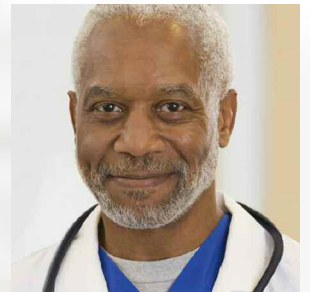


Immunization Action Coalition

Vaccinating Adults: A Step-by-Step Guide



2017

OUR MISSION

The mission of the Immunization Action Coalition (IAC) is to increase immunization rates and prevent disease throughout the United States. We create and distribute educational materials for healthcare professionals and the public that enhance the delivery of safe and effective immunization services. We work to improve national and state vaccine policy. IAC also facilitates communication about the safety, efficacy, and use of vaccines within the broad immunization community of patients, parents, health-care organizations, and government health agencies.

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QUICK REFERENCE

Key web pages from the Immunization Action Coalition

Website for healthcare professionals
www.immunize.org

IAC Express
(free weekly e-newsletter)
www.immunize.org/express

Staff education materials and patient handouts
www.immunize.org/handouts

Vaccine Information Statements (VISs) with translations
www.immunize.org/vis

Ask the Experts (CDC experts answer vaccine questions)
www.immunize.org/askexperts

Clinic resources
www.immunize.org/clinic

Standing orders for vaccination
www.immunize.org/standing-orders

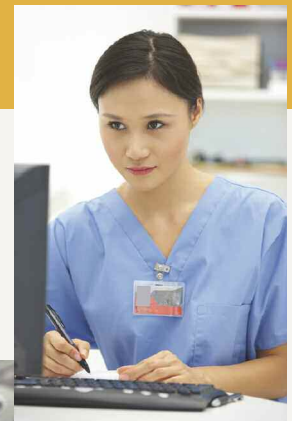
Package inserts
www.immunize.org/fda

State immunization program websites
www.immunize.org/states

Contact IAC
admin@immunize.org

Looking for additional helpful websites?

Check the *Materials and Resources You Can Use* pages located at the end of each “step” (chapter) in the *Guide*, as well as the back inside cover.



Immunization Action Coalition

Vaccinating Adults: A Step-by-Step Guide

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This entire guide is available free online
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Adults Only Vaccination: A Step-by-Step Guide

Immunization Action Coalition

January 2004

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Vaccinating Adults: A Step-by-Step Guide is provided to healthcare professionals and others as an educational tool in support of their efforts to prevent disease and save lives by providing vaccines. This publication is supported by Cooperative Agreement Number U381P000589 from the Centers for Disease Control and Prevention (CDC). Information concerning vaccines and their administration has been reviewed by CDC for technical accuracy, but the contents of the *Guide* are solely the responsibility of the Immunization Action Coalition (IAC) and do not necessarily represent the official views of CDC or IAC's partner organizations. IAC cannot guarantee that reliance on the information in this *Guide* will cause no injury. IAC is not licensed to practice medicine or pharmacology, and the providing of the information in this *Guide* does not constitute such practice. All of the information included in the *Guide* is of a time-critical nature, and we cannot guarantee against some of the information becoming outdated, inaccurate, or incomplete. Before you rely on the information in the *Guide*, you should independently verify its current accuracy and completeness.

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October 2017

Dear Immunization Provider,

In 2004, the Immunization Action Coalition (IAC) published *Adults Only Vaccination: A Step-by-Step Guide*. At that time, 5,500 hard copy versions of the guide were distributed and its life was greatly extended by making it available online. Over the years, more than 72,000 copies of the entire guide have been downloaded from the IAC website at www.immunize.org. Also notable are the *more than one-half million* downloads of individual chapters, almost two-thirds of which were the ones related to vaccine administration and storage/handling.

Clearly, this guide has met a great need. But just as clearly, many items in the original guide are currently out of date. IAC is proud to offer this 2017 edition of the original book, now titled *Vaccinating Adults: A Step-by-Step Guide* (“the Guide”).

We believe this updated version of the *Guide* will be even more helpful than the original for vaccinators working in the rapidly evolving world of adult immunization. To accommodate the changes that have occurred since 2004, the 2017 *Guide* places greater emphasis on helping locate pertinent and up-to-date resources on the Internet. Each chapter is filled with web addresses of helpful tools and references. Readers can access the most recent information, both now and for years to come, by going online to the listed URLs.

Many staff members from IAC, the Centers for Disease Control and Prevention, and the National Vaccine Program Office were involved in bringing this guide to you. Laurel H. Wood, MPA, IAC’s coordinator for public health, however, provided the critical leadership that steered this project from beginning to end. William L. Atkinson, MD, MPH, IAC’s associate director for immunization education, contributed his renowned expertise by authoring several of the book’s key chapters and reviewing the entire guide. L.J. Tan, MS, PhD, IAC’s chief strategy officer, contributed his extensive knowledge of vaccine financing and reimbursement to bring clarity to those complex topics in chapter 7.

And now, it is in your hands. You are in a unique position to increase adult immunization rates, especially by being equipped with the up-to-date, practical guidance offered in these pages. We hope the *Guide* will help bring it all together for you – step by step.

DEBORAH L. WEXLER, MD
Founder and Executive Director
Immunization Action Coalition

Vaccinating Adults: A Step-by-Step Guide

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STEP 1:

Getting Started

IF YOU WORK in a setting that serves adults in some way – whether that be an internal medicine, family medicine, or ob-gyn practice, or a pharmacy, family planning clinic, homeless shelter, sexually transmitted disease clinic, correctional setting, or

You could prevent serious disease, and even death, by offering vaccinations to your patients, clients, or other adult populations.

drug treatment program – you could prevent serious disease, and even death, by offering vaccinations to your patients, clients, or other adult

populations. Increasingly, providing vaccination services in multiple types of healthcare settings is seen by public health and immunization experts as one of the best ways to deliver vaccines to adults.

In 2004, the Immunization Action Coalition (IAC) first published *Adults Only Vaccination: A Step-by-Step Guide* to help clinicians in a variety of adult healthcare settings implement programs to vaccinate adults against infectious diseases. This 2017 updated edition, *Vaccinating Adults: A Step-by-Step Guide* (“the *Guide*”), has been developed to incorporate current information with the expert advice found in the original publication. But no guide or “how-to” manual is sufficient to train you to be a full-fledged vaccinator. You will need the assistance of one or two well-trained and experienced healthcare professionals who might already be working in your healthcare setting. You also can connect with experienced staff at your state or local health department. A helpful list of state immunization program coordinators is available through IAC’s website at www.immunize.org/coordinators.



We hope you won’t be intimidated by the seeming complexities of vaccination. While it’s true that the number of vaccines available and their dosing schedules can be a bit daunting, and official recommendations can change frequently, vaccination may be approached on many different levels. In the *Guide*, we address vaccination at its most basic level. As you gain experience, you will learn more about vaccine recommendations and scheduling intricacies.

Print and Internet resources abound to help you keep up to date with scheduling and other practical issues. Some of the great resources available from IAC include:

- **IAC’s website for healthcare professionals at www.immunize.org.** Check this site often for the latest information to help you stay current. The Clinic Resources web section at www.immunize.org/clinic is an excellent place to start.

www.immunize.org

www.immunize.org/clinic

Clinic Resources

Helpful Resources for Your Vaccination Clinic

This section is a one-stop source of practical information for immunization providers. You will find “how-to” information about providing vaccinations in a clinic or non-traditional setting.

- Administering Vaccines
- Documenting Vaccination
- Scheduling Vaccines
- Screening for Contraindications
- Storage & Handling
- Vaccine Recommendations

2 STEP 1: Getting Started

■ Periodic IAC publications

► **IAC Express** at www.immunize.org/express.

This publication, which is delivered directly to your email box every week, features important immunization developments such as the latest vaccine recommendations and licensures, newly released information from the Centers for Disease Control and Prevention (CDC), including new and updated Vaccine Information Statements and practical vaccination education materials like patient handouts or staff materials, practical journal articles, and more. Be sure to subscribe to *IAC Express* at www.immunize.org/subscribe.



www.immunize.org/express



www.immunize.org/technically-speaking

► **Technically Speaking**, at www.immunize.org/technically-speaking, is a monthly column written by IAC Executive Director Deborah L. Wexler, MD. The column is featured in The Children's Hospital of Philadelphia Vaccine Education Center's monthly *Vaccine Update for Healthcare Providers*. The content covers practical topics in immunization delivery that are relevant to all patient ages. You'll find guidance about topics such as needle length, vaccine administration technique, cold chain issues, and immunization schedules.

These and other resources will serve you well once you are vaccinating, but they reflect a basic vaccination competence that we don't want to assume here. They tend to start "in the middle of things" because they are directed at established vaccinators. With the *Guide*, we want to start where you might be now – at the beginning.

In this *Guide*, we assume that:

- you don't necessarily have the basic vaccination competencies (although you might);
- you don't necessarily know how vaccination services will fit in with your other clinical or program offerings;
- you have:
 - a community in need of more opportunities to be vaccinated against vaccine-preventable diseases;
 - a motivated staff with at least one part-time or full-time member who can make time to lead the vaccination program, as well as one who can legally (in your state) administer vaccines; and
 - a healthcare setting willing to invest time and effort to contribute to individual and community health through vaccination.

This *Guide* strips essential preventive medicine intervention down to its basic steps. You currently are reading the first of seven steps; subsequent steps cover important "how to" practices such as:

- setting up for vaccination services;
- purchasing vaccines;
- storing and handling vaccine appropriately;
- deciding which people should receive which vaccines;
- administering vaccines; and
- maintaining appropriate records.

It will all come together – step by step!

This *Guide* strips essential preventive medicine intervention down to its basic steps.

Vaccination definitely is one of our most cost-effective medical interventions, generating cost savings through reduced treatments for illness and hospitalizations.

Step 7 of the *Guide* even provides information about the complex topic of billing for vaccines. Offering vaccinations may not be a huge income generator for your organization. But vaccination definitely is one of our most cost-effective medical interventions, generating cost savings through reduced treatments for illness and hospitalizations. In the best-case scenario, if you complete the necessary paperwork

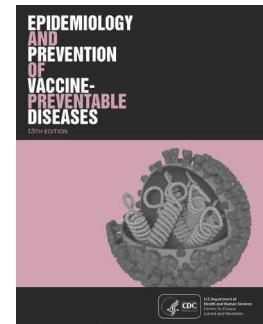


and billing, you will receive appropriate reimbursement for vaccinating adults. Medicare has reimbursed providers for influenza and pneumococcal vaccines for many years. Even so, these vaccines remain woefully underused nationwide, even by Medicare beneficiaries. For adults younger than 65 years, most private insurance companies cover the cost of vaccines recommended by CDC's Advisory Committee on Immunization Practices (ACIP) at no cost to patients. Additionally, many state Medicaid programs cover adult vaccines, and some state immunization programs have special programs to support adult immunization activities.

Need more help? You will want to obtain a copy of CDC's *Epidemiology and Prevention of Vaccine-*

Preventable Diseases (known informally as “The Pink Book”). This essential vaccine reference for all vaccinators can be accessed

online at www.cdc.gov/vaccines/pubs/pinkbook/index.html. The entire book or individual chapters may be downloaded for free. Soft-cover editions of the complete book may be purchased (when in stock) through the Public Health Foundation website at <http://bookstore.phf.org/Store/ProductDetails.aspx?productId=27876>.



www.cdc.gov/vaccines/pubs/pink-book/index.html

Why the emphasis on adult vaccination?

The simple answer to this question is that adult vaccination needs have suffered from inattention for far too long. It's time to complement our nation's excellent immunization infrastructure for children and teens with a similar immunization landscape for adults.

In the U.S., fewer adults than children are fully vaccinated even though adults are much more likely to die from vaccine-preventable diseases than are children.

In the United States, fewer adults than children are fully vaccinated even though adults are much more likely to die from vaccine-preventable diseases than are children. According to the *Recommendations from the National Vaccine Advisory Committee: Standards for Adult Immunization Practice*, available online at

<http://journals.sagepub.com/doi/pdf/10.1177/003335491412900203>, there are many reasons for this “vaccination gap”:



<http://journals.sagepub.com/doi/pdf/10.1177/003335491412900203>

4 STEP 1: Getting Started

- Healthcare providers as well as patients may lack knowledge about the need for vaccinating both high-risk and healthy adults. All too often, adults think vaccines are “just for kids.”
- When adults receive care, medical management of acute and chronic illnesses usually receives priority over preventive services. Assessing the patient for recommended vaccines may not even be considered.
- Many adults do not visit a clinician regularly, or they do not have a primary care provider, or they change providers often. As a result, their immunization status simply falls through the cracks. Even patients with chronic medical conditions that place them at high risk for complications from vaccine-preventable diseases often see several different specialists, none of whom takes primary responsibility for immunization, and all of whom can mistakenly assume that vaccination is someone else’s job.
- Some providers do not offer vaccines, or they may not offer all the vaccines recommended for adults.
- Provider payment systems can be complicated, confusing, or inadequate.

“Adult immunization rates in the United States are embarrassingly low.... We can and must do better.”

– L.J TAN, MS, PHD

Chief Strategy Officer, Immunization Action Coalition

In spite of these challenges, it is critical that we improve our adult immunization levels. As noted by L.J Tan, MS, PhD, chief strategy officer, Immunization Action Coalition, “Adult immunization rates in the United States are embarrassingly low. As a result, thousands of adults will die from vaccine-preventable diseases this year, and hundreds of thousands more will be hospitalized. We can and

must do better.” You and your healthcare setting can make a difference by vaccinating adults.

Indeed, in contrast to adult levels, vaccine coverage levels for children at kindergarten entry exceed 90 percent in almost all places in the United States. Consequently, disease rates for almost all childhood vaccine-preventable diseases have decreased by 95 to 100 percent. This includes rates for pneumococcal disease, for which the childhood vaccine has been available since 2002. That is dramatic progress in improving children’s health. We want to



have the same effective results for adults.

It’s clear we have our work cut out for us. CDC’s 2015 adult immunization coverage estimates (released in 2017) indicate less than one-half (44.8%) of adults age 19 or older have received

their annual influenza vaccine, and less than one-fourth (23.0%) of adults age 19 to 64 who are at high risk for pneumococcal disease have ever been vaccinated against pneumococcal infection. Similarly, only 3 in 10 (30.6%) of adults age 60 years or older have received herpes zoster (shingles) vaccine. Just 2 in 5 (41.6%) of young women age 19 to 26 have received even one of the three recommended doses of human papillomavirus (HPV) vaccine, which can prevent cervical cancer. Finally, only 23.1% of adults age 19 and older for whom vaccination could be assessed have received their recommended dose of tetanus-diphtheria-pertussis (Tdap) vaccine. In addition, racial and ethnic disparities were apparent for all vaccines.



We must improve these rates. By picking up the *Guide*, you've already taken an important first step in making a difference in adult vaccination coverage. With four simple actions, you can have a huge impact on adult vaccination rates:

- **ASSESS** the immunization status of all your patients during every clinical encounter;
- **PROVIDE** a strong recommendation for vaccines that your patients need;
- **ADMINISTER** needed vaccines **or, at a minimum, REFER** your patients to a provider (including pharmacies) who immunizes; and
- **DOCUMENT** vaccines your patients receive from you or from other providers.

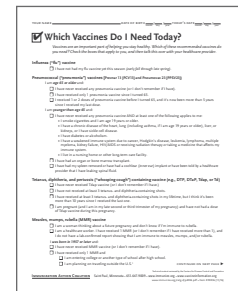
How do I determine which vaccines adults need?

Adults need different vaccines based on their health, age, lifestyle, and occupational factors – unlike most children, who need vaccines based on age alone. It's a little more complicated to figure out which vaccine(s) an adult needs. One size does not fit all. But the good news is that there are many resources available to help you assess your patient's vaccine needs.

Each February, CDC announces the availability of the adult immunization schedule in the *Morbidity and Mortality Weekly Report (MMWR)*. The current recommended adult immunization schedule is

Adults need different vaccines based on their health, age, lifestyle, and occupational factors – unlike most children, who need vaccines based on age alone.

available online at www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf. When you visit the site, you'll see that there are two tables of recommendations: one group of recommendations is based on age group, while the other is based on the medical and other conditions of your patient. Multiple footnotes explain the details of the recommendations. This may look a little intimidating at first. However, after you take a few minutes to review the information, you'll find it's not as overwhelming as it might have first appeared. You'll also find some great tools to help with your assessment of adult vaccinations needed, such as IAC's *Which Vaccines Do I*



www.immunize.org/catg.d/p4036.pdf

Need Today? and other screening checklists, available at www.immunize.org/handouts/screening-vaccines.asp. And, as we will discuss later in the *Guide*, your state's immunization information system (registry) or your electronic medical record system may include tools to help you

Your state's immunization information system or your electronic medical record system may include tools to help you determine which vaccinations your patient needs.

determine which vaccinations your patient needs. All of these tools help with vaccinations needed today and during future visits.



With a little planning, vaccinating adults is surprisingly manageable.

The *Guide* does not discuss vaccines for children or travelers

We have limited the *Guide* to routine vaccinations recommended for adults, defined as people who are at least 19 years of age. We also have not included information on vaccinations required for international travel. If your patient is traveling to different countries, immunization information can be found on CDC's travel website, wwwnc.cdc.gov/travel.

Concluding thoughts

With a little planning, vaccinating adults is surprisingly manageable – and not so surprisingly, this planning is extremely important. Now that you have read this introduction and are motivated to become a vaccinator or increase the number of vaccines you currently provide, you are ready to develop your vaccination services program, one step at a time. Both you and the adults you protect from vaccine-preventable diseases in the months and years to come will be glad you did.

STEP 1: GETTING STARTED**Materials and Resources for You to Use****► TOOLS FOR PROVIDERS**

Recommendations from the National Vaccine Advisory Committee: Standards for Adult Immunization Practice (NVAC) – <http://journals.sagepub.com/doi/pdf/10.1177/003335491412900203>

Recommended Adult Immunization Schedule, United States (CDC) – www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf

Standards for Adult Immunization Practice (CDC) www.cdc.gov/vaccines/hcp/adults/for-practice/standards/index.html

Standards for Adult Immunization Practice (NAIS) www.izsummitpartners.org/adult-immunization-standards

Strategies to Improve Adult Vaccination Coverage (IAC) – www.immunize.org/catg.d/p2050.pdf

Suggestions to Improve Your Immunization Services (IAC) – www.immunize.org/catg.d/p2045.pdf

► ADDITIONAL PROVIDER RESOURCES

Adult Immunization (ACP) www.acponline.org/clinical-information/clinical-resources-products/adult-immunization

Adult Vaccination Information for Healthcare and Public Health Professionals (CDC) www.cdc.gov/vaccines/hcp/adults/index.html

Adult Vaccination Resources: For Provider Practices (CDC) – www.cdc.gov/vaccines/hcp/adults/for-practice/index.html

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

Adult Vaccination Web Section (IAC) www.immunize.org/adult-vaccination

Clinic Resources Web Section (IAC) www.immunize.org/clinic

Conversations: Improving Adult Immunizations Rates Using Simple and Strong Recommendations (AAFP) – www.aafp.org/patient-care/public-health/immunizations/video.html

Epidemiology and Prevention of Vaccine-Preventable Diseases (“The Pink Book”) (CDC) www.cdc.gov/vaccines/pubs/pinkbook/index.html

Guide to Adult Immunization (ACP) www.acponline.org/clinical-information/clinical-resources-products/adult-immunization/acps-guide-to-adult-immunization

Immunizations (AAFP) – www.aafp.org/patient-care/public-health/immunizations.html

Immunizations: You Call the Shots (CDC) www.cdc.gov/vaccines/ed/youcalltheshots.html

Immunization Webinar Series (ACP) www.acponline.org/clinical-information/clinical-resources-products/adult-immunization/acp-immunization-webinar-series

Immunizing Adult Patients: Standards of Practice (CDC) – www.cdc.gov/vaccines/hcp/adults/downloads/standards-immz-adults.pdf

National Adult Immunization Plan (NVPO) www.hhs.gov/sites/default/files/nvpo/national-adult-immunization-plan/naip.pdf

The Vaccine Handbook: A Practical Guide for Physicians (“The Purple Book”) (Marshall) www.immunize.org/vaccine-handbook

CONTINUED ON NEXT PAGE ►

STEP 1: GETTING STARTED

Materials and Resources for You to Use

CONTINUED FROM PREVIOUS PAGE

► INFORMATION FOR PATIENTS

Factsheets on Immunization Topics (NFID)

www.nfid.org/publications/factsheets

Handouts for Patients and Staff (IAC)

www.immunize.org/handouts

Vaccinate Your Family (ECBT)

www.vaccinateyourfamily.org/adults

Vaccine Information for the Public (HHS)

www.vaccines.gov

Vaccine Information for the Public (IAC)

www.vaccineinformation.org

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

► GENERAL INFORMATION

Adult Vaccination Web Section (NFID)

www.adultvaccination.org

IAC Express (IAC) – www.immunize.org/express

Immunization Action Coalition (IAC)

www.immunize.org

National Adult and Influenza Immunization Summit

(NAIS) – www.izsummitpartners.org

State Immunization Program Manager Contacts

(AIM) – www.immunizationmanagers.org/?MemPage

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August 9, 2017



Ask the Experts—Question of the Week: What is the schedule for hepatitis B vaccine administration for infants who...[read more](#)

Top Stories

- National Immunization Awareness Month is here, with the second week focusing on vaccinations for pregnant women
- Hepatitis A outbreak claims eighth life in southern California
- *Hilleman: A Perilous Quest to Save the World's Children* documentary now available to purchase
- AAP publishes information about coding for influenza vaccination during 2017–18 season
- Study of audio recordings of pediatrician-parent conversations reveals how providers' use of presumptive statements in recommending HPV vaccination can improve uptake of same-day vaccination for patients
- Voices for Vaccines plans four new podcasts, one for each week of National Immunization Awareness Month
- *Chicago Tribune* publishes article about new measures to limit vaccination exemptions in Illinois and across U.S.
- IAC Spotlight: Check out the "Ask the Experts" online archive for answers to immunization questions

Vaccine Information Statements

- IAC posts Hepatitis B, HPV, and MenB VIS translations in Hindi, Punjabi, and Thai
- IAC posts Multi-vaccine VIS in Farsi
- IAC posts Adenovirus VIS translation in Turkish

Official Releases and Announcements

- NACCHO releases statement about the President's proposed budget
- WHO issues updated position paper on diphtheria vaccination

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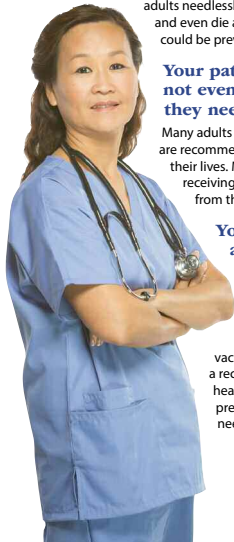
www.cdc.gov/vaccines/hcp/adults/downloads/standards-immz-adults.pdf

Immunizing Adult Patients: Standards for Practice

Your patients trust you to give them the best advice on how to protect their health. Vaccine-preventable diseases can result in serious illness, hospitalization, and even death. Make adult vaccination a standard of care in your practice.

Your patients have probably not received all the vaccines they need.

Even though most insurance plans cover the cost of recommended vaccines, adult vaccination rates in the U.S. are extremely low. Each year, tens of thousands of adults needlessly suffer, are hospitalized, and even die as a result of diseases that could be prevented by vaccines.



Your patients may not even realize that they need vaccines.

Many adults don't know which vaccines are recommended for them throughout their lives. Many also report not receiving vaccine recommendations from their healthcare professional.

You can make a difference.

Clinicians are the most valued and trusted source of health information for adults. Research shows that most adults believe vaccines are important and that a recommendation from their healthcare professional is a key predictor of patients getting needed vaccines.

Make Immunization a Standard of Patient Care In Your Practice:

1. ASSESS the immunization status of all your patients at every clinical encounter.

- Stay informed about the latest CDC recommendations for immunization of adults.
- Implement protocols in your office to ensure that patients' vaccine needs are routinely reviewed and patients get reminders about vaccines they need.

2. Strongly RECOMMEND vaccines that your patients need.

- Address patient questions and concerns in clear and understandable language.
- Highlight your positive experiences with vaccination (personal or in your practice).

3. ADMINISTER needed vaccines or REFER your patients to a vaccination provider.

- For vaccines that you stock, make vaccination services as convenient as possible for your patients.
- For vaccines that you don't stock, refer patients to providers in the area that offer vaccination services.

4. DOCUMENT vaccines received by your patients.

- Participate in your state's immunization registry to help your office, your patients, and your patients' other providers know which vaccines your patients have had.
- Follow up to confirm that patients received recommended vaccines that you referred them to get from other immunization providers.

**DON'T WAIT.
VACCINATE!**



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

Standards for Adult Immunization Practice emphasize the role of ALL healthcare professionals—whether they provide immunization services or not—in ensuring that adult patients are fully immunized. These standards are published by the National Vaccine Advisory Committee and supported by the Centers for Disease Control and Prevention as well as a number of national medical associations.

© 2015/15-4239 12P 8/20/15

Vaccines for Adults*

	NUMBER OF DOSES
	1 dose every year
Age 11 or older	1 dose (All)
Each pregnancy	1 dose each pregnancy
	1 dose every 10 years
	1 dose
	1 dose (if not previously received)
Conditions (HIV, asplenia, sickle cell disease, conditions that cause weakening of the immune system)	1 dose (if not previously received)
Chronic conditions and who are at higher risk	1 dose
Who have not completed or finished the vaccine series	1 or 2 doses
Who are at risk for exposure or have contact with someone who has had the vaccine or do not have documented evidence of immunity	3 doses
Who have documented evidence of immunity	2 doses
Who are at risk, including adults with chronic conditions, HIV/AIDS, removal of splenic tissue, or treatment with drugs who have not had the vaccine or do not have documented evidence of immunity	2 doses
Who are at risk, including adults with chronic conditions, HIV/AIDS, removal of splenic tissue, or treatment with drugs who have not had the vaccine or do not have documented evidence of immunity	3 doses
Who are at risk, including adults with chronic conditions, HIV/AIDS, removal of splenic tissue, or treatment with drugs who have not had the vaccine or do not have documented evidence of immunity	1 dose

not already had the vaccine

*Visit www.cdc.gov/vaccines/schedules/ for a detailed schedule of recommended vaccines and guidelines for administration.

Coverage of Adult Vaccines

Most private health insurance plans cover the cost of recommended vaccines. If your patients do not currently have health insurance, refer them to www.HealthCare.gov to learn more about health coverage options.

For patients 65 years or older enrolled in Medicare, Medicare Part B covers the cost of influenza and pneumococcal vaccines as well as Hep B vaccine for persons at increased risk of hepatitis. Those with a Medicare Prescription Drug Plan (Part D) or enrolled in a Medicare Advantage Plan (Part C) that offers Medicare prescription drug coverage may also have coverage for additional vaccines like zoster, MMR, and Tdap. Visit www.Medicare.gov for more information.

Vaccine coverage for Medicaid beneficiaries varies by state. Contact your State Medicaid Agency for more information.

For additional information on adult immunization and resources for patient education, visit: www.cdc.gov/vaccines/hcp/adults.

In 2014:

- Only 20% of adults 19 years or older had received Tdap vaccine.
- Only 28% of adults 60 years or older had received zoster vaccine.
- Only 20% of adults 19 to 64 years at high risk had received pneumococcal vaccine.

Source: National Health Interview Survey, 2014.

Last Updated May, 2016

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p2050.pdf

Strategies to Improve Adult Vaccination Coverage



Many vaccines are recommended for adults, but **vaccines don't work unless we get them into the arms of the people who need them.** Despite the fact that there are safe and effective vaccines, diseases that can be prevented by these vaccines continue to take a huge toll among adults in the United States.

Low adult vaccination coverage rates occur for a variety of reasons, including low community demand for vaccines, lack of access to vaccination services, and system- and provider-related factors. Successful adult vaccination delivery depends on several patient and provider factors, as well as system issues, such as vaccine supply and reimbursement.

Adults are unlikely to seek vaccination unless they believe that the disease is a threat to them and that there is a vaccine that can prevent the disease. They need to know that they are personally at risk. Even if they know a vaccine is available, adults also may have misconceptions about the vaccine and inordinate concerns about vaccine adverse reactions.

A knowledgeable provider who uses effective strategies like the ones suggested below can address these issues.

EFFECTIVE STRATEGIES

- Unequivocal provider recommendation
- Standing orders protocols
- Reminder and recall systems
- Assessment and feedback
- Expansion of patient access

An unequivocal provider recommendation is crucial.

- One of the leading reasons adults identify for not receiving a vaccine is the lack of a recommendation from their provider.
- **An unequivocal vaccine recommendation by an adult's healthcare provider is one of the most important interventions to improve patient acceptance of a vaccine.**
- Providers often don't appreciate the power of their recommendation of a vaccine, or the impact of their lack of a recommendation. Most adults rely on their providers to let them know which vaccines are recommended and when they should be given.

Standing orders protocols work.

- Standing orders protocols are a series of written medical orders authorizing a qualified (i.e., eligible to do so under state law) healthcare professional to assess the need for and administer vaccine to all persons meeting certain criteria (such as age or underlying medical condition), eliminating the need for an individual physician's order for a patient's vaccine.
- Standing orders have been shown to be the most consistently effective means for increasing vaccination rates and reducing missed opportunities for vaccination.
- Standing orders templates for all routinely recommended adult vaccines are available from IAC at www.immunize.org/standing-orders.

CONTINUED ON THE NEXT PAGE ►



Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org
www.immunize.org/catg.d/p2050.pdf • Item # P2050 (9/17)

Strategies to Improve Adult Vaccination Coverage

Reminder and recall systems are efficient and effective.

- **PATIENT reminder and recall systems** or recalling them if they are overdue, can be as "low tech" as a postcard or systems. State/local immunization is used to generate both reminders and
- **PROVIDER reminder and recall system** that individual patients are due – or call. The reminders and recalls can be deli notification, a flow sheet or checklist with a sticker or stamp. Some IISs ca tion, many electronic medical record These often can be set up to provide

Assessment and feedback are helpful tools.

- Assessment and feedback for provide a provider's delivery of one or more v his or her performance.
- Your state/local immunization progr coverage levels, particularly when you nization program (see www.immunize.org)

Expanding patient access increases rates.

- Expanding patient access to vaccinati availability of vaccinations can be acc
 - increasing or changing hours wh
 - opening an "express lane" that of vaccinations only, or offering "im on weekends.

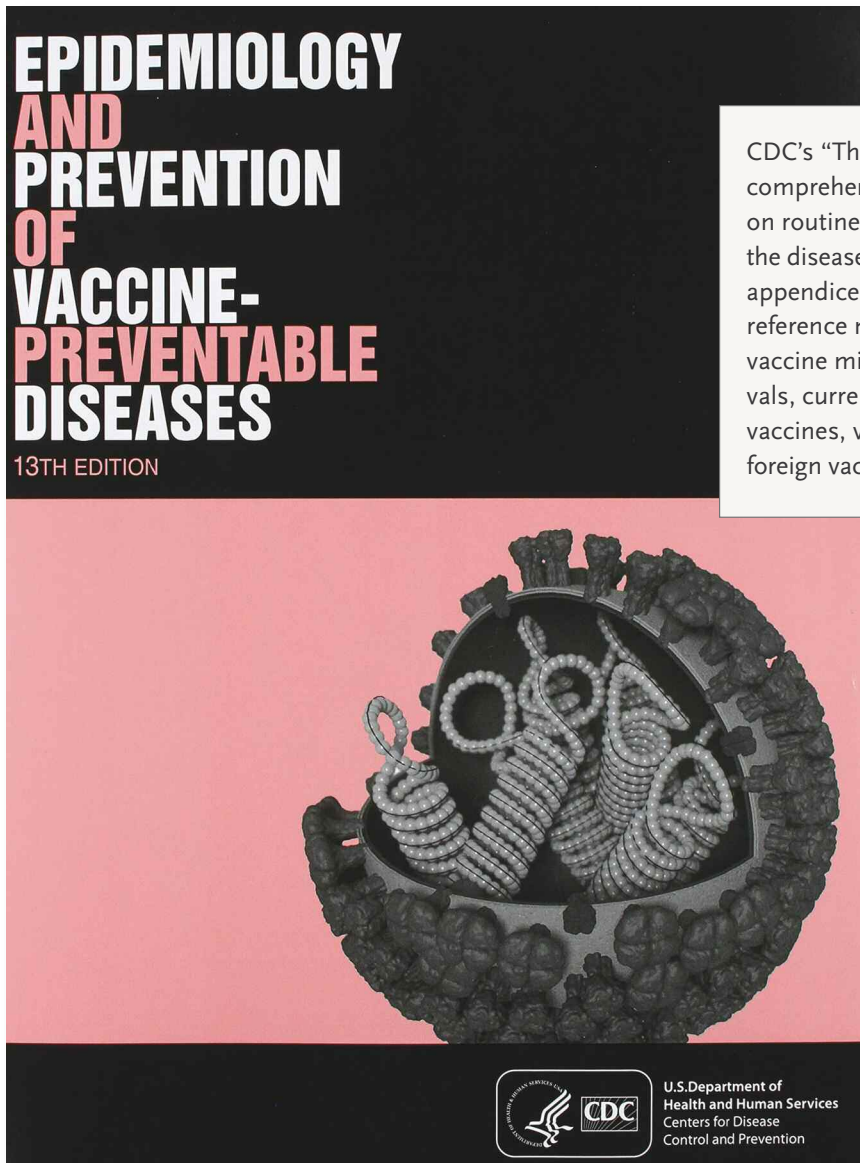
Choosing interventions that work and that are well matched to local needs, priorities, and capabilities is vital to improving vaccination coverage. At the very least, clinicians who see adults in their practice should screen for vaccine indications, recommend the vaccines, and either make the vaccines available in their offices or have a reliable referral site identified where patients can be sent for vaccination services.

Clinicians owe it to their adult patients to provide educational materials about vaccines in their offices, inform patients of the availability of and their need for vaccines, and encourage vaccine use. **A few simple improvements in office practices can save many lives.**

Additional information about strategies to improve adult vaccination rates is available from CDC at www.cdc.gov/vaccines/hcp/adults/for-practice/increasing-vacc-rates.html.

To access the current, ready-to-copy version of this book, visit

www.cdc.gov/vaccines/pubs/pinkbook/index.html

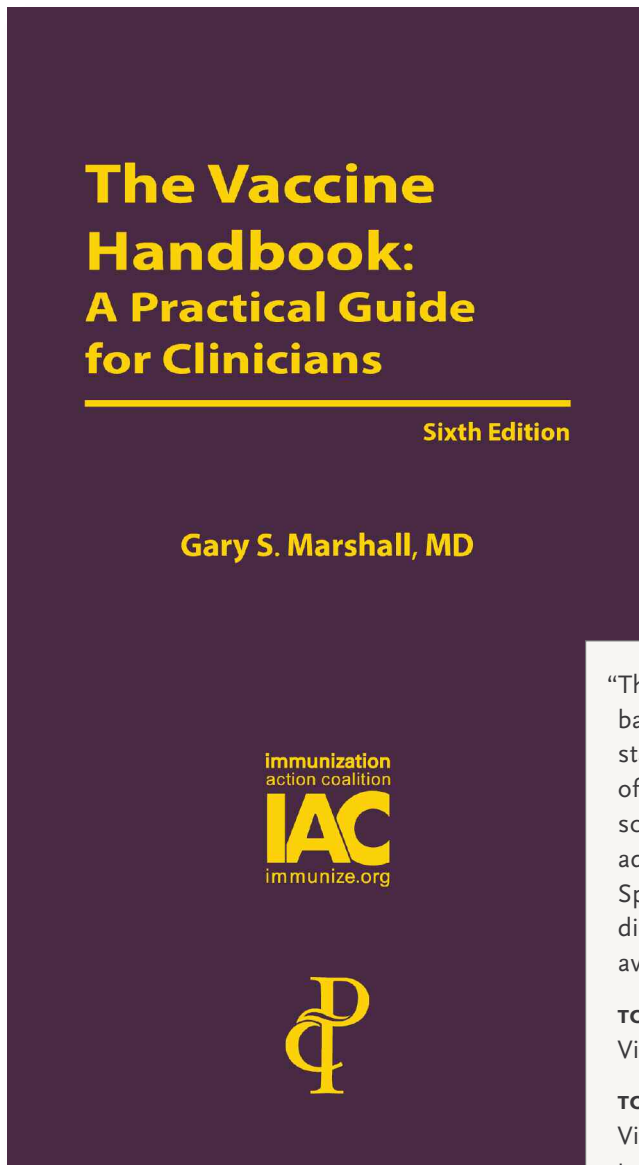


CDC's "The Pink Book" provides comprehensive information on routinely used vaccines and the diseases they prevent. Several appendices contain a wealth of reference materials including: vaccine minimum ages and intervals, current and discontinued vaccines, vaccine contents, foreign vaccine terms, and more.

"The Pink Book"

To access information about this book and its app, visit

www.immunize.org/vaccine-handbook



“The Purple Book” contains practical advice and background on vaccine program infrastructure, standards and regulations, business aspects of vaccine practice, general recommendations, schedules, special circumstances, and how to address the concerns of parents and patients. Specific information about vaccine-preventable diseases, the rationale for vaccine use, and available products is included.

TO ORDER A SOFT-COVER COPY

Visit www.immunize.org/vaccine-handbook

TO DOWNLOAD THE FREE APP

Visit the Apple iTunes App Store to download the free mobile app.



“The Purple Book”

STEP 2:

Setting Up for Vaccination Services

IF WE COULD SEND out a prefabricated “vaccination station” filled with inventory that you could simply install in your practice, we would. This chapter is the next best thing. It provides information in one location about many of the details you should know. What you learn will help prepare your facility and your personnel for the preventive healthcare service you will soon be providing or enhancing.

Following this chapter’s guidance will save you time and help you plan. Most of the supplies you will need come from just a few sources. You will have to decide who will place orders, where the new supplies will be stored, who will use and maintain what, and when your setting will be ready to begin vaccinating. To keep things in perspective, remember: you

are simply adding a new and important service, not revamping or restructuring your entire workplace.

Obtain support and cooperation from clinic staff and management

Integrating a new activity into an already busy set of responsibilities can be challenging. You know it’s the right thing to do, but you may need to convince others in your healthcare setting. It is critical that you obtain support from the management of your facility. You should take the time you need to ensure *everyone* on your staff is comfortable with and supportive of this new activity. A combination of meetings and follow-up written communications can be effective in gaining support and making certain

STEP-BY-STEP: SETTING UP TASKS

- Obtain support and cooperation from clinic staff and management
- Seek out community resources
- Assign a vaccination coordinator and a back-up for that person
- Plan workflow and workspace
- Determine how and where vaccines will be stored, and purchase appropriate vaccine storage and temperature monitoring equipment
- Purchase vaccine administration supplies
- Purchase emergency response supplies
- Determine who can provide vaccinations in your setting
- Arrange for staff training
- Organize vaccination paperwork and reference materials
- Create standing orders documents for times when a supervising clinician is not available to write orders
- Order vaccines – Yes, do this last!

You should take the time you need to ensure *everyone* on your staff is comfortable with and supportive of this new activity.

everyone gets the same information. Frontline staff, both medical and clerical, will likely be the most heavily affected. They will need to receive positive reinforcement that vaccination is a worthwhile and important service. As soon as possible, representatives from each group (management, financial, insurance, medical, nursing, clerical, etc.) should become involved in working meetings to discuss the following issues:

- How can you set up a system that ensures all patients or clients are assessed and offered appropriate vaccines?
- Will vaccines be offered every day or only during designated times? Will evening vaccination times be available?
- Can patients come in for vaccination only?
- What paperwork or electronic record system is necessary for this activity?
- How will patient tracking be done?
- Who is responsible for monitoring the temperatures in vaccine storage units?
- Who will be responsible for management of inventory and ordering vaccines and supplies?
- How and by whom will reimbursement for vaccination services be obtained?

Seek out community resources

Once you have a basic idea of how you'd like vaccine services to be conducted in your healthcare setting, it's time to seek out expertise from others within your setting or from outside sources. If you're part of a medical facility, you can learn from those who are already involved in routine vaccination delivery (e.g., pediatricians, family physicians, internists, nurse clinicians, and, of course, the nurses who work with them). If you're not part of an organization with

experienced vaccinators available to help you, contact staff at your local or state health department. A list of their key immunization program personnel is available at www.immunize.org/coordinators.



CDC

Assign a vaccination coordinator and a back-up for that person

Most likely, you will not need to hire new staff to set

It is critical to designate someone as the *vaccination coordinator*. It also is important to assign someone to be the *back-up person* to this coordinator.

up or administer your vaccination program. But it is critical to designate someone as the *vaccination coordinator*.

It also is impor-

tant to assign someone to be the *back-up person* to this coordinator. The coordinator's responsibilities might include ordering and maintaining an inventory of vaccines, syringes, and other supplies; developing or acquiring screening checklists, procedural guidelines, and other protocols for vaccinators and assuring competence of staff; ensuring proper storage and handling of the vaccine; monitoring compliance with several recordkeeping requirements; and evaluating the program. Both the vaccination coordinator and the back-up person can get help with these tasks by reviewing the *Guide* and working with your organization's medical director.

Plan workflow and workspace

Decide in advance where the vaccinations will actually take place. If you do not plan to use exam rooms, plan for a waiting area and a vaccination area. Make sure there is good lighting, ventilation, and a sink for handwashing. Consider where you will prepare and fill the syringes with vaccine. Make certain that there is adequate space to place sharps containers for used needles close to the location where the vaccinations will be administered. Is there space for an additional refrigerator and freezer unit if needed? Are there cabinets or shelves for storing everything from needles to alcohol wipes? What about shelf space and slots or trays for forms, informational materials, and record cards? How will data entry be handled? If it is conducted in an exam room, you may need to factor in space for data entry tools such as computers, bar code scanners, etc.



Determine how and where vaccines will be stored, and purchase appropriate vaccine storage and temperature monitoring equipment

The Centers for Disease Control and Prevention (CDC) strongly recommends you have separate refrigerator and freezer units to properly store your vaccines. These units should be dedicated to vaccine storage. They must not be used for any purpose or product beyond the storage of pharmaceuticals and biological products. That means no staff lunches or beverages! Aside from possible contamination issues from food being stored in the same unit, frequent opening and closing of the doors will contribute to temperature fluctuations. (See *Step 3: Vaccine Storage and Handling* for additional

details.) Your refrigerator and freezer do not have to come from a medical supply company. But you do want to be sure you get quality units that can reliably maintain vaccine storage temperatures.

CDC recommends stand-alone refrigerators and freezers for vaccine storage.

As previously noted, CDC recommends stand-alone refrigerators and freezers for vaccine storage. If you must use a combination refrigerator/freezer unit, vaccines should be stored only in the refrigerator compartment, with the freezer not used for vaccine storage. That's because combination units are less capable of simultaneously maintaining proper storage temperatures in both the refrigerator and freezer compartments. A combination freezer set for proper varicella storage temperature can inadvertently cause the refrigerator to be too cold and risk freezing refrigerated vaccines. (NOTE: Small "dormitory-style" or "bar-style" combined refrigerator-freezers are *never* acceptable for vaccine storage. Studies have confirmed that these units pose a significant risk for freezing vaccine.)

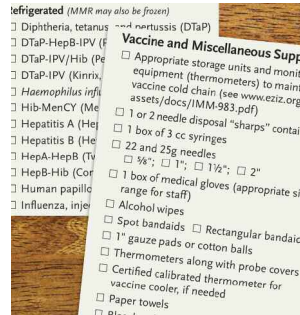
To be sure the refrigerator and freezer are functioning properly, you will need to invest in appropriate thermometers.

Details about refrigerator and thermometer selection can be found in *Step 3: Vaccine Storage and Handling*. For now, be aware that someone (and a back-up person) must be assigned the responsibility to monitor and record temperatures at least twice a day.

Purchase vaccine administration supplies

Depending on the activities your clinic or setting currently performs, you already may have many of the items needed for vaccine administration. For instance, if you already give some type of injections,

you will have syringes, needles, and a sharps container for used needles. For the sake of thoroughness, check out the Immunization Action Coalition's (IAC) *Supplies You May Need at an Immunization Clinic*, available at www.immunize.org/catg.d/p3046.pdf. This convenient checklist also may be used as an inventory tracker. When an item runs low, mark or circle it on a copy of the checklist for a quick reminder the next time an order is made. You also will need to purchase one service: medical waste disposal for your used syringes and needles. If this service is not already part of your medical setting, consult local medical waste disposal companies for options and prices.



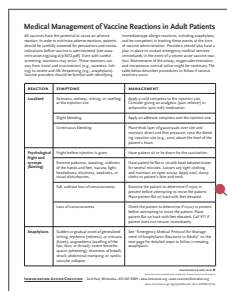
Purchase emergency response supplies

Although allergic reactions are extremely rare, you must have appropriate emergency medical supplies on hand, just in case.

In *Step 5: Administering Vaccines*, you will learn how to manage an anaphylactic (allergic) reaction to a vaccine.

Although allergic reactions are extremely rare, you must have appropriate emergency medical supplies on hand, just in case. Refer to the IAC guidance document, *Medical Management of Vaccine Reactions in Adult Patients* at

www.immunize.org/catg.d/p3082.pdf to identify the supplies you will need.



www.immunize.org/catg.d/p3082.pdf

Determine who can provide vaccinations in your setting

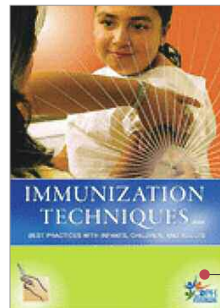
Laws and regulations covering who can provide vaccinations vary widely from state to state. For example, specific laws and regulations govern whether certain healthcare personnel can prescribe/administer vaccines independently or if they may do so only under written standing orders from a physician. Some types of personnel may administer vaccines only with a written order from a physician or other high-level professional who is physically on site. Be sure to check with your state's medical professional licensing boards to determine who is legally authorized to provide vaccines in your location.

Be sure to check with your state's medical professional licensing boards to determine who is legally authorized to provide vaccines in your location.

Arrange for staff training

In addition to orienting your staff to the overall purpose, function, and flow of the vaccination clinic, you will want to assure competency of clinic staff in administering vaccines. Your state or local health

department may be able to provide such training or can refer you to other resources – or perhaps you have well-trained individuals who work in a different part of your organi-



www.immunize.org/dvd

zation. Also available from IAC is a staff-training DVD, *Immunization Techniques: Best Practices with Infants, Children, and Adults*, created by the California Department of Public Health, Immunization Branch. This DVD is available for a nominal charge at www.immunize.org/dvd, or it may be streamed at www.youtube.com/watch?v=WsZ6NEijfl. But there is no substitute for live instruction.

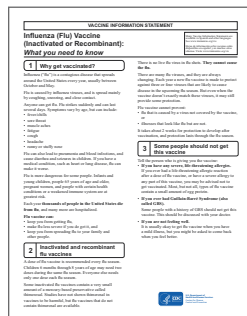


Organize vaccination paperwork and reference materials

Here are some of the most important forms you are going to use in your vaccination practice:

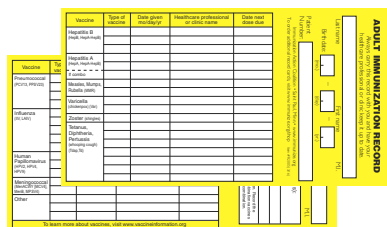
- **Vaccine Information Statements (VISs)**, available at www.immunize.org/vis.

These federally required documents explain the risks and benefits of vaccines and are needed for each vaccine you intend to administer in your clinic. They are available in English and a variety of other languages.



www.immunize.org/vis

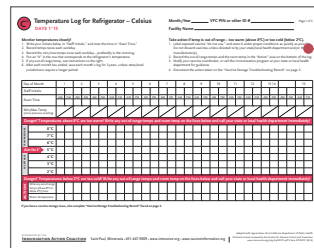
- Wallet-sized foldable **Immunization Record Cards**, available for a nominal charge at www.immunize.org/shop/record-cards.asp



www.immunize.org/shop/record-cards.asp

- **Screening Checklist for Contraindications to Vaccines for Adults**, www.immunize.org/catg.d/p4065.pdf

- **Screening Checklist for Contraindications to Inactivated Injectable Influenza Vaccination**, www.immunize.org/catg.d/p4066.pdf
- **Which Vaccines Do I Need Today?**, www.immunize.org/catg.d/p4036.pdf
- **Temperature Logs for Refrigerator:**



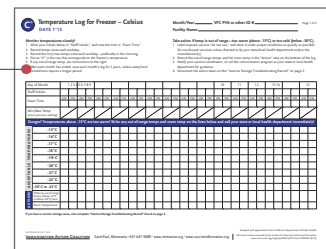
CELSIUS
www.immunize.org/catg.d/p3037C.pdf

FAHRENHEIT
www.immunize.org/catg.d/p3037F.pdf

- **Temperature Logs for Freezer:**

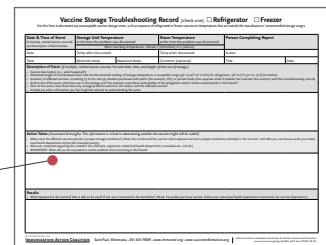
CELSIUS
www.immunize.org/catg.d/p3038C.pdf

FAHRENHEIT
www.immunize.org/catg.d/p3038F.pdf



- **Vaccine Storage Troubleshooting Record**

www.immunize.org/catg.d/p3041.pdf



- **Vaccine Adverse Event Reporting System (VAERS)**, www.vaers.hhs.gov/index. VAERS is part of the nationwide vaccine safety surveillance system. The VAERS website is where you report clinically important adverse events that occur after vaccination of adults and children, even if you are not sure whether the vaccine caused the adverse event.
- Contact your state or local immunization program to determine if there are any materials specific to your area that you should keep on hand.



You will need to keep copies of the current VISs in a convenient location. You will also want to have other patient educational materials in wall racks or drawers in the vaccination / exam rooms. Also provide screening and assessment checklists for patients to fill out – or you may find that the waiting room is a better place and time for patients to do that. You may need billing forms close at hand if you're not using electronic records. It is also important to check with your state immunization program to determine what you need to do to connect with your state's immunization information system or registry.

One good way to organize your system is to have a centralized file of vaccination-related masters, or originals. Keep copies in stackable file slots, plastic wall pockets, accordion-style files, or in colored folders – whatever works for your setting – in the rooms where they will be used. Some clinics find that copying VISs on different colors of paper is helpful for quickly identifying the VIS needed.

Multiple studies have shown that implementation of standing orders is one of the best ways to increase adult immunization rates.

Create standing orders documents for times when a supervising clinician is not available to write orders

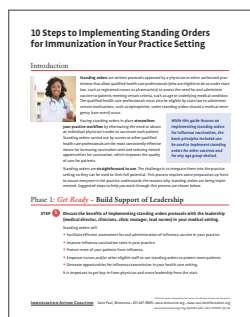
This is a simple but powerful step. By now, you are getting most of the supplies and equipment in place for your vaccination practice. You also need to know who is going to be doing the vaccinating. Unless you always have a physician – or other medical staff with prescribing authority – on site and accessible to make an assessment and order vaccines for individual patients, you may need standing orders that permit a registered nurse (RN) or other approved licensed practitioner to do so when a physician is not present. Rules about which personnel are allowed to provide this service, and the credentials they must have, differ by state.

With standing orders in place, an authorized vaccinator – usually an RN or pharmacist – does not need to get explicit permission from a doctor to screen and vaccinate each time a patient comes in.

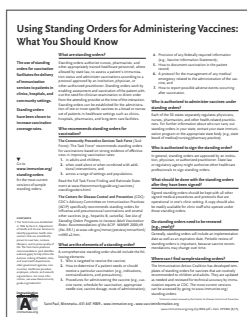
Contact your state health department or department of professional regulation for information about who can be authorized to assess the need for and administer vaccinations when a physician is not on site.

Multiple studies have shown that implementation of standing orders is one of the best ways to increase adult immunization rates. Implementation of standing orders isn't complicated. It simply means that a doctor signs a "blanket" order for authorized healthcare professionals to administer a given vaccine to patients with certain indications after they have been screened for contraindications. With standing orders in place, an authorized vaccinator – usually an RN or pharmacist – does not need to get explicit permission from a doctor to screen and vaccinate each time a patient comes in. Working under the doctor's standing orders, he or she conducts a vaccination assessment. In fact,

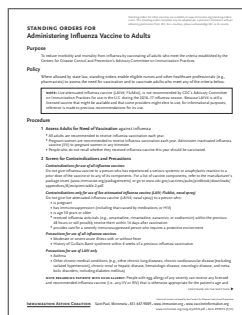
the standing orders to vaccinate might be made a part of routine patient-care clinic procedure – just like documenting weight and blood pressure – so that vaccination status and needs are checked and carried out every time a patient enters the clinic. This greatly reduces the likelihood that a patient will fall through the cracks and miss an opportunity to be vaccinated. To help you implement standing orders, IAC has developed an easy-to-follow guide, *10 Steps to Implementing Standing Orders for Immunization in Your Practice Setting*, available at www.immunize.org/catg.d/p3067.pdf. More information on the use of standing orders is available in IAC's *Using Standing Orders for Administering Vaccines: What You Should Know*, available at www.immunize.org/catg.d/p3066.pdf.



www.immunize.org/catg.d/p3067.pdf

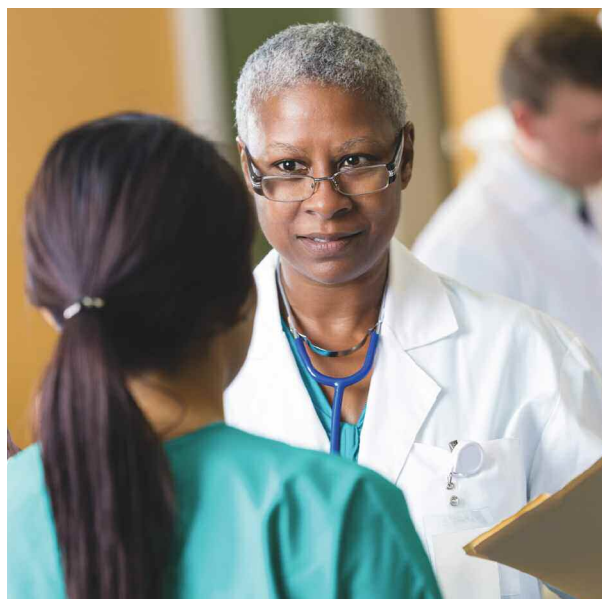


www.immunize.org/catg.d/p3066.pdf



www.immunize.org/catg.d/p3074.pdf

coccal ACWY and B; pneumococcal conjugate and polysaccharide; tetanus-diphtheria toxoids and pertussis (Tdap/Td); and zoster. Standing orders templates also are available for the use of tetanus-diphtheria toxoids and pertussis vaccine for pregnant women.



Standing orders documents signed and dated by your health setting's medical director or supervising clinician must be kept on file within your practice. These are internal, operational documents; they do not need to be submitted to a state agency. You should have standing orders not only for administering vaccines, but also for the management of vaccine reactions (see Step 5). Examples available on the IAC website at www.immunize.org/standing-orders include standing orders for adult vaccines such as hepatitis A; hepatitis B; human papillomavirus (HPV); varicella (chickenpox); influenza; measles, mumps, and rubella (MMR); meningococcal ACWY and B; pneumococcal conjugate and polysaccharide; tetanus-diphtheria toxoids and pertussis (Tdap/Td); and zoster.

Order vaccines – Yes, do this last!

Now that the stage has been set and all the props are in place, it's time to bring on the main actors – the vaccines. You shouldn't order them too soon because they are expensive, fragile, and have a limited shelf life. Before ordering vaccines, test the refrigerator unit and freezer unit temperatures for a week or more to make sure the appliances function properly and maintain temperatures within the proper range, and gather all the injection supplies and copies of forms that you will need.

Vaccines can be purchased from a number of different places. You can order them directly from vaccine companies (just put the company name

and “order vaccine” into your search engine) or through pharmaceutical supply companies such as

Increasing adult vaccination coverage rates really does happen one clinic at a time and one vaccination at a time.

the ones that sell you other medical supplies. You also might be able to order them through your parent institution – your university if you are part of one, or your health plan if you are affiliated with one. Some

adult vaccines might be available through special programs conducted by your state or local health department.

Most vaccines are provided in single-dose vials and/or pre-filled syringes. For a complete list of all products used with both children and adults in the United States, see *Vaccines Licensed for Use in the United States*, available at www.fda.gov/BiologicsBloodVaccines/Vaccines/ApprovedProducts/ucm093833.htm.



Congratulations! You’ve made all the appropriate preparations to provide vaccines to adults. Increasing adult vaccination coverage rates really does happen one clinic at a time and one vaccination at a time. Let’s begin!

STEP 2: SETTING UP FOR VACCINATION SERVICES**Materials and Resources for You to Use****▶ TOOLS FOR PROVIDERS**

10 Steps to Implementing Standing Orders for Immunization in Your Practice Setting (IAC)
www.immunize.org/catg.d/p3067.pdf

Adult Standing Orders – Templates (IAC)
www.immunize.org/handouts/adult-vaccination.asp#standingorders

HealthMap Vaccine Finder (HealthMap)
<https://vaccinefinder.org>

Immunization Record Cards (IAC)
www.immunize.org/shop/record-cards.asp

Supplies You May Need at an Immunization Clinic (IAC) – www.immunize.org/catg.d/p3046.pdf

Using Standing Orders for Administering Vaccines: What You Should Know (IAC)
www.immunize.org/catg.d/p3066.pdf

Vaccine Information Statements (VISs) and Translations (IAC) – www.immunize.org/vis

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

▶ ADDITIONAL PROVIDER RESOURCES

4 Pillars Practice Transformation Program Toolkit (University of Pittsburgh)
www.4pillarstoolkit.pitt.edu

Adult Vaccination Clinic Resources (IAC)
www.immunize.org/handouts/adult-vaccination.asp

Guidelines for Pharmacy-Based Immunization Advocacy (APhA) – www.pharmacist.com/guidelines-pharmacy-based-immunization-advocacy

Vaccine Manufacturers: Contact and Product Information (IAC)
www.immunize.org/resources/manufact_vax.asp

▶ INFORMATION FOR PATIENTS

Which Vaccines Do I Need Today? (IAC)
www.immunize.org/catg.d/p4036.pdf

▶ GENERAL INFORMATION

Immunization Action Coalition (IAC)
www.immunize.org

Immunization Center (APhA) – www.pharmacist.com/immunization-center?dfptag=imz

State Immunization Coordinators (IAC)
www.immunize.org/coordinators

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p3046.pdf

Supplies You May Need at an Immunization Clinic

Vaccines you may need*

Select the ones you need for the age of the patient you expect at your clinic.

Refrigerated (MMR may also be frozen)

- Diphtheria, tetanus, and pertussis (DTaP)
- DTaP-HepB-IPV (Pediatrix)
- DTaP-IPV/Hib (Pentacel)
- DTaP-IPV (Kinrix, Quadracel)
- Haemophilus influenzae* type b (Hib)
- Hib-MenCY (MenHibrix)
- Hepatitis A (HepA)
- Hepatitis B (HepB)
- HepA-HepB (Twinrix)
- HepB-Hib (Comvax)
- Human papillomavirus (HPV)
- Influenza, injectable (IIV) (in season)
- Influenza, live attenuated intranasal (LAIV) (in season)
- Measles, mumps, rubella (MMR)
- Meningococcal ACWY
- Meningococcal B
- Pneumococcal conjugate (PCV13)
- Pneumococcal polysaccharide (PPSV23)
- Polio, inactivated (IPV)
- Rotavirus (RV)
- Tetanus-diphtheria, adult (Td)
- Tetanus, diphtheria, and pertussis (Tdap)
- Diluent† for ActHIB, Hiberix, MMR, MenHibrix, Menveo, Pentacel, and Rotarix

Frozen (Never pack frozen vaccine with dry ice)

- Measles, mumps, rubella, varicella (MMRV)
- Varicella
- Zoster
- Diluent† for MMRV, Varivax, and Zostavax

For instructions on how to pack and transport vaccines, go to www.cdc.gov/vaccines/recs/storage/toolkit/storage-handling-toolkit.pdf, pages 69–72.

Immunization Clinic Documentation

- Vaccine standing orders and protocols‡
- Vaccination administration record sheets‡ (i.e., medical records, if needed)
- Billing forms, if needed
- Screening Checklist for Contraindications to Vaccines for Children and Teens‡
- Screening Checklist for Contraindications to HPV, MCV4, and Tdap for Teens‡

- Screening Checklist for Contraindications to Vaccines for Adults‡
- Summary of Recommendations for Child/Teen Immunization‡
- Summary of Recommendations for Adult Immunization‡
- Immunization record cards for patients (pediatric and adult)§
- Release of information forms
- Vaccine Adverse Events Reporting (VAERS) forms
- Schedules, including dates and times, of future immunization clinics

Emergency Supplies*

- Medical Management of Vaccine Reactions in Children and Teens‡
- Medical Management of Vaccine Reactions in Adults‡

First-line medication

- Epinephrine, aqueous 1:1000 dilution, in ampules, vials of solution, or prefilled syringes, including epinephrine auto-injectors (e.g., EpiPen and Auvi-Q). If autoinjectors are stocked, at least 3 should be available (both pediatric and adult formulation, as needed).

Second-line medications: H₁ antihistamines (either or both of these)

- Diphenhydramine (e.g., Benadryl) oral (12.5 mg/5 mL liquid, 25 or 50 mg capsules/tablets) or injectable (50 mg/mL solution)
- Hydroxyzine (e.g., Atarax, Vistaril) oral (10 mg/5 mL or 25 mg/5 mL liquid, 10 mg or 25 mg tablets, or 25 mg capsules)

Other supplies for emergencies:

- Syringes (1 and 3 cc) and needles (22 and 25g, 1", 1½", and 2") for epinephrine or diphenhydramine
- Alcohol wipes
- Tourniquet
- Pediatric and adult airways (small, medium, and large)
- Pediatric and adult size pocket masks with one-way valve
- Oxygen (if available)
- Stethoscope
- Sphygmomanometer (child, adult, and extra-large cuffs)
- Tongue depressors

- Light source (e.g., flashlight for examination of mouth and throat)
- Wristwatch with a second hand or other timing device
- Telephone access to call 911

Vaccine and Miscellaneous Supplies*

- Appropriate storage units and monitoring equipment (thermometers) to maintain vaccine cold chain (see www.eziz.org/assets/docs/IMM-983.pdf)
- 1 or 2 needle disposal “sharps” containers
- 1 box of 3 cc syringes
- 22 and 25g needles
 - ⅝"; 1"; 1½"; 2"
- 1 box of medical gloves (appropriate size range for staff)
- Alcohol wipes
- Spot bandaids Rectangular bandaids
- 1" gauze pads or cotton balls
- Thermometers along with probe covers
- Certified calibrated thermometer for vaccine cooler, if needed
- Paper towels
- Bleach solution in spray bottle

Vaccine Information Statements (VISs)*

- Most current version associated with each vaccine used in the clinic (*available in English and over 30 languages at www.immunize.org/vis*)

Office Supplies

- Calendar Stapler/staples
- Pens Tape
- File folders Paper clips
- Scissors Post-its
- Pad of paper

* Always check the expiration dates of all vaccines, medications, and medical supplies before using! In addition, be sure to check that you have the most current versions of the VISs. To learn more about VISs, visit www.immunize.org/vis.

† Diluent should never be frozen.

‡ These materials are available at www.immunize.org/handouts.

§ These materials may be purchased at www.immunize.org/shop.

To access Vaccine Information Statements in many languages, visit

www.immunize.org/vis

Vaccine Information Statements

By Federal Law, You Must Provide Current VISs

VACCINE INDEX

- ➔ Adenovirus
- ➔ Anthrax
- ➔ Chickenpox (varicella)
- ➔ Cholera
- ➔ DTaP
- ➔ Hepatitis A
- ➔ Hepatitis B
- ➔ Hib
- ➔ HPV
- ➔ Influenza - IIV

LANGUAGE INDEX

- ➔ Influenza - LAIV
- ➔ J. encephalitis
- ➔ MenACWY
- ➔ MenB
- ➔ MMR
- ➔ MMRV
- ➔ Multi-vaccine
- ➔ PCV13
- ➔ PPSV

A-Z

- ➔ Polio - IPV
- ➔ Rabies
- ➔ Rotavirus
- ➔ Shingles
- ➔ Smallpox
- ➔ Tetanus
- ➔ Tdap
- ➔ Typhoid
- ➔ Yellow fever

DECLARACION DE INFORMACIÓN DE VACUNA

Vacuna (inactiva o recombinante) contra la influenza (gripe): Lo que debe saber

1 ¿Por qué vacunarse?

La influenza (gripe o el "flu") es una enfermedad contagiosa que se propaga por los Estados Unidos cada año, normalmente entre octubre y mayo.

La influenza es causada por el virus de influenza, y la mayoría de las veces se propaga a través de tos, estornudos y contacto cercano. Cualquier persona puede contraer la influenza. Los síntomas aparecen repentinamente, y pueden durar varios días. Los síntomas varían según la edad, pero pueden incluir:

- fiebre o escalofríos
- tos
- dolor de garganta
- dolor de cabeza
- dolor muscular
- congestión o secreción nasal
- cansancio

La influenza también puede causar neumonía e infecciones en la sangre, y puede causar diarrea y convulsiones en los niños. Si tiene una condición médica, como cardiopatía o una enfermedad en los pulmones, la influenza la puede empeorar.

La influenza es más grave en algunas personas. Los niños pequeños, gente de 65 años de edad o mayores, mujeres embarazadas y gente con ciertas condiciones físicas o un sistema inmunológico debilitado corren mayor riesgo.

Cada año miles de personas en los Estados Unidos mueren a causa de la influenza, y muchas más son hospitalizadas.

La vacuna contra la influenza puede:

- prevenir que usted se enferme de la influenza,
- reducir la severidad de la influenza si la contrae, y
- prevenir que contagie a su familia y otras personas con la influenza.

2 Vacunas contra la influenza inactivas y recombinantes

Se recomienda una dosis de la vacuna contra la influenza cada temporada de influenza. Algunos niños, entre los 6 meses a 8 años de edad, pueden necesitar dos dosis durante la misma temporada de influenza. Todos los demás sólo necesitan una dosis en cada temporada de influenza.

Algunas vacunas antigripales inactivas contienen una muy pequeña cantidad de timerosal, un preservativo que contiene mercurio. Los estudios no han demostrado que el timerosal en las vacunas es dañino, pero hay vacunas antigripales disponibles que no contienen timerosal.

No hay ningún virus vivo en las inyecciones contra la influenza. **No pueden causar la influenza.**

Hay muchos virus de influenza, y cambian constantemente. Cada año se formula una nueva vacuna antigripal para proteger contra 3 o 4 virus que serán los más probables causantes de enfermedad durante la próxima temporada de influenza. Pero incluso cuando la vacuna no previene este virus, todavía puede proporcionar cierto nivel de protección.

La vacuna contra la influenza no puede prevenir:

- la influenza causada por un virus que no es protegido por la vacuna o
- enfermedades que son similares a la influenza pero no son la influenza.

Toma alrededor de 2 semanas desarrollar protección después de la vacunación, y dicha protección dura a lo largo de la temporada de la influenza.

3 Algunas personas no deben recibir esta vacuna

Dígale a la persona que lo vacune:

- **Si tiene alguna alergia grave y potencialmente mortal.** Si ha tenido una reacción alérgica y potencialmente mortal después de una vacuna antigripal, o si es gravemente alérgico a cualquier componente de esta vacuna, se le podrá aconsejar que no se vacune. La mayoría, pero no todas, las vacunas antigripales contienen una pequeña cantidad de proteína de huevo.
- **Si ha tenido el Síndrome de Guillain-Barré (también conocido como GBS).** Algunas personas con antecedentes de GBS no deben recibir esta vacuna. Debe consultar a su médico sobre esto.
- **Si no se siente bien.** Normalmente está bien el ser vacunado contra la influenza cuando está levemente enfermo, pero es posible que se le pida regresar cuando se sienta mejor.

4 Riesgos de reacción a la vacuna

Igual que cualquier medicamento, incluyendo las vacunas, hay riesgo de efectos secundarios. Normalmente son leves y se resuelven solos, pero también pueden ocurrir reacciones graves.

VACCINE INFORMATION STATEMENT

Influenza (Flu) Vaccine (Inactivated or Recombinant): What you need to know

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis. Hoja de información sobre vacunas está disponible en español y en muchos otros idiomas. Visite www.immunize.org/vis.

1 Why get vaccinated?

Influenza ("flu") is a contagious disease that spreads around the United States every year, usually between October and May.

Flu is caused by influenza viruses, and is spread mainly by coughing, sneezing, and close contact.

Anyone can get flu. Flu strikes suddenly and can last several days. Symptoms vary by age, but can include:

- fever/chills
- sore throat
- muscle aches
- fatigue
- cough
- headache
- runny or stuffy nose

Flu can also lead to pneumonia and blood infections, and cause diarrhea and seizures in children. If you have a medical condition, such as heart or lung disease, flu can make it worse.

Flu is more dangerous for some people. Infants and young children, people 65 years of age and older, pregnant women, and people with certain health conditions or a weakened immune system are at greatest risk.

Each year thousands of people in the United States die from flu, and many more are hospitalized.

- Flu vaccine can:**
- keep you from getting flu,
 - make flu less severe if you do get it, and
 - keep you from spreading flu to your family and other people.

There is no live flu virus in flu shots. They cannot cause the flu.

There are many flu viruses, and they are always changing. Each year a new flu vaccine is made to protect against three or four viruses that are likely to cause disease in the upcoming flu season. But even when the vaccine doesn't exactly match these viruses, it may still provide some protection.

- Flu vaccine cannot prevent:
- flu that is caused by a virus not covered by the vaccine, or
 - illnesses that look like flu but are not.

It takes about 2 weeks for protection to develop after vaccination, and protection lasts through the flu season.

3 Some people should not get this vaccine

Tell the person who is giving you the vaccine:

- **If you have any severe, life-threatening allergies.** If you ever had a life-threatening allergic reaction after a dose of flu vaccine, or have a severe allergy to any part of this vaccine, you may be advised not to get vaccinated. Most, but not all, types of flu vaccine contain a small amount of egg protein.

- **If you ever had Guillain-Barré Syndrome (also called GBS).** Some people with a history of GBS should not get this vaccine. This should be discussed with your doctor.

- **If you are not feeling well.** It is usually okay to get flu vaccine when you have a mild illness, but you might be asked to come back when you feel better.

2 Inactivated and recombinant flu vaccines

A dose of flu vaccine is recommended every flu season. Children 6 months through 8 years of age may need two doses during the same flu season. Everyone else needs only one dose each flu season.

Some inactivated flu vaccines contain a very small amount of a mercury-based preservative called thimerosal. Studies have not shown thimerosal in vaccines to be harmful, but flu vaccines that do not contain thimerosal are available.



Influenza VIS in English and Spanish

26 STEP 2: Setting Up for Vaccination Services

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p3067.pdf

10 Steps to Implementing Standing Orders for Immunization in Your Practice Setting

Introduction

Standing orders are written protocols approved by a physician or other a practitioner that allow qualified health care professionals (who are eligible to do so under state law, such as registered nurses or pharmacists) to assess the need for and administer vaccines to patients meeting certain criteria, such as age or underlying medical conditions. The qualified health care professionals must also be eligible by state law to administer certain medications, such as epinephrine, under standing orders should they be needed in an emergency.

Having standing orders in place streamlines your practice workflow by eliminating the need to obtain an individual physician's order to vaccinate each patient. Standing orders carried out by nurses or other qualified health care professionals are the most consistently effective means for increasing vaccination rates and reducing missed opportunities for vaccination, which improves the quality of care for patients.

Standing orders are straightforward to use. The challenge is to integrate them into your practice so they can be used to their full potential. This process requires some prep work to assure everyone in the practice understands the reasons why standing orders are being implemented. Suggested steps to help you work through this process are shown below.

Phase 1: Get Ready – Build Support of Leadership

STEP 1 Discuss the benefits of implementing standing orders protocols with the medical director, clinicians, clinic manager, lead nurse(s) in your medical practice. Standing orders will:

- Facilitate efficient assessment for and administration of influenza vaccine in your practice.
- Improve influenza vaccination rates in your practice.
- Protect more of your patients from influenza.
- Empower nurses and/or other eligible staff to use standing orders to protect more patients.
- Decrease opportunities for influenza transmission in your health care setting.

It is important to get buy-in from physician and nurse leadership from the start.

Why are we starting a standing orders program?

- Disease should be prevented whenever possible, and vaccines can do this.
- Our patients are counting on us to keep them healthy.
- Adult vaccination rates in the United States are low and significant racial and ethnic disparities exist.
- Vaccination levels among adults are inadequate in most practices.
- Standing orders have been demonstrated to streamline the assessment and delivery of immunizations in medical practices.
- The burden of disease as a result of vaccine-preventable diseases has risen not only in increased morbidity and mortality, but also in increased costs to the health care system.

Review how standing orders work and the specific protocols and procedures with all staff members who will be involved.

STEP 2 Determine the role various staff members will play in implementing/using standing orders. Here are some general and specific questions that will help you plan:

WHO in your practice:

- Is eligible under state law (RNs, pharmacists, others)? to assess a patient's vaccination needs and provide vaccinations using the standing orders protocols?
- Can help determine the need for a patient to be vaccinated? (For example, the receptionist or the person who rooms patients can inquire if they have had their influenza vaccine yet this season.)
- Will check the patient's chart to find out if they need vaccinations?
- Will provide screening checklists for contraindications and precautions to patients, and who will review the patients' answers. (available at www.immunize.org/handouts/screening-vaccines.asp) Can these questions be added to your electronic medical record (EMR)?

Medical Director – This person is responsible for signing the standing orders protocols or supervising the clinician who signs them, so it is critical that he/she agrees with the need for standing orders and supports their use.

Clinician – Determine which clinician will review and sign the standing orders protocols for the practice.

Providers – Identify issues that might lead to any resistance among other providers.

Nurse Leaders – Involve nurse leaders in the planning from the start. Nurses are the key players in implementing and carrying out standing orders programs.

If possible, determine the influenza vaccination rate in your practice prior to meeting with leadership. Measured vaccination rates are inevitably lower (sometimes much lower) than perceived rates. Lower-than-expected vaccination rates will help support the need for a standing orders program. As appropriate for your medical setting, you also may want to discuss the standing orders protocols with your legal counsel to be sure they comply with all applicable state requirements.

Identify the person who will take the lead and be in charge of your standing orders program.

- In most practices, the lead person will be a nurse, nurse practitioner, or physician assistant.
- The lead person must be an influential leader who has medical knowledge, understands the standing orders protocols, and is able to answer questions about them from other staff members.
- The lead person must be motivated to protect patients by improving the adult vaccination levels in your practice – a true immunization champion.

Reach agreement about which vaccine(s) your practice will administer using standing orders.

It may be best to start using standing orders only for influenza vaccine if you have not implemented standing orders previously. Later, when staff are trained and know how standing orders work, you can expand their use to additional vaccines. Standing orders work well for improving coverage for child, adolescent, and adult vaccines.

Completing Phase 1 means you are on your way. You have buy-in from your medical director and clinicians, buy-in from nurse leadership, have identified your immunization champion to lead the effort, and have decided on the vaccines you want to provide. Now you're ready to move to Phase 2.

Get Set – Develop Materials and Strategies

Create standing orders protocols for the vaccine(s) you want to administer.

- Don't reinvent the wheel! The Immunization Action Coalition (www.immunize.org) has standing orders templates for all routinely recommended vaccines available to download at www.immunize.org/standing-orders. IAC standing orders are reviewed by the Centers for Disease Control and Prevention (CDC) for technical accuracy. You may use IAC's standing orders templates as written, or you may modify them to meet your practice's needs.

Phase 2: Go! – Make It Happen

WHO in your practice:

- will give Vaccine Information Statements (VIS) (legally required documents given before vaccination) to patients? (www.immunize.org/vis)
- will administer the vaccine?
- will ensure the patient's personal record is updated and given to the patient?

WHAT is the role of:

- the front desk staff? How can they help?
- the nurse?
- the medical assistant?

WHERE in your practice:

- will vaccine be administered?
- will vaccine administration information be recorded (e.g., EMR, paper document chart, state/local immunization information system or "registry")? If you don't already have a medical record chart form for vaccination, you can use the IAC Action Coalition's record forms for adults (www.immunize.org/catg.d/p2033.pdf) and for children (www.immunize.org/catg.d/p2032.pdf).

STEP 3 Determine your standing orders operational strategy. Review your existing vaccination services logistics. Are there ways to improve patient flow and to maximize your office immunization rates?

Here are some proposed modifications to consider:

- Assess the influenza vaccination status of every patient who enters the office by patient directly and checking the chart.
- Consider providing vaccinations in an easy-to-access site in your practice, separate from normal traffic pattern through the office.
- Consider offering vaccinations under standing orders on a walk-in basis.
- Discuss expanding your vaccination services when using standing orders. For example:
 - Hold vaccination clinics on evenings or weekends?
 - Have "nurse-only" visits for vaccination?
 - Offer "express" service for vaccination during regular office hours for both appointments and those who are "walk-ins"?
- If you use an EMR, consider whether the standing orders protocols and screening can be added as prompts within your existing system.
- If visible in your clinic setting, determine your current immunization rates so you measure your improvements after implementing standing orders.

Identify strategies and publicize your program to your patients.

Your enhanced vaccination program is of more value if your patients know the service is available.

- Review your current methods for contacting patients, e.g., appointment reminders, laboratory results, prescriptions, online communications, text messaging, etc. Can these methods also be used to tell patients about their need for vaccination and the availability of a convenient new program?
- Consider whether your existing communication systems are sufficient to inform patients about enhanced vaccine availability.
- Implement reminder/recall systems. (A reminder system notifies the patient of an upcoming appointment. A recall system contacts a patient who misses an appointment and encourages them to reschedule.) Your state/local health department often can help you with ideas on how to do this.
- Here are strategies for informing and identifying patients who need vaccines:
 - At each visit, inform all patients about when they should come for influenza vaccine.
 - Email or text the information.
 - Put a notice about the program on the practice's website, if applicable.
 - Use social media (such as Facebook or Twitter).
 - Place advertisements in local media.
 - Use promotional mailings.
 - Add promotional telephone messages or "on hold" messaging.
 - Place appropriate signs and posters in the office.

Materials You Will Need to Have on Hand

All these materials are FREE on the IAC website: www.immunize.org

- Copy of the signed standing orders protocol at your fingertips for each vaccine you plan to use (templates available at www.immunize.org/standing-orders)
- Adult and child contraindication screening checklists (www.immunize.org/catg.d/p2033.pdf and www.immunize.org/catg.d/p2032.pdf)
- Vaccine Information Statements for all vaccines you plan to administer (available in English and additional languages at www.immunize.org/vis)
- Adult and child vaccine administration record forms, if you don't use an electronic medical record (EMR) and don't already have a medical record chart form (available at www.immunize.org/catg.d/p2033.pdf and www.immunize.org/catg.d/p2032.pdf)
- Information on how to report vaccinations to your state/local immunization information system (registry) if one is available. (See www.cdc.gov/vaccines/imz/downloads/1503contract-registry-state.html)
- To give to your patients: a personally-held vaccination record card (available for purchase at www.immunize.org/shop/record-cards.asp) or a printed copy of the vaccine administered, including the date the vaccine was given.

Completing Phase 2 has helped you to get your standing orders logistics figured out. You have determined who will do what, and when they will do it. You have made your patients aware of enhanced vaccine availability. Time to move to Phase 3.

Phase 3: Go! – Make It Happen

Start vaccinating!

Make sure the nursing and medical staff have all the tools they need to run a successful vaccination program. Listing all these materials is beyond the scope of this guide, but topics can include proper storage and handling of vaccines, vaccine administration techniques, strategies to avoid vaccine administration errors, documentation requirements for administering vaccines, and materials to help answer questions of vaccine-hesitant patients. Visit www.immunize.org/clinic for many helpful resources.

Review your progress.

As with all quality improvement activities, it's wise to review your standing orders program shortly after it begins, check in with staff each week until it's running well, and then every few months until the end of influenza vaccination season. Compare the number of doses of vaccine you gave this season with a season before your standing orders program was put in place. Hold a staff meeting to get input from everyone involved in the program to find out what went right and how the program could be improved for next season. Consider whether you are ready to expand your use of standing orders to additional vaccines.

Congratulations on implementing standing orders in your practice! Both you and your patients are now benefiting from this proven method to streamline your office practice while improving your patients' quality of care.

To access the current, ready-to-copy version of this piece, visit
www.immunize.org/catg.d/u6090.pdf

Standing Orders Templates for Administering Vaccines to Children/Teens and Adults

Download these standing orders and use them “as is” or modify them to suit your work setting.

Visit www.immunize.org/standing-orders for all sets.

▶ Click blue text to view standing orders documents

ORDER AND WEIGHT OF PATIENT	NEEDLE GAUGE	NEEDLE LENGTH
Female or male less than 130 lbs	22–25	3/8"
Female or male 130–152 lbs	22–25	1"
Female 153–200 lbs	22–25	1–1 1/2"
Male 153–260 lbs	22–25	1–1 1/2"
Female 200+ lbs	22–25	1 1/2"
Male 260+ lbs	22–25	1 1/2"

Needle may be used in patients weighing less than 130 lbs for intramuscular injection. For subcutaneous injection, the subcutaneous tissue is not

STANDING ORDERS FOR Administering Pneumococcal Vaccines (PCV13 and PPSV23) to Adults

Purpose
To reduce morbidity and mortality from pneumococcal disease by vaccinating all adults who meet the criteria established by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices.

Policy
Where allowed by state law, standing orders enable eligible nurses and other health care professionals (e.g., pharmacists) to assess the need for vaccination and to vaccinate adults who meet any of the criteria below.

Procedure

1 Assess Adults for Need of Vaccination against *Streptococcus pneumoniae* (pneumococcus) infection according to the following criteria:

Routine pneumococcal vaccination – Assess adults age 65 years or older for need of pneumococcal vaccination. Pneumococcal conjugate vaccine (PCV13) should be administered routinely to all previously unvaccinated adults age 65 years and older. Pneumococcal polysaccharide vaccine (PPSV23) is recommended for all adults age 65 years or older. For complete details, see section 5 (page 2).

High-risk pneumococcal vaccination – Age 19 through 64 years with an underlying medical condition or other risk factor as described in the following table:

CATEGORY OF UNDERLYING MEDICAL CONDITION OR OTHER RISK FACTOR	RECOMMENDED VACCINES AND DURATION OF PROTECTION*		
	PCV13	PPSV23	PPSV23 booster†
Chronic heart disease, chronic lung disease‡	x	x	x
Diabetes mellitus	x	x	x
Chronic liver disease, cirrhosis	x	x	x
Cigarette smoking	x	x	x
Alcoholism	x	x	x
Cochlear implant, cerebrospinal fluid leak	x	x	x
Spinal fluid leakage, other meningitis/encephalitis	x	x	x
Compliment or acquired immunodeficiency (CID)	x	x	x
Chronic renal failure, nephrotic syndrome	x	x	x
Leukemia, lymphoma	x	x	x
Genitourinary malignancy, Hodgkin disease	x	x	x
Immunologic immunosuppression¶	x	x	x
Splenic organ dysfunction, multiple myeloma	x	x	x

* 1 second dose 1 year after the first dose of PPSV23.
 † Including 12 months after the first dose of PPSV23.
 ‡ Including B (bursitis) or Transfusion-Related Acute Lung Injury (TRALI) symptoms following transfusion of RBCs, platelets, and plasma products, and pharyngeal disorders including chronic granulomatous disease.
 § Diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy.
 ¶ Includes HIV/AIDS.

2 Screen for Contraindications and Precautions

Contraindications – Do not give pneumococcal vaccine (PCV13 or PPSV23) to a person 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.immunize.org/packageinserts) or go to www.cdc.gov/vaccines/imz/downloads/downloads/immunization/13/13vaccines-table.pdf.

Precautions – Moderate or severe acute illness with or without fever. CONTRAINDICATIONS ON THIS ORDER WILL BE

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

STANDING ORDER (date of latest revision)	VACCINES	STANDING ORDER (date of latest revision)
child (OCT 2012)	DTaP	—
child/teen (JUNE 2013)	HepA	adult (JUNE 2013)
child/teen (OCT 2012)	HepB	adult (OCT 2015)
child (JUNE 2015)	Hib	adult (JUNE 2015)
child/teen (JAN 2017)	HPV	adult (JAN 2017)
child/teen (OCT 2014)	IPV (polio)	—
child/teen (SEPT 2016)	Influenza	adult (SEPT 2016)
child/teen (JUNE 2013)	MMR	adult (JUNE 2013)
child/teen (DEC 2016)	MenACWY (MCV4), MPSV	adult (DEC 2016)
teen (NOV 2016)	MenB	adult (NOV 2016)
child/teen (APRIL 2013)	PCV	adult (JAN 2017)
child (MAY 2015)	PPSV	—
child (FEB 2014)	Rotavirus	—
—	Tdap	pregnant woman (FEB 2014)
child/teen (APRIL 2013)	Tdap/Td	adult (JAN 2017)
child/teen (JULY 2016)	Varicella	adult (JULY 2016)
—	Zoster	adult (NOV 2015)

All sets of standing orders for routinely recommended vaccines are available at
www.immunize.org/standing-orders

IMMUNIZATION ACTION COALITION Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org
www.immunize.org/catg.d/u6090.pdf • Item #U6090 (2/17)

STEP 3:

Vaccine Storage and Handling

THIS CHAPTER WILL HELP YOU prepare for your first vaccine shipment. Vaccines only work when they are viable, that is, when they are intact – undamaged and uncontaminated. To ensure vaccines are viable or potent or “good,” you must maintain them between the manufacturer-recommended temperature ranges that are not too cold or too warm. This information is available in the package insert. Although most vaccines should not be frozen, certain vaccines containing varicella vaccine virus (VAR, MMRV, and *Zostavax*) require frozen storage. In addition, several vaccines including MMR, MMRV, VAR, *Zostavax*, IPV, HPV (*Gardasil 9*), meningo-



To ensure vaccines are viable or potent or “good,” you must maintain them between the manufacturer-recommended temperature ranges that are not too cold or too warm.

STEP-BY-STEP: VACCINE STORAGE AND HANDLING TASKS

- Receive vaccine shipments
 - Open package immediately
 - Assess for proper storage conditions of the vaccine shipment upon arrival
 - Store vaccines immediately at the recommended storage temperature
 - Know where to place vaccines within the refrigerator or freezer
- Monitor and record temperatures at least twice each day
 - Choosing thermometers
- If there’s a problem, take appropriate action right away; report power failures or other storage issues immediately!
- Transport vaccines properly (and only when absolutely necessary)
 - Transporting frozen varicella-containing vaccines to an offsite clinic location

coccal ACWY (*Menveo*), meningococcal B (*Bexsero*), and certain formulations of influenza vaccine (*Afluria*, *Fluad*, *Fluarix*, *Flublok*, *FluLaval*, *FluMist*, *Fluvirin*, and *Flucelvax*) should be protected from light.

Before we get started on this important topic, be sure to review the three resources shown below. The first two provide some basic information to help as you are setting up your vaccine operations, while the third is a guide that offers a wealth of information to help with almost any vaccine storage and handling issue you are likely to encounter.

- *Checklist for Safe Vaccine Storage and Handling*
www.immunize.org/catg.d/p3035.pdf
- *Don't Be Guilty of These Preventable Errors in Vaccine Storage and Handling!*
www.immunize.org/catg.d/p3036.pdf
- *Vaccine Storage and Handling Toolkit*
www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf

A Little Background: Types of Vaccines and Diluents

INACTIVATED VACCINES can be composed of either killed whole viruses, or fractions of either viruses or bacteria. Inactivated vaccines are damaged by freezing. The inactivated vaccines needed by many adults include:

- tetanus, diphtheria, and pertussis (Tdap/Td);
- injectable influenza;
- pneumococcal polysaccharide and conjugate;
- human papillomavirus;
- hepatitis A and B;
- meningococcal ACWY and B vaccines; and
- zoster (shingles; *Shingrix*).

LIVE ATTENUATED VACCINES consist of a weakened form of the live virus. They are easily damaged or destroyed by heat and light. This makes it even more important that they be stored and handled with extreme care. Live attenuated vaccines available for many adults include:

- measles, mumps and rubella (MMR);
- varicella (chickenpox);
- zoster (shingles; *Zostavax*); and
- nasal spray influenza vaccine (when recommended).

DILUENTS are liquids used with some vaccines. Most vaccines are provided as a liquid that is already packaged in a syringe, or in a vial, ready to be drawn into a syringe and injected. However, some vaccines are provided as a lyophilized (freeze-dried) powder. A separate liquid (the diluent) is provided for lyophilized vaccines. The diluent must be added to the lyophilized powder before injection, a process called “reconstitution.” A lyophilized vaccine must only be reconstituted with the specific diluent provided for that vaccine; diluents are not interchangeable. Most vaccine diluents may be stored either in the refrigerator or maintained at room temperature. Check the package insert to determine appropriate storage guidance for the specific diluent you are using. Summary information may be found in the Immunization Action Coalition’s (IAC) *Vaccines with Diluents: How to Use Them*, available at www.immunize.org/catg.d/p3040.pdf.

Receive vaccine shipments

Open package immediately

Vaccine deliveries should be made only when your vaccine coordinator or backup person is present. But it is important for everyone in your clinic – especially your front desk staff or any individuals who receive deliveries – to know how important it is to store these *fragile* vaccines promptly when they arrive. Don’t let a vaccine package sit at the front desk or outside your front or back door!

It is important for *everyone* in your clinic . . . to know how important it is to store these *fragile* vaccines promptly when they arrive.

Assess for proper storage conditions of the vaccine shipment upon arrival

Packages should be opened and inspected immediately for any damage and to determine if the packages seem too warm or too cold to the touch. Examine temperature indicators if they are included in the box. Check the vaccine quantities, lot numbers, and expiration dates against the packing slip. If there are discrepancies, contact the source of the shipment (e.g., manufacturer, distributor, state health department) immediately.

When your shipments arrive, check to see that the ***inactivated vaccines are cold but not frozen***, and that the ***varicella and Zostavax vaccines are frozen***. MMR vaccine may be refrigerated or frozen. Nasal spray influenza vaccine is refrigerated. If a temperature indicator (often, this is a temperature-sensitive strip that changes colors) is included in the shipment, check it to see if appropriate temperatures have been maintained. Not all shipments will contain a temperature indicator. That’s acceptable if the shipments have been packed according to certain FDA-approved packing standards. But make

If the product seems to have been exposed to too-high or too-low (i.e., frozen) temperatures or something seems amiss, put the vaccine in a specially marked, segregated area or tray in the refrigerator or freezer.

sure the container included appropriate insulation and gel packs or ice packs and that any ice packs have not completely thawed. If the product seems to have been exposed to too-high or too-low (i.e., frozen) temperatures or something seems amiss, put the vaccine in a specially marked, segregated area or tray in the refrigerator or freezer (whichever is indicated according to the type of vaccine delivered). Call the source of your shipment (e.g., manufacturer, distributor, state health department) for advice about what to do next.

Store vaccines immediately at the recommended storage temperature

Most vaccines (all inactivated vaccines and live nasal spray influenza vaccine) must be stored between 2° to 8°C (36° to 46°F), which is the recommended refrigerator temperature. Live varicella (chickenpox) and *Zostavax* (shingles) vaccines must be stored frozen between -50° to -15°C (-58° to +5°F). These vaccines may be temporarily stored in a refrigerator (between 2° to 8°C [36° to 46°F]) for up to 72 hours before use, if they have not been reconstituted and will be used within that time period.

If they are not used within 72 hours, they must be discarded. Once these vaccines have been stored in the refrigerator, they must not be refrozen; once they have been reconstituted, you have only 30 minutes in which to administer these sensitive vaccines before they lose potency and cannot be used. Bottom line – don't remove these vaccines from the freezer or reconstitute them until you have your

It is critical to keep each vaccine at its proper storage temperature.

patient sitting in front of you! (More information on this subject is located in *Step 5: Administering Vaccines.*)

The live MMR vaccine can be stored in *either* the freezer or the refrigerator. However, once the vaccine has been drawn into the syringe, it must be used within 8 hours or discarded.



cdc

It is critical to keep each vaccine at its proper storage temperature. A simple sign on the refrigerator and freezer can remind you where each vaccine goes. For example, the Immunization Action Coalition's (IAC) handy *Vaccine Handling Tips*, available at

www.immunize.org/catg.d/p3048.pdf, can be posted on your refrigerator and freezer doors to remind staff of the appropriate storage temperatures and other basics of good vaccine management.

Remember, when vaccines get too warm or too cold, you can't tell by looking or feeling if they have been damaged. That's why it's so critical to monitor and record the temperatures inside your refrigerator and freezer at least twice each day to make sure they are within the proper range. If the temperature goes out of range, you must take immediate steps to respond to the situation. IAC's *Vaccine Storage Troubleshooting Record*, available at www.immunize.org/catg.d/p3041.pdf, offers guidance to help you determine what should be done in this situation.

Know where to place vaccines within the refrigerator or freezer

Vaccines should always be stored in the middle of the refrigerator or freezer – never in the doors.

Vaccine should always be stored in the middle of the refrigerator or freezer – never in the doors.

Why? Because items stored in the door are frequently exposed to warm temperatures when the unit is opened. CDC's “best storage practice” is to place the vaccines in the center refrigerator space, contained in the original packaging, inside designated storage trays positioned 2 to 3 inches from refrigerator walls. Also, be sure to keep older vaccines toward the front of the shelf. When new product arrives, “rotate your stock” by placing the newer vaccines behind the older ones. This will help ensure that vaccines with the earliest (soonest) expiration dates are used first. CDC has developed informative labels you can print and use to help organize vaccine placement in your refrigerator or freezer. These labels are found at www.cdc.gov/vaccines/hcp/admin/storage/guide/vaccine-storage-labels.pdf.

When new product arrives, “rotate your stock” by placing the newer vaccines behind the older ones. This will help ensure that vaccines with the earliest (soonest) expiration dates are used first. CDC has developed informative labels you can print and use to help organize vaccine placement in your refrigerator or freezer. These labels are found at www.cdc.gov/vaccines/hcp/admin/storage/guide/vaccine-storage-labels.pdf.

Checking Expiration Dates

Be aware that if the expiration date on the vial consists of just a month and a year (e.g., “12/18”), the vaccine may be used until the last day of December 2018. In this case, the expiration month includes the whole month. If a full date is included (e.g., 9/15/18), then the vaccine should not be used after the printed date. The Centers for Disease Control and Prevention's (CDC) *Vaccine Storage and Handling Toolkit*, available at www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf, provides additional information about reading vaccine labels and determining expiration dates. Never use a vaccine that has been contaminated or has expired! If an expired vaccine – even 1 day expired – is administered to a patient, the dose must be repeated.



CDC

Monitor and record temperatures at least twice each day

As you set up your refrigerator and freezer, you should take steps to help stabilize and maintain the proper temperatures in both units. You should place at least two or three containers (for example, plastic liter or gallon bottles) of water in areas of the refrigerator where vaccine cannot be stored, such as in the doors. Similarly, you should keep several frozen water bottles in the freezer to help maintain the cold temperature in the event of a power outage. Get in the habit of periodically checking the gasket seals of your refrigerator and freezer units. These seals must be intact to ensure that the door always closes completely.

You also should post the appropriate temperature log sheets (both Celsius and Fahrenheit versions are available through the links shown below) on your refrigerator and freezer.

C Celsius**REFRIGERATOR**

www.immunize.org/catg.d/p3037C.pdf

FREEZER

www.immunize.org/catg.d/p3038C.pdf

F Fahrenheit**REFRIGERATOR**

www.immunize.org/catg.d/p3037F.pdf

FREEZER

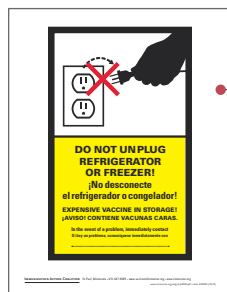
www.immunize.org/catg.d/p3038F.pdf

Use the appropriate logs to document your twice-each-day checks (first thing in the morning and late afternoon before closing) of the temperatures in your vaccine storage units. And remember to pay attention to the temperatures you're recording on these logs. It's easy to get in the habit of writing without noticing, even when the temperature you have

Remember to pay attention to the temperatures you're recording on these logs.

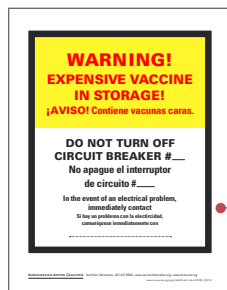
just written down is out of range and requires action. If you note an out-of-range temperature, consult the *Vaccine Storage Troubleshooting Record* at www.immunize.org/catg.d/p3041.pdf for guidance on appropriate actions to take.

Loss of power to a refrigerator or freezer can happen in a number of ways. The one that is easiest to avoid is loss of power at the plug. For example, maintenance workers or others might pull the plug from the socket to free it for a “temporary” use, such as using electrical equipment to clean the floors. Make sure this doesn't happen in your facility! One of the simplest ways to prevent this problem is to apply a bright and easily understood “Do Not Unplug” sign (www.immunize.org/catg.d/p2090.pdf) right above the electrical outlet.



www.immunize.org/catg.d/p2090.pdf

It also helps to put a “Do Not Turn Off Circuit Breaker” sign (www.immunize.org/catg.d/p2091.pdf) by the breaker box so that someone doesn't inadvertently cut off the power supply to the vaccine storage units.



www.immunize.org/catg.d/p2091.pdf

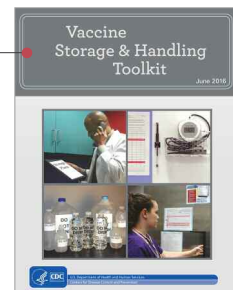
Choosing thermometers

Thermometers are a critical part of good storage and handling practice. A storage unit is only as effective as the temperature monitoring system inside. An accurate temperature history that reflects the actual vaccine temperatures is imperative to effective vaccine management.

Every freezer and refrigerator unit used to store vaccine should have a calibrated thermometer. CDC recommends using only calibrated thermometers with a Certificate of Traceability and Calibration Testing (“Report of Calibration”). This certificate informs the user about a thermometer's level of accuracy compared to a recognized standard.

Before purchasing thermometers for your refrigerator and freezer units, you should review the extensive information about thermometers found in CDC's *Vaccine Storage and Handling Toolkit* (*Toolkit*), available at www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf.

www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf



In general, CDC recommends thermometers that measure temperatures constantly (e.g., a continuous monitoring and recording digital data logger or “DDL”) and use a probe inserted into a glycol-filled bottle. This arrangement more closely approximates the vaccine vial temperature than measuring the more variable temperature of the air in the storage unit. CDC also recommends the thermometer have an alarm for out-of-range temperature and be capable of showing the current temperature as well as the minimum and maximum temperatures reached during a designated period of time. CDC

Be sure to check the CDC *Toolkit* for answers to your questions about choosing thermometers. State and local health department immunization programs also are excellent resources for information about thermometers.

does not recommend using: fluid-filled biosafe liquid thermometers, bi-metal stem thermometers, food thermometers, household thermometers, chart recorders, infrared thermometers, or thermometers that are not calibrated.

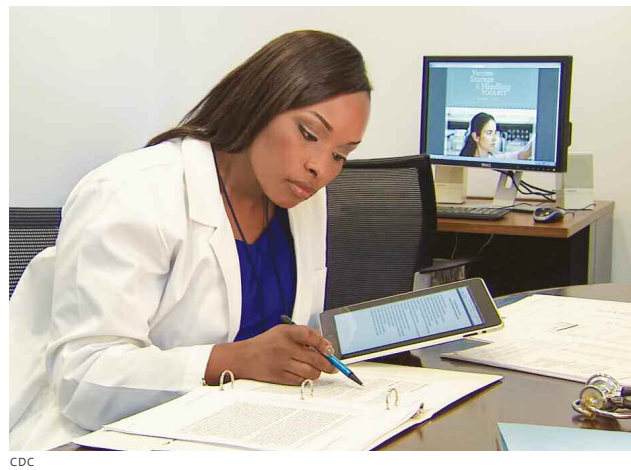
Be sure to check the CDC *Toolkit* for answers to your questions about choosing thermometers. State and local health department immunization programs also are excellent resources for information about thermometers. Providers who receive Vaccines for Children (VFC) vaccines or other vaccines purchased with public funds should consult their immunization program regarding thermometer recommendations and requirements.

If there's a problem, take appropriate action right away; report power failures or other storage issues immediately!

Power failures happen. It's crucial that your clinic fosters a culture of openness about reporting interruptions in the power supply or other vaccine mishaps. First, it's a matter of ethics. You don't want to administer vaccine of questionable viability to anyone. And you certainly don't want to be placed in the position of having to recall patients and re-administer vaccines. Finally, if problems are reported promptly, actions may be taken and you may be able to salvage the affected vaccines.

If you suspect that vaccines have been exposed to out-of-range temperatures or have been left out of the refrigerator or freezer, mark those vaccine vials with "Do Not Use" and transfer them to a functioning refrigerator or freezer at the proper storage

temperature as soon as possible, while you are determining if the vaccine is still viable. If the problem is a faulty refrigerator or freezer, immediately record the temperature inside the affected unit to help determine the timeframe of the exposure. This is when using the recommended type of thermometer really pays off! If you have been using a continuously recording thermometer, you can review information from the thermometer to determine when the temperature problem began. A thermometer that records minimum and maximum



CDC

temperatures will indicate the lowest and highest temperatures recorded since you last reset it. This information can be invaluable in helping determine if the vaccine may still be viable. If the vaccines were inadvertently left out at room temperature or were left in some other improper storage condition (e.g., temperatures that are too warm or too cold), record the length of time that may have elapsed. Be sure to immediately notify the clinic supervisor and vaccine coordinator about what has happened. Then your vaccine coordinator will contact your state or local health department and / or the manufacturer to discuss the situation and determine an appropriate course of action.



CDC

Be sure to check out IAC's *Vaccine Storage Troubleshooting Record* at www.immunize.org/catg.d/p3041.pdf and *Emergency Response Worksheet* at www.immunize.org/catg.d/p3051.pdf for quick guidance on what to do when you discover vaccine storage outside the recommended temperature range.

www.immunize.org/catg.d/p3051.pdf

If you are told that the vaccines should not be used, use a permanent black marker to write “nonviable” on the glass or label and remove them from the refrigerator or freezer so that they aren't administered by mistake. Ask your state health department or manufacturer(s) how you should dispose of the nonviable vaccine.

 The image shows a form titled "Emergency Response Worksheet". It contains several sections: "What is the type of event (leak or other event) that results in vaccine storage outside of the recommended temperature range?", "Vaccine Storage in Refrigerator", and "Vaccine Stored in Freezer". Each section has a table with columns for "Vaccine", "Quantity", "Lot", "Expiration Date", and "Action". There are also sections for "Vaccine Storage Temperature" and "Vaccine Storage Location".

Transport vaccines properly (and only when absolutely necessary)

Vaccine manufacturers generally do not recommend or provide guidance for transport of vaccines. But during an emergency, or if you host an offsite vaccination clinic, you may need to transport vaccines from one place to another. It is critical that you maintain and monitor the vaccine cold chain during these activities. (See special information for frozen varicella-containing vaccines in the next paragraph.)

You will need at least one insulated container (see *Step 2: Setting Up for Vaccination Services*) with a thermometer to place near the vaccine. Think of this container as your clinic's vaccine storage area in miniature: you'll need to monitor it with a temperature log as well, just like you do when in the office. CDC's *Vaccine Storage and Handling Toolkit*, available at www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf, devotes several pages to the topic of transporting vaccines.

Neither CDC nor the vaccine manufacturer recommends transporting frozen varicella-containing vaccines.

Transporting frozen varicella-containing vaccines to an offsite clinic location

Neither CDC nor the vaccine manufacturer recommends transporting frozen varicella-containing vaccines. But if these vaccines must be moved (for example, during an emergency), they should be transported in a portable freezer unit that maintains the temperature range of -50° to -15°C (-58° to $+5^{\circ}\text{F}$). Portable freezer units may be available for rent in some locations. But if frozen varicella-containing vaccines must be transported and a portable freezer unit is not available, do NOT use dry ice, as this actually could allow the vaccines to become too cold. This in turn could affect the vial seal and possibly allow outside air to enter the vial. If frozen varicella-containing vaccines are transported at refrigerated temperatures (2° to 8°C [36° to 46°F]), they must be discarded if they have not been used within 72 hours.

This chapter has covered the basic steps involved in vaccine storage and handling for adult vaccines. Be sure you print up the forms, establish policies, and select someone in your office to be in charge of vaccines. Now, let's vaccinate!

STEP 3: VACCINE STORAGE AND HANDLING

Materials and Resources for You to Use

► TOOLS FOR PROVIDERS

Checklist for Safe Vaccine Storage and Handling (IAC) – www.immunize.org/catg.d/p3035.pdf

Do Not Turn Off Circuit Breaker – sign (IAC)
www.immunize.org/catg.d/p2091.pdf

Do Not Unplug – sign (IAC)
www.immunize.org/catg.d/p2090.pdf

Don't Be Guilty of These *Preventable* Errors in Vaccine Storage and Handling! (IAC)
www.immunize.org/catg.d/p3036.pdf

Emergency Response Worksheet (IAC)
www.immunize.org/catg.d/p3051.pdf

Temperature Log for Freezer – Celsius (IAC)
www.immunize.org/catg.d/p3038C.pdf

Temperature Log for Freezer – Fahrenheit (IAC)
www.immunize.org/catg.d/p3038F.pdf

Temperature Log for Refrigerator – Celsius (IAC)
www.immunize.org/catg.d/p3037C.pdf

Temperature Log for Refrigerator – Fahrenheit (IAC)
www.immunize.org/catg.d/p3037F.pdf

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

Vaccine Handling Tips (IAC)
www.immunize.org/catg.d/p3048.pdf

Vaccine Storage Troubleshooting Record (IAC)
www.immunize.org/catg.d/p3041.pdf

Vaccines with Diluents: How to Use Them (IAC)
www.immunize.org/catg.d/p3040.pdf

► ADDITIONAL PROVIDER RESOURCES

Vaccine Storage and Handling Toolkit (CDC)
www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf

Vaccine Storage and Handling Web Section (CDC)
www.cdc.gov/vaccines/recs/storage/default.htm

Vaccine Storage and Handling Web Section (IAC)
www.immunize.org/handouts/vaccine-storage-handling.asp

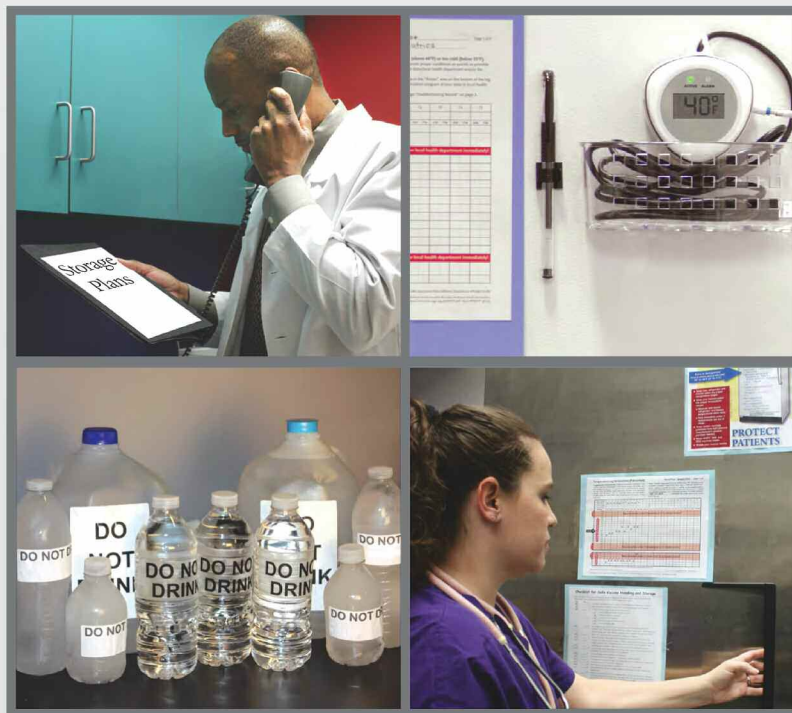
► GENERAL INFORMATION

Immunization Action Coalition (IAC)
www.immunize.org

To access the current, ready-to-copy version of this toolkit, visit
[www.cdc.gov/vaccines/hcp/admin/storage/toolkit/
storage-handling-toolkit.pdf](http://www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf)

Vaccine Storage & Handling Toolkit

June 2016



The
CDC Toolkit
is 82 pages in
length.



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

To access the current, ready-to-copy versions of these temperature logs, visit www.immunize.org/handouts/temperature-logs.asp

Celsius

C Temperature Log for Refrigerator – Celsius
DAYS 1-15

Month/Year _____ VFC PIN or other ID # _____ Page 1 of 1
Facility Name _____

Monitor temperatures closely!

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

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

- Label exposed vaccines "do not use," and store it under proper conditions as quickly as possible. Do not discard vaccines unless directed to by your state/local health department and/or the manufacturer(s).
- Record the out-of-range temps and the room temp in the "Action" area on the bottom of the log.
- Notify your vaccine coordinator, or call the immunization program at your state or local health department for guidance.
- Document the action taken on the "Vaccine Storage Troubleshooting Record" on page 3.

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)															
TEMPERATURES	8°C														
	7°C														
	6°C														
	Aim for 5°C														
	4°C														
	3°C														
2°C															
ACTION	DANGER! Temperatures above 8°C are too warm! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!														
	DANGER! Temperatures below 2°C are too cold! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!														
Notes on out-of-range temps (above 8°C or below 2°C) here.															
Room Temperature															

If you have a vaccine storage issue, also complete "Vaccine Storage Troubleshooting Record" found on page 3.

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Refrigerator www.immunize.org/catg.d/p3037C.pdf

C Temperature Log for Freezer – Celsius
DAYS 1-15

Month/Year _____ VFC PIN or other ID # _____ Page 1 of 1
Facility Name _____

Monitor temperatures closely!

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

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

- Label exposed vaccines "do not use," and store it under proper conditions as quickly as possible. Do not discard vaccines unless directed to by your state/local health department and/or the manufacturer(s).
- Record the out-of-range temps and the room temp in the "Action" area on the bottom of the log.
- Notify your vaccine coordinator, or call the immunization program at your state or local health department for guidance.
- Document the action taken on the "Vaccine Storage Troubleshooting Record" on page 3.

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)															
TEMPERATURES	-15°C														
	-16°C														
	-17°C														
	-18°C														
	-19°C														
	-20°C														
-21°C															
-22°C															
-23°C															
ACTION	DANGER! Temperatures above -15°C are too warm! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!														
	DANGER! Temperatures below -50°C are too cold! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!														
Notes on out-of-range temps (above -15°C or below -50°C) here.															
Room Temperature															

If you have a vaccine storage issue, also complete "Vaccine Storage Troubleshooting Record" found on page 3.

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Freezer www.immunize.org/catg.d/p3038C.pdf

Fahrenheit

F Temperature Log for Refrigerator – Fahrenheit
DAYS 1-15

Month/Year _____ VFC PIN or other ID # _____ Page 1 of 1
Facility Name _____

Monitor temperatures closely!

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

Take action if temp is out of range – too warm (above 46°F) or too cold (below 36°F).

- Label exposed vaccines "do not use," and store under proper conditions as quickly as possible. Do not discard vaccines unless directed to by your state/local health department and/or the manufacturer(s).
- Record the out-of-range temps and the room temp in the "Action" area on the bottom of the log.
- Notify your vaccine coordinator, or call the immunization program at your state or local health department for guidance.
- Document the action taken on the "Vaccine Storage Troubleshooting Record" on page 3.

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)															
TEMPERATURES	46°F														
	45°F														
	44°F														
	43°F														
	42°F														
	41°F														
Aim for 40°F															
39°F															
38°F															
37°F															
36°F															
ACTION	DANGER! Temperatures above 46°F are too warm! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!														
	DANGER! Temperatures below 36°F are too cold! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!														
Notes on out-of-range temps (above 46°F or below 36°F) here.															
Room Temperature															

If you have a vaccine storage issue, also complete "Vaccine Storage Troubleshooting Record" found on page 3.

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Refrigerator www.immunize.org/catg.d/p3037F.pdf

F Temperature Log for Freezer – Fahrenheit
DAYS 1-15

Month/Year _____ VFC PIN or other ID # _____ Page 1 of 1
Facility Name _____

Monitor temperatures closely!

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

Take action if temp is out of range—too warm (above 5°F) or too cold (below -58°F).

- Label exposed vaccines "do not use," and store under proper conditions as quickly as possible. Do not discard vaccines unless directed to by your state/local health department and/or the manufacturer(s).
- Record the out-of-range temps and the room temp in the "Action" area on the bottom of the log.
- Notify your vaccine coordinator, or call the immunization program at your state or local health department for guidance.
- Document the action taken on the "Vaccine Storage Troubleshooting Record" on page 3.

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)															
TEMPERATURES	5°F														
	4°F														
	3°F														
	2°F														
	1°F														
	0°F														
-1°F															
-2°F															
-3°F															
-4°F															
ACTION	DANGER! Temperatures above 5°F are too warm! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!														
	DANGER! Temperatures below -58°F are too cold! Write any out-of-range temps and room temp on the lines below and call your state or local health department immediately!														
Notes on out-of-range temps (above 5°F or below -58°F) here.															
Room Temperature															

If you have a vaccine storage issue, also complete "Vaccine Storage Troubleshooting Record" found on page 3.

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Freezer www.immunize.org/catg.d/p3038F.pdf

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p3035.pdf

Checklist for Safe Vaccine Storage and Handling

Are you doing everything you should to safeguard your vaccine supply? Review this list to see where you might make improvements in your vaccine management practices. Check each listed item with either **YES** or **NO**.

Establish Storage and Handling Policies

- YES NO 1. We have designated a primary vaccine coordinator and at least one alternate coordinator to be in charge of vaccine storage and handling at our facility.
- YES NO 2. Both the primary and alternate vaccine coordinator(s) have completely reviewed either CDC's Vaccine Storage & Handling Toolkit (www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf) or equivalent training materials offered by our state or local health department's immunization program.
- YES NO 3. We have detailed, up-to-date, written standard operating procedures for general vaccine management, including procedures for routine activities and an emergency vaccine retrieval and storage plan for power outages and other problems. Our procedures are based on CDC's Vaccine Storage & Handling Toolkit and/or an instruction from our state or local health department's immunization program.
- YES NO 4. We review these policies with all staff annually and with new staff, including temporary staff, when they are hired.

Log In New Vaccine Shipments

- 5. We maintain a vaccine inventory log that we use to document the following:
 - YES NO a. Vaccine name and number of doses received
 - YES NO b. Date we received the vaccine
 - YES NO c. Condition of vaccine when we received it
 - YES NO d. Vaccine manufacturer and lot number
 - YES NO e. Vaccine expiration date

Use Proper Storage Equipment

- YES NO 6. We store vaccines in separate, self-contained units that refrigerate or freeze only. If we must use a house-hold-style combination unit, we use it only for storage of our refrigerated vaccines, maintaining frozen vaccines in a separate stand-alone freezer.
- YES NO 7. We store vaccines in units with enough room to maintain the year's largest inventory without crowding.
- YES NO 8. We never store any vaccines in a dormitory-style unit (a small combination freezer-refrigerator unit with the freezer compartment inside the refrigerator).
- YES NO 9. We use only calibrated thermometers that have a Certificate of Calibration Testing* ("Report of Calibration") and are calibrated every 1 to 2 years from the last calibration testing date or according to the manufacturer's suggested timeline.
- YES NO 10. We have planned back-up storage unit(s) in the event of a power failure or other unforeseen event.

*Certificate of Calibration Testing ("Report of Calibration") with calibration measurements traceable to a laboratory with accreditation from the International Laboratory Accreditation Cooperations (ILAC) Mutual Recognition Arrangement (MRA) signatory body.



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CONTINUED ON THE NEXT PAGE ►

Vaccine Storage and Handling (continued)

page 2 of 3

Ensure Optimal Operation of Storage Units

have a "Do Not Unplug" sign (e.g., www.immunize.org/catg.d/p2090.pdf) next to the electrical outlets the refrigerator and freezer and a "Do Not Stop Power" warning label (e.g., www.immunize.org/catg.d/p91.pdf) by the circuit breaker for the electrical outlets. Both signs include emergency contact information. perform regular maintenance on our vaccine storage units to assure optimal functioning. For example, we p the units clean, dusting the coils and cleaning beneath the units as recommended by the manufacturer.

Maintain Correct Temperatures

always keep at least one accurate calibrated thermometer (+/-0.5°C [+/-1°F]) with the vaccines in the refrigerator and a separate calibrated thermometer with the vaccines in the freezer.
 use a thermometer that
 uses an active display to provide continuous monitoring information.
 is digital and has a detachable probe that has been buffered against sudden temperature changes by being immersed in a vial filled with liquid (e.g., glycol, ethanol, glycerin), loose media (e.g., sand, glass beads), or a solid block of material (e.g., aluminum, Teflon®).
 includes an alarm for out-of-range temperatures.
 has a digital data logger that indicates current, minimum, and maximum temperatures.
 can measure temperatures within +/-0.5°C (+/-1°F).
 has a low-battery indicator.
 maintain the refrigerator temperature at 2–8°C (36–46°F), and we aim for 5°C (40°F).
 maintain the freezer temperature between -50°C and -15°C (-58°F and +5°F).
 set the thermostat for the refrigerator and the freezer at the factory-set or midpoint temperatures.

the door and/or on the floor of the unit temperatures. We keep ice packs, ice-filled
 maintain cold temperatures and to have frozen
 emergency.

page 3 of 3

temperatures) review the temperature logs weekly.

on the doors of the refrigerator and freezer
 refrigerator and which in the freezer.

it.
 r (away from walls and vents), leaving room
 be in the doors.
 ge unit, and we do not store vaccines in these

ore vaccines only in the refrigerator section
 outlet that leads from the freezer to the

vaccine storage unit twice a day (first thing in
 ent refrigerator and freezer temperatures on
clinic/storage-handling.asp.)

ndings in the refrigerator and freezer once

renheit or Celsius. We never mix temperature

perature that's preprinted on the form, we

ropriate personnel if the temperature in a

the Vaccine Storage Troubleshooting Record

s taken when the problem was discovered

CONTINUED ON THE NEXT PAGE ►

ize.org • www.vaccineinformation.org
www.immunize.org/catg.d/p3035.pdf • Item #P3035 (11/16)

refrigerator (often near the top shelf). In general, we try to avoid storing vaccines on the top shelf, and we place water bottles in this location.

- YES NO 32. We check vaccine expiration dates and rotate our supply of each type of vaccine so that vaccines with the earliest expiration dates are located close to the front of the storage unit, facilitating easy access.
- YES NO 33. We store vaccines in their original packaging in clearly labeled uncovered containers.

Take Emergency Action As Needed

- 34. In the event that vaccines are exposed to improper storage conditions, we take the following steps:
 - YES NO a. We restore proper storage conditions as quickly as possible. If necessary, we label the vaccine "Do Not Use" and move it to a unit where it can be stored under proper conditions. We do not discard the vaccine before discussing the circumstances with our state/local health department and/or the appropriate vaccine manufacturers.
 - YES NO b. We follow the Vaccine Storage Troubleshooting Record's (www.immunize.org/catg.d/p3041.pdf) instructions for taking appropriate action and documenting the event. This includes recording details such as the length of time the vaccine was out of appropriate storage temperatures and the current room temperature, as well as taking an inventory of affected vaccines.
 - YES NO c. We contact our clinic supervisor or other appropriate clinic staff to report the incident. We contact our state/local health department and/or the appropriate vaccine manufacturers for consultation about whether the exposed vaccine can still be used.
 - YES NO d. We address the storage unit's mechanical or electrical problems according to guidance from the unit's manufacturer or a qualified repair service.
 - YES NO e. In responding to improper storage conditions, we do not make frequent or large changes in thermostat settings. After changing the setting, we give the unit at least a day to stabilize its temperature.
 - YES NO f. We do not use exposed vaccines until our state/local health department's immunization program or the vaccine manufacturer has confirmed that the vaccine is acceptable for use. We review this information with our clinic medical director before returning the vaccine to our supply. If the vaccine is not acceptable for use, we follow our state/local health department instructions for vaccine disposition.

If we answer **YES** to all of the above, we give ourselves a pat on the back! If not, we assign someone to implement needed changes!

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To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p3036.pdf

Don't Be Guilty of These Preventable Errors in Vaccine Storage and Handling (continued) page 2 of 2

ERROR: Inadvertently cutting the power supply to the storage units

- Be sure everyone in your office, including the janitorial staff, understands that very expensive and fragile vaccines are being stored in the refrigerator and freezer.
- Post a *Do Not Unplug* sign (www.immunize.org/catg.d/p3036.pdf)

ERROR: Discarding temperature logs too soon

- Keep your temperature logs for at least 3 years. Why?
- You can track recurring problems as the storage unit ages.
 - If out-of-range temperatures have been documented, you can determine how long and how often this has been occurring.

Don't Be Guilty of These Preventable Errors in Vaccine Storage and Handling!

Do you see your clinic or practice making any of these frequently reported errors in vaccine storage and handling? Although some of these errors are much more serious than others, none of them should occur. Be sure your healthcare setting is not making any of these preventable errors.

ERROR: Designating only one person, rather than at least two, to be responsible for storage and handling of vaccines

- Everyone in the office should know the basics of vaccine handling, including what to do when a shipment arrives and what to do in the event of an equipment failure or power outage.
- Train at least one back-up person. The back-up and primary persons should be equally familiar with all aspects of vaccine storage and handling, including knowing how to handle vaccines when they arrive, properly record refrigerator and freezer temperatures, what to do when an out-of-range temperature occurs, and how to appropriately respond to an equipment problem or power outage.

ERROR: Storing vaccine inappropriately

- Be sure all office staff (especially persons involved in receiving vaccine shipments) understand the importance of properly storing vaccines immediately after they arrive.
- Know which vaccines should be refrigerated and which should be frozen. Storage information is found in the package insert. For quick reference, post IAC's *Vaccine Handling Tips* (www.immunize.org/catg.d/p3048.pdf) on the refrigerator and freezer.
- Always store vaccines (and thermometers) in the body of the refrigerator – not in the vegetable bins, on the floor, next to the walls, in the door, or near the cold air outlet from the freezer. The temperature in these areas may differ significantly from the temperature in the body of the unit.
- Don't over-pack the unit. Place the vaccine packages in such a way that air can circulate around the compartment.
- Always store vaccines in their original packaging.

ERROR: Using the wrong type of equipment

STORAGE UNITS

- CDC recommends storing vaccines in separate, self-contained units that only refrigerate or only freeze. If a combination refrigerator/freezer must be used, only refrigerated vaccines should be stored in the unit, and a separate stand-alone freezer should be used for frozen vaccines.
- Never store vaccines in a "dormitory-style" unit (i.e., a small refrigerator-freezer unit with one exterior door and a freezer compartment inside the refrigerator). These units cannot maintain stable temperatures.

THERMOMETERS

- Use only calibrated thermometers that have a Certificate of Traceability and Calibration Testing. Ideally, you should use a "continuous read" thermometer that records temperatures all day and all night.
- Place the thermometer's temperature probe in glycol so that you are not just measuring air temperature, which is subject to fluctuation when you open the door.

For more detailed information, see the *Vaccine Storage Equipment* section of CDC's *Vaccine Storage and Handling Toolkit* (www.cdc.gov/vaccines/recs/storage/toolkit).

ERROR: Inadvertently leaving the refrigerator or freezer door open or having inadequate seals

- Unfortunately, too much vaccine is lost every year because storage unit doors were left open. Remind staff to *completely* close the door every time they open the refrigerator or freezer.
- Check the seals on the doors on a regular schedule, such as when you're taking inventory. If there is any indication the door seal may be cracked or not sealing properly, have it replaced. (This is much less costly than replacing a box of pneumococcal conjugate or varicella vaccine!)

ERROR: Storing food and drinks in the vaccine refrigerator

- Frequent opening of the refrigerator door to retrieve food items can adversely affect the internal temperature of the unit and damage vaccines. Store only vaccines in the designated units.

CONTINUED ON THE NEXT PAGE ►



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www.immunize.org/catg.d/p3036.pdf • Item #P3036 (7/14)

Storing vaccine with the soonest expiration

When receiving a new shipment of vaccine: place the vials with the shortest expiration date to the front of the unit. This makes it easier for staff to access this vaccine first. Always use the "first" vaccine to be used first.

Storing vaccine inappropriately with expired vaccines

When receiving a new shipment of vaccine: place vaccines with the shortest expiration date at the front of the unit.

When receiving a new shipment of vaccine: immediately remove them from the unit so that they are not inadvertently administered.

Storing multidose vials prematurely

Multidose vials of vaccines contain a preservative that is used until the expiration date on the vial, unless the vial is contaminated or the vials are not stored under appropriate conditions. However, multidose vials of certain vaccines (e.g., meningococcal polysaccharide vaccine) must be used within a defined period after opening. Refer to the package inserts for information.

The FDA has clarified that vaccines are an exception to the usual "28-day rule" for use of medications. Providers are directed to follow guidance from vaccine manufacturers.

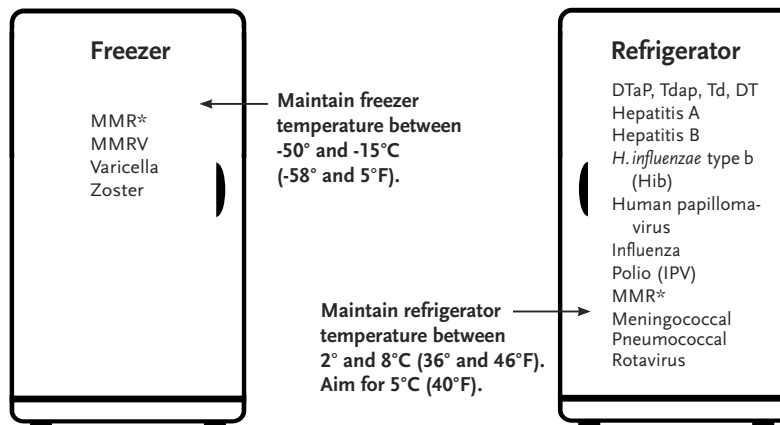
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To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p3048.pdf

Vaccine Handling Tips

REMEMBER: Improperly stored or outdated vaccines won't protect your patients!



Manage vaccine inventories.

Inventory your vaccine supplies at least monthly and before placing an order. Expired vaccine must never be used and it becomes “cash in the trash!”

Always use the vaccine with the soonest expiration date first.

Move vaccine with the soonest expiration date to the front of the storage unit and mark it to be used first. These actions help ensure it will be picked up first by someone selecting vaccine from the unit.

Store vaccine appropriately.[†]

Place vaccines in refrigerator or freezer immediately upon receiving shipment. Keep vaccine vials in their original packaging. Place vaccine in clearly labeled wire baskets or other open containers with a 2–3" separation between baskets and 4" from wall of unit. Separate or clearly mark vaccines to distinguish those that were supplied from your state's Vaccines for Children program (or other state-funded source) from those that were privately purchased. Do not store vaccines in the door or on the floor of the unit.

Stabilize temperatures.

Store ice packs in the freezer and large jugs of water in the refrigerator along with the vaccines. This will help maintain a stable, cold temperature in case of a power failure or if the refrigerator or freezer doors are opened frequently or are accidentally left open. Because frequent opening of either the refrigerator or freezer door can lead to temperature variations that could affect vaccine efficacy, you should not store food or beverages in the refrigerator or freezer.

Safeguard the electrical supply to the refrigerator.

Make sure the refrigerator and freezer are plugged into outlets in a protected area where they cannot be disconnected accidentally. Label the refrigerator, freezer, electrical outlets, fuses, and circuit breakers on the power circuit with information that clearly identifies the perishable nature of vaccines and the immediate steps to be taken in case of interruption of power.[‡] If your building has auxiliary power, use the outlet supplied by that system.

*MMR may be stored in either the freezer or the refrigerator.

[†] Refer to package insert for specific instructions on the storage of each vaccine. If you have questions about the condition of the vaccine upon arrival, immediately place the vaccine in recommended storage, mark it “do not use,” and then call your state health department or the vaccine manufacturer(s) to determine whether the potency of the vaccine(s) has been affected. For other questions, call the immunization program at your state or local health department.

[‡] For easy help with labeling units and power supplies, see IAC signs “Do Not Unplug Refrigerator or Freezer” (www.immunize.org/catg.d/p2090.pdf) and “Do Not Stop Power to Circuit Breaker” (www.immunize.org/catg.d/p2091.pdf). For guidance on steps to take during a power interruption, see IAC’s “Emergency Response Worksheet” (www.immunize.org/catg.d/p3051.pdf).

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p3041.pdf

Vaccine Storage Troubleshooting Record (check one) Refrigerator Freezer

Use this form to document any unacceptable vaccine storage event, such as exposure of refrigerated or frozen vaccines to temperatures that are outside the manufacturers' recommended storage ranges.

Date & Time of Event <small>If multiple, related events occurred, see Description of Event below.</small>	Storage Unit Temperature <small>at the time the problem was discovered</small>		Room Temperature <small>at the time the problem was discovered</small>	Person Completing Report	
	<small>When recording temperatures, indicate F (Fahrenheit) or C (Celsius).</small>				
Date:	Temp when discovered:		Temp when discovered:	Name:	
Time:	Minimum temp:	Maximum temp:	Comment (optional):	Title:	Date:
Description of Event <i>(If multiple, related events occurred, list each date, time, and length of time out of storage.)</i> <ul style="list-style-type: none"> General description (i.e., what happened?) Estimated length of time between event and last documented reading of storage temperature in acceptable range (36° to 46°F [2° to 8°C] for refrigerator; -58° to 5°F [-50° to -15°C] for freezer) Inventory of affected vaccines, including (1) lot #s and (2) whether purchased with public (for example, VFC) or private funds (Use separate sheet if needed, but maintain the inventory with this troubleshooting record) At the time of the event, what else was in the storage unit? For example, were there water bottles in the refrigerator and/or frozen coolant packs in the freezer? Prior to this event, have there been any storage problems with this unit and/or with the affected vaccine? Include any other information you feel might be relevant to understanding the event. 					
Action Taken <i>(Document thoroughly. This information is critical to determining whether the vaccine might still be viable!)</i> <ul style="list-style-type: none"> When were the affected vaccines placed in proper storage conditions? (Note: Do not discard the vaccine. Store exposed vaccine in proper conditions and label it "do not use" until after you can discuss with local health department and/or the manufacturer[s].) Who was contacted regarding the incident? (For example, supervisor, state/local health department, manufacturer—list all.) IMPORTANT: What did you do to prevent a similar problem from occurring in the future? 					
Results <ul style="list-style-type: none"> What happened to the vaccine? Was it able to be used? If not, was it returned to the distributor? (Note: For public-purchase vaccine, follow your state/local health department instructions for vaccine disposition.) 					

The form includes 6 filled-in example pages.

Vaccine Storage Troubleshooting Record (check one) Refrigerator Freezer

Use this form to document any unacceptable vaccine storage event, such as exposure of refrigerated vaccines to temperatures that are outside the manufacturers' recommended storage ranges. A fillable troubleshooting record (i.e., editable pdf) can also be found at www.immunize.org/clinic/storage-handling.asp

Date & Time of Event <small>If multiple, related events occurred, see Description of Event below.</small>	Storage Unit Temperature <small>at the time the problem was discovered</small>		Room Temperature <small>at the time the problem was discovered</small>	Person Completing Report	
Date: (see below)	Temp when discovered: 45°F		Temp when discovered: 77°F	Name: Nancy Nurse	
Time: (see below)	Minimum temp: 38°F	Maximum temp: 53°F	Comment (optional): temp is approx.	Title: VFC Coordinator	Date: 6/24/13
Description of Event <i>(If multiple, related events occurred, list each date, time, and length of time out of storage.)</i> <ul style="list-style-type: none"> General description (i.e., what happened?) Estimated length of time between event and last documented reading of storage temperature in acceptable range (36° to 46°F [2° to 8°C] for refrigerator; -58° to 5°F [-50° to -15°C] for freezer) Inventory of affected vaccines, including (1) lot #s and (2) whether purchased with public (for example, VFC) or private funds (Use separate sheet if needed, but maintain the inventory with this troubleshooting record) At the time of the event, what else was in the storage unit? For example, were there water bottles in the refrigerator and/or frozen coolant packs in the freezer? Prior to this event, have there been any storage problems with this unit and/or with the affected vaccine? Include any other information you feel might be relevant to understanding the event. <p>At 8 am on Monday (6/24/13) morning when clinic opened, identified 4 temperature excursions over the weekend in refrigerator with readings as high as 54°, 50°, 49° & 53°F in primary vaccine storage unit #1. Recordings taken every 15 min on calibrated digital data logger overnight. Data logger probe in glycol located in middle of refrigerator with vaccines.</p> <p>Total time out of range: approximately 3 hrs — maximum temp 53°F (see attached document of continuous temp readings)</p> <p>Inventory of vaccines: see attached</p> <p>Water bottles in refrigerator door. No vaccine stored in freezer. No problems with storage unit prior to Saturday night. Thunderstorms in area over weekend may have affected power.</p>					
Action Taken <i>(Document thoroughly. This information is critical to determining whether the vaccine might still be viable!)</i> <ul style="list-style-type: none"> When were the affected vaccines placed in proper storage conditions? (Note: Do not discard the vaccine. Store exposed vaccine in proper conditions and label it "do not use" until after you can discuss with your state/local health department and/or the manufacturer[s].) Who was contacted regarding the incident? (For example, supervisor, state/local health department, manufacturer—list all.) IMPORTANT: What did you do to prevent a similar problem from occurring in the future? <p>Vaccines currently stored appropriately at 40°F. Refrigerator and vaccines labeled "Do Not Use."</p> <p>My State Immunization Program contacted at 8:30 am. Spoke with Victor Vaccine. Provided Victor with details of event and list of vaccines. Vaccine to remain quarantined until we hear back from Victor.</p> <p>Called electric company and confirmed 2 short power outages during weekend.</p> <p>Checked refrigerator seals — called refrigerator maintenance company to replace seals.</p> <p>Checked plug on unit — placed tape over plug to prevent inadvertent dislodging. Plan to purchase plug guard.</p> <p>Plan to follow up with Immunization Program on data loggers with alarms that could be sent to coordinator and back-up phones.</p>					
Results <ul style="list-style-type: none"> What happened to the vaccine? Was it able to be used? If not, was it returned to the distributor? (Note: For public-purchase vaccine, follow your state/local health department instructions for vaccine disposition.) <p>Late on Monday, I talked with Victor regarding continued use of vaccine. Victor had checked with manufacturers which confirmed that vaccine is acceptable for use. He told me that vaccine could therefore be removed from quarantine. I discussed the entire situation with Susie Supervisor and Dr. Director (clinic medical director) who agreed that we could put vaccine back in use.</p>					

DISTRIBUTED BY THE 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/p3041.pdf # Item #P3041 (8/16)

STEP 4:

Deciding Whom to Vaccinate

BY NOW, you have selected and obtained one or more vaccines to administer to the patients you serve. If not, we will be reviewing which patient-care settings may want to administer certain vaccines. In deciding whom to vaccinate, you will need to **assess** and **screen** each individual who comes into your clinic setting.

- **ASSESSMENT** – Are there any special reasons, or *indications*, that this person should be vaccinated?
- **SCREENING** – Are there any special reasons, or *contraindications*, that this person should NOT be vaccinated?



NFID

Depending on your healthcare setting, your patients may come in partially assessed, which makes the job a bit easier. For instance, if you work in an ob-gyn clinic, many of your patients are likely pregnant women who will need specific vaccines. If your patients are primarily men who have sex

In this chapter we provide you with information to help you determine who needs to be vaccinated against which diseases.

with men (MSM), they have certain risk factors and will need certain vaccines as well. Ideally, you will not miss an opportunity to vaccinate someone who needs to be vaccinated, but you also will not vaccinate someone who shouldn't receive a particular vaccine. In this chapter we provide you with information to help you determine who needs to be vaccinated against which diseases.

STEP-BY-STEP: ASSESSMENT AND SCREENING TASKS

- Determine the patient's previous vaccination history
- Determine which vaccines are needed
- Screen for contraindications and precautions to vaccines
- Advise the patient if he or she should be vaccinated
- Educate your patients about diseases for which they may be at risk and the vaccines that can prevent them

Vaccination of Special Populations

- Women who are pregnant
- People who may be immunosuppressed because of disease or treatment of disease
- People with anatomic or functional asplenia (spleen is lacking or not functioning)
- People without a vaccination record
- People vaccinated outside the United States
- Healthcare personnel (HCP)
- Childcare, home health care, and long-term care providers
- International travelers

Vaccines to consider having available in different healthcare settings

If you work in a clinic or program with a focused target population, you may already know which vaccines you will need to offer. You should also review information about vaccination of special populations

(such as pregnant women and immunosuppressed people) later in this chapter. The chart below may serve as a guide to help you determine which vaccines your clinic might routinely keep in stock.

SETTING	VACCINE											
	Hep B	Hep A	Influenza	Tdap/Td	MMR	Varicella	HPV	Zoster	PPSV	PCV	Men ACWY	Men B
Internal Medicine Practice	●	●	●	●	●	●	●	●	●	●	●	●
Family Medicine Practice	●	●	●	●	●	●	●	●	●	●	●	●
Ob-gyn Practice	●	●	●	●	●	●	●	●	●	●	●	●
STD Clinic	●	●	●	●			●					
Clinic Serving MSM	●	●	●	●	●	●	●	●	●	●	●	●
Family Planning Clinic	●	●	●	●	●	●	●				●	●
College Health Service	●	●	●	●	●	●	●				●	●
Adult Correctional Facility	●	●	●	●	●	●	●	●	●	●	●	●
Drug Treatment Center	●	●	●	●	●	●	●				●	●
Senior Center			●	●				●	●	●		



Before you can decide which of your patients need which vaccines from among those you will offer, it is important to know what vaccines they’ve had in the past and to what diseases they may already be immune.

Determine the patient’s previous vaccination history

Before you can decide which of your patients need which vaccines from among those you will offer, it is important to know what vaccines they’ve had in the past and to what diseases they may already be immune. If they were born in the U.S. before 1957, it’s likely that they had measles, mumps, and rubella diseases as a child. Many younger adults, particularly those who started school in the late

1970s or after, may have been vaccinated against measles and rubella to meet the requirements of their enrollment in school or college. If they were born in the U.S. before 1980, they probably had chickenpox and are immune to varicella.

If they can’t provide a personal written record of the vaccines they’ve had, see if they (or you) can easily get that information. The Immunization Action Coalition’s (IAC) *Tips for Locating Old Immunization Records*, available at www.immunize.org/catg.d/p3065.pdf, may help you with ideas about how to proceed. The first place to check is the doctor’s office or clinic where vaccines may have been given in the past.

Be sure to check with the state or local health department located where the person received immunizations in the past, because many localities maintain a centralized computer database of vaccinations called an Immunization Information System (IIS) or “registry.” (More information about this is available in *Step 6 – Documentation and Related Issues*.) If a record of past vaccinations cannot be located, CDC recommends giving the vaccine. Revaccination of a person who may already be immune to that disease is not harmful.

Determine which vaccines are needed

The vaccines that patients need are determined by a variety of factors. The tools listed below can assist you in your assessment of which vaccines your patient should receive.

Summary of Recommendations for Adult Vaccination – This summary chart was adapted from the recommendations of the Centers for Disease Control and Prevention’s (CDC) Advisory Committee on Immunization Practices (ACIP).

www.immunize.org/catg.d/p2011.pdf

A table titled "Summary of Recommendations for Adult Immunization (age 18 years and older)" with columns for "Vaccine", "Age Group", and "Recommendation". It lists various vaccines like Tdap, Hib, Polio, Hepatitis A, Hepatitis B, Pneumococcal polysaccharide, and Shingles, along with their recommended ages and conditions.

A questionnaire titled "Which Vaccines Do I Need Today?" with sections for "Infectious Disease", "Prevention of Disease", "Tetanus, Diphtheria, and pertussis (Tdap)", and "Measles". It includes checkboxes for various conditions and questions about the patient's health status.

Which Vaccines Do I Need Today? – This questionnaire can be used to allow your adult patients to conduct a self-assessment of the vaccines they need.

www.immunize.org/catg.d/p4036.pdf

A table titled "H-A-L-O checklist of factors that indicate a possible need for adult vaccination". The columns are "Age", "Health", "Lifestyle", and "Occupation". The rows list various conditions and activities, with checkboxes for each.

Before You Vaccinate Adults, Consider Their “H-A-L-O” – This table can be used to help you assess your patient’s current **H**ealth condition, **A**ge, **L**ifestyle, and/or **O**ccupation.

www.immunize.org/catg.d/p3070.pdf

Screen for contraindications and precautions to vaccines

Not every patient is a candidate for every vaccination. And like any medication, any vaccine may cause an adverse reaction. Most reactions are mild and temporary, such as pain or redness at the

As a vaccination provider, your job is to screen your patients for any medical conditions that might lead to a serious reaction.

site of injection. As a vaccination provider, your job is to screen your patients for any medical conditions that might lead to a serious reaction. Such conditions can be classified as either a **contraindication** (i.e., the condition *greatly increases* the chance of a serious adverse reaction) or a **precaution** (i.e., the condition *may increase* the chance of a serious reaction or may compromise the ability of the vaccine to produce immunity). Contraindications and precautions vary depending on the type of vaccine (live or inactivated). As a general rule, you should not vaccinate a person with a valid contraindication or precaution to that vaccine at that visit. But most contraindications and precautions are temporary conditions (such as pregnancy or a moderate to severe illness), and the vaccine can be given at a later date.

Several tools are available to help with this important screening. The *Screening Checklist for Contraindications to Vaccines for Adults*, found at www.immunize.org/catg.d/p4065.pdf, should be completed by your patients while they are in the exam or waiting room. The checklist is available in multiple languages for patients who do not speak English. Page 2 of this checklist is for you and pro-

A checklist titled "Screening Checklist for Contraindications to Vaccines for Adults" with sections for "Allergies", "Medical Conditions", "Pregnancy", and "Other". It includes checkboxes for various conditions and a section for the provider's signature and date.

www.immunize.org/catg.d/p4065.pdf

vides explanations about why you are asking the questions on page 1, as well as general information about contraindications and precautions. This questionnaire with your patient's answers is one of the most important documents in your patient's medical record. Make sure you review it carefully and that a nurse or doctor addresses any concerns raised by your patient's responses. After you have reviewed the questionnaire with your patient, add any pertinent comments and place it in your patient's medical record. Another important reference for your use, the *Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults*

The image shows a thumbnail of a document titled "Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults". The document is a table with multiple columns and rows, detailing various vaccines and their associated contraindications and precautions. The text is small and difficult to read in detail, but the structure is clear.

and *Precautions to Commonly Used Vaccines in Adults* found at www.immunize.org/catg.d/p3072.pdf, summarizes contraindications and precautions as determined by the ACIP.

www.immunize.org/catg.d/p3072.pdf

Note that contraindications and precautions to each vaccine are found in several sources. The vaccine manufacturer lists these in the product information that is supplied with the vaccine. ACIP also issues them within the recommendations for use of each vaccine. Usually, the manufacturer and ACIP contraindications and precautions agree. But for some vaccines, there may be disagreement between the two. An example is the length of time a woman should defer pregnancy after receiving MMR vaccine: the manufacturer says 3 months, but ACIP recommends 1 month. When you encounter these disagreements in contraindications or precau-

After you've completed your screening assessment for needed vaccines and checked for contraindications and precautions, advise the patient about vaccines recommended for him or her.

tions, we suggest that you follow ACIP recommendations rather than those in the product information.

Advise the patient if he or she should be vaccinated

After you've completed your screening assessment for needed vaccines and checked for contraindications and precautions, advise the patient about vaccines recommended for him or her.

In certain situations, you may want to discuss the possibility that your patient already might be immune and recommend testing instead of vaccination.

There is no harm in vaccinating someone who is already immune. But depending on your patient population, you may save money by testing certain patients for pre-existing immunity. Your decision to test or vaccinate without testing should be based on the likelihood that the person is already immune (based on age or other factors), the relative cost of testing compared to vaccination, and the chances that the person will return for vaccination if the test indicates the person is not immune. If the blood draw and testing is more expensive than the vaccine, or if you feel that the patient might not return, then the person should be vaccinated rather than tested.

Educate your patients about diseases for which they may be at risk and the vaccines that can prevent them

Providing patients with accurate and reliable information takes time. Fortunately, numerous handouts are available that can help you educate your patients about vaccine-preventable diseases and the vaccines that will prevent them. You can find a comprehensive listing of patient-friendly resources available from the Immunization Action Coalition at www.immunize.org/handouts/view-all-patient.asp. In addition, a series of easy-to-understand handouts describing the seriousness of diseases and the value of specific vaccines for adults may be found at www.immunize.org/handouts/adult-vaccination.asp#vaccinesummaries.

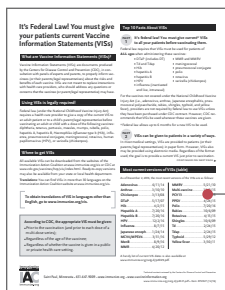


Under federal law, the VIS MUST be given to the patient or the patient's representative BEFORE the vaccine is administered.

The most important document for patient education is the *Vaccine Information Statement (VIS)*, which CDC pub-

lishes for *each* vaccine. Under federal law, the VIS MUST be given to the patient or the patient's representative BEFORE the vaccine is administered. Each patient must be offered a copy of the VIS to take home. VISs for every vaccine are available in English and many other languages on the IAC website at www.immunize.org/vis. *It's Federal Law! You must give your patients current Vaccine Information Statements*, which provides more information about VIS

requirements, is available at www.immunize.org/catg.d/p2027.pdf.



www.immunize.org/catg.d/p2027.pdf

Vaccination of Special Populations

All adults need vaccines. All adults should receive:

- influenza vaccine each fall or winter;
- 1 dose of Tdap and at least 2 additional doses of a tetanus-containing vaccine (such as DTP, DTaP [administered in childhood] or Td);
- zoster (shingles) vaccine at age 60 years or older;
- 1 dose of pneumococcal conjugate vaccine (PCV, Prevnar) at age 65 years (or older), followed by 1 dose of pneumococcal polysaccharide vaccine (PPSV, Pneumovax) 12 months later; and
- 2 or 3 doses of human papillomavirus (HPV) vaccine through age 21 years for all men, and through age 26 years for all women, as well as for certain men. (See HPV-specific ACIP guidance for details.)

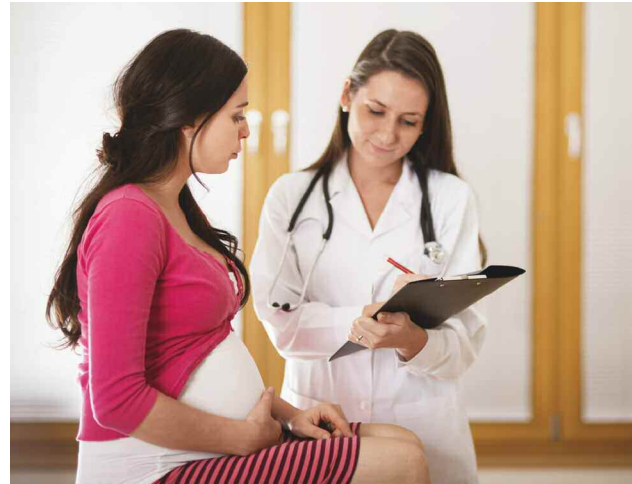
Depending on the age of the person, MMR and varicella vaccines also may be recommended. For specific details, refer to the *Summary of Recommendations for Adult Vaccination* found at www.immunize.org/catg.d/p2011.pdf.

In addition to routinely recommended vaccines, some groups of adults, such as immunocompromised people or people with renal failure who are on dialysis, have special vaccination considerations. Certain vaccines may be indicated or contraindicated because of medical or other conditions. A detailed discussion of these groups is available in the *ACIP General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf and the *ACIP Recommendations: Vaccine Index* at www.immunize.org/acip/acip_vax.asp.

If your practice includes persons in any of these groups, we strongly recommend that you familiarize yourself with the more detailed guidelines. A brief discussion of some of these special populations follows.

Women who are pregnant

The decision to vaccinate a woman who is pregnant involves balancing benefits of protection of the woman and the fetus compared to any risk to the fetus. There is no evidence that inactivated vaccines, such as influenza, Tdap, and hepatitis B, pose a risk to the fetus, and these should be administered when indicated. Inactivated influenza and Tdap vaccines are specifically recommended for pregnant women to help protect them and their babies from serious diseases.



Live vaccines (MMR, varicella, *Zostavax*, and nasal spray influenza vaccine) pose a theoretical risk of infection of the fetus, although only live virus smallpox vaccine has been shown to cause fetal damage. Live virus vaccines generally are contraindicated during pregnancy, and pregnancy should be avoided for at least four weeks after receiving those vaccines. However, having a pregnant household member or close contact is NOT a reason to withhold a live vaccine from a healthy patient.

ALL inactivated and live vaccines except smallpox (contraindication) and yellow fever (precaution) may be administered to a breastfeeding woman if indicated. Breastfeeding does not affect the baby's response to vaccination, and infants who are breastfeeding should be vaccinated on schedule.

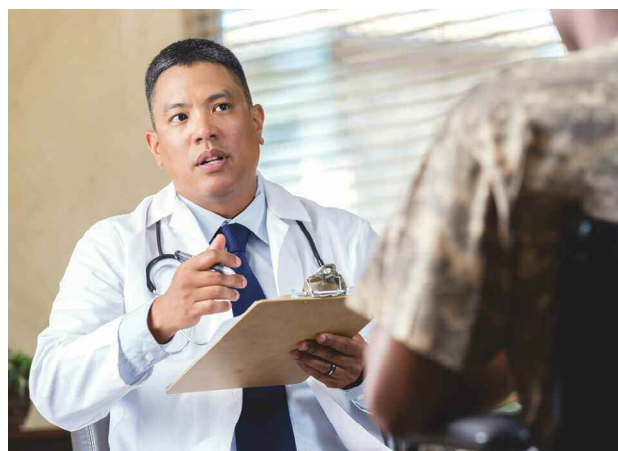
An exception to this general rule covering inactivated vaccines is human papillomavirus (HPV) vaccine. Although this vaccine contains only HPV proteins and not live virus, and no harm to a fetus has been documented in women vaccinated during pregnancy, neither the manufacturer nor ACIP recommends administration of the HPV vaccine to a pregnant woman. If a woman becomes pregnant before completing the HPV series, the remaining dose(s) should be deferred until after the pregnancy is completed. However, if a pregnant woman inadvertently receives HPV vaccine, no specific action must be taken.

People who may be immunosuppressed because of disease or treatment of disease

Many people, particularly those who are older, are considered to be immunosuppressed to various degrees for different reasons. Immunosuppression can be caused by:

- **Diseases;** examples include chronic kidney disease, leukemia, lymphoma and other malignancies, or HIV infection;

- **Certain medications and therapies;** examples include corticosteroids (such as prednisone), cancer chemotherapy, radiation, and immune modulating drugs (such as *Embrel*[®] or *Humira*[®]); and/or
- **Removal or non-function of the spleen** (see below) or because of **solid organ** or **bone marrow transplantation**.



Susceptible immunosuppressed people can have significantly elevated risks for both the occurrence and severity of vaccine-preventable diseases.

Regardless of the cause, susceptible immunosuppressed people can have significantly elevated risks for both the occurrence and severity of vaccine-preventable diseases. People who were immune because of vaccination or infection prior to becoming immunosuppressed generally do not lose their immunity after becoming immunosuppressed. Susceptible people who are most severely immunosuppressed and most in need of vaccines may not have an effective immune response to a vaccine. Immunosuppressed people also may be at increased risk for adverse events from a live attenuated vaccine.

Inactivated vaccines do not replicate, and they may be administered to an immunosuppressed person if indicated. But live attenuated vaccines (MMR,

varicella, *Zostavax*, nasal spray influenza vaccine) are contraindicated for immunosuppressed people. Live vaccines should not be administered to an immunosuppressed person for 1 to 3 months after cessation of immunosuppressive therapy, depending on the type of therapy. Immunosuppression of a close or household contact is NOT a reason to withhold a live vaccine from a healthy patient.

A detailed discussion of assessment of a patient's possible immune suppression is beyond the scope of this guide. See the *ACIP General Best Practices Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf for a more complete discussion of this issue.

People with anatomic or functional asplenia (spleen is lacking or not functioning)

Although asplenia – absence of the spleen – may be congenital, it more often is the result of surgery, usually following trauma. “Functional asplenia” means the spleen is present, but it does not work properly. Functional asplenia is most often a result of sickle cell disease.

Adults with asplenia from any cause are at increased risk of infection with certain bacteria, in particular pneumococcus, but also meningococcus and *Haemophilus influenzae* type b. In addition to routine vaccines, adults with asplenia should receive:

- meningococcal conjugate vaccine (MenACWY) (1 dose every 5 years);
- meningococcal serogroup B vaccine (MenB) (2 or 3 doses, depending on type of vaccine used);
- pneumococcal conjugate vaccine (1 dose);
- pneumococcal polysaccharide vaccine (2 doses 5 years apart, at least 8 weeks after receiving the pneumococcal conjugate dose); and
- any pediatric Hib vaccine (1 dose).

If surgical removal of the spleen is planned, both pneumococcal vaccines should be administered prior to surgery, if possible. If this is not possible, the patient should be vaccinated as soon as his/her condition stabilizes after surgery. Pneumococcal conjugate vaccine should be administered first, followed by the first dose of pneumococcal polysaccharide vaccine 8 weeks later. There is some variation in the meningococcal conjugate vaccine recommendations based on the brand that is used. If *Menactra* (Sanofi Pasteur) is used, pneumococcal conjugate vaccine should be administered first, followed by *Menactra* at least 4 weeks later. This recommendation is made due to possible interference between the two conjugate vaccines. Due to its chemical makeup, *Menveo* (GlaxoSmithKline) does not appear to interfere with pneumococcal vaccination and can be administered at the same visit or at any time before or after pneumococcal conjugate vaccine. Additional information about use of meningococcal vaccines may be found in *Meningococcal Vaccine Recommendations by Age and Risk Factor for Serogroups A, C, W, or Y Protection* at www.immunize.org/catg.d/p2018.pdf and *Meningococcal Vaccine Recommendations by Age and Risk Factor for Serogroup B Protection* at www.immunize.org/catg.d/p2035.pdf.

People without a vaccination record

Only written, dated records should be accepted as evidence of prior vaccination. A person's undocu-

Only written, dated records should be accepted as evidence of prior vaccination.

mented personal history is not acceptable as evidence of vaccination, except for pneumococcal polysaccharide and influenza vaccines. Many adults do not have or

cannot locate a vaccination record. To avoid needlessly repeating vaccines, a search should always be made to locate a record. Information may be available from sources such as prior healthcare providers, parents, school records, or military records. IAC's

Tips for Locating Old Immunization Records, available at www.immunize.org/catg.d/p3065.pdf, offers helpful hints to facilitate this effort.

If no record can be located, then the person should be given all age-appropriate vaccines, particularly Tdap/Td (3 doses), MMR (1 or 2 doses), HPV (3 doses), and varicella (2 doses) or zoster (1 or 2 doses). Hepatitis B, polio, and other vaccines also

www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf

may be indicated for some people. Serologic testing for immunity to measles,

rubella, and certain other vaccine-preventable diseases may be an option in lieu of these vaccines. The *ACIP Recommended Adult Immunization Schedule* found at www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf provides guidance on vaccination of adults without a vaccination record. IAC's *Summary of Recommendations for Adult Immunization*, available at www.immunize.org/catg.d/p2011.pdf, also provides this guidance.

People vaccinated outside the United States

Immigrants and expatriates with no vaccination record should be managed in the same manner as described above under *Persons without a Vaccination Record*. Such persons may have a written, dated record, but the vaccine names may be unfamiliar. It is also possible that schedules other than those used in the U.S. may have been followed.

As a general rule, any documented vaccine dose that was administered using ACIP-recommended ages and intervals can be counted as valid.

(For example, measles vaccine may have been given prior to the first birthday.) Vaccines administered outside the U.S. can be assumed to be potent. As a general rule, any documented vaccine dose that was administered using ACIP-recommended ages and intervals can be counted as valid. CDC maintains an extensive listing of *Foreign Language Terms*, available at www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/foreign-products-tables.pdf, to aid in translating foreign immunization records. If the vaccine name cannot be located on this table, then the vaccine dose should be disregarded and the person vaccinated as age-appropriate.

It is the ethical obligation of HCP to assure they are immune to vaccine-preventable diseases to protect themselves and to avoid being a vector for transmitting those diseases to their patients.



CDC

Healthcare personnel (HCP)

HCP are at increased risk of exposure to vaccine-preventable diseases by virtue of their occupation. Likewise, HCP with a vaccine-preventable disease pose a grave risk to their patients, who often have other medical issues. It is the ethical obligation of HCP to assure they are immune to vaccine-preventable diseases to protect themselves and to avoid being a vector for transmitting those diseases to their patients.

Vaccinations routinely recommended for all adults:

- Influenza vaccine annually;
- Tdap;
- Zoster vaccine (age-appropriate); and
- Pneumococcal conjugate and pneumococcal polysaccharide vaccines (age-appropriate),
- HPV vaccine (age appropriate);

Additional vaccinations routinely recommended for HCP:

- Hepatitis B (3 doses), which should be followed by laboratory confirmation of seroconversion 1–2 months after completion of the series for those HCP who are likely to be exposed to blood or body fluids;
- MMR (2 doses), unless they have laboratory evidence of immunity to all 3 viruses;
- Varicella (2 doses), unless they have laboratory evidence of immunity *or* a healthcare provider diagnosis of a history of varicella disease or herpes zoster; and
- Meningococcal conjugate vaccine (MenACWY) (1 dose every 5 years) and meningococcal serogroup B vaccine (MenB) for laboratory workers who work with *Neisseria meningitidis*.



IAC's *Healthcare Personnel Vaccination Recommendations*, available at www.immunize.org/catg.d/p2017.pdf, provides additional guidance.

www.immunize.org/catg.d/p2017.pdf



CDC

Childcare, home health care, and long-term care providers

ACIP has not made specific recommendations for persons employed in childcare, home health care

Even without state mandates, people who are employed in childcare, home health care, or long-term care facilities should protect themselves and the people in their care by being vaccinated.

(i.e., HCP providing care to patients in their own home), and long-term care settings. Some states have regulations that mandate these providers submit evidence of receiving certain vaccines. But even without state mandates, people who are employed in childcare, home health care, or

long-term care facilities should protect themselves and the people under their care by being vaccinated. Childcare, home health care, and long-term care providers should receive:

- all routinely recommended adult vaccines (annual influenza vaccination, 1 dose of Tdap, and, if age-appropriate, zoster, pneumococcal polysaccharide, and pneumococcal conjugate vaccines); and
- 1 or 2 doses of MMR vaccine (depending on the situation) and 2 doses of varicella vaccine. (Use of MMR and/or varicella vaccine also will be based

on the presence of evidence-based immunity to measles, mumps, rubella and varicella.)

When there is the potential for exposure to blood and/or body fluids, hepatitis B vaccine also should be given. Hepatitis A infection is almost always asymptomatic in children. Although not specifically recommended for childcare providers by ACIP, hepatitis A vaccination should be considered.

International travelers may need other vaccines not routinely recommended for adults in the U.S.



International travelers

In addition to routine adult vaccines, international travelers may need other vaccines not routinely recommended for adults in the U.S., such as yellow fever, typhoid, Japanese encephalitis, hepatitis A, rabies, and polio. The number of vaccines a traveler needs is dependent on their itinerary and the type of activities that are anticipated. A complete discussion of travel-related vaccines and other travel health issues is beyond the scope of this guide. People who plan to travel outside the U.S. should be referred to a clinic that specializes in travel medicine. CDC has an extensive website on *Travelers' Health* at wwwnc.cdc.gov/travel that includes information about recommended vaccines.

STEP 4: DECIDING WHOM TO VACCINATE**Materials and Resources for You to Use****► TOOLS FOR PROVIDERS**

Before You Vaccinate Adults, Consider Their “H-A-L-O”! (IAC)

www.immunize.org/catg.d/p3070.pdf

Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults (IAC)

www.immunize.org/catg.d/p3072.pdf

Healthcare Personnel Vaccination Recommendations (IAC) – www.immunize.org/catg.d/p2017.pdf

Hepatitis A and B Vaccine – Be Sure Your Patients Get the Correct Dose (IAC)

www.immunize.org/catg.d/p2081.pdf

Hepatitis A, B, and C: Learn the Differences (IAC)

www.immunize.org/catg.d/p4075.pdf

Hepatitis B Facts: Testing and Vaccination (IAC)

www.immunize.org/catg.d/p2110.pdf

Meningococcal Vaccine Recommendations by Age and Risk Factor for Serogroup B Protection (IAC)

www.immunize.org/catg.d/p2035.pdf

Meningococcal Vaccine Recommendations by Age and Risk Factor for Serogroups A,C,W, or Y Protection (IAC)

www.immunize.org/catg.d/p2018.pdf

Screening Checklist for Contraindications to Inactivated Injectable Influenza Vaccination (IAC)

www.immunize.org/catg.d/p4066.pdf

Screening Checklist for Contraindications to Vaccines for Adults (IAC)

www.immunize.org/catg.d/p4065.pdf

Summary of Recommendations for Adult Immunization (IAC)

www.immunize.org/catg.d/p2011.pdf

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

Using Standing Orders for Administering Vaccines: What You Should Know (IAC)

www.immunize.org/catg.d/p3066.pdf

► ADDITIONAL PROVIDER RESOURCES

ACIP General Best Practice Guidelines for Immunization (CDC) – www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf

ACIP Recommendations: Vaccine Index (IAC)

www.immunize.org/acip/acip_vax.asp

Ask the Experts: Experts from CDC Answer Questions About Vaccines (IAC)

www.immunize.org/askexperts

Foreign Language Terms (CDC)

www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/foreign-products-tables.pdf

Immunization for Women (ACOG)

www.immunizationforwomen.org

Immunization Toolkits (ACOG)

<http://immunizationforwomen.org/providers/resources/toolkits/default.php>

Provider Resources (ACOG) – <http://immunizationforwomen.org/providers/resources/default.php>

Recommended Adult Immunization Schedule, United States (CDC) – www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf

Resources for Educating Pregnant Women (CDC)

www.cdc.gov/vaccines/pregnancy/hcp/resources.html

Standing Orders for Administering Vaccines (IAC)

www.immunize.org/standing-orders

Travelers' Health (CDC)

<https://wwwnc.cdc.gov/travel>

Vaccine Information Statements (VISs) and Translations (IAC) – www.immunize.org/vis

CONTINUED ON NEXT PAGE ►

STEP 3: DECIDING WHOM TO VACCINATE

Materials and Resources for You to Use

CONTINUED FROM PREVIOUS PAGE

▶ **INFORMATION FOR PATIENTS**

Meningococcal B Vaccine – CDC Answers Your Questions (IAC)

www.immunize.org/catg.d/p2040.pdf

Pneumococcal Vaccines – CDC Answers Your Questions (IAC)

www.immunize.org/catg.d/p2015.pdf

Questions and Answers on Vaccines (multiple patient handouts for specific vaccines) (IAC)

www.immunize.org/handouts/vaccine-questions.asp

Tips for Locating Old Immunization Records (IAC)

www.immunize.org/catg.d/p3065.pdf

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

Vaccinations for Adults (suite of patient-friendly schedules for adults with specific health conditions) (IAC) – www.immunize.org/handouts/vaccine-schedules.asp#patientschedules

Vaccine Fact Sheets: Protect Yourself from . . . (multiple handouts for specific vaccines) (IAC) www.immunize.org/handouts/vaccine-summaries.asp#at

Which Vaccines Do I Need Today? (IAC)

www.immunize.org/catg.d/p4036.pdf

Zoster Vaccine – CDC Answers Your Questions (IAC) – www.immunize.org/catg.d/p2025.pdf

▶ **GENERAL INFORMATION**

Immunization Action Coalition (IAC)

www.immunize.org

To access the current, ready-to-copy version of the schedule, visit www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf

Recommended Immunization Schedule for Adults Aged 19 Years or Older, United States, 2017

In February 2017, the Recommended Immunization Schedule for Adults Aged 19 Years or Older, United States, 2017 became effective, as recommended by the Advisory Committee on Immunization Practices (ACIP) and approved by the Centers for Disease Control and Prevention (CDC). The 2017 adult immunization schedule was also reviewed and approved by the following professional medical organizations:

- American College of Physicians (www.acponline.org)
- American Academy of Family Physicians (www.aafp.org)
- American College of Obstetricians and Gynecologists (www.acog.org)
- American College of Nurse-Midwives (www.midwife.org)

CDC announced the availability of the 2017 adult immunization schedule at www.cdc.gov/vaccines/schedules/hcp/index.html in the *Morbidity and Mortality Weekly Report (MMWR)*.¹ The schedule is published in its entirety in the *Annals of Internal Medicine*.²

The adult immunization schedule describes the age groups and medical conditions and other indications for which licensed vaccines are recommended. The 2017 adult immunization schedule consists of:

- Figure 1. Recommended immunization schedule for adults by age group
- Figure 2. Recommended immunization schedule for adults by medical condition and other indications
- Footnotes that accompany each vaccine containing important general information and considerations for special populations
- Table. Contraindications and precautions for vaccines routinely recommended for adults

Consider the following information when reviewing the adult immunization schedule:

- The figures in the adult immunization schedule should be read with the footnotes that contain important general information and information about vaccination of special populations.
- When indicated, administer recommended vaccines to adults whose vaccination history is incomplete or unknown.
- Increased interval between doses of a multi-dose vaccine does not diminish vaccine effectiveness; therefore, it is not necessary to add doses to the series because of an extended interval between doses.
- Adults with immunocompromising conditions should generally avoid live vaccines, e.g., measles, mumps, and rubella vaccine. Inactivated vaccines, e.g., pneumococcal or inactivated influenza vaccines, are generally acceptable.
- Combination vaccines may be used when any of the components of the combination vaccine are indicated and the use of trade names in the adult immunization schedule only does not imply endorsement by the CDC.
- Details on vaccines recommended for adults and contraindications and precautions are available at www.cdc.gov/vaccines/hcp/acip-recs/index.html. Additional information on vaccination recommendations, preventing and managing contraindications and precautions, and other info is available at www.cdc.gov/vaccines/hcp/acip-recs/index.html.



- Vaccine Information Statements that explain benefits and risks of vaccines are available at www.cdc.gov/vaccines/hcp/vaccines/index.html.
- Information on vaccine safety is available at www.cdc.gov/vaccinesafety/.
- Report suspicious events to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov/.
- Submit questions through www.cdc.gov/vaccines/hcp/qa/.
- Spanish, BOG
- The following:
- HepA
- HepB
- Hib
- HPV val
- HZV
- IV
- LAV
- MenAC
- MenB

Figures 1 and 2 should be read with the footnotes that contain important general information and considerations for special populations.

Figure 1. Recommended immunization schedule for adults aged 19 years or older by age group, United States, 2017

Vaccine	19–21 years	22–26 years	27–59 years	60–64 years	≥ 65 years
Influenza ¹	1 dose annually				
Td/Tdap ²	Substitute Tdap for Td once, then Td booster every 10 yrs				
MMR ³	1 or 2 doses depending on indication				
VAR ⁴	2 doses				
HZV ⁵	1 dose				
HPV–Female ⁶	3 doses				
HPV–Male ⁶	3 doses				
PCV13 ⁷	1 dose				

Figure 2. Recommended immunization schedule for adults aged 19 years or older by medical condition and other indications, United States, 2017

Vaccine	Immunocompromised (excluding HIV infection) ^{1,2,3}	HIV infection CD4+ count (cells/L) ^{4,5,6}	Asplenia, persistent deficiencies ^{7,8,9,10}	Kidney failure, end-stage renal disease, on hemodialysis ¹¹	Heart or lung disease, chronic alcoholism ¹²	Chronic liver disease ¹³	Diabetes ¹⁴	Healthcare personnel ^{15,16}	Men who have sex with men ^{17,18}
Influenza ¹	1 dose annually								
Td/Tdap ²	Substitute Tdap for Td once, then Td booster every 10 yrs								
MMR ³	contraindicated								
VAR ⁴	contraindicated								
HZV ⁵	contraindicated								
HPV–Female ⁶	3 doses through age 26 yrs								
HPV–Male ⁶	3 doses through age 26 yrs								
PCV13 ⁷	1 dose								
PPSV23 ⁸	1, 2, or 3 doses depending on indication								
HepA ⁹	2 or 3 doses depending on vaccine								
HepB ⁹	3 doses								
MenACWY or MPSV4 ¹⁰	1 or more doses depending on indication								
MenB ¹¹	2 or 3 doses depending on vaccine								
Hib ¹²	3 doses post-ACIP recipients only								

Recommended for adults who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection. Recommended for adults with additional medical conditions or other indications. Contraindicated. No recommendation.

Footnotes, Recommended

1. Influenza vaccination

General information

- All persons aged 6 months and older should receive an annual influenza vaccination.
- In addition to standard specific age groups if aged 65 years or older, and HIV for adults.
- Notes: Live attenuated influenza vaccines are contraindicated for immunocompromised persons.

Special populations

- Adults with a history of exposure to egg shells.
- Adults with a history of angioedema, respiratory distress, or other allergic reactions, may receive vaccine in a medical setting and if able to receive vaccine.
- Pregnant women and upcoming influenza status is unknown.

2. Tetanus, diphtheria

General information

Adults who have not received acellular pertussis vaccine should receive a 3-dose series of tetanus and diphtheria toxoids (TdT) booster every 10 years. Tdap should be administered regardless of when a tetanus or diphtheria toxoid-containing vaccine was last received.

Special populations

Pregnant women should receive 1 dose of Tdap during each pregnancy, preferably during the early part of gestational weeks 27–36, regardless of prior history of receiving Tdap.

3. Measles, mumps, and rubella vaccination

General information

Adults born in 1957 or later without acceptable evidence of immunity to measles, mumps, or rubella (defined below) should receive 1 dose of measles, mumps, and rubella vaccine (MMR) unless they have a medical contraindication to the vaccine, e.g., pregnancy or severe immunodeficiency.

Persons with evidence of immunity or evidence of vaccination should not receive 2 doses of single antigen varicella vaccine (VAR) 4–8 weeks apart, or a second dose if they have received only 1 dose.

Persons without evidence of immunity for whom VAR should be emphasized are adults who have close contact with persons at high risk for serious complications, e.g., healthcare personnel and household contacts of immunocompromised persons; adults who live or work in an environment in which transmission of varicella zoster is likely, e.g., teachers, childcare workers, and residents and staff in institutional settings; adults who live or work in environments in which varicella transmission has been reported, e.g., college students, residents and staff members of correctional institutions, and military personnel; non-pregnant women of childbearing age; adolescents and adults living in households with children; and international travelers.

Notes: Evidence of immunity to varicella in adults in the U.S. born before 1980 (for pregnant women and healthcare personnel, U.S.-born before 1980) is not considered evidence of immunity; documentation of 2 doses of VAR at least 4 weeks apart; history of varicella or herpes zoster diagnosis or verification of varicella or herpes zoster disease by a healthcare provider or laboratory evidence of immunity or disease.

Special populations

- Pregnant women should be assessed for evidence of varicella immunity. Pregnant women who do not have evidence of immunity should receive the first dose of VAR upon completion or termination of pregnancy and before discharge from the healthcare facility, and the second dose 4–8 weeks after the first dose.
- Healthcare institutions should assess and ensure that all healthcare personnel have evidence of immunity to varicella.
- Adults with malignant conditions, including those that affect the bone marrow or lymphatic system or who receive systemic immunosuppressive therapy, should not receive VAR.

Persons aged 19 years or older who have not received any vaccination who initiated the HPV vaccination series before age 19 years and received only 1 dose, or 2 doses less than 5 months apart, are not considered adequately vaccinated and should receive 1 additional dose of HPV vaccine.

Notes: HPV vaccination is routinely recommended for children at age 11 or 12 years. For adults who had initiated but did not complete the HPV vaccination series, consider their age at first HPV vaccination (described above) and other factors (described below) to determine if they have been adequately vaccinated.

Special populations

- Men who have sex with men through age 26 years who have not received any HPV vaccine should receive a 3-dose series of HPV vaccine at 0, 1, 2, and 6 months.
- Adult females and males through age 26 years with immunocompromising conditions (described below), including those with human immunodeficiency virus (HIV) infection, should receive a 3-dose series of HPV vaccine at 0, 1–2, and 6 months.
- Pregnant women are not recommended to receive HPV vaccine, although there is no evidence that the vaccine poses harm. If a woman is found to be pregnant after initiating the HPV vaccination series, delay the remaining doses until after the pregnancy. No other intervention is needed. Pregnancy testing is not needed before administering HPV vaccine.
- Notes: Immunocompromising conditions for which a 3-dose series of HPV vaccine is indicated are primary or secondary immunocompromising conditions that might reduce cell-mediated or humoral immunity, e.g., B lymphocyte antibody deficiencies, complete or partial T lymphocyte defects, HIV infection, malignant neoplasms, transplantation, autoimmune disease, and immunosuppressive therapy.

If the risk for infection remains, MenB is not cause meningococcal disease in these countries is by serogroup 1. Receive 1 dose of MenACWY and revaccinate based risk for infection remains, MenB aged 21 years or younger who live in residence 1 dose of MenACWY if they have not (age 16 years or older through 23 years preferred age range is 16 years) are healthy and not at increased risk of serogroup 16 (as described above) may receive either a 2-dose or 1-month apart or a 2-dose series of MenB for short-term protection against most strains of local disease.

Persons or older who have not previously received B meningococcal vaccine and need only 1 dose of polysaccharide serogroups A, C, W, and Y vaccine or adults who previously received MenACWY (multiple doses of serogroups A, C, W, and Y) should receive MenB if preferred.

Notes: If all doses to complete the series. There is no need for revaccination at this time. MenB may be given as MenACWY but at a different anatomic site.

zoster type B vaccination

Persons with functional asplenia or sickle cell disease, low splenic function should receive 1 dose of zoster type B conjugate vaccine (HZV) if they have not previously received at least 14 days before vaccination.

Vaccine	Indication	Manufacturer
HepA	hepatitis A virus	Novartis
HepB	hepatitis B virus	Novartis
HPV vaccine	human papillomavirus	Merck
HZV	herpes zoster vaccine	Novartis
IV	inactivated influenza vaccine	Novartis
MenACWY	serogroups A, C, W, and Y meningococcal conjugate polysaccharide vaccine	Novartis
MenB	serogroup B meningococcal vaccine	Novartis
MPSV4	serogroups A, C, W, and Y meningococcal polysaccharide vaccine	Novartis
PPSV23	23-valent pneumococcal polysaccharide vaccine	Novartis
Td	tetanus and diphtheria toxoids	Novartis
Tdap	tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine	Novartis
VAR	varicella vaccine	Novartis

To access the current, ready-to-copy version of this piece, visit www.immunize.org/catg.d/p2011.pdf

Summary of Recommendations for Adult Immunization (Age 19 years and older)		PAGE 1 OF 5	
Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another unless otherwise noted)	Contraindications and precautions (mild illness is not a contraindication)
Influenza Inactivated influenza vaccine (IIV) Give IM or ID (intramuscularly) + includes recombinant influenza vaccine (RIV)	For people through age 18yrs, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • Vaccination is recommended for all adults. • Adults age 18 through 64yrs may be given any intramuscular IIV product (Fluzone, Fluorin, Afluria, Flucelvax, Fluorin, Fluzone, or the intradermal IIV product (Fluzone Intradermal), or RIV (FluBd). • Adults age 18 through 64yrs may be given intramuscular IIV (Afluria) with a needle and syringe or using a jet injector (Zostax). • Adults age 65yrs and older may be given any standard-dose IIV referred in the second bullet above, Fluzone, or high-dose IIV (Fluzone High-Dose), or RIV. • Live attenuated influenza vaccine (LAIV) should not be used during the 2016-17 influenza season.	• Give 1 dose every year in the fall or winter. • Begin vaccination services as soon as vaccine is available and continue until the supply is depleted. • Continue to give vaccine to unvaccinated adults throughout the influenza season (including when influenza activity is present in the community) and at other times when the risk of influenza exists.	Contraindications: • Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine, to any of its components, including egg protein. • Adults who have experienced a severe reaction to eggs involving symptoms other than hives may receive any age-appropriate influenza vaccine, including RIV which does not contain egg protein. The vaccine should be administered 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 6 weeks following previous influenza vaccination. • For adults who experience only hives with exposure to eggs, give any age-appropriate influenza vaccine.
Td, Tdap (Tetanus, diphtheria, pertussis) Give IM	For people through age 18yrs, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • All people who lack written documentation of a primary series consisting of at least 3 doses of tetanus and diphtheria-based, containing vaccine. • A booster dose of Td or Tdap may be needed for wound management, so consult ACIP recommendations. For Tdap only: • Adults who have not already received Tdap or whose Tdap history is not known. • Healthcare personnel of all ages. • Give Tdap to pregnant women during each pregnancy (preferred during the early part of gestational week 27 through 36), regardless of the interval since prior Td or Tdap.	For people who are unvaccinated or behind, complete the 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 a one-time dose of Tdap for one of the doses in the series, preferably the first. • Give Td booster every 10yrs after the primary series has been completed. • Tdap should be given regardless of interval since previous Td. For Tdap only: • Moderate or severe acute illness with or without fever. • History of Guillain-Barré syndrome within 6 weeks following previous dose of tetanus-toxoid-containing vaccine. • History of Arthus-type reaction following a prior dose of tetanus-toxoid-containing vaccine (including MenACWY); defer vaccination until at least 10yrs have elapsed since the last tetanus-toxoid-containing vaccine. • For pertussis-containing vaccines only, progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.	Contraindications: • Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. • For Tdap only, history of encephalopathy not attributable to an identifiable cause, within 10d following DTaP, DTaP, or Tdap. Precautions: • Moderate or severe acute illness with or without fever. • History of Guillain-Barré syndrome within 6 weeks following previous dose of tetanus-toxoid-containing vaccine. • History of Arthus-type reaction following a prior dose of tetanus-toxoid-containing vaccine (including MenACWY); defer vaccination until at least 10yrs have elapsed since the last tetanus-toxoid-containing vaccine. • For pertussis-containing vaccines only, progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
CD, Preventing Tetanus, Diphtheria, and Pertussis Among Adults: Use of Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine: Recommendations of the Advisory Committee on Immunization Practices (ACIP), MMRW 2006;S18B:17-25.	This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, visit www.cdc.gov/vaccines/imz/ACIP-recommendations.html or visit the Immunization Action Coalition (IAC) website at www.immunize.org/acip .	This table is revised periodically. Visit IAC's website at www.immunize.org/adults 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 clock months. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses.

Summary of Recommendations for Adult Immunization (Age 19 years and older)		PAGE 2 OF 5	
Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another unless otherwise noted)	Contraindications and precautions (mild illness is not a contraindication)
Zoster (shingles) (HZV) Give Subcut	• People age 60yrs and older. NOTE: Do not test people age 60yrs or older for varicella immunity prior to zoster vaccination. Persons born in the U.S. prior to 1980 can be presumed to be immune to varicella for the purpose of zoster vaccination, regardless of their recollection of having had chickenpox.	• Give 1 time dose if unvaccinated, regardless of previous history of herpes zoster (shingles) or chickenpox. • If 2 or more of the following live virus vaccines are to be given – MMR, Var, IZV, and/or any post-exposure prophylaxis if given within 5d of exposure.	Contraindications: • Previous severe allergic reaction (e.g., anaphylaxis) to any component of zoster vaccine. • Primary cellular or acquired immunodeficiency. • Pregnancy.
H1N1 (H1N1v) (H1N1v) Give IM	For people through age 18yrs, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • Those adults at highest risk of serious H1N1v disease who 1) have anatomic or functional asplenia, an elective splenectomy, or 2) are recipients of a stem cell transplant (HSCT).	• Give 1 time dose if unvaccinated, regardless of previous history of herpes zoster (shingles) or chickenpox. • If 2 or more of the following live virus vaccines are to be given – MMR, Var, IZV, and/or any post-exposure prophylaxis if given within 5d of exposure.	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 tumor; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy; people with human immunodeficiency virus (HIV) infection who are severely immunocompromised). NOTE: HIV infection is NOT a contraindication to MMR for those who are not severely immunocompromised (i.e., CD4+ T-lymphocyte counts are greater than or equal to 200 cells/ μ L for 6m). Precautions: • Moderate or severe acute illness with or without fever. • History of thrombocytopenia or thrombocytopenic purpura. NOTE: If TST (tuberculin skin test) and MMR are both needed but not given on same day, delay TST for at least 4wks after MMR.
Human papillomavirus (HPV) (4HPV or 9HPV) (Gardasil) Give IM	For people through age 18yrs, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • For unvaccinated or partially vaccinated female 26yrs. Complete a 3-dose series of 4HPV or 9HPV. • For unvaccinated or partially vaccinated male 26yrs. Complete a 3-dose series of 4HPV or 9HPV. • For first-year college students age 18-26yrs living in residence halls, give 1 initial dose of MenACWY if unvaccinated. Give dose #2 if most recent dose was given when younger than 16yrs.	• Give 1 time dose if unvaccinated, regardless of previous history of herpes zoster (shingles) or chickenpox. • If 2 or more of the following live virus vaccines are to be given – MMR, Var, IZV, and/or any post-exposure prophylaxis if given within 5d of exposure.	Contraindications: • Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. • Pregnancy or possibility of pregnancy within 4wks. • People on long-term 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 counts are greater than or equal to 200 cells/ μ L). • People with isolated B-lymphocyte deficiency may receive varicella vaccine. 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 General Recommendations on Immunization* regarding time to wait before vaccinating. • Receipt of specific antiviral (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination.

Summary of Recommendations for Adult Immunization (Age 19 years and older)		PAGE 3 OF 5	
Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another unless otherwise noted)	Contraindications and precautions (mild illness is not a contraindication)
MenACWY (MenACWY) (Menactra, Menvev) Give IM	For people through age 18yrs, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • For people with anatomic or functional asplenia, HIV infection, or persistent complement component deficiency. • People who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of Sub-Saharan Africa). • Microbiologists routinely exposed to isolates of N. meningitidis. • First-year college students through age 21yrs who live in residence halls and who have not been previously vaccinated or who received their first dose prior to age 16yrs; see the 5th bullet in the box to the right for details.	• Give 2 initial doses of MenACWY separated by 2m to adults with risk factors listed in 1st bullet in column to left. • Give 1 initial dose of MenACWY to all other adults with risk factors (see 2nd-4th bullets in column to left). • Give booster doses of MenACWY every 5yrs to adults with continuing risk (see the 1st-3rd bullets in column to left). • MenACWY is preferred over MPSV4 for people age 15yrs and younger. For people age 16yrs and older who anticipate multiple doses (see the 1st-3rd bullets in column to left) or who have received MenACWY previously, use MenACWY. For all others, give 1 dose of MPSV4. • For first-year college students age 18-26yrs living in residence halls, give 1 initial dose of MenACWY if unvaccinated. Give dose #2 if most recent dose was given when younger than 16yrs.	Contraindications: • 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.
MenB (MenB) (MenB) (Menomune) Give IM	• Young adults through age 26yrs may be vaccinated routinely as a Category B recommendation (provider-patient discussion). • People with anatomic or functional asplenia or persistent complement component deficiency. • Microbiologists routinely exposed to isolates of N. meningitidis. • People identified as at increased risk because of a serogroup B meningococcal disease outbreak.	• Give 2 initial doses of MenB vaccine: Bezoen, spaced 1m apart. Trumenba, spaced 6m apart. MenB products are not interchangeable. • For people with risk (see 2nd-4th bullets in column to left), give either component deficiency, 1m apart, or 3 doses of Trumenba on a 0, 1-2, and 6m schedule. • MenB vaccine may be given concomitantly with MenACWY vaccine.	Contraindications: • 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 Adult Immunization (Age 19 years and older)		PAGE 4 OF 5	
Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another unless otherwise noted)	Contraindications and precautions (mild illness is not a contraindication)
MenACWY (MenACWY) (Menactra, Menvev) Give IM	For people through age 18yrs, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • For people with anatomic or functional asplenia, HIV infection, or persistent complement component deficiency. • People who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of Sub-Saharan Africa). • Microbiologists routinely exposed to isolates of N. meningitidis. • First-year college students through age 21yrs who live in residence halls and who have not been previously vaccinated or who received their first dose prior to age 16yrs; see the 5th bullet in the box to the right for details.	• Give 2 initial doses of MenACWY separated by 2m to adults with risk factors listed in 1st bullet in column to left. • Give 1 initial dose of MenACWY to all other adults with risk factors (see 2nd-4th bullets in column to left). • Give booster doses of MenACWY every 5yrs to adults with continuing risk (see the 1st-3rd bullets in column to left). • MenACWY is preferred over MPSV4 for people age 15yrs and younger. For people age 16yrs and older who anticipate multiple doses (see the 1st-3rd bullets in column to left) or who have received MenACWY previously, use MenACWY. For all others, give 1 dose of MPSV4. • For first-year college students age 18-26yrs living in residence halls, give 1 initial dose of MenACWY if unvaccinated. Give dose #2 if most recent dose was given when younger than 16yrs.	Contraindications: • 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.
MenB (MenB) (MenB) (Menomune) Give IM	• Young adults through age 26yrs may be vaccinated routinely as a Category B recommendation (provider-patient discussion). • People with anatomic or functional asplenia or persistent complement component deficiency. • Microbiologists routinely exposed to isolates of N. meningitidis. • People identified as at increased risk because of a serogroup B meningococcal disease outbreak.	• Give 2 initial doses of MenB vaccine: Bezoen, spaced 1m apart. Trumenba, spaced 6m apart. MenB products are not interchangeable. • For people with risk (see 2nd-4th bullets in column to left), give either component deficiency, 1m apart, or 3 doses of Trumenba on a 0, 1-2, and 6m schedule. • MenB vaccine may be given concomitantly with MenACWY vaccine.	Contraindications: • 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 Adult Immunization (Age 19 years and older)		PAGE 5 OF 5	
Vaccine name and route	People for whom vaccination is recommended	Schedule for vaccination administration (any vaccine can be given with another unless otherwise noted)	Contraindications and precautions (mild illness is not a contraindication)
MenACWY (MenACWY) (Menactra, Menvev) Give IM	For people through age 18yrs, consult "Summary of Recommendations for Child/Teen Immunization" at www.immunize.org/catg.d/p2010.pdf . • For people with anatomic or functional asplenia, HIV infection, or persistent complement component deficiency. • People who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the "meningitis belt" of Sub-Saharan Africa). • Microbiologists routinely exposed to isolates of N. meningitidis. • First-year college students through age 21yrs who live in residence halls and who have not been previously vaccinated or who received their first dose prior to age 16yrs; see the 5th bullet in the box to the right for details.	• Give 2 initial doses of MenACWY separated by 2m to adults with risk factors listed in 1st bullet in column to left. • Give 1 initial dose of MenACWY to all other adults with risk factors (see 2nd-4th bullets in column to left). • Give booster doses of MenACWY every 5yrs to adults with continuing risk (see the 1st-3rd bullets in column to left). • MenACWY is preferred over MPSV4 for people age 15yrs and younger. For people age 16yrs and older who anticipate multiple doses (see the 1st-3rd bullets in column to left) or who have received MenACWY previously, use MenACWY. For all others, give 1 dose of MPSV4. • For first-year college students age 18-26yrs living in residence halls, give 1 initial dose of MenACWY if unvaccinated. Give dose #2 if most recent dose was given when younger than 16yrs.	Contraindications: • 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.
MenB (MenB) (MenB) (Menomune) Give IM	• Young adults through age 26yrs may be vaccinated routinely as a Category B recommendation (provider-patient discussion). • People with anatomic or functional asplenia or persistent complement component deficiency. • Microbiologists routinely exposed to isolates of N. meningitidis. • People identified as at increased risk because of a serogroup B meningococcal disease outbreak.	• Give 2 initial doses of MenB vaccine: Bezoen, spaced 1m apart. Trumenba, spaced 6m apart. MenB products are not interchangeable. • For people with risk (see 2nd-4th bullets in column to left), give either component deficiency, 1m apart, or 3 doses of Trumenba on a 0, 1-2, and 6m schedule. • MenB vaccine may be given concomitantly with MenACWY vaccine.	Contraindications: • 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.

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Before you vaccinate adults, consider their “H-A-L-O”!

What is H-A-L-O? As shown below, it’s an easy-to-use chart that can help you make an *initial* decision about vaccinating a patient based on four factors – the patient’s **Health condition, Age, Lifestyle, and Occupation**. In some situations, though, you can vaccinate a patient without considering these factors. For example, all adults need a dose of Tdap as well as annual vaccination against influenza, and any adult who wants protection against hepatitis A or hepatitis B can be vaccinated. Note that not all patients who mention one or

more H-A-L-O factors will need to be vaccinated. Before you make a *definitive* decision about vaccinating your patient, it’s important that you refer to the more detailed information found in the Immunization Action Coalition’s “Summary of Recommendations for Adult Immunization,” located at www.immunize.org/catg.d/p2011.pdf or the complete vaccine recommendations of the Centers for Disease Control and Prevention’s Advisory Committee on Immunization Practices (ACIP) at www.cdc.gov/vaccines/pubs/ACIP-list.htm.

How do I use H-A-L-O?

Though some H-A-L-O factors can be easily determined (e.g., age, pregnancy), you will need to ask your patient about the presence or absence of others. Once you determine which of the factors apply, scan down each column of the chart to see at a glance which vaccinations are possibly indicated.

H-A-L-O checklist of factors that indicate a possible need for adult vaccination

Vaccine	H Health Factors								A Age Factors		L Lifestyle Factors					C Occupational or other factors							
	Pregnant	Certain chronic diseases	Immunosuppressed (including HIV)	History of STD	Asplenia	Cochlear implant candidate/receiver	Organ transplant recipient (e.g., heart, lung, liver, kidney, pancreas, bone marrow, stem cell, etc.)	CSF leaks	Alcoholism			Born outside the U.S.	Men who have sex with men	Not in a long-term, mutually monogamous relationship	User of injecting or non-injecting drugs	International traveler	Close contact of international adoptee	Cigarette smoker	College students	Healthcare worker	Certain lab workers	Adults in institutional settings (e.g., chronic care, correctional)	
HepA	✓																						
HepB		✓	✓	✓							✓	✓	✓	✓	✓					✓			✓
Hib		✓			✓																		
HPV (females)										Through 26 yrs													
HPV (males)			✓							Routine through 21 yrs; risk-based 22–26 yrs		✓											
IPV															✓							✓	
Influenza	Annual vaccination is recommended for all adults																						
Meningococcal		✓			✓											✓			✓			✓	
MMR			?							Routine 1 dose if born after 1956; 2nd dose for some 65 yrs and older (if not previously vaccinated)					✓			✓	✓				
PCV13		✓	✓		✓	✓	✓	✓		65 yrs and older (if not previously vaccinated)													
PPSV23		✓	✓		✓	✓	✓	✓	✓	65 yrs and older						✓							✓
Tdap	A single dose is recommended for all adults; pregnant women should receive Tdap during each pregnancy																						
Varicella	Completion of a 2-dose series is recommended for non-pregnant adults through age 59 years who do not have evidence of immunity to varicella																						
Zoster										60 yrs and older													

? = Vaccination may be indicated depending on degree of immunosuppression

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Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults^{1,*}

Vaccine	Contraindications ¹	Precautions ¹
Influenza, inactivated (IV) ^{2,3} Influenza, recombinant (RIV) ^{2,3}	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever History of Guillain-Barré Syndrome (GBS) within 6 weeks of previous influenza vaccination For IIV vaccine only: Egg allergy other than hives (e.g., angioedema, respiratory distress, lightheadedness, or recurrent emesis); or required epinephrine or another emergency medical intervention (IIV may be administered in an inpatient or outpatient medical setting, under the supervision of a health-care provider who is able to recognize and manage severe allergic conditions)
Tetanus, diphtheria, pertussis (Tdap) Tetanus, diphtheria (Td)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, or prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of a vaccine containing tetanus or diphtheria toxoid or acellular pertussis. 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever GBS within 6 weeks after a previous dose of tetanus toxoid-containing vaccine History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccine (including MenACWY); defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine For 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
Varicella (Var) ³	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Severe immunodeficiency (e.g., hematologic and solid tumors, chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy⁶), or persons with human immunodeficiency virus (HIV) infection who are severely immunocompromised Pregnancy 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)⁴ Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination
Human papillomavirus (HPV)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Pregnancy
Herpes zoster (HZV) ⁴	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) to a vaccine component Severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy⁶), or persons with HIV infection who are severely immunocompromised Pregnancy 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination
Measles, mumps, rubella (MMR) ⁴	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Severe immunodeficiency (e.g., hematologic and solid tumors, chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy⁶), or persons with HIV infection who are severely immunocompromised Pregnancy 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)⁴ History of thrombocytopenia or thrombocytopenic purpura Need for tuberculin skin testing⁷
Pneumococcal conjugate (PCV13), polysaccharide (PPSV23)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component (including, for PCV13, to any vaccine containing diphtheria toxoid-containing vaccine) 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Hepatitis A (HepA)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Hepatitis B (HepB)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Hypersensitivity to yeast 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Meningococcal conjugate (MenACWY), serogroup B (MenB)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever
Haemophilus influenzae type b (Hib)	<ul style="list-style-type: none"> Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component 	<ul style="list-style-type: none"> Moderate or severe acute illness with or without fever

FOOTNOTES

- The Advisory Committee on Immunization Practices (ACIP) recommendations and package inserts for vaccines provide information on contraindications and precautions related to vaccines. Contraindications are conditions that increase chances of a serious adverse reaction in vaccine recipients and the vaccine should not be administered when a contraindication is present. Precautions should be reviewed for potential risks and benefits for vaccine recipient. For a person with a severe allergy to latex (e.g., anaphylaxis), vaccines supplied in vials or syringes that contain natural rubber latex should not be administered unless the benefit of vaccination clearly outweighs the risk for a potential allergic reaction. For latex allergies other than anaphylaxis, vaccines supplied in vials or syringes that contain dry, natural rubber or natural rubber latex may be administered.
- Live attenuated influenza vaccine (LAIV) should not be used during the 2016–2017 influenza season.
- For additional information on use of influenza vaccines among persons with egg allergy, see CDC. "Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP) – United States, 2016–17 Influenza Season. *MMWR* 2016; 64(RR-5):1–54 available at www.cdc.gov/mmwr/volumes/65/rr/r6505a1.htm.
- MMR may be administered with VAR or HZV on the same day. If not administered on the same day, separate live vaccines by at least 28 days.
- Immunosuppressive steroid dose is considered to be 20 mg or more prednisone or equivalent for two or more weeks. Vaccination should be deferred for at least 1 month after discontinuation of immunosuppressive

therapy. Providers should consult ACIP recommendations for complete information on the use of specific live vaccines among persons on immune-suppressing medications or with immune suppression because of other reasons.

- Vaccine should be deferred for the appropriate interval if replacement immune globulin products are being administered (see Table 5 in CDC. "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices [ACIP]." *MMWR* 2011; 60 (No. RR-2), available at www.cdc.gov/vaccines/hcp/acip-recs/index.html).
- Measles vaccination may temporarily suppress tuberculin reactivity temporarily. Measles-containing vaccine may be administered on the same day as tuberculin skin testing, or should be postponed for at least 4 weeks after the vaccination.

* Adapted from CDC. "Table 6. Contraindications and Precautions to Commonly Used Vaccines" found in: CDC. "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP)." *MMWR* 2011; 60 (No. RR-2), p. 40–41, and from Hamborsky J, Kroger A, Wolfe C, eds. *Appendix A. Epidemiology and Prevention of Vaccine-Preventable Diseases*, 13th ed. Washington, DC: Public Health Foundation, 2015, available at www.cdc.gov/vaccines/pubs/pinkbook/index.html.

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Screening Checklist for Contraindications to Vaccines for Adults

PATIENT NAME _____

DATE OF BIRTH / /
month / day / year

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

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

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____

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

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



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

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

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

Live virus vaccines (e.g., LAIV, MMR, VAR, ZOS) should be postponed until after chemotherapy or long-term high-dose steroid therapy has ended. For details and length of time to postpone, consult the ACIP statement.⁷ 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 (MMWR 2011;60 [RR-2]:23). To find specific vaccination schedules for stem cell transplant (bone marrow transplant) patients, see reference 7. LAIV can be given only to healthy non-pregnant people ages 2 through 49 years.

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More about the Screening Checklist

For a certain question on the screening checklist? If so, read even more, consult the references listed at the end.

NOTE: Live attenuated influenza vaccine (LAIV4; FluMist), is not recommended by CDC's Advisory Committee on Immunization Practices for use in the U.S. during the 2016–17 influenza season. Because LAIV4 is still a licensed vaccine that might be available and that some providers might elect to use, for informational purposes, reference is made to previous recommendations for its use.

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

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

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

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

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

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

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

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

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Screening Checklist for Contraindications to Inactivated Injectable Influenza Vaccination

PATIENT NAME _____

DATE OF BIRTH month / day / year _____

For patients (both children and adults) to be vaccinated: The following questions will help us determine if there is any reason we should not give you or your child inactivated injectable influenza vaccination today. If you answer "yes" to any question, it does not necessarily mean you (or 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 person to be vaccinated sick today?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Does the person to be vaccinated have an allergy to a component of the vaccine?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Has the person to be vaccinated ever had a serious reaction to influenza vaccine in the past?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Has the person to be vaccinated ever had Guillain-Barré syndrome?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FORM COMPLETED BY _____ DATE _____

FORM REVIEWED BY _____ DATE _____



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Persons who report having had reactions to egg involving symptoms other than hives, such as angioedema, respiratory distress, lightheadedness, or recurrent vomiting; or who required epinephrine or another emergency medical intervention, may also receive any age-appropriate influenza vaccine (IIV or RIV). The vaccine should be administered in a medical setting (e.g., a health department or physician office). Vaccine administration should be supervised by a healthcare provider who is able to recognize and manage severe allergic conditions.

Some inactivated influenza vaccines contain thimerosal as a preservative. Most people who had sensitivity to thimerosal when it was used in contact lens solution do not have reactions to thimerosal when it is used in vaccines. Check the package insert at www.immunize.org/packageinserts for a list of the vaccine components (i.e., excipients and culture media) used in the production of the vaccine, or go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/excipient-table-2.pdf.

Some vaccines also contain latex in the prefilled syringe cap which may cause allergic reactions in latex-sensitive people.

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www.immunize.org/catg.d/p4066.pdf • Item #P4066 – page 2 (9/16)

Questions about the Screening Checklist for Inactivated Injectable Influenza Vaccination

Have you had any questions about the screening checklist? If so, read the information on the next page, or, if you have a specific question, consult the sources listed at the bottom of this page.

Check the package inserts at www.immunize.org/packageinserts for information on which vaccines are affected, or go to www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/B/latex-table.pdf.

3. Has the person to be vaccinated ever had a serious reaction to influenza vaccine in the past?

Patients reporting a serious reaction to a previous dose of inactivated influenza vaccine should be asked to describe their symptoms. Immediate – presumably allergic – reactions are usually a contraindication to further vaccination against influenza.

Fever, malaise, myalgia, and other systemic symptoms most often affect people who are first-time vaccinees. These mild-to-moderate local reactions are not a contraindication to future vaccination. Also, red eyes or mild upper facial swelling following vaccination with inactivated injectable influenza vaccine is most likely a coincidental event and not related to the vaccine. Similarly, oculorespiratory syndrome is not likely to be an allergic response to IIV. These people can receive injectable vaccine without further evaluation.

4. Has the person to be vaccinated ever had Guillain-Barré syndrome?

It is prudent to avoid vaccinating people who are not at high risk for severe influenza complications (see source 3) and who are known to have developed Guillain-Barré syndrome (GBS) within 6 weeks after receiving a previous influenza vaccination. As an alternative, physicians might consider using influenza antiviral chemoprophylaxis for these people. Although data are limited, the established benefits of influenza vaccination for the majority of people who have a history of GBS, and who are at high risk for severe complications from influenza, justify yearly vaccination.

SOURCES

1. CDC. *Epidemiology and Prevention of Vaccine-Preventable Diseases*, Hamborsky J, Kroger A, Wolfe S, eds. 13th ed. at www.cdc.gov/vaccines/pubs/pinkbook/index.html.
2. CDC. *General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP)* at www.cdc.gov/vaccines/hcp/acip-recs.
3. CDC. *Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices – United States, 2016–17 Influenza Season* at www.cdc.gov/mmwr/volumes/65/rr/pdfs/rr6505.pdf, pages 1–56.

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p3066.pdf

Using Standing Orders for Administering Vaccines: What You Should Know

The use of standing orders for vaccination facilitates the delivery of immunization services to patients in clinics, hospitals, and community settings.

Standing orders have been shown to increase vaccination coverage rates.

▼
Go to www.immunize.org/standing-orders

for the most current versions of sample standing orders.

FOOTNOTE

¹ The Task Force was established in 1996 by the U.S. Department of Health and Human Services to identify population health interventions that are scientifically proven to save lives, increase lifespans, and improve quality of life. The Task Force produces recommendations (and identifies evidence gaps) to help inform the decision making of federal, state, and local health departments, other government agencies, communities, healthcare providers, employers, schools, and research organizations. For more information, see www.thecommunityguide.org/index.html.



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What are standing orders?

Standing orders authorize nurses, pharmacists, and other appropriately trained healthcare personnel, where allowed by state law, to assess a patient's immunization status and administer vaccinations according to a protocol approved by an institution, physician, or other authorized practitioner. Standing orders work by enabling assessment and vaccination of the patient without the need for clinician examination or direct order from the attending provider at the time of the interaction. Standing orders can be established for the administration of one or more specific vaccines to a broad or narrow set of patients in healthcare settings such as clinics, hospitals, pharmacies, and long-term care facilities.

Who recommends standing orders for vaccination?

The Community Preventive Services Task Force (Task Force): The Task Force¹ recommends standing orders for vaccinations based on strong evidence of effectiveness in improving vaccination rates:

1. in adults and children,
2. when used alone or when combined with additional interventions, and
3. across a range of settings and populations.

Read the full Task Force Finding and Rationale Statement at www.thecommunityguide.org/vaccines/standingorders.html.

The Centers for Disease Control and Prevention (CDC): CDC's Advisory Committee on Immunization Practices (ACIP) specifically recommends standing orders for influenza and pneumococcal vaccinations and several other vaccines (e.g., hepatitis B, varicella). See *Use of Standing Orders Programs to Increase Adult Vaccination Rates: Recommendations of the ACIP*. *MMWR* 2000;49 (No. RR-1) at www.cdc.gov/mmwr/preview/mmwrhtml/rr4901a2.htm.

What are the elements of a standing order?

A comprehensive standing order should include the following elements:

1. Who is targeted to receive the vaccine;
2. How to determine if a patient needs or should receive a particular vaccination (e.g., indications, contraindications, and precautions);
3. Procedures for administering the vaccine (e.g., vaccine name, schedule for vaccination, appropriate needle size, vaccine dosage, route of administration);

4. Provision of any federally required information (e.g., Vaccine Information Statement);
5. How to document vaccination in the patient record;
6. A protocol for the management of any medical emergency related to the administration of the vaccine; and
7. How to report possible adverse events occurring after vaccination.

Who is authorized to administer vaccines under standing orders?

Each of the 50 states separately regulates physicians, nurses, pharmacists, and other health-related practitioners. For further information about who can carry out standing orders in your state, contact your state immunization program or the appropriate state body (e.g., state board of medical/nursing/pharmacy practice).

Who is authorized to sign the standing order?

In general, standing orders are approved by an institution, physician, or authorized practitioner. State law or regulatory agency might authorize other healthcare professionals to sign standing orders.

What should be done with the standing orders after they have been signed?

Signed standing orders should be kept with all other signed medical procedures and protocols that are operational in one's clinic setting. A copy should also be readily available for clinic staff who operate under those standing orders.

Do standing orders need to be renewed (e.g., yearly)?

Generally, standing orders will include an implementation date as well as an expiration date. Periodic review of standing orders is important, because vaccine recommendations may change over time.

Where can I find sample standing orders?

The Immunization Action Coalition has developed templates of standing orders for vaccines that are routinely recommended to children and adults. They are updated as needed and reviewed for technical accuracy by immunization experts at CDC. The most current versions can be accessed by going to www.immunize.org/standing-orders.

To access the current, ready-to-copy versions of these patient-friendly pieces, visit www.immunize.org/handouts/adult-vaccination.asp#patientschedules

Vaccinations for Adults

You're never too old to get vaccinated!

Getting vaccinated is a lifelong, life-protecting job. Don't leave your healthcare provider's office without making sure you've had all the vaccinations you need.

Vaccine	Do you need it?
Hepatitis A (HepA)	Maybe. You need this vaccine if you have a specific risk factor for hepatitis A virus infection* or simply want to be protected from this disease. The vaccine is usually given in 2 doses, 6–12 months apart.
Hepatitis B (HepB)	Maybe. You need this vaccine if you have a specific risk factor for hepatitis B virus infection* or simply want to be protected from this disease. The vaccine is given in 3 doses, usually over 6 months.
Hib (Haemophilus influenzae type b)	Maybe. Some adults with certain high-risk conditions, for example, lack of a functioning spleen, need vaccination with Hib. Talk to your healthcare provider to find out if you need this vaccine.
Human papillomavirus (HPV)	Maybe. You need this vaccine if you are a woman age 26 or younger or a man age 21 or younger. Men age 22 through 26 with a risk condition* also need vaccination. Any man age 22 through 26 who wants to be protected from HPV may receive it, too. The vaccine is usually given in 3 doses over a 6-month period.
Influenza	Yes! You need a dose every fall (or winter) for your protection and for the protection of others around you.
Measles, mumps, rubella (MMR)	Maybe. You need at least 1 dose of MMR vaccine if you were born in 1957 or later. You may also need a second dose.*
Meningococcal ACWY (MenACWY, MCV4)	Maybe. You may need MenACWY vaccine if you have one of several health conditions that don't have a functioning spleen. You need MenACWY if you are age 21 or younger, student living in a residence hall and you either have never been vaccinated or were
Meningococcal B (MenB)	Maybe. You should consider MenB vaccine if you are age 23 or younger (even if you have a medical condition). You may need MenB if you have one of several health conditions that do not have a functioning spleen.
Pneumococcal (Pneumovax, PPSV; Prevnar, PCV)	Maybe. If you are age 65 (or older), you need both pneumococcal vaccines, Prevnar (before) and Pneumovax. Get Prevnar first and then get Pneumovax 1 year later. If you are age 65 and have a certain high-risk condition (for example, asthma, heart, lung, or kidney disease, or lack of a functioning spleen, or are a smoker),* you need 1 or both pneumococcal vaccines. Talk to your healthcare provider to find out when you need them.*
Tetanus, diphtheria, whooping cough (pertussis) (Tdap, Td)	Yes! Adults who have not received a dose of Tdap during their lifetime need to get a Tdap vaccine. And, all women need to get a dose during each pregnancy. Get a Td booster dose every 10 years. Consult your healthcare provider if you haven't had a Tdap vaccine and diphtheria toxoid-containing shots sometime in your life or if you have a deep
Varicella (Chickenpox)	Maybe. If you've never had chickenpox, never were vaccinated, or were vaccinated but you're not sure, talk to your healthcare provider to find out if you need this vaccine.*
Zoster (shingles)	Maybe.* If you are age 60 or older, you should get a 1-time dose of this vaccine if you

* Consult your healthcare provider to determine your level of risk for infection and your need for this vaccine.

Are you planning to travel outside the United States? Visit the U.S. Department of Health and Human Services' (CDC) website for travel information, or call 1-877-345-3842.



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Technical content reviewed by the Immunization Action Coalition (IAC) website: www.immunize.org/catg.d/p003/000001.pdf

Also available for adults with specific health conditions.



Adults: Patient-friendly Schedules

Vaccinations for adults – you're never too old to get vaccinated!

One-page sheet describes vaccinations that adults need [#P4030]

Language: SPANISH • ARABIC • CHINESE • FRENCH • KOREAN
RUSSIAN • VIETNAMESE

Vaccinations for adults with diabetes

One-page sheet describes the vaccines for adults with diabetes [P4043]

Language: SPANISH

Vaccinations for adults with heart disease

One-page sheet describes the vaccines for adults with heart disease [P4044]

Language: SPANISH

Vaccinations for adults with hepatitis C infection

One-page sheet describes vaccinations that HCV-positive adults need [#P4042]

Language: SPANISH

Vaccinations for adults with HIV infection

One-page sheet describes vaccinations that HIV-positive adults need [#P4041]

Language: SPANISH

Vaccinations for adults with lung disease

One-page sheet describes the vaccines for adults with lung disease [P4045]

Language: SPANISH

Vaccinations for adults without a spleen

One-page sheet describes vaccinations that adults without a spleen need

[#P4047]

Vaccinations for men who have sex with men

One-page sheet describes vaccinations that men who have sex with men need

[#P4046]

Vaccinations for pregnant women

One-page sheet describes the vaccines for pregnant women. [P4040]

Language: SPANISH

To access current, ready-to-copy versions of Q&As on a variety of vaccines, visit www.immunize.org/handouts/vaccine-questions.asp

Influenza: Questions and Answers

INFORMATION ABOUT THE DISEASE AND VACCINES

What causes influenza?
Viruses cause influenza. There are two basic types, A and B, which can cause clinical illness in humans. Their genetic material differentiates them. Influenza A can cause moderate to severe illness in all age groups and infects humans and other animals. Influenza B causes milder disease and affects only humans, primarily children.

Subtypes of the type A influenza virus are identified by two antigens (proteins involved in the immune reaction) on the surface of the virus. These antigens can change, or mutate, over time. An antigen "shift" (major change) creates a new influenza virus and an epidemic is likely among the unprotected population. This happened when the novel H1N1 influenza virus appeared in March 2009 and led to a major pandemic, lasting until the summer of 2010.

How does influenza spread?
Influenza is transmitted through the air from the respiratory tract of an infected person. It can also be transmitted by direct contact with respiratory droplets.

How long does it take to develop symptoms of influenza after being exposed?
The incubation period of influenza is usually two days but can range from one to four days.

What are the symptoms of influenza?
Typical influenza disease is characterized by abrupt onset of fever, aching muscles, sore throat, and non-productive cough. Additional symptoms may include runny nose, headache, a burning sensation in the chest, and eye pain and sensitivity to light. Typical influenza disease does not occur in every infected person. Someone who has been previously exposed to similar virus strains (through natural infection or vaccination) is less likely to develop serious clinical illness.

How serious is influenza?
Although many people think of influenza as just a common cold, it is really a specific and serious respiratory infection that can result in hospitalization and death.

Continued on the next page

Q&A

In the United States, the number of influenza-associated deaths has increased since 1990. This increase is due in part to the substantial increase in the number of people age 65 years or older who are at increased risk for death from influenza complications. The Centers for Disease Control and Prevention (CDC) estimates that from the 1976–77 influenza season to the 2006–07 season, influenza-associated deaths ranged from a low of about 3,000 to a high of about 49,000 each year. It is estimated that approximately 43–49 million people became ill with 2009 pandemic H1N1 in the U.S. from April 2009 to April 2010.

Influenza disease can occur among people of all ages; however, the risks for complications, hospitalizations, and deaths are higher among people age 65 years or older, young children, and people of any age who have certain medical conditions. Pregnancy also increases the risk for serious medical complications from influenza.

During an outbreak in a long-term care facility, up to 60% of residents may become infected, with up to a 30% fatality rate in the infected people. Risk for influenza-associated death is highest among the oldest of the elderly: people age 85 years and older are 16 times more likely to die from an influenza-associated illness than people age 65–69 years.

Hospitalization from influenza-related complications is also high among children age 24 months and younger – comparable to rates for people age 65 and older. There were 146 laboratory-confirmed influenza-related pediatric deaths reported during the 2014–15 influenza season. During the H1N1 pandemic (April 2009 through September 2010), 348 influenza-related deaths in children were reported.

What are possible complications from influenza?
The most frequent complication of influenza is bacterial pneumonia. Viral pneumonia is a less common complication but has a high fatality rate. Other complications include inflammation of the heart and worsening of pulmonary diseases (e.g., bronchitis).
Reye's syndrome is a complication that occurs almost exclusively in children – patients suffer from severe vomiting and confusion, which may progress to coma.

Continued on the next page

Pneumococcus: Questions and Answers

INFORMATION ABOUT THE DISEASE AND VACCINES

What causes pneumococcal disease?
Pneumococcal disease is caused by the bacterium *Streptococcus pneumoniae*, also called pneumococcus. There are more than 90 subtypes. Most subtypes can cause disease, but only a few produce the majority of invasive pneumococcal infections. The 10 most common subtypes cause 62% of invasive disease worldwide.

How does pneumococcal disease spread?
The disease is spread from person to person by droplets in the air. The pneumococci bacteria are common inhabitants of the human respiratory tract. They may be isolated from the nasal passages and throat of 5%–70% of normal, healthy adults, depending on the population and setting.

What diseases can pneumococci bacteria cause?
There are three major conditions caused by pneumococci: pneumonia, bacteremia, and meningitis. They are all caused by infection with the same bacteria, but have different symptoms.

Pneumococcal pneumonia (lung disease) is the most common disease caused by pneumococcal bacteria. The incubation period is short (1–3 days). Symptoms include abrupt onset of fever, shaking chills or rigors, chest pain, cough, shortness of breath, rapid breathing and heart rate, and weakness. As many as 400,000 hospitalizations from pneumococcal pneumonia are estimated to occur annually in the United States. Pneumococci account for about 30% of adult community-acquired pneumonia. Complications of pneumococcal pneumonia include empyema (infection of the pleural space), pericarditis (inflammation of the sac surrounding the heart), and respiratory failure. The fatality rate is 5%–7% and may be higher than 50% among elderly people.

About 12,000 cases of pneumococcal bacteremia (blood infection) occur each year in the United States. Pneumococcal bacteremia occurs in about 25%–30% of patients with pneumococcal pneumonia. Bacteremia is the most common clinical presentation among children age two years and younger, accounting for 40% of invasive disease in this group. The overall case-fatality rate for bacteremia is about 15% but may be as high as 60% among elderly people. Patients with asplenia who develop bacteremia may experience a severe illness.

Pneumococci cause 50% of all cases of bacterial meningitis (infection of the covering of the brain or spinal cord) in the United States. There are an estimated 3,000 cases of pneumococcal meningitis each year. Symptoms may include headache, tiredness, vomiting, irritability, fever, seizures, and coma. The case-fatality rate of pneumococcal meningitis is 10% but may be higher among elderly people. Permanent neurologic damage is common among survivors. People with a cochlear implant appear to be at increased risk of pneumococcal meningitis. With the decline of invasive Hib disease, pneumococci has become the leading cause of bacterial meningitis among children younger than 5 years of age in the United States.

Pneumococci are also a common cause of acute otitis media (middle ear infection). By age 12 months, more than 60% of children have had at least one episode of acute otitis media. Approximately 28%–53% of such ear infections are caused by *S. pneumoniae*. In the United States, there were 5 million cases of otitis media each year in children younger than age five years prior to the use of the pneumococcal conjugate vaccine. Middle ear infections are the most frequent reason for pediatric office visits in the United States, resulting in more than 20 million visits annually. Complications of pneumococcal otitis media may include infection of the mastoid bone of the skull and meningitis.

How serious is pneumococcal disease?
Pneumococcal disease is a serious disease that causes much sickness and death. An estimated 31,000 cases and 3,300 deaths from invasive pneumococcal diseases (bacteremia and meningitis) are estimated to have occurred in the United States in 2012. Many of these cases occurred in adults for whom pneumococcal polysaccharide vaccine was recommended. Young children and the elderly (individuals younger than age five years as well as those older than age 65 years) have the highest incidence of serious disease. Case-fatality rates are highest for meningitis and bacteremia, and the highest mortality occurs among the

Continued on the next page

6-page handout

4-page handout

Shingles (Zoster): Questions and Answers

Information about the disease and vaccine

What causes shingles?
Both chickenpox and shingles are caused by the same virus, the varicella zoster virus (VZV). After a person has had chickenpox, the virus rests in the body's nerves permanently. Approximately 30% of all people who have been infected with chickenpox will later develop herpes zoster, commonly known as zoster or shingles.

Why do some people develop shingles and others don't?
Shingles occurs when VZV reactivates and causes recurrent disease. It is not well understood why this happens in some people and not others. The risk of getting shingles increases as a person gets older. People who have medical conditions that keep the immune system from working properly, or people who receive immunosuppressive drugs are also at greater risk to get shingles.

What are the symptoms of shingles?
Shingles usually starts as a rash with blisters that scab after 3 to 5 days. The most frequently mentioned symptom is pain. The rash and pain usually occur in a band on one side of the body, or clustered on one side of the face. The rash usually clears within 2 to 4 weeks.

Before the rash develops, there is often pain, itching, or tingling in the area where the rash will develop. Other symptoms of shingles can include fever, headache, chills, and upset stomach.

What are possible complications from shingles?
Very rarely, shingles can lead to pneumonia, hearing problems, blindness, scarring, brain inflammation (encephalitis), or death.

For about one person in five, severe pain can continue even after the rash clears up, a situation called post-herpetic neuralgia (PHN). As people get older, they are more likely to develop PHN, and it is more likely to be severe and long lasting. The pain may be sharp or throbbing, and it may extend beyond the area of the original rash. The skin may be unusually sensitive to touch and to changes in temperature. PHN can last for months, or even years.

Is there a treatment for shingles?
Several antiviral medicines can be used to treat shingles. These medications should be started as

soon as possible after the rash appears. They can help shorten the length and severity of the episode. Antiviral treatment is most effective if administered within 24 to 72 hours of the appearance of the rash. Pain medicine may also help with pain caused by shingles.

Is there a test for shingles?
Yes. Shingles is usually diagnosed based on symptoms and the appearance of the rash. Definitive diagnosis is made by growing the varicella virus from a skin lesion.

Can you catch shingles from an infected person?
No, shingles cannot be passed from one person to another such as through sneezing, coughing, or casual contact. While it is possible for the VZV virus to be spread from a person with active shingles to a person who has never had chickenpox or never been vaccinated against chickenpox (if they have direct contact with the rash), the person exposed would develop chickenpox, not shingles.

How common is shingles in the United States?
It is estimated that one million cases of shingles occur annually.

Can you get shingles more than once?
Yes, but rarely. Most people will have only one occurrence of shingles in their lifetime, but second and third occurrences have been reported.

When did zoster vaccine first become available?
Zoster vaccine (Zostavax by Merck) was licensed on May 25, 2006.

What kind of vaccine is it?
The zoster vaccine is a live, attenuated vaccine. This means the live, disease-producing virus was modified, or weakened, in the laboratory to produce an organism that can grow and produce immunity in the body without causing illness.

How is this vaccine given?
This vaccine is given by an injection, usually in the fat into the back of the upper arm.

Who should get this vaccine?
The Advisory Committee on Immunization Practices recommends that all adults age 60 years and older

2-page handout

To access these and similar patient-friendly fact sheets, visit
www.immunize.org/handouts/vaccine-summaries.asp#

Protect yourself from shingles . . . Get vaccinated!

What is shingles?

Shingles is a painful disease caused by the same virus that causes chickenpox. It is also called zoster.

Shingles usually includes a painful rash with blisters that can occur anywhere on your body, even the face and eyes.

The main symptom of shingles is severe pain. Some people have compared it with the pain of childbirth or kidney stones.

Is it serious?

Yes. For about 1 out of 5 people with shingles, severe pain can continue for months, or even years.

This long-lasting pain can be so bad that it interferes with eating and sleeping. Some people with severe pain from shingles have even committed suicide.

Although some medicines can help treat shingles, there is no cure.



Get vaccinated against shingles if you're 60 or older!

Am I at risk?

Anyone who has ever had chickenpox is more likely to develop shingles.

How can I protect myself from shingles?

The best way to prevent shingles is to get vaccinated.

You should get the shingles shot if you're 60 or older, even if you've already had the disease more than once.



► For more information, visit www.vaccineinformation.org

For other vaccine handouts in this series, visit www.immunize.org/vaccine-summaries



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Protect yourself from hepatitis B . . . Get vaccinated!

What is hepatitis B?

Hepatitis B is a serious liver disease caused by a virus.

How do you catch it?

You can get infected with hepatitis B if you have contact with an infected person's blood or other body fluids. This can happen during sex, or just by sharing personal items like a toothbrush or razor. Babies can get infected from their mother during birth.

Is it serious?

Yes! If you get infected, you can be sick for weeks or months, be hospitalized, and even die. Some people don't feel sick but can still spread the virus to others.

For some people, the virus remains in their body for years. During this time, the virus can attack the liver and cause serious problems like liver failure or cancer.



Ask your healthcare provider if you need this vaccine!

Am I at risk?

You are more likely to become infected with the virus if you are exposed to blood on your job, have sex with an infected person, travel to certain countries, or use illegal drugs. However, many people are not sure how they got infected.

How can I protect myself from hepatitis B?



Vaccination is the best way to prevent hepatitis B.

Older children and teens who weren't vaccinated as infants should get a series of hepatitis B shots as soon as possible.

Many adults need hepatitis B vaccination too.

► For more information, visit www.vaccineinformation.org

For other vaccine handouts in this series, visit www.immunize.org/vaccine-summaries



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www.immunize.org/catg.d/p4404.pdf • Item #P4404 (5/13)

STEP 5:

Administering Vaccines

YOU HAVE YOUR vaccination supplies, and you have properly stored your vaccine inventory. As you start to assess your patients' vaccination status and history, the gaps in their records remind you why your practice is now incorporating vaccination services. It's time to administer vaccine.

Chances are, many of your patients are behind on their vaccinations and they are grateful that you are helping them get up to date. Even if you are new

at administering vaccines, don't be intimidated – this will soon be second nature to you.

Determine who can administer vaccines (either independently or under standing orders)

Every state has regulations that specify who can administer vaccines. All states allow physicians, nurse practitioners, and physician assistants to both assess the need for and to administer vaccines. All states allow RNs and LPNs to administer vaccines. Most states allow medical assistants (MAs) to give injections after proper training and with supervision. All states allow pharmacists

STEP-BY-STEP:

VACCINE ADMINISTRATION TASKS

- Determine who can administer vaccines (either independently or under standing orders)
- Always provide a Vaccine Information Statement (VIS)
- Administer the vaccine properly
 - Use the proper site for injection
 - Prepare the vaccine (and diluent, if needed)
 - Use the proper needle gauge and length
 - Administer injections by the correct route – intramuscular (IM) or subcutaneous (Subcut)
 - Know how to deliver nasal spray vaccine (when recommended)
 - Administer all needed vaccines at the same visit
 - Safely dispose of the needle and syringe and nasal sprayer
 - Avoid vaccine administration errors
- Prepare and watch for an allergic reaction (anaphylaxis) after vaccination
 - Always report anaphylaxis and other adverse events after vaccination to VAERS
- Prepare and watch for syncope (fainting)
- Communicate about appointments for subsequent doses
- Understand proper spacing of doses

You'll need to check to see if there are restrictions on the particular vaccine(s) they may administer in your state or if vaccines can be administered under standing orders

to assess the need for and administer one or more vaccines if they have been properly trained and certified. However, you'll need to check to see if there are restrictions on the particular vaccine(s) they may administer in your state or if vaccines can be administered under standing orders. For more

information about standing orders and who is eligible to provide vaccination services using them, which might include RNs, pharmacists, and MAs, see the Immunization Action Coalition’s (IAC) *Using Standing Orders for Administering Vaccines: What You Should Know* at www.immunize.org/catg.d/p3066.pdf. You also should check with your state medical licensing board for the regulations in your practice location. Another great resource is IAC’s *10 Steps to Implementing Standing Orders for Immunization in Your Practice Setting* available at www.immunize.org/catg.d/p3067.pdf.

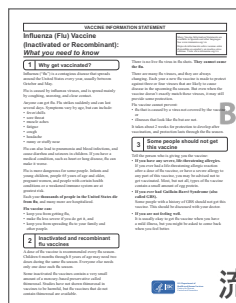
Regardless of the local regulations, proper vaccine administration technique is a skill that requires practice. If you have not administered injectable or nasal spray vaccines recently, you should refresh your skills. In addition to watching a vaccine administration video (one example is discussed later in this chapter), you should consider contacting your local health department. Staff there may be able to provide hands-on training with this important procedure, or they can head you in the right direction for guidance.

Always provide a Vaccine Information Statement (VIS)

Since 1994, healthcare providers who administer

VISs are available for all vaccines licensed in the United States, and many are available in multiple languages on the IAC website at www.immunize.org/vis.

any vaccine covered by the National Childhood Vaccine Injury Act



انفلونزا ویکسین
 Вакцина против гриппа
 İNAKTİF GRİP AŞISI
 Vacuna contra la influenza
 流行性感冒疫苗



(Section 2125 of the Public Health Service Act [42 U.S.C. §300aa-26]) are required to provide a copy of the relevant federal Vaccine Information Statement (VIS) *before* administering most vaccines to a person of any age, including adults. VISs are available for all vaccines licensed in the United States, and many are available in multiple languages on the IAC website at www.immunize.org/vis. A listing of the most current versions for each VIS also may be found on this website. Patients must be offered a copy (which can be an electronic copy) of the VIS to take home with them, though the recipient may decline. (You can learn more about this federal requirement in *Step 6 – Documentation and Related Issues*.) You probably will want to give patients even more information about the disease that the vaccine prevents, as well as answer any questions they may have.

Remember – if you don’t administer the vaccine properly, you might as well not give it at all.

Administer the vaccine properly

Remember – if you don’t administer the vaccine properly, you might as well not give it at all. You’ve gone to a lot of trouble to keep your vaccines “viable,” and your patients need this protection. What a waste it would be for the vaccine not to be administered properly!

One common mistake is that too short a needle is used – a subcutaneous “Subcut” needle rather than an intramuscular “IM” needle. When this happens, the vaccine can be injected into fat instead of into muscle. You may hear that some vaccines will

usually still work if given via the wrong route and will merely cause greater temporary local discomfort. While that may be true for some, for others, such as hepatitis B, HPV, influenza, and rabies vaccines, the correct route is essential to obtaining an adequate immune response.

We will not be discussing oral vaccines in the *Guide*. The only oral vaccine currently licensed for routine use in the U.S. is rotavirus, which is only administered to infants. In addition, one influenza vaccine (*Fluzone* Intradermal, Sanofi Pasteur) is specifically



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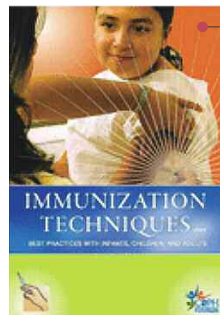
licensed for intradermal (into the skin) injection. This vaccine is administered with a specially designed micro-needle and syringe

into the deltoid area. If you stock this type of influenza vaccine (it currently is approved only for people 18 through 64 years of age), you should thoroughly acquaint yourself with how to use the injection system by reading the instructions in the product information. No other U.S. vaccine should ever be administered by the intradermal route. (Note that a tuberculin skin test, or PPD, which is administered intradermally, is a diagnostic test – NOT a vaccine.)

IAC's *Administering Vaccines to Adults: Dose, Route, Site, and Needle Size*, available at www.immunize.org/catg.d/p3084.pdf, provides a concise guide to help you ensure you are administering vaccines properly. In addition, after you read this chapter, watch the California Department of Public Health's DVD titled *Immunization Techniques: Best Practices with Infants, Children, and Adults*. The DVD is

Vaccine	Dose	Route	Site	Needle Size
Adenovirus type 14	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 26	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 4	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 41	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 45	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 48	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 54	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 55	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 56	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 57	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 58	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 59	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 60	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 61	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 62	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 63	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 64	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 65	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 66	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 67	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 68	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 69	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 70	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 71	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 72	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 73	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 74	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 75	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 76	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 77	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 78	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 79	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 80	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 81	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 82	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 83	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 84	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 85	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 86	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 87	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 88	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 89	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 90	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 91	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 92	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 93	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 94	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 95	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 96	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 97	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 98	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 99	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch
Adenovirus type 100	0.5 mL	IM	Upper arm	25-gauge, 1/2-inch

www.immunize.org/catg.d/p3084.pdf



www.immunize.org/dvd

available for a nominal charge at www.immunize.org/dvd, or the video may be streamed at www.youtube.com/watch?v=WsZ6NEijlfl. Unlike this *Guide*, which is limited to adult immunization issues, the video

also covers infant and child injections. Watching this video will give you an idea of the differences, as well as the similarities, involved – and will remind you that it really is simpler to vaccinate adults.

Use the proper site for injection

For adult vaccinations, all you need to give an injection is the patient's deltoid muscle in the upper arm, although the muscle in the thigh can be used if necessary. (For infant vaccinations, the thigh is generally used as an injection site.) Except for the intradermal influenza vaccine mentioned above, vaccine injections are either intramuscular (IM) or subcutaneous (Subcut).

- **Intramuscular (IM)** – If you are giving an intramuscular injection, you will inject into the deltoid muscle below the shoulder on the upper arm, or into the thigh muscle.
- **Subcutaneous (Subcut)** – If you are giving a subcutaneous injection, you will inject into the fatty tissue (under the skin and overlying the muscle) on the back of the upper arm.

Additional information about these techniques is available later in this chapter.

Prepare the vaccine (and diluent, if needed)

Information about appropriate preparation for each vaccine is available in the package insert. (IAC maintains a web page which links to all package inserts at www.immunize.org/packageinserts.) However, the general steps involved in preparing different vaccine formulations are shown in the box on page 71.

Vaccine vials are labeled with the number of doses they contain. If you are using vaccine from a multi-dose vial, withdraw just the amount required for the dose into the syringe. Single-dose vials are widely used, and manufacturer pre-filled syringes also are available.

Most vaccines administered to adults in the U.S. are provided as a liquid, ready to inject. However, several

Use only the diluent that was shipped to you with the vaccine you are preparing.

adult vaccines (MMR, varicella, *Menveo* [MenACWY], *Bexsero* [MenB] and zoster) require reconstitution of powdered vaccine with a liquid diluent that is supplied by

the manufacturer in a separate vial. The diluent is either saline or sterile water, except for the *Menveo* brand of MenACWY, in which the diluent contains three of the antigenic components of the vaccine. Do not substitute saline, sterile water, or any other liquid from your clinic's general supplies if you misplace a diluent! **Use only the diluent that was shipped to you with the vaccine you are preparing.**

Any dose of vaccine reconstituted with the wrong diluent must be repeated. Additional information on diluents is available in *Vaccines with Diluents: How to Use Them*, found at www.immunize.org/catg.d/p3040.pdf.

Different vaccines should never be combined in a single syringe, except when specifically approved by the FDA and packaged for that specific purpose. Most combination vaccines (e.g., MMR or Tdap) will be combined by the manufacturer. Vaccine should *never* be transferred from one syringe to another, and partial doses from separate vials should not be combined into a single syringe. Both of these practices increase the risk of contamination.

Vaccine should never be transferred from one syringe to another.

If you are preparing more than one vaccine for a patient, be sure to label which syringe contains which vaccine. A simple way to label the vaccines is to use a silverware tray with permanently labeled separate "slots" for Tdap, influenza, hepatitis B, and other vaccine syringes. Or, keep on hand small sticky labels with vaccine names (these can be preprinted), and attach the appropriate vaccine label to the syringe containing that vaccine.

As discussed in *Step 3: Vaccine Storage and Handling*, you should not reconstitute or fill vaccine syringes in advance. Prepare and draw up vaccine only when you are ready to administer it.



Once you know if an injection will be given IM or Subcut, you can determine what length and gauge needle you need.

Use the proper needle gauge and length

It is critical for vaccine to be deposited into the proper tissue. An intramuscular injection usually requires a longer needle than a subcutaneous (Subcut) injection. Once you know if an injection will be given IM or Subcut, you can determine what length and gauge needle you need.

For almost all IM injections with most adults, you will need a 1"–1½", 22–25 gauge needle. If a patient is particularly large (i.e., women weighing 200 pounds or more, men weighing 260 pounds or more), you should use a 1½" needle. For Subcut injections, you will need a 5/8", 23–25 gauge needle for everyone.

STEPS IN PREPARING DIFFERENT VACCINE FORMULATIONS

(adapted from the California Immunization Program's EZIZ resources)

Before You Start Preparing ANY Type of Vaccine

- Wash your hands.
- Gather alcohol pads, the appropriate needle, and, as needed, a syringe.
- Get the vial or syringe of vaccine. (Always double check the vial label to make sure you have the vaccine you want to administer. Vaccine vials can look alike or have similar sounding names.)
- Check the vaccine against the clinician's written order or standing order.
- Check that today's date is sooner than the vaccine's expiration date.

Drawing Up LIQUID VACCINE

Single-dose Vial

- Remove plastic cap.
- Shake vial.
- Cleanse stopper with alcohol pad and let it dry.
- Assemble needle and syringe.
- Uncap needle.
- Hold vial steady on counter.
- Insert needle straight into center of vial stopper.
- Invert (turn upside-down) vial and pull needle back so the tip is in the liquid.
- Pull back on plunger and draw up entire contents of vial.
- Withdraw needle.
- Tap syringe and push out air.
- Recap the clean needle.

Pre-filled Syringe

- Shake syringe thoroughly.
- Remove syringe tip cover.
- Attach needle to syringe.

Preparing RECONSTITUTED VACCINE

Mixing the Vaccine

- Remove plastic caps.
- Cleanse stoppers with alcohol pad and let dry.*
- Assemble needle and syringe.
- Hold diluent vial steady on counter.
- Insert needle straight into center of vial stopper.
- Invert (turn upside-down) vial and pull needle back so the tip is in the liquid.
- Draw up all diluent into syringe and then withdraw needle.
- Hold vaccine vial steady on counter.
- Insert needle into center of stopper.
- Inject diluent.
- Holding vial and syringe together, shake to mix.

*Be sure MMR, varicella, MMRV, and Zostavax vial stoppers are thoroughly dry. Alcohol may damage these live vaccines.

Administer injections by the correct route – intramuscular (IM) or subcutaneous (Subcut)

There are several reasons for differentiating between IM and Subcut injections. Subcut doses are absorbed more slowly than IM doses. If you give an IM vaccine subcutaneously by mistake, the antibody “titers” (the level of antibodies in a blood sample) that result may be lower than they otherwise would be, and the injection also may be more painful. Some vaccines that contain an “adjuvant” (an ingredient that enhances the immune response to the antigens) must be given IM to avoid the local irritation, inflammation, or other reactions that can occur if they are administered subcutaneously. For our purposes, the important thing to remember is that the type of injection matters. It is not arbitrary.

Intramuscular (IM) injections

Intramuscular injections are administered into the deltoid muscle, which is a large triangular muscle that wraps over the shoulder into the upper arm. For vaccine injections, use the center part of the deltoid, usually about two finger-breadths below the acromion process (bony prominence above the deltoid) and above armpit-level in the upper arm.

Proper deltoid injection is critical in order not to hit the underlying bone, blood vessels, and nerves.

It seems like a large “target,” but proper deltoid injection is critical in order not to hit the underlying bone, shoulder capsule, blood vessels, and nerves. If you have never given an IM injection or haven’t given one for a long time, you should refresh your skills by watching a video and having hands-on, supervised practice before you attempt it.

Grasp the muscle between the thumb and fingers of your non-injecting hand. The needle should then be inserted perpendicular (that is, at a 90-degree angle) to the skin into the thickest part of the muscle. Insertion should be quick yet firm and steady.



IM in deltoid: 90-degree angle; 1" or longer needle

After the needle is inserted (to the hub of the needle), depress the plunger steadily, and then withdraw the needle quickly.

Vaccines that are given via intramuscular (IM) injection

- Hepatitis A
- Hepatitis B
- Human papillomavirus (HPV)
- Influenza, inactivated (exception: intradermal formulation)
- Meningococcal conjugate (Men ACWY)
- Meningococcal serogroup B (MenB)
- Pneumococcal conjugate (PCV)
- Pneumococcal polysaccharide (PPSV) (also can be given Subcut)
- Polio (also can be given Subcut)
- *Shingrix* (zoster, shingles)
- Tdap/Td

Subcutaneous (Subcut) injections

To administer a vaccine with a subcutaneous injection, you want to “pinch up” the subcutaneous (fatty) tissue on the back of the upper arm with your non-injecting hand and inject the needle at a 45-degree angle into the fat – a much narrower angle than that for an IM injection. Insert the needle all the way to the hub of the needle.

**Subcut in
outer arm:**
45-degree
angle;
5/8" needle



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**Vaccines that
are given via
subcutaneous
(Subcut)
injection**

- MMR
- Pneumococcal polysaccharide
(also can be given IM)
- Polio (also can be given IM)
- Varicella (chickenpox)
- *Zostavax* (zoster, shingles)

For both IM and Subcut injections, expose the entire area of the upper arm so that the sleeve does not obstruct the injection site. Wipe the injection area with an alcohol swab to clean away skin dirt (this prevents the needle from pushing skin dirt into the tissue), using an outward spiraling motion in a circle from the center to a two- or three-inch diameter.

**Although you may wear gloves
if you choose to, they are not
required for giving injections.**

Although you may wear gloves if you choose to, they are not required for giving injections. If you choose to wear gloves, they must be changed between every patient. Your hands should always be cleaned with soap and water or an alcohol-based waterless antiseptic before vaccine preparation, between patients, and any other time hands become soiled.

You should always have patients sit down for both IM and Subcut injections. Occasionally, a patient may feel faint at the sight of a needle or during an injection; if the patient is sitting instead of standing, this will lessen the chance of the patient falling.

***Know how to deliver nasal spray vaccine
(when recommended*)***

Live attenuated influenza vaccine (LAIV – *FluMist*, *MedImmune*), licensed for adults through age 49 years, is given by the intranasal route using a special sprayer. Half of the vaccine is sprayed into each nostril. A plastic clip on the plunger divides the dose into two equal parts. The patient should be seated in an upright position. Instruct the patient to breathe normally. Gently place a hand behind the patient's head. The tip of the nasal sprayer should be inserted slightly into the nasal passage. Half of the contents of the sprayer (0.1 mL) is sprayed into the first nostril. The dose-divider clip is then removed and the procedure is repeated in the other nostril. The dose does not need to be repeated if the patient coughs or sneezes. Consult the package insert for additional information on the nasal administration of LAIV.

***NOTE:** As of this writing, use of LAIV is not recommended by ACIP for the 2017–2018 influenza season. Follow ACIP guidance for each season's recommendations.

Administer all needed vaccines at the same visit

The *Recommended Adult Immunization Schedule*, found at www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf, is complicated by a variety of factors. Most vaccines require more than one dose to create the proper immune response. Also, if you are giving different live attenuated vaccines, they either must be administered on the same day or be separately administered at least 4 weeks apart, in order to reduce immune response interference. For adults, the most

common combination of live vaccines would involve MMR, varicella, and/or LAIV, in which case you need to take extra care in “dose spacing.” It’s always best to give live vaccines at the same visit. If this is not possible for some reason, space them at least 4 weeks apart.

Simultaneous administration is encouraged because it is convenient and efficient for both patient and provider. Administration of doses of multiple vaccines at a single visit does not result in decreased

antibody responses or increased reactions. In fact, simultaneous administration is encouraged because it is convenient and efficient for both patient and provider.



www.eziz.org/assets/docs/IMM-718A.pdf

Consider using “site maps” to standardize specific vaccination locations (limb choice) on your patients. Use of a site map (such as the California Immunization Program’s *Immunization Site Map* found at www.eziz.org/assets/docs/IMM-718A.pdf) can simplify the process of administering vaccines by reducing on-the-spot decision-making about which limb to use for a particular vaccine. It also can make identification of the cause of a localized reaction easier because you will know exactly where you injected each vaccine. A site map creates consistency within your clinic practice and assists you in documenting the site of administration along with the vaccine and dose in your patient’s chart.

If you are giving two injections, the patient may prefer one in each arm. If you are giving three or more injections, you will need to give the patient at least two in the same arm. The distance between IM injection sites in the same extremity should be at least 1 inch apart, if possible. When administering Tdap or Td, you may want to give it in an arm by

itself because it is known to cause more soreness and swelling than other vaccines. Two different Subcut injections can be given in opposite arms, unless the patient wants both in the same one. In that case, the Subcut injections also should be administered at least 1 inch from each other.

Safely dispose of the needle and syringe and nasal sprayer

After you have administered a vaccine by injection, remove the needle from the patient in a smooth motion at the same angle at which you inserted it.



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Do not recap the needle after use. Immediately discard the used needle (still attached to the syringe) into a sharps container.

Do not recap the needle after use. Immediately discard the used needle (still attached to the syringe) into a sharps container, keeping your eyes on the needle continuously until it is placed into the container. This is part of Occupational Safety and Health Administration safety protocol. Needlestick injuries are serious, and they must be prevented.

Apply pressure to the injection site with a cotton ball or gauze, and put an adhesive bandage over it if blood is present.

Nasal sprayers also should be disposed in a sharps container.

Consult with your clinic’s waste disposal service regarding the frequency of pick-up and replacement of sharps containers.

Vaccine administration errors are not acceptable, and procedures should be in place in your clinic to prevent them.



Avoid vaccine administration errors

A vaccine administration error is a situation where a patient receives the wrong vaccine, receives the vaccine by an incorrect route, receives the wrong dosage, or receives a vaccine that is expired or reconstituted with the wrong diluent. Vaccine administration errors are not acceptable, and procedures should be in place in your clinic to prevent them.

The “Rights of Medication Administration” outlined in the Centers for Disease Control and Prevention (CDC) “Pink Book” at www.cdc.gov/vaccines/pubs/pinkbook/vac-admin.html should be applied to each encounter when vaccines are administered. These rights include:

- the right patient;
- the right vaccine and diluent (when applicable);
- the right time;*
- the right dosage;
- the right route, needle length, and technique;
- the right site; and
- the right documentation.

*Includes administering at the correct age, the appropriate interval, and before vaccine or diluent expires

Additional information may be found in an article written by IAC’s Deborah L. Wexler, MD, *Know the “7 Rights” of Vaccine Administration* (available at www.immunize.org/technically-speaking/20141101.asp).

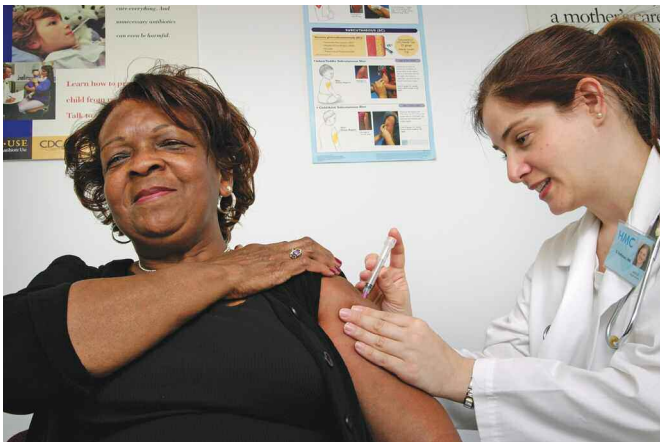
Stop Vaccine Administration Errors Before They Happen!

- ▶ When suitable for your situation, **consult staff in choosing the vaccine products** to be used in your facility. Different brands of the same vaccine can have different schedules, age indications, or other indications. Stocking multiple brands might lead to staff confusion and vaccine administration errors.
- ▶ **Use standardized abbreviations** to avoid confusion about which vaccines have been administered. A list of standard abbreviations is available at www.cdc.gov/vaccines/acip/committee/guidance/vac-abbrev.html.
- ▶ **Keep current reference materials available for staff** on each vaccine used in your facility. Keep reference sheets for timing and spacing, recommended sites, routes, and needle lengths posted for easy reference in your vaccine preparation area.
- ▶ **Rotate vaccines** so that those with the shortest expiration dates are in the front of the storage unit. Use these first, and frequently check the storage unit to remove any expired vaccine.
- ▶ **Consider the potential for product mix-ups** when storing vaccines. Consider color-coding labels on vaccine storage containers and/or including the vaccine type and age indications. Keep vaccine diluents conveniently located.
- ▶ **Administer only vaccines that YOU have prepared** for administration. Triple check your work before you administer a vaccine, and ask other staff to do the same.
- ▶ **Avoid interruptions** when selecting and preparing the appropriate vaccine(s) for administration.
- ▶ **Educate parents and patients about vaccines to be administered** and on how important it is for them to keep a copy of immunization records on all family members. An educated patient may notice a potential error and help prevent it.

If an adverse event occurs following the administration of a vaccine, a report should be submitted to the *Vaccine Adverse Event Reporting System (VAERS)*.

If an adverse event occurs following the administration of a vaccine, a report should be submitted to the *Vaccine Adverse Event Reporting System (VAERS)* at <https://vaers.hhs.gov/index>. Adverse events should be reported to VAERS regardless of whether or not a healthcare professional thinks the adverse event was related to the vaccine, as long as it follows administration of a dose of vaccine.

The Institute for Safe Medication Practices (ISMP), the nation's only 501(c)(3) nonprofit organization devoted entirely to medication error prevention and safe medication use, maintains a website to report vaccine administration errors. The *Vaccine Errors Reporting Program (VERP)*, found at <http://verp.ismp.org>, was created to allow healthcare professionals and patients to report vaccine errors confidentially. By collecting and quantifying information about these errors, ISMP will be better able to advocate for changes in vaccine names, labeling, or other appropriate modifications that could reduce the likelihood of vaccine errors in the future. We encourage providers to report vaccine administration errors to ISMP. Vaccine administration errors also should be reported to VAERS.



CDC

Prepare and watch for an allergic reaction (anaphylaxis) after vaccination

Some localized itching, swelling, and/or redness for a day or two following any injection is normal and should not cause alarm. Live attenuated vaccines sometimes are followed by systemic symptoms, such as generalized mild rash or low-grade fever, a week or two after vaccination. But what must be treated promptly is an acute allergic reaction (anaphylaxis) caused by a vaccine. *You should always have and practice an emergency plan in the unlikely event of an allergic reaction.*

You should always have and practice an emergency plan in the unlikely event of an allergic reaction.

www.immunize.org/catg.d/p4065.pdf

Thorough screening using a contraindications checklist usually prevents allergic reactions to vaccines. IAC's *Screening Checklist for Contraindications to Vaccine for Adults*,

available at www.immunize.org/catg.d/p4065.pdf offers a helpful tool for conducting this screening. Acute anaphylactic reactions are extremely rare, occurring after approximately 1 out of every 500,000 doses of vaccine. However, when they do occur, you MUST take immediate action. Anaphylaxis is life-threatening. If you administer vaccines you must have and practice an emergency plan. For example, IAC's *Medical Management of Vaccine Reactions in Adult Patients*, available at www.immunize.org/catg.d/p3082.pdf, includes standing orders for management of anaphylactic reactions in adults. In addition, no vaccine should ever be administered if epinephrine and the other emergency supplies are not on hand and if staff are not familiar with the anaphylaxis protocol and with cardiopulmonary resuscitation (CPR).

After you have administered any vaccine, instruct the patient to immediately report any itching, redness (with or without hives reaction), difficulty breathing, or abdominal pain that occurs following the injection.

Always report anaphylaxis and other adverse events after vaccination to VAERS

Anaphylaxis, any event listed on the *VAERS Table of Reportable Events Following Vaccination* found at https://vaers.hhs.gov/docs/VAERS_Table_of_Reportable_Events_Following_Vaccination.pdf, or any other adverse event requiring medical attention within 30 days after receipt of a vaccine must be reported to VAERS. Reporting is a requirement of the National Vaccine Injury Compensation Program. It is not necessary for you to be certain that the event was related to the vaccination in order to report it.

Prepare and watch for syncope (fainting)

Syncope (fainting) can occur after vaccination and is most common among adolescents and young adults. Syncope can lead to serious injuries, including skull fracture and cerebral hemorrhage. Among all age groups, 80 percent of reported syncope episodes occur within 15 minutes of vaccine administration.

Providers should take appropriate measures to prevent injuries during vaccination. To lessen the likelihood of patients becoming weak or fainting, adolescents and adults should be seated or lying down during vaccination. Vaccine providers, particularly when vaccinating adolescents, should consider observing patients (with patients seated or lying down) for 15 minutes after vaccination to decrease the risk for injury should they faint. If syncope develops, patients should be managed according to the guidance provided in IAC's *Medical Management of Vaccine Reactions in Adult Patients*, available at www.immunize.org/catg.d/p3082.pdf, until the symptoms resolve.

Communicate about appointments for subsequent doses

Before the patient leaves the clinic, be sure to schedule the patient's next appointment if subsequent doses are needed. Give the patient a personal vaccination record such as IAC's wallet-sized *Adult Immunization Record Card*, available for a nominal charge at www.immunize.org/shop/record-cards.asp. Sample cards are available for the asking at admininfo@immunize.org. Record the doses given

Before the patient leaves the clinic, be sure to schedule the patient's next appointment if subsequent doses are needed.



and dates the patient should return for subsequent doses. While you are at it, be sure to give your patient a copy of *Vaccinations for Adults – You're Never Too Old to Get Vaccinated!* found at www.immunize.org/catg.d/p4030.pdf. This handout will give patients basic information about other vaccinations they might still need now or in the future – and explains when they will need them.

Understand proper spacing of doses

For the most current guidelines on vaccine dose intervals, see the “Schedule for Vaccine Administration” column of IAC's *Summary of Recommendations for Adult Immunization* located at www.immunize.org/catg.d/p2011.pdf. Increasing the interval between doses in a 2-dose or 3-dose series will not

diminish the effectiveness of the vaccine, but may delay protection against disease. You do not need to start a series over if a delay has occurred. However, you should not decrease the interval for patient scheduling convenience; this could prevent a full antibody response from occurring.

You do not need to start a series over if a delay has occurred.

MMR and varicella are live attenuated vaccines. The response to these vaccines can be reduced or negated if your patient has recently received a blood product containing immune globulin (such as a blood or plasma transfusion, or immune globulin for exposure to hepatitis). MMR and varicella vaccines should be delayed if your patient has recently received certain blood products. The length of the delay depends on the blood product the person received (up to 11 months for some blood products). Note that similar waiting periods are not required for *Zostavax* vaccine, even though it is a live attenuated vaccine like MMR and varicella. That's because the amount of antigen in *Zostavax* vaccine is so sub-

stantial that it overpowers any antibody to herpes zoster that may be in the blood product. A full discussion of this issue is beyond the scope of this *Guide*. More information on this topic is available in the Advisory Committee on Immunization Practices (ACIP) *General Best Practice Guidelines for Immunization* located at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf.

To review the basics of vaccine administration covered in the *Guide* and in the *Immunization Techniques* video, make a copy of the *Skills Checklist for Immunization* found at www.immunize.org/catg.d/p7010.pdf and fill out the self-assessment section. Supervisors can use the two-page *Checklist* to help assure that staff are fully trained in providing immunizations. CDC's *Epidemiology and Prevention of Vaccine-Preventable Diseases* ("The Pink Book"), available at www.cdc.gov/vaccines/pubs/pinkbook/index.html, also includes an excellent chapter on vaccine administration. Another great resource is CDC's e-Learn program on vaccine administration, available at www.cdc.gov/vaccines/hcp/admin/resource-library.html.

STEP 5: ADMINISTERING VACCINES

Materials and Resources for You to Use

► TOOLS FOR PROVIDERS

Administering Vaccines to Adults: Dose, Route, Site, and Needle Size (IAC)

www.immunize.org/catg.d/p3084.pdf

How to Administer Intramuscular and Subcutaneous Vaccine Injections to Adults (IAC)

www.immunize.org/catg.d/p2020a.pdf

How to Administer Intramuscular, Intradermal, and Intranasal Influenza Vaccines (IAC)

www.immunize.org/catg.d/p2024.pdf

Immunization Site Map (CDPH)

www.eziz.org/assets/docs/IMM-718A.pdf

Immunization Techniques: Best Practices with Infants, Children, and Adults (IAC)

www.immunize.org/dvd

Medical Management of Vaccine Reactions in Adult Patients (IAC)

www.immunize.org/catg.d/p3082.pdf

Rights of Medication Administration (CDC)

www.cdc.gov/vaccines/pubs/pinkbook/downloads/vac-admin.pdf

Skills Checklist for Immunization (IAC)

www.immunize.org/catg.d/p7010.pdf

Summary of Recommendations for Adult Immunization (IAC) – www.immunize.org/catg.d/p2011.pdf

Vaccine Administration e-Learn (CDC)

www.cdc.gov/vaccines/hcp/admin/resource-library.html

Vaccine Administration Record for Adults (IAC)

www.immunize.org/catg.d/p2023.pdf

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

Vaccine Adverse Event Reporting System (VAERS) (HHS) – <https://vaers.hhs.gov/index>

Vaccine Errors Reporting Program (VERP) (ISMP) <http://verp.ismp.org>

Vaccine Information Statements (VISs) and Translations (IAC) – www.immunize.org/vis

Vaccines with Diluents: How to Use Them (IAC) www.immunize.org/catg.d/p3040.pdf

VAERS Table of Reportable Events Following Vaccination (HHS) – https://vaers.hhs.gov/docs/VAERS_Table_of_Reportable_Events_Following_Vaccination.pdf

► ADDITIONAL PROVIDER RESOURCES

ACIP General Best Practices Guidelines for Immunization (CDC) – www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf

Know the “7 Rights” of Vaccine Administration (IAC) www.immunize.org/technically-speaking/20141101.asp

Recommended Adult Immunization Schedule, United States (CDC) – www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf

► INFORMATION FOR PATIENTS

Adult Immunization Record Card (IAC) www.immunize.org/shop/record-cards.asp

Vaccinations for Adults – You’re Never Too Old to Get Vaccinated! (IAC) www.immunize.org/catg.d/p4030.pdf

► GENERAL INFORMATION

Immunization Action Coalition (IAC) www.immunize.org

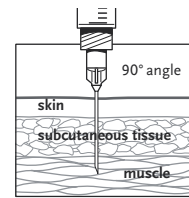
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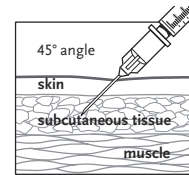
Administering Vaccines to Adults: Dose, Route, Site, and Needle Size

VACCINE	DOSE ROUTE	
Hepatitis A (HepA)	≤18 yrs: 0.5 mL ≥19 yrs: 1.0 mL	IM
Hepatitis B (HepB)	≤19 yrs: 0.5 mL ≥20 yrs: 1.0 mL	IM
HepA-HepB (Twinrix)	≥18 yrs: 1.0 mL	IM
Human papillomavirus (HPV)	0.5 mL	IM
Influenza, live attenuated (LAIV)	0.2 mL (0.1 mL into each nostril)	NAS (Intranasal spray)
Influenza, inactivated (IIV) and recombinant (RIV)	0.5 mL	IM
Influenza (IIV) Fluzone Intradermal, for ages 18 through 64 years	0.1 mL	ID (Intradermal)
Measles, Mumps, Rubella (MMR)	0.5 mL	SubCut
Meningococcal conjugate (MenACWY)	0.5 mL	IM
Meningococcal protein (MenB)	0.5 mL	IM
Meningococcal serogroup B (MenB)	0.5 mL	IM
Meningococcal polysaccharide (MPSV)	0.5 mL	SubCut
Pneumococcal conjugate (PCV13)	0.5 mL	IM
Pneumococcal polysaccharide (PPSV)	0.5 mL	IM or SubCut
Tetanus, Diphtheria (Td) with Pertussis (Tdap)	0.5 mL	IM
Varicella (VAR)	0.5 mL	SubCut
Zoster (HZV)	0.65 mL	SubCut

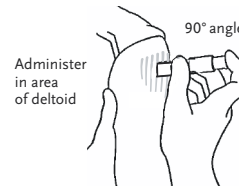
Intramuscular (IM) injection



Subcutaneous (SubCut) injection



Intradermal (ID) administration of Fluzone ID vaccine



Intranasal (NAS) administration of Flumist (LAIV) vaccine



NOTE: Always refer to the package insert included with each biologic for complete vaccine administration information. CDC's Advisory Committee on Immunization Practices (ACIP) recommendations for the particular vaccine should be reviewed as well. Access the ACIP recommendations at www.immunize.org/acip.

Injection Site and Needle Size

Subcutaneous (SubCut) injection – Use a 23–25 gauge, 5/8" needle. Inject in fatty tissue over triceps.

Intramuscular (IM) injection – Use a 22–25 gauge needle. Inject in deltoid muscle of arm. Choose the needle length as indicated below:

Gender/Weight	Needle Length	
Female or male less than 130 lbs	5/8" * – 1"	* 5/8" needle may be used for patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the subcutaneous tissue is not bunched and the injection is made at a 90-degree angle.
Female or male 130–152 lbs	1"	
Female 153–200 lbs	1–1 1/2"	
Male 153–260 lbs		
Female 200+ lbs	1 1/2"	
Male 260+ lbs		



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How to Administer Intramuscular and Subcutaneous Vaccine Injections to Adults

Intramuscular (IM) Injections

Administer these vaccines via IM route

- *Haemophilus influenzae* type b (Hib)
- Hepatitis A (HepA)
- Hepatitis B (HepB)
- Human papillomavirus (HPV)
- Influenza vaccine, injectable (IIV)
- Influenza vaccine, recombinant (RIV3)
- Meningococcal conjugate (MCV4)
- Meningococcal serogroup B (MenB)
- Pneumococcal conjugate (PCV13)
- Pneumococcal polysaccharide (PPSV23) – may also be given Subcut
- Polio (IPV) – may also be given Subcut
- Tetanus, diphtheria (Td), or with pertussis (Tdap)

Injection site

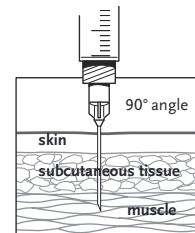
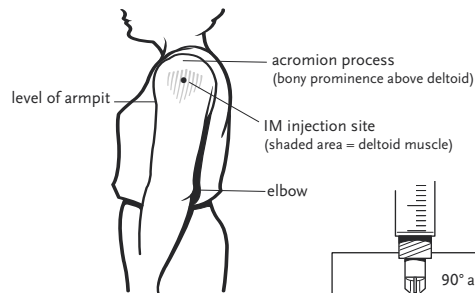
Give in the central and thickest portion of the deltoid muscle – above the level of the armpit and approximately 2–3 fingerbreadths (~2") below the acromion process. See the diagram. To avoid causing an injury, do not inject too high (near the acromion process) or too low.

Needle size

22–25 gauge, 1–1½" needle (see note at right)

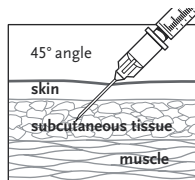
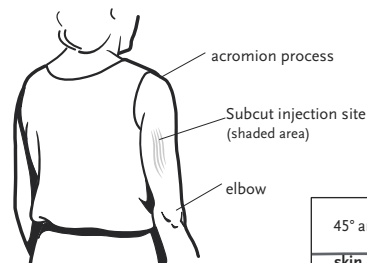
Needle insertion

- Use a needle long enough to reach deep into the muscle.
- Insert the needle at a 90° angle to the skin with a quick thrust.
- Separate two injections given in the same deltoid muscle by a minimum of 1".



Note: A ½" needle is sufficient in adults weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle **only** if the subcutaneous tissue is not bunched and the injection is made at a 90° angle; a 1" needle is sufficient in adults weighing 130–152 lbs (60–70 kg); a 1–1½" needle is recommended in women weighing 153–200 lbs (70–90 kg) and men weighing 153–260 lbs (70–118 kg); a 1½" needle is recommended in women weighing more than 200 lbs (91 kg) or men weighing more than 260 lbs (more than 118 kg).

Subcutaneous (Subcut) Injections



Administer these vaccines via Subcut route

- Measles, mumps, rubella (MMR)
- Meningococcal polysaccharide (MPSV4)
- Pneumococcal polysaccharide (PPSV23) – may also be given IM
- Polio (IPV) – may also be given IM
- Varicella (Var; chickenpox)
- Zoster (HZV; shingles)

Injection site

Give in fatty tissue over the triceps. See the diagram.

Needle size

23–25 gauge, 5/8" needle

Needle insertion

- Pinch up on the tissue to prevent injection into the muscle. Insert the needle at a 45° angle to the skin.
- Separate two injections given in the same area of fatty tissue by a minimum of 1".



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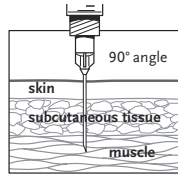
How to Administer Intramuscular, Intradermal, and Intranasal Influenza Vaccines

Intramuscular injection (IM)

Inactivated Influenza Vaccines (IIV), including recombinant hemagglutinin influenza vaccine (RIV3)




- 1 Use a needle long enough to reach deep into the muscle. Infants age 6 through 11 mos: 1"; 1 through 2 yrs: 1–1¼"; children and adults 3 yrs and older: 1–1½".
- 2 With your left hand*, bunch up the muscle.
- 3 With your right hand*, insert the needle at a 90° angle to the skin with a quick thrust.
- 4 Push down on the plunger and inject the entire contents of the syringe. There is no need to aspirate.
- 5 Remove the needle and simultaneously apply pressure to the injection site with a dry cotton ball or gauze. Hold in place for several seconds.
- 6 If there is any bleeding, cover the injection site with a bandage.
- 7 Put the used syringe in a sharps container.

*Use the opposite hand if you are left-handed.







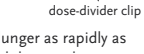
Intradermal administration (ID)

Inactivated Influenza Vaccine (IIV)

- 1 Gently shake the microinjection system before administering the vaccine.
- 2 Hold the system by placing the thumb and middle finger on the finger pads; the index finger should remain free. 
- 3 Insert the needle perpendicular to the skin, in the region of the deltoid, in a short, quick movement.
- 4 Once the needle has been inserted, maintain light pressure on the surface of the skin and inject using the index finger to push on the plunger. Do not aspirate. 
- 5 Remove the needle from the skin. With the needle directed away from you and others, push very firmly with the thumb on the plunger to activate the needle shield. You will hear a click when the shield extends to cover the needle. 
- 6 Dispose of the applicator in a sharps container.

Intranasal administration (NAS)

Live Attenuated Influenza Vaccine (LAIV)

- 1 FluMist (LAIV) is for intranasal administration only. Do not inject FluMist.
- 2 Remove rubber tip protector. Do not remove dose-divider clip at the other end of the sprayer. 
- 3 With the patient in an upright position, place the tip just inside the nostril to ensure LAIV is delivered into the nose. The patient should breathe normally. 
- 4 With a single motion, depress plunger as rapidly as possible until the dose-divider clip prevents you from going further. 
- 5 Pinch and remove the dose-divider clip from the plunger. 
- 6 Place the tip just inside the other nostril, and with a single motion, depress plunger as rapidly as possible to deliver the remaining vaccine. 
- 7 Dispose of the applicator in a sharps container.



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Vaccines with Diluents: How to Use Them

Be sure to reconstitute the following vaccines correctly before administering them! Reconstitution means that the lyophilized (freeze-dried) vaccine powder or wafer in one vial must be reconstituted (mixed) with the diluent (liquid) in another.

- Only use the diluent provided by the manufacturer for that vaccine as indicated on the chart.
- ALWAYS check the expiration date on the diluent and vaccine. NEVER use expired diluent or vaccine.

Vaccine product name	Manufacturer	Lyophilized vaccine (powder)	Liquid diluent (may contain vaccine)	Time allowed between reconstitution and use, as stated in package insert ²	Diluent storage environment
ActHIB (Hib)	Sanofi Pasteur	Hib	0.4% sodium chloride	24 hrs	Refrigerator
Hiberix (Hib)	GlaxoSmithKline	Hib	0.9% sodium chloride	24 hrs	Refrigerator or room temp
Imovax (RAB _{HDCV})	Sanofi Pasteur	Rabies virus	Sterile water	Immediately [†]	Refrigerator
M-M-R II (MMR)	Merck	MMR	Sterile water	8 hrs	Refrigerator or room temp
MenHibrix (Hib-MenCY)	GlaxoSmithKline	Hib-MenCY	0.9% sodium chloride	Immediately [†]	Refrigerator or room temp
Menomune (MPSV4)	Sanofi Pasteur	MPSV4	Distilled water	Single-dose vial: Immediately [†] Multidose vial: 35 days	Refrigerator
Menveo (MenACWY)	GlaxoSmithKline	MenA	MenCWY	8 hrs	Refrigerator
Pentacel (DTaP-IPV/Hib)	Sanofi Pasteur	Hib	DTaP-IPV	Immediately [†]	Refrigerator
ProQuad (MMRV)	Merck	MMRV	Sterile water	30 min	Refrigerator or room temp
RabAvert (RAB _{PCCV})	GlaxoSmithKline	Rabies virus	Sterile water	Immediately [†]	Refrigerator
Rotarix (RV1) [‡]	GlaxoSmithKline	RV1	Sterile water, calcium carbonate, and xanthan	24 hrs	Refrigerator or room temp
Varivax (VAR)	Merck	VAR	Sterile water	30 min	Refrigerator or room temp
YF-VAX (YF)	Sanofi Pasteur	YF	0.9% sodium chloride	60 min	Refrigerator
Zostavax (HZV)	Merck	HZV	Sterile water	30 min	Refrigerator or room temp

Always refer to package inserts for detailed instructions on reconstituting specific vaccines. In general, follow the steps below.

- 1 For single-dose vaccine products (exception is Rotarix[®]), select a syringe and needle of proper length to be used for both reconstitution and administration of the vaccine. Following reconstitution, Menomune in a multidose vial will require a new needle and syringe for each dose of vaccine to be administered. For Rotarix, see the package insert.³
- 2 Before reconstituting, check labels on both the lyophilized vaccine vial and the diluent to verify that
 - they are the correct two products to mix together,
 - the diluent is the correct volume (especially for Menomune in the multidose vial), and
 - neither the vaccine nor the diluent has expired.
- 3 Reconstitute (i.e., mix) vaccine **just prior to use** by
 - removing the protective caps and wiping each stopper with an alcohol swab,
 - inserting needle of syringe into diluent vial and withdrawing entire contents, and
 - injecting diluent into lyophilized vaccine vial and rotating or agitating to thoroughly dissolve the lyophilized powder.
- 4 Check the appearance of the reconstituted vaccine.
 - Reconstituted vaccine may be used if the color and appearance match the description on the package insert.
 - If there is discoloration, extraneous particulate matter, obvious lack of resuspension, or the vaccine cannot be thoroughly mixed, mark the vial as "DO NOT USE," return it to proper storage conditions, and contact your state or local health department immunization program or the vaccine manufacturer.
- 5 If reconstituted vaccine is not used immediately or comes in a multidose vial (i.e., multi-dose Menomune), be sure to
 - clearly mark the vial with the date and time the vaccine was reconstituted,
 - maintain the product at 2°–8°C (36°–46°F); do not freeze, and
 - use only within the time indicated on chart above.

[†] If the reconstituted vaccine is not used within this time period, it must be discarded.

[†] For purposes of this guidance, IAC defines "immediately" as within 30 minutes or less.

[‡] Rotarix vaccine is administered by mouth using the applicator that contains the diluent. It is not administered as an injection.

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Medical Management of Vaccine Reactions in Adult Patients

All vaccines have the potential to cause an adverse reaction. In order to minimize adverse reactions, patients should be carefully screened for precautions and contraindications before vaccine is administered (see www.immunize.org/catg.d/p3072.pdf). Even with careful screening, reactions may occur. These reactions can vary from trivial and inconvenient (e.g., soreness, itching) to severe and life threatening (e.g., anaphylaxis). Vaccine providers should be familiar with identifying

immediate-type allergic reactions, including anaphylaxis, and be competent in treating these events at the time of vaccine administration. Providers should also have a plan in place to contact emergency medical services immediately in the event of a severe acute vaccine reaction. Maintenance of the airway, oxygen administration, and intravenous normal saline might be necessary. The table below describes procedures to follow if various reactions occur.

REACTION	SYMPTOMS	MANAGEMENT
Localized	Soreness, redness, itching, or swelling at the injection site	Apply a cold compress to the injection site. Consider giving an analgesic (pain reliever) or antipruritic (anti-itch) medication.
	Slight bleeding	Apply an adhesive compress over the injection site.
	Continuous bleeding	Place thick layer of gauze pads over site and maintain direct and firm pressure; raise the bleeding injection site (e.g., arm) above the level of the patient's heart.
Psychological fright and syncope (fainting)	Fright before injection is given	Have patient sit
	Extreme paleness, sweating, coldness of the hands and feet, nausea, lightheadedness, dizziness, weakness, or visual disturbances	Have patient lie for several minutes and maintain a cloth over patient's eyes
	Fall, without loss of consciousness	Examine the patient present before. Place patient flat on back
	Loss of consciousness	Check the patient before attempting to move patient. Place patient flat on back
Anaphylaxis	Sudden or gradual onset of generalized itching, erythema (redness), or urticaria (hives); angioedema (swelling of the lips, face, or throat); severe bronchospasm (wheezing); shortness of breath; shock; abdominal cramping; or cardiovascular collapse.	See "Emergency management of Anaphylaxis" on next page for details.

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Medical Management of Vaccine Reactions in Adults (continued)

page 2 of 2

Suggested medications for a community immunization clinic

FIRST-LINE medication

Epinephrine, aqueous 1:1000 (i.e., 1 mg/mL) dilution, in ampules, vials of solution, or prefilled syringes, including epinephrine autoinjectors (e.g., EpiPen and Auv-i-Q). If autoinjectors are stocked, at least three should be available.

Optional medication: H₁ antihistamines

Diphenhydramine (e.g., Benadryl) oral (12.5 mg/5 mL liquid, 25 or 50 mg capsules/tablets) or injectable (50 mg/mL solution)
 Hydroxyzine (e.g., Atarax, Vistaril) oral (10 mg/5 mL or 25 mg/5 mL liquid, 25 mg capsules).

Suggested supplies for a community immunization clinic

- Syringes (1 and 3 cc) and needles (22 and 25 g, 1", 1 1/2", and 2") for epinephrine, diphenhydramine, or hydroxyzine. For ampules, use filtered needles.
- Alcohol wipes
- Tourniquet*
- Adult airways (small, medium, and large)
- Adult size pocket mask with one-way valve
- Oxygen (if available)
- Stethoscope
- Sphygmomanometer (blood pressure measuring device) with adult-size and extra-large cuffs
- Tongue depressors
- Flashlight with extra batteries (for examination of the mouth and throat)
- Wristwatch with a second hand or other timing device
- Cell phone or access to onsite phone

* Applied on the extremity above the injection site to slow systemic absorption of antigen and anaphylactic mediators.

REFERENCES

Simons FE, Camargo CA. Anaphylaxis: Rapid recognition and treatment. In: UpToDate, Bochner BS (Ed). UpToDate: Waltham, MA, 2013.
 Boyce JA, Assa'ad A, Burks AW, et al. Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel. *Allergy Clin Immunol* 2010; 126(6): S1–S57.

Emergency medical protocol for management of anaphylactic reactions in adults

- 1 If itching and swelling are confined to the injection site where the vaccination was given, observe patient closely for the development of generalized symptoms.
- 2 If symptoms are generalized, activate the emergency medical system (EMS; e.g., call 911) and notify the patient's physician. This should be done by a second person, while the primary healthcare professional assesses the airway, breathing, circulation, and level of consciousness of the patient. Vital signs should be monitored continuously.
- 3 **DRUG DOSING INFORMATION: The first-line and most important therapy in anaphylaxis is epinephrine. There are NO contraindications to epinephrine in the setting of anaphylaxis.**
 - a **First-line treatment:** Administer aqueous epinephrine 1:1000 dilution intramuscularly, 0.01 mL/kg/dose (adult dose ranges from 0.3 mL to 0.5 mL, with maximum single dose of 0.5 mL).
 - b **Optional treatment: H₁ antihistamines** for hives or itching; you may also administer diphenhydramine (either orally or by intramuscular injection; the standard dose is 1–2 mg/kg every 4–6 hrs, up to 50 mg maximum single dose) or hydroxyzine (standard oral dose is 0.5–1 mg/kg every 4–6 hrs up to 100 mg maximum single dose).
- 4 Monitor the patient closely until EMS arrives. Perform cardiopulmonary resuscitation (CPR), if necessary, and maintain airway. Keep patient in supine position (flat on back) unless he or she is having breathing difficulty. If breathing is difficult, patient's head may be elevated, provided blood pressure is adequate to prevent loss of consciousness. If blood pressure is low, elevate legs. Monitor blood pressure and pulse every 5 minutes.
- 5 If EMS has not arrived and symptoms are still present, repeat dose of epinephrine every 5–15 minutes for up to 3 doses, depending on patient's response.
- 6 Record the patient's reaction (e.g., hives, anaphylaxis) to the vaccine, all vital signs, medications administered to the patient, including the time, dosage, response, and the name of the medical personnel who administered the medication, and other relevant clinical information. Report the incident to the Vaccine Adverse Event Reporting System (VAERS).
- 7 Notify the patient's primary care physician.

These standing orders for the medical management of vaccine reactions in adult patients shall remain in effect for patients of the

NAME OF CLINIC _____ until rescinded or until _____ DATE _____
 MEDICAL DIRECTOR'S SIGNATURE _____ DATE OF SIGNING _____

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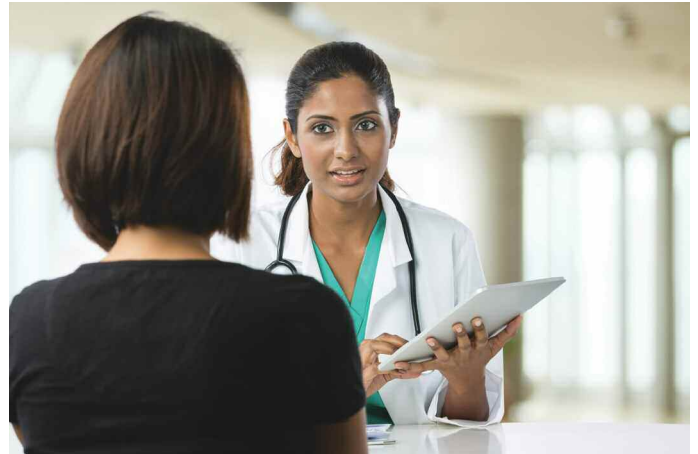
U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

STEP 6:

Documentation and Related Issues

IN THE PREVIOUS CHAPTERS, you learned that you need to provide your patient with a Vaccine Information Statement (VIS) before you administer a vaccine. You also need to document in the patient's record that you provided this VIS. Another important documentation task is to make certain that every person you vaccinate goes home with a record of the vaccination. You can use the *Adult Immunization Record Card* that is available for purchase from the Immunization Action Coalition (IAC) at www.immunize.org/shop/record-cards.asp. You could also check with your state health department to see if they have similar cards available.

Make certain that every person you vaccinate goes home with a record of the vaccination.



Record federally required information about your patient's vaccinations in the patient's permanent medical record or in an office log

Much of the documentation involved in administering vaccines is required under federal law, specifically Section 2125 of the Public Health Service Act [42 U.S.C. §300aa-25] found at <http://wonder.cdc.gov/wonder/help/vaers/42USC300aa-25.htm>. The National Childhood Vaccine Injury Act (NCVIA) of 1986 created the National Vaccine Injury Compensation Program (NVICP) (www.hrsa.gov/vaccine-compensation) to compensate individuals, or families of individuals, who have been injured by certain vaccines.

Much of the documentation involved in administering vaccines is required under federal law.

The vaccines needed by adults and covered by this law include those containing (either alone or in combination) diphtheria, tetanus, pertussis, measles, mumps, rubella, polio, hepatitis A, hepatitis B, *Haemophilus influenzae* type b (Hib), seasonal influenza, pneumococcal conjugate, meningococcal

STEP-BY-STEP: DOCUMENTATION TASKS

- Record federally required information about your patient's vaccinations in the patient's permanent medical record or in an office log
 - Follow CDC guidelines for documenting that you gave the patient current VISs
 - Record specific information about each administered vaccine in your clinic's vaccine administration record
 - Report adverse events that occur after vaccination
- Update your patient's personal vaccination record card or provide a record to your patient
- Update your patient's vaccination record in your state or local Immunization Information System (IIS or registry), if one is available

Even though the term “childhood” is in the title of the National Childhood Vaccine Injury Act, the law includes certain vaccines whenever they are given to infants, children, AND adults.

(ACWY and B), human papillomavirus (HPV), or varicella (chickenpox). Even though the term “childhood” is in the title of the Act, the law includes these vaccines whenever they are given to infants, children, AND adults.

Under the law, there are three main requirements of vaccination providers. You must:

- Give the patient a copy of the relevant federal Vaccine Information Statement (VIS), found at www.immunize.org/vis, for the vaccine he or she is about to receive.
- Record certain information about the administered vaccine(s) in the patient’s medical record or a permanent office log.
- Document any adverse event that the patient experiences following the vaccination and that becomes known to the provider, whether or not you think the vaccine caused the event. Submit the report to the Vaccine Adverse Event Reporting System (VAERS) at <https://vaers.hhs.gov/index>.

Now we’ll cover the details about complying with these three requirements.

Follow CDC guidelines for documenting that you gave the patient current VISs

The Centers for Disease Control and Prevention (CDC) is responsible for developing the VISs and updating them when necessary. Each VIS contains specific information about the disease the vaccine prevents, the vaccine, possible side effects, what to do about serious reactions, and the phone numbers of the National Vaccine Injury Compensation



The patient must always be offered a copy of the VIS to take home.

Program and the Vaccine Adverse Event Reporting System. VISs are available from CDC at www.cdc.gov/vaccines/hcp/vis/index.html

or IAC at www.immunize.org/vis. The IAC VIS website is the source for VISs in many languages in addition to English.

Be sure to review CDC’s *Instructions for the Use of Vaccine Information Statements* located at www.cdc.gov/vaccines/hcp/vis/about/required-use-instructions.pdf, as well as IAC’s *It’s Federal Law! You must give your patients current Vaccine Information Statements (VISs)*, available at www.immunize.org/catg.d/p2027.pdf. Remember, “providing” a VIS typically means giving your patients a physical copy to take home. They can, however, review a laminated or electronic version – but the patient must always be offered a copy to take home. Be sure to give the VIS to the patient BEFORE you vaccinate, allowing them enough time to read it. Confirm that you are using the most current version of the VIS by checking the listing of current VIS dates on the IAC website at www.immunize.org/vis.

Record specific information about each administered vaccine in your clinic's vaccine administration record

A second federal requirement calls for the provider to record certain information about the vaccines administered. This information may be recorded in the patient's permanent medical record or in a permanent clinic log. The information required includes:

- date the vaccination was given;
- vaccine manufacturer and lot number of the vaccine administered;
- name, address (location where the information will be stored), and title of the individual who administered the vaccine;
- edition (date of publication) of the VIS (found at the bottom of the back page of the VIS*); and
- date the VIS was given to the patient.

* Each VIS also contains a barcode that allows the edition date to be scanned into the record, with the proper software.

IAC's *Vaccine Administration Record for Adults*, a paper form suitable for use in a patient's medical chart, simplifies and organizes the information that must be documented. This form, which is available at www.immunize.org/catg.d/p2023.pdf, also provides examples of how you might fill in the form. In addition, most electronic health records contain space to record this information electronically.

Report adverse events that occur after vaccination

The Vaccine Adverse Event Reporting System (VAERS), located at <https://vaers.hhs.gov/index>, serves as a national database that gathers reports of adverse events that occur following immunizations. It provides a tool used by the Food and Drug Administration (FDA) and CDC to look for patterns of events following vaccine administration. VAERS attempts to detect previously unrecognized vaccine-related

events and unusual increases in previously reported events. Both FDA and CDC review data that are reported to VAERS.

All healthcare providers and vaccine manufacturers are required to report post-vaccination adverse events listed in the *VAERS Table of Reportable Events Following Vaccination* found at https://vaers.hhs.gov/docs/VAERS_Table_of_Reportable_Events_Following_Vaccination.pdf. Reports must be made whether or not the provider thinks the vaccine caused the event. Anyone, including vaccine recipients themselves, may submit a report. Healthcare providers should submit VAERS reports online on the VAERS website at <https://vaers.hhs.gov/index>.

<https://vaers.hhs.gov/index>

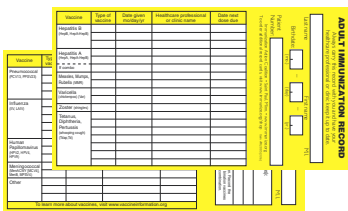
The Vaccine Adverse Event Reporting System (VAERS) serves as a national database that gathers reports of adverse events that occur following immunizations.

Update your patient's personal vaccination record card or provide a record to your patient

In *Step 4: Deciding Whom to Vaccinate*, we covered how to establish your patient's vaccination history. Once you have determined previous vaccinations (or lack thereof), be sure to note them on the immunization record you keep in your patient's chart

and/or in their electronic health record. Include in the record as much information as you've been able to find, even if it's incomplete. The most important elements to include are the type of vaccine and the date it was given (month, day, and year). Don't worry about not having all or any of the other information (such as the manufacturer and lot number) about vaccines that were given elsewhere. That information likely will have been recorded in the original clinic's records.

Don't forget to give the patient a record of the vaccination that he or she just received. If he or she has a personal record card, you can simply update it. If not, you can print out your patient's immunization record from your electronic medical record system, give the patient an *Adult Immunization Record Card*, available at www.immunize.org/shop/record-cards.asp, or provide a similar document after you've filled in the information. This record



www.immunize.org/shop/record-cards.asp

Td, hepatitis A, hepatitis B, varicella, and HPV).

If you are not the primary care provider, it's also important that you provide information about the vaccinations just administered to the patient's primary care provider. Remind the patient to have their primary care clinic update the clinic medical record from the information on the patient's personal immunization record card. You can offer to provide the information for the patient if she or he can give you the primary care clinic's name and address. To assist with this, IAC's *Notification of Vaccination Letter Template* is available at www.immunize.org/catg.d/p3060.pdf.

Update your patient's vaccination record in your state or local Immunization Information System (IIS, or registry), if one is available

An IIS ("registry") is a confidential computerized database that records all vaccine doses administered by participating providers to persons residing within a given area, usually a county or state. At

An IIS can provide a consolidated immunization history to determine what vaccinations a patient needs now and during future visits.



CDC

the time of this writing, there is no nationwide database of individual vaccination records. In your clinic or office, an IIS can provide a consolidated immunization history to determine which vaccinations a patient needs now and during future visits. This can eliminate the need to call other offices for records or have the patient search for his/her own written record. Having a complete vaccination history also will reduce missed opportunities to vaccinate and reduce duplicate vaccinations. Many IISs can accept data directly from an electronic health record, eliminating the need to enter the same vaccination data twice.

We strongly suggest that you participate in an IIS if one is available in your area. Contact the appropriate *State/Territory/City Registry Staff* for information about participating in your IIS. A list of staff in your area is available at www.cdc.gov/vaccines/programs/iis/contacts-registry-staff.html.

That's it! Although properly documenting vaccinations is not complex, it is a critical part of the patient's medical record. Don't miss this important step.

STEP 6: DOCUMENTATION AND RELATED ISSUES

Materials and Resources for You to Use

► TOOLS FOR PROVIDERS

Instructions for the Use of Vaccine Information Statements (CDC) – www.cdc.gov/vaccines/hcp/vis/about/required-use-instructions.pdf

It's Federal Law! You Must Give Your Patients Current Vaccine Information Statements (IAC) www.immunize.org/catg.d/p2027.pdf

Notification of Vaccination Letter Template (IAC) www.immunize.org/catg.d/p3060.pdf

Vaccine Administration Record for Adults (IAC) www.immunize.org/catg.d/p2023.pdf

Vaccine Information Statements (VISs) and Translations (IAC) – www.immunize.org/vis

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

► ADDITIONAL PROVIDER RESOURCES

Current Dates of Vaccine Information Statements (IAC) – www.immunize.org/catg.d/p2029.pdf

IIS State/Territory/City Registry Staff – Main and Technical Contacts (CDC) – www.cdc.gov/vaccines/programs/iis/contacts-registry-staff.html

National Vaccine Injury Compensation Program (HRSA) – www.hrsa.gov/vaccinecompensation

Vaccine Adverse Event Reporting System (VAERS) (HHS) – <https://vaers.hhs.gov/index>

► INFORMATION FOR PATIENTS

Adult Immunization Record Card (IAC) www.immunize.org/shop/record-cards.asp

► GENERAL INFORMATION

Immunization Action Coalition (IAC) www.immunize.org

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p2027.pdf

It's Federal Law! You must give your patients current Vaccine Information Statements (VISs)

What are Vaccine Information Statements (VISs)?

Vaccine Information Statements (VISs) are documents produced by the Centers for Disease Control and Prevention (CDC), in consultation with panels of experts and parents, to properly inform vaccinees (or their parents/legal representatives) about the risks and benefits of each vaccine. VISs are not meant to replace interactions with health care providers, who should address any questions or concerns that the vaccinee (or parent/legal representative) may have.

Using VISs is legally required!

Federal law (under the National Childhood Vaccine Injury Act) requires a health care provider to give a copy of the current VIS to an adult patient or to a child's parent/legal representative before vaccinating an adult or child with a dose of the following vaccines: diphtheria, tetanus, pertussis, measles, mumps, rubella, polio, hepatitis A, hepatitis B, *Haemophilus influenzae* type b (Hib), influenza, pneumococcal conjugate, meningococcal, rotavirus, human papillomavirus (HPV), or varicella (chickenpox).

Where to get VISs

All available VISs can be downloaded from the websites of the Immunization Action Coalition at www.immunize.org/vis or CDC at www.cdc.gov/vaccines/hcp/vis/index.html. Ready-to-copy versions may also be available from your state or local health department.

Translations: You can find VISs in more than 30 languages on the Immunization Action Coalition website at www.immunize.org/vis.

To obtain translations of VIS in languages other than English, go to www.immunize.org/vis.

According to CDC, the appropriate VIS must be given:

- Prior to the vaccination (and prior to each dose of a multi-dose series);
- Regardless of the age of the vaccinee;
- Regardless of whether the vaccine is given in a public or private health care setting.



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

Top 10 Facts About VISs

FACT 1 It's federal law! You must give current* VISs to all your patients before vaccinating them.

Federal law requires that VISs must be used for patients of ALL ages when administering these vaccines:

- DTaP (includes DT)
- Td and Tdap
- Hib
- hepatitis A
- hepatitis B
- HPV
- influenza (inactivated and live, intranasal)
- MMR and MMRV
- meningococcal (MenACWY, MenB)
- pneumococcal conjugate
- polio
- rotavirus
- varicella (chickenpox)

For the vaccines not covered under the National Childhood Vaccine Injury Act (i.e., adenovirus, anthrax, Japanese encephalitis, pneumococcal polysaccharide, rabies, shingles, typhoid, and yellow fever), providers are not required by federal law to use VISs unless they have been purchased under CDC contract. However, CDC recommends that VISs be used whenever these vaccines are given.

*Federal law allows up to 6 months for a new VIS to be used.

FACT 2 VISs can be given to patients in a variety of ways.

In most medical settings, VISs are provided to patients (or their parents/legal representatives) in paper form. However, VISs also may be provided using electronic media. Regardless of the format used, the goal is to provide a current VIS just prior to vaccination.

CONTINUED ON NEXT PAGE ►

Most current versions of VISs (table)

As of July 6, 2017, the most recent versions of the VISs are as follows:

Adenovirus.....	6/11/14	MMR.....	4/20/12
Anthrax.....	3/10/10	MMRV.....	5/21/10
Chickenpox.....	3/13/08	Multi-vaccine.....	11/5/15
Cholera.....	7/6/17	PCV13.....	11/5/15
DTaP.....	5/17/07	PPSV.....	4/24/15
Hib.....	4/2/15	Polio.....	7/20/16
Hepatitis A.....	7/20/16	Rabies.....	10/6/09
Hepatitis B.....	7/20/16	Rotavirus.....	4/15/15
HPV.....	12/2/16	Shingles.....	10/6/09
Influenza.....	8/7/15	Td.....	4/11/17
Japanese enceph.....	1/24/14	Tdap.....	2/24/15
MenACWY.....	3/31/16	Typhoid.....	5/29/12
MenB.....	8/9/16	Yellow fever.....	3/30/11

A handy list of current VIS dates is also available at www.immunize.org/catg.d/p2029.pdf.

Technical content reviewed by the Centers for Disease Control and Prevention
www.immunize.org/catg.d/p2027.pdf • Item #P2027 (7/17)

vaccines (e.g., at a prenatal visit or at birth for vaccines an infant will receive during infancy), as long as you still provide a current VIS right before administering vaccines.

FACT 5 You must provide a current VIS for each dose of vaccine you administer.

The most current VIS must be provided before each dose of vaccine is given, including vaccines given as a series of doses. For example, if 5 doses of a single vaccine are required (e.g., DTaP), the patient (parent/legal representative) must have the opportunity to read the information on the VIS before each dose is given.

FACT 6 You must provide VISs whenever you administer combination vaccines.

If you administer a combination vaccine that does not have a stand-alone VIS (e.g., Kinrix, Quadriacel, Pediarix, Pentacel, Twinrix) you should provide the patient with individual VISs for the component vaccines, or use the Multi-Vaccine VIS (see below).

Vaccine Information Statements (VISs) (continued) page 2 of 2

The Multi-Vaccine VIS may be used in place of the individual VISs for DTaP, Hib, hepatitis B, polio, and pneumococcal when two or more of these vaccines are administered during the same visit. It may be used for infants as well as children through 6 years of age. The Multi-Vaccine VIS should not be used for adolescents or adults.

FACT 7 VISs should be given in a language/format that the recipient can understand, whenever possible.

For patients who don't read or speak English, the law requires that providers ensure all patients (parent/legal representatives) receive a VIS, regardless of their ability to read English. To obtain VISs in more than 30 languages, visit the Immunization Action Coalition website at www.immunize.org/vis. Providers can supplement VISs with visual presentations or oral explanations as needed.

FACT 8 Federal law does not require signed consent in order for a person to be vaccinated.

Signed consent is not required by federal law for vaccination (although some states may require it).

FACT 9 To verify that a VIS was given, providers must record in the patient's medical record (or permanent office log or file) the following information:

- The edition date of the VIS (found on the back at the right bottom corner)
- The date the VIS is provided (i.e., the date of the visit when the vaccine is administered)
- In addition, providers must record:
 - The office address and name and title of the person who administers the vaccine
 - The date the vaccine is administered
 - The vaccine manufacturer and lot number

FACT 10 VISs should not be altered before giving them to patients, but you can add some information.

Providers should not change a VIS or write their own VISs. However, it is permissible to add a practice's name, address, and contact information to an existing VIS.

Additional resources on VISs and their use are available from the following organizations:

- **Immunization Action Coalition**
 - VIS general information and translations in more than 30 languages: www.immunize.org/vis
 - Current Dates of Vaccine Information Statements: www.immunize.org/catg.d/p2029.pdf

- **Centers for Disease Control and Prevention**
 - VIS website: www.cdc.gov/vaccines/hcp/vis
 - VIS Facts: www.cdc.gov/vaccines/hcp/vis/about/facts-vis.html
 - VIS FAQs: www.cdc.gov/vaccines/hcp/vis/about/vis-faqs.html

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www.immunize.org/catg.d/p2027.pdf • Item #P2027 (7/17)

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/vis

Vaccine Information Statements

By Federal Law, You Must Provide Current VISs

VACCINE INDEX

LANGUAGE INDEX

A-Z

- ➔ Adenovirus
- ➔ Anthrax
- ➔ Chickenpox (varicella)
- ➔ Cholera
- ➔ DTaP
- ➔ Hepatitis A
- ➔ Hepatitis B
- ➔ Hib
- ➔ HPV
- ➔ Influenza - IIV

- ➔ Influenza - LAIV
- ➔ J. encephalitis
- ➔ MenACWY
- ➔ MenB
- ➔ MMR
- ➔ MMRV
- ➔ Multi-vaccine
- ➔ PCV13
- ➔ PPSV

- ➔ Polio - IPV
- ➔ Rabies
- ➔ Rotavirus
- ➔ Shingles
- ➔ Smallpox
- ➔ Tetanus
- ➔ Tdap
- ➔ Typhoid
- ➔ Yellow fever

VACCINE INFORMATION STATEMENT

Influenza (Flu) Vaccine (Inactivated or Recombinant): What you need to know

Many Vaccine Information Statements are available in Spanish and other languages. See www.immunize.org/vis.
Hoja de información sobre vacunas está disponible en español y en muchos otros idiomas. Visite www.immunize.org/vis.

1 Why get vaccinated?

Influenza ("flu") is a contagious disease that spreads around the United States every year, usually between October and May.

Flu is caused by influenza viruses, and is spread mainly by coughing, sneezing, and close contact.

Anyone can get flu. Flu strikes suddenly and can last several days. Symptoms vary by age, but can include:

- fever/chills
- sore throat
- muscle aches
- fatigue
- cough
- headache
- runny or stuffy nose

Flu can also lead to pneumonia and blood infections, and cause diarrhea and seizures in children. If you have a medical condition, such as heart or lung disease, flu can make it worse.

Flu is more dangerous for some people. Infants and young children, people 65 years of age and older, pregnant women, and people with certain health conditions or a weakened immune system are at greatest risk.

Each year **thousands of people in the United States die from flu**, and many more are hospitalized.

Flu vaccine can:

- keep you from getting flu,
- make flu less severe if you do get it, and
- keep you from spreading flu to your family and other people.

3 Some people should not get this vaccine

Tell the person who is giving you the vaccine:

- **If you have any severe, life-threatening allergies.** If you ever had a life-threatening allergic reaction after a dose of flu vaccine, or have a severe allergy to any part of this vaccine, you may be advised not to get vaccinated. Most, but not all, types of flu vaccine contain a small amount of egg protein.
- **If you ever had Guillain-Barré Syndrome (also called GBS).** Some people with a history of GBS should not get this vaccine. This should be discussed with your doctor.
- **If you are not feeling well.** It is usually okay to get flu vaccine when you have a mild illness, but you might be asked to come back when you feel better.

DECLARACION DE INFORMACIÓN DE VACUNA

Vacuna (inactiva o recombinante) contra la influenza (gripe): Lo que debe saber

Many Vaccine Information Statements are available in English, Spanish and other languages. See www.immunize.org/vis.
La hoja de información sobre vacunas está disponible en español y en muchos otros idiomas. Visite www.immunize.org/vis.

1 ¿Por qué vacunarse?

La influenza (gripe o el "flu") es una enfermedad contagiosa que se propaga por los Estados Unidos cada año, normalmente entre octubre y mayo.

La influenza es causada por el virus de influenza, y la mayoría de las veces se propaga a través de tos, estornudos y contacto cercano. Cualquier persona puede contraer la influenza. Los síntomas aparecen repentinamente, y pueden durar varios días. Los síntomas varían según la edad, pero pueden incluir:

- fiebre o escalofríos
- tos
- dolor de garganta
- dolor de cabeza
- dolor muscular
- congestión o secreción nasal
- cansancio

La influenza también puede causar neumonía e infecciones en la sangre, y puede causar diarrea y convulsiones en los niños. Si tiene una condición médica, como cardiopatía o una enfermedad en los pulmones, la influenza la puede empeorar.

La influenza es más grave en algunas personas. Los niños pequeños, gente de 65 años de edad o mayores, mujeres embarazadas y gente con ciertas condiciones físicas o un sistema inmunológico debilitado corren mayor riesgo.

Cada año **miles de personas en los Estados Unidos mueren a causa de la influenza**, y muchas más son hospitalizadas.

La vacuna contra la influenza puede:

- prevenir que usted se enferme de la influenza,
- reducir la severidad de la influenza si la contrae, y
- prevenir que contagie a su familia y otras personas con la influenza.

2 Vacunas contra la influenza inactivas y recombinantes

Se recomienda una dosis de la vacuna contra la influenza cada temporada de influenza. Algunos niños, entre los 6 meses a 8 años de edad, pueden necesitar dos dosis durante la misma temporada de influenza. Todos los demás sólo necesitan una dosis en cada temporada de influenza.

Algunas vacunas antigripales inactivas contienen una muy pequeña cantidad de timerosal, un preservativo que contiene mercurio. Los estudios no han demostrado que el timerosal en las vacunas es dañino, pero hay vacunas antigripales disponibles que no contienen timerosal.

No hay ningún virus vivo en las inyecciones contra la influenza. **No pueden causar la influenza.**

3 Algunas personas no deben recibir esta vacuna

Dígale a la persona que lo vacune:

- **Si tiene alguna alergia grave y potencialmente mortal.** Si ha tenido una reacción alérgica y potencialmente mortal después de una vacuna antigripal, o si es gravemente alérgico a cualquier componente de esta vacuna, se le podrá aconsejar que no se vacune. La mayoría, pero no todas, las vacunas antigripales contienen una pequeña cantidad de proteína de huevo.
- **Si ha tenido el Síndrome de Guillain-Barré (también conocido como GBS).** Algunas personas con antecedentes de GBS no deben recibir esta vacuna. Debe consultar a su médico sobre esto.
- **Si no se siente bien.** Normalmente está bien el ser vacunado contra la influenza cuando está levemente enfermo, pero es posible que se le pida regresar cuando se sienta mejor.

4 Riesgos de reacción a la vacuna

Igual que cualquier medicamento, incluyendo las vacunas, hay riesgo de efectos secundarios. Normalmente son leves y se resuelven solos, pero también pueden ocurrir reacciones graves.

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

Influenza VIS in English and Spanish

To access the current, ready-to-copy version of this piece, visit

www.immunize.org/catg.d/p2029.pdf

Current Dates of Vaccine Information Statements (VISs) as of July 6, 2017

Check your supply of VISs against this list. If you have outdated VISs, get current versions at www.immunize.org/vis.

Adenovirus.....	6/11/14	MMR.....	4/20/12
Anthrax.....	3/10/10	MMRV.....	5/21/10
Chickenpox.....	3/13/08	Multi-vaccine.....	11/5/15
Cholera.....	7/6/17	PCV13.....	11/5/15
DTaP.....	5/17/07	PPSV.....	4/24/15
Hib.....	4/2/15	Polio.....	7/20/16
Hepatitis A.....	7/20/16	Rabies.....	10/6/09
Hepatitis B.....	7/20/16	Rotavirus.....	4/15/15
HPV.....	12/2/16	Shingles.....	10/6/09
Influenza.....	8/7/15	Td.....	4/11/17
Japanese enceph.....	1/24/14	Tdap.....	2/24/15
MenACWY.....	3/31/16	Typhoid.....	5/29/12
MenB.....	8/9/16	Yellow fever.....	3/30/11

Immunization Action Coalition www.immunize.org/catg.d/p2029.pdf • Item #P2029 (7/17)

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MenACWY.....	3/31/16	Typhoid.....	5/29/12
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Immunization Action Coalition www.immunize.org/catg.d/p2029.pdf • Item #P2029 (7/17)



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Cholera.....	7/6/17	PCV13.....	11/5/15
DTaP.....	5/17/07	PPSV.....	4/24/15
Hib.....	4/2/15	Polio.....	7/20/16
Hepatitis A.....	7/20/16	Rabies.....	10/6/09
Hepatitis B.....	7/20/16	Rotavirus.....	4/15/15
HPV.....	12/2/16	Shingles.....	10/6/09
Influenza.....	8/7/15	Td.....	4/11/17
Japanese enceph.....	1/24/14	Tdap.....	2/24/15
MenACWY.....	3/31/16	Typhoid.....	5/29/12
MenB.....	8/9/16	Yellow fever.....	3/30/11

Immunization Action Coalition www.immunize.org/catg.d/p2029.pdf • Item #P2029 (7/17)

Current Dates of Vaccine Information Statements (VISs) as of July 6, 2017

Check your supply of VISs against this list. If you have outdated VISs, get current versions at www.immunize.org/vis.

Adenovirus.....	6/11/14	MMR.....	4/20/12
Anthrax.....	3/10/10	MMRV.....	5/21/10
Chickenpox.....	3/13/08	Multi-vaccine.....	11/5/15
Cholera.....	7/6/17	PCV13.....	11/5/15
DTaP.....	5/17/07	PPSV.....	4/24/15
Hib.....	4/2/15	Polio.....	7/20/16
Hepatitis A.....	7/20/16	Rabies.....	10/6/09
Hepatitis B.....	7/20/16	Rotavirus.....	4/15/15
HPV.....	12/2/16	Shingles.....	10/6/09
Influenza.....	8/7/15	Td.....	4/11/17
Japanese enceph.....	1/24/14	Tdap.....	2/24/15
MenACWY.....	3/31/16	Typhoid.....	5/29/12
MenB.....	8/9/16	Yellow fever.....	3/30/11

Immunization Action Coalition www.immunize.org/catg.d/p2029.pdf • Item #P2029 (7/17)

STEP 7A:

Financial Considerations



IMPORTANT NOTE: In 2010, the Affordable Care Act (ACA) established measures to improve payment coverage for the provision of vaccinations for adults. The ACA mandated that all ACIP-recommended vaccines be provided at no cost to insured patients, with some exceptions under Medicare. Therefore, many of the financial barriers that might have kept many adults from seeking and receiving vaccines were significantly reduced or removed.

At the time of this *Guide*'s publication, the ACA is still in effect in the United States. However, its continuation has been the subject of debate in the U.S. Congress, which eventually could result in many provisions of the ACA being discontinued or altered significantly in the future. Although the general principles about vaccine financing discussed in this chapter were accurate at the time of publication, **users of this *Guide* are advised to consult current vaccine financing resources for up-to-date information.**

WHILE THE OUT-OF-POCKET COSTS for patients receiving recommended vaccines have been mostly eliminated thanks to the ACA, the cost to the provider for delivery of vaccines is not likely to vanish. Even though insurance coverage of ACIP-recommended vaccines reduces the uncertainty surrounding vaccination coverage for many patients, providers will continue to wrestle with the challenges of receiving adequate payment. And as the ACA and other funding programs continue to be implemented and/or altered, providers will continue to face additional challenges in trying to understand remaining issues, such as the difference between “traditional” and “expanded” coverage of Medicaid patients, and how to verify insurance status, or lack thereof, for many adults who remain uninsured or whose insurance status is unknown. Under the ACA, even “grandfathered” plans (those that existed before enactment of ACA and that have changed very little since that time) eventually were expected to disappear. But for now, those plans that do not provide vaccination coverage for patients will continue to be a challenge for providers seeking remuneration for vaccination services.

Obviously, you want to ensure that your healthcare setting's adult vaccination program stays in the black. One way to accomplish this is to identify free or low-cost resources to help guide you in billing effectively for services you provide to your patients. This chapter offers suggestions that may help in recovering some or all of your costs.

STEP-BY-STEP: FINANCIAL CONSIDERATIONS

- *Standards for Adult Immunization Practice: How it should work*
- Finding free or discounted vaccines
 - Vaccines For Children (VFC) program
 - Health departments
 - Other organizations
 - Bulk purchasing
- Investigating possible third-party coverage for the cost of vaccines and/or vaccine administration
 - Private insurance
 - Medicare (Part B and Part D)
 - Medicaid
- Finding your way through the billing maze
 - Coding your work for billing purposes
 - More resources

Standards for Adult Immunization Practice: How it should work

In the *Standards for Adult Immunization Practice* (“Standards”), available at www.cdc.gov/vaccines/hcp/adults/for-practice/standards/index.html, all providers of health care to adults are urged to assess for, and strongly recommend, appropriate vaccines. The *Standards* guidance also urges providers to administer the recommended vaccines.

However, if your primary work with patients does not include administering vaccinations, the *Standards* emphasize that you should counsel patients on the importance of vaccines, refer them to an immunization provider, and follow up to be sure they received appropriate vaccines.

This chapter offers suggestions about how to cover the costs of implementing vaccination services.

Providing vaccination services may require resources beyond your current capabilities. Hopefully, you can use your existing human resources to develop an adult immunization program. However, you probably will need additional financial resources to acquire vaccines and other supplies. This chapter offers suggestions about how to cover the costs of implementing vaccination services.

Finding free or discounted vaccines

Vaccines For Children (VFC) program (for children and teens through age 18 years)

Vaccines For Children (VFC) is a federal entitlement program that provides free vaccines for all persons from birth through 18 years of age who are either uninsured, Native American or Alaska Native, or enrolled in Medicaid. In addition, VFC currently covers persons who are “underinsured,” i.e., those with health insurance that doesn’t cover the costs of vaccination. The number of existing grandfathered plans has dropped significantly, reducing the number of children eligible for VFC because they are underinsured. If you have patients younger than age 19 who meet the VFC eligibility criteria, contact the VFC coordinator at your state, territory, or city health department for additional information. The website for each health department is available at www.cdc.gov/vaccines/imz-managers/awardee-imz-websites.html.

Health departments

If your clinic is new to vaccination, be sure to let staff at the state health department know that you are planning to begin providing vaccines. Not only can they help you with vaccine logistics (see *Step 3: Vaccine Storage and Handling*), but they also may have programs to supply some adult vaccines purchased through non-VFC sources. For example, at the time of this publication, the ACA had authorized states to buy competitively priced adult vaccines with state funds through federally negotiated

contracts. But vaccines purchased through these contracts cannot be resold, nor can the patient be charged for the cost of the vaccine or its administration. (Some states have established special programs to supply adult vaccines to providers and allow them to charge a state-established administration fee for giving these vaccines.) In addition, the federal Section 317 grant program is one of the primary funding sources for immunization programs in all territories, state health departments, and some

Bottom line: Vaccine availability for adults varies greatly from state to state.

major city health departments. Under the ACA, funding from the 317 program that previously was used to cover uninsured/underinsured children may now be avail-

able to fund vaccines for other populations, including adults.

Bottom line: Vaccine availability for adults varies greatly from state to state. Be sure to check with your state immunization program (listing available at www.immunize.org/coordinators) to determine the options available for you.

Other organizations

Local civic organizations, foundations, or service organizations (e.g., Rotary, Lions, Eagles, etc.) may be able to give support for a one-time vaccination effort, such as a special Tdap booster dose clinic. Reaching out also provides an opportunity to develop an ongoing relationship with these community groups. It never hurts to ask.

One good option for securing bulk discounts is to look for and join a group purchasing organization or physician buying group.

Bulk purchasing

Bulk purchasing of vaccines will usually lower the per-unit cost. If your clinic is part of a government entity (e.g., county jail, public school, etc.), check

to see if there is a government contract in your state through which you can purchase vaccines. If you are in the private sector, one good option for securing bulk discounts is to look for and join a group purchasing organization or physician buying group. Or you might consider forming a coalition of agencies or practices in your area to explore your purchasing options. Some commercial vendors (e.g., TransActRx) are available to assist providers with bulk purchasing.

Investigating possible third-party coverage for the cost of vaccines and/or vaccine administration

Private insurance

Under the ACA, all persons enrolled in third-party insurance (including self-insured or self-funded Employee Retirement Income Security Act of 1974



[ERISA] plans) or in a health plan obtained through federal- or state-run exchanges are required to have access to all ACIP-recommended vaccines at no charge. (As noted previously, this provision is subject to change if the ACA is revised or repealed.) However, if you are not an in-network provider for the patient's health plan (for example, many pharmacists are not considered in-network), the ACA mandate does not apply, and a co-payment probably will be required of the patient. Additionally, until all health plans lose their "grandfathered" status under the ACA, some patients will remain in grandfathered plans that still require a co-payment.

Be sure to check for these exceptions when providing vaccinations for your patients.

Medicare

Medicare Part B

Medicare Part B (medical insurance) statutorily covers four recommended vaccines for Medicare

Medicare Part B statutorily covers four recommended vaccines for Medicare beneficiaries, i.e., influenza, pneumococcal (both PPSV23 and PCV13), and hepatitis B (for patients at high or intermediate risk).

beneficiaries, i.e., influenza, pneumococcal (both PPSV23 and PCV13), and hepatitis B (for patients at high or intermediate risk). *Medicare Part B does not cover other vaccinations (e.g., Tdap and zoster)*

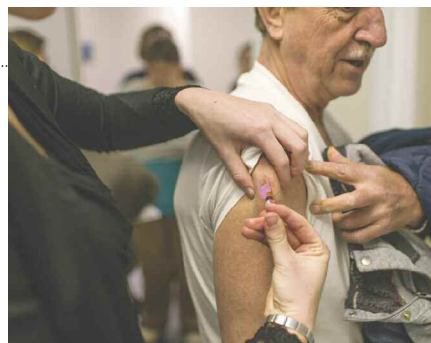
unless they are directly related to the **treatment** of an injury or direct **exposure** to a disease, such as anti-rabies treatment or tetanus prevention due to an injury. In the absence of injury or direct exposure, *preventive* immunization against diseases such as tetanus, pertussis, or diphtheria is not covered by Part B.

If you plan to provide influenza or pneumococcal vaccines to patients who are enrolled in Medicare Part B, the cost of the vaccines and their administration is reimbursable without any co-pay or deductible to the beneficiary. Under Part B, providers administer these vaccines and submit a claim to their Medicare Administrative Contractor (MAC) for both the vaccine and its administration. For patients enrolled in Medicare Advantage (MA) plans (Medicare Part C), in-

If you're not already a Medicare provider, it's easy to enroll.

network physicians submit claims to the patient's MA plan.

If you're not already a Medicare provider, it's easy to enroll. Contact the Medicare Part B contractor in your state or the Regional Office of the Centers for Medicare and Medicaid Services (CMS) serving your area to ask about becoming a Medicare provider.



(See contact information below.) CMS encourages providers wishing to

enroll to use its Internet-based Provider Enrollment, Chain, and Ownership System (PECOS).

Medicare Part B Administrative Contractors:
www.cms.gov/medicare-coverage-database/indexes/contacts-part-b-medicare-administrative-contractor-index.aspx?bc=AgAAAAAAAAAA&

CMS Regional Offices:
www.cms.gov/Medicare/Coding/ICD10/CMS-Regional-Offices.html

Medicare Provider-Supplier Enrollment:
www.cms.gov/Medicare/Provider-Enrollment-and-Certification/MedicareProviderSupEnroll/index.html

Internet-Based Provider Enrollment, Chain, and Ownership System (PECOS):
www.cms.gov/Medicare/Provider-Enrollment-and-Certification/MedicareProviderSupEnroll/InternetbasedPECOS.html

Medicare Part D (outpatient prescription drug insurance) plans generally cover vaccines that Part B does not cover.

Medicare Part D

Medicare Part D (outpatient prescription drug insurance) plans generally cover vaccines that Part B does not cover (e.g., Tdap and zoster), as long as the vaccine is ACIP-recommended. Payment for Part D-covered vaccines and their administration is made solely by the participating prescription drug plan. However, you may not be able to bill some Part D plans directly, and you may need to work with your patients and their Part D plans to obtain payment. One option is to ask patients to pay up front

and then submit their claims to their Part D plans. CMS describes a variety of options to obtain reimbursement for vaccines without requiring the patient to pay the full out-of-pocket charge under Part D. Many pharmacies provide Medicare Part D vaccines to patients and already have systems in place to bill Part D plans for Medicare Part D medications, as well as vaccines. Some commercial vendors (e.g., TransActRx) are available to assist providers with Part D reimbursements.

To contact Part D plans: www.medicare.gov/find-a-plan/questions/search-by-plan-name-or-plan-ID.aspx

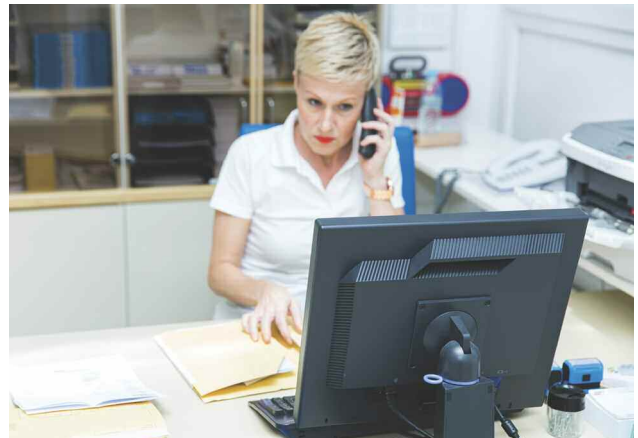
For CMS Part D reimbursement assistance: www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/Vaccines-Part-D-Factsheet-ICN908764.pdf

Medicaid

Medicaid is the nation's largest public insurance program for low-income and medically indigent persons. It is jointly funded by federal and state governments but is administered by the states. With the implementation of the ACA, states were given the option to adopt an "expanded" Medicaid program that would substantially increase the number of people eligible for Medicaid, while also granting them the 10 essential health benefits (including vaccinations) established by the ACA. However, at the time of this publication, only 32 states and the District of Columbia opted to expand their Medicaid programs and cover vaccinations at no cost to patients. The remaining states stayed with "traditional" Medicaid, thus not providing the ACA's

You should check with your state agency to determine if your state offers an expanded or traditional Medicaid program and how this might affect your immunization activities.

immunization benefits to a larger group of people. A map indicating *Where States Stand on Medicaid Expansion Decisions* is available at www.nashp.org/states-stand-medicaid-expansion-decisions. However, this information can fluctuate, so you should check with your state agency to determine if your state offers an expanded or traditional Medicaid program and how this might affect your immunization activities.



Finding your way through the billing maze

Yes, immunization financing can be a complex maze. But there's usually someone in your practice who deals with billing issues routinely and can already recite many of the Current Procedural Terminology (CPT) codes without opening the latest coding manual from the American Medical Association (AMA).

To help you along, though, be sure to check *Quick Tips for Billing for Vaccines* found on page 102. A helpful guide,

How to Bill for Adult Immunizations (located in Step 7B), was adapted from the American College of Physicians' *Billing and Coding Adult Immunizations* (updated in 2015), which is available at www.acp.org/running_practice/payment_coding/coding/billvaccines.pdf. In addition, a concise document, *Medicare Part B Immunization Billing: Seasonal Influenza Virus, Pneumococcal, and Hepatitis B*,

Be sure to check *Quick Tips for Billing for Vaccines* found on page 102.

is available from CMS at www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/qv_immun_bill.pdf.

Coding your work for billing purposes

Whether you are submitting a paper or electronic claim, you will need to use codes for the specific

Whether you are submitting a paper or electronic claim, you will need to use codes for the specific vaccination services you provide.

vaccination services you provide. Appropriate Current Procedural Terminology (CPT®) and International Classification of Diseases

(ICD-10) codes are required for each immunization claim. Even if immunization is considered a routine service by the insurer, appropriate coding will be required for payment.

The CPT, developed in 1966 by the American Medical Association (AMA) and updated annually, is the coding system currently used to identify medical procedures. CPT codes are used to define the services provided to individual patients with specific diagnoses. Coding provides a uniform language for all medical, surgical, and diagnostic services, and thereby serves as an effective means of communication among healthcare providers, patients, and third-party payers nationwide.

Accurate coding on a standard claim form ensures that patients and third-party payers are billed for services received and that healthcare providers are paid for services rendered.



A 5-digit CPT code has been established for most medical services and procedures, and there is a corresponding financial value for almost every CPT code. All carriers use the same CPT codes for billing. Accurate coding on a standard claim form ensures that patients and third-party payers are billed for services received and that healthcare providers are paid for services rendered.

In addition to the **procedure code (CPT)** that describes the service performed, a **diagnostic code (ICD-10)** is usually required. The official system of assigning codes to diagnoses is the ICD-10-CM, or *International Classification of Diseases, 10th Revision, Clinical Modification*, which consists of a tabular listing of diseases. (Note: “ICD-10-CM” is typically shortened to “ICD-10.”) ICD-10 became effective on October 1, 2015. For patient billing purposes, both a CPT code and an ICD-10 code are required. You can find a list of the CPT and ICD-10 billing codes currently used for most vaccines in *How to Bill for Adult Immunizations* (Step 7B). But remember that codes can change, and providers should stay aware of these changes. In addition, some payers also require National Drug Code (NDC) numbers when billing.

More resources

Some excellent resources are available to assist you in obtaining reimbursement for immunization against vaccine-preventable diseases. Many manufacturers have hotlines to assist providers in coding immunization services and to offer help with

One particularly helpful resource has been developed by the National Adult and Influenza Immunization Summit (NAIIS): “Coding and Billing for Adult Vaccinations.”

preparing claims and appeals, as well as information on specific vaccine coverage and reimbursement policies among various payers. Contact your vaccine sales representative to learn more about reimbursement support services.

One particularly helpful resource has been developed by the National Adult and Influenza Immunization Summit (NAIIS). At this organization’s “Coding and Billing for Adult Vaccinations” web page

(www.izsummitpartners.org/naiis-workgroups/access-provider-workgroup/coding-and-billing), you will find the top questions asked about coding and/or billing for adult vaccinations, scenarios that detail how to go about coding and billing for adult vaccines, and collected resources from the Summit’s medical association, public health, and vaccine manufacturing partners.

Finally, several medical specialty organizations have developed web resources to assist with billing for adult vaccines. Be sure to check the sites shown below for additional information.

American Academy of Family Physicians:
www.aafp.org/practice-management/payment/coding/admin.html

American College of Obstetricians and Gynecologists: www.immunizationforwomen.org/practice_management/coding

American College of Physicians:
www.acponline.org/running_practice/payment_coding/coding/billvaccines.pdf

QUICK TIPS FOR BILLING FOR VACCINES

(see Step 7B for more detailed information)

Select the correct CPT code for the vaccine that was administered.

- Codes should accurately reflect what is documented in the patient's medical record. Vaccine product codes are listed in the Medicine section of the CPT manual and are represented by **CPT codes codes 90620 through 90756**.

Add the proper vaccine administration CPT code.

- Every vaccine administered and billed should have a related vaccine administration service code. The vaccine administration CPT codes are in the Medicine section of the CPT manual and are represented by **CPT codes 90460 through 90474**. These codes take into consideration the age of the patient, the order and route of vaccines administered, and whether face-to-face counseling was provided by the physician. (CPT codes 90460 and 90461 are exclusively for use with patients through the age of 18 years and should not be used when coding for administration of a vaccine given to someone 19 years of age or older.)
- **NOTE:** When billing Medicare Part B for influenza, pneumococcal, or hepatitis B vaccines, CMS requires you to report Healthcare Common Procedure Coding System (HCPCS) administration codes rather than CPT administration codes. These codes are: influenza – G0008, pneumococcal – G0009, and hepatitis B – G0010.

Link the appropriate diagnosis (ICD-10) code to each CPT code for the vaccine and the vaccine administration service.

- In ICD-10, **all** vaccines and vaccine services are coded as Z23. This is a significant change from ICD-9 (used prior to October 1, 2015), which required individual codes by type or disease for prophylactic vaccination encounters.

Add the CPT codes for any significant, separately identifiable evaluation and management (E&M) service or other services performed on the same date as a vaccination service.

- Be sure to include laboratory services, x-rays, etc., taking care to match the service with the appropriate ICD-10 code to describe why each service was performed.
- In some circumstances, attach the modifier “-25” for the outpatient office E&M code. If an E&M service and another separately identified service (such as vaccine administration) are performed during the patient visit, the modifier “-25” may be necessary. For example, an adult is seen for an injured ankle, and upon review of the chart the physician sees that the patient has not yet received an influenza vaccination and takes this opportunity to provide the vaccine. In a situation like this, some health plans may require the use of the modifier “-25” on the claim form to identify that the services are not related. When using the preventive medicine services codes 99381 through 99395, use of the “-25” modifier is usually not necessary.

STEP 7A: FINANCIAL CONSIDERATIONS**Materials and Resources for You to Use****► ADDITIONAL PROVIDER RESOURCES****Adult Immunization Resources for Providers (CMS)**

www.cms.gov/Medicare/Prevention/Immunizations/Providerresources.html

Adult Vaccine Price List (CDC)

www.cdc.gov/vaccines/programs/vfc/awardees/vaccine-management/price-list/index.html#modalIdString_CDCTable_1

Billing and Coding Adult Immunizations (2015) (ACP)

www.acponline.org/system/files/documents/running_practice/payment_coding/coding/billvaccines.pdf

Category 1 Vaccine Codes (AMA)

www.ama-assn.org/practice-management/category-i-vaccine-codes

Coding and Billing for Adult Vaccinations (NAIS)

www.izsummitpartners.org/naiis-workgroups/access-provider-workgroup/coding-and-billing

Coding for Vaccine Administration (AAFP)

www.aafp.org/practice-management/payment/coding/admin.html

Coding Resources (ACOG)

<http://immunizationforwomen.org/providers/resources/acog-resources/coding-resources.php>

Coding Web Section (ACOG)

<http://immunizationforwomen.org/providers/practice-management/coding.php>

Commonly Administered Pediatric Vaccines (includes information helpful for adult vaccine providers) (AAP)

www.aap.org/en-us/Documents/coding_vaccine_coding_table.pdf

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.

Contacts for Part B – Medicare Administrative Contractor (MAC – Part B) Alphabetical Index (CMS)

www.cms.gov/medicare-coverage-database/indexes/contacts-part-b-medicare-administrative-contractor-index.aspx?bc=AgAAAAAAAAAA&

Immunization Coding for Obstetrician-Gynecologists, 2017 (ACOG) – http://immunizationforwomen.org/uploads/ImmunCoding_Booklet.pdf**Immunizations: How to Protect Patients and the Bottom Line (AAFP)**

www.aafp.org/fpm/2015/0300/p24.pdf

Internet-Based Provider Enrollment, Chain and Ownership System (PECOS) (CMS)

www.cms.gov/Medicare/Provider-Enrollment-and-Certification/MedicareProviderSupEnroll/InternetbasedPECOS.html

Managing Costs (AAP)

www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunizations/Practice-Management/Pages/managing-costs.aspx

Mass Immunizers and Roster Billing: Simplified Billing for Influenza Virus and Pneumococcal Vaccinations (CMS) – www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/Mass_Immunize_Roster_Bill_factsheet_ICN907275.pdf**Medicare Part B Immunization Billing: Seasonal Influenza Virus, Pneumococcal, and Hepatitis B (CMS)**

www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/qr_immun_bill.pdf

Medicare Part B Vaccine Coverage (AAFP)

www.aafp.org/practice-management/payment/coding/admin/partb.html

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STEP 7A: FINANCIAL CONSIDERATIONS**Materials and Resources for You to Use**

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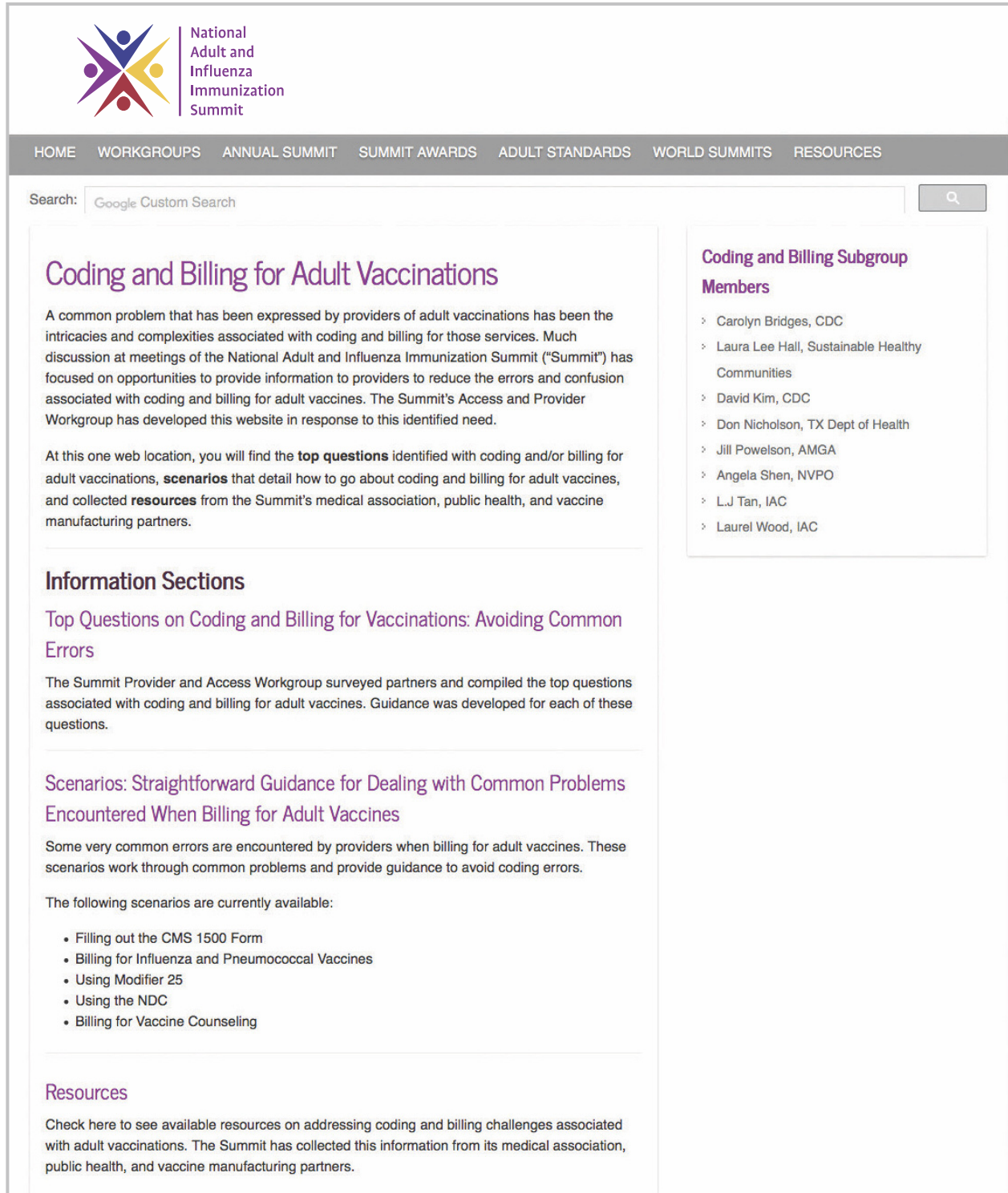
Medicare Provider-Supplier Enrollment (CMS)www.cms.gov/Medicare/Provider-Enrollment-and-Certification/MedicareProviderSupEnroll/index.html**Payment, Coding, and Billing (AAP)**www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunizations/Practice-Management/Pages/payment-coding-billing.aspx**Resources for Adult Vaccination Insurance and Payment (CDC)**www.cdc.gov/vaccines/hcp/patient-ed/adults/for-practice/insurance-payment.html**Seasonal Influenza Vaccines Pricing (CMS)**www.cms.gov/Medicare/Medicare-Fee-for-Service-Part-B-Drugs/McrPartBDrugAvgSalesPrice/VaccinesPricing.html**Vaccine and Vaccine Administration Payments Under Medicare Part D (CMS)**www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/Vaccines-Part-D-Factsheet-ICN908764.pdf**Where States Stand on Medicaid Expansion Decisions (NASHP)** – www.nashp.org/states-stand-medicaid-expansion-decisions

NOTE: The publisher of each resource is shown as an acronym in the parentheses following the title. A key to these acronyms is included in *Appendix A: Acronyms and Abbreviations*.


► INFORMATION FOR PATIENTS**Finding and Paying for Vaccines (CDC)**www.cdc.gov/vaccines/adults/find-pay-vaccines.html**Staying Healthy: Medicare's Preventive Services (CMS)**www.medicare.gov/Pubs/pdf/11100.pdf**Your Medicare Coverage: Flu Shots (CMS)**www.medicare.gov/coverage/flu-shots.html**Your Medicare Coverage: Hepatitis B Shots (CMS)**www.medicare.gov/coverage/hepatitis-b-shots.html**Your Medicare Coverage: Pneumococcal Shots (CMS)**www.medicare.gov/coverage/pneumococcal-shots.html**Your Medicare Coverage: Shingles Shot (CMS)**www.medicare.gov/coverage/shingles-vaccine.html**Your Medicare Coverage: Tdap Shot (CMS)**www.medicare.gov/coverage/tdap-vaccine-tetanus-diphtheria-and-pertussis-vaccine.html**► GENERAL INFORMATION****Immunization Action Coalition (IAC)**www.immunize.org**State Information: Direct Links to State Immunization Program Websites (IAC)**www.immunize.org/states**VFC State, Territory, and City Coordinators (CDC)**www.cdc.gov/vaccines/programs/vfc/contacts-state.html

To access this web page, visit

[www.izsummitpartners.org/naiis-workgroups/
access-provider-workgroup/coding-and-billing](http://www.izsummitpartners.org/naiis-workgroups/access-provider-workgroup/coding-and-billing)



The screenshot shows the website for the National Adult and Influenza Immunization Summit. The page title is "Coding and Billing for Adult Vaccinations". The main content area includes an introductory paragraph, a section for "Information Sections" with links to "Top Questions on Coding and Billing for Vaccinations: Avoiding Common Errors" and "Scenarios: Straightforward Guidance for Dealing with Common Problems Encountered When Billing for Adult Vaccines", and a "Resources" section. A sidebar on the right lists "Coding and Billing Subgroup Members" including Carolyn Bridges, CDC; Laura Lee Hall, Sustainable Healthy Communities; David Kim, CDC; Don Nicholson, TX Dept of Health; Jill Powelson, AMGA; Angela Shen, NVPO; L.J Tan, IAC; and Laurel Wood, IAC.



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Coding and Billing for Adult Vaccinations

A common problem that has been expressed by providers of adult vaccinations has been the intricacies and complexities associated with coding and billing for those services. Much discussion at meetings of the National Adult and Influenza Immunization Summit ("Summit") has focused on opportunities to provide information to providers to reduce the errors and confusion associated with coding and billing for adult vaccines. The Summit's Access and Provider Workgroup has developed this website in response to this identified need.

At this one web location, you will find the **top questions** identified with coding and/or billing for adult vaccinations, **scenarios** that detail how to go about coding and billing for adult vaccines, and collected **resources** from the Summit's medical association, public health, and vaccine manufacturing partners.

Information Sections

[Top Questions on Coding and Billing for Vaccinations: Avoiding Common Errors](#)

The Summit Provider and Access Workgroup surveyed partners and compiled the top questions associated with coding and billing for adult vaccines. Guidance was developed for each of these questions.

[Scenarios: Straightforward Guidance for Dealing with Common Problems Encountered When Billing for Adult Vaccines](#)

Some very common errors are encountered by providers when billing for adult vaccines. These scenarios work through common problems and provide guidance to avoid coding errors.

The following scenarios are currently available:

- Filling out the CMS 1500 Form
- Billing for Influenza and Pneumococcal Vaccines
- Using Modifier 25
- Using the NDC
- Billing for Vaccine Counseling

Resources

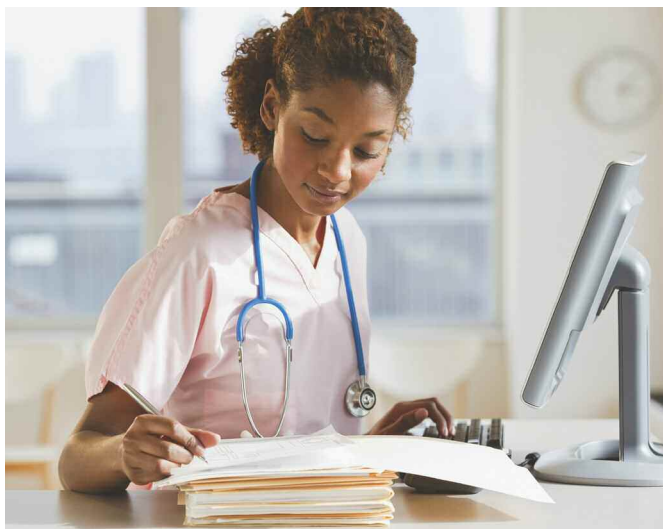
Check here to see available resources on addressing coding and billing challenges associated with adult vaccinations. The Summit has collected this information from its medical association, public health, and vaccine manufacturing partners.

Coding and Billing Subgroup Members

- › Carolyn Bridges, CDC
- › Laura Lee Hall, Sustainable Healthy Communities
- › David Kim, CDC
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STEP 7B:

How to Bill for Adult Immunizations



THOUGH PREVENTIVE CARE, patient convenience, and expansion of services are good reasons for providing vaccinations to adults, adequate reimbursement offers an additional incentive. When vaccination services are billed appropriately, private insurance companies generally reimburse for adult immunizations, and Medicare covers routinely prescribed adult immunizations. By following some simple guidelines, you can minimize administrative hassles in billing for these services.

*Adapted and updated by
Immunization Action Coalition,
courtesy of the American College
of Physicians, 2015*

www.acponline.org/running_practice/payment_coding/coding/billvaccines.pdf

Health insurance coverage of adult vaccines

- **PRIVATE INSURANCE** – Most private health insurance plans cover the cost of providing recommended vaccines to your patients. If your patients do not currently have health insurance, refer them to www.HealthCare.gov to learn more about their healthcare coverage options.
- **MEDICARE** – For patients 65 years of age or older enrolled in Medicare, Medicare Part B covers the cost of influenza and pneumococcal vaccines, as well as hepatitis B vaccine for persons at increased risk of hepatitis B. Patients with a Medicare Prescription Drug Plan (Part D) or who are enrolled in a Medicare Advantage Plan (Part C) that offers Medicare prescription drug coverage may also have coverage for additional vaccines like zoster and Tdap. Additional information is available at www.medicare.gov.

Medicare Part B covers the cost of influenza and pneumococcal vaccines, as well as hepatitis B vaccine for persons at increased risk of hepatitis B.

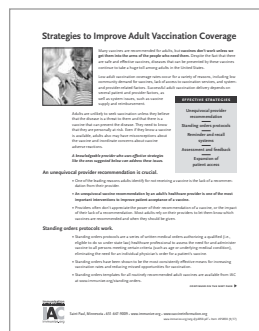
Vaccine coverage for Medicaid beneficiaries varies by state. Contact your State Medicaid Agency for more information.

- **MEDICAID** – Vaccine coverage for Medicaid beneficiaries varies by state. Contact your State Medicaid Agency (contact information available at www.medicaid.gov/about-us/contact-us/contact-state-page.html) for more information.

This section summarizes Medicare Part B regulations in plain English and provides charts to help you properly code vaccinations for both Medicare

Innovative billing techniques, when combined with chart reminders, standing orders, and other methods of standardizing your office operations, can substantially reduce the costs of administering vaccinations in your office.

and third-party billers. It also explains how innovative billing techniques, when combined with chart reminders, standing orders, and other methods of standardizing your office operations, can substantially reduce the costs of administering vaccinations in your office. Additional information on improving immunization rates in your practice is found in IAC's *Strategies to Improve Adult Vaccination Coverage*, available at www.immunize.org/catg.d/p2050.pdf,



www.immunize.org/catg.d/p2050.pdf

as well as on the immunization websites for the American College of Physicians (<http://immunization.acponline.org>) and other medical associations and organizations listed in *Step 7A: Financial Considerations*.

Later in this section you can find the codes you will need to bill. (Table 3: *Immunization Codes Used to Bill Medicare* and Table 4: *Immunization Codes Used to Bill Third-Party Payers*.)

Billing Medicare for immunizations

Medicare Part B covers the cost of influenza and pneumococcal (both PPSV23 and PCV13) vaccines, as well as hepatitis B vaccine for persons at increased risk of hepatitis B. Medicare Part B does not cover other vaccinations unless they are directly related to the *treatment* of an injury or *direct exposure* to a disease or condition, such as anti-rabies treatment, tetanus antitoxin, and Td/Tdap for wound management. Therefore, in the absence of injury or direct exposure, *preventive* immunization against diseases such as pertussis, diphtheria, etc., is not covered



under Medicare Part B. These vaccines and other commercially available vaccines (such as zoster) typically are covered by Medicare Part D drug plans when they are ACIP-recommended to prevent illness. Billing for Part D vaccines goes directly to the third-party drug coverage plan.

Though not reimbursed directly through the Medicare Physician Fee Schedule, the administration of influenza, pneumococcal, and hepatitis B vaccines (HCPCS codes G0008, G0009, and G0010) is reimbursed at the same rate as CPT code 90471 for the year that corresponds to the date of service of the claim.

Billing Medicare for additional services

When administering influenza, pneumococcal, and/or hepatitis B vaccines, you may bill for additional reasonable and necessary services. For example, you can bill HCPCS G0008 for administering influenza vaccine and also bill for other services performed during the same visit, including an evaluation and management (E&M) service. Each additional service should always be justified with an appropriate diagnosis code.

However, if you use “roster billing” (see below), you should not list additional services on the roster bill. All other covered services, including office visits, are subject to more comprehensive data requirements; you should bill them using normal Part B claims filing procedures and forms.

Roster billing also can substantially lessen the administrative burden on physician practices by allowing them to submit one claim for all of the Medicare beneficiaries that received either pneumococcal or influenza vaccines on a given day.

Roster billing

(Influenza and pneumococcal vaccinations only)

The simplified roster billing process was developed to enable Medicare beneficiaries to participate in mass pneumococcal and influenza vaccination programs. (Note: Medicare has not developed roster billing for hepatitis B or any other vaccinations.) Roster billing also can substantially lessen the administrative burden on physician practices by allowing them to submit one claim for all of the Medicare beneficiaries that received either pneumococcal or influenza vaccines on a given day. Medicare will often refer to providers who utilize roster billing as “mass immunizers.”

For Medicare Part B submissions, physician practices and other mass immunizers must submit a separate preprinted CMS-1500 paper claim form or bill electronically for each type of vaccination (either influenza or pneumococcal) and attach a roster bill containing information for two or more Medicare beneficiaries. When mass immunizers choose to conduct roster billing electronically, they are required to use the HIPAA-adopted ASC X12N 837 claim standard. Local Medicare Administrative Contractors (MACs) may offer low or no-cost software to help providers utilize roster billing electronically. However, this software is not currently available nationwide, so check with your local MAC for specifics in your area.

All entities that submit claims on roster bills must accept assignment, meaning they must agree to accept the amount that Medicare allows as the total payment. Roster bills submitted by providers to a MAC must contain at least two patients’ names, and the date of service for each vaccination administered must be the same.



For additional information on roster billing, see the CMS document *Mass Immunizers and Roster Billing: Simplified Billing for Influenza Virus and Pneumococcal Vaccinations* at www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/Mass_Immunize_Roster_Bill_factsheet_ICN907275.pdf.

fied Billing for Influenza Virus and Pneumococcal Vaccinations at www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/Mass_Immunize_Roster_Bill_factsheet_ICN907275.pdf.

TABLE 1: To further minimize the administrative burden of roster billing, providers **CMS-1500 Form** can pre-print the following blocks on a modified CMS-1500 form:

Block #	Information that can be preprinted on form
1	X in “Medicare” block
2 Patient’s Name	“See Attached Roster”
11 Insured’s Policy Group or FECA #	“None”
20 Outside Lab?	X in “No” block
21 Diagnosis or Nature of Illness or Injury	Enter Z23
24B Place of Service (POS)	Line 1: “60” Line 2: “60” ALL entities should use POS code “60” for roster billing. (POS code “60” = mass immunization center)
24D Procedure, Services, or Supplies	Line 1: Select appropriate vaccine Line 2: Select appropriate administration codes (separate line items for each)
24E Diagnosis Pointer (Code)	Use “A” for lines 1 and 2
24F Charges	Use the unit cost of the particular vaccine (Contractors will replicate the claim for each beneficiary listed on the roster.) NOTE: If you are not charging for the vaccination or its administration, enter “0.00” or “NC” (no charge) on the appropriate line for that item. If your system is unable to accept a line item charge of 0.00 for an immunization service, do not key the line item. Likewise, Electronic Media Claim (EMC) billers should submit line items for free immunization services on EMC pneumococcal or influenza vaccination claims only if their system accepts them.
27 Accept Assignment?	X in “Yes” block
29 Amount Paid	“\$0.00”
31 Signature of Physician or Supplier	Signature of physician or entity’s representative
32 Service Facility Location Information	Enter the name, address, and zip code of the location where service was provided
32a	NPI of the service facility
33 Billing Provider Info and Phone #	Billing provider information and phone number
33a	NPI of the billing provider or group

A separate CMS-1500 for each type of vaccination must have an attached roster that includes the following information:

- Provider’s name and identification number (NPI)
- Date of service
- Control number for the MAC
- Beneficiary/patient:
 - Health insurance claim number (HICN)
 - Name and address
 - Date of birth
 - Sex
 - Signature or stamped “signature on file”

A “signature on file” stamp or notation qualifies as a signature on a roster claim form in cases where the provider has a signed authorization to bill Medicare for services on file in the beneficiary’s record (e.g., when the vaccine is administered in a physician’s office).

The MAC can modify the format of the roster bill to meet the needs of individual providers. The MAC has the responsibility to develop suitable roster bill formats that meet provider and MAC needs and contain the minimum data necessary to satisfy processing requirements for these claims.

NOTE: The roster bills for influenza and pneumococcal vaccinations are not identical. Pneumococcal rosters must contain the following language:

Warning: Beneficiaries must be asked if they have received a pneumococcal vaccination.

- Rely on patient’s memory to determine prior vaccination status.

Providing free immunizations

The majority of vaccinations administered to Medicare beneficiaries in private practice will be documented (e.g., in the office medical record and perhaps an immunization registry) and a bill submitted for payment. However, practices sometimes waive part or all of their fees due to a patient’s inability to pay or for other reasons. Also, some practices may sponsor health fairs where they provide free vaccinations to the public as part of their marketing efforts to attract new patients. If you give vaccines to Medicare beneficiaries free of charge, you must adhere to the following:

Practices sometimes waive part or all of their fees due to a patient’s inability to pay or for other reasons.

TABLE 2: Medicare Billing Policy

Provider’s policy for providing vaccines to NON-Medicare patients	Can Medicare be billed for providing the same service to Medicare beneficiaries?
Vaccine administered free of charge, regardless of patient’s ability to pay	No
Vaccine administered at no/reduced charge for patients of limited means, but provider expects to be paid if patient’s health insurance covers vaccinations	Yes* * However, providers may not charge Medicare beneficiaries more than non-Medicare patients for vaccines or administration

You may bill Medicare for vaccines administered to Medicare beneficiaries even if you render services free of charge to non-Medicare beneficiaries. However, your administration fee cannot be billed to Medicare if you typically administer vaccines at no cost to non-Medicare beneficiaries. For vaccines purchased through a CDC vaccine purchase contract,



regardless of whether federal, state, or local funds are being used, you may bill and expect payment from Medicare for the administration cost only.

Government providers must follow a separate set of Medicare requirements if they administer vaccinations in a facility operated by a federal, state, or local health department, such as a public health clinic. Private providers also must follow a separate set of requirements if they administer vaccines provided by a federal, state, or local government.

Centralized billing

The centralized billing process was developed to ease the administrative burden for very large institutions with mass immunization sites scattered throughout the country.

The centralized billing process was developed to ease the administrative burden for very large institutions with mass immunization sites scattered throughout the country (e.g., large healthcare networks covering multiple states, and national pharmacy chains). Centralized billing allows such institutions (i.e., mass immunizers) to send all claims for influenza and pneumococcal vaccinations to a single MAC for payment, regardless of the geographic locality in which the vaccination was administered. The cost of administering influenza and pneumococcal vaccinations will be reimbursed per the Medicare Physician Fee Schedule (MPFS) for the appropriate locality. The cost of vaccines will be reimbursed per Medicare's standard method for reimbursing drugs and biologicals. This is based on the lower of charges or 95 percent of the Average Wholesale Price (AWP). (For more

specifics about Centralized Billing, contact your local MAC. Contact information may be found at https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/MedicareProviderSupEnroll/downloads/contact_list.pdf.)

Multistate mass immunizers interested in centralized billing should contact the CMS Central Office, in writing, at the following address by the first of June each year:

Centers for Medicare and Medicaid Services
Division of Practitioner Claims Processing
Provider Billing Group
7500 Security Boulevard
Mail Stop C4-10-07
Baltimore, Maryland 21244

The enrollment process takes 8 to 12 weeks, with approval limited to the 12-month period from September 1 through August 31 of the following year.

Additional Medicare information

For additional information about Medicare coverage, payment, billing, claims processing, edits, mass immunization, and more, contact CMS directly at www.cms.gov/Medicare/Prevention/Immunizations/index.html?redirect=/immunizations

Other important Medicare information is available at the links provided below:

Current Updates for Providers (*Select the current year for the MLN Matters articles and enter "vaccine" in the filter.*)

www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNMattersArticles

Medicare Enrollment

www.cms.gov/Medicare/Provider-Enrollment-and-Certification/MedicareProviderSupEnroll

Seasonal Influenza Vaccines Pricing

www.cms.gov/Medicare/Medicare-Fee-for-Service-Part-B-Drugs/McrPartBDrugAvgSalesPrice/VaccinesPricing.html

TABLE 3: Immunization Codes Used to Bill MEDICARE

NOTE: These vaccine codes were current as of July 2017. However, coding information is updated semi-annually. Always refer to current Medicare publications for the most up-to-date coding information.

Vaccine	CPT Code**	Description	Brand Name	Admini- stration Code	Diagnosis Code (ICD-10)
Influenza	90630	Influenza virus vaccine, quadrivalent (IIV4-ID), split virus, preservative-free, for intradermal use	Fluzone Intradermal Quad	G0008	Z23
	90653	Influenza vaccine, inactivated (aIV), sub-unit, adjuvanted, for IM use	Fluad		
	90656	Influenza virus vaccine, trivalent (IIV3), split virus, preservative-free, 0.5 mL dosage, for IM use	Afluria Fluvirin		
	90658 / Q2035 / Q2037‡	Influenza virus vaccine, trivalent (IIV3), split virus, 0.5 mL dosage, for IM use	Afluria Fluvirin		
	90662	Influenza virus vaccine (IIV3-HD), split virus, preservative-free, enhanced immunogenicity via increased antigen content, for IM use	Fluzone High Dose		
	90672	Influenza virus vaccine, quadrivalent, live (LAIV4), for intranasal use (unavailable for 2017–18 season)	FluMist Quad		
	90673	Influenza virus vaccine, trivalent (RIV3), derived from recombinant DNA, hemagglutinin (HA) protein only, preservative- and antibiotic-free, for IM use	Flublok		
	90674	Influenza virus vaccine, quadrivalent (ccIIV4), derived from cell cultures, sub-unit, preservative- and antibiotic-free, 0.5 mL dosage, for IM use	Flucelvax Quad		
	90682	Influenza virus vaccine, quadrivalent (RIV4), derived from recombinant DNA, hemagglutinin (HA) protein only, preservative- and antibiotic-free, for IM use	Flublok Quad		
	90685	Influenza virus vaccine, quadrivalent (IIV4), split virus, preservative-free, 0.25 mL dosage, for IM use	Fluzone Quad		
	90686	Influenza virus vaccine, quadrivalent (IIV4), split virus, preservative-free, 0.5 mL dosage, for IM use	Afluria Quad Fluarix Quad FluLaval Quad Fluzone Quad		

‡ In Medicare, CPT Code 90658 is valid only for patients who are under 65 years of age. For Medicare patients age 65 years and older, providers should use the Q code specific to each vaccine (Afluria – Q2035; Fluvirin – Q2037).

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TABLE 3: Immunization Codes Used to Bill MEDICARE

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NOTE: These vaccine codes were current as of July 2017. However, coding information is updated semiannually. Always refer to current Medicare publications for the most up-to-date coding information.

Vaccine	CPT Code*	Description	Brand Name	Administration Code	Diagnosis Code (ICD-10)
Influenza	90687	Influenza virus vaccine, quadrivalent (IIV4), 0.25 mL dosage, for IM use	Fluzone Quad	G0008	Z23
	90688	Influenza virus vaccine, quadrivalent (IIV4), split virus, 0.5 mL dosage, for IM use	Afluria Quad FluLaval Quad Fluzone Quad		
	90756	Influenza virus vaccine, quadrivalent (ccIIV4), derived from cell cultures, sub-unit, antibiotic-free, 0.5 mL dosage, for IM use (<i>effective January 1, 2018</i>)	Flucelvax Quad		
Influenza	<i>HCPCS Codes</i>			G0008	
	Q2035	Influenza virus vaccine, split virus, when administered to individuals 3 years of age or older, for IM use	Afluria		
	Q2036	Influenza virus vaccine, split virus, when administered to individuals 3 years of age or older, for IM use	FluLaval		
	Q2037	Influenza virus vaccine, split virus, when administered to individuals 3 years of age or older, for IM use	Fluvirin		
	Q2038	Influenza virus vaccine, split virus, when administered to individuals 3 years of age or older, for IM use	Fluzone		
	Q2039	Influenza virus vaccine, not otherwise specified	n/a		
Pneumo-coccal	90670	Pneumococcal conjugate vaccine, 13-valent (PCV13), for IM use	Prennar13	G0009	
	90732	Pneumococcal polysaccharide vaccine, 23-valent (PPSV23), adult or immunosuppressed patient dosage, when administered to individuals 2 years or older, for subcutaneous or IM use	Pneumovax23		

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TABLE 3: Immunization Codes Used to Bill MEDICARE

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NOTE: These vaccine codes were current as of July 2017. However, coding information is updated semiannually. Always refer to current Medicare publications for the most up-to-date coding information.

Vaccine	CPT Code*	Description	Brand Name	Administration Code	Diagnosis Code (ICD-10)
Hepatitis B	90739	Hepatitis B vaccine (HepB), adult dosage, 2-dose schedule, for IM use	Recombivax HB	G0010	Z23
	90740	Hepatitis B vaccine (HepB), dialysis or immunosuppressed patient dosage, 3-dose schedule, for IM use	Recombivax HB		
	90743	Hepatitis B vaccine (HepB), adolescent, 2-dose schedule, for IM use	Recombivax HB		
	90744	Hepatitis B vaccine (HepB), pediatric/adolescent dosage, 3-dose schedule, for IM use	Engerix B Recombivax HB		
	90746	Hepatitis B vaccine (HepB), adult dosage, 3-dose schedule, for IM use	Engerix B Recombivax HB		
	90747	Hepatitis B vaccine (HepB), dialysis or immunosuppressed patient dosage, 4-dose schedule, for IM use	Engerix B Recombivax HB		

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Billing third-party payers for immunizations (*not Medicare*)

Below is a table that can be used as a guide for billing insurance companies *other than Medicare* for adult immunizations. Third-party payers have varying payment policies, so *check with your local payers for specifics in your area*.

Some insurance companies will accept the same G codes for the administration of influenza, pneumococcal polysaccharide, pneumococcal conjugate, and hepatitis B vaccines that are required by Medicare. However, most insurers use the “Administration Codes” listed at right:

Vaccine Administration Codes

90471 Immunization administration (includes percutaneous, intradermal, subcutaneous, or intramuscular injections); **1 vaccine** (single or combination vaccine/toxoid)

90472 Each additional vaccine injection (single or combination vaccine/toxoid) (List separately, in addition to code for primary procedure)

90473 Immunization administration by intranasal or oral route: 1 vaccine (single or combination vaccine/toxoid) (Do not report 90473 in conjunction with 90471)

90474 Each additional vaccine by intranasal or oral route (single or combination vaccine/toxoid) (List separately, in addition to code for primary procedure)

TABLE 4: Immunization Codes Used to Bill THIRD-PARTY PAYERS

NOTE: These vaccine codes were current as of July 2017. However, coding information is updated semi-annually. Always refer to current payer publications for the most up-to-date coding information.

Vaccine	CPT Code*	Description	Brand Name	Administration Code	Diagnosis Code (ICD-10)
Hepatitis A	90632	Hepatitis A vaccine (HepA), adult dosage, for IM use	Havrix Vaqta	90471 or 90472	Z23
	90633	Hepatitis A vaccine (HepA), pediatric/adolescent dosage, 2-dose schedule, for IM use	Havrix Vaqta		
Hepatitis A and Hepatitis B	90636	Hepatitis A and hepatitis B vaccine (HepA-HepB), adult dosage, for IM use	Twinrix		
Hepatitis B	90739	Hepatitis B vaccine (HepB), adult dosage, 2-dose schedule, for IM use	Recombivax HB		
	90740	Hepatitis B vaccine (HepB), dialysis or immunosuppressed patient dosage, 3-dose schedule, for IM use	Recombivax HB		
	90743	Hepatitis B vaccine (HepB), adolescent, 2-dose schedule, for IM use	Recombivax HB		

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TABLE 4: Immunization Codes Used to Bill THIRD-PARTY PAYERS

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NOTE: These vaccine codes were current as of July 2017. However, coding information is updated semiannually. Always refer to current payer publications for the most up-to-date coding information.

Vaccine	CPT Code*	Description	Brand Name	Administration Code	Diagnosis Code (ICD-10)	
Hepatitis B	90744	Hepatitis B vaccine (HepB), pediatric/adolescent dosage, 3-dose schedule, for IM use	Engerix B Recombivax HB			
	90746	Hepatitis B vaccine (HepB), adult dosage, 3-dose schedule, for IM use	Engerix B Recombivax HB			
	90747	Hepatitis B vaccine (HepB), dialysis or immunosuppressed patient dosage, 4-dose schedule, for IM use	Engerix B Recombivax HB			
Human Papillomavirus (HPV)	90651	Human papillomavirus vaccine types 6, 11, 16, 18, 31, 33, 45, 52, 58 (9vHPV), 2- or 3-dose schedule, for IM use	Gardasil 9	90471 or 90472	Z23	
Influenza	90630	Influenza virus vaccine, quadrivalent (IIV4-ID), split virus, preservative-free, for intradermal use	Fluzone Intradermal Quad			
	90653	Influenza vaccine, inactivated (aIIV), subunit, adjuvanted for IM use	Fluad			
	90656	Influenza virus vaccine, trivalent (IIV3), split virus, preservative-free, 0.5 mL dosage, for IM use	Afluria Fluvirin			
	90658	Influenza virus vaccine, trivalent (IIV3), split virus, 0.5 mL dosage, for IM use	Afluria Fluvirin			
	90662	Influenza virus vaccine (IIV-HD), split virus, preservative-free, enhanced immunogenicity via increased antigen content, for IM use	Fluzone High Dose			
	90672	Influenza virus vaccine, quadrivalent (LAIV), live, for intranasal use (unavailable for 2017–18 season)	FluMist Quad			90473 or 90474
	90673	Influenza virus vaccine, trivalent (RIV3), derived from recombinant DNA, hemagglutinin (HA) protein only, preservative- and antibiotic-free, for IM use	Flublok			90471 or 90472
	90674	Influenza virus vaccine, quadrivalent (ccIIV4), derived from cell cultures, subunit, preservative- and antibiotic-free, 0.5 mL dosage, for IM use	Flucelvax Quad			

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TABLE 4: Immunization Codes Used to Bill THIRD-PARTY PAYERS

NOTE: These vaccine codes were current as of July 2017. However, coding information is updated semiannually. Always refer to current payer publications for the most up-to-date coding information.

CONTINUED FROM PREVIOUS PAGE

Vaccine	CPT Code*	Description	Brand Name	Administration Code	Diagnosis Code (ICD-10)
Influenza	90682	Influenza virus vaccine, quadrivalent (RIV4), derived from recombinant DNA, hemagglutinin (HA) protein only, preservative- and antibiotic-free, for IM use	Flublok Quad	90471 or 90472	Z23
	90685	Influenza virus vaccine, quadrivalent (IIV4), split virus, preservative-free, 0.25 mL dosage, for IM use	Fluzone Quad		
	90686	Influenza virus vaccine, quadrivalent (IIV4), split virus, preservative-free, 0.5 mL dosage, for IM use	Afluria Quad Fluarix Quad FluLaval Quad Fluzone Quad		
	90687	Influenza virus vaccine, quadrivalent (IIV4), split virus, 0.25 mL dosage, for IM use	Fluzone Quad		
	90688	Influenza virus vaccine, quadrivalent (IIV4), split virus, 0.5 mL dosage, for IM use	Afluria Quad FluLaval Quad Fluzone Quad		
	90756	Influenza virus vaccine, quadrivalent (ccIIV4), derived from cell cultures, subunit, antibiotic-free, 0.5 mL dosage, for IM use <i>(effective date: January 1, 2018)</i>	Flucelvax Quad		
Measles, Mumps, and Rubella	90707	Measles, mumps, and rubella virus vaccine (MMR), live, for subcutaneous use	M-M-R II		
Measles, Mumps, Rubella, and Varicella	90710	Measles, mumps, rubella, and varicella vaccine (MMRV), live, for subcutaneous use	ProQuad		
Meningococcal (Groups A, C, Y, W-135)	90734	Meningococcal conjugate vaccine, serogroups A, C, Y, and W-135, quadrivalent (MenACWY), for IM use	Menactra Menveo		
Meningococcal (Group B)	90620	Meningococcal recombinant protein and outer membrane vesicle vaccine, serogroup B (MenB-4C), 2-dose schedule, for IM use	Bexsero		
	90621	Meningococcal recombinant lipoprotein vaccine, serogroup B (MenB-FHbp), 2- or 3-dose schedule, for IM use	Trumenba		

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**TABLE 4: Immunization Codes
Used to Bill THIRD-PARTY PAYERS**

CONTINUED FROM PREVIOUS PAGE

NOTE: These vaccine codes were current as of July 2017. However, coding information is updated semiannually. Always refer to current payer publications for the most up-to-date coding information.

Vaccine	CPT Code*	Description	Brand Name	Admini- stration Code	Diagnosis Code (ICD-10)
Pneumo- coccal	90670	Pneumococcal conjugate vaccine, 13-valent (PCV13), for IM use	Prennar13	90471 or 90472	Z23
	90732	Pneumococcal polysaccharide vaccine, 23-valent (PPSV23), adult or immunosuppressed patient dosage, when administered to individuals 2 years or older, for subcutaneous or IM use	Pneumovax23		
Polio	90713	Poliovirus vaccine, inactivated (IPV), for subcutaneous or IM use	Ipol		
Tetanus and Diphtheria	90714	Tetanus and diphtheria toxoids (Td) absorbed, preservative-free, for use in individuals 7 years or older, for IM use	Decavac Tenivac		
Tetanus, Diphtheria, and Pertussis	90715	Tetanus, diphtheria toxoids and acellular pertussis vaccine (Tdap), for use in individuals 7 years or older, for IM use	Adacel Boostrix		
Varicella	90716	Varicella virus vaccine, live, for subcutaneous use	Varivax		
Zoster	90736	Zoster (shingles) vaccine, live (HZV), for subcutaneous injection	Zostavax		
	90750	Zoster (shingles) vaccine (HZV), recombinant, subunit, adjuvanted, for IM use (CPT code effective date: January 1, 2018, pending FDA licensure of the vaccine)	Shingrix		

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APPENDIX A

Frequently Used Acronyms and Abbreviations

Adapted from www.cdc.gov/vaccines/terms/acronyms.html

AAFP	American Academy of Family Physicians	CSF	Cerebrospinal fluid
AAP	American Academy of Pediatrics	DoD	Department of Defense
ACA	Affordable Care Act	DT	Diphtheria and tetanus toxoids (pediatric)
ACIP	Advisory Committee on Immunization Practices (CDC)	DTaP	Diphtheria, tetanus, and acellular pertussis vaccine (pediatric)
ACOG	American College of Obstetricians and Gynecologists	ECBT	Every Child By Two
ACNM	American College of Nurse-Midwives	EHR	Electronic health record
ACP	American College of Physicians	EMR	Electronic medical record
AE	Adverse event	FDA	Food and Drug Administration
AFIX	Assessment, Feedback, Incentives, and eXchange of information	FQHC	Federally Qualified Health Center
AHIP	America's Health Insurance Plans	GBS	Guillain-Barré syndrome
AIDS	Acquired Immune Deficiency Syndrome	GSK	GlaxoSmithKline
AIM	Association of Immunization Managers	HAV	Hepatitis A virus
AIRA	American Immunization Registry Association	HBIG	Hepatitis B immune globulin
AMA	American Medical Association	HBeAg	Hepatitis B e antigen
ANA	American Nurses Association	HBsAg	Hepatitis B surface antigen
APhA	American Pharmacists Association	HBV	Hepatitis B virus
ASD	Autism spectrum disorder	HCP	Healthcare personnel
AZ	AstraZeneca	HEDIS	Healthcare Effectiveness Data and Information Set
C. tetani	<i>Clostridium tetani</i> , the cause of tetanus	HepA	Hepatitis A vaccine
CBER	Center for Biologics Evaluation and Research (FDA)	HepB	Hepatitis B vaccine
ccIIV	Cell-culture inactivated influenza vaccine	HHS	Department of Health and Human Services
CDC	Centers for Disease Control and Prevention	Hib	<i>Haemophilus influenzae</i> type b vaccine
CEB	Communication and Education Branch (CDC)	HIV	Human immunodeficiency virus
CISA	Clinical Immunization Safety Assessment Centers	HMO	Health maintenance organization
CMS	Centers for Medicare and Medicaid Services	HPV	Human papillomavirus
COID	Committee on Infectious Diseases (AAP)	HPV9 (9vHPV)	Human papillomavirus vaccine, 9-valent (Gardasil 9)
CRS	Congenital rubella syndrome	HRSA	Health Resources and Services Administration
		HSCT	Hematopoietic stem cell transplant
		HZV	Herpes zoster (shingles) vaccine

IAC	Immunization Action Coalition	NMA	National Medical Association
ID	Intradermal	NVAC	National Vaccine Advisory Committee
IDSA	Infectious Diseases Society of America	NVICP	National Vaccine Injury Compensation Program
IG	Immune globulin	NVPO	National Vaccine Program Office
IHS	Indian Health Service	PCV13	Pneumococcal conjugate vaccine, 13-valent (Pevnar13)
IIS	Immunization Information System	PO	By mouth
IIV	Inactivated influenza vaccine	PPD	Purified protein derivative (tuberculin)
IIV3	Inactivated influenza vaccine, trivalent	PPSV23	Pneumococcal polysaccharide vaccine, 23-valent (Pneumovax23)
IIV4	Inactivated influenza vaccine, quadrivalent	QIO	Quality Improvement Organization
IM	Intramuscular	RIV	Recombinant influenza vaccine
IPV	Inactivated poliovirus vaccine	RV1	Oral rotavirus vaccine, monovalent (Rotarix)
ISD	Immunization Services Division (CDC)	RV5	Oral rotavirus vaccine, pentavalent (RotaTeq)
ISMP	Institute for Safe Medication Practices	SAHM	Society for Adolescent Health and Medicine
ISO	Immunization Safety Office (CDC)	SP	Sanofi Pasteur
LAIV	Live attenuated influenza vaccine (FluMist)	STD	Sexually transmitted disease
LTC	Long-term care	STI	Sexually transmitted infection
MCO	Managed care organization	Subcut	Subcutaneous
MenACWY	Meningococcal conjugate vaccine, serogroups ACWY	TB	Tuberculosis
MenB	Meningococcal serogroup B vaccine	Td	Tetanus and diphtheria toxoids (7 years and older)
mIU	Milli-international unit	Tdap	Tetanus and diphtheria toxoids and acellular pertussis vaccine (adolescent and adult)
mL	Milliliter	TIG	Tetanus immune globulin
MMR	Measles, mumps, and rubella vaccine	VAERS	Vaccine Adverse Event Reporting System
MMRV	Measles, mumps, rubella, and varicella vaccine	VAR	Varicella vaccine
MMWR	<i>Morbidity and Mortality Weekly Report</i> (CDC)	VFC	Vaccines For Children program
MSD	Merck Sharp & Dohme	VICP	Vaccine Injury Compensation Program
NACCHO	National Association of County and City Health Officials	VIS	Vaccine Information Statement
NAIIS	National Adult and Influenza Immunization Summit	VPD	Vaccine-preventable disease
NAS	Intranasal	VRBPAC	Vaccines and Related Biological Products Advisory Committee (FDA)
NASHP	National Academy for State Health Policy	VSD	Vaccine Safety Datalink
NCIRD	National Center for Immunization and Respiratory Diseases (CDC)	VZIG	Varicella zoster immune globulin
NFID	National Foundation for Infectious Diseases		
NIS	National Immunization Survey		
NIVW	National Influenza Vaccination Week		

APPENDIX B

Glossary

Adapted from www.cdc.gov/vaccines/terms/glossary.html

Acellular vaccine: A vaccine containing partial cellular material as opposed to complete cells.

Acquired Immune Deficiency Syndrome (AIDS): A medical condition where the immune system cannot function properly and protect the body from disease. As a result, the body cannot defend itself against infections (like pneumonia). AIDS is caused by the Human Immunodeficiency Virus (HIV). This virus is spread through direct contact with the blood and body fluids of an infected individual. High risk activities include unprotected sexual intercourse and intravenous drug use (sharing needles). There is no cure for AIDS; however, research efforts are ongoing to develop a vaccine.

Active immunity: The production of antibodies against a specific disease by the immune system. Active immunity can be acquired in two ways, either by contracting the disease or through vaccination. Active immunity is usually permanent, meaning individuals are protected from the disease for the duration of their lives.

Adjuvant: A substance (such as an aluminum salt) that is added during the manufacturing process to increase the body's immune response to a vaccine.

Adverse event: Undesirable medical condition occurring after vaccination that may or may not be related to the vaccine.

Advisory Committee on Immunization Practices (ACIP): A panel of 15 experts who make recommendations on the use of vaccines in the United States. The panel is advised on current issues by representatives from the Centers for Disease Control and Prevention, Food and Drug Administration, National Institutes of Health, American Academy of Pediatrics, American Academy of Family Physicians, American Medical Association, and others. The recommendations of the ACIP guide immunization practice at the federal, state, and local level.

Allergy: A condition in which the body has an undesirable, exaggerated response to a substance, such as a food or drug. Also known as hypersensitivity.

Anaphylaxis: An immediate and severe allergic reaction to a substance (e.g., food or drugs). Symptoms of anaphylaxis include breathing difficulties, loss of consciousness, and a drop in blood pressure. This condition can be fatal and requires immediate medical attention.

Antibody: A protein found in the blood that is produced in response to foreign substances (such as bacteria or viruses) invading the body. Antibodies protect the body from disease by binding to these organisms and destroying them.

Antigen: A foreign substance (such as bacteria or virus) in the body that is capable of causing disease. The presence of antigen in the body triggers an immune response, usually the production of antibodies.

Antitoxin: Antibodies capable of destroying toxins generated by microorganisms, including viruses and bacteria.

Antiviral: Literally "against-virus" – any medicine capable of destroying or weakening a virus.

Arthralgia: Joint pain.

Arthritis: A medical condition characterized by inflammation of the joints which results in pain and difficulty moving.

Attenuated vaccine: A vaccine in which live virus is weakened through chemical or physical processes in order to produce an immune response without causing the severe effects of the disease. Attenuated vaccines currently licensed in the United States include measles, mumps, rubella, varicella, *Zostavax*, rotavirus, oral typhoid, yellow fever, vaccinia (smallpox), and adenovirus (used only among certain military personnel). Also known as a live vaccine.

B cells: Small white blood cells that help the body defend itself against infection. These cells are produced in bone marrow and develop into plasma cells which produce antibodies. Also known as B-lymphocytes.

Bacteria: Tiny one-celled organisms present throughout the environment that require a microscope to be seen. While not all bacteria are harmful, some cause disease. Examples of bacterial diseases include diphtheria, pertussis, and *Haemophilus influenzae* type b (Hib), as well as meningococcal and pneumococcal diseases.

Bone marrow: Soft tissue located within bones that produce blood cells, including the ones that fight infection.

Booster shot: An additional dose or doses of a vaccine needed periodically to "boost" the immune system. An example is the tetanus and diphtheria (Td) vaccine which is recommended for adults every ten years.

Brachial neuritis: Inflammation of nerves in the arm causing muscle weakness and pain.

Chickenpox: See Varicella.

Chronic health condition: A health-related state that lasts for a long period of time (such as cancer or asthma).

Combination vaccine: Two or more vaccines administered in a single dose in order to reduce the number of shots given. An example is the MMR (measles, mumps, rubella) vaccine.

Community immunity: A situation in which a sufficient proportion of a population is immune to an infectious disease (through vaccination and/or prior illness) to make its spread from person to person unlikely. Even individuals not vaccinated (such as newborns and those with chronic illnesses) are offered some protection because the disease has little opportunity to spread within the community. Also known as herd immunity.

Conjugate vaccine: The joining together of two compounds (usually a protein and polysaccharide) to increase a vaccine's effectiveness.

Contraindication: A condition in a vaccine recipient that increases the likelihood of a serious adverse reaction if the vaccine were to be administered to a patient with that condition.

Deltoid: A muscle in the upper arm where vaccines are usually given.

Diabetes: A chronic health condition where the body is unable to produce insulin and properly break down sugar (glucose) in the blood (Type 1 diabetes), or insulin is present but the cells of the body become resistant to its action (Type 2 diabetes). Symptoms usually include hunger, thirst, excessive urination, dehydration, and weight loss. The treatment of Type 1 diabetes (and some Type 2 diabetes) requires daily insulin injections, proper nutrition, and regular exercise. Complications can include heart disease, stroke, neuropathy, poor circulation leading to loss of limbs, hearing impairment, vision problems, and death.

Diphtheria: A bacterial disease marked by the formation of a false membrane, especially in the throat, which can cause death.

Disease: Sickness, illness, or loss of health.

Encephalitis: Inflammation of the brain. Encephalitis is often caused by a virus and can result in permanent brain damage or death.

Encephalopathy: A general term describing brain dysfunction. Examples include encephalitis, meningitis, seizures, and head trauma.

Epidemic: The occurrence of disease within a specific geographical area or population that is in excess of what is normally expected.

Etiology: The cause of.

***Haemophilus influenzae* type b (Hib):** A bacterial infection that may result in severe respiratory infections, including pneumonia, and other diseases such as meningitis.

Hepatitis A: A viral infection of the liver that usually does not persist in the blood; transmitted through ingestion of contaminated food or water.

Hepatitis B: A viral infection of the liver transmitted by infected blood or blood products, or through unprotected sex with someone who is infected. Hepatitis B may become chronic and lead to severe liver disease.

Herd immunity: See Community immunity.

Herpes zoster (shingles): A disease characterized by painful skin lesions that occur mainly on the trunk (back and abdomen) of the body, but which can also develop on the face and in the mouth. Complications include headache, vomiting, fever, and meningitis. Recovery may take up to 5 weeks. Herpes zoster is caused by the same virus that is responsible for chickenpox. Most people are exposed to this virus during childhood. After the primary infection (chickenpox), the virus becomes dormant, or inactivated. In some people the virus reactivates years, or even decades, later and causes herpes zoster.

Hives: The eruption of red marks on the skin that are usually accompanied by itching. This condition can be caused by an allergy (e.g., to food or drugs), stress, infection, or physical agents (e.g., heat or cold). Also known as urticaria.

Human papillomavirus (HPV): A sexually transmitted virus responsible for almost all cases of cervical cancer, as well as cancers of the vagina, anus, and penis. Certain strains of HPV cause warts of the genitalia and skin.

Hypersensitivity: A condition in which the body has an exaggerated response to a substance (e.g., food or drug). Also known as an allergy.

Immune globulin: A protein found in the blood that fights infection. Also known as gamma globulin.

Immune system: The complex system of the body responsible for fighting disease. Its primary function is to identify foreign substances in the body (bacteria, viruses, fungi, or parasites) and develop a defense against them. This defense is known as the immune response. It involves production of protein molecules called antibodies to eliminate foreign organisms that invade the body.

- Immunity:** Protection against a disease. There are two types of immunity, passive and active. Immunity is indicated by the presence of antibodies in the blood and can usually be determined with a laboratory test. See Active immunity and Passive immunity.
- Immunization:** The process by which a person or animal becomes protected against a disease. This term is often used interchangeably with vaccination.
- Immunosuppression:** When the immune system is unable to protect the body from disease. This condition can be caused by disease (like HIV infection or cancer) or by certain drugs (like those used in chemotherapy). Individuals whose immune systems are compromised should not receive live, attenuated vaccines.
- Inactivated vaccine:** A vaccine made from viruses or bacteria that have been killed through physical or chemical processes. These killed organisms cannot cause disease.
- Incubation period:** The time from contact with infectious agents (bacteria or viruses) to onset of disease.
- Infectious:** Capable of spreading disease. Also known as communicable.
- Influenza:** A highly contagious viral infection characterized by sudden onset of fever, severe aches and pains, and cough.
- Live vaccine:** A vaccine in which live virus is weakened (attenuated) through chemical or physical processes in order to produce an immune response without causing the severe effects of the disease. Live vaccines currently licensed in the United States include measles, mumps, rubella, varicella, *Zostavax*, rotavirus, oral typhoid, yellow fever, vaccinia (smallpox), and adenovirus (used only among certain military personnel). Also known as an attenuated vaccine.
- Measles:** A contagious viral disease marked by the eruption of red circular spots on the skin. Also known as rubeola.
- Meningitis:** Inflammation of the brain and spinal cord that can result in permanent brain damage and death. Meningitis is most commonly caused by certain viruses and bacteria.
- Mumps:** Acute contagious viral illness marked by swelling, especially of the parotid glands.
- Optic neuritis:** A medical condition where vision deteriorates rapidly over hours or days. One or both eyes may be affected. This condition results from the demyelination of the optic nerve. In most cases, the cause of optic neuritis is unknown. Patients may regain their vision or be left with permanent impairment.
- Outbreak:** Sudden appearance of a disease in a specific geographic area (e.g., neighborhood or community) or population (e.g., adolescents).
- Pandemic:** An epidemic occurring over a very large geographic area.
- Passive immunity:** Protection against disease through antibodies produced by another human being or animal. Passive immunity is effective, but protection is generally limited and diminishes over time (usually a few weeks or months). For example, maternal antibodies are passed to the infant prior to birth. These antibodies temporarily protect the baby for the first 4–6 months of life.
- Pathogens:** Organisms (such as bacteria, viruses, parasites, and fungi) that cause disease.
- Pertussis (whooping cough):** Bacterial infectious disease marked by a convulsive spasmodic cough, sometimes followed by a crowing intake of breath.
- Pneumonia:** Inflammation of the lungs characterized by fever, chills, muscle stiffness, chest pain, cough, shortness of breath, rapid heart rate, and difficulty breathing. Pneumonia may be caused by bacteria or viruses.
- Poliomyelitis (polio):** An acute infectious viral disease of the nervous system characterized by fever, paralysis, and atrophy of skeletal muscles.
- Polysaccharide vaccine:** Vaccines that are composed of long chains of sugar molecules that resemble the surface of certain types of bacteria. Polysaccharide vaccines are available for pneumococcal disease, meningococcal disease, *Haemophilus influenzae* type b, and typhoid.
- Potency:** A measure of strength.
- Precaution:** A condition in a vaccine recipient that could increase the chance or severity of an adverse reaction, or that might compromise the ability of the vaccine to produce immunity. Injury could result, but the chance of this happening is less than with a contraindication. In general, vaccines are deferred when a precaution condition is present. However, situations may arise when the benefit of protection from the vaccine outweighs the risk of an adverse reaction, and a provider may decide to give the vaccine.
- Prodromal:** An early symptom indicating the onset of a disease.
- Recombinant:** Of or resulting from new combinations of genetic material or cells; the genetic material produced when segments of DNA from different sources are joined to produce recombinant DNA.

Rubella: (German measles): An acute viral infection that causes a mild rash illness in the infected person, but which may cause severe fetal damage and birth defects if infection occurs early in pregnancy.

Rubeola: See measles.

Seroconversion: Development of antibodies in the blood of an individual who previously did not have detectable antibodies. Usually a consequence of infection or vaccination.

Serology: Measurement of antibodies, and other immunological properties, in the blood serum.

Shingles: See Herpes zoster.

Susceptible: Unprotected against disease.

Tetanus: A disease caused by a toxin produced by tetanus bacteria. This disease is characterized by prolonged painful muscle spasms.

Titer: The detection of antibodies in blood through a laboratory test.

Urticaria: The eruption of red marks on the skin that are usually accompanied by itching. This condition can be caused by an allergy (such as to food or drugs), stress, infection, or physical agents (such as heat or cold). Also known as hives.

Vaccination: Injection of a killed or weakened infectious organism in order to prevent the disease.

Vaccine: A product that produces immunity, thereby protecting the body from the disease. Vaccines are administered through needle injections, by mouth, and by aerosol.

Vaccine Adverse Event Reporting System (VAERS): A database managed by the Centers for Disease Control and Prevention and the Food and Drug Administration. VAERS provides a mechanism for the collection and analysis of adverse events associated with vaccines currently licensed in the United States. Reports to VAERS can be made by the vaccine manufacturer, recipient, their parent/guardian, or healthcare provider.

Vaccine Safety Datalink (VSD): In order to increase knowledge about vaccine adverse events, the Centers for Disease Control and Prevention has formed partnerships with several large health maintenance organizations (HMOs) to continually evaluate vaccine safety. The project contains data on more than 6 million people. Medical records are monitored for potential adverse events following immunization. VSD allows for planned vaccine safety studies as well as timely investigations of hypotheses.

Varicella (chickenpox): An acute contagious disease characterized by papular and vesicular lesions.

Virus: A tiny infectious agent that multiplies within cells and causes diseases such as chickenpox, measles, mumps, rubella, and hepatitis. Viruses do not respond to treatment with antibiotics, the drugs used to kill bacteria.

Waning immunity: The loss of protective antibodies over time.

Whooping cough: See pertussis.

QUICK REFERENCE

Centers for Disease Control and Prevention

Key web pages

National Center for Immunization and Respiratory Diseases
www.cdc.gov/ncird/index.html

Vaccine information for healthcare professionals
www.cdc.gov/vaccines/hcp/index.html

Vaccine recommendations and guidance from CDC's Advisory Committee on Immunization Practices (ACIP)
www.cdc.gov/vaccines/hcp/acip-recs/index.html

Traveler's health information
<https://wwwnc.cdc.gov/travel>

Email your immunization questions to CDC
nipinfo@cdc.gov

Essential CDC resources

Epidemiology and Prevention of Vaccine-Preventable Diseases ("The Pink Book")
www.cdc.gov/vaccines/pubs/pinkbook/index.html

General Best Practice Guidelines for Immunization – ACIP (formerly titled *ACIP General Recommendations on Immunization*)
www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html

Vaccine Storage and Handling Toolkit
www.cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf

► Looking for additional helpful websites?

Check the *Materials and Resources You Can Use* pages located at the end of each "step" (chapter) in the *Guide*.

Adult Immunization Partner Organizations

American Academy of Family Physicians (AAFP)
www.aafp.org

American Academy of Pediatrics (AAP)
www.aap.org

American Academy of Physician Assistants (AAPA)
www.aapa.org

American Association of Nurse Practitioners (AANP)
www.aanp.org

American College Health Association (ACHA)
www.acha.org

American College of Nurse-Midwives (ACNM)
www.midwife.org

American College of Obstetricians and Gynecologists (ACOG)
www.acog.org

American College of Physicians (ACP)
www.acponline.org

American Immunization Registry Association (AIRA)
www.immregistries.org

American Medical Association
www.ama-assn.org

American Nurses Association (ANA)
www.nursingworld.org

American Pharmacists Association (APhA)
www.pharmacist.com

American Society of Health-System Pharmacists (ASHP)
www.ashp.org

Association for Professionals in Infection Control and Epidemiology (APIC)
www.apic.org

Association of Immunization Managers (AIM)
www.immunizationmanagers.org

Association of State and Territorial Health Officials (ASTHO)
www.astho.org

Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN)
www.awhonn.org

Every Child By Two/
Vaccinate Your Family (ECBT)
www.ecbt.org/
www.vaccinateyourfamily.org

Families Fighting Flu
www.familiesfightingflu.org

Indian Health Service (IHS)
www.ihs.gov

Infectious Diseases Society of America (IDSA)
www.idsociety.org

Institute for Safe Medication Practices (ISMP)
www.ismp.org

Meningitis Angels
www.meningitis-angels.org

National Adult and Influenza Immunization Summit (NAIIS)
www.izsummitpartners.org

National Association of County and City Health Officials (NACCHO)
www.naccho.org

National Foundation for Infectious Diseases (NFID)
www.nfid.org

National Medical Association
www.nmanet.org

National Meningitis Association
www.nmaus.org

National Vaccine Program Office (NVPO)
www.hhs.gov/nvpo

Society for Adolescent Health and Medicine (SAHM)
www.adolescenthealth.org

Society of Teachers of Family Medicine (STFM)
www.stfm.org

Vaccine Education Center at the Children's Hospital of Philadelphia (VEC)
www.chop.edu/centers-programs/vaccine-education-center

Voices for Vaccines
www.voicesforvaccines.org

Vaccine Manufacturers

(check for updates at
www.immunize.org/resources/manufact_vax.asp)

● = VACCINE INFORMATION
● = VACCINE ORDERING

Emergent BioSolutions

● www.biothrax.com
● www.biothrax.com/forhealthpros/clinicalinfo/ordering.aspx

GSK Vaccines

● www.gskvaccines.com
● www.gskdirect.com

Massachusetts Biological Labs

● www.umassmed.edu/massbiologics/about/our-products
● www.grifolstdvaccine.com/en/web/td-vaccine/ordering-td-vaccine

MedImmune/AstraZeneca

● www.flumistquadrivalent.com
● www.flumistquadrivalent.com/hcp/quadrivalent/Distribution.html

Merck & Co., Inc.

● www.merckvaccines.com
● www.merckvaccines.com

PaxVax

● www.paxvax.com/our-vaccines
● www.paxvaxconnect.com/products

Pfizer

● www.pfizer.com/science/vaccines
● www.pfizerpro.com

Protein Sciences Corporation

● www.flublok.com
● www.flublok.com/media/1152/2017-2018-flublok-order-form-final.pdf

Sanofi Pasteur

● www.sanofipasteur.us/vaccines
● www.vaccineshoppe.com

Seqirus

● www.seqirus-us.com/products.htm
● www.flu.seqirus.com/order-now.aspx

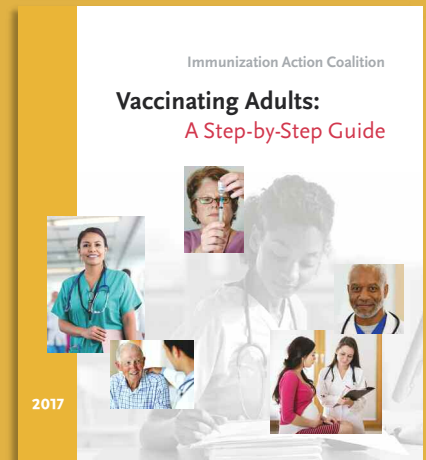
Valneva

● www.valneva.com/en/products/commercialized-vaccines
● www.vaxserve.com



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651-647-9009
www.immunize.org

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This entire guide is available free online at
www.immunize.org/guide