for more information about filing a petition, including the requirements that must be satisfied to pursue compensation. The petition does not have to be filed by a lawyer but most people use a lawyer. If certain requirements are met, the VICP generally will pay lawyer's fees and other legal costs related to the petition, whether or not the petitioner is paid for a vaccine injury or death. Visit the Court's website for a list of attorneys willing to file VICP petitions.

U.S. Court of Federal Claims
717 Madison Place, N.W.
Washington, DC 2005
202-357-6400
www.uscfc.uscourts.gov

Vaccines covered by the VICP

In order for a category of vaccines to be covered by VICP, the category of the vaccine must be recommended for routine administration to children by the Centers for Disease Control and Prevention and subject to an excise tax. There are no age restrictions on who may file a petition with the VICP. Petitions may be filed on behalf of infants, children and adolescents, or by adults receiving VICP-covered vaccines. The following vaccines are covered by the VICP:

- Diphtheria and Tetanus vaccines (e.g., DTaP, DTP, DT, Td, or TT)
- Pertussis vaccines (e.g., DTP, DTaP, P, Tdap, DTP-Hib)
- Measles, Mumps, and Rubella vaccines (e.g., MMR, MR, M, R)
- Polio vaccines (e.g., OPV or IPV)
- Hepatitis A vaccines (e.g., HAV)
- Hepatitis B vaccines (e.g., HBV)
- Haemophilus influenza type b polysaccharide conjugate vaccines (e.g., Hib)
- Varicella vaccines (e.g., VZV) [herpes zoster (shingles) vaccine is not covered]
- Rotavirus vaccines (e.g.,RV)
- Pneumococcal conjugate vaccines (e.g., PCV) [pneumococcal polysaccharide vaccine (PPSV, PPV) is not covered]
- Seasonal influenza vaccines (e.g., IIV3 standard dose, IIV3 high dose, IIV4, RIV3, LAIV3, LAIV4)
- Human Papillomavirus vaccines (e.g., HPV)
- Meningococcal vaccines (e.g., MCV4, MPSV4, recombinant)

For more information about the VICP, visit the website: www.hrsa.gov/vaccinecompensation or call 1-800-338-2382

Source: https://www.hrsa.gov/sites/default/files/hrsa/vaccine-compensation/faq/vicp-fact-sheet.pdf

Adult & Military Immunizations

Defense Health Agency
Immunization Healthcare Division
(DHA-IHD)

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

Refer to DoD vaccine guidance, manufacturer's package insert and ACIP guidelines for specific vaccine recommendations, contraindications, and precautions. Links to federally-approved VIS (Vaccine Information Statement) created by CDC are provided under each vaccine.

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2020

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Influenza inactivated (IIV) or **Influenza recombinant** (RIV)	1 dose annually			
or	or			
Influenza live, attenuated (LAIV)	1 dose annually			
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV) *(preferred)*			2 doses	
or			or	
Zoster live (ZVL)			1 dose	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal conjugate (PCV13)	1 dose			65 years and older
Pneumococcal polysaccharide (PPSV23)	1 or 2 doses depending on indication			1 dose
Hepatitis A (HepA)	2 or 3 doses depending on vaccine			
Hepatitis B (HepB)	2 or 3 doses depending on vaccine			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations			
	19 through 23 years			
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication			

Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection

Recommended vaccination for adults with an additional risk factor or another indication

Recommended vaccination based on shared clinical decision-making

No recommendation/ Not applicable

Table 2 Recommended Adult Immunization Schedule by Medical Condition and Other Indications, United States, 2020

Vaccine	Pregnancy	Immuno-compromised (excluding HIV infection)	HIV infection CD4 count <200	HIV infection CD4 count ≥200	Asplenia, complement deficiencies	End-stage renal disease; or on hemodialysis	Heart or lung disease, alcoholism[1]	Chronic liver disease	Diabetes	Health care personnel[2]	Men who have sex with men
IIV or RIV	1 dose annually										
or										or	
LAIV	NOT RECOMMENDED						PRECAUTION			1 dose annually	
Tdap or Td	1 dose Tdap each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	NOT RECOMMENDED				1 or 2 doses depending on indication						
VAR	NOT RECOMMENDED				2 doses						
RZV *(preferred)*	DELAY				2 doses at age ≥50 years						
or					or						
ZVL	NOT RECOMMENDED				1 dose at age ≥60 years						
HPV	DELAY	3 doses through age 26 years			2 or 3 doses through age 26 years						
PCV13		1 dose									
PPSV23		1, 2, or 3 doses depending on age and indication									
HepA					2 or 3 doses depending on vaccine						
HepB					2 or 3 doses depending on vaccine						
MenACWY	1 or 2 doses depending on indication, see notes for booster recommendations										
MenB	PRECAUTION	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations									
Hib		3 doses HSCT[3] recipients only			1 dose						

- Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection
- Recommended vaccination for adults with an additional risk factor or another indication
- Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction
- Delay vaccination until after pregnancy if vaccine is indicated
- Not recommended/ contraindicated—vaccine should not be administered
- No recommendation/ Not applicable

1. Precaution for LAIV does not apply to alcoholism. **2.** See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations. **3.** Hematopoietic stem cell transplant.

Haemophilus influenzae type b vaccination

Special situations

- **Anatomical or functional asplenia (including sickle cell disease)**: 1 dose if previously did not receive Hib; if elective splenectomy, 1 dose, preferably at least 14 days before splenectomy
- **Hematopoietic stem cell transplant** (HSCT): 3-dose series 4 weeks apart starting 6–12 months after successful transplant, regardless of Hib vaccination history

Hepatitis A vaccination

Routine vaccination

- **Not at risk but want protection from hepatitis A** (identification of risk factor not required): 2-dose series HepA (Havrix 6–12 months apart or Vaqta 6–18 months apart [minimum interval: 6 months]) or 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: 4 weeks between doses 1 and 2/5 months between doses 2 and 3])

Special situations

- **At risk for hepatitis A virus infection**: 2-dose series HepA or 3-dose series HepA-HepB as above
  - **Chronic liver disease** (e.g., persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
  - **HIV infection**
  - **Men who have sex with men**
  - **Injection or noninjection drug use**
  - **Persons experiencing homelessness**
  - **Work with hepatitis A virus** in research laboratory or with nonhuman primates with hepatitis A virus infection
  - **Travel in countries with high or intermediate endemic hepatitis A**
  - **Close, personal contact with international adoptee** (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival)
  - **Pregnancy** if at risk for infection or severe outcome from infection during pregnancy
  - **Settings for exposure, including** health care settings targeting services to injection or noninjection drug users or group homes and nonresidential day care facilities for developmentally disabled persons (individual risk factor screening not required)

Hepatitis B vaccination

Routine vaccination

- **Not at risk but want protection from hepatitis B** (identification of risk factor not required): 2- or 3-dose series (2-dose series Heplisav-B at least 4 weeks apart [2-dose series HepB only applies when 2 doses of Heplisav-B are used at least 4 weeks apart] or 3-dose series Engerix-B or Recombivax HB at 0, 1, 6 months [minimum intervals: 4 weeks between doses 1 and 2/8 weeks between doses 2 and 3/16 weeks between doses 1 and 3]) or 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: 4 weeks between doses 1 and 2/5 months between doses 2 and 3])

Special situations

- **At risk for hepatitis B virus infection**: 2-dose (Heplisav-B) or 3-dose (Engerix-B, Recombivax HB) series or 3-dose series HepA-HepB (Twinrix) as above
  - **Chronic liver disease** (e.g., persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice upper limit of normal)
  - **HIV infection**
  - **Sexual exposure risk** (e.g., sex partners of hepatitis B surface antigen [HBsAg]-positive persons; sexually active persons not in mutually monogamous relationships; persons seeking evaluation or treatment for a sexually transmitted infection; men who have sex with men)
  - **Current or recent injection drug use**
  - **Percutaneous or mucosal risk for exposure to blood** (e.g., household contacts of HBsAg-positive persons; residents and staff of facilities for developmentally disabled persons; health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids; hemodialysis, peritoneal dialysis, home dialysis, and predialysis patients; persons with diabetes mellitus age younger than 60 years and, at discretion of treating clinician, those age 60 years or older)
  - **Incarcerated persons**
  - **Travel in countries with high or intermediate endemic hepatitis B**
  - **Pregnancy** if at risk for infection or severe outcome from infection during pregnancy (Heplisav-B not currently recommended due to lack of safety data in pregnant women)

Human papillomavirus vaccination

Routine vaccination

- **HPV vaccination recommended for all adults through age 26 years**: 2- or 3-dose series depending on age at initial vaccination or condition:
  - **Age 15 years or older at initial vaccination**: 3-dose series at 0, 1–2, 6 months (minimum intervals: 4 weeks between doses 1 and 2/12 weeks between doses 2 and 3/5 months between doses 1 and 3; repeat dose if administered too soon)
  - **Age 9 through 14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart**: 1 dose
  - **Age 9 through 14 years at initial vaccination and received 2 doses at least 5 months apart**: HPV vaccination complete, no additional dose needed.
- **If completed valid vaccination series with any HPV vaccine, no additional doses needed**

Shared clinical decision-making

- **Age 27 through 45 years based on shared clinical decision-making**:
  - 2- or 3-dose series as above

Special situations

- **Pregnancy through age 26 years**: HPV vaccination is not recommended until after pregnancy; no intervention needed if vaccinated while pregnant; pregnancy testing not needed before vaccination

Influenza vaccination

Routine vaccination

- **Persons age 6 months or older**: 1 dose any influenza vaccine appropriate for age and health status annually
- For additional guidance, see www.cdc.gov/flu/professionals/index.htm

Special situations

- **Egg allergy, hives only**: 1 dose any influenza vaccine appropriate for age and health status annually
- **Egg allergy more severe than hives** (e.g., angioedema, respiratory distress): 1 dose any influenza vaccine appropriate for age and health status annually in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions
- **LAIV should not be used** in persons with the following conditions or situations:
  - History of severe allergic reaction to any vaccine component (excluding egg) or to a previous dose of any influenza vaccine
  - Immunocompromised due to any cause (including medications and HIV infection)
  - Anatomic or functional asplenia
  - Cochlear implant
  - Cerebrospinal fluid-oropharyngeal communication
  - Close contacts or caregivers of severely immunosuppressed persons who require a protected environment
  - Pregnancy
  - Received influenza antiviral medications within the previous 48 hours
- **History of Guillain-Barré syndrome within 6 weeks of previous dose of influenza vaccine**: Generally should not be vaccinated unless vaccination benefits outweigh risks for those at higher risk for severe complications from influenza

Measles, mumps, and rubella vaccination

Routine vaccination

- **No evidence of immunity to measles, mumps, or rubella**: 1 dose
  - **Evidence of immunity**: Born before 1957 (health care personnel, see below), documentation of receipt of MMR vaccine, laboratory evidence of immunity or disease (diagnosis of disease without laboratory confirmation is not evidence of immunity)

Special situations

- **Pregnancy with no evidence of immunity to rubella**: MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose
- **Nonpregnant women of childbearing age with no evidence of immunity to rubella**: 1 dose
- **HIV infection with CD4 count ≥ 200 cells/μL for at least 6 months and no evidence of immunity to measles, mumps, or rubella**: 2-dose series at least 4 weeks apart; MMR contraindicated in HIV infection with CD4 count <200 cells/μL
- **Severe immunocompromising conditions**: MMR contraindicated
- **Students in postsecondary educational institutions, international travelers, and household or close, personal contacts of immunocompromised persons with no evidence of immunity to measles, mumps, or rubella**: 2-dose series at least 4 weeks apart if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR
- **Health care personnel**:
  - **Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella**: 2-dose series at least 4 weeks apart for measles or mumps or at least 1 dose for rubella
  - **Born before 1957 with no evidence of immunity to measles, mumps, or rubella**: Consider 2-dose series at least 4 weeks apart for measles or mumps or 1 dose for rubella

Meningococcal vaccination

Special situations for MenACWY

- **Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use**: 2-dose series MenACWY (Menactra, Menveo) at least 8 weeks apart and revaccinate every 5 years if risk remains
- **Travel in countries with hyperendemic or epidemic meningococcal disease, microbiologists routinely exposed to *Neisseria meningitidis***: 1 dose MenACWY (Menactra, Menveo) and revaccinate every 5 years if risk remains
- **First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) and military recruits**: 1 dose MenACWY (Menactra, Menveo)

Shared clinical decision-making for MenB

- **Adolescents and young adults age 16 through 23 years (age 16 through 18 years preferred) not at increased risk for meningococcal disease**: Based on shared clinical decision-making, 2-dose series MenB-4C at least 1 month apart or 2-dose series MenB-FHbp at 0, 6 months (if dose 2 was administered less than 6 months after dose 1, administer dose 3 at least 4 months after dose 2); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series)

Special situations for MenB

- **Anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use, microbiologists routinely exposed to *Neisseria meningitidis***: 2-dose primary series MenB-4C (Bexsero) at least 1 month apart or 3-dose primary series MenB-FHbp (Trumenba) at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series); 1 dose MenB booster 1 year after primary series and revaccinate every 2–3 years if risk remains
- **Pregnancy**: Delay MenB until after pregnancy unless at increased risk and vaccination benefits outweigh potential risks

Pneumococcal vaccination

Routine vaccination

- **Age 65 years or older** (immunocompetent–see www.cdc.gov/mmwr/volumes/68/wr/mm6846a5.htm?s_cid=mm6846a5_w): 1 dose PPSV23
  - If PPSV23 was administered prior to age 65 years, adminster 1 dose PPSV23 at least 5 years after previous dose

Shared clinical decision-making

- **Age 65 years and older** (immunocompetent): 1 dose PCV13 based on **shared clinical decision-making**
  - If both PCV13 and PPSV23 are to be administered, PCV13 should be administered first
  - PCV13 and PPSV23 should be administered at least 1 year apart
  - PCV13 and PPSV23 should not be administered during the same visit

Special situations

(see www.cdc.gov/mmwr/volumes/68/wr/mm6846a5.htm?s_cid=mm6846a5_w)

- **Age 19 through 64 years with chronic medical conditions (chronic heart [excluding hypertension], lung, or liver disease, diabetes), alcoholism, or cigarette smoking**: 1 dose PPSV23
- **Age 19 years or older with immunocompromising conditions (congenital or acquired immunodeficiency [including B- and T-lymphocyte deficiency, complement deficiencies, phagocytic disorders, HIV infection], chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin disease, generalized malignancy, iatrogenic immunosuppression [e.g., drug or radiation therapy], solid organ transplant, multiple myeloma) or anatomical or functional asplenia (including sickle cell disease and other hemoglobinopathies)**: 1 dose PCV13 followed by 1 dose PPSV23 at least 8 weeks later, then another dose PPSV23 at least 5 years after previous PPSV23; at age 65 years or older, administer 1 dose PPSV23 at least 5 years after most recent PPSV23 (note: only 1 dose PPSV23 recommended at age 65 years or older)
- **Age 19 years or older with cerebrospinal fluid leak or cochlear implant**: 1 dose PCV13 followed by 1 dose PPSV23 at least 8 weeks later; at age 65 years or older, administer another dose PPSV23 at least 5 years after PPSV23 (note: only 1 dose PPSV23 recommended at age 65 years or older)

Tetanus, diphtheria, and pertussis vaccination

Routine vaccination

- **Previously did not receive Tdap at or after age 11 years**: 1 dose Tdap, then Td or Tdap every 10 years

Special situations

- **Previously did not receive primary vaccination series for tetanus, diphtheria, or pertussis**: At least 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks after Tdap and another dose Td or Tdap 6–12 months after last Td or Tdap (Tdap can be substituted for any Td dose, but preferred as first dose); Td or Tdap every 10 years thereafter
- **Pregnancy**: 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- For information on use of Td or Tdap as tetanus prophylaxis in wound management, see www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm

Varicella vaccination

Routine vaccination

- **No evidence of immunity to varicella**: 2-dose series 4–8 weeks apart if previously did not receive varicella-containing vaccine (VAR or MMRV [measles-mumps-rubella-varicella vaccine] for children); if previously received 1 dose varicella-containing vaccine, 1 dose at least 4 weeks after first dose
  - Evidence of immunity: U.S.-born before 1980 (except for pregnant women and health care personnel [see below]), documentation of 2 doses varicella-containing vaccine at least 4 weeks apart, diagnosis or verification of history of varicella or herpes zoster by a health care provider, laboratory evidence of immunity or disease

Special situations

- **Pregnancy with no evidence of immunity to varicella**: VAR contraindicated during pregnancy; after pregnancy (before discharge from health care facility) 1 dose if previously received 1 dose varicella-containing vaccine or dose 1 of 2-dose series (dose 2: 4–8 weeks later) if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- **Health care personnel with no evidence of immunity to varicella**: 1 dose if previously received 1 dose varicella-containing vaccine; 2-dose series 4–8 weeks apart if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- **HIV infection with CD4 count ≥200 cells/μL with no evidence of immunity**: Vaccination may be considered (2 doses, administered 3 months apart); VAR contraindicated in HIV infection with CD4 count <200 cells/μL
- **Severe immunocompromising conditions**: VAR contraindicated

Zoster vaccination

Routine vaccination

- **Age 50 years or older**: 2-dose series RZV (Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon), regardless of previous herpes zoster or history of ZVL (Zostavax) vaccination (administer RZV at least 2 months after ZVL)
- **Age 60 years or older**: 2-dose series RZV 2–6 months apart (minimum interval: 4 weeks; repeat if administered too soon) or 1 dose ZVL if not previously vaccinated. RZV preferred over ZVL (if previously received ZVL, administer RZV at least 2 months after ZVL)

Special situations

- **Pregnancy**: ZVL contraindicated; consider delaying RZV until after pregnancy if RZV is otherwise indicated
- **Severe immunocompromising conditions (including HIV infection with CD4 count <200 cells/μL)**: ZVL contraindicated; recommended use of RZV under review

Table D-1
Immunizations for military personnel

Name of vaccine	Army	Navy	Air Force	Marine Corps	Coast Guard
Adenovirus	Acc[2]	Acc	Acc	Acc	Acc
Anthrax	Risk	Risk	Risk	Risk	Risk
Haemophilus influenzae type b	Risk	Risk	Risk	Risk	Risk
Hepatitis A	Acc, Rou[3]	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou
Hepatitis B	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou
Influenza	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou
Japanese Encephalitis	Risk[4]	Risk	Risk	Risk	Risk
Measles, mumps, rubella	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou
Meningococcal	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou
Pneumococcal	Risk	Risk	Risk	Risk	Risk
Poliovirus[5]	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou
Rabies	Risk	Risk	Risk	Risk	Risk
Smallpox (vaccinia)	Risk	Risk	Risk	Risk	Risk
Tetanus-diptheria (preferably with pertussis vaccine)	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou
Typhoid fever	Risk	Risk	Risk	Risk	Risk
Varicella	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou	Acc, Rou
Yellow Fever	Risk	Risk	Risk	Acc, Risk	Risk

Notes:
1 Inital entry and basic training accessions only
2 Acc=accessions
3 Rou=adult routine
4 Risk=special, risk-based, and occupational
5 Refer to paragraph 4-13

Source: Immunizations and Chemoprophylaxis for the Prevention of Infectious Diseases, October 2013

Adenovirus Vaccine

Vaccine Description	• Brand: Adenovirus Type 4 and Type 7 Vaccine, Live, Oral • Live vaccine, has not been attenuated • See package insert
Dose & Route	• Dose: 2 separate oral tablets (1 white & 1 light peach in color) • Route: Oral • Do not crush or chew tablets, must swallow whole • See package insert
Indications	• Military populations 17 through 50 years of age; will be given to all new recruits
Administration Schedule	A single dose of two separate tablets swallowed whole at the same time
Booster	None
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Pregnancy (also need to avoid pregnancy for at least 6 weeks afterward) • Inability to swallow whole tablets • Postpone administration to persons with vomiting and/or diarrhea

Precautions	• Moderate or severe acute illness
	• The safety and effectiveness of this vaccine in persons with immune suppression has not been evaluated
	• Because live virus is shed within the stool for up to 28 days following vaccination, vaccinees should use precaution when around:
	  • Children younger than 7 years of age
	  • Persons who are immune suppressed
	  • Pregnant women

Continued on Next Page

Adenovirus Vaccine

(Continued)

Special Considerations	• Instruct vaccinee to use proper personal hygiene, such as frequent hand washing, especially following bowel movements • Adenovirus vaccine can be administered simultaneously or at any interval before or after other vaccines, including live vaccines
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/adenovirus.html Additional education may be found at www.health.mil/adenovirus	

Implement the following steps if the vaccine tablets are accidentally chewed:

1. Rinse and swallow several sips of water to help clear the vaccine from the mouth.
2. Direct the recruit to seek medical care if he/she develops symptoms of fever or respiratory infection and to apprise the health care provider of the chewed vaccine tablet.
3. A VAERS form should be filed by the health care provider if a recruit develops symptoms of fever or respiratory infection.

Anthrax Vaccine

<table>
<tr><td>Vaccine
Description</td><td>• Brand: Biothrax®
• Inactivated vaccine
• Adjuvant: Aluminum hydroxide
• Vial stopper may contain dry natural latex rubber
• See package insert</td></tr>
<tr><td>Dose & Route</td><td>• Dose: 0.5 mL
• Route: IM into the DELTOID muscle (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy); NOTE: SC route is required for post-exposure prophylaxis and approved for individuals at risk for hematoma formation: thrombocytopenia, hemophilia, and anticoagulation therapy.
• See package insert (NOTE: dose and route differences for pre- and post-exposure administration).</td></tr>
<tr><td>Indications</td><td>• Age 18 to 65 years according to current military guidelines
• People with occupational risk
• As adjunct treatment after exposure to anthrax bacillus (inhalation)
• See Special Considerations</td></tr>
<tr><td>Administration
Schedule

Note: Delays do NOT interfere with vaccine response.</td><td>Given in a series of 5 doses at 0, 1 month, 6 months, 12 months, and 18 months with an annual booster to sustain immunity [if needed based on deployment requirements].

<table><tr><th>Dose</th><th>Dose Recommended Interval</th></tr><tr><td>#1</td><td>0 (initial dose)</td></tr><tr><td>#2</td><td>1 month after dose #1</td></tr><tr><td>#3</td><td>5 months after dose #2</td></tr><tr><td>#4</td><td>6 months after dose #3</td></tr><tr><td>#5</td><td>6 months after dose #4</td></tr></table></td></tr>
<tr><td>Booster</td><td>Annually (every 12 months) if required by duty status</td></tr>
<tr><td>Contraindications</td><td>• 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
• Breastfeeding is not a contraindication
• Pregnant women should not be routinely vaccinated pre-exposure</td></tr>
</table>

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Anthrax Vaccine
(Continued)

Contraindications *(Continued)*	• Refer to DHA-IHD for recommendations related to medical exemptions
Precautions	• Prior adverse events or non-allergic hypersensitivity reactions • Pregnant women are not routinely be vaccinated pre-exposure 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 - postpone 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 is complete, it is never repeated. • For severe large local reactions (greater than 10 cm or extending below a joint), contact DHA-IHD for consultation regarding optimum treatment and medical exemption • Once the stopper of the multi-dose vial has been pierced, the vial must be discarded within 28 days. • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/anthrax.html Bioterrorism: https://www.cdc.gov/anthrax/ DHA-IHD: www.health.mil/anthrax Anthrax Vaccine Pregnancy Registry (619) 553-9255, DSN 553-9255, email: nhcr-vaccineregistry@mail.mil. Also notify DHA-IHD	

FACTOID: Anthrax infection can occur in four forms: cutaneous (skin), inhalation, gastrointestinal, and injection.

Source:
http://www.cdc.gov/anthrax/types/index.html

Cholera Vaccine

Vaccine Description	• Brand: Vaxchora • Live, attenuated oral vaccine • May contain yeast, casein (milk) and lactose • See package insert
Dose & Route	• Dose: 100 mL • Route: Oral administration only
Indications	• Adults aged 18-64 years traveling to areas where there is a recognized risk of exposure to V. Cholerae serogroup O1. • VAXCHORA has not been shown to protect against disease caused by V. cholerae serogroup O139 or other non-O1 serogroups
Administration Schedule	• A single oral dose of VAXCHORA a minimum of 10 days before potential exposure to cholera • Avoid eating or drinking for 60 minutes before or after oral ingestion of VAXCHORA • Reconstitution should be completed within 15 minutes of removing the carton with 2 packets (buffer component and active component) from the refrigerator • Pour 100 mL of cold or room temperature purified bottled water into a clean, disposable cup. Do not use tap water, non-purified bottled water, other beverages, or other liquids. • First, empty buffer component packet contents into cup. Effervescence will occur. Using a disposable stirrer, stir until the buffer component completely dissolves. • Next, empty the active component packet contents into the cup containing the buffer solution. Stir for at least 30 seconds and until active component disperses to form a slightly cloudy suspension that may contain some white particulates. The active component may not dissolve completely. • VAXCHORA must be consumed within 15 minutes of reconstitution. The recipient should drink the full contents of the cup at once. • Dispose of the cup, packets and stirrer according to standard procedures for medical waste. Inactivate any spilled vaccine and clean any non-disposable equipment used in the preparation of VAXCHORA with 70% isopropyl alcohol or 10% bleach solution. *NOTE: *If the packets are reconstituted in the improper order, the vaccine must be discarded (See package insert)*
Booster	NONE

Continued on Next Page

Cholera Vaccine *(Continued)*

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Avoid concomitant administration of VAXCHORA with systemic antibiotics • Do not administer VAXCHORA to patients who have received oral or parenteral antibiotics within 14 days prior to vaccination (Antibiotics taken within 14 days before vaccination may cause the vaccine to not work as well.) • Do not administer VAXCHORA to persons with immune suppression from disease or therapies • Pregnancy: No data exist on use of CVD 103-HgR in pregnant or breastfeeding women. Pregnant women are at increased risk for poor outcomes from cholera infection. Pregnant women and their providers should consider the risks associated with traveling to areas of active cholera transmission. • The vaccine is not absorbed systemically; thus, maternal exposure to the vaccine is not expected to result in exposure of the fetus or breastfed infant to the vaccine.
Special Considerations	• Most travelers do not need cholera vaccine • VAXCHORA may be shed in the stool of recipients for at least 7 days. There is a potential for transmission of the vaccine strain to non-vaccinated close contacts (e.g., household contacts). Use caution when considering whether to administer VAXCHORA to individuals with immunocompromised close contacts • Administer VAXCHORA at least 10 days before beginning antimalarial prophylaxis with chloroquine. • VAXCHORA is stored in the refrigerator and must be protected from light and moisture. • Pediatric Use - The safety and effectiveness of VAXCHORA have not been established in children and adolescents younger than 18 years. • Geriatric Use -The safety and effectiveness of VAXCHORA have not been established in adults 65 years of age or older. • The safety and effectiveness of VAXCHORA have not been established in immunocompromised individuals. • There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to VAXCHORA during pregnancy. To enroll please call PaxVax at 1-800-533-5899
VIS: https://www.cdc.gov/vaccines/hcp/vis/vis-statements/cholera.html Pregnancy registry available at 1-800-533-5899; also notify DHA-IHD Additional education may be found at www.health.mil/cholera	

Hepatitis A, B, and Combination A/B Vaccines

Vaccine Description See package inserts for specific vaccine compoments	**Hepatitis A: Vaqta and Havrix**	
	• Inactivated whole virus • Adjuvant: aluminum hydroxide • Vial stopper and/or the syringe plunger stopper may contain dry natural latex rubber	
	Hepatitis B: Heplisav-B, Recombivax HB, Engerix-B	
	• Subunit viral antigen vaccine • Vial stoppers are not made with natural latex rubber • Heplisav-B adjuvant: CpG, DNA, innate immunity activator	
	Combination Hepatitis A and B: Twinrix	
	• Bivalent vaccine containing the antigenic components used in producing Havrix and Engerix-B • Tip caps of the prefilled syringes contain natural rubber latex; the plungers are not made with natural rubber latex	
Route (all)	• IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)	
Vaccine	**Age**	**Dose**
Hepatitis A (Vaqta)	6 months-18 years	25 units (0.5 mL)
	19 years and older	50 units (1 mL)
Hepatitis A (Havrix)	6 months-18 years	720 EL.U. (0.5 mL)
	19 years and older	1440 EL.U. (1 mL)
Hepatitis B (Engerix-B)	0-19 years	0.5 mL
	20 years and older	1 mL
Hepatitis B (Recombivax HB)	0-19 years	0.5 mL
	20 years and older	1 mL
Hepatitis B (Heplisav-B)	18 years and older	0.5 mL
Hepatitis A/Hepatitis B (Twinrix)	18 years and older	1 mL

Continued on Next Page

Hepatitis A, B, and Combination A/B Vaccines
(Continued)

Indications	Hepatitis A
	• Children 1 year of age and older • Persons traveling to or working in countries with high or intermediate endemic hepatitis • See pediatric indications for infant travelers, age 6-11 months • Men who have sex with men • Homelessness • 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 • People who anticipate close personal contact with an international adoptee from countries with high or intermediate level of hepatitis during the first 60 days following arrival in the US (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival)
	Hepatitis B
	• 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) • Persons with HIV • Persons with diabetes • Persons with chronic liver disease • Patients receiving hemodialysis and patients with renal disease that may result in dialysis • Recipients of certain blood products • Healthcare and public safety workers with frequent blood contact • Residents and staff of institutions for people with developmental disabilities • Long-term prison inmates • Certain international travelers (Determine risk by checking CDC or ther travel medicine websites or check with local travel clinic for guidance) • People who want to decrease their risk for hepatitis B

Hepatitis A, B, and Combination A/B Vaccines
(Continued)

Administration Schedule	Dose	Interval
Hepatitis A (Vaqta - 2 doses)	#1	N/A
	#1 to #2	6 months
Hepatitis A (Havrix - 2 doses)	#1	N/A
	#1 to #2	6 months
Hepatitis B (Engerix-B) - 3 doses)	#1	N/A
	#1 to #2	4 weeks
	#2 to #3	8 weeks minimum, 16 weeks after dose #1
Hepatitis B (Recombivax HB - 3 doses)	#1	N/A
	#1 to #2	4 weeks
	#2 to #3	8 weeks minimum, 16 weeks after dose #1
* Hepatitis B (Heplisav-B - 2 doses)	#1	N/A
	#1 to #2	4 weeks minimum
** Hepatitis A + Hepatitis B (Twinrix)	#1	N/A
	#1 to #2	4 weeks
	#2 to #3	5 months
Twinrix (accelerated)	3 doses: 0, 7 days, and 21-30 days. Booster at 12 months.	

* Note: The 2-dose HepB vaccine series only applies when both doses in the series consist of HepB-CpG. Series consisting of a combination of 1 dose of HepB-CpG and a vaccine from a different manufacturer should consist of 3 total vaccine doses and should adhere to the 3-dose schedule minimum intervals of 4 weeks between dose 1 and 2, 8 weeks between dose 2 and 3, and 16 weeks between dose 1 and 3. Doses administered at less than the minimum interval should be repeated. However, a series containing 2 doses of HepB-CpG administered at least 4 weeks apart is valid, even if the patient received a single earlier dose from another manufacturer.

** If combining regimen of Twinrix® with individual doses of HepA and HepB vaccines, see info paper for number of doses needed (www.health.mil/HepA)

Continued on Next Page

Hepatitis A, B, and Combination A/B Vaccines
(Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component, including yeast and neomycin • Moderate or severe acute illness • Pregnancy and breastfeeding are NOT contraindications
Special Considerations	**Hepatitis A**
	• Start vaccine series at least 2-4 weeks before international traveling • If first dose is given less than 4 weeks before international travel, consider giving IG as well as vaccine • Close contact of international adoptee (e.g., household or regular babysitting), within 60 days of arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival) • If dose #2 is delayed, do not repeat dose #1; just give dose #2. • See Storage and Handling Section
	Hepatitis B
	• If the series is delayed between doses, DO NOT start the series over. Continue from where you left off. • For vaccine non-responders (negative Hep B Ab titers), consult allergy/immunology, DHA-IHD, infectious disease • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-a.html http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-b.html Additional education may be found at www.health.mil/hepA www.health.mil/hepB Pregnancy registry for Twinrix®: 1-888-825-5249 (GlaxoSmithKline); also notify DHA-IHD	

Haemophilus influenzae type b (HIB) Vaccine

Vaccine Description	• Brand: ActHIB®, PedVaxHIB® • Inactivated protein conjugate vaccine • Vaccine or diluent vial stopper may contain dry natural latex rubber (see package insert)
Dose and Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert

Indications	• People older than 5 years of age who are at risk, including people with:
	  • Anatomical or functional asplenia (e.g., sickle cell disease, postsplenectomy)
	  • 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	• Vaccine should be used within 24 hours of reconstitution • Refer pregnant women to a healthcare provider for evaluation • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hib.html Additional education may be found at www.health.mil/hib	

Human Papillomavirus (HPV) Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="4">• Brand: GARDASIL 9
• Inactivated recombinant 9-valent vaccine
• Contains aluminum and yeast
• See package insert</td></tr>
<tr><td>Dose & Route</td><td colspan="4">• Dose: 0.5 mL
• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)</td></tr>
<tr><td>Indications</td><td colspan="4">• GARDASIL 9 (9vHPV): Females 9-26 years of age (routinely given at 11-12 year old visit) and males 9-21 years of age (routinely given at 11-12 year old visit and may be given to males 22-26 years of age)</td></tr>
<tr><td rowspan="5">Administration Schedule</td><td colspan="2">2 Dose Series
(For ages 9-14 years old)</td><td colspan="2">3 Dose Series
(For ages 15-26 years)
or
(9-26 years with impaired immunity)</td></tr>
<tr><td>Dose</td><td>Recommended Interval</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td>#1</td><td>Initial dose</td><td>#1</td><td>Initial dose</td></tr>
<tr><td>#2</td><td>6-12 months after initial dose</td><td>#2</td><td>2 months after dose 1</td></tr>
<tr><td colspan="2"></td><td>#3</td><td>6 months after dose 1</td></tr>
<tr><td>Booster</td><td colspan="4">None</td></tr>
<tr><td>Contraindications</td><td colspan="4">• Serious allergic reaction to prior dose or vaccine component
• Moderate or severe acute illness
• Pregnancy - due to lack of safety studies</td></tr>
<tr><td>Special Considerations</td><td colspan="4">• Syncope has been reported following vaccination; observation for 15 minutes after administration is recommended (see package insert)
• If a female reaches 26 years of age before series is completed, remaining doses may be given
• People with impaired immunity should receive the 3-dose series (0, 2 & 6 months) regardless of age
• The HPV vaccine is now FDA-approved for use in appropriate patients ages 9-45 years.
• Shared clinical decision-making regarding HPV vaccination is recommended for some adults aged 27-45 years who are not adequately vaccinated.</td></tr>
</table>

VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hpv-gardasil.html
Pregnancy registry available: 1-800-986-8999; also notify DHA-IHD
Additional education may be found at www.health.mil/HPV

Inactivated Influenza Vaccine

Note: In the past inactivated influenza vaccine was abbreviated as TIV (trivalent influenza vaccine), but since quadrivalent influenza vaccines are now available the abbreviation was changed to IIV (inactivated influenza vaccine). Trivalent inactivated influenza vaccine is abbreviated as IIV3 and quadrivalent inactivated influenza vaccine as IIV4.

Vaccine Description	• Brands:
	  • Quadrivalent: Afluria® (IIV4), Fluarix® (IIV4), FluBlok (IIV4), Flucelvax® (ccIIV4), FluLaval® (IIV4), Fluzone® (IIV4) [Fluzone® comes in Northern & Southern Hemisphere formulations]
	  • Cell Cultured-Based: Flucelvax® (ccIIV4)
	  • Trivalent: Fluzone® High-Dose (IIV3), Fluad® (IIV3)
	  • Adjuvanted: Fluad® (IIV3)
	  • Recombinant: FluBlok® (RIV4)
	• Some brands contain egg protein or thimerosal*. Additionally, the tip cap and the rubber plunger of the needleless prefilled syringes may contain latex (see package insert).
	
	*Thimerosal content varies. Preservative-free formulations are available.	

Dose & Route	• Dose: 0.5 mL • Route: IM given over the deltoid. IM precautions: hemophilia, anticoagulation therapy, and thrombocytopenia.	
Indications	• All persons aged 6 months and older who do not have a contraindication should receive the age-appropriate formulation of inactivated influenza vaccine (IIV) or recombinant influenza vaccine (RIV). (Note: healthy, non-pregnant persons 2 through 49 years of age without high risk health conditions can receive IIV or LAIV*) • Pregnant women and women who might become pregnant in the upcoming influenza season should receive IIV • Adults 65 years of older may receive a traditional influenza vaccine, Fluzone® High-Dose, or Fluad®. There is no preference for one vaccine over another among the recommended, approved injectable influenza vaccines. *Live Attenuated Influenza Vaccine - During the 2016-2017 and 2017-2018 seasons, LAIV was not recommended for use by CDC/ACIP. It is important to review CDC/ACIP guidelines for LAIV use before each flu season.	
Administration Schedule by route	**Dose**	**Recommended Interval**
Adults IM	0.5 mL	Annually in the fall

Continued on Next Page

Inactivated Influenza Vaccine
(continued)

Contraindications	• Do not give influenza vaccine to an adult who has experienced a serious systemic or anaphylactic reaction to a prior dose of the vaccine or to any of its components (for a list of vaccine components, refer to the manufacturer's package insert https://health.mil/packageinserts or go to https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/b/excipient-table-2.pdf • See special considerations for information regarding egg allergy.
Precautions	• Moderate or severe acute illness with or without fever • History of Guillain-Barré syndrome within 6 weeks of a previous influenza vaccination
Special Considerations	• Immunization providers should check FDA-approved seasonal influenza vaccines prescribing information for the most up-to-date information, including (but not limited to) indications, warnings, contraindications, and precautions. Package inserts are available at https://health.mil/packageinserts. • For those assigned to an area designated as a Southern Hemisphere influenza zone April through September, the Southern Hemisphere formulation of Fluzone may be used. • Afluria® is licensed for administration by jet injector for persons aged 18 through 64 years only. • Once the stopper of the multi-dose vial has been pierced, the vial must be discarded either at the expiration date on the vial or within 28 days — see the package insert for specific guidance. • Fluad® includes an adjuvant. • It is important to review CDC/ACIP guidelines for LAIV use before each flu season • Vaccines may be less effective in immunocompromised persons. • Adults with a history of egg allergy who have experienced only hives can receive any flu vaccine (IIV) appropriate for the recipient's age. Adults with more serious allergic reactions to egg, may also receive any flu vaccine (IIV) appropriate for the recipient's age if administered by healthcare provider familiar with possible reactions and treatment and if observed for at least 30 minutes following vaccine administration. • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/flu.html Additional education may be found at www.health.mil/flu	

FACTOID: Influenza (the flu) is a contagious respiratory illness caused by influenza viruses. It can cause mild to severe illness, and at times can lead to death.
Source:
http://www.cdc.gov/flu/about/disease/index.htm

Live Attenuated Influenza Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brand: FluMist Quadrivalent®
• Live attenuated influenza vaccine quadrivalent (LAIV4)
• Contains egg protein. See package insert.
• During the 2016-2017 and 2017-2018 seasons, LAIV was not recommended for use by the CDC/ACIP. It is important to review CDC/ACIP guidelines for LAIV use before each flu season.</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.2 mL (administered as 0.1 mL per nostril)
• Route: intranasal
• See package insert for administration guidance</td></tr>
<tr><td>Indications</td><td colspan="2">• Indicated for healthy, non-pregnant persons 2 through 49 years who do not have a contraindication
• 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 illness caused by infectious agents other than the included influenza A or B viruses.</td></tr>
<tr><td>Administration Schedule</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td>Adults through age 49 years</td><td>0.2 mL</td><td>Annually in the fall</td></tr>
<tr><td>Contraindications</td><td colspan="2">Do not give live attenuated influenza vaccine (LAIV4; nasal spray) to a person who:

• is pregnant
• is immunosuppressed (including that caused by medications or HIV)
• is age 50 years or older
• received influenza antivirals (e.g., amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48 hours or will possibly receive them within 14 days after vaccination
• are close contacts or healthcare personnel caring for persons who are severely immunocompromised and requiring a protective environment</td></tr>
</table>

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Live Attenuated Influenza Vaccine
(continued)

Precautions	• Moderate or severe acute illness with or without fever • History of Guillain-Barré syndrome within 6 weeks of a previous influenza vaccination • 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 (IIV) instead of LAIV to people who care for others who are severely immune-compromised • 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. • Defer administration if nasal congestion might prevent LAIV from reaching nasopharyngeal mucosa • See Storage and Handling section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/flulive.html	

Japanese Encephalitis Vaccine

Vaccine Description	• Ixiaro® • Inactivated • Contains bovine serum albumin, protamine sulfate • See package insert
Dose and Route	• Dose: 0.5 mL • Route: IM (Use IM precautions for persons with bleeding disorders or receiving anticoagulation therapy)
Indications	• Individuals 17 years of age and older spending a month or longer in endemic areas (especially rural) during transmission season. (Determine risk by checking CDC or other travel medicine websites or check with local travel clinic for guidance.) • Laboratory workers exposed to JE virus
Administration Schedule	• 2 doses at 0 and 7-28 days, for ages 18-65 years • 2 doses at 0 and 28 days for adults older than 65 years NOTE: Last dose should be given at least 7 days (Ixiaro®) before international travel to ensure adequate immunity
Booster	• A one-time booster dose may be given at least 11 months after completion of the primary immunization series if ongoing exposure or re-exposure to JE virus is expected. • Adults aged 17 years and older who have received JE-VAX previously and require further vaccination against JE virus should receive a 2-dose primary series of Ixiaro.
Contraindications	• Serious allergic reaction to prior dose of Ixiaro® or other JE vaccine, vaccine component, or to protamine sulfate
Precautions	• Moderate or severe acute illness with or without fever. • Altered immunocompetence may result in reduced vaccine effectiveness • Safety and effectiveness of JE vaccines have not been established in pregnant women; use in pregnancy should be considered with clinical consultation of potential risk and benefit.
Special Considerations	• See pediatric section for information on giving this vaccine to persons younger than 17 years of age. • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/je-ixiaro.html Additional education may be found at www.health.mil/JEV	

Measles, Mumps, and Rubella (MMR) Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brand: M-M-R II®
• Live attenuated virus
• Contains neomycin, gelatin, (See package insert)</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL Route: SC</td></tr>
<tr><td>Indications</td><td colspan="2">• Adults born in 1957 or later and who do not have evidence of immunity
• All women of childbearing age who do not have evidence of immunity
• Two lifetime doses (separated by at least 4 weeks) of MMR-containing vaccine are indicated in susceptible individuals in high-risk groups including:
  • College students
  • International travelers
  • Healthcare personnel
  • Military service members</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 weeks after #1</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
• Pregnancy (or planned pregnancy in next month)
• Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised)</td></tr>
</table>

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Measles, Mumps, and Rubella (MMR) Vaccine

(Continued)

Precautions	• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product); see CDC Guidelines • History of thrombocytopenia or thrombocytopenic purpura • Moderate or severe acute illness with or without fever.
Special Considerations	• Women of childbearing age who have prior rubella-containing vaccine and have rubella-specific IgG levels that are not clearly positive should be administered 1 additional dose of MMR vaccine (maximum of 3 doses). • In mumps outbreak situations, MMR may be recommended for previously vaccinated adults, not to exceed a maximum of 3 lifetime doses • Tuberculin skin test (TST or PPD) can be applied at same visit as MMR. Delay TST for at least 4 weeks if MMR given first or apply TST first, then give MMR after TST is interpreted. • If another live injected vaccine and MMR are both needed and not administered on the same day, space vaccines at least 4 weeks apart • ACIP recommends avoiding pregnancy for 4 weeks following vaccine administration • Post-vaccination serologic testing to verify an immune response is not routinely recommended • Two documented age-appropriate MMR vaccinations are evidence of immunity and supersede subsequent negative serologic testing (MMWR 2013;62(4):8)
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/mmr.html Additional education may be found at www.health.mil/MMR	

Meningococcal (A, C, W, Y) Vaccine

Vaccine Description	• Brands: Menactra® and Menveo® • Inactivated, bacterial polysaccharide conjugate • See package insert
Dose & Route	• Dose: 0.5 mL • Route: IM (Menactra® and Menveo®) - (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert
Indications	• U.S. military basic trainees • Deploying personnel per CCMD guidance • Children at the 11-12 year of age visit or at subsequent visit • 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 (asplenia) • Anyone who has terminal complement component deficiency (an immune system disorder) • People at occupational risk • College freshmen, especially those who live in dormitories • People with HIV infection
Administration Schedule	• Single dose for most adults • Two doses, 2 months apart, for adults at high risk; e.g., HIV infection, asplenia, complement component deficiency, or traveling or residing in countries in which the disease is common • Menactra® is licensed for 9 months - 55 years • Menveo® is licensed for 2 months - 55 years of age • Individuals 56 years or older who are recommended meningococcal vaccination can receive either meningococcal conjugate vaccine (ACIP)
Booster (Menactra® and Menveo®)	• Menactra® and Menveo®: • A booster dose is recommended for people 19 through 21 years of age who are at risk (above) or first-year college students living in residence halls or a military recruit, if previous dose given before 16 years of age • People with persistent risk need booster every 5 years for as long as risk is present (this includes those with risk due to travel, persistent complement component deficiency, or functional or anatomic asplenia)

Continued on Next Page

Meningococcal (A, C, W, Y) Vaccine

(Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe illness (temporary waiver)

Special Considerations	• Despite reports of Guillain-Barrè syndrome (GBS) after Menactra® in 2005, several large studies since have failed to show vaccine causality. Therefore, a history of GBS does not preclude receipt of meningococcal vaccine.
	• Menactra® and Menveo® have not been widely studied in pregnant or lactating women and should be given only if clearly indicated.
	• Persons aged ≥56 years who are recommended meningococcal vaccination because they are at increased risk for meningococcal disease can receive either MenACWY conjugate vaccine. This includes:
	  • Meningococcal vaccine-naïve persons ≥56 years who require only a single dose of vaccine (e.g. travelers and persons at risk as a result of a community outbreak)
	  • Persons who are recommended for revaccination or for whom multiple doses are anticipated (e.g., persons with asplenia, HIV, and microbiologists)
	• See Storage and Handling Section

VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/mening.html Pregnancy registry for Menactra®: 1-800-822-2463 (Sanofi Pasteur); Pregnancy registry for Menveo®: 1-877-311-8972 (Novartis); also notify DHA- IHD Additional education may be found at www.health.mil/meningococcal	

Meningococcal B Vaccine

Vaccine Description	• Brands: Bexsero® (MenB-4C), Trumenba® (MenB-FHbp)
	• Inactivated (recombinant) vaccine
	  • MenB-4C contains 3 recombinant cell surface proteins
	  • MenB-FHbp contains 2 FHbp variants
	• Bexsero®: Tip cap contains natural rubber latex
	• See package insert

Dose & Route	• Dose: 0.5 mL • Route: IM in deltoid region of upper arm. (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert

Indications	• MenB vaccine routinely recommended for people 10 years of age and older at increased risk due to:
	  • a serogroup B meningococcal disease outbreak,
	  • being routinely exposed to Neisseria meningitidis occupationally, or
	  • certain medical conditions such as:
	  • a non-functioning, absent, or removed spleen (asplenia)
	  • a complement (immune) component deficiency (e.g., C5-C9, properdin, factor H, factor D, or are taking Soliris®)
	• Although safety and efficacy of MenB vaccine is not established in adults' ≥26 years of age, ACIP recommends routine vaccination in adults' ≥26 years of age with the above risk factors.
	• MenB vaccines, while not currently recommended, may be prescribed for healthy first-year college students living in residence halls, military recruits, or other adolescents (preferably at 16 through 18 years of age). MenB vaccine is not recommended for persons who travel to or reside in countries where meningococcal disease is hyperendemic or epidemic (because the risk for meningococcal disease in these countries generally is not caused by serogroup B).
	• Before administering MenB vaccines, providers should consult the package insert for precautions, warnings, and contraindications.

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Meningococcal B Vaccine

(Continued)

Administration Schedule	• Bexsero: 2-dose series, separated by at least 1 month • Trumenba (MenB-FHbp) is licensed as both a 2-dose (at 0 and 6 months) and 3-dose (at 0, 1-2, and 6 months) series. The choice of dosing schedule may depend on the risk of exposure and the patient's susceptibility to meningococcal serogroup B disease. If the second dose is administered earlier than 6 months after the first dose, a third dose should be administered at least 4 months after the second dose. • The same vaccine must be used for all doses. • May be given with other age-appropriate vaccines
Booster	• No recommendation for booster dosing is yet available.
Contraindications	• Serious allergic reaction to prior dose of Trumenba. • Hypersensitivity, including severe allergic reaction after a previous dose of Bexsero, or to any component of the vaccine.

Special Considerations	• Defer administration of MenB vaccine during pregnancy or lactation, unless the woman is at increased risk for meningococcal B disease and benefits of vaccination outweigh potential risks.
	• Immediately prior to administration of either vaccine, shake single-dose prefilled syringe well to obtain a homogeneous suspension.
	• Either MenB vaccine may be administered to immunosuppressed individuals; however, immune response may be reduced.
	  • For persons at increased risk for meningococcal disease and for use during serogroup B meningococcal disease outbreaks, ACIP recommends three doses of Trumenba® at 0, 1-2, and 6 months.
	  • For healthy adolescents not at increased risk for meningococcal disease, ACIP recommends 2 doses of Trumenba® at 0 and 6 months.
	• See Storage and Handling Section
	  • Bexsero: 2–8°C; protect from light. Do not freeze; if freezing occurs, discard vaccine.
	  • Trumenba: 2–8°C. Store syringes horizontally (lying flat) to minimize redispersion time. Do not freeze; if freezing occurs, discard vaccine

VIS: https://www.cdc.gov/vaccines/hcp/vis/vis-statements/mening-serogroup.html Pregnancy registry for Bexsero at 877-413-4759; also notify DHA- IHD Additional education may be found at www.health.mil/meningococcal	

Pneumococcal Conjugate Vaccine (PCV13)

Vaccine Description	• Brand: Prevnar 13® • Inactivated protein-conjugated vaccine • Contains diphtheria protein and aluminum (see package insert for other contents)
Dose & Route	• Dose: 0.5 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)
Indications	Adults 19 years of age or older with one or more of the following: • Cerebrospinal fluid leak, cochlear implant • Functional or anatomical asplenia including patients with sickle cell disease/other hemoglobinopathies • Congenital or acquired immunodeficiencies, HIV, infection, chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin's disease, generalized malignancy, solid organ transplant, or multiple myeloma • Diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy
Administration Schedule	• One time dose • If both PCV13 and PPSV23 are indicated, always give PCV13 first followed by PPSV23 after the appropriate interval; never give PCV13 and PPSV23 at the same time • If given prior to PPSV23, separate PCV13 and PPSV23 by at least 8 weeks. • If PPSV23 has already been given, do not give PCV13 sooner than 1 year after PPSV23 • For adults aged 65 years and older, if PCV13 was given before age 65 years, no additional PCV is needed
Contraindications	• Serious allergic reaction to a prior dose or vaccine component • Moderate or severe acute illness
Special Considerations	• See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/pcv13.html Additional education may be found at www.health.mil/pneumococcal	

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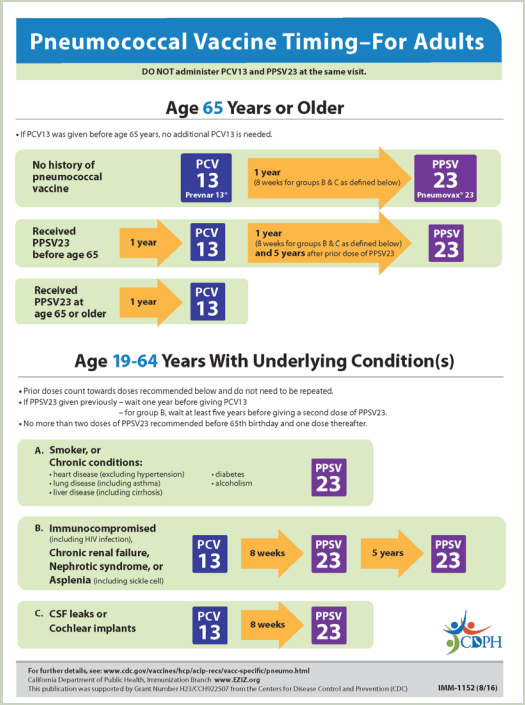
Pneumococcal Conjugate Vaccine (PCV13)

(Continued)

NOTE: ACIP recommends PCV13 based on shared clinical decision making for adults 65 years or older who do not have an immunocompromising condition and who have not previously received PCV13. All adults 65 years or older should receive a dose of PPSV23. See next card for PPSV23 information.

Source:
https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6434a4.htm



Pneumococcal Polysaccharide Vaccine (PPSV23)

Vaccine Description	• Brand: PNEUMOVAX®23 • 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	• Adults 65 years of age and older Adults 19 years old and older with one or more of the following: • Chronic cardiac, pulmonary (including asthma), or liver disease, diabetes, cerebrospinal fluid leak, cochlear implant, alcoholism, cigarette smokers • Functional or anatomical asplenia, including patients with sickle cell disease/other hemoglobinopathies • Congenital or acquired immunodeficiencies, HIV, infection, chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin's disease, generalized malignancy, solid organ transplant, or multiple myeloma • Diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy • People in environments or settings with increased risk for infection
Administration Schedule	• One time dose for patients 65 years and older. • If both PCV13 and PPSV23 are indicated, always give PCV13 first followed by PPSV23 after the appropriate interval; never give PCV13 and PPSV23 at the same time • Booster doses must be separated by at least 5 years

Continued on Next Page

Pneumococcal Polysaccharide Vaccine (PPSV23)

(Continued)

Booster	• Persons younger than 65 years of age with functional or anatomical asplenia (including sickle cell disease) or immunocompromising condition need to receive a booster dose 5 years after dose #1, followed by an additional booster dose at 65 years of age or older provided at least 5 years has elapsed since the prior dose. • Persons who received PPSV23 before age 65 years for any indication should receive another dose at age 65 years or older, at least 5 years after their previous dose.
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 immunosuppressive therapies or splenectomy for best effect (See timing in package insert) • Safety of PPSV23 vaccine for pregnant women has not been studied. Vaccinate candidates for pneumococcal vaccine before pregnancy, if possible. • If indicated, can be given to pregnant women after provider evaluation • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/ppv.html Additional education may be found at www.health.mil/pneumococcal	

Poliovirus Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Inactivated polio vaccine (IPV)
• Contains neomycin, streptomycin, polymyxin B, and calf serum proteins</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL
• Route: SC or IM (Use IM precautions for persons with bleeding disorders or receiving anticoagulation therapy)
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="2">• All military personnel
• Revaccination of U.S. residents older than 18 years of age not routinely recommended
• Consider vaccination of some adults at increased 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</td></tr>
<tr><td rowspan="4">Administration Schedule*

*Only for previously unvaccinated persons

Note: doses should be separated by a minimum of 1 month</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td>#1</td><td></td></tr>
<tr><td>#2</td><td>1 to 2 months after dose #1</td></tr>
<tr><td>#3</td><td>6 to 12 months after dose #2</td></tr>
<tr><td>Booster (if needed based on risk)</td><td colspan="2">• Previously completed series: administer one IPV dose
• Incomplete series: administer remaining required IPV doses. Do not restart series</td></tr>
</table>

Continued on Next Page

Poliovirus Vaccine

(Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component (IPV)
Precautions	• Moderate or severe acute illness
Special Considerations	• Vaccine-associated paralytic poliomyelitis (VAPP) associated with Oral Polio Vaccine (OPV), so OPV no longer used in U.S. • See Storage and Handling Section NOTE: Recently the CDC and WHO issued interim guidance for polio vaccination for travel to and from countries affected by wild poliovirus and includes exit requirements for proof of polio vaccination when leaving the country at borders and airports. Check CDC or other travel medicine websites, or check with local travel clinic for guidance.
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/ipv.html Additional education may be found at www.health.mil/polio	

FACTOID: Poliovirus can invade the nervous system, and can cause total paralysis. Polio vaccine provides protection against this disease.

Source:
http://www.polioeradication.org/Polioandprevention.aspx

Rabies Vaccine

Vaccine Description	• Brands: RabAvert® and Imovax® • Inactivated virus vaccine • Some products may contain bovine and chicken proteins, human albumin, neomycin, and amphotericin B • See package inserts
Dose & Route	• Dose: 1 mL • Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert
Indications	• High-risk groups (veterinarians, animal handlers, certain laboratory workers) • People spending time in foreign countries where canine rabies is endemic and immediate definitive medical care is not readily available • People at high risk of exposure in countries where locally available rabies vaccines may carry a high risk of adverse reactions • People who have been exposed to rabies
Pre-exposure Vaccine Schedule	• 3 doses at 0, 7, and 21-28 days • Booster dose: 1 mL IM every 2 to 5 years when antibody titer falls below acceptable level (depends on exposure risk category - see ACIP recommendations) • Do not start the pre-exposure series if patient cannot finish the series prior to travel
Post-exposure Vaccine Schedule	**Previously vaccinated:** 2 doses at 0 and 3 days **No prior rabies vaccine:** 4 doses at 0, 3, 7, and 14 days and rabies immune globulin (RIG) with first dose (see next page); if immunocompromised give a fifth dose on day 28
Contraindications/ Precautions * Consult with health provider for pre-exposure use	**Pre-exposure:** • Serious allergic reaction to previous dose or vaccine component* • Immune-suppressive illness or therapy, including high-dose systemic corticosteroids* • Pregnancy: if clearly needed per ACIP* • Moderate of severe acute illness **Post-exposure:** • There are no known specific contraindications to rabies vaccine in the event of an exposure (see next page)
Special Considerations	• See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/rabies.html Additional education may be found at www.health.mil/rabies	

Rabies Vaccine
ACIP Recommendations (2010)

There are no known specific contraindications to rabies vaccine in the event of an exposure. If the person has an allergy to the vaccine or vaccine component, consult with a healthcare provider prior to administering the vaccine and ensure necessary emergency equipment is available to respond to potential allergic reactions.

Vaccination Status	Treatment	Regimen**
Not previously vaccinated	Wound cleansing	• Begin all post-exposure 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	• Administer 20 international units of RIG 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 administer 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, and 14; if immunocompromised give a fifth dose on day 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

RIG=rabies immune globulin

**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 rabies vaccine; prior postexposure prophylaxis with rabies vaccine or previous vaccination with any other type of rabies vaccine and a documented history of antibody response to the prior vaccination.

Smallpox (Vaccinia) Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brand: ACAM2000™ - 100-dose vial
• Live vaccinia virus
• See package insert for contents</td></tr>
<tr><td rowspan="2">Dose and Route</td><td>DOSE</td><td>ROUTE</td></tr>
<tr><td>15 jabs using bifurcated needle (for primary and re-vaccination)</td><td>Percutaneous (scarification)</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>Booster Schedule</td><td>Dose
15 jabs using bifurcated needle</td><td>Recommended Interval
• Pre-event: 10 yrs for categories above (except lab workers).
• Lab workers involved in orthopox virus research: 3 yrs.
• Outbreak: 3 yrs.</td></tr>
</table>

Continued on Next Page

Smallpox (Vaccinia) Vaccine

(Continued)

Screening Questionnaire 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 breast-feeding • Moderate or severe illness, with or without fever • Serious allergic reaction to prior dose or vaccine component – see package insert and refer to allergist for evaluation and exemption status • Atopic dermatitis or eczema, current or history of this problem (refer to dermatologist or allergist-immunologist to determine if exemption is necessary) • Immune system disorder (e.g., HIV, congenital immune deficiency, illness, medications, or chronic infection) • Heart or blood vessel disease such as chest pain, prior heart attack, heart failure, stroke or "mini stroke," history of significant arrhythmia, dyspnea on exertion, or have three of the following: tobacco use, high blood pressure, high cholesterol, diabetes, or significant cardiac family history – see Adverse Event Info • Close contact with person(s) with risk factors for vaccine virus complications (above) UNLESS alternative care and/or lodging arrangements can be made or home situation allows for avoidance of contact risk • Steroid (or any) eye drops or ointment • Recent eye surgery (within 8 weeks) • Child ≤ 1 year old in the home • Active skin condition with breaks in the skin (e.g., acne, severe burn, etc.) • High-dose steroid use for more than two weeks within the last month **Post-exposure** • There are NO absolute contraindications following post-smallpox exposure

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Smallpox (Vaccinia) Vaccine

(Continued)

Precautions and Issues Temporary medical exemption may be needed May require consultation and treatment before vaccination	**Pre-Event** • Topical immunosuppressive therapy • Systemic lupus and other connective tissue disease, particularly if on immunosuppressive therapy • Other acute or chronic diseases may require medical consultation • Do not administer with varicella vaccine (as both can cause skin rash thereby confusing diagnosis, treatment, and risk assessment)
Education and Screening	Do NOT administer vaccine without patient receiving 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.health.mil/smallpoxresourcecenter
Vaccinator Education & Competency Assessment	• Assure that training and competency assessment has been completed by vaccinator. Education available at: www.health.mil/smallpoxresourcecenter and Joint Knowledge Online: https://jkodirect.jten.mil/ • Practice vaccine administration technique with saline before actual vaccine administration • Assess vaccination technique by evaluating vaccination take rates among first cohort of vaccinees (e.g., 50 to 100) for each vaccinator. Takes should be greater than 95%.

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After Vaccination, Patient-Specific Education
 	
Special Precautions Care and Follow-up
 	
Caution: Several reported cases of autoinoculation caused by uncovered site 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 dressed site with plastic wrap during shower, then replace moist bandage with a dry bandage or allow 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 current or a history of atopic dermatitis or eczema
	  • People who are immunocompromised
	  • Pregnant women
	  • Infants
	• Wash your hands regularly, especially before caring for a child younger than 1 year old. Avoid direct contact between child and vaccination site.
	• Be aware that virus may be present until site heals and skin returns to normal color, which can take more than 30 days
	• Do not touch the vaccination site
	• If you touch the site by accident, wash your hands immediately and then clean soiled 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 or using creams/ointment on the site. Launder items that have touched the site with hot soapy water, take care to avoid risk to others from contact with contaminated laundry.

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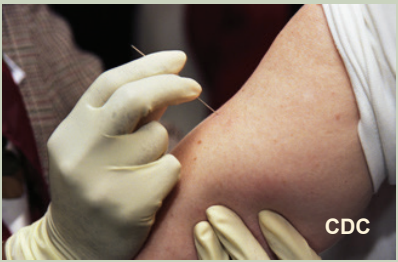
Smallpox (Vaccinia) Vaccine

(Continued)

Location of vaccine administration *Follow package insert instructions carefully when reconstituting vaccine	• Usually over the deltoid upper arm; non-dominant arm (left if right handed or vice versa) is preferred to facilitate care of vaccination site. • Place low enough to allow for non-adhesive circumferential bandaging for those with hypersensitivity to standard bandage tape • Although deltoid site preferred (encouraged), please check with a credentialed provider for appropriate alternative sites, if necessary • Avoid locations that are hard to care for or associated with sweating or clothing irritation • Do NOT vaccinate directly on old scar • Avoid tattooed 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 • Unless obviously dirty, skin preparation is not needed. If alcohol is used, the skin must dry completely to prevent inactivating the vaccine virus.



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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 *Administer vaccination low enough to allow for coban-like wrap if tape reaction occurs at site*	• See storage and handling section for how to reconstitute vaccine; Note: diluent vial contains 0.6 mL of solution, but only 0.3 mL is mixed with the vaccine for reconstitution. • Wear gloves, particularly if you 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 non-adherent bandage package so that sterile surface of package wrapper and non- adherent bandage are conveniently located near vial • Open vial and place stopper on its side on the sterile non-adherent bandage; position to avoid accidental contact (e.g., with sleeve or hand) • Open needle package (or have assistant open) • Submerge bifurcated end of needle in reconstituted vaccine solution. The needle will pick up a droplet of vaccine (0.0025 mL) within the fork of the bifurcation. (Do NOT hold over head to inspect) • Hold patient's upper arm with one hand under the arm pit area for maximum stability and 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 • Rapidly make 15 jabs with the needle perpendicular to the skin to puncture the skin within a diameter of about 5 mm. The jabs should be vigorous enough so that a drop of blood appears at the vaccination site. • 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

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Smallpox (Vaccinia) Vaccine

(Continued)

Data Recording Patient Specific	• SF 601 Immunization Record • CDC 731 (formally PHS 731) Yellow Immunization Record • DoD Smallpox Vaccination Administration Form • DD Form 2766 • Automated medical registry per Service-specific guidelines/immunization tracking system
Tips on Vaccinating	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 • Frank bleeding (may reflect too forceful technique) Note: If no evidence of skin penetration (e.g., patient felt dull sensation only), repeat procedure with NEW needle and same vaccine dose (15 jabs)
Tips on Bandaging Avoiding autoinoculation and spread to contacts	Use non-stick, breathable bandages unless injection site has drainage. Vary bandage size to reduce tape irritation. Use latex-free products. Encourage patient to keep site covered with non-stick bandage until scab falls off and skin returns to normal, which may take more than 30 days. Keep site dry. Patient teaching is critical. Hand out the DHA-IHD brochure, *What You Need to Know About Smallpox Vaccine*. In addition, you must distribute the ACAM2000™ Medication Guide.

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Smallpox (Vaccinia) Vaccine

(Continued)

Vaccine TAKE Evaluation MAJOR REACTION VS. "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 6 to 8 days after vaccination • Repeat vaccination in a primary vaccinee if no pustular lesion or definite palpable induration • Palpate with gloved finger for induration. • In the primary vaccinee, an equivocal reaction is any reaction that is not a major reaction, and indicates a non-take (vaccination failure) due to impotent vaccine or inadequate vaccination technique. • In re-vaccinees, prior vaccination may modify (reduce) the cutaneous response such that the absence of a cutaneous response does not necessarily indicate vaccination failure. Previously vaccinated individuals who do not have a cutaneous response on revaccination do not require revaccination to try to elicit a cutaneous response. • Obtain second opinion in reading if unclear • If "NO TAKE": Repeat vaccination procedure in primary vaccinee only once with 15 jabs • SECOND "NO TAKE": If after a second attempt there is still no evidence of a cutaneous reaction the individual is considered adequately protected against smallpox (immune) for all military-related assignments, including deployment. No further diagnostic evaluation is required.
Additional Notes	Most recent screening forms available: www.health.mil/smallpoxresourcecenter (see 'screening forms')
For more information: www.health.mil/smallpoxresourcecenter Pregnancy registry: 1-619 553-9255, DSN 553-9255, or email: NHRC-BirthRegistry@med.navy.mil. Also notify DHA-IHD.	

Tetanus and Diphtheria (Td) Toxoid Vaccine

Vaccine Description	• Brands: Tenivac® • Inactivated vaccine • Td contains thimerosal; the syringe tip caps may contain dry natural latex rubber • See package insert • See separate pages for information on **Tdap**	
Dose & Route	• Dose: 0.5 mL • Route: IM (Use IM precautions for persons with bleeding disorders or receiving anticoagulation therapy)	
Indications	• Td is recommended for all adolescents and adults • 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 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	
Precautions	• Guillain-Barre Syndrome (GBS) <6 weeks after previous dose of tetanus-toxoid–containing vaccine • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid-containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid containing vaccine • Moderate or severe acute illness with or without fever	
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) • Neurological reaction, including Guillain-Barré syndrome (GBS), within 6 weeks of receiving a tetanus-containing vaccine (provider must weigh benefits and risks) • See Storage and Handling Section	
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/td.html Additional education may be found at www.health.mil/tdap		

Tetanus and Diphtheria Toxoids and Acellular Pertussis (Tdap) Vaccine

Vaccine Description	• Brands: Boostrix® and Adacel® • Inactivated vaccine • The tip caps of the prefilled syringes of Boostrix® and Adacel® may contain natural rubber latex
Dose & Route	• Dose: 0.5 mL • Route: IM (Use IM Precautions for persons with bleeding disorders or receiving anticoagulation therapy)

Indications	• At least one dose of Tdap is recommended for people 10 years of age and older (see special recommendation for pregnant women below)
	• 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
	• ACIP recommendations (off-label):
	  • use Tdap when indicated regardless of interval since last tetanus-containing vaccine
	  • use Tdap in undervaccinated children 7-10 years of age
	  • give a dose of Tdap during each pregnancy irrespective of prior history of Tdap with optimal timing for administration between 27 and 36 weeks gestation
	• See package insert

Administration Schedule	• Single dose
Contraindications	• Severe allergic reaction (e.g. anaphylaxis) after a previous dose or to a vaccine component • Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause within 7 days of administration of previous dose of DTP, DTaP or Tdap

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

Precautions	• Guillain-Barre Syndrome (GBS) <6 weeks after a previous dose of tetanus-toxoid–containing vaccine • Progressive or unstable neurological disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid-containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid-containing vaccine • Moderate or severe acute illness with or without fever
Special Considerations	• See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/tdap.html Additional education may be found at www.health.mil/tdap	

FACTOID: Tetanus infection leads to death in about 1 in 10 cases.

Source:
http://www.cdc.gov/vaccines/vpd-vac/tetanus/default.htm

Typhoid Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brands and types:
• Vivotif®: Oral live-attenuated - Ty21a (≥6 years of age and older); Contains lactose
• Typhim Vi® : capsular polysaccharide - ViCPS (≥2 years of age and older); Contains phenol
• See package insert; neither product contains latex</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Ty21a dose: 4 capsules Route: Oral
• ViCPS dose: 0.5 mL Route: IM - (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)
• See package inserts</td></tr>
<tr><td>Indications</td><td colspan="2">• Ty21a: is approved for persons ≥6 years of age
• ViCPS: is approved for persons ≥2 years of age
• Travelers to areas where a recognized risk of exposure to typhoid exists, particularly ones who will have prolonged exposure to potential contaminated food and water
• Persons with intimate exposure (i.e. continued household contact) to a documented typhoid carrier
• Microbiology laboratorians who work frequently with S. typhi
• DoD Policy. Vaccination is required or personnel who will deploy to typhoid-endemic areas and other areas with poor water sanitation. Typhoid immunization is generally required for members of units designated to be ready to deploy outside of the U.S. within 10 days of notification.</td></tr>
<tr><td rowspan="3">Administrative Schedule</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td>Oral Ty21a: 1 capsule x 4 doses</td><td>1 capsule every 48 hours taken 1 hour before meal. Take only with cool or luke- warm fluids</td></tr>
<tr><td>ViCPS: 1 dose 0.5 mL IM</td><td>Not Applicable</td></tr>
<tr><td rowspan="2">Booster
If repeated or continued exposure to the typhi organism</td><td>Oral Ty21a</td><td>Every 5 years</td></tr>
<tr><td>ViCPS</td><td>Every 2 years</td></tr>
</table>

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Typhoid Vaccine
(Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Do not administer Ty21a to people with moderate or severe gastrointestinal illness • Do not administer Ty21a to people who are immunocompromised • Do not administer Ty21a to people who have taken antibiotics or sulfonamides during prior 3 days. • Pregnancy: Do not administer Ty21a; refer to provider to determine if ViCPS should be given
Special Considerations	• Avoid oral antibiotics use with Ty21a (may compromise immune response to vaccine bacteria) • Give Ty21a only if 10 days or more have elapsed since the final dose of Proguanil for malaria prophylaxis was ingested. See package insert under "Drug-Interactions". • Caution travelers that typhoid vaccination is not a substitute for careful selection of food and drink • Do NOT restart oral typhoid 4-dose series unless an interval extends greater than 3 weeks (consult a provider) • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/typhoid.html Additional education may be found at www.health.mil/typhoid	

Varicella Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brand: Varivax®
• Live attenuated virus
• Contains gelatin, neomycin; 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</td><td colspan="2">• 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 immunocompromised</td></tr>
<tr><td rowspan="3">Administration Schedule</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td>#1</td><td></td></tr>
<tr><td>#2</td><td>4 to 8 weeks later</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction to prior dose or vaccine component
• Pregnancy, or possibility of pregnancy within one month
• Moderate or severe acute illness
• Immune suppression from disease or therapies
• Blood dyscrasia, leukemia, lymphoma, or other malignant neoplasm affecting the bone marrow or lymphatic system
• Active, untreated tuberculosis</td></tr>
</table>

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Varicella Vaccine

(Continued)

Special Considerations	• Recent receipt of blood product (See current CDC guidelines) • Adolescents and adults with CD4+ T-lymphocyte counts of 200 cells/microliter or more can also receive varicella vaccine (2 doses, at least 3 months apart). • 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 caution should be exercised if administered to a nursing woman • Manufacturer recommends that salicylates be avoided for 6 weeks after receiving varicella vaccine due to 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/hcp/vis/vis-statements/varicella.html Pregnancy monitoring: 1-877-888-4231 (Merck); also notify DHA-IHD Additional education may be found at www.health.mil/chickenpox	

Yellow Fever

Vaccine Description	• Brand: YF-VAX® • Live attenuated virus vaccine • Contains egg protein, sorbitol and gelatin ° See package insert for other content information
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert
Indications	• People 9 months of age and older living or traveling in endemic areas (consult CDC website, other travel medical website, or local travel clinic for travel vaccine needs) • Laboratory personnel who might be exposed to virus • Deploying personnel per CCMD guidance (typically AFRICOM and SOUTHCOM AOR's)
Administration Schedule	• One dose

Booster	• A single primary dose of yellow fever vaccine provides long-lasting protection and is adequate for most travelers
	• Additional doses of yellow fever are recommended for certain travelers to include:
	  ° Women who were pregnant when they received their initial dose of yellow fever vaccine
	  ° Persons who received a HSCT after receiving a dose of yellow fever vaccine
	  ° Persons who were infected with HIV when they received their last dose of yellow fever vaccine
	  ° Lab workers who routinely handle wild-type yellow fever virus should have titers measured every 10 years to determine the need for additional doses of the vaccine
	  ° A booster dose may be given to travelers who received their last dose at least 10 years previously and who will be in a higher-risk setting based on season, location, activities and duration of their travel

Continued on Next Page

Yellow Fever

(Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component and people hypersensitive to eggs or gelatin • Moderate or severe acute illness • Infants younger than 6 months of age (given to infants 6-8 months of age only if travel and exposure cannot be avoided; consult provider) • People with immune-suppressed condition or altered immune state • People who do not have a functional thymus gland are at risk for meningitis and death following YF-VAX®
Special Considerations	• **People 60 years of age and older are at increased risk for systemic adverse events following YF-VAX®** • Pregnancy: no evidence of adverse effects, but avoid when possible. If travel is unavoidable, healthcare provider may recommend vaccination • Women who are breastfeeding • If YF-VAX® vaccine and another live vaccine are both needed and not administered on the same day, space them at least 30 days apart. The effect of non-simultaneous administration of rubella, mumps, varicella, and yellow fever vaccines is unknown. • Yellow fever vaccine has been associated with fever, and with aches, as well as soreness, redness or swelling where the shot was given. These problems occur in up to 1 person out of 4. They usually begin soon after the shot, and can last up to a week. • For documentation of a protective immune response to vaccine where it is deemed essential, contact the CDC at 1-970-221-6400; please also contact DHA-IHD. • Must be used within one hour of reconstitution • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/yf.html Additional education may be found at www.health.mil/yellowfever	

Zoster Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Recombinant Zoster Vaccine(RZV)
• Brand: Shingrix®
• Adjuvanted viral particle vaccine</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL Route: IM
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="2">• People 50 years of age and older (CDC preferred)</td></tr>
<tr><td>Administration Schedule</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td></td><td>Two doses</td><td>Between 2 and 6 months</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction to any component of the vaccine or after a previous dose of SHINGRIX.</td></tr>
<tr><td>Special Considerations</td><td colspan="2">• Most people get a sore arm with mild to moderate pain after vaccination and some have redness and swelling where they got the shot. About 1 out of 6 people who get RZV may develop side effects that prevent him/her from doing regular activities. Symptoms typically go away on their own in about 2-3 days.
• Not indicated during pregnancy
• Not studied in children
• Must be used within 6 hours of reconstitution
• Do not freeze component vials
• See Storage and Handling Section</td></tr>
<tr><td colspan="3">VIS: https://www.cdc.gov/vaccines/hcp/vis/vis-statements/shingles-recombinant.html
Pregnancy monitoring: notify DHA-IHD
Additional education may be found at www.health.mil/shingles</td></tr>
</table>

Pediatric Immunizations

Defense Health Agency
Immunization Healthcare Division
(DHA-IHD)

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 and ACIP guidelines for specific vaccine recommendations and precautions as only absolute contraindications are listed herein. Links to VIS (Vaccine Information Statement) created by CDC are provided where applicable under each vaccine.

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger

UNITED STATES 2020

Vaccines in the Child and Adolescent Immunization Schedule*

Vaccines	Abbreviations	Trade names
Diphtheria, tetanus, and acellular pertussis vaccine	**DTaP**	Daptacel® Infanrix®
Diphtheria, tetanus vaccine	**DT**	No trade name
Haemophilus influenzae type b vaccine	**Hib (PRP-T)**	ActHIB® Hiberix®
	Hib (PRP-OMP)	PedvaxHIB®
Hepatitis A vaccine	**HepA**	Havrix® Vaqta®
Hepatitis B vaccine	**HepB**	Engerix-B® Recombivax HB®
Human papillomavirus vaccine	**HPV**	Gardasil 9®
Influenza vaccine (inactivated)	**IIV**	Multiple
Influenza vaccine (live, attenuated)	**LAIV**	FluMist® Quadrivalent
Measles, mumps, and rubella vaccine	**MMR**	M-M-R® II
Meningococcal serogroups A, C, W, Y vaccine	**MenACWY-D**	Menactra®
	MenACWY-CRM	Menveo®
Meningococcal serogroup B vaccine	**MenB-4C**	Bexsero®
	MenB-FHbp	Trumenba®
Pneumococcal 13-valent conjugate vaccine	**PCV13**	Prevnar 13®
Pneumococcal 23-valent polysaccharide vaccine	**PPSV23**	Pneumovax® 23
Poliovirus vaccine (inactivated)	**IPV**	IPOL®
Rotavirus vaccine	**RV1**	Rotarix®
	RV5	RotaTeq®
Tetanus, diphtheria, and acellular pertussis vaccine	**Tdap**	Adacel® Boostrix®
Tetanus and diphtheria vaccine	**Td**	Tenivac® Tdvax™
Varicella vaccine	**VAR**	Varivax®
Combination vaccines *(use combination vaccines instead of separate injections when appropriate)*		
DTaP, hepatitis B, and inactivated poliovirus vaccine	**DTaP-HepB-IPV**	Pediarix®
DTaP, inactivated poliovirus, and *Haemophilus influenzae* type b vaccine	**DTaP-IPV/Hib**	Pentacel®
DTaP and inactivated poliovirus vaccine	**DTaP-IPV**	Kinrix® Quadracel®
Measles, mumps, rubella, and varicella vaccine	**MMRV**	ProQuad®

*Administer recommended vaccines if immunization history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

How to use the child/adolescent immunization schedule

1 Determine recommended vaccine by age **(Table 1)**

2 Determine recommended interval for catch-up vaccination **(Table 2)**

3 Assess need for additional recommended vaccines by medical condition and other indications **(Table 3)**

4 Review vaccine types, frequencies, intervals, and considerations for special situations **(Notes)**

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American Academy of Pediatrics (www.aap.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), and American College of Nurse-Midwives (www.midwife.org).

Report

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or 800-822-7967

Download the CDC Vaccine Schedules App for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html.

Helpful information

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

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CS310020-A

Table 1 Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2020

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2). School entry and adolescent vaccine age groups are shaded in gray.

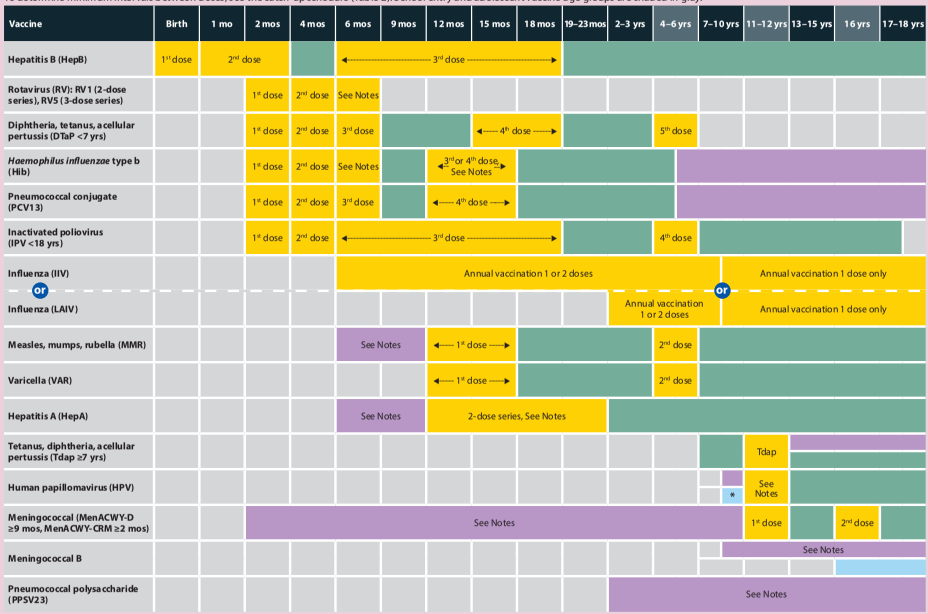


Table 2 Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who are More than 1 month Behind, United States, 2020

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. **Always use this table in conjunction with Table 1 and the notes that follow.**

Children age 4 months through 6 years

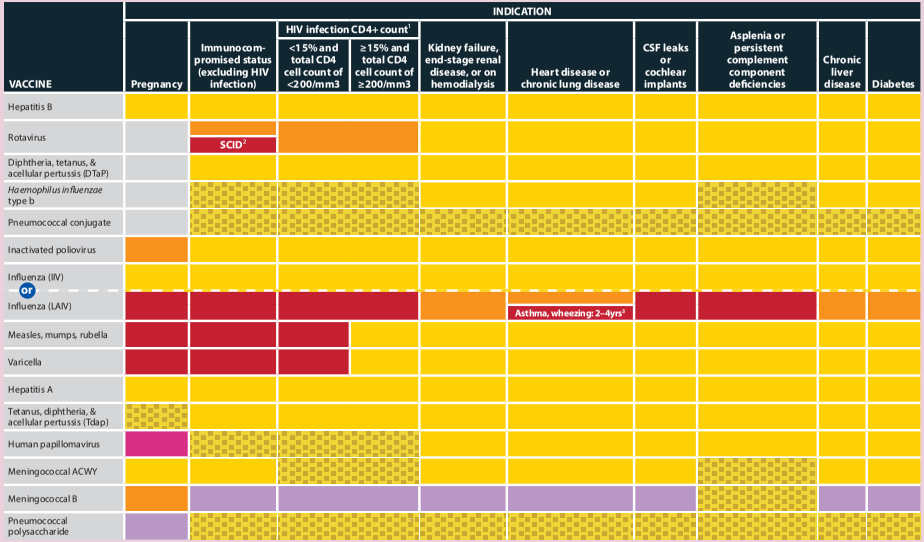
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B	Birth	**4 weeks**	**8 weeks *and* at least 16 weeks after first dose.** Minimum age for the final dose is 24 weeks.		
Rotavirus	6 weeks Maximum age for first dose is 14 weeks, 6 days	**4 weeks**	**4 weeks** Maximum age for final dose is 8 months, 0 days.		
Diphtheria, tetanus, and acellular pertussis	6 weeks	**4 weeks**	**4 weeks**	**6 months**	**6 months**
Haemophilus influenzae type b	6 weeks	**No further doses needed** if first dose was administered at age 15 months or older. **4 weeks** if first dose was administered before the 1st birthday. **8 weeks (as final dose)** if first dose was administered at age 12 through 14 months.	**No further doses needed** if previous dose was administered at age 15 months or older. **4 weeks** if current age is younger than 12 months ***and*** first dose was administered at younger than age 7 months ***and*** at least 1 previous dose was PRP-T (ActHib, Pentacel, Hiberix) or unknown. **8 weeks *and* age 12 through 59 months (as final dose)** if current age is younger than 12 months ***and*** first dose was administered at age 7 through 11 months; OR if current age is 12 through 59 months ***and*** first dose was administered before the 1st birthday ***and*** second dose administered at younger than 15 months; OR if both doses were PRP-OMP (PedvaxHIB, Comvax) ***and*** were administered before the 1st birthday.	**8 weeks (as final dose)** This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday.	
Pneumococcal conjugate	6 weeks	**No further doses needed** for healthy children if first dose was administered at age 24 months or older. **4 weeks** if first dose was administered before the 1st birthday. **8 weeks (as final dose for healthy children)** if first dose was administered at the 1st birthday or after.	**No further doses needed** for healthy children if previous dose administered at age 24 months or older. **4 weeks** if current age is younger than 12 months and previous dose was administered at <7 months old. **8 weeks (as final dose for healthy children)** if previous dose was administered between 7–11 months (wait until at least 12 months old); OR if current age is 12 months or older and at least 1 dose was given before age 12 months.	**8 weeks (as final dose)** This dose only necessary for children age 12 through 59 months who received 3 doses before age 12 months or for children at high risk who received 3 doses at any age.	
Inactivated poliovirus	6 weeks	**4 weeks**	**4 weeks** if current age is < 4 years. **6 months (as final dose)** if current age is 4 years or older.	**6 months** (minimum age 4 years for final dose).	
Measles, mumps, rubella	12 months	**4 weeks**			
Varicella	12 months	**3 months**			
Hepatitis A	12 months	**6 months**			
Meningococcal ACWY	2 months MenACWY-CRM 9 months MenACWY-D	**8 weeks**	See Notes	See Notes	

Children and adolescents age 7 through 18 years

Meningococcal ACWY	Not applicable (N/A)	**8 weeks**			
Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis	7 years	**4 weeks**	**4 weeks** if first dose of DTaP/DT was administered before the 1st birthday. **6 months (as final dose)** if first dose of DTaP/DT or Tdap/Td was administered at or after the 1st birthday.	**6 months** if first dose of DTaP/DT was administered before the 1st birthday.	
Human papillomavirus	9 years	**Routine dosing intervals are recommended.**			
Hepatitis A	N/A	**6 months**			
Hepatitis B	N/A	**4 weeks**	**8 weeks *and* at least 16 weeks after first dose.**		
Inactivated poliovirus	N/A	**4 weeks**	**6 months** A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months after the previous dose.	A fourth dose of IPV is indicated if all previous doses were administered at <4 years or if the third dose was administered <6 months after the second dose.	
Measles, mumps, rubella	N/A	**4 weeks**			
Varicella	N/A	**3 months** if younger than age 13 years. **4 weeks** if age 13 years or older.			

Table 3 Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2020

Always use this table in conjunction with Table 1 and the notes that follow.



1 For additional information regarding HIV laboratory parameters and use of live vaccines, see the General Best Practice Guidelines for Immunization, "Altered Immunocompetence," at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html and Table 4-1 (footnote D) at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html.

2 Severe Combined Immunodeficiency

3 LAIV contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months.

For vaccine recommendations for persons 19 years of age or older, see the Recommended Adult Immunization Schedule.

Additional information

- Consult relevant ACIP statements for detailed recommendations at www.cdc.gov/vaccines/hcp/acip-recs/index.html.
- For information on contraindications and precautions for the use of a vaccine, consult the General Best Practice Guidelines for Immunization at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html and relevant ACIP statements at www.cdc.gov/vaccines/hcp/acip-recs/index.html.
- For calculating intervals between doses, 4 weeks = 28 days. Intervals of ≥4 months are determined by calendar months.
- Within a number range (e.g., 12–18), a dash (–) should be read as "through."
- Vaccine doses administered ≤4 days before the minimum age or interval are considered valid. Doses of any vaccine administered ≥5 days earlier than the minimum age or minimum interval should not be counted as valid and should be repeated as age-appropriate. The repeat dose should be spaced after the invalid dose by the recommended minimum interval. For further details, see Table 3-1, Recommended and minimum ages and intervals between vaccine doses, in General Best Practice Guidelines for Immunization at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html.
- Information on travel vaccine requirements and recommendations is available at www.cdc.gov/travel/.
- For vaccination of persons with immunodeficiencies, see Table 8-1, Vaccination of persons with primary and secondary immunodeficiencies, in General Best Practice Guidelines for Immunization at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html, and Immunization in Special Clinical Circumstances (In: Kimberlin DW, Brady MT, Jackson MA, Long SS, eds. *Red Book: 2018 Report of the Committee on Infectious Diseases*. 31st ed. Itasca, IL: American Academy of Pediatrics; 2018:67–111).
- For information regarding vaccination in the setting of a vaccine-preventable disease outbreak, contact your state or local health department.
- The National Vaccine Injury Compensation Program (VICP) is a no-fault alternative to the traditional legal system for resolving vaccine injury claims. All routine child and adolescent vaccines are covered by VICP except for pneumococcal polysaccharide vaccine (PPSV23). For more information, see www.hrsa.gov/vaccinecompensation/index.html.

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

Routine vaccination

- 5-dose series at 2, 4, 6, 15–18 months, 4–6 years
  - **Prospectively:** Dose 4 may be administered as early as age 12 months if at least 6 months have elapsed since dose 3.
  - **Retrospectively:** A 4th dose that was inadvertently administered as early as 12 months may be counted if at least 4 months have elapsed since dose 3.

Catch-up vaccination

- Dose 5 is not necessary if dose 4 was administered at age 4 years or older and at least 6 months after dose 3.
- For other catch-up guidance, see Table 2.

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

Routine vaccination

- **ActHIB, Hiberix, or Pentacel:** 4-dose series at 2, 4, 6, 12–15 months
- **PedvaxHIB:** 3-dose series at 2, 4, 12–15 months

Catch-up vaccination

- **Dose 1 at 7–11 months:** Administer dose 2 at least 4 weeks later and dose 3 (final dose) at 12–15 months or 8 weeks after dose 2 (whichever is later).
- **Dose 1 at 12–14 months:** Administer dose 2 (final dose) at least 8 weeks after dose 1.
- **Dose 1 before 12 months and dose 2 before 15 months:** Administer dose 3 (final dose) 8 weeks after dose 2.
- **2 doses of PedvaxHIB before 12 months:** Administer dose 3 (final dose) at 12–59 months and at least 8 weeks after dose 2.
- **Unvaccinated at 15–59 months:** 1 dose
- **Previously unvaccinated children age 60 months or older** who are not considered high risk do not require catch-up vaccination.
- For other catch-up guidance, see Table 2.

Special situations

- **Chemotherapy or radiation treatment:**
  12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

  Doses administered within 14 days of starting therapy or during therapy should be repeated at least 3 months after therapy completion.
- **Hematopoietic stem cell transplant (HSCT):**
  - 3-dose series 4 weeks apart starting 6 to 12 months after successful transplant, regardless of Hib vaccination history
- **Anatomic or functional asplenia (including sickle cell disease):**
  12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

  Unvaccinated persons age 5 years or older*
  - 1 dose
- **Elective splenectomy:**
  Unvaccinated persons age 15 months or older*
  - 1 dose (preferably at least 14 days before procedure)
- **HIV infection:**
  12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

  Unvaccinated persons age 5–18 years*
  - 1 dose
- **Immunoglobulin deficiency, early component complement deficiency:**
  12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

**Unvaccinated* = Less than routine series (through 14 months) OR no doses (15 months or older)

Hepatitis A vaccination
(minimum age: 12 months for routine vaccination)

Routine vaccination
- 2-dose series (minimum interval: 6 months) beginning at age 12 months

Catch-up vaccination
- Unvaccinated persons through 18 years should complete a 2-dose series (minimum interval: 6 months).
- Persons who previously received 1 dose at age 12 months or older should receive dose 2 at least 6 months after dose 1.
- Adolescents 18 years and older may receive the combined HepA and HepB vaccine, **Twinrix®**, as a 3-dose series (0, 1, and 6 months) or 4-dose series (0, 7, and 21–30 days, followed by a dose at 12 months).

International travel
- Persons traveling to or working in countries with high or intermediate endemic hepatitis A (www.cdc.gov/travel/):
  - **Infants age 6–11 months**: 1 dose before departure; revaccinate with 2 doses, separated by at least 6 months, between 12 and 23 months of age
  - **Unvaccinated age 12 months and older**: Administer dose 1 as soon as travel is considered.

Hepatitis B vaccination
(minimum age: birth)

Birth dose (monovalent HepB vaccine only)
- **Mother is HBsAg-negative:** 1 dose within 24 hours of birth for **all** medically stable infants ≥2,000 grams. Infants <2,000 grams: Administer 1 dose at chronological age 1 month or hospital discharge.
- **Mother is HBsAg-positive:**
  - Administer **HepB vaccine** and **hepatitis B immune globulin (HBIG)** (in separate limbs) within 12 hours of birth, regardless of birth weight. For infants <2,000 grams, administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose.
- **Mother's HBsAg status is unknown:**
  - Administer **HepB vaccine** within 12 hours of birth, regardless of birth weight.
  - For infants <2,000 grams, administer **HBIG** in addition to HepB vaccine (in separate limbs) within 12 hours of birth. Administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Determine mother's HBsAg status as soon as possible. If mother is HBsAg-positive, administer **HBIG** to infants ≥2,000 grams as soon as possible, but no later than 7 days of age.

Routine series
- 3-dose series at 0, 1–2, 6–18 months (use monovalent HepB vaccine for doses administered before age 6 weeks)
- Infants who did not receive a birth dose should begin the series as soon as feasible (see Table 2).
- Administration of **4 doses** is permitted when a combination vaccine containing HepB is used after the birth dose.
- **Minimum age** for the final (3rd or 4th) dose: 24 weeks
- **Minimum intervals:** dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks (when 4 doses are administered, substitute "dose 4" for "dose 3" in these calculations)

Catch-up vaccination
- Unvaccinated persons should complete a 3-dose series at 0, 1–2, 6 months.
- Adolescents age 11–15 years may use an alternative 2-dose schedule with at least 4 months between doses (adult formulation **Recombivax HB** only).
- Adolescents 18 years and older may receive a 2-dose series of HepB **(Heplisav-B®)** at least 4 weeks apart.
- Adolescents 18 years and older may receive the combined HepA and HepB vaccine, **Twinrix**, as a 3-dose series (0, 1, and 6 months) or 4-dose series (0, 7, and 21–30 days, followed by a dose at 12 months).
- For other catch-up guidance, see Table 2.

Special situations
- Revaccination is not generally recommended for persons with a normal immune status who were vaccinated as infants, children, adolescents, or adults.
- **Revaccination** may be recommended for certain populations, including:
  - **Infants born to HBsAg-positive mothers**
  - **Hemodialysis patients**
  - **Other immunocompromised persons**
- For detailed revaccination recommendations, see www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html.

Human papillomavirus vaccination
(minimum age: 9 years)

Routine and catch-up vaccination
- HPV vaccination routinely recommended at **age 11–12 years (can start at age 9 years)** and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated
- 2- or 3-dose series depending on age at initial vaccination:
  - **Age 9 through 14 years at initial vaccination**: 2-dose series at 0, 6–12 months (minimum interval: 5 months; repeat dose if administered too soon)
  - **Age 15 years or older at initial vaccination**: 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)
- If completed valid vaccination series with any HPV vaccine, no additional doses needed

Special situations
- **Immunocompromising conditions, including HIV infection:** 3-dose series as above
- **History of sexual abuse or assault:** Start at age 9 years.
- **Pregnancy:** HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant; pregnancy testing not needed before vaccination

Influenza vaccination
(minimum age: 6 months [IIV], 2 years [LAIV], 18 years [recombinant influenza vaccine, RIV])

Routine vaccination
- Use any influenza vaccine appropriate for age and health status annually:
  - 2 doses, separated by at least 4 weeks, for **children age 6 months–8 years** who have received fewer than 2 influenza vaccine doses before July 1, 2019, or whose influenza vaccination history is unknown (administer dose 2 even if the child turns 9 between receipt of dose 1 and dose 2)
  - 1 dose for **children age 6 months–8 years** who have received at least 2 influenza vaccine doses before July 1, 2019
  - 1 dose for **all persons age 9 years and older**
- For the 2020–21 season, see the 2020–21 ACIP influenza vaccine recommendations.

Special situations
- **Egg allergy, hives only**: Any influenza vaccine appropriate for age and health status annually
- **Egg allergy with symptoms other than hives** (e.g., angioedema, respiratory distress, need for emergency medical services or epinephrine): Any influenza vaccine appropriate for age and health status annually in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions
- **LAIV should not be used** in persons with the following conditions or situations:
  - History of severe allergic reaction to a previous dose of any influenza vaccine or to any vaccine component (excluding egg, see details above)
  - Receiving aspirin or salicylate-containing medications
  - Age 2–4 years with history of asthma or wheezing
  - Immunocompromised due to any cause (including medications and HIV infection)
  - Anatomic or functional asplenia
  - Cochlear implant
  - Cerebrospinal fluid-oropharyngeal communication
  - Close contacts or caregivers of severely immunosuppressed persons who require a protected environment
  - Pregnancy
  - Received influenza antiviral medications within the previous 48 hours

Measles, mumps, and rubella vaccination (minimum age: 12 months for routine vaccination)

Routine vaccination
- 2-dose series at 12–15 months, 4–6 years
- Dose 2 may be administered as early as 4 weeks after dose 1.

Catch-up vaccination
- Unvaccinated children and adolescents: 2-dose series at least 4 weeks apart
- The maximum age for use of MMRV is 12 years.

Special situations
International travel
- **Infants age 6–11 months:** 1 dose before departure; revaccinate with 2-dose series with dose 1 at 12–15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later.
- **Unvaccinated children age 12 months and older:** 2-dose series at least 4 weeks apart before departure

Meningococcal serogroup A,C,W,Y vaccination (minimum age: 2 months [MenACWY-CRM, Menveo], 9 months [MenACWY-D, Menactra])

Routine vaccination
- 2-dose series at 11–12 years, 16 years

Catch-up vaccination
- Age 13–15 years: 1 dose now and booster at age 16–18 years (minimum interval: 8 weeks)
- Age 16–18 years: 1 dose

Special situations
Anatomic or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:
- **Menveo**
  - Dose 1 at age 8 weeks: 4-dose series at 2, 4, 6, 12 months
  - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart
- **Menactra**
  - **Persistent complement component deficiency or complement inhibitor use:**
    - Age 9–23 months: 2-dose series at least 12 weeks apart
    - Age 24 months or older: 2-dose series at least 8 weeks apart
  - **Anatomic or functional asplenia, sickle cell disease, or HIV infection:**
    - Age 9–23 months: Not recommended
    - Age 24 months or older: 2-dose series at least 8 weeks apart
    - **Menactra** must be administered at least 4 weeks after completion of PCV13 series.

Travel in countries with hyperendemic or epidemic meningococcal disease, including countries in the African meningitis belt or during the Hajj (www.cdc.gov/travel/)**:**
- Children less than age 24 months:
  - **Menveo (age 2–23 months):**
    - Dose 1 at 8 weeks: 4-dose series at 2, 4, 6, 12 months
    - Dose 1 at 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - **Menactra (age 9–23 months):**
    - 2-dose series (dose 2 at least 12 weeks after dose 1; dose 2 may be administered as early as 8 weeks after dose 1 in travelers)
- Children age 2 years or older: 1 dose **Menveo** or **Menactra**

First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:
- 1 dose **Menveo** or **Menactra**

Adolescent vaccination of children who received MenACWY prior to age 10 years:
- **Children for whom boosters are recommended** because of an ongoing increased risk of meningococcal disease (e.g., those with complement deficiency, HIV, or asplenia): Follow the booster schedule for persons at increased risk (see below).
- **Children for whom boosters are not recommended** (e.g., those who received a single dose for travel to a country where meningococcal disease is endemic): Administer MenACWY according to the recommended adolescent schedule with dose 1 at age 11–12 years and dose 2 at age 16 years.

Note: Menactra should be administered either before or at the same time as DTaP. For MenACWY **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and for addition al meningococcal vaccination information, see www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mening.html.

Meningococcal serogroup B vaccination (minimum age: 10 years [MenB-4C, Bexsero; MenB-FHbp, Trumenba])

Shared clinical decision-making
- **Adolescents not at increased risk** age 16–23 years (preferred age 16–18 years) based on shared clinical decision-making:
  - **Bexsero:** 2-dose series at least 1 month apart
  - **Trumenba:** 2-dose series at least 6 months apart; if dose 2 is administered earlier than 6 months, administer a 3rd dose at least 4 months after dose 2.

Special situations
Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:
- **Bexsero:** 2-dose series at least 1 month apart
- **Trumenba:** 3-dose series at 0, 1–2, 6 months

Bexsero and **Trumenba** are not interchangeable; the same product should be used for all doses in a series.
For MenB **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and for additional meningococcal vaccination information, see www.cdc.gov/vaccines/acip/recommendations.html and www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mening.html.

Pneumococcal vaccination (minimum age: 6 weeks [PCV13], 2 years [PPSV23])

Routine vaccination with PCV13
- 4-dose series at 2, 4, 6, 12–15 months

Catch-up vaccination with PCV13
- 1 dose for healthy children age 24–59 months with any incomplete* PCV13 series
- For other catch-up guidance, see Table 2.

Special situations
High-risk conditions below: When both PCV13 and PPSV23 are indicated, administer PCV13 first. PCV13 and PPSV23 should not be administered during the same visit.

Chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure), chronic lung disease (including asthma treated with high-dose, oral corticosteroids), diabetes mellitus:

Age 2–5 years
- Any incomplete* series with:
  - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

Age 6–18 years
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

Cerebrospinal fluid leak, cochlear implant:

Age 2–5 years
- Any incomplete* series with:
  - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

Age 6–18 years
- No history of either PCV13 or PPSV23: 1 dose PCV13, 1 dose PPSV23 at least 8 weeks later
- Any PCV13 but no PPSV23: 1 dose PPSV23 at least 8 weeks after the most recent dose of PCV13
- PPSV23 but no PCV13: 1 dose PCV13 at least 8 weeks after the most recent dose of PPSV23

Sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiency; HIV infection; chronic renal failure; nephrotic syndrome; malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and other diseases associated with treatment with immunosuppressive drugs or radiation therapy; solid organ transplantation; multiple myeloma:

Age 2–5 years
- Any incomplete* series with:
  - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose) and a 2nd dose of PPSV23 5 years later

Age 6–18 years
- No history of either PCV13 or PPSV23: 1 dose PCV13, 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after PCV13 and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
- Any PCV13 but no PPSV23: 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after the most recent dose of PCV13 and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
- PPSV23 but no PCV13: 1 dose PCV13 at least 8 weeks after the most recent PPSV23 dose and a 2nd dose of PPSV23 administered 5 years after dose 1 of PPSV23 and at least 8 weeks after a dose of PCV13

Chronic liver disease, alcoholism:

Age 6–18 years
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

**Incomplete series* = Not having received all doses in either the recommended series or an age-appropriate catch-up series See Tables 8, 9, and 11 in the ACIP pneumococcal vaccine recommendations at www.cdc.gov/mmwr/pdf/rr/rr5911.pdf for complete schedule details.

Poliovirus vaccination (minimum age: 6 weeks)

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

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

Series containing oral polio vaccine (OPV), either mixed OPV-IPV or OPV-only series:
- Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm?s_cid=mm6601a6_w.
- Only trivalent OPV (tOPV) counts toward the U.S. vaccination requirements.
  - Doses of OPV administered before April 1, 2016, should be counted (unless specifically noted as administered during a campaign).
  - Doses of OPV administered on or after April 1, 2016, should not be counted.
  - For guidance to assess doses documented as "OPV," see www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm?s_cid=mm6606a7_w.
- For other catch-up guidance, see Table 2.

Rotavirus vaccination (minimum age: 6 weeks)

Routine vaccination
- **Rotarix:** 2-dose series at 2 and 4 months
- **RotaTeq:** 3-dose series at 2, 4, and 6 months
- If any dose in the series is either **RotaTeq** or unknown, default to 3-dose series.

Catch-up vaccination
- Do not start the series on or after age 15 weeks, 0 days.
- The maximum age for the final dose is 8 months, 0 days.
- For other catch-up guidance, see Table 2.

Tetanus, diphtheria, and pertussis (Tdap) vaccination (minimum age: 11 years for routine vaccination, 7 years for catch-up vaccination)

Routine vaccination
- **Adolescents age 11–12 years:** 1 dose Tdap
- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- Tdap may be administered regardless of the interval since the last tetanus- and diphtheria-toxoid-containing vaccine.

Catch-up vaccination
- **Adolescents age 13–18 years who have not received Tdap:** 1 dose Tdap, then Td or Tdap booster every 10 years
- **Persons age 7–18 years not fully vaccinated* with DTaP:** 1 dose Tdap as part of the catch-up series (preferably the first dose); if additional doses are needed, use Td or Tdap.
- **Tdap administered at 7–10 years:**
  - **Children age 7–9 years** who receive Tdap should receive the routine Tdap dose at age 11–12 years.
  - **Children age 10 years** who receive Tdap do not need to receive the routine Tdap dose at age 11–12 years.
- **DTaP inadvertently administered at or after age 7 years:**
  - **Children age 7–9 years**: DTaP may count as part of catch-up series. Routine Tdap dose at age 11–12 years should be administered.
  - **Children age 10–18 years**: Count dose of DTaP as the adolescent Tdap booster.
- For other catch-up guidance, see Table 2.
- For information on use of Tdap or Td as tetanus prophylaxis in wound management, see www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm.

**Fully vaccinated* = 5 valid doses of DTaP OR 4 valid doses of DTaP if dose 4 was administered at age 4 years or older

Varicella vaccination (minimum age: 12 months)

Routine vaccination
- 2-dose series at 12–15 months, 4–6 years
- Dose 2 may be administered as early as 3 months after dose 1 (a dose administered after a 4-week interval may be counted).

Catch-up vaccination
- Ensure persons age 7–18 years without evidence of immunity (see www.cdc.gov/mmwr/pdf/rr/rr5604.pdf) have 2-dose series:
  - **Age 7–12 years**: routine interval: 3 months (a dose administered after a 4-week interval may be counted)
  - **Age 13 years and older**: routine interval: 4–8 weeks (minimum interval: 4 weeks)
  - The maximum age for use of MMRV is 12 years.

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

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Recommended interval to next dose	Minimum interval to next dose
Diphtheria-tetanus-acellular pertussis (DTaP)-1[5]	2 months	6 weeks	8 weeks	4 weeks
DTaP-2	4 months	10 weeks	8 weeks	4 weeks
DTaP-3	6 months	14 weeks	6-12 months[6]	6 months[6]
DTaP-4	15-18 months	15 months[6]	3 years	6 months
DTaP-5[7]	4-6 years	4 years	—	—
Haemophilus influenzae type b (Hib)-1[8]	2 months	6 weeks	8 weeks	4 weeks
Hib-2	4 months	10 weeks	8 weeks	4 weeks
Hib-3[9]	6 months	14 weeks	6-9 months	8 weeks
Hib-4	12-15 months	12 months	—	—
Hepatitis A (HepA)-1[5]	12-23 months	12 months	6-18 months	6 months
HepA-2	≥18 months	18 months	—	—
Hepatitis B (HepB)-1[10]	Birth	Birth	4 weeks-4 months	4 weeks
HepB-2	1-2 months	4 weeks	8 weeks-17 months	8 weeks
HepB-3[11]	6-18 months	24 weeks	—	—
Herpes zoster Live (ZVL)[12]	≥60 years	60 years[13]	—	—
Herpes zoster Recombinant (RZV)-1	≥50 years	50 years[14]	2-6 months	4 weeks
RZV-2	≥50 years (+2-6 months)	50 years	—	—
Human papillomavirus (HPV) – Two-Dose Series[15]				
HPV-1	11-12 years	9 years	6 months	5 months
HPV-2	11-12 years (+ 6 months)	9 years (+ 5 months)[16]	—	—
Human papillomavirus (HPV) – Three-Dose Series				
HPV-1[17]	11-12 years	9 years	1-2 months	4 weeks
HPV-2	11-12 years (+ 1-2 months)	9 years (+ 4 weeks)	4 months	12 weeks[15]
HPV-3[17]	11-12 years (+ 6 months)	9 years (+5 months)	—	—
Influenza, inactivated (IIV)[18]	≥6 months	6 months[19]	4 weeks	4 weeks
Influenza, live attenuated (LAIV)[18]	2-49 years	2 years	4 weeks	4 weeks
Measles-mumps-rubella (MMR)-1[20]	12-15 months	12 months	3-5 years	4 weeks
MMR-2[20]	4-6 years	13 months	—	—
Meningococcal conjugate (MenACWY)-1[21]	11-12 years	2 months[22]	4-5 years	8 weeks
MenACWY-2	16 years	11 years (+ 8 weeks)[23]	—	—
Meningococcal B (*Healthy Adolescents*) MenB-1	16-23 years	16 years	Bexsero: 4 weeks Trumenba: 6 months[3]	Bexsero: 4 weeks Trumenba: 6 months[3]
MenB-2	16-23 years (+1 month)	16 years (+1 month)	—	—
Meningococcal B (*Persons at Increased Risk*) MenB-1	≥10 years	10 years	Bexsero: 4 weeks Trumenba: 1-2 months[3]	Bexsero: 4 weeks Trumenba: 1 month
MenB-2	≥10 years (+1 month)	10 years (+1 month)	Bexsero: N/A Trumenba: 4-5 months[3]	Bexsero: N/A Trumenba: 4 months[3]
MenB-3[24]	≥10 years (+6 months)[3]	10 years (+6 months)[3]	—	—
Pneumococcal conjugate (PCV13)-1[5]	2 months	6 weeks	8 weeks	4 weeks
PCV-2	4 months	10 weeks	8 weeks	4 weeks
PCV-3	6 months	14 weeks	6 months	8 weeks
PCV-4	12-15 months	12 months	—	—

Pneumococcal polysaccharide (PPSV)-1	—	2 years	5 years	5 years
PPSV-2[25]	—	7 years	—	—
Poliovirus, Inactivated (IPV)-1[5]	2 months	6 weeks	8 weeks	4 weeks
IPV-2	4 months	10 weeks	8 weeks-14 months	4 weeks
IPV-3	6-18 months	14 weeks	3-5 years	6 months
IPV-4[26]	4-6 years	4 years	—	—
Rotavirus (RV)-1[27]	2 months	6 weeks	8 weeks	4 weeks
RV-2	4 months	10 weeks	8 weeks	4 weeks
RV-3[27]	6 months	14 weeks	—	—
Tetanus-diphtheria (Td)	11-12 years	7 years	10 years	5 years
Tetanus-diphtheria-acellular pertussis (Tdap)[28]	≥11 years	7 years	—	—
Varicella (Var)-1[30]	12-15 months	12 months	3-5 years	12 weeks[29]
Var-2[20]	4-6 years	15 months[30]	—	—

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

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

3 "Months" refers to calendar months.

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

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

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

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

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

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

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

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

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

13 If a dose of Zostavax is administered to someone 50-59 years of age, the dose does not need to be repeated. A 4-day grace period can be added to the absolute minimum age of 50 years when evaluating records retrospectively.

14 If the first dose of recombinant zoster vaccine (Shingrix) is administered to someone 18-49 years of age, the dose does not need to be repeated. A 4-day grace period can be added to the absolute minimum age of 18 years when evaluating records retrospectively.

15 A two-dose series of HPV vaccine is recommended for most persons who begin the series at 9 through 14 years of age. See HPV-specific recommendations for details. https://www.cdc.gov/mmwr/volumes/65/wr/pdfs/mm6549a5.pdf

16 If a patient is eligible for a 2-dose HPV series and the 2nd dose is given too early, it is an invalid dose.
Prospectively:
- If the 2nd dose was given less than 4 weeks after the 1st dose, give an additional dose 6-12 months after the 1st dose.
- If the 2nd dose was given more than 4 weeks but less than 5 months after the 1st dose, give an additional dose at least 12 weeks after the 2nd dose and at least 6-12 months after the 1st dose. The 4-day grace period may be used in either case.

Retrospectively:
- If this additional dose was given before December 16, 2016, and was given 12 weeks after the 2nd dose and 16 weeks after the 1st dose, it may be counted as valid.
- If it was given on or after December 16, 2016, and was given 12 weeks after the 2nd dose and 5 months after the 1st dose, it may be counted as valid. The 4-day grace period may be used in either case.

17 The minimum age for HPV-3 is based on the baseline minimum age for the first dose (i.e., 9 years) and the minimum interval of 5 months between the first and third dose.
- If the 3rd dose was given before December 16, 2016 and was given 12 weeks after the 2nd dose and 16 weeks after the 1st dose, it may be counted as valid.
- If the 3rd dose was given on or after December 16, 2016 and was given 12 weeks after the 2nd dose and 5 months after the 1st dose, it may be counted as valid. The 4-day grace period may be used in either case.

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

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

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

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

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

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

24 This dose is not necessary of Bexsero is correctly administered, or if Trumenba is correctly administered to healthy adolescents.

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

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

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

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

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

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

Adapted from Table 3-1, ACIP General Best Practice Guidelines for Immunization. May 2019

Grace Period
Vaccine doses administered up to 4 days before the recommended age or interval are considered valid. However, local or state mandates might supersede this 4-day guideline.

Source:
http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/A/age-interval-table.pdf

Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another, unless otherwise noted)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Hepatitis B (HepB) *Give IM*	• Give HepB dose #1 within 24hrs of birth to all medically stable infants weighing ≥2000g and born to HBsAg-negative mothers. Give dose #2 at age 1–2m and the final dose at age 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 (ages 1–2m, 6–18m) or with 3 doses of Pediarix (ages 2m, 4m, 6m), which may result in giving a total of 4 doses of HepB vaccine. • **If mother is HBsAg-positive:** Give HBIG and HepB dose #1 within 12hrs of birth; complete series by age 6m. • **If mother's HBsAg status is unknown:** Give HepB dose #1 within 12 hrs of birth. If low birth weight (less than 2000g), also give HBIG within 12hrs. For infants weighing 2000g or more whose mother is subsequently found to be HBsAg positive, give the infant HBIG ASAP (no later than age 7d) and follow HepB immunization schedule for infants born to HBsAg-positive mothers. • Vaccinate all other children and teens who have not completed a series of HepB vaccine.	• Do not restart series, no matter how long since previous dose. • 3-dose series can be started at any age. • Minimum intervals between doses: 4wks between #1 and #2, 8wks between #2 and #3, and at least 16wks between #1 and #3 (and give dose #3 no earlier than age 24wks). **Special Notes on Hepatitis B Vaccine (HepB)** **Dosing of HepB:** Monovalent vaccine brands are interchangeable. For people age 0 through 19yrs, give 0.5 mL of 3 doses of Engerix-B or Recombivax HB; unvaccinated people age 18yrs and older may also be given 2 doses of Heplisav-B spaced 4wks apart. **Alternative dosing schedule for unvaccinated adolescents age 11 through 15yrs:** Give 2 doses Recombivax HB 1.0 mL (adult formulation) spaced 4–6m apart. (Engerix-B is not licensed for a 2-dose schedule.)	**Contraindication** Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components, including hypersensitivity to yeast. **Precautions** • Moderate or severe acute illness, with or without fever. • For infants who weigh less than 2000g, see ACIP recommendations at www.cdc.gov/mmwr/PDF/rr/rr5416.pdf.
DTaP, DT (Diphtheria, tetanus, acellular pertussis) *Give IM*	• Give to children at ages 2m, 4m, 6m, 15–18m, and 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. • Do not give DTaP/DT to children age 7yrs and older. • If possible, use the same DTaP product for all doses.	• Dose #2 and #3 may be given 4wks after previous dose. • Dose#4 may be given 6m after #3. • If dose #4 is given before 4th birthday, wait at least 6m for #5 (age 4–6yrs). • If dose #4 is given after 4th birthday, #5 is not needed.	**Contraindications** • Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components, with or without fever. • For all pertussis-containing vaccines: Encephalopathy not attributable to an identifiable cause, within 7d after DTP/DTaP/Tdap. **Precautions** • Moderate or severe acute illness. • History of Arthus reaction following a prior dose of tetanus or diphtheria toxoid-containing vaccine (including MenACWY); defer vaccination until at least 10yrs have elapsed since the last tetanus toxoid-containing vaccine. • Guillain-Barré syndrome (GBS) within 6wks after previous dose of tetanus toxoid-containing vaccine. • For all pertussis-containing vaccines: Progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
Td, Tdap (Tetanus, diphtheria, acellular pertussis) *Give IM*	• For children and teens lacking previous Tdap: Give Tdap routinely at age 11–12yrs and vaccinate older teens on a catch-up basis; then boost every 10yrs with Td. • Make special efforts to give Tdap to children and teens who are 1) in contact with infants younger than age 12m and, 2) healthcare workers with direct patient contact. • Give Tdap to pregnant adolescents during each pregnancy (preferred during the early part of gestational weeks 27 through 36wks), regardless of interval since prior Td or Tdap.	• DTaP and DT should not be used for children age 7yrs and older; use Td and Tdap instead. • Children as young as age 7yrs and teens who are unvaccinated or behind schedule should complete a primary Td series (3 doses, with an interval of 1–2m between dose #1 and #2, and an interval of 6–12m between dose #2 and #3); substitute Tdap for any dose in the series, preferably as dose #1. • Tdap should be given regardless of interval since previous Td.	

This document was adapted from the vaccine recommendations of the Advisory Committee on Immunization Practices (ACIP) and also *Best Practices Guidance of the ACIP*. To view the full vaccine recommendations, visit CDC's website at www.cdc.gov/vaccines/hcp/acip-recs/index.html or, for the complete guidance document, visit www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html

This table is revised periodically. Visit IAC's website at www.immunize.org/childrules to make sure you have the most current version.

For the purposes of calculating intervals between doses, 4 weeks = 28 days. Intervals of 4 months or greater are determined by calendar months.

A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses.

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

Technical content reviewed by the Centers for Disease Control and Prevention
www.immunize.org/catg.d/p2010.pdf • Item #P2010 (4/19)

Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another, unless otherwise noted)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Rotavirus (RV) *Give orally*	• Rotarix (RV1): Give at ages 2m, 4m. • RotaTeq (RV5): Give at ages 2m, 4m, 6m. • May give dose #1 as early as age 6wks. • Give final dose no later than age 8m–0d.	• Do not begin series in infants older than age 14wks 6d. • Intervals between doses may be as short as 4wks. • If prior vaccination included use of different or unknown brand(s), a total of 3 doses should be given.	**Contraindications** • Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. If allergy to latex, use RV5. • History of intussusception. • Diagnosis of severe combined immunodeficiency (SCID). **Precautions** • Moderate or severe acute illness, with or without fever. • Altered immunocompetence other than SCID. • Chronic gastrointestinal disease. • For RV1 only, spina bifida or bladder exstrophy.
Hib (*Haemophilus influenzae* type b) *Give IM*	• ActHib (PRP-T), Hiberix, or Pentacel: Give at age 2m, 4m, 6m, 12–15m (booster dose). • PedvaxHIB (containing PRP-OMP): Give at age 2m, 4m, 12–15m (booster dose). • Dose #1 of Hib vaccine should not be given earlier than age 6wks. • Give final dose (booster dose) 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 for dose #1 and dose #2, a total of 3 doses is necessary to complete the primary series in infants, followed by a booster after age 12m. • For vaccination of children 12 through 59m who are immunocompromised (immunoglobulin deficiency, complement component deficiency, HIV infection, receipt of chemotherapy or radiation therapy for cancer) or asplenic: if previously received no doses or only 1 dose before age 12m, give 2 additional doses at least 8wks apart; if previously received 2 or more doses before age 12m, give 1 additional dose. • Hib is not routinely given to healthy children age 5yrs and older. • 1 dose of Hib vaccine should be administered to children age 5yrs and older who have anatomic or functional asplenia (including sickle cell disease) and who have not received a primary series and booster dose or at least 1 dose of Hib vaccine after age 14m. • 1 dose of Hib vaccine should be administered to unvaccinated persons 5 through 18yrs of age with HIV infection.	**All Hib vaccines:** • If dose #1 was given at 12–14m, give booster in 8wks. • Give only 1 dose to unvaccinated children ages 15–59m. **ActHib:** • Dose #2 and #3 may be given 4wks after previous dose. • If dose #1 was given at age 7–11m, only 3 doses are needed; #2 is given at least 4wks after #1, then final dose at age 12–15m (wait at least 8wks after dose #2). **PedvaxHIB:** • Dose #2 may be given 4wks after #1. Recipients of hematopoietic stem cell transplant should receive 3 doses of Hib vaccine at least 4wks apart beginning 6–12m after transplant, regardless of Hib vaccination history.	**Contraindications** • Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. • Age younger than 6wks. **Precaution** Moderate or severe acute illness, with or without fever.

Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another, unless otherwise noted)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Varicella (Var) (Chickenpox) *Give Subcut*	• Give dose #1 at age 12–15m. • Give dose #2 at age 4–6yrs. Dose #2 of Var or MMRV may be given earlier if at least 3m since dose #1. If dose #2 was given at least 4wks after dose #1, it can be accepted as valid. • Give a 2nd dose to all older children/teens with history of only 1 dose. • MMRV may be used in children age 12m through 12yrs (see note below).	• If younger than age 13yrs, space dose #1 and #2 at least 3m apart. If age 13yrs or older, space at least 4wks apart. • May use as postexposure prophylaxis if given within 5d. • If Var and either LAIV, MMR, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart. (If yellow fever vaccine, space by 30d.)	**Contraindications** • Previous severe allergic reaction (e.g., 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; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy, or severely symptomatic HIV). • Family history of congenital or hereditary immunodeficiency in first-degree relatives (e.g., parents and siblings), unless the immune competence of the potential vaccine recipient has been substantiated clinically or verified by a laboratory test. • Children on high-dose immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte percentages are 15% or greater in children age 1 through 8yrs or 200 cells/μL in children age 9yrs and older). **Precautions** • Moderate or severe acute illness, with or without fever. • If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP's *Best Practices Guidance*[1] regarding time to wait before vaccinating. • Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination. • Use of aspirin or aspirin-containing products. • For MMRV only, personal or family (i.e., sibling or parent) history of seizures. **NOTE:** For patients with humoral immunodeficiency or leukemia, see ACIP recommendations at www.cdc.gov/mmwr/pdf/rr/rr5604.pdf.
MMR (Measles, mumps, rubella) *Give Subcut*	• Give dose #1 at age 12–15m. • Give MMR at age 6–11m if traveling internationally; revaccinate with 2 doses of MMR at age 12–15m and at least 4wks later. The dose given at younger than 12m does not count toward the 2-dose series. • Give dose #2 at age 4–6yrs. Dose #2 may be given earlier if at least 4wks since dose #1. For MMRV: dose #2 may be given earlier if at least 3m since dose #1. • Give a 2nd dose to all older children and teens with history of only 1 dose. • MMRV may be used in children age 12m through 12yrs (see note above).	• If MMR and either LAIV, Var, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart. (If yellow fever vaccine, space by 30d.) • When using MMR for both doses, minimum interval is 4wks. • When using MMRV for both doses, minimum interval is 3m. • May use as postexposure measles prophylaxis if given within 3d.	**Contraindications** • Previous severe allergic reaction (e.g., 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; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy, or severely symptomatic HIV). • Family history of congenital or hereditary immunodeficiency in first-degree relatives (e.g., parents and siblings), unless the immune competence of the potential vaccine recipient has been substantiated clinically or verified by a laboratory test. **NOTE:** HIV infection is NOT a contraindication to MMR for children who are not severely immunocompromised (see ACIP recommendations at www.cdc.gov/mmwr/pdf/rr/rr6204.pdf). **Precautions** • Moderate or severe acute illness, with or without fever. • If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP's *Best Practices Guidance*[1] regarding time to wait before vaccinating. • History of thrombocytopenia or thrombocytopenic purpura. • For MMRV only, personal or family (i.e., sibling or parent) history of seizures. • Need for tuberculin skin testing (TST) or interferon-gamma release assay (IGRA) testing. If TST or IGRA needed, give TST or IGRA before or on same day as MMR, or give TST or IGRA 4wks following MMR.

NOTE: For the first dose of MMR and varicella given at age 12–47m, either MMR and Var or MMRV may be used. Unless the parent or caregiver expresses a preference for MMRV, CDC recommends that MMR and Var be used for the first doses in this age group.

Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another, unless otherwise noted)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Pneumococcal conjugate (PCV13) Prevnar 13 *Give IM*	• Give at ages 2m, 4m, 6m, 12–15m (booster dose). • Dose #1 may be given as early as age 6wks. • For age 24 through 59m and healthy: If unvaccinated or any incomplete schedule of 3 doses of PCV 13 was received previously, give 1 supplemental dose of PCV13 at least 8 wks after the most recent dose. • For high-risk** children ages 2 through 5 yrs: Give 2 doses at least 8 wks apart if they previously received an incomplete schedule of fewer than 3 doses; give 1 dose at least 8 wks after the most recent dose if they previously received 3 doses. • For high-risk** children: All recommended PCV13 doses should be given prior to PPSV vaccination. • PCV13 is not routinely given to healthy children age 5yrs and older. ** **High-risk** *For both PCV13 and PPSV23,* those with sickle cell disease; anatomic or functional asplenia; chronic cardiac, pulmonary, or renal disease; diabetes; cerebrospinal fluid leaks; HIV infection; immunosuppression; diseases associated with immunosuppressive and/or radiation therapy; solid organ transplantation; or who have or will have a cochlear implant. *For PPSV23 only in children ages 6–18yrs,* alcoholism and/or chronic liver disease.	• When children are behind on PCV13 schedule, minimum interval for doses given to children younger than age 12m is 4wks; for doses given at 12m and older, it is 8wks. • **For age 7 through 11m:** If history of 0 doses, give 2 doses of PCV13, 4wks apart; with a 3rd dose at age 12–15m; if history of 1 or 2 doses, give 1 dose of PCV13 with a 2nd dose at age 12–15m at least 8wks later. • **For age 12 through 23m:** If unvaccinated or history of 1 dose before age 12m, give 2 doses of PCV13 8wks apart; if history of 1 dose at or after age 12m or 2 or 3 doses before age 12m, give 1 dose of PCV13 at least 8wks after most recent dose. • **For age 2 through 5yrs** and at high risk**: If unvaccinated or any incomplete schedule of 1 or 2 doses, give 2 doses of PCV13, 1 at least 8wks after the most recent dose and another dose at least 8wks later; if any incomplete series of 3 doses, give 1 supplemental dose of PCV13 at least 8wks after the most recent dose. • **For children ages 6 through 18yrs** with functional or anatomic asplenia (including sickle cell disease), HIV infection or other immunocompromising condition, cochlear implant, or CSF leak, give 1 dose of PCV13 if no previous history of PCV13.	**Contraindication** Previous severe allergic reaction (e.g., anaphylaxis) to a PCV vaccine, to any of its components, or to any diphtheria toxoid-containing vaccine. **Precaution** Moderate or severe acute illness, with or without fever.
Pneumococcal polysaccharide (PPSV23) Pneumovax 23 *Give IM or Subcut*	• Give 1 dose at least 8wks after final dose of PCV13 to high-risk** children age 2yrs and older. • For children who have sickle cell disease, functional or anatomic asplenia, HIV infection, or other immunocompromising condition, give a 2nd dose of PPSV 5 yrs after previous PPSV. (See ACIP pneumococcal recommendations at www.cdc.gov/mmwr/pdf/rr/rr5911.pdf.)		**Contraindication** Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness, with or without fever.
Human papillomavirus (HPV) *Give IM*	• Give a 2-dose series of HPV to girls and boys at age 11–12yrs on a 0, 6–12m schedule. (May give as early as age 9yrs.) • Give a 3-dose series of HPV to girls and boys age 15yrs or older or who are immunocompromised or have autoimmune disease on a 0, 1–2, 6m schedule. (May give as early as age 9yrs.) • Give a 3-dose series of HPV to all older girls/women (through age 26yrs) and boys/men (through age 21yrs) who were not previously vaccinated. • **Other guidance:** Pregnancy is neither a contraindication nor a precaution to HPV vaccine.	• With the exception of immunocompromised persons, or persons with autoimmune disease, a 2-dose schedule may be followed for all persons initiating the HPV vaccine series before age 15yrs. • A 3-dose schedule must be followed for all persons initiating the series at age 15yrs or older, as well as for immunocompromised persons or persons with autoimmune disease ages 9 through 26yrs. • Minimum intervals between doses: 2-dose schedule: 5m; 3-dose schedule: 4wks between #1 and #2; 12wks between #2 and #3 and 5m between #1 and #3.	**Contraindication** Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness, with or without fever.

Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another, unless otherwise noted)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Hepatitis A (HepA) *Give IM*	• Give 2 doses spaced 6–18m apart to all children at age 1yr (12–23m). • Vaccinate all previously unvaccinated children and adolescents age 2yrs and older who – Want to be protected from HAV infection and lack a specific risk factor. – Live in areas where vaccination programs target older children. – Are homeless. – Have chronic liver disease, clotting factor disorder, or are adolescent males who have sex with other males. – Use illicit drugs (injectable or non-injectable). – Anticipate close personal contact with an international adoptee from a country of high or intermediate endemicity during the first 60d following the adoptee's arrival in the U.S. • Give 1 dose to children age 6–11m who travel anywhere outside the U.S., most, but not all of Western Europe, New Zealand, Australia, Canada, or Japan. This dose does not count toward the routine 2-dose series given at age 1yr.	• Minimum interval between doses is 6m. • Children who are not fully vaccinated by age 2yrs can be vaccinated at a subsequent visit. • Administer 2 doses at least 6m apart to previously unvaccinated persons who live in areas where vaccination programs target older children, or who are at increased risk for infection. • Give 1 dose as postexposure prophylaxis to incompletely vaccinated children and teens age 12m and older who have recently (during the past 2wks) been exposed to hepatitis A virus. For children younger than 12 months, use IG (0.1 mL/kg), rather than vaccine, for postexposure prophylaxis.	**Contraindication** Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness, with or without fever.
Inactivated polio (IPV) *Give Subcut or IM*	• Give to children at ages 2m, 4m, 6–18m, 4–6yrs. • May give dose #1 as early as age 6wks. • Not routinely recommended for U.S. residents age 18yrs and older (except certain travelers). For information on polio vaccination for international travelers, see wwwnc.cdc.gov/travel/diseases.	• The final dose should be given on or after the 4th birthday and at least 6m from the previous dose. • If dose #3 is given after 4th birthday, dose #4 is not needed if dose #3 is given at least 6m after dose #2.	**Contraindication** Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. **Precautions** • Moderate or severe acute illness, with or without fever. • Pregnancy.
Influenza Inactivated influenza* vaccine (IIV) *Give IM* * includes recombinant influenza vaccine (RIV) for teens ages 18yrs and older Live attenuated influenza vaccine (LAIV) Give NAS *(intranasally)*	• Vaccinate all children and teens age 6m and older. • For children age 6m through 8yrs, give 2 doses of age-appropriate vaccine, spaced 4 wks apart, who 1) are first-time vaccinees, or 2) have received only one lifetime dose previous to this current season (season runs July to June) • For IIV in children age 6–35m: Give one of the following: Fluarix 0.5 mL dose, FluLaval 0.5 mL dose, or Fluzone 0.25 mL dose. • For IIV in children age 3yrs and older: Give 0.5 mL dose of any age-appropriate influenza vaccine. • For teens age 18yrs and older: recombinant influenza vaccine (RIV) may also be used. • **Other guidance:** Children with functional or anatomic asplenia, complement deficiency, cochlear implant, or CSF leak should not receive LAIV.		**Contraindications** • History of severe allergic reaction (e.g., anaphylaxis) to this vaccine (except egg) or after a previous dose of any influenza vaccine. • For LAIV only: Age younger that 2yrs; pregnancy; immunosuppression (including that caused by medications or HIV); for children and teens ages 6m through 18yrs, current aspirin or salicylate-containing medication; for children age 2 through 4yrs, wheezing or asthma within the past 12m, per healthcare provider statement. Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, oseltamivir, or peramivir) 48hrs before vaccination. Avoid use of these antiviral drugs for 14d after vaccination. **NOTE:** People with egg allergy of any severity can receive any recommended and age-appropriate influenza vaccine (i.e., any IIV, RIV, or LAIV) that is otherwise appropriate for their health status. People having had a previous severe reaction to eggs involving symptoms other than hives should be administered vaccine in a medical setting (e.g., a health department or physician office) and should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions. **Precautions** • Moderate or severe acute illness, with or without fever. • History of Guillain-Barré syndrome (GBS) within 6wks of a previous influenza vaccination. • For children/teens who experience only hives with exposure to eggs, give any age-appropriate influenza vaccine. • For LAIV only: Chronic pulmonary (including asthma in children age 5yrs and older), cardiovascular (except hypertension), renal, hepatic, neurological/neuromuscular, hematologic or metabolic (including diabetes) disorders.

Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years)

Vaccine name and route	Schedule for routine vaccination and other guidelines (any vaccine can be given with another, unless otherwise noted)	Schedule for catch-up vaccination and related issues	Contraindications and precautions (mild illness is not a contraindication)
Meningococcal conjugate, quadrivalent (MenACWY) Menactra and Menveo *Give IM*	• Give a 2-dose series of MenACWY with dose #1 at age 11–12yrs and dose #2 at age 16yrs. • If unvaccinated at 11–12yrs, give dose #1 at age 13 through 15yrs. Give dose #2 at 16 through 18yrs with a minimum interval of at least 8wks between doses. • If unvaccinated at 11 through 15yrs, give dose #1 at 16 through 18yrs. • For college students, give 1 (initial) dose to unvaccinated first-year students age 19 through 21yrs who live in a residence hall; give dose #2 if most recent dose given when younger than age 16yrs. • Give Menveo to children age 2–18m with persistent complement component deficiency, HIV infection, or anatomic/functional asplenia; give at ages 2, 4, 6, 12–15m. • For unvaccinated or partially vaccinated children age 7–23m with persistent complement component deficiency: 1) if age 7–23m and using Menveo, give a 2-dose series at least 3m apart with dose #2 given after age 12m or, 2) if age 9–23m and using Menactra, give a 2-dose series at least 3m apart. Give either brand of MenACWY to unvaccinated children age 24m and older with persistent complement component deficiency or anatomic or functional asplenia; give 2 doses, 2m apart. If Menactra is given, it must be separated by 4wks from the final dose of PCV13. • Give age-appropriate series of meningococcal conjugate vaccine (brand must be licensed for age of child) to 1) children age 2m and older at risk during a community outbreak attributable to a vaccine serogroup and 2) children age 2m and older traveling to or living in countries with hyperendemic or epidemic meningococcal disease. Prior receipt of MenHibrix is not sufficient for children traveling to the meningitis belt or the Hajj.	• If previously vaccinated and risk of meningococcal disease persists, revaccinate with MenACWY in 3yrs (if previous dose given when younger than age 7yrs) or in 5 yrs (if previous dose given at age 7yrs or older). Then, give additional booster doses every 5 yrs if risk continues. • Minimum ages: 2m Menveo; 9m Menactra. • If using Menactra in a high-risk child, it should be given before or at the same visit as DTaP is administered.	**Contraindication** Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. **Precaution** Moderate or severe acute illness, with or without fever.
Meningococcal serogroup B (MenB) Bexsero and Trumenba *Give IM*	• Teens age 16 through 18yrs may be vaccinated routinely as a Category B recommendation (provider-patient discussion). Give 2 doses of either MenB vaccine: Bexsero, spaced 1m apart; Trumenba, spaced 6m apart. MenB brands are not interchangeable. • For children age 10yrs and older with persistent complement component deficiencies, functional or anatomic asplenia, including sickle cell disease, or who are at risk during a community outbreak of serotype B, give either 2 doses of Bexsero, 1m apart, or 3 doses of Trumenba on a 0, 1–2, and 6m schedule. MenB brands are not interchangeable. • MenB vaccine may be given concomitantly with MenACWY vaccine.		

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

Vaccine Description	• Brands: Infanrix®, and Daptacel® • Inactivated vaccine • Tip caps of prefilled syringes contain natural rubber latex • See package inserts for contents • DTaP is also contained in several combination vaccines (see Polio vaccine combination pages) • For the prevention of diphtheria, tetanus, and pertussis in adolescents and adults. See Tdap page for details. • DTP (whole-cell pertussis vaccine) no longer available in U.S.
Dose & Route	• Dose: 0.5 mL • Route: IM (Use IM precautions for persons with bleeding disorders or receiving 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)

Recommended and Minimum Ages and Intervals Between Doses

Vaccine and Dose Number	Recommended Age	Minimum Age	Recommended Interval	Minimum Interval to Next Dose
DTaP-1[1]	2 months	6 weeks	8 weeks	4 weeks
DTaP-2	4 months	10 weeks	8 weeks	4 weeks
DTaP-3	6 months	14 weeks	6-12 months[2]	6 months[2]
DTaP-4	15-18 months	15 months[2]	3 years	6 months
DTaP-5[3]	4-6 years	4 years	-	-

Footnotes:

- Combination vaccines containing a hepatitis B component (Pediarix) are available. These vaccines should not be administered to infants younger than 6 weeks because of the other components (i.e., Hib, DTaP, HepA, and IPV).
- The minimum recommended interval between DTaP-3 and DTaP-4 is 6 months. However, DTaP-4 need not be repeated if administered at least 4 months after DTaP-3. This is a special grace period of 2 months, which can be used when evaluating records retrospectively. An additional 4 days should not be added to this grace period prospectively, but can be added retrospectively.
- If a fourth dose of DTaP is given on or after the fourth birthday, a fifth dose is not needed.

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DTaP Vaccine

(Continued)

Contraindications	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component • Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP or DTaP
Precautions	When these conditions are present, DTaP should not be given. In situations where the benefit outweighs the risk (e.g., community pertussis outbreak), vaccination may be considered by a healthcare provider: • Progressive or unstable neurologic disorder, including infantile spasms, uncontrolled seizures or progressive encephalopathy; defer DTaP until neurologic status clarified and stabilized • Guillain-Barre syndrome < 5 weeks after previous dose of tetanus toxoid-containing vaccine • History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccines; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine • Moderate or severe acute illness with or without fever
Special Considerations	• DO NOT use in children age 7 years and older - use Td or Tdap instead (ACIP off-label). • Pediatric DT is used for children younger than 7 years of age when the pertussis component of DTaP is contraindicated. • DO NOT restart series, no matter how long since previous dose
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/dtap.html Additional education may be found at www.health.mil/tdap	

Diphtheria and Tetanus (DT) Toxoid Vaccine

Vaccine Description	• Brand: Generic only • Inactivated vaccine • Contains thimerosal • See package insert	
Dose & Route	• Dose: 0.5 mL • Route: IM (Use IM Precautions for persons with bleeding disorders or receiving anticoagulation therapy)	
Indications	• Pediatric DT used if a valid contraindication to pertussis vaccine exists	
Administration Schedule	**Dose**	**Recommended Age**
Primary Schedule	DT #1	2 months (minimum age 6 weeks)
	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 pages	
Contraindications	• Serious allergic reaction to prior dose or vaccine component • Do NOT use in children 7 years and older (Use Td or Tdap as appropriate)	
Precautions	• Moderate or severe acute illness with or without fever • Guillain-Barre Syndrome (GBS) <6 weeks after previous dose of tetanus-toxoid–containing vaccine • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid-containing or tetanus-toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid containing vaccine	
Special Considerations	• DO NOT restart series, no matter how long since previous dose • See Storage and Handling Section	

Tetanus and Diphtheria (Td) Toxoid Vaccine

Vaccine Description	• Brands: Generic Td and Tenivac • Inactivated vaccine • Td contains thimerosal in multi-dose vials; the tip caps of prefilled syringes may contain natural rubber latex • See package insert	
Dose & Route	• Dose: 0.5 mL • Route: IM (Use IM Precautions for persons with bleeding disorders or receiving anticoagulation therapy)	
Indications	• People 7 years of age and older • Tdap is recommended at 11-12 year old visit as a single, one time booster dose • See package insert	
Administration Schedule	**Dose**	**Recommended Interval**
Primary Schedule* *Only for previously unvaccinated patients 7 years of age and older. See CDC pediatric Catch-up	Td #1**	** Use Tdap for dose 1 if older than 10 years of age
	Td #2	4 weeks after dose #1
	Td #3	6 to 12 months after dose #2
Booster	Td (or Tdap if not received already)	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
Contraindications	• Serious allergic reaction to prior dose or vaccine component	
Precautions	• Guillain-Barre Syndrome (GBS) <6 weeks after previous dose of tetanus-toxoid–containing vaccine • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid-containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid containing vaccine • Moderate or severe acute illness with or without fever	
Special Considerations	• **DO NOT** restart the series, no matter how long since previous dose • See Storage and Handling Section	
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/td.html Additional education may be found at www.health.mil/tdap		

Tetanus and Diphtheria Toxoids and Acellular Pertussis (Tdap) Vaccine

Vaccine Description	• Brands: Boostrix® and Adacel® (ages 10 years and older) • Inactivated vaccine • The tip caps of the prefilled syringes of Boostrix® and Adacel® may contain natural rubber latex which may cause allergic reactions in latex -sensitive individuals. • See package insert	
Dose & Route	• Dose: 0.5 mL • Route: IM (Use IM precautions for persons with bleeding disorders or receiving anticoagulation therapy)	

Indications	• At least one dose of Tdap is recommended for people 10 years and older, with recommendation of giving at 11-12 year visit (see note on pregnancy below)
	• 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
	• ACIP recommendations (off-label):
	  • use Tdap when indicated regardless of interval since last tetanus-containing vaccine
	  • use Tdap in undervaccinated children 7-10 years of age
	  • give Tdap to pregnant women during each pregnancy (regardless of prior Tdap immunization) with optimal timing between 27 and 36 weeks gestation
	• See package insert	

Administration Schedule	**Dose**	**Recommended Interval**
	Single dose	Normally given at 11-12 years of age
Contraindications	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component • Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP, DTaP or Tdap	

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

Precautions	• Guillain-Barre Syndrome (GBS) <6 weeks after a previous dose of tetanus-toxoid–containing vaccine • Progressive or unstable neurological disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid-containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid-containing vaccine • Moderate or severe acute illness with or without fever
Special Considerations	• See Storage and Handling section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/tdap.html Additional education may be found at www.health.mil/tdap	

FACTOID: Pertussis is known as “whooping cough.” Infection can be life-threatening, especially to babies.

Source:
https://www.cdc.gov/pertussis/fast-facts.html

Hepatitis A Vaccine

Vaccine Description	• Brands: Havrix® and Vaqta® • Inactivated whole virus • Adjuvant: aluminum hydroxide; Vial stopper, syringe cover or syringe plunger may contain latex; See package insert for location and other contents	
Route	• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) Note: Havrix® should not be administered into the gluteal region due to suboptimal response.	
Dose	• Vaqta® (6 months-18 years): 25 units (0.5 mL) • Havrix® (6 months-18 years): 720 EL.U. (0.5 mL)	
Indications	• All children 12 months to 18 years of age or as soon as international travel considered; if 6-11 months of age, at international travel departure plus 2 doses at age 12-23 months, separated by 6-18 months	
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 • Close contact of international adoptee (e.g., household or regular babysitting), within 60 days of arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival) • You may interchange brands • DO NOT restart series, no matter how long since previous dose	
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-a.html Additional education may be found at www.health.mil/hepA		

Hepatitis B Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brands: Engerix-B® and Recombivax HB®
• Subunit recombinant 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 in combination vaccines. See the end of this section for a list of combination vaccines.</td></tr>
<tr><td>Route</td><td colspan="2">• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)</td></tr>
<tr><td>Vaccine</td><td>Age</td><td>Dose</td></tr>
<tr><td>Engerix-B®</td><td>0-19 years</td><td>10 mcg (0.5 mL)</td></tr>
<tr><td rowspan="2">Recombivax HB®</td><td>0-19 years</td><td>5 mcg (0.5 mL)</td></tr>
<tr><td>11-15 years</td><td>10 mcg (1 mL) - This is a special dose for this age group and is given on a special schedule on back of card</td></tr>
<tr><td>Indications</td><td colspan="2">• Birth through 18 years of age</td></tr>
<tr><td rowspan="5">Administration Schedule

Recommended schedule for routine infant immunization is
Dose #1: birth
Dose #2: 1-2 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="2">*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>
</table>

Continued on Next Page

Hepatitis B Vaccine
(Continued)

Schedule for 11-15 year olds with Recombivax HB®	2 doses of 10 mcg (1 mL): 0 and 4-6 months
Contraindications	• Serious allergic reaction or adverse reaction to prior dose or vaccine component • Moderate or severe acute illness
Special Considerations	• Do not use Comvax® or Pediarix® in infants younger than 6 weeks of age • Vaccine brands interchangeable for 3-dose schedule

TABLE 3. Hepatitis B vaccine schedules for infants, by infant birthweight and maternal HBsAg status

		Single-antigen vaccine		Single-antigen + combination vaccine†	
Birthweight	**Maternal HBsAg status**	**Dose**	**Age**	**Dose**	**Age**
≥2,000 g	Positive	1	Birth (≤12 hrs)	1	Birth (≤12 hrs)
		HBIG§	Birth (≤12 hrs)	HBIG	Birth (≤12 hrs)
		2	1–2 mos	2	2 mos
		3	6 mos¶	3	4 mos
				4	6 mos¶
	Unknown*	1	Birth (≤12 hrs)	1	Birth (≤12 hrs)
		2	1–2 mos	2	2 mos
		3	6 mos¶	3	4 mos
				4	6 mos¶
	Negative	1	Birth (≤24 hrs)	1	Birth (≤24 hrs)
		2	1–2 mos	2	2 mos
		3	6–18 mos¶	3	4 mos
				4	6 mos¶
<2,000 g	Positive	1	Birth (≤12 hrs)	1	Birth (≤12 hrs)
		HBIG	Birth (≤12 hrs)	HBIG	Birth (≤12 hrs)
		2	1 mos	2	2 mos
		3	2–3 mos	3	4 mos
		4	6 mos¶	4	6 mos¶
	Unknown	1	Birth (≤12 hrs)	1	Birth (≤12 hrs)
		HBIG	Birth (≤12 hrs)	HBIG	Birth (≤12 hrs)
		2	1 mos	2	2 mos
		3	2–3 mos	3	4 mos
		4	6 mos¶	4	6 mos¶
	Negative	1	Hospital discharge or age 1 mo	1	Hospital discharge or age 1 mo
		2	2 mos	2	2 mos
		3	6–18 mos¶	3	4 mos
				4	6 mos¶

Abbreviations: HBIG = hepatitis B immune globulin; HBsAg = hepatitis B surface antigen.
* Mothers should have blood drawn and tested for HBsAg as soon as possible after admission for delivery; if the mother is found to be HBsAg positive, the infant should receive HBIG as soon as possible but no later than age 7 days.
† Pediarix should not be administered before age 6 weeks.
§ HBIG should be administered at a separate anatomical site from vaccine.
¶ The final dose in the vaccine series should not be administered before age 24 weeks (164 days).

VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-b.html
Additional education may be found at www.health.mil/hepB

Haemophilus influenzae type b (Hib) Vaccine

Vaccine Description

- Brands: ActHIB®, PedvaxHIB® and Hiberix® (Hiberix® is not approved for primary immunization series)
- 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)
- Hib vaccine is also available as combined:
  - DTaP + polio +Hib (Pentacel®)

Indications

- All children 2 months - 5 years, including those born prematurely
- People older than 5 years 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
  - Bone marrow or stem cell transplant (1 year post transplant)

Administration Schedule

* Minimum age is 6 weeks.

The number of recommended doses varies if the series is started after age 7 months. See other side of card.

** Hiberix® can be used for the booster dose in children 15 months through 4 years of age.

	Dose #1	Dose #2	Dose #3	Booster**
PedvaxHIB®	2* months	4 months		12 to 15 months
ActHIB®	2* months	4 months	6 months	12 to 15 months

- **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 Pentacel® (DTaP + polio + Hib), give doses at 2, 4, 6, and 12-15 months
- 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

Continued on Next Page

Hib Vaccine

(Continued)

<table>
<tr><td>Minimum Intervals</td><td colspan="3">• The minimum interval between all primary doses is 4 weeks as long as age restrictions are met</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">• May give simultaneously with all other vaccines but at a separate injection site
• Hib vaccines are interchangeable; however, if different brands are used or the brand used is unknown, the 4-dose schedule is recommended, depending on the age of the child
• DO NOT restart series, no matter how long since previous dose</td></tr>
<tr><td rowspan="4">Recommended “Catch-Up” Schedule

Use if Hib vaccination is not initiated by 6 months of age</td><td>Age at First Vaccination</td><td>Primary Series</td><td>Booster</td></tr>
<tr><td>7 to 11 months</td><td>Two doses, 4 weeks apart</td><td>At 12 to 15 months, at least 8 weeks after previous dose</td></tr>
<tr><td>12 to 14 months</td><td>1 dose</td><td>8 weeks after previous dose</td></tr>
<tr><td>15 to 59 months</td><td>1 dose</td><td>Not needed</td></tr>
<tr><td colspan="4">VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hib.html
Additional education may be found at www.health.mil/hib</td></tr>
</table>

Human Papillomavirus (HPV) Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="4">• Brands: GARDASIL 9®
• Inactivated recombinant 9-valent vaccine
• Contains aluminum and yeast
• See package insert</td></tr>
<tr><td>Dose & Route</td><td colspan="4">• Dose: 0.5 mL
• Route: IM (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)</td></tr>
<tr><td>Indications</td><td colspan="4">• GARDASIL 9® (9vHPV): Females 9-26 years of age (routinely given at 11-12 year old visit) and males 9-21 years of age (routinely given at 11-12 year old visit and may be given to males 22-26 years of age)</td></tr>
<tr><td rowspan="5">Administration Schedule</td><td colspan="2">2 Dose Series
(For ages 9-14 years old)</td><td colspan="2">3 Dose Series
(For ages 15-26 years)
or
(9-26 years with impaired immunity)</td></tr>
<tr><td>Dose</td><td>Recommended Interval</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td>#1</td><td>Initial dose</td><td>#1</td><td>Initial dose</td></tr>
<tr><td>#2</td><td>6-12 months after initial dose</td><td>#2</td><td>2 months after dose 1</td></tr>
<tr><td colspan="2"></td><td>#3</td><td>6 months after dose 1</td></tr>
<tr><td>Booster</td><td colspan="4">None</td></tr>
<tr><td>Contraindications</td><td colspan="4">• Serious allergic reaction to prior dose or vaccine component
• Moderate or severe acute illness
• Pregnancy - due to lack of safety studies</td></tr>
<tr><td>Special Considerations</td><td colspan="4">• Syncope has been reported following vaccination; observation for 15 minutes after administration is recommended (see package insert)
• People with impaired immunity should receive the 3-dose series (0,2 &6 months) regardless of age
• Catch-up HPV vaccination is recommended for all persons through age 26 years who are not adequately vaccinated.</td></tr>
<tr><td colspan="5">VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/hpv-gardasil.html
Pregnancy registry available at 1-800-986-8999; also notify DHA-IHD
Additional education may be found at www.health.mil/HPV</td></tr>
</table>

Inactivated Influenza Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="3">As influenza products differ in approved age ranges and dosages, it is imperative to verify with the manufacturer package insert.
• Quadrivalent: Afluria® (IIV4), Fluarix® (IIV4), FluLaval® (IIV4), and Fluzone® (IIV4)
• Cell Cultured-Based: Flucelvax® (ccIIV4)

The tip cap and rubber plunger of needleless prefilled syringes may contain dry natural latex rubber (see package inserts); Thimerosal may be found in multi-dose vials. Preservative-free forms are available. Some brands contain minute quantities of egg protein.</td></tr>
<tr><td rowspan="8">Dose & Route</td><td>Approved age range</td><td>Trade Name</td><td>Dose/ Route</td></tr>
<tr><td>6 months to 35 months</td><td>Fluzone® (IIV4)</td><td>0.25 mL IM*</td></tr>
<tr><td rowspan="2">≥ 6 months</td><td>Fluarix® (IIV4)</td><td>0.5 mL IM*</td></tr>
<tr><td>Flulaval® (IIV4)</td><td>0.5 mL IM*</td></tr>
<tr><td>≥ 3 years</td><td>Fluzone® (IIV4)</td><td>0.5 mL IM*</td></tr>
<tr><td>≥ 4 years</td><td>Flucelvax® (ccIIV4)</td><td>0.5 mL IM*</td></tr>
<tr><td>≥ 5 years</td><td>Afluria® (IIV4)</td><td>0.5 mL IM*</td></tr>
<tr><td colspan="3">*Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy</td></tr>
<tr><td colspan="3">IIV3/IIV4=egg based trivalent/quadrivalent inactivated influenza vaccine (injectable)
ccIV4=cell cultured, quadrivalent inactivated influenza vaccine
RIV4=quadrivalent recombinant hemagglutinin influenza vaccine
aIIV3= adjuvanted trivalent inactivated influenza vaccine</td></tr>
<tr><td>Indications</td><td colspan="3">All people 6 months of age and older</td></tr>
<tr><td>Administration Schedule</td><td>AGE</td><td>DOSE</td><td>Recommended Interval</td></tr>
<tr><td rowspan="3">6 months through 8 years of age</td><td>6 to 35 months</td><td>Fluzone® 0.25 mL</td><td rowspan="3">First-time vaccinees or those who have not received 2 or more doses since 2010: Give 2 doses separated by at least 4 weeks. Any combination of influenza vaccine may be used to complete the series.</td></tr>
<tr><td>≥ 6 months</td><td>Flulaval® 0.5 mL</td></tr>
<tr><td>≥ 3 years</td><td>0.5 mL</td></tr>
<tr><td>≥ 9 years of age</td><td>≥ 9 years</td><td>One dose 0.5 mL</td><td>Annually</td></tr>
</table>

Continued on Next Page

Inactivated Influenza Vaccine

(Continued)

Indications	• All children and teens 6 months of age and older, who do not have a contraindication, should receive the age-appropriate formulation of inactivated influenza vaccine (IIV) each year. (Note: healthy, non-pregnant persons 2 through 49 years of age without high risk health conditions can receive IIV or LAIV*). • A second dose of influenza vaccine is recommended 4 weeks or more after the first dose for children age 6 months through 8 years if they have not received 2 doses in previous years (not necessarily in the same season).
Contraindications	• Do not give influenza vaccine to a child or adolescent who has experienced a serious systemic or anaphylactic reaction to a prior dose of the vaccine or to any of its components (for a list of vaccine components, refer to the manufacturer's package insert (www.health.mil/packageinserts) or go to: www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf. • See special considerations for information regarding egg allergy.
Precautions	• Moderate or severe acute illness with or without fever • History of Guillain-Barré syndrome within 6 weeks of a previous influenza vaccination
Special Considerations	• Immunization providers should check Food and Drug Administration-approved seasonal influenza vaccines prescribing information for the most complete and up-to-date information, including (but not limited to) indications, contraindications, warnings, and precautions. Package inserts for U.S. licensed vaccines are available at: https://health.mil/packageinserts. *(Continued on Next Page)*

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Inactivated Influenza Vaccine

(Continued)

Special Considerations ***(Continued)***	• Afluria® is licensed for administration by jet injector for persons aged 18 through 64 years only. • Once the stopper of the multi-dose vial has been pierced, the vial must be discarded either at the expiration date on the vial or within 28 days — see the package insert for specific guidance. • It is important to review CDC/ACIP guidelines for LAIV use before each flu season. • The FluLaval® (IIV4) 0.5mL dose is the same for adults and children. • Children who are immunocompromised may have reduced immune response. • Children with a history of egg allergy who have experienced only hives can receive any Flu vaccine (IIV) appropriate for the recipient's age. Children with more serious allergic reactions to egg, may also receive any Flu vaccine (IIV) appropriate for the recipient's age if administered by healthcare provider familiar with possible reactions and if observed for at least 30 minutes following vaccine administration. • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/flu.html Additional education may be found at www.health.mil/flu	

Live Attenuated Influenza Vaccine (FluMist®)

<table>
<tr><td>Vaccine Description</td><td colspan="3">• Brand: FluMist Quadrivalent®
• Live virus, nasally administered influenza vaccine, contains egg protein, gelatin, and gentamicin. See package insert.

* During the 2016-2017 and 2017-2018 seasons, LAIV was not recommended for use by the CDC/ACIP. It is important to review CDC/ACIP guidelines for LAIV use before each flu season.</td></tr>
<tr><td>Dose & Route</td><td colspan="3">• Dose: 0.2 mL (administered as 0.1 mL per nostril)
• See package insert for administration guidance.</td></tr>
<tr><td>Indications</td><td colspan="3">• Healthy non-pregnant persons 2 through 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 the included influenza A or B viruses</td></tr>
<tr><td rowspan="4">Administration Schedule</td><td>Age Groups</td><td>Vaccination Status</td><td>Dosage/ Schedule</td></tr>
<tr><td>Children ages 2 years through 8 years</td><td>Not previously vaccinated against influenza or did not receive 2 or more doses since July 1, 2010</td><td>2 doses (0.2 mL each) 4 weeks apart</td></tr>
<tr><td>Children ages 2 years through 8 years</td><td>Previously vaccinated against influenza and received 2 or more doses since July 1, 2010</td><td>1 dose (0.2 mL) per season</td></tr>
<tr><td>Children and Adults ages 9 through 49 years</td><td>Not applicable</td><td>1 dose (0.2 mL) per season</td></tr>
<tr><td>Contraindications</td><td colspan="3">Do not give influenza vaccine to a child or adolescent (2 to 17 years of age) who has:
• Experienced an anaphylactic reaction to a prior dose of the vaccine or to any of its components. For a list of vaccine components, go to https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf or refer to the manufacturer's package insert at https://health.mil/packageinserts. (continues on next page)</td></tr>
</table>

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Live Attenuated Influenza Vaccine
(Continued)

Contraindications *(continued)*	• Chronic aspirin or salicylate-containing medication therapy because of the risk for Reye syndrome • FluMist should not be administered to children < 5 years of age with recurrent wheezing (or asthma, reactive airway disease, or other chronic pulmonary disease) because of the potential for wheezing post vaccination • Known or suspected immune-deficiency diseases, such as combined immunodeficiency, agamma-globulinemia, and thymic abnormalities, or leukemia, lymphoma or malignancy • Immune suppression or immune compromised due to treatment with systemic corticosteroids, alkylating drugs, antimetabolites, radiation, or other immune suppressing therapies • Pregnancy • Received influenza antivirals (e.g., amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48 hours or will possibly receive them within 14 days after vaccination.
Precautions	• Moderate or severe acute illness (including nasal congestion) • History of Guillain-Barré Syndrome within 6 weeks of a previous influenza vaccine receipt • Chronic conditions that place children at high risk for complications from influenza illness (e.g., heart disease, diabetes, renal disease, sickle cell anemia)
Special Considerations	• Give inactivated influenza vaccine (IIV) instead of LAIV to individuals who are in close contact with others who are severely immune-compromised • 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. • Defer administration if nasal congestion might prevent LAIV from reaching nasopharyngeal mucosa • See Storage and Handling section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/flulive.html Additional education may be found at www.health.mil/flu	

Japanese Encephalitis Vaccine

Vaccine Description	• Brands: Ixiaro® • Inactivated • Contains bovine serum albumin, protamine sulfate • See package insert

Dose and Route	• Dose:
	  • ***0.25 mL*** (for persons 2 months to <3 years of age): must expel and discard half of the volume of the 0.5 mL pre-filled syringe by pushing the plunger stopper to the edge of the red line on the syringe barrel prior to injection.
	  • ***0.5 mL*** (for persons 3 years and older)
	• Route: IM (Use IM Precautions for persons with bleeding disorders or receiving anticoagulation therapy)
	• See package insert

Indications	• Individuals 2 months of age and older spending a month or longer in endemic areas (especially rural) during transmission season (determine risk by checking CDC or other travel medicine websites or check your local travel clinic for guidance)
Administration Schedule	2 doses at 0 and 28 days NOTE: Last dose should be given at least 7 days before international travel to ensure adequate immunity
Booster	Individuals 14 months of age and older: A one-time booster dose may be given at least 11 months after completion of the primary immunization series if ongoing exposure or re-exposure to JE virus is expected. Children who get the booster dose before age 3, should get 0.25 mL dose.
Contraindications	• Serious allergic reaction to prior dose of Ixiaro® or other JEV vaccine, vaccine component, including protamine sulfate • Younger than 2 months of age

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Japanese Encephalitis Vaccine

(Continued)

Precautions	• Moderate or severe acute illness with or without fever. • Altered immunocompetence may result in reduced vaccine effectiveness. • Safety and effectiveness of JE vaccines have not been established in pregnant women; use in pregnancy should be considered with clinical consultation of potential risk and benefit.
Special Considerations	• Suspension for injection supplied in 0.5 mL single dose syringes. For children 3 years of age and younger, ½ of the syringe contents are expelled (to the red line) prior to injection. • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/je-ixiaro.html Additional education may be found at www.health.mil/JEV	

Measles, Mumps, Rubella (MMR) Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brand: M-M-R II®
• Live attenuated combined vaccine
• Contains neomycin, gelatin, (See package insert)
• Also available as combined MMR and varicella (ProQuad) for routine use for children during the 4-6year dose of MMR and Varicella
• See ProQuad® package insert for components</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL Route: SC</td></tr>
<tr><td>Indications</td><td colspan="2">• All individuals 12 months of age and older
• In the event of an outbreak, local health authorities may recommend for infants 6 to 12 months of age
• For children who will travel internationally, MMR-containing vaccine may be administered between 6 and 12 months of age.</td></tr>
<tr><td rowspan="3">Administration Schedule</td><td>Dose</td><td>Recommended Age</td></tr>
<tr><td>#1</td><td>12 to 15 months</td></tr>
<tr><td>#2</td><td>4 to 6 years</td></tr>
<tr><td rowspan="3">Minimum Age and Intervals

(Refer to CDC website for catch-up and combination vaccine schedules)</td><td>Dose</td><td>Minimum Interval</td></tr>
<tr><td>#1</td><td>12 months of age [May be administered earlier in an outbreak situation or with pending international travel; however, any dose of MMR containing vaccine administered before 12-months of age should not be counted as one of the two doses recommended in childhood. Revaccination required after 12 months of age]</td></tr>
<tr><td>#2</td><td>Minimum interval is at least 28 days after dose #1. However, 2nd dose of MMR is usually given at 4 to 6 years of age, before school entry.</td></tr>
</table>

Continued on Next Page

Measles, Mumps, Rubella (MMR)
(Continued)

Precautions	• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product); see CDC Guidelines • History of thrombocytopenia or thrombocytopenic purpura • Moderate or severe acute illness with or without fever. • A personal or family history of seizures is a precaution for MMRV. Because of potential increased risk for febrile seizures after MMRV in children 12-47 months, MMR and Varicella vaccines should be administered separately in this age group.
Contraindications	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component • Pregnancy (or planned pregnancy in 1 month) • Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised)
Special Considerations	• In mumps outbreak situations, MMR may be recommended for previously vaccinated children, not to exceed a maximum of 3 lifetime doses of MMR. • Tuberculin skin test (TST or PPD) can be applied at same visit as MMR. Delay TST for at least 4 weeks if MMR given first or apply TST first, then give MMR after TST is interpreted. • If another live injected vaccine and MMR are both needed and not administered on the same day, space vaccines at least 4 weeks apart • ProQuad® (MMRV) may be used when both MMR and Varicella vaccines are indicated but, unless the parent or caregiver expresses a preference for MMRV vaccine, separate MMR and Varicella vaccines should be administered for the first dose for children 12 through 47 months of age. • Post vaccination serologic testing to verify an immune response is not routinely recommended • Two documented age appropriate MMR vaccinations are evidence of immunity and supersede subsequent negative serologic testing (MMWR 2013;62(4):8) • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/mmr.html Additional education may be found at www.health.mil/MMR	

Meningococcal (A,C,W,Y) Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brands: Menactra® and Menveo®
• Inactivated, bacterial polysaccharide conjugate (MCV4)
• Contains latex (stopper only for Menactra®)
• See package insert</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Dose: 0.5 mL
• Route: IM (Menactra®, Menveo®) (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="2">• Routine vaccination against meningococcal disease is not recommended for children aged 2 months through 10 years of age.
• All children at age 11 to 12 years and unvaccinated adolescents at subsequent visit
• College freshmen living in dormitories
• Children 2 months and older who:
  • Have functional or anatomic asplenia, including sickle cell disease
  • Have certain immune system disorders (complement
  • Component deficiency)
• Children older than 9 months who:
  • Are traveling to or living in an endemic area
  • Have been exposed to meningitis during an outbreak
• Menveo® is licensed for use in ages 2 months - 55 years of age; Menactra® is licensed for use in ages 9 months - 55 years of age</td></tr>
<tr><td rowspan="3">Administration Schedule

See package insert for vaccine-specific schedule</td><td>Age</td><td>Schedule</td></tr>
<tr><td>HIGH RISK
2-6 mos of age (complement deficiency; asplenia; outbreak; travel)</td><td>If initiated at 8 weeks: administer series at 2, 4, 6, and 12-15 months of age with age appropriate vaccine. If risk persists, 1st booster at 3 years then every 5 years</td></tr>
<tr><td>HIGH RISK
7-23 mos of age (complement deficiency; asplenia; out-break; travel)</td><td>2 doses, 2nd dose at age ≥12 months and ≥3 months after the first dose with age appropriate vaccine. If risk persists, 1st booster at 3 years then every 5 years</td></tr>
</table>

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Meningococcal (A,C,W,Y) Vaccine
(Continued)

<table>
<tr><td rowspan="3">Administration Schedule (continued)

See package insert for vaccine-specific, situation-specific schedule</td><td>NO RISK
11-18 yrs of age</td><td>Give dose #1 of 2-dose MCV4 series. Dose #2 will be due at age 16 years.

For 1st yr college student (19 - 21 yrs in dorm): 1 dose MCV4 if none prior, or 1 dose (#2) if single dose given before age 16.

If HIV+: Give 2 doses, 2 months apart</td></tr>
<tr><td>TRAVEL RISK
2-18 yrs of age (Travel to endemic area or outbreak)</td><td>If unimmunized: 1 dose of MCV4 with booster of age appropriate vaccine every 5 years if travel risk persists
If HIV +: Give 2 doses, 2 months apart</td></tr>
<tr><td>HEALTH RISK
2-18 yrs of age (complement deficiency; asplenia)</td><td>2 doses of MCV4 given 2 months apart, with booster of age appropriate vaccine every 5 years</td></tr>
<tr><td>Contraindications</td><td colspan="2">• Serious allergic reaction to prior dose or vaccine component, including latex (stopper for Menactra®)
• Moderate or severe acute illness
• Children younger than 2 months of age (Menveo®) or 9 months of age (Menactra®)</td></tr>
<tr><td>Special Considerations</td><td colspan="2">• Despite reports of Guillain-Barrè syndrome (GBS) after Menactra®, several large studies have failed to show vaccine causality. Therefore, a history of GBS does not preclude receipt of meningococcal vaccine although the decision to administer any meningococcal vaccine to individuals with a history of GBS should take into account the potential benefits and risks.
• Menactra® and Menveo® have not been widely studied in pregnant and lactating women and should be given only if clearly indicated.
• See Storage and Handling Section</td></tr>
<tr><td colspan="3">VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/mening.html
Dosing Schedule: www.immunize.org/catg.d/p2018.pdf
Pregnancy registry for Menactra®: 1-800-822-2463
Pregnancy registry for Menveo®: 1-877-413-4759; also notify DHA-IHD
Additional education may be found at www.health.mil/meningococcal</td></tr>
</table>

Meningococcal B Vaccines

Vaccine Description	• Brands: Bexsero® (MenB-4C), Trumenba® (MenB-FHbp) • Inactivated (recombinant) vaccine • MenB-4C contains 3 recombinant cell surface proteins • MenB-FHbp contains 2 FHbp variants • Bexsero®: Tip cap contains natural rubber latex • See package insert
Dose & Route	• Dose: 0.5 mL • Route: IM in deltoid region of upper arm. (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy) • See package insert

Indications	• MenB vaccine is routinely recommended for children 10 years of age and older at increased risk due to:
	  • A serogroup B meningococcal disease outbreak, or
	  • Certain medical conditions such as:
	  • A non-functioning, absent, or removed spleen (asplenia)
	  • A complement (immune) component deficiency (e.g., C5-C9, properdin, factor H, or factor D)
	• The safety and effectiveness of MenB vaccines have not been established in children younger than 10 years of age.
	• MenB vaccines, while not currently recommended, may be prescribed for healthy adolescents 16 through 18 years of age anticipating living in residence halls upon entering college or other healthy adolescents.
	• MenB vaccine is not recommended for children or adolescents who travel to or reside in countries where meningococcal disease is hyperendemic or epidemic (because the risk for meningococcal disease in these countries generally is not caused by serogroup B).
	• Before administering MenB vaccines, providers should consult the package insert for precautions, warnings, and contraindications.

Continued on Next Page

Meningococcal B Vaccines
(Continued)

Administration Schedule	• Bexsero®: 2-dose series, separated by at least 1 month • Trumenba® (MenB-FHbp) is licensed as both a 2-dose (0 & 6 months) and 3-dose (0, 1-2, & 6 months) series. The choice of dosing schedule may depend on the risk of exposure and the patient's susceptibility to meningococcal serogroup B disease. If the second dose is administered earlier than 6 months after the first dose, a 3rd dose should be administered ≥4 months after the 2nd dose. • The same vaccine must be used for all doses. • May be given with other age-appropriate vaccines
Booster	• No recommendation for booster dosing is yet available.
Contraindications	• Serious allergic reaction to prior dose of Trumenba® • Hypersensitivity, including severe allergic reaction after a previous dose of Bexsero®, or to any component of the vaccine.

Special Considerations	• Defer administration of MenB vaccine during pregnancy or lactation, unless the adolescent is at increased risk for meningococcal B disease and benefits of vaccination outweigh potential risks.
	• Immediately prior to administration of either vaccine, shake single-dose prefilled syringe well to obtain a homogeneous suspension.
	• Either MenB vaccine may be administered to immunosuppressed individuals; however, immune response may be reduced.
	  • For persons at increased risk for meningococcal disease and for use during serogroup B meningococcal disease outbreaks, ACIP recommends 3 doses of Trumenba® be administered at 0, 1-2, and 6 months.
	  • For healthy adolescents not at increased risk for meningococcal disease, ACIP recommends 2 doses of Trumenba® at 0 and 6 months.
	• See Storage and Handling Section
	  • Bexsero®: 2–8°C; protect from light. Do not freeze; if freezing occurs, discard vaccine.
	  • Trumenba®: 2–8°C. Store syringes horizontally (lying flat) to minimize redispersion time. Do not freeze; if freezing occurs, discard vaccine

VIS: https://www.cdc.gov/vaccines/hcp/vis/vis-statements/mening-serogroup.html Pregnancy registry for Bexsero®: 1-877-311-8972; also notify DHA-IHD Additional education may be found at www.health.mil/meningococcal	

Pneumococcal Conjugate Vaccine (PCV13)

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brand: Prevnar 13®
• Inactivated conjugate vaccine
• Contains diphtheria protein and aluminum (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)</td></tr>
<tr><td>Indications</td><td colspan="2">• All children 6 weeks through 59 months of age
• Children aged 60-71 months with certain health conditions (see back of card)
• Consider vaccination for those 6-18 years, with underlying medical conditions (see back of card)</td></tr>
<tr><td>Administration Schedule</td><td colspan="2">• Routine schedule: 2, 4, 6, and 12-15 months of age (*Minimum age: 6 wks)
• The number of doses a child needs to complete the series depends on the child’s current age and the age at which the first dose was received (see “catch-up” schedule below)</td></tr>
<tr><td rowspan="6">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 8 weeks apart; third dose at 12-15 months and at least 8 weeks after second dose</td></tr>
<tr><td>12 to 23 months</td><td>2 doses: Two doses at least 8 weeks apart</td></tr>
<tr><td>24 to 59 months</td><td>1 dose: healthy children
2 doses separated by 8 weeks: high-risk children (see back of card)</td></tr>
<tr><td>60 to 71 months</td><td>2 doses separated by 8 weeks: high-risk children (see back of card)</td></tr>
<tr><td>6 to 18 years</td><td>1 dose may be given: high-risk children (see back of card)</td></tr>
</table>

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Pneumococcal Conjugate Vaccine (PCV13)
(Continued)

High-risk health conditions in children:	
Applies through age 71 months only	• Chronic cardiovascular disease (excluding hypertension) • Chronic pulmonary disease • Diabetes mellitus • Candidate for or recipient of cochlear implant
Applies to all	• Cerebrospinal fluid (CSF) leak • Functional or anatomic asplenia (including sickle cell disease) • Immunocompromising conditions (including HIV, leukemia, congenital immunodeficiency, Hodgkin's disease, lymphoma, multiple myeloma, generalized malignancy, immunosuppressive therapy) • Solid organ transplantation • Chronic renal failure or nephrotic syndrome
Contraindications	• Serious allergic reaction to a prior dose or vaccine component • Moderate or severe acute illness
Special Considerations	• If both PCV13 and PPSV are indicated, always give PCV13 first followed by PPSV23 after the appropriate interval (at least 8 weeks after last dose of PCV13); never give PCV13 and PPSV23 at the same time • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/pcv13.html Additional education may be found at www.health.mil/pneumococcal	

FACTOID: Currently there are more than 90 known pneumococcal types; the 10 most common types account for about 62% of invasive disease worldwide.

Source:
http://www.cdc.gov/vaccines/pubs/pinkbook/pneumo.html

Pneumococcal Polysaccharide Vaccine PPSV23

Vaccine Description	• Brand: Pneumovax 23® • Inactivated polysaccharide vaccine • 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 with • Chronic liver disease (6-18 years of age only) • Chronic cardiovascular disease (excluding hypertension) • Chronic pulmonary disease • Diabetes mellitus • Candidate for or recipient of cochlear implant • Functional or anatomic asplenia (including sickle cell disease) • Immunocompromising conditions (including HIV, leukemia, congenital immunodeficiency, Hodgkin's disease, lymphoma, multiple myeloma, generalized malignancy, immunosuppressive therapy) • Solid organ transplantation • Chronic renal failure or nephrotic syndrome	
Administration Schedule	**Dose**	**Recommended Interval**
	1 dose if indicated above	No sooner than 8 weeks after PCV13
Booster	• A second dose is recommended 5 years after the first dose for persons 2 years of age and older who are in categories 6 through 9 on the indications list with an additional dose at age 65 years if more than 5 years have elapsed since prior dose. For all others a booster dose is recommended at 65 years of age with a 5 year minimum interval.	
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 consultation is recommended for patients who have recurrent infections. • Administer before immunosuppressive therapies or splenectomy for best effect (see package insert for timing)	
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/ppv.html Additional education may be found at www.health.mil/pneumococcal		

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Pneumococcal Vaccine Timing–For Children

Ages 2-59 Months

Standard

Age:	2 months	4 months	6 months	12–15 months
	PCV 13 Prevnar 13®	PCV 13	PCV 13	PCV 13

- Catch-up: 1–4 doses depending on age and timing of past doses.
  1–2 doses for children ages 60 through 71 months with underlying conditions listed below.

Ages 2-18 Years With Underlying Condition(s)

- DO NOT administer PCV13 and PPSV23 at the same visit.
- Complete all recommended doses of PCV13 before giving PPSV23.
- Prior doses count towards doses recommended below and do not need to be repeated.
- If PCV13 series completed previously, or at least 1 dose given at age 6 years or older, no additional PCV13 needed.
- If PPSV23 given previously – wait at least 8 weeks before giving PCV13.
  – for group B, wait at least five years before giving a second dose of PPSV23.
- No more than two doses of PPSV23 recommended before age 65 years.

A. Chronic conditions:

- **Diabetes**
- **Heart Disease** (particularly failure or cyanotic disease)
- **Lung disease** (excluding asthma, unless immunocompromised by prolonged high-dose oral corticosteroids – see below)

PPSV 23 Pneumovax® 23

Children younger than 6 years of age should have received the standard or catch-up doses of PCV13 described above before receiving PPSV23.

B. Immunocompromised (including HIV infection or immunosuppressive treatments), **Hemoglobinopathy** (including sickle cell disease), **Asplenia, Chronic renal failure, or Nephrotic syndrome**

PCV 13 → 8 weeks → PPSV 23 → 5 years → PPSV 23

C. CSF leaks or Cochlear implants

PCV 13 → 8 weeks → PPSV 23

CDPH

For further details, see: www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/pneumo.html

California Department of Public Health, Immunization Branch **www.EZIZ.org**
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IAIM-1159 (10/16)

Inactivated Poliovirus Vaccine (IPV)

<table>
<tr><td>Vaccine Description</td><td colspan="3">• Brand: IPOL®
• Inactive polio virus (IPV)
• Contains neomycin, streptomycin, polymyxin B, and calf serum proteins,
• Also available as combined DTaP-HepB-IPV (Pediarix®); combined DTaP-IPV (Kinrix™); combined DTaP-Hib/IPV (Pentacel®); combined DTaP-IPV (Quadracel®)
• Contain neomycin, polymyxin B, calf serum proteins, yeast; the tip caps of prefilled syringe may contain natural rubber latex (See package insert)

[Live attenuated oral polio vaccine (OPV) is no longer distributed in the US]</td></tr>
<tr><td>Dose & Route</td><td colspan="3">• Dose: 0.5 mL
• Route: IPOL® is administered SC or IM (Use IM Precautions for persons with bleeding disorders or receiving anticoagulation therapy)
• Pediarix®, Kinrix®, Pentacel®, and Quadracel® are administered IM</td></tr>
<tr><td>Indications</td><td colspan="3">• All infants and children 2 months of age and older
• Consider vaccination of travelers to polio-endemic countries</td></tr>
<tr><td rowspan="5">Routine Administration Schedule
(Refer to CDC website for catch-up and combination vaccine schedules)</td><td>Dose</td><td>Recommended Age</td><td>Minimum Interval
(from prior dose)</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>6 months</td></tr>
<tr><td>Contraindications</td><td colspan="3">• Serious allergic reaction to prior dose or vaccine component</td></tr>
</table>

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Inactivated Poliovirus Vaccine (IPV)
(Continued)

Special Considerations	• DO NOT restart series, no matter how long since previous dose • May give dose #1 as early as 6 weeks of age • The final dose in the IPV series should be administered at age 4 years or older regardless of the number of previous doses • 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 • A fourth dose is not needed if the third dose was administered at 4 years of age or older and at least 6 months after the previous dose • Clarification from ACIP: When DTaP-IPV/Hib (Pentacel®) is used to provide 4 doses at ages 2, 4, 6, and 15--18 months, an additional booster dose of age-appropriate IPV-containing vaccine (IPOL® or DTaP-IPV† [Kinrix®]) should be administered at age 4-6 years. This will result in a 5-dose IPV vaccine series, which is considered acceptable by ACIP. DTaP-IPV/Hib is not indicated for the booster dose at age 4--6 years. ACIP recommends that the minimum interval from dose 4 to dose 5 should be at least 6 months to provide an optimum booster response. • If a child misses an IPV dose at age 4--6 years, the child should receive a booster dose as soon as feasible • Quadracel® is to be used as a fifth dose of DTaP and fourth or fifth dose of IPV in children 4 -6 years who received DTaP-Hib/IPV (Pentacel®) and/or DTaP (Daptacel®) vaccine as the first 4 doses. This vaccine should not be administered to children aged <4 years or ≥7 years. • Recently the CDC and WHO issued interim guidance for polio vaccination for travel to and from countries affected by wild poliovirus and includes exit requirements for proof of polio vaccination when leaving the country at borders and airports. Check CDC or other travel medicine websites or check with local travel clinic for guidance.
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/ipv.html Additional education may be found at www.health.mil/polio	

Rotavirus Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="4">• Brands: RotaTeq® (RV-5) and Rotarix® (RV-1)
• Live, oral vaccine
• Rotarix® contains latex in the oral applicator
• See package inserts for full list of contents</td></tr>
<tr><td>Dose & Route</td><td colspan="4">• Dose: 2 mL (RotaTeq®) and 1 mL (Rotarix®)
• Route: Orally
• See package insert</td></tr>
<tr><td>Indications</td><td colspan="4">• Licensed for the prevention of rotavirus gastroenteritis in infants 6 weeks through 32 weeks of age</td></tr>
<tr><td rowspan="4">Administration Schedule

* NOTE: First and final dose recommendation differs slightly from the manufacturers' package inserts</td><td>Vaccine</td><td>Dose 1</td><td>Dose 2</td><td>Dose 3</td></tr>
<tr><td>RotaTeq®</td><td>2 months</td><td>4 months</td><td>6 months</td></tr>
<tr><td>Rotarix®</td><td>2 months</td><td>4 months</td><td></td></tr>
<tr><td colspan="4">Rules for rotavirus vaccines:
• Minimum of 4 weeks must separate doses
• First dose can be given as early as 6 weeks of age and should be given by 14 weeks and 6 days (per ACIP*); Vaccination should not be initiated for infants 15 weeks and 0 days or older because of insufficient data on safety of dose 1 of the vaccine in older infants.
• The maximum age for the last dose of rotavirus vaccine is 8 months and 0 days (per ACIP*)
• If any dose in series was RV-5 or product is unknown for any dose in the series, a total of 3 doses of rotavirus vaccine should be administered</td></tr>
<tr><td>Contraindications</td><td colspan="4">• Serious allergic reaction to prior dose or vaccine component
• Moderate or severe acute illness
• Immune suppression, including Severe Combined Immunodeficiency Disease (SCID)
• History of intussusception
• Precautions: History of gastrointestinal disorders or acute gastrointestinal illness, spina bifida, or bladder exstrophy</td></tr>
<tr><td>Special Considerations</td><td colspan="4">• DO NOT restart series, no matter how long since previous dose
• See Storage and Handling Section</td></tr>
<tr><td colspan="5">VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/rotavirus.html
Additional education may be found at www.health.mil/rotavirus</td></tr>
</table>

Typhoid Vaccine

<table>
<tr><td>Vaccine Description</td><td colspan="2">• Brands and types:
• Vivotif®: Oral live-attenuated - Ty21a (≥6 years of age and older); Contains lactose
• Typhim Vi® : capsular polysaccharide - ViCPS (≥2 years of age and older); Contains phenol
• See package insert; neither product contains latex</td></tr>
<tr><td>Dose & Route</td><td colspan="2">• Ty21a dose: 4 capsules Route: Oral
• ViCPS dose: 0.5 mL Route: IM - (Precaution: hemophilia, thrombocytopenia, and anticoagulation therapy)
• See package inserts</td></tr>
<tr><td>Indications</td><td colspan="2">• Ty21a: is approved for persons ≥6 years of age
• ViCPS: is approved for persons ≥2 years of age
• Travelers to areas where a recognized risk of exposure to typhoid exists, particularly ones who will have prolonged exposure to potential contaminated food and water
• Persons with intimate exposure (i.e. continued household contact) to a documented typhoid carrier
• Microbiology laboratorians who work frequently with S. typhi
• DoD Policy. Vaccination is required or personnel who will deploy to typhoid-endemic areas and other areas with poor water sanitation. Typhoid immunization is generally required for members of units designated to be ready to deploy outside of the U.S. within 10 days of notification.</td></tr>
<tr><td rowspan="3">Administrative Schedule</td><td>Dose</td><td>Recommended Interval</td></tr>
<tr><td>Oral Ty21a: 1 capsule x 4 doses</td><td>1 capsule every 48 hours taken 1 hour before meal. Take only with cool or luke- warm fluids</td></tr>
<tr><td>ViCPS: 1 dose 0.5 mL IM</td><td>Not Applicable</td></tr>
<tr><td rowspan="2">Booster
If repeated or continued exposure to the typhi organism</td><td>Oral Ty21a</td><td>Every 5 years</td></tr>
<tr><td>ViCPS</td><td>Every 2 years</td></tr>
</table>

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Typhoid Vaccine
(Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component • Moderate or severe acute illness • Do not administer Ty21a to people with moderate or severe gastrointestinal illness • Do not administer Ty21a to people who are immunocompromised • Do not administer Ty21a to people who have taken antibiotics or sulfonamides during prior 3 days. • Pregnancy: Do not administer Ty21a; refer to provider to determine if ViCPS should be given
Special Considerations	• Avoid oral antibiotics use with Ty21a (may compromise immune response to vaccine bacteria) • Give Ty21a only if 10 days or more have elapsed since the final dose of Proguanil for malaria prophylaxis was ingested. See package insert under "Drug-Interactions". • Caution travelers that typhoid vaccination is not a substitute for careful selection of food and drink • Do NOT restart oral typhoid 4-dose series unless an interval extends greater than 3 weeks (consult a provider) • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/typhoid.html Additional education may be found at www.health.mil/typhoid	

Varicella Vaccine

Vaccine Description	• Live attenuated viral vaccine • Contains gelatin, neomycin (see package insert) • Also available as combined MMR and varicella (ProQuad) for routine use for children during the 4-6year dose of MMR and Varicella	
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	• Ages 1-12 years: 3 months after dose #1 • Ages 13 years and older: 4 weeks after dose #1
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 • Recent receipt of blood product (see CDC guidelines) • For use in children taking salicylates, consult ACIP recommendations	

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Varicella Vaccine
(Continued)

Special Considerations	• If other live injected 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 weeks if varicella vaccine given first OR apply TST first, then give varicella vaccine when TST is read • 4% to 6% of recipients (1% to 2% after 2nd dose) get a "varicella-like" rash within 3 weeks. While rare, individuals may be at risk if they have no immunity or are at high risk for complications (HIV, etc.). • Avoid use of salicylates (aspirin) for 6 weeks following administration due to risk for Reye syndrome • 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 • ProQuad® (MMRV) may be used when both MMR and varicella vaccines are indicated for children 12 months through 12 years of age. Note: Unless the parent or caregiver expresses a preference for MMRV vaccine, separate MMR and varicella vaccines should be administered for the first dose for children 12 through 47 months of age.
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/varicella.html Pregnancy monitoring: 1-877-888-4231 (Merck); also notify DHA-IHD Additional education may be found at www.health.mil/chickenpox	

Yellow Fever

Vaccine Description	• Brand: YF-VAX® • Live attenuated virus vaccine • Contains egg protein, sorbitol and gelatin ° See package insert for other content information
Dose & Route	• Dose: 0.5 mL Route: SC • See package insert
Indications	• People 9 months of age and older living or traveling in endemic areas (consult CDC website, other travel medical website, or local travel clinic for travel vaccine needs) • Laboratory personnel who might be exposed to virus • Deploying personnel per CCMD guidance (typically AFRICOM and SOUTHCOM AOR's)
Administration Schedule	• One dose

Booster	• A single primary dose of yellow fever vaccine provides long-lasting protection and is adequate for most travelers
	• Additional doses of yellow fever are recommended for certain travelers to include:
	  ° Women who were pregnant when they received their initial dose of yellow fever vaccine
	  ° Persons who received a HSCT after receiving a dose of yellow fever vaccine
	  ° Persons who were infected with HIV when they received their last dose of yellow fever vaccine
	  ° Lab workers who routinely handle wild-type yellow fever virus should have titers measured every 10 years to determine the need for additional doses of the vaccine
	  ° A booster dose may be given to travelers who received their last dose at least 10 years previously and who will be in a higher-risk setting based on season, location, activities and duration of their travel

Continued on Next Page

Yellow Fever
(Continued)

Contraindications	• Serious allergic reaction to prior dose or vaccine component and people hypersensitive to eggs or gelatin • Moderate or severe acute illness • Infants younger than 6 months of age (given to infants 6-8 months of age only if travel and exposure cannot be avoided; consult provider) • People with immune-suppressed condition or altered immune state • People who do not have a functional thymus gland are at risk for meningitis and death following YF-VAX®
Special Considerations	• **People 60 years of age and older are at increased risk for systemic adverse events following YF-VAX®** • Pregnancy: no evidence of adverse effects, but avoid when possible. If travel is unavoidable, healthcare provider may recommend vaccination • Women who are breastfeeding • If YF-VAX® vaccine and another live vaccine are both needed and not administered on the same day, space them at least 30 days apart. The effect of non-simultaneous administration of rubella, mumps, varicella, and yellow fever vaccines is unknown. • Yellow fever vaccine has been associated with fever, and with aches, as well as soreness, redness or swelling where the shot was given. These problems occur in up to 1 person out of 4. They usually begin soon after the shot, and can last up to a week. • For documentation of a protective immune response to vaccine where it is deemed essential, contact the CDC at 1-970-221-6400; please also contact DHA-IHD. • Must be used within one hour of reconstitution • See Storage and Handling Section
VIS: http://www.cdc.gov/vaccines/hcp/vis/vis-statements/yf.html Additional education may be found at www.health.mil/yellowfever	

Vaccine Storage and Handling

Immunization Healthcare Division, Defense Health Agency (DHA-IHD)

This content is based on manufacturer product inserts, DoD resources, DHA-IHD resources, and Centers for Disease Control and Prevention (CDC) resources.

Storage and Handling Resources

DHA-IHD: Contact your regional Immunization Healthcare Specialist (IHS) to discuss training needs, policy, or assistance with storage and handling issues. IHS contact information and areas of responsibility can found at www.health.mil/ContactYourIHS.

For vaccine storage and handling questions, contact the DHA-IHD Monday through Friday (0700-1800 ET) at (877) GET-VACC (438-8222) or DSN 761-4245, Option 2, or email DoDvaccines@mail.mil.

Visit DHA-IHD on the web at www.health.mil/coldchain.

United States Army Medical Material Agency/Distribution Operation Center (USAMMA/DOC): is the designated agent within the Department of Defense (DoD) responsible for managing and coordinating the distribution of Anthrax, Smallpox, and Adenovirus vaccines.

For vaccine or other CCM questions during the hours of 0700-1600 EST, call (301) 619-4318/3017.

For URGENT after-hour issues only, call (301) 676-1184/0808.

Reach USAMMA-DOC by email at usarmy.detrick.medcom-usamma.mbx.doc@mail.mil.

Visit USAMMA-DOC on the web at http://www.usamma.army.mil/Pages/DOC-Home.aspx

D**efense Logistics Agency - Troop Support Medical (DLA-TSM):** is the disposition authority for Influenza and Japanese Encephalitis vaccines, and will provide disposition guidance for most other cold chain materials (to include pharmaceuticals, vaccines, and laboratory supplies).

For information about cold chain management, contact the CCM team during the hours of 0730-1800 EST at (215) 737-5537/5365, DSN: 444-5537/5365.

For URGENT after-hour issues only, call (215) 284 -6586.

Reach DLA-TSM by email at paacoldchainteam@dla.mil or DSCPColdChain@dla.mil.

Visit DLA-TSM on the web at https://www.medical.dla.mil/WAM/Home/consent

Centers for Disease Control and Prevention (CDC):
Website: http://www.cdc.gov/vaccines/recs/storage/default.htm

Immunization Action Coalition (IAC):
Website: http://www.immunize.org/clinic/storage-handling.asp

Vaccine Storage and Handling

Vaccine-preventable disease rates decreased in part because of proper storage and handling. Storage and handling errors decrease potency and reduce effectiveness and protection, cost thousands of dollars in wasted vaccine and revaccination, and loss of patient confidence. It is better to not vaccinate than to administer a dose of vaccine that has been mishandled.

Cold chain management is the process of maintaining required temperatures from the time the vaccine leaves the manufacturer until administration of the vaccine to the patient. This is a shared responsibility among manufacturers, distributors, logistics personnel, immunization staff and healthcare providers.

Staff Training and Education:

- Assign responsibilities to a primary vaccine coordinator
- Designate at least one alternative (back-up) vaccine coordinator
- Provide training to staff who handle or administer vaccines, deliver or accept vaccine shipments, and have access to vaccine storage unit(s)
- Provide training and continuing education to new or temporary staff, during orientation, when new vaccines are stocked and when changes to storage and handling guidelines occur.

Storage and Handling Standard Operating Procedures (SOPs):

Develop and maintain written ROUTINE SOPs for:

- Ordering and accepting vaccine deliveries
- Storing and handling vaccines
- Managing inventory
- Managing potentially compromised vaccines

Develop and maintain written EMERGENCY vaccine retrieval and storage plan:

- Back-up storage location with appropriate storage units, temperature monitoring capability, and back-up generator that can maintain power to the vaccine storage units
- Adequate supply of packing materials and portable refrigerators and freezers or qualified containers and packaging material

Vaccine Storage and Handling
(Continued)

Storage and Handling Equipment:

- Must be able to maintain required temperature range throughout the year and large enough to hold year's largest vaccine inventory without crowding (including flu vaccine)
- Pharmaceutical grade, stand-alone refrigerator(s) and freezer(s) are recommended for storage of vaccines. They can vary in size from compact, counter-top or under-the-counter to large pharmaceutical grade
- If a household-grade, combination refrigerator/frost-free freezer unit is used, only use the refrigerator compartment for storing vaccines. Use a separate stand-alone freezer to store frozen vaccines
- Dormitory-style refrigerators are not recommended for vaccine storage under any circumstances, even temporary
- Label outside of storage unit as "Refrigerator-For Vaccine Storage" and "Freezer-For Vaccine Storage"

Storage Unit Preventative Measures:

- Place the storage unit to promote good air circulation around the unit. Place in a well-ventilated room, allow for space on all sides and top, and allow at least 4 inches between storage unit and wall.
- Plug storage units directly into the wall outlet. Do not plug into outlets that can be activated by a wall switch or outlets with built in circuit switches (may have a reset button). Do not use extension cords, multi-outlet power strips or surge protectors.
- Secure the storage unit plug to the electrical outlet by using a safety-lock plug, an outlet cover, or a cover outlet with a cage.
- Post highly visible "DO NOT UNPLUG" signs at outlets and on each storage unit.
- Label circuit breaker fuses to alert personnel not to turn off the power and include information on who to contact if the power to the storage units will be turned off due to construction or other electrical work.
- Post warning signs indicating who to contact in case the temperature needs adjusting.
- Connect the vaccine storage units to a red emergency outlet, back-up battery power source or back-up generator to ensure proper storage conditions are maintained during commercial power interruptions.
- Use an alarm system to alert staff to after-hour emergencies, such as power failures or out-of-range temperatures in vaccine storage units. Take immediate corrective action when there is a problem.
- Use water bottles in refrigerator and frozen water bottles in freezer to stabilize temperature.
- Storage unit must be dedicated to the storage of biologics only. If other biologics, other than vaccines, must be stored in the same unit, store them below the vaccines to avoid contamination.

Continued on Next Page

Vaccine Storage and Handling
(Continued)

Storage Unit Preventative Measures *(continued)*:

- Never store food and beverages in the same unit with vaccines.
- Physically check storage units throughout the duty day and prior to leaving, to confirm that the doors are securely closed and to verify equipment is working properly.
- Conduct and document required preventive maintenance on all storage unit equipment per the manufacturer's instructions.

Temperature Monitoring Devices:

- Each storage unit must have its own calibrated temperature monitoring device (TMD) with a certificate of calibration testing (Report of Calibration) from an accredited laboratory.
- The recommended TMD is a Digital Data Logger (DDL). Use DDLs with a detachable probe in a thermal buffered material (e.g., glycol, glass beads, sand, and Teflon) that record and store temperature information at 30-minute intervals for 24-hour temperature monitoring rather than non-continuous temperature monitoring.
- Place the temperature probe in close proximity to the vaccine being stored, in the middle, center of the storage compartment.
- Review the recorded DDL temperature data (via software or website information) at least weekly to ensure proper temperature recording and to identify any temperature trends that may require action.

Required Storage Temperatures and Temperature Monitoring:

- Refrigerated vaccine storage: between 2°C to 8°C (36°F to 46°F); average 5°C (40°F)
- Freezer vaccine storage: -50°C to -15°C (-58°F to +5°F)
- Physically check and record storage unit minimum and maximum temperatures at the start of each workday. The minimum/maximum temperatures should be those obtained since the last workday when the minimum/maximum temperatures were reset.
- If the TMD used does not display minimum/maximum temperatures, then check and record the current temperature a minimum of two times (at the start and end of the workday).
- Twice-daily physical checks should be done even if there is an electronic monitoring system installed.
- Place a temperature monitoring log sheet on each storage unit door, and document the following information: minimum/maximum temperature or current temperature if no minimum/maximum temperature is available, ambient room temperature, date, time, and name or initials of person who checked and recorded the temperatures. Record date and time of any temperature excursion and actions taken to correct the problem.

Continued on Next Page

Vaccine Storage and Handling

Required Storage Temperatures and Temperature Monitoring: *(continued)*

- For storage units located in restricted access areas, ensure the temperature can be checked and recorded and that a light or audible alarm is installed to indicate when the storage unit temperature is out of range, without having to physically enter the restricted area.
- Keep temperature log sheets and data for 3 years unless local rules require a longer period.

Temperature Log for Refrigerator – Celsius
DAYS 1–15

Month/Year _____
Facility Name _____
Page 1 of 2

Monitor temperatures closely!

1. Write your initials below in "Staff Initials," and note the time in "Exact Time."
2. Record temps twice each workday.
3. Record the min/max temps once each workday – preferably in the morning.
4. Reset the min/max thermometer after recording the temperature.
5. If any out-of-range temp, see instruction to the right.
6. After each month has ended, save each month's log for 3 years, unless local policy requires a longer period.

Take action if temp is out of range – too warm (above 8°C) or too cold (below 2°C).

1. Do not leave vaccine in non-functioning storage unit. Immediately move the vaccine to a working storage unit at proper temperature.
2. Label exposed vaccine "do not use," and place them in a separate container apart from other vaccines ready for storage.
3. Do not discard vaccines unless directed to by *USAMMA-DOC or †DLA-TSM.
4. Notify your vaccine coordinator, and call your Immunization Healthcare Specialist for guidance.
5. Document the action taken on a PC-TSMP worksheet found at www.health.mil/coldchain.

Day of Month	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15	
Staff Initials																														
Exact Time	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Min/Max Temp (since previous reading)																														
Danger! Temps above 8°C are too warm! Write any out of range temp and room temp on the lines below and contact USAMMA-DOC and/or DLA-TSM immediately!																														
8°C																														
7°C																														
6°C																														
TEMPERATURES Aim for 5°C																														
5°C																														
ACCEPTABLE 4°C																														
3°C																														
2°C																														
Danger! Temps below 2°C are too cold! Write any out of range temp and room temp on the lines below and contact USAMMA-DOC and/or DLA-TSM immediately!																														
ACTION Write any out of range temp and Room Temp in the "Below 2°C" box.																														
Room Temperature*																														

*Max storage units in a well ventilated room at an ambient room temperature of 68°F-77°F/20°C-25°C.

If you have a vaccine storage issue, also complete a PC-TSMP worksheet found at www.health.mil/coldchain.

•USAMMA/DOC Phone: (301) 619-4318/3017, DSN (343), Urgent after hours: (301) 676-1184/0808, email: usarmy.detrick.medcom-usamma.mbx.doc@mail.mil
•DLA-TSM CCM Team Phone: (215) 737-5537/5365, DSN (444), Urgent after hours: (215) 284-6586, email: DSCP.cold.chain@dla.mil or psacoldchainteam@dla.mil

DHA-IHD (12 Aug 19) www.health.mil/vaccines

877-GET-VACC

Temperature Log for Freezer – Celsius

DAYS 1–15

Month/Year _____

Facility Name _____

Monitor temperatures closely!

1. Write your initials below in "Staff Initials," and note the time in "Exact Time."
2. Record temps twice each workday.
3. Record the min/max temps once each workday – preferably in the morning.
4. Put an "X" in the row that corresponds to the refrigerator's temperature.
5. If any out-of-range temp, see instructions to the right.
6. After each month has ended, save each month's log for 3 years, unless local policy require a longer period.

Take action if temp is out of range—too warm (above -15°C) or too cold (below -50°C).

1. Do not leave vaccine in non-functioning storage unit. Immediately move the vaccine to a working storage unit at proper temperature.
2. Label exposed vaccine "do not use," and place them in a separate container apart from other products in the storage unit.
3. Do not discard vaccines unless directed to by *USAMMA-DOC or *DLA-TSM.
4. Notify your vaccine coordinator, and call your Immunization Healthcare Specialist for guidance.
5. Document the action taken on a PC-TSMP worksheet found at www.health.mil/coldchain.

Day of Month		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15	
Staff Initials																															
Exact Time		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Min/Max Temp (since previous reading)																															
Danger! Temps above -15°C are too warm! Write any out-of-range temps and room temp on the lines below and contact USAMMA-DOC and/or DLA-TSM immediately!																															
ACCEPTABLE TEMPERATURES	-15°C																														
	-16°C																														
	-17°C																														
	-18°C																														
	-19°C																														
	-20°C																														
	-21°C																														
	-22°C																														
	-50°C to -23°C																														
ACTION	Write any out-of-range temps (above -15°C or below -50°C) here.																														
	Room Temperature*																														

*Place storage units in a well ventilated room at an ambient room temperature of 68°F-77°F/20°C-25°C.

If you have a vaccine storage issue, also complete a PC-TSMP worksheet found at www.health.mil/coldchain.

*USAMMA/DOC **Phone: (301) 619-4318/3017, DSN (343), Urgent after hours: (301) 676-1184/0808, email: usarmy.detrick.medcom-usamma.mbx.doc@mail.mil**

*DLA-TSM CCM **Team Phone: (215) 737-5537/5365, DSN (444), Urgent after hours: (215) 284-6586, email: DSCPColdChain@dla.mil or paacoldchainteam@dla.mil**

Vaccine Storage and Handling

Vaccine and Diluent Placement and Labeling:

Set up your vaccine storage unit to maintain proper temperatures, to ensure vaccines can be located quickly, and to prevent mistaking one vaccine for another vaccine.

- Store vaccines away from walls, coils, cooling vents, top shelf, ceiling, door, floor, and back of unit. Do not store vaccines in storage unit doors, on the top shelf, on the floor, or in deli vegetable or fruit crisper drawers.
- Keep vaccines and diluents in original packaging with lids on to protect from light.
- Arrange vaccines in rows or use trays, uncovered containers, or perforated bins, allowing space between rows to promote air circulation. Do not pack storage unit too tightly.
- Place vaccines and diluents with the earliest expiration dates in the front of those with later expiration dates.
- Store pediatric and adult vaccines on different shelves.
- Use labels with vaccine type, age and gender indications or color coding.
- Do not store sound-alike and look-alike vaccines next to each other.
- Store refrigerated diluent with corresponding vaccine (may contain vaccine antigen).
- Label diluent to avoid inadvertent use of the wrong diluent when reconstituting a vaccine.
- Never store diluents in the freezer.

Vaccine Delivery and Inventory:

- Notify vaccine coordinator or alternate (back-up) coordinator when delivery arrives.
- Avoid having people accept deliveries who may not understand the importance of storage at appropriate temperatures upon arrival.
- Immediately upon receipt of vaccine delivery: verify the temperatures were in proper range throughout shipment; check the contents against the packing list to confirm they match; and unpack the vaccine and place in the appropriate storage unit.
- If there are concerns, label vaccines "Do Not Use", store under appropriate conditions, and separate from other vaccines.
- Contact Immunization Healthcare Specialist (IHS), USAMMA-DOC or DLA-TSM for guidance.
- Order vaccine based on projected demand, storage capacity, average waste (turn-in) and current vaccine supply. Avoid overstocking.
- Conduct a vaccine and diluent inventory at a minimum monthly.
- Ensure vaccines are stored in original packaging. Place rubber bands around boxes of like lot numbers to alert staff to a change in vaccine lot number.
- Rotate stock so that vaccines and diluents with soonest expiration dates are moved to the front and are used first.
- Check vaccine and diluent expiration dates a minimum of weekly to remove expired items from usable stock. Never use expired vaccine or diluent.

Continued on Next Page

Vaccine Delivery and Inventory: *(continued)*

- If normal in appearance and stored and handled properly, product can be used through end of day indicated if expiration date is mm/dd/yyyy (e.g., 12/15/2018) and through end of month indicated if expiration date is mm/yyyy (e.g., 12/2018).
- An opened multi-dose vial (MDV) of vaccine that has been stored and handled properly and is normal in appearance can be used through the expiration date printed on the vial unless there is a "beyond use date" (BUD) noted in the package insert (e.g., 28 days after opening). The BUD is the date or time after which an opened MDV cannot be used. Note any change in expiration date/time on vial.
- For reconstituted MDVs, the BUD will vary by product; check the manufacturer package insert for details. Note any change in expiration date/time on vial.

Vaccine Preparation and Handling:

- Take vaccines out of the storage unit only when ready to administer. Always double check that you have the correct vaccine before removing the cap. Remove the cap only when you are ready to administer the vaccine.
- Single-dose vials and manufacturer-filled syringes contain one dose of vaccine and are to be used one time for one individual. Do not open a single-dose vial or remove the tip cap and attached a needle to the syringe until just prior to administration. Discard all single-dose vials without protective caps or manufacturer-filled syringes without tip caps and/or needle attached at the end of the duty day.
- Multi-dose vials (MDV) contain more than one dose of vaccine and can be entered or punctured more than once. Always use aseptic technique when withdrawing vaccine from an MDV. Only the number of doses indicated in the manufacturer's package insert should be withdrawn from the vial.
- Mark MDVs with date, time, and initials when first reconstituted and/or when the first dose is withdrawn and with a revised "beyond use date" if required and always return the unused vaccine to the storage unit immediately after drawing up a dose.
- Vaccines should be prepared in a designated area away from any space where potentially contaminated items are placed.
- Use only the specific diluent provided by the manufacturer for each type of vaccine.
- Do not mix individual vaccines in the same syringe unless specifically licensed for such use. Do not transfer vaccine between syringes. Use a separate needle and syringe for each injection.

Continued on Next Page

Vaccine Storage and Handling
(Continued)

Vaccine Preparation and Handling: *(continued)*

- Administer vaccine shortly after withdrawal from single-dose or multi-dose vial, in accordance with the manufacturer's package insert. Discard vaccine and diluents when stored or handled inappropriately or expired.
- Prefilling syringes is highly discouraged because of the increased risk of administration errors and possible bacterial growth in vaccines that do not contain preservatives. Syringes other than those filled by the manufacturer are designed for immediate use and not for vaccine storage.
- In certain circumstances in which a single vaccine type is being used, such as during an influenza vaccination campaign, filling a small number of syringes, no more than 10 doses, may be considered.
- Label filled syringe with the type of vaccine, lot number, and date of filling, unless the vaccine is administered immediately after being drawn into the syringe by the same person administering the vaccine.
- Discard any vaccine in pre-drawn syringes remaining at the end of the duty day and report as a loss.

Continued on Next Page

Vaccine	Trade Name	Where to store	Acceptable Temperature Range	Diluent Storage	Specific Expiration after Opened/Reconstituted	Protect from Light	Other Comments
Adenovirus	Adenovirus Type 4 and Type 7	Refrigerator	2°C to 8°C (36°F to 46°F)		May be used until expiration date.		Keep bottles tightly closed and protect from moisture. Do NOT remove desiccant canister from bottles.
Anthrax	BioThrax®	Refrigerator	2°C to 8°C (36°F to 46°F)		Once the stopper of the multi-dose vial has been pierced, the vial must be discarded within 28 days.		Shake well before use.
Cholera	Vaxchora®	Refrigerator	2°C to 8°C (36°F to 46°F)	Pour 100 mL of cold or room temperature (41°F-72°F; 5°C-22°C) purified bottled or spring bottled water into a clean, disposable cup. Do not use tap water, sparkling (carbonated) water, non-purified or non-spring bottled water, other beverages, or other liquids.	Must be consumed within 15 minutes of reconstitution. If the packets are reconstituted in the improper order, the vaccine must be discarded.	Yes	Protect from light and moisture. Reconstitution should be completed within 15 minutes of removing from the refrigerator. When out of refrigerated storage, packets should not be exposed to temperatures above 80°F (27°C).
All DTaP vaccines	Daptacel®	Refrigerator	2°C to 8°C (36°F to 46°F)				Shake well before use.
	Infanrix®						Shake well before use.
	Kinrix®						Shake well before use.
	Pediarix®						Shake well before use.
	Pentacel®			Yes – store in refrigerator	Use immediately after reconstitution.		Shake well before use.
	Quadracel®						Shake well before use.
	Vaxelis®						Shake well before use.
Hepatitis A	Havrix®	Refrigerator	2°C to 8°C (36°F to 46°F)				Shake well before use.
	VAQTA®						Shake well before use.
Hepatitis B	Engerix-B®	Refrigerator	2°C to 8°C (36°F to 46°F)				Shake well before use.
	Heplisav-B®						
	Recombivax HB®					Yes	Shake well before use.
Hepatitis A-B	Twinrix®	Refrigerator	2°C to 8°C (36°F to 46°F)				Shake well before use.
Hib vaccines	ActHIB®	Refrigerator	2°C to 8°C (36°F to 46°F)	Yes – store in refrigerator	Use within 24 hours of reconstitution.		If the vaccine is not administered immediately, shake the solution well again before administration.
	Hiberix®			Yes – store in refrigerator or at room temperature	Use within 24 hours of reconstitution.	Yes	If the vaccine is not administered immediately, shake the solution well again before administration.
	PedvaxHIB®						Shake well before use.
HPV	Gardasil 9®	Refrigerator	2°C to 8°C (36°F to 46°F)			Yes	Shake well before use. Administer as soon as possible after being removed from refrigeration.

Continued on Next Page

Vaccine	Trade Name	Where to store	Acceptable Temperature Range	Diluent Storage	Specific Expiration after Opened/Reconstituted	Protect from Light	Other Comments
Influenza (LAIV)	FluMist®	Refrigerator	2°C to 8°C (36°F to 46°F)			Yes	
Influenza (IIV)	Fluad®, Fluarix®, Flublok®, Flucelvax®, Fluvirin®, Fluzone®	Refrigerator	2°C to 8°C (36°F to 46°F)		Multi-dose vials may be used until expired unless contaminated.	Yes	Shake well before use. Between uses, return the multi-dose vial to the recommended storage conditions.
	Afluria®, Flulaval®	Refrigerator	2°C to 8°C (36°F to 46°F)		Once the stopper of the multi-dose vial has been pierced the vial must be discarded within 28 days.	Yes	Shake well before use. Between uses, return the multi-dose vial to the recommended storage conditions.
JEV	Ixiaro®	Refrigerator	2°C to 8°C (36°F to 46°F)			Yes	Shake well before use.
Meningococcal	Menactra®	Refrigerator	2°C to 8°C (36°F to 46°F)				
	Menveo®			Yes – store in refrigerator	Use within 8 hours of reconstitution.	Yes	
	Bexero®					Yes	Shake well before use.
	Trumenba®						Shake well before use. Store syringes in the refrigerator horizontally (lying flat on the shelf) to minimize the re-dispersion time.
MMR	M-M-R II®	Freezer (preferred) or Refrigerator	-50°C to -15°C (-58°F to +5°F) (preferred) or 2°C to 8°C (36°F to 46°F)	Yes – store in refrigerator or at room temperature	Use within 8 hours of reconstitution and continue to protect from light.	Yes	
MMRV	Proquad®	Freezer	-50°C to -15°C (-58°F to +5°F)	Yes – store in refrigerator or at room temperature	Use within 30 minutes of reconstitution and continue to protect from light.	Yes	
Pneumococcal	Pneumovax®	Refrigerator	2°C to 8°C (36°F to 46°F)		Multi-dose vials may be used until expired unless contaminated.		
	Prevnar 13®						Shake well before use.
Polio (IPV)	IPOL®	Refrigerator	2°C to 8°C (36°F to 46°F)		Multi-dose vials may be used until expired unless contaminated.	Yes	
Rabies	Imovax®	Refrigerator	2°C to 8°C	Yes – store in refrigerator			

Continued on Next Page

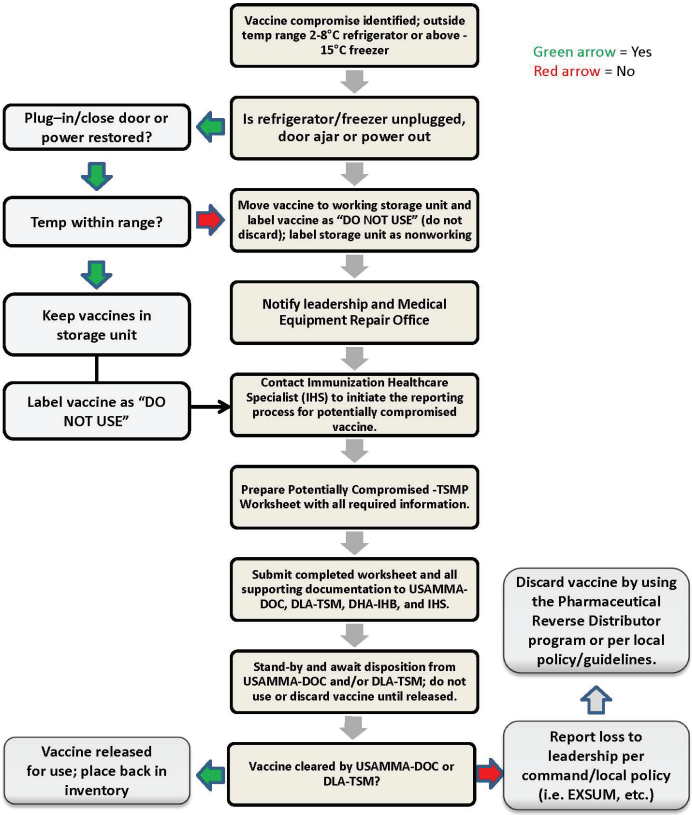
Vaccine	Trade Name	Where to store	Acceptable Temperature Range	Diluent Storage	Specific Expiration after Opened/Reconstituted	Protect from Light	Other Comments
Rabies (cont.)	Rabavert®		(36°F to 46°F)		Use immediately after reconstitution.	Yes	
Rotavirus	Rotarix®	Refrigerator	2°C to 8°C (36°F to 46°F)	Yes – store in refrigerator or at room temperature	Use within 24 hours of reconstitution.	Yes	
	RotaTeq®					Yes	Administer as soon as possible after removal from refrigeration.
Tetanus and Diphtheria Toxoid and Tdap	Adacel®	Refrigerator	2°C to 8°C (36°F to 46°F)				Shake well before use.
	Boostrix®						Shake well before use.
	DT®						Shake well before use.
	Tenivac®						Shake well before use.
Smallpox	ACAM2000®	Refrigerator	2°C to 8°C (36°F to 46°F)	Yes – store at room temperature	Use within 30 days of reconstitution.		Between uses, return the multi-dose vial to the recommended storage conditions.
Typhoid	Typhim Vi®	Refrigerator	2°C to 8°C (36°F to 46°F)		Multi-dose vials may be used until expired unless contaminated.		
	Vivotif®						Vivotif is not stable when exposed to ambient room temperatures. Keep all doses in proper storage until ingested.
Varicella/ Chickenpox	Varivax® (refrigerator formulation)	Refrigerator	2°C to 8°C (36°F to 46°F)	Yes – store in refrigerator or at room temperature	Use within 30 minutes of reconstitution.	Yes	The lyophilized vaccine has a shelf-life of 24 months when refrigerated. The vaccine may also be stored in a freezer; if subsequently transferred to a refrigerator, the vaccine should not be refrozen.
	Varivax® (freezer formulation)	Freezer	-50°C to -15°C (-58°F to +5°F)	Yes – store in refrigerator or at room temperature	Use within 30 minutes of reconstitution.	Yes	May be stored in refrigerator, 2°C to 8°C/36°F to 46°F, for up to 72 hours prior to reconstitution. Vaccine stored at 2°C to 8°C which is not used within 72 hours of removal from -15°C/+5°F storage should be discarded.
Yellow Fever	YF-VAX®	Refrigerator	2°C to 8°C (36°F to 46°F)	Yes – store in refrigerator or at room temperature	Use within 60 minutes of reconstitution.		
Zoster/Shingles	Shingrix®	Refrigerator	2°C to 8°C (36°F to 46°F)	Yes – store in refrigerator	Use within 6 hours of reconstitution.	Yes	
	Zostavax®	Freezer	-50°C to -15°C (-58°F to +5°F)	Yes – store in refrigerator or at room temperature	Use within 30 minutes of reconstitution.	Yes	May be stored and/or transported at refrigerator temperature (2°C to 8°C, 36°F to 46°F) for up to 72 continuous hours prior to reconstitution. Vaccine stored at 2°C to 8°C which is not used within 72 hours of removal from -15°C/ +5°F storage should be discarded.

Temperature Excursion

If stored vaccines have been exposed to temperatures outside recommended ranges:

- Do not leave vaccine in a nonfunctioning storage unit-immediately move vaccine to a properly functioning storage unit.
- Label potentially compromised vaccine as "Do Not Use" and place them in a separate container apart from other products in the storage unit.
- Complete the Potentially Compromised-Temperature Sensitive Medical Products (PC-TSMP) Worksheet to document the circumstances surrounding the event. Contact Immunization Healthcare Specialist for guidance.
- Do not destroy, discard or use vaccine until released by USAMMA-DOC and/or DLA-TSM.
- Once disposition is provided, place the vaccine back into inventory or discard the vaccine per local guidance.

Steps to take for Potentially Compromised Vaccine Event



Potentially Compromised -TSMP worksheet can be found at the following: www.health.mil/coldchain

Reset Form

Steps to follow in response to a Potentially Compromised (PC) Temperature Sensitive Medical Product (TSMP)* Event

Step 1. Activate Site/Clinic Emergency Response Plan:

a. Do not leave vaccine(s)/TSMP in non-functioning storage unit. Immediately move the vaccine(s)/TSMP to a working storage unit at proper temperature (refrigerator: 2-8°C/36-46°F, freezer: below -15°C/5°F.
b. Label exposed vaccine(s)/TSMP as "DO NOT USE," and place them in a separate container apart from other products in the storage unit.
c. DO NOT destroy, discard or use vaccine(s)/TSMP until released by:
   - U.S. Army Medical Materiel Agency Distribution Operations Center (USAMMA-DOC) for anthrax, smallpox or adenovirus.
   - Defense Logistics Agency Troop Support Medical (DLA-TSM) for all other vaccines/TSMP.
d. Notify your local leadership of the potential loss.
e. Contact your Defense Health Agency-Immunization Healthcare Specialist (IHS) for assistance with reporting the potential loss: www.health.mil/ContactYourIHS

Step 2. Complete the PC-TSMP Worksheet:

a. Complete **ALL** required information on the attached PC-TSMP worksheet, this will prevent any delay in receiving disposition for your products.
b. Save document as "PC-TSMP_enter clinic name and location_enter current date" using the following example: PC-TSMP_NBHC Key West FL_12 Aug 19.
c. When possible, send completed worksheet along with copies of your temperature logs to your IHS for review to confirm all information is appropriately documented.
d. Click the "Submit by email" button, ensure the "Desktop Email Application" button is selected and click "OK".
e. Include your IHS's email address (if known) on the "To" line when the message opens up.
f. Attach temperature logs/data and click the send button; it will forward completed worksheet directly to the USAMMA-DOC and DLA-TSM mailboxes: usarmy.detrick.medcom-usamma.mbx.doc@mail.mil, DSCPColdchain@dla.mil, and paacoldchainteam@dla.mil.
g. If the "Submit by email" button does not work at your location, add all the above email addresses to the "To" line, attach temperature logs/data, and click the send button.
h. Standby for further instructions from USAMMA-DOC and/or DLA-TSM. They will provide disposition for your vaccine(s)/TSMP.
i. Contact USAMMA-DOC, DLA-TSM and/or your IHS if disposition has not been received within 24-hours of submitting the completed worksheet.
j. Contact information for USAMMA-DOC and DLA-TSM:
   - USAMMA DOC: (301) 619-4318/3017, after hours: (301) 676-1184/0808.
   - DLA-TSM Coldchain Team: (215) 737-5537/5365, DSN: 444-5537/5365, or e-mail: DSCPColdchain@dla.mil, paacoldchainteam@dla.mil. For URGENT after-hours issues only, call (215) 284-6586.

NOTE: If your product is not listed in the drop-down menu on page 3 and you manually enter the product information, the cost will not auto-calculate and will not be included in the total cost of affected TSMP box.

* TSMP collectively refers to: vaccines, temperature sensitive reagents, and other temperature sensitive items.

Continued on Next Page

PC-TSMP Worksheet

Reset Form

Date: _____ Facility Name:(SELECT FROM DROP-DOWN OR ENTER REQUIRED INFORMATION) _____ Service: _____ Component: _____

Vaccine/TSMP Storage Location: _____ IHS: _____

POC: _____ Email: _____ Phone: _____

Required temperature and storage unit information: **Room temperature** where vaccine(s)/other TSMP located: _____

1a. Temps recorded in F or C: _____ 1b. Vaccine(s)/other TSMP left out of refrigerator or freezer? _____ 1c. Stored in transport container? _____

1d. Vaccine(s)/other TSMP stored in proper storage unit (refer vs. freezer)? _____ 1e. If 1b.-1c. is YES or 1d. is NO, how long (hrs)? _____

2a. **Prior to event:** date/time of last manual temp check when temps were within normal range? date: _____ time: _____ refer temp: _____ freezer temp: _____

2b. **Post event:** date/time when vaccine(s)/TSMP were back within normal temp range? date: _____ time: _____ refer temp: _____ freezer temp: _____

3. If vaccine(s)/other TSMP were located in refrigerator and/or freezer during this event, complete 3a. - 3e.

3a. Water bottles in refer? _____ 3b. Water bottles or ice packs in freezer? _____

3c. Refer temp: current: _____ warmest: _____ coldest: _____

3d. Freezer temp: current: _____ warmest: _____ coldest: _____

3e. Estimated # of **hours** vaccine(s)/other TSMP were exposed to temps outside the recommended range: Refer hrs: _____ Freezer hrs: _____

4a. Product removed from nonworking unit & transported to working storage unit? _____ 4b. Proper packing protocol used (e.g., CDC)? _____

4c. Refrigerated gel packs used to pack refrigerated vaccines? _____ 4d. Thermometer placed in transport container near vaccine? _____

4e. Barrier placed between vaccine & coolant packs (e.g., cardboard, bubble wrap, etc.)? _____ 4f. Transport container temperature: _____

5. Prior to this current temp excursion, were these same vaccine(s)/TSMP exposed to temps outside the recommended range at anytime? Provide prior excursion data in block 7 below. _____

6. If M-M-R was affected, was it stored in the freezer? _____

7. Document in the space below the circumstances surrounding the potential compromise. Include date, time, current location of vaccine(s) or other TSMP, personnel notified, and actions taken once incident was identified. List all products affected on following page.

Please select all event types that apply:

Non-preventable loss: _____

Personnel Error: _____

Process Failure: _____

USAMMA-DOC/DLA-TSM Use Only:

Continued on Next Page

PC-TSMP Worksheet

Reset Form

Brand Name, NDC/Part #, and Manufacturer (Add this information if item is not listed in drop-down menu)	Lot #	Expiration Date	Quantity (# of doses)	Cost of TSMP	# MDV* Open	Disposition (DLA/USAMMA)
(SELECT FROM DROP-DOWN OR ENTER REQUIRED INFORMATION)				$0.00		(select one)

Submit by Email

Total Cost of Potentially Compromised Vaccine(s)/TSMP: **$0.00**

Total Cost of Discarded Vaccine(s)/TSMP:

***MDV = multi-dose vial. Indicate # of vials opened.**

Vaccine and Diluent Disposal

- Dispose of empty or partially used vials or syringes in a sharps container.
- Multi-dose vials that contain thimerosal, as a bacteriostatic agent, are considered hazardous waste. As a result, all empty or partially used multi-dose vials and syringes containing vaccine drawn from MDVs that contain thimerosal should be disposed of in a marked hazardous waste container.
- Turn in all unopened and unused single-dose vials, multi-dose vials, and manufacturer-filled syringes of vaccine and diluent (expired and/or compromised) for credit by using the DLA Pharmaceutical Reverse Distributor Program. Contact the pharmacy or medical logistics for more information on this program.

Medical/Reference

Immunization Tool Kit
Design and Development (1999-2019)

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