Immunization 101

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Presenter Disclosure Information

I, Katie Reilly, have been asked to disclose any significant relationships with commercial entities that are either providing financial support for this program or whose products or services are mentioned during my presentations. I have no relationships to disclose.

I may discuss the use of vaccines in a manner not approved by the U.S. Food and Drug Administration

- But in accordance with ACIP recommendations

Outline

- Herd Immunity
- Types of vaccines
- 2019 Adult Immunization Schedule
- Screening prior to vaccination
- Contraindications and precautions to vaccination
- Vaccine Information Statements (VIS)
- Vaccine administration documentation requirements
- Vaccine Safety/VAERS Reporting
- Standards for Adult Immunization Practice
- Resources

Herd Immunity/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."

Retrieved from: https://www.cdc.gov/vaccines/terms/glossary.html#commimmunity

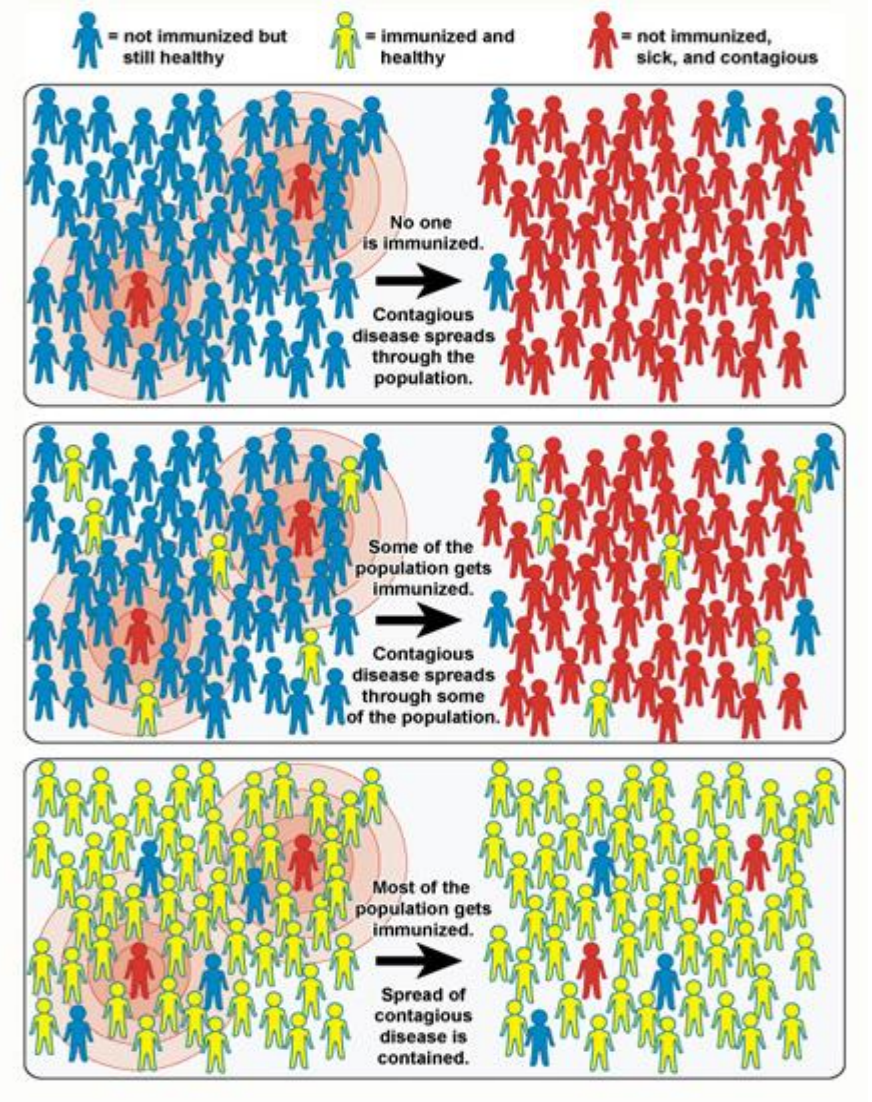


Photo credit: Courtesy: The National Institute of Allergy and Infectious Disease (NIAID)

Why Vaccinate?: Community Protection

Important for:

- Children/infants too young to be vaccinated
- Pregnant women
- People in whom vaccine-induced immunity has waned
- Immunosuppressed patients who cannot be vaccinated
- Elderly people who may not mount an adequate immune response to a vaccine
- People with inadequate access to vaccinations
- People who remain unvaccinated by choice

Live Attenuated Vaccines

- Attenuated (weakened) form of the "wild" virus or bacterium
- Must replicate to produce an immune response
- Immune response virtually identical to natural infection
- Usually produce immunity with one dose (except those administered orally)
- Interference from circulating antibody
- Fragile: must be stored and handled carefully

- Viral: measles, mumps, rubella, vaccinia, varicella, zoster, yellow fever, rotavirus, intranasal influenza, oral polio*
- Bacterial: BCG*, oral typhoid

*not available in the USA

http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/prinvac.pdf

Inactivated Vaccines

- Cannot replicate, and therefore cannot cause infection
- Less affected by circulating antibody than live vaccine
- Require multiple doses
- Immune response mostly humoral
- Antibody titer diminish with time
- May require periodic supplemental booster doses

- Whole cell vaccines:
  - Viral: polio, hepatitis A, rabies, influenza*
  - Bacterial: pertussis*, typhoid*, cholera, plague*
- Fractional vaccines
  - Subunits: hepatitis B, influenza, acellular pertussis, HPV, anthrax
  - Toxoids: diphtheria, tetanus

*not available in the USA

http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/prinvac.pdf

2019 Adult Immunization Schedule

MMWR 2019:68(5):115-118

Available at:

- https://www.cdc.gov/mmwr/volumes/68/wr/pdfs/mm6805a5-H.pdf
- https://www.cdc.gov/vaccines/schedules/index.html

Updates - 2019 Adult Immunization Schedule

- LAIV has been listed separately from inactivated influenza vaccine (IIV) on the immunization schedule
- Hep B vaccine, now 2 or 3 doses. Takes into account Heplisav-B two dose series
- Homelessness added as an indication for routine hepatitis A vaccination
- Cover page simplified, web links added

MMWR 2019:68(5):115-118

Recommended Adult Immunization Schedule
for ages 19 years or older

UNITED STATES
2019

How to use the adult immunization schedule

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

2 Assess need for additional recommended vaccinations by medical condition and other indications **(Table 2)**

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

Vaccines in the Adult Immunization Schedule*

Vaccines	Abbreviations	Trade names
Haemophilus influenzae type b vaccine	Hib	ActHIB Hiberix
Hepatitis A vaccine	HepA	Havrix Vaqta
Hepatitis A and hepatitis B vaccine	HepA-HepB	Twinrix
Hepatitis B vaccine	HepB	Engerix-B Recombivax HB Heplisav-B
Human papillomavirus vaccine	HPV vaccine	Gardasil 9
Influenza vaccine, inactivated	IIV	Many brands
Influenza vaccine, live attenuated	LAIV	FluMist Quadrivalent
Influenza vaccine, recombinant	RIV	Flublok Quadrivalent
Measles, mumps, and rubella vaccine	MMR	M-M-R II
Meningococcal serogroups A, C, W, Y vaccine	MenACWY	Menactra Menveo
Meningococcal serogroup B vaccine	MenB-4C MenB-FHbp	Bexsero Trumenba
Pneumococcal 13-valent conjugate vaccine	PCV13	Prevnar 13
Pneumococcal 23-valent polysaccharide vaccine	PPSV23	Pneumovax
Tetanus and diphtheria toxoids	Td	Tenivac Td vaccine
Tetanus and diphtheria toxoids and acellular pertussis vaccine	Tdap	Adacel Boostrix
Varicella vaccine	VAR	Varivax
Zoster vaccine, recombinant	RZV	Shingrix
Zoster vaccine live	ZVL	Zostavax

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

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

Report

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

Injury claims

All vaccines included in the adult immunization schedule except pneumococcal 23-valent polysaccharide and zoster vaccines are covered by the Vaccine Injury Compensation Program. Information on how to file a vaccine injury claim is available at www.hrsa.gov/vaccinecompensation or 800-338-2382.

Questions or comments

Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays.

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

Helpful information

- Complete ACIP recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
- Vaccine Information Statements: www.cdc.gov/vaccines/hcp/vis/index.html
- Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/vaccines/pubs/surv-manual
- Travel vaccine recommendations: www.cdc.gov/travel
- Recommended Child and Adolescent Immunization Schedule, United States, 2019: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html

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

Table 1 Recommended Adult Immunization Schedule by Age Group United States, 2019

Vaccine	19–21 years	22–26 years	27–49 years	50–64 years	≥65 years
Influenza inactivated (IIV) or **Influenza recombinant** (RIV)	1 dose annually				
or					
Influenza live attenuated (LAIV)	1 dose annually				
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap, then Td booster every 10 yrs				
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)				
Varicella (VAR)	2 doses (if born in 1980 or later)				
Zoster recombinant (RZV) *(preferred)*				2 doses	
or					
Zoster live (ZVL)					1 dose
Human papillomavirus (HPV) **Female**	2 or 3 doses depending on age at initial vaccination				
Human papillomavirus (HPV) **Male**	2 or 3 doses depending on age at initial vaccination				
Pneumococcal conjugate (PCV13)	1 dose				
Pneumococcal polysaccharide (PPSV23)	1 or 2 doses depending on indication				1 dose
Hepatitis A (HepA)	2 or 3 doses depending on vaccine				
Hepatitis B (HepB)	2 or 3 doses depending on vaccine				
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, then booster every 5 yrs if risk remains				
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication				
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication				

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

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

No recommendation

Table 2 Recommended Adult Immunization Schedule by Medical Condition and Other Indications United States, 2019

Vaccine	Pregnancy	Immuno-compromised (excluding HIV infection)	HIV infection CD4 count		Asplenia, complement deficiencies	End-stage renal disease, on hemodialysis	Heart or lung disease, alcoholism[1]	Chronic liver disease	Diabetes	Health care personnel[2]	Men who have sex with men
			<200	≥200							
IIV or RIV	1 dose annually										
or										or	
LAIV	CONTRAINDICATED							PRECAUTION		1 dose annually	
Tdap or Td	1 dose Tdap each pregnancy	1 dose Tdap, then Td booster every 10 yrs									
MMR	CONTRAINDICATED				1 or 2 doses depending on indication						
VAR	CONTRAINDICATED				2 doses						
RZV (preferred)	DELAY				2 doses at age ≥50 yrs						
or					or						
ZVL	CONTRAINDICATED				1 dose at age ≥60 yrs						
HPV Female	DELAY	3 doses through age 26 yrs			2 or 3 doses through age 26 yrs						
HPV Male		3 doses through age 26 yrs			2 or 3 doses through age 21 yrs						2 or 3 doses through age 26 yrs
PCV13		1 dose									
PPSV23		1, 2, or 3 doses depending on age and indication									
HepA	2 or 3 doses depending on vaccine										
HepB	2 or 3 doses depending on vaccine										
MenACWY	1 or 2 doses depending on indication, then booster every 5 yrs if risk remains										
MenB	PRECAUTION	2 or 3 doses depending on vaccine and indication									
Hib		3 doses HSCT[3] recipients only			1 dose						

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

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

Precaution—vaccine might be indicated if benefit of protection outweighs risk of adverse reaction

Delay vaccination until after pregnancy if vaccine is indicated

Contraindicated—vaccine should not be administered because of risk for serious adverse reaction

No recommendation

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

Notes

Recommended Adult Immunization Schedule United States, 2019

"Notes"--now in alphabetical order

Haemophilus influenzae type b vaccination

Special situations

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

Hepatitis A vaccination

Routine vaccination

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

Special situations

- **At risk for hepatitis A virus infection**: 2-dose series HepA or 3-dose series HepA-HepB as above
  - **Chronic liver disease**
  - **Clotting factor disorders**
  - **Men who have sex with men**
  - **Injection or non-injection drug use**
  - **Homelessness**
  - **Work with hepatitis A virus** in research laboratory or nonhuman primates with hepatitis A virus infection
  - **Travel in countries with high or intermediate endemic hepatitis A**
  - **Close personal contact with international adoptee** (e.g., household, regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival)

Hepatitis B vaccination

Routine vaccination

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

Special situations

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

Human papillomavirus vaccination

Routine vaccination

- **Females through age 26 years and males through age 21 years:** 2- or 3-dose series HPV vaccine depending on age at initial vaccination; males age 22 through 26 years may be vaccinated based on individual clinical decision (HPV vaccination routinely recommended at age 11–12 years)
- **Age 15 years or older at initial vaccination**: 3-dose series HPV vaccine at 0, 1–2, 6 months (minimum intervals: 4 weeks between doses 1 and 2, 12 weeks between doses 2 and 3, 5 months between doses 1 and 3; repeat dose if administered too soon)
- **Age 9 through 14 years at initial vaccination and received 1 dose, or 2 doses less than 5 months apart**: 1 dose HPV vaccine
- **Age 9 through 14 years at initial vaccination and received 2 doses at least 5 months apart**: HPV vaccination complete, no additional dose needed
- If completed valid vaccination series with any HPV vaccine, no additional doses needed

Special situations

- **Immunocompromising conditions (including HIV infection) through age 26 years**: 3-dose series HPV vaccine at 0, 1–2, 6 months as above
- **Men who have sex with men and transgender persons through age 26 years**: 2- or 3-dose series HPV vaccine depending on age at initial vaccination as above
- **Pregnancy through age 26 years**: HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant; pregnancy testing not needed before vaccination

The Provider's Role

Immunization providers can help to ensure the safety and efficacy of vaccines through proper:

- Vaccine storage and administration
- Timing and spacing of vaccine doses
- Observation of contraindications and precautions
- Management of adverse reactions
- Reporting to VAERS
- Benefit and risk communication

http://www.cdc.gov/vaccines/pubs/pinkbook/safety.html

Seven Rights of Vaccine Administration

- Right Patient
- Right Time
- Right Vaccine (and Diluent)
- Right Dosage
- Right Route, Needle, Technique
- Right Injection Site
- Right Documentation

http://www.immunize.org/technically-speaking/20141101.asp

Influenza Vaccine Products for the 2018–2019 Influenza Season

Manufacturer	Trade Name (vaccine abbreviation)[1]	How Supplied	Mercury Content (mcg Hg/0.5mL)	Age Range	Vaccine Product Billing Code[2]	
					CPT	Medicare
GlaxoSmithKline	Fluarix (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older	90686	90686
ID Biomedical Corp. of Quebec, a subsidiary of GlaxoSmithKline	FluLaval (IIV4)	0.5 mL (single-dose syringe)	0	6 months & older	90686	90686
		5.0 mL (multi-dose vial)	<25	6 months & older	90688	90688
MedImmune	FluMist (LAIV4)	0.2 mL (single-use nasal spray)	0	2 through 49 years	90672	90672
Protein Sciences Corporation, a Sanofi company	Flublok (RIV4)	0.5 mL (single-dose syringe)	0	18 years & older	90682	90682
Sanofi Pasteur, Inc.	Fluzone (IIV4)	0.25 mL (single-dose syringe)	0	6 through 35 months	90685	90685
		0.5 mL (single-dose syringe)	0	3 years & older	90686	90686
		0.5 mL (single-dose vial)	0	3 years & older	90686	90686
		5.0 mL (multi-dose vial)	25	6 through 35 months	90687	90687
		5.0 mL (multi-dose vial)	25	3 years & older	90688	90688
	Fluzone High-Dose (IIV3-HD)	0.5 mL (single-dose syringe)	0	65 years & older	90662	90662
Seqirus	Afluria (IIV3)	0.5 mL (single-dose syringe)	0	5 years & older[3]	90656	90656
		5.0 mL (multi-dose vial)	24.5		90658	Q2035
	Afluria (IIV4)	0.5 mL (single-dose syringe)	0	5 years & older[3]	90686	90686
		5.0 mL (multi-dose vial)	24.5		90688	90688
	Fluad (aIIV3)	0.5 mL (single-dose syringe)	0	65 years & older	90653	90653
	Flucelvax (ccIIV4)	0.5 mL (single-dose syringe)	0	4 years & older	90674	90674
		5.0 mL (multi-dose vial)	25		90756	90756

Footnotes

1. IIV3/IIV4 = egg-based trivalent/quadrivalent inactivated influenza vaccine (injectable); where necessary to refer to cell culture-based vaccine, the prefix "cc" is used (e.g., ccIIV4); RIV4 = quadrivalent recombinant hemagglutinin influenza vaccine (injectable); aIIV3 = adjuvanted trivalent inactivated influenza vaccine.
2. An administration code should always be reported in addition to the vaccine product code. Note: Third party payers may have specific policies and guidelines that might require providing additional information on their claim forms.
3. Afluria is approved by the Food and Drug Administration for intramuscular administration with the PharmaJet Stratis Needle-Free Injection System for persons age 18 through 64 years.

http://www.immunize.org/catg.d/p4072.pdf

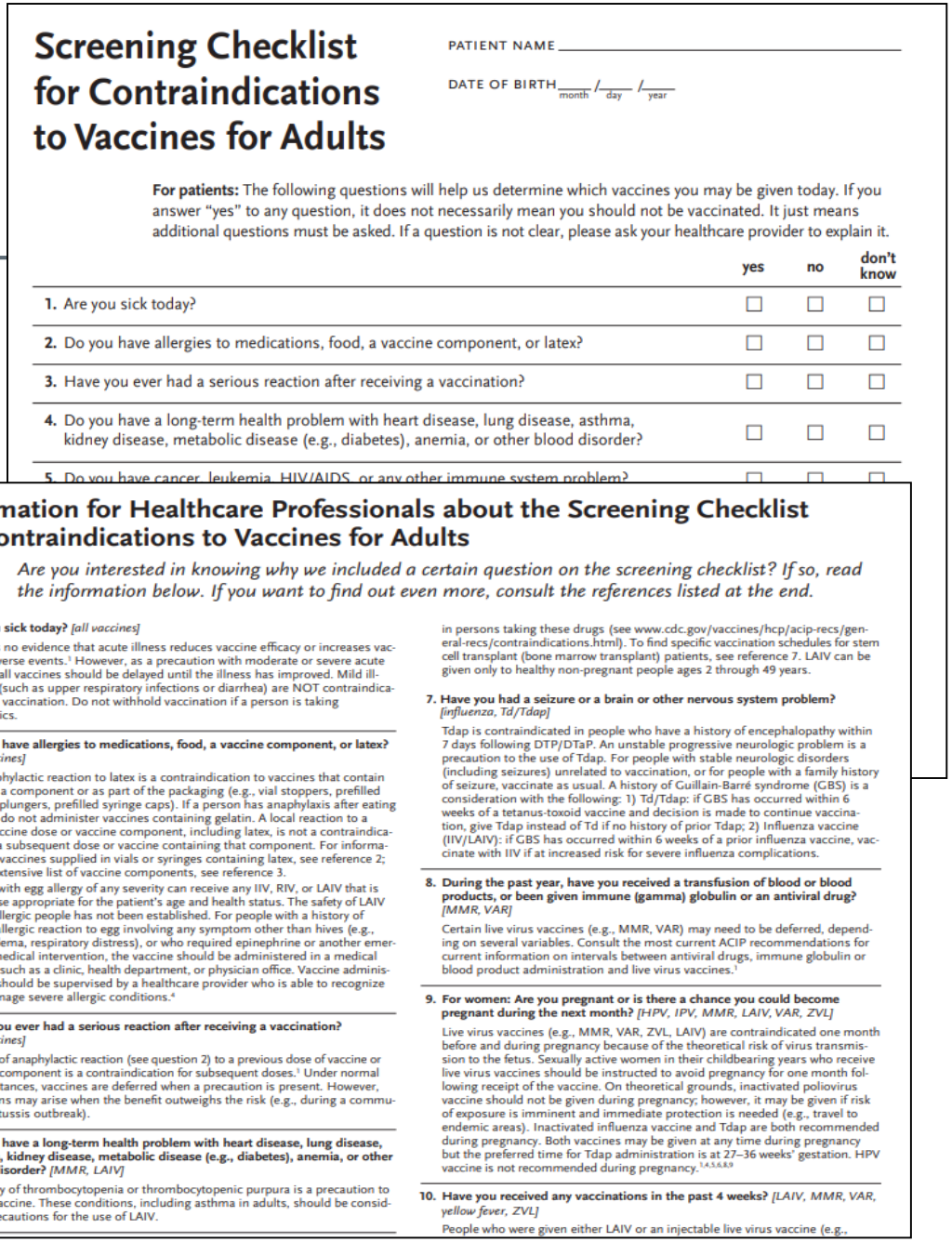
Screening

- Is key to preventing serious adverse reactions
- Specific questions intended to identify contraindications or precautions to vaccination
- Screening must occur at every immunization encounter (not just before the first dose)
- Use of a standardized form will facilitate effective screening

http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/genrec.pdf

Immunization Action Coalition (IAC) Screening Forms

- Child and Teen Immunizations
- Adult Immunizations
- Seasonal Influenza



Screening Checklist for Contraindications to Vaccines for Adults

PATIENT NAME _____

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

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

	yes	no	don't know
1. Are you sick today?	☐	☐	☐
2. Do you have allergies to medications, food, a vaccine component, or latex?	☐	☐	☐
3. Have you ever had a serious reaction after receiving a vaccination?	☐	☐	☐
4. Do you have a long-term health problem with heart disease, lung disease, asthma, kidney disease, metabolic disease (e.g., diabetes), anemia, or other blood disorder?	☐	☐	☐
5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem?	☐	☐	☐

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

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

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

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

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

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

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

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

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

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

A history of thrombocytopenia or thrombocytopenic purpura is a precaution to MMR vaccine. These conditions, including asthma in adults, should be considered precautions for the use of LAIV.

in persons taking these drugs (see www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html). To find specific vaccination schedules for stem cell transplant (bone marrow transplant) patients, see reference 7. LAIV can be given only to healthy non-pregnant people ages 2 through 49 years.

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

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

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

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

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

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

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

People who were given either LAIV or an injectable live virus vaccine (e.g.,

http://www.immunize.org/handouts/screening-vaccines.asp

Contraindication and Precautions

Contraindications

- Conditions in a recipient that increases the risk for a serious adverse reaction
- A vaccine should not be administered when a contraindication is present

Precaution

- A precaution is a condition in a recipient that might increase the risk for a serious adverse reaction, might cause diagnostic confusion, or might compromise the ability of the vaccine to produce immunity
- In general, vaccinations should be deferred when a precaution is present. However, a vaccination might be indicated in the presence of a precaution if the benefit of protection from the vaccine outweighs the risk for an adverse reaction.

Because the majority of contraindications and precautions are temporary, vaccinations often can be administered later when the condition leading to a contraindication or precaution no longer exists

https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html

Contraindications & Precautions In Adults

CDC's General Best Practice Guidelines for Immunization
https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html

Immunization Action Coalition
Stay tuned!
http://www.immunize.org/catg.d/p3072.pdf

TABLE 4-1. Contraindications and precautions[a] to commonly used vaccines

Vaccine	Citation	Contraindications	Precautions
DT, Td	(*4*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	GBS <6 weeks after previous dose of tetanus-toxoid–containing vaccine History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid-containing vaccine Moderate or severe acute illness with or without fever
DTaP	(*38*)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP or DTaP	Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status clarified and stabilized GBS <6 weeks after previous dose of tetanus-toxoid–containing vaccine History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid–containing vaccine

Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults[1,☆]

Vaccine	Contraindications[1]	Precautions[1]
Influenza, inactivated (IIV)[2] Influenza, recombinant (RIV)[2]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	• 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 a medical setting, under the supervision of a healthcare provider who is able to recognize and manage severe allergic conditions)
Influenza, live attenuated (LAIV)[2,3]	• Severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine (except egg), or to a previous dose of influenza vaccine • Pregnancy • Immunocompromised due to any cause (including immunosuppression caused by medications or by HIV infection) • Close contacts and caregivers of severely immunosuppressed persons who required a protected environment) • Receipt of influenza antivirals (amantadine, rimantadine, zanamivir, oseltamivir, or peramivir) within the previous 48 hours; avoid use of these antiviral drugs for 14 days after vaccination	• Moderate or severe acute illness with or without fever • GBS within 6 weeks of previous influenza vaccination • Asthma in persons age 5 years and older • Other chronic medical conditions (e.g., other chronic lung diseases, chronic cardiovascular disease [excluding isolated hypertension], diabetes, chronic renal or hepatic disease, hematologic disease, neurologic disease, and metabolic disorders)
Tetanus, diphtheria, pertussis (Tdap) Tetanus, diphtheria (Td)	• 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.	• 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; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine • For Tdap only: progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy; defer until a treatment regimen has been established and the condition has stabilized
Varicella (Var)[3] Measles, mumps, rubella (MMR)[3]	• 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 therapy[4]), or persons with human immunodeficiency virus [HIV] infection who are severely immunocompromised • Family history of congenital or hereditary immunodeficiency in first-degree relatives (e.g., parents and siblings), unless the immune competence of the potential vaccine recipient has been substantiated clinically or verified by a laboratory test • Pregnancy	• Moderate or severe acute illness with or without fever • Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)[5] • For Var only: 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 • For MMR only: Need for tuberculin skin testing[6] • For MMR only: History of thrombocytopenia or thrombocytopenic purpura
Human papillomavirus (HPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component	• Moderate or severe acute illness with or without fever • Pregnancy
Recombinant zoster vaccine (RZV) Zoster vaccine live (ZVL)[3]	• Severe allergic reaction (e.g., anaphylaxis) to a vaccine component • For ZVL only: Severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy[4]), or persons with HIV infection who are severely immunocompromised • For ZVL only: Pregnancy	• Moderate or severe acute illness with or without fever • For ZVL only: 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 • For RZV only: Pregnancy and lactation

Vaccine Information Statements (VISs)

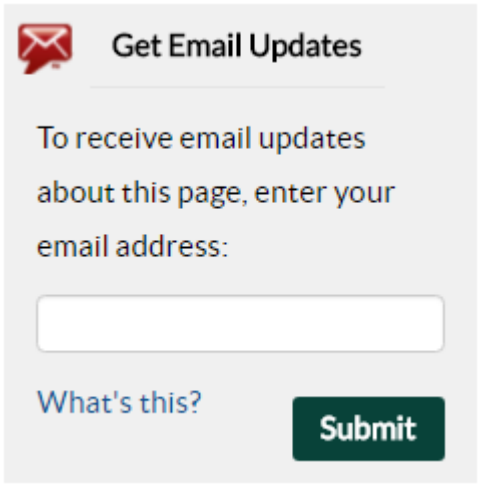
Healthcare provider requirements

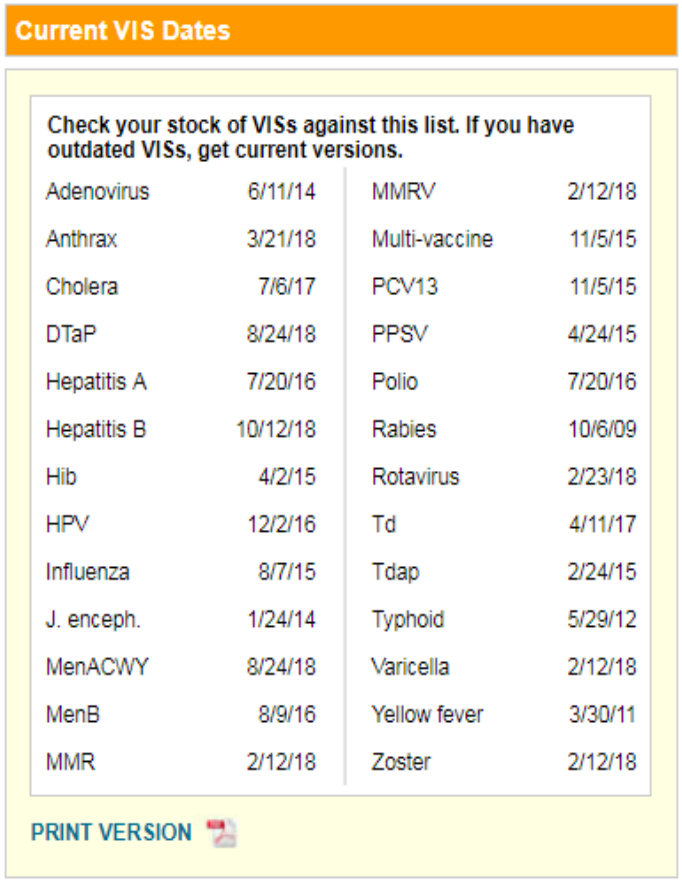
- Public and private providers
- Give VISs **before** vaccine is administered
- Applies to **every dose** of a vaccine series not just the first dose
- Opportunities for questions should be provided before each vaccination
- A practice may produce permanent, laminated, office copies of each VIS, which may be read by recipients prior to vaccination
- VISs may be reviewed on a computer monitor (or any video display)
- Offer a copy of the VISs to take away
- Available in multiple languages

http://www.cdc.gov/vaccines/hcp/vis/about/facts-vis.html#give

Your Sources for VISs

http://www.cdc.gov/vaccines/hcp/vis/index.html





Current VIS Dates

Check your stock of VISs against this list. If you have outdated VISs, get current versions.

Adenovirus	6/11/14	MMRV	2/12/18
Anthrax	3/21/18	Multi-vaccine	11/5/15
Cholera	7/6/17	PCV13	11/5/15
DTaP	8/24/18	PPSV	4/24/15
Hepatitis A	7/20/16	Polio	7/20/16
Hepatitis B	10/12/18	Rabies	10/6/09
Hib	4/2/15	Rotavirus	2/23/18
HPV	12/2/16	Td	4/11/17
Influenza	8/7/15	Tdap	2/24/15
J. enceph.	1/24/14	Typhoid	5/29/12
MenACWY	8/24/18	Varicella	2/12/18
MenB	8/9/16	Yellow fever	3/30/11
MMR	2/12/18	Zoster	2/12/18

PRINT VERSION

http://www.immunize.org/vis/

Administering Vaccines to Adults: Dose, Route, Site, and Needle Size

Vaccine	Dose
Hepatitis A (HepA)	≤18 yrs: 0.5 mL
	≥19 yrs: 1.0 mL
Hepatitis B (HepB)	*Engerix-B; Recombivax* ≥20 yrs: 1.0 mL ≤19 yrs: 0.5 mL
	Heplisav-B ≥18 yrs: 0.5 mL
HepA-HepB (Twinrix)	≥18 yrs: 1.0 mL
Human papillomavirus (HPV)	0.5 mL
Influenza, live attenuated (LAIV)	0.2 mL (0.1 mL in e nostril)
Influenza, inactivated (IIV) **and recombinant** (RIV)	0.5 mL
Measles, Mumps, Rubella (MMR)	0.5 mL
Meningococcal serogroups A, C, W, Y (MenACWY)	0.5 mL
Meningococcal serogroup B (MenB)	0.5 mL
Pneumococcal conjugate (PCV13)	0.5 mL
Pneumococcal polysaccharide (PPSV 23)	0.5 mL
Tetanus, Diphtheria (Td) **with Pertussis** (Tdap)	0.5 mL
Varicella (VAR)	0.5 mL
Zoster (Zos)	Shingrix: 0.5* m
	Zostavax: 0.65 n

* The vial might contain m
Do not administer more

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*	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
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$_{PCECV}$)	GlaxoSmithKline	Rabies virus	Sterile water	Immediately†	Refrigerator
Rotarix (RV1)‡	GlaxoSmithKline	RV1	Sterile water, calcium carbonate, and xanthan	24 hrs	Refrigerator or room temp
Shingrix (RZV)	GlaxoSmithKline	RZV	AS01$_B$§ adjuvant suspension	6 hrs	Refrigerator
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 or room temp
Zostavax (ZVL)	Merck	LZV	Sterile water	30 min	Refrigerator or room temp

http://www.immunize.org/catg.d/p3084.pdf

http://www.immunize.org/catg.d/p3040.pdf

Healthcare Provider Documentation Requirements

Providers must ensure that the recipient's permanent medical record (whether paper-based or electronic) contains all of the required vaccine administration documentation, which shall consist of the following:

- Date of administration of the vaccine
- Vaccine manufacturer and lot number of the vaccine
- Name and title of person administering the vaccine
- Address of clinic where vaccine was given
- The address of the facility where the permanent record will reside (if appropriate)
- Edition date printed on the appropriate VIS
- Date the VIS was given to the vaccine recipient, or the parents/legal representative

- We also recommend that the vaccine type, dose, site, route of administration, and vaccine expiration date be documented, and any vaccine refusal (if appropriate).

http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/vac-admin.pdf

MDPH Vaccine Administration Record

Vaccine Administration Record – All Ages

Record No. / Insurance No.: _____

Patient Name: _____

Address: _____

Birth Date: _____ Male _____ Female _____

Clinic Name and Address:

Use Reverse Side for Names and Initials of Vaccine Administrators

Vaccine administrator: Provide the patient, parent or legal representative with the most recent copy of the Vaccine Information Statement (VIS), which explains risks and benefits of vaccine, for **each** dose of vaccine given.

Type of Vaccine: Record the generic abbreviation for the type of vaccine given (e.g., DTaP), not the trade name. For combination vaccines, indicate the type (e.g.,DTaP-Hib) and all other information for each individual antigen (e.g., in the DTP and Hib sections) comprising the combination. Document all lot numbers for each component.

Vaccine	Type of Vaccine	Date Given M/D/Y	Dose	Route (PO, SC, IM, ID, IN, MP)	Site (RA,LA, RT, LT)	Vaccine		Vaccine Information Statement		Vaccine Admin Initials
						lot #	mfr.	Date on VIS	Date Given	
Hepatitis B (e.g., HepB, HepB-Hib, DTaP-HepB-IPV, HepA-HepB)				IM						
				IM						
				IM						
				IM						
Diphtheria, Tetanus, Pertussis (e.g., DTP, DTaP, DT, DTaP-Hib, DTaP-IPV/Hib, DTaP-HepB-IPV, DTaP-IPV, Td, Tdap)				IM IM IM IM IM IM						
***Haemophilus influenzae* type b** (e.g., Hib, HepB-Hib, DTaP-Hib, DTaP-IPV/Hib, Hib-MenCY)				IM						
				IM						
				IM						
				IM						

http://www.mass.gov/eohhs/docs/dph/cdc/immunization/record-vaccine-admin-clinic.pdf

MIIS Reporting Requirements

Legislation passed in June 2010, charging MDPH to establish an immunization registry (M.G.L. c. 111, s.24M)

- **Mandatory reporting of all immunizations administered in MA**

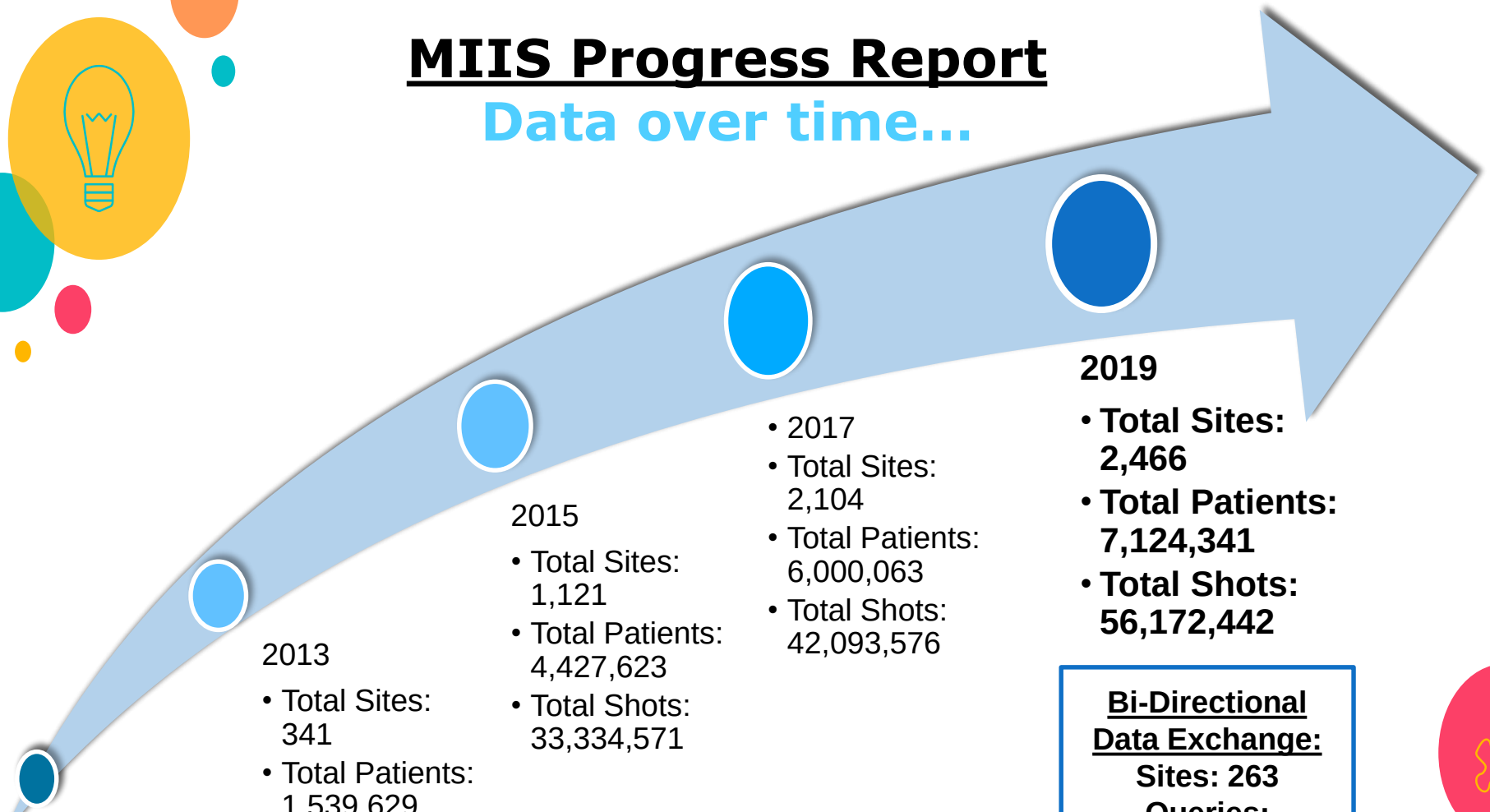
Regulations were promulgated January 2015

- outline information on system access, confidentiality, and requirements for data elements to be reported
- describe a provider's duty to inform patients, and a patient's right to object to data sharing across providers

See MIIS table or **www.contactmiis.info** for more information

MIIS Progress Report

Data over time…



2011

- Total Sites: 9
- Total Patients: 3,902
- Total Shots: 69,505

2013

- Total Sites: 341
- Total Patients: 1,539,629
- Total Shots: 7,303,293

2015

- Total Sites: 1,121
- Total Patients: 4,427,623
- Total Shots: 33,334,571

2017

- Total Sites: 2,104
- Total Patients: 6,000,063
- Total Shots: 42,093,576

2019

- **Total Sites: 2,466**
- **Total Patients: 7,124,341**
- **Total Shots: 56,172,442**

Bi-Directional Data Exchange:
Sites: 263
Queries: 2,572,497

CDC Vaccine Safety Monitoring

- Vaccines are one of the most cost-effective public health interventions available
- Their efficacy in reducing disease incidence has led to an increased focus on adverse events
- Close monitoring of vaccine safety is necessary to maintain public confidence in vaccination programs
- This monitoring provides information critical for vaccine research, development and policy

CDC Post-licensure Vaccine Safety Monitoring Infrastructure

System	Collaboration	Description
Vaccine Adverse Event Reporting System (VAERS)	CDC and FDA	US frontline spontaneous reporting system to detect potential vaccine safety problems
Vaccine Safety Datalink (VSD)	CDC and healthcare plans	Large linked database system used for active surveillance and research
Clinical Immunization Safety Assessment (CISA) Project	CDC and medical research centers	Expert collaboration which conducts individual clinical vaccine safety assessments and clinical research

Vaccine Adverse Event Reporting System (VAERS)

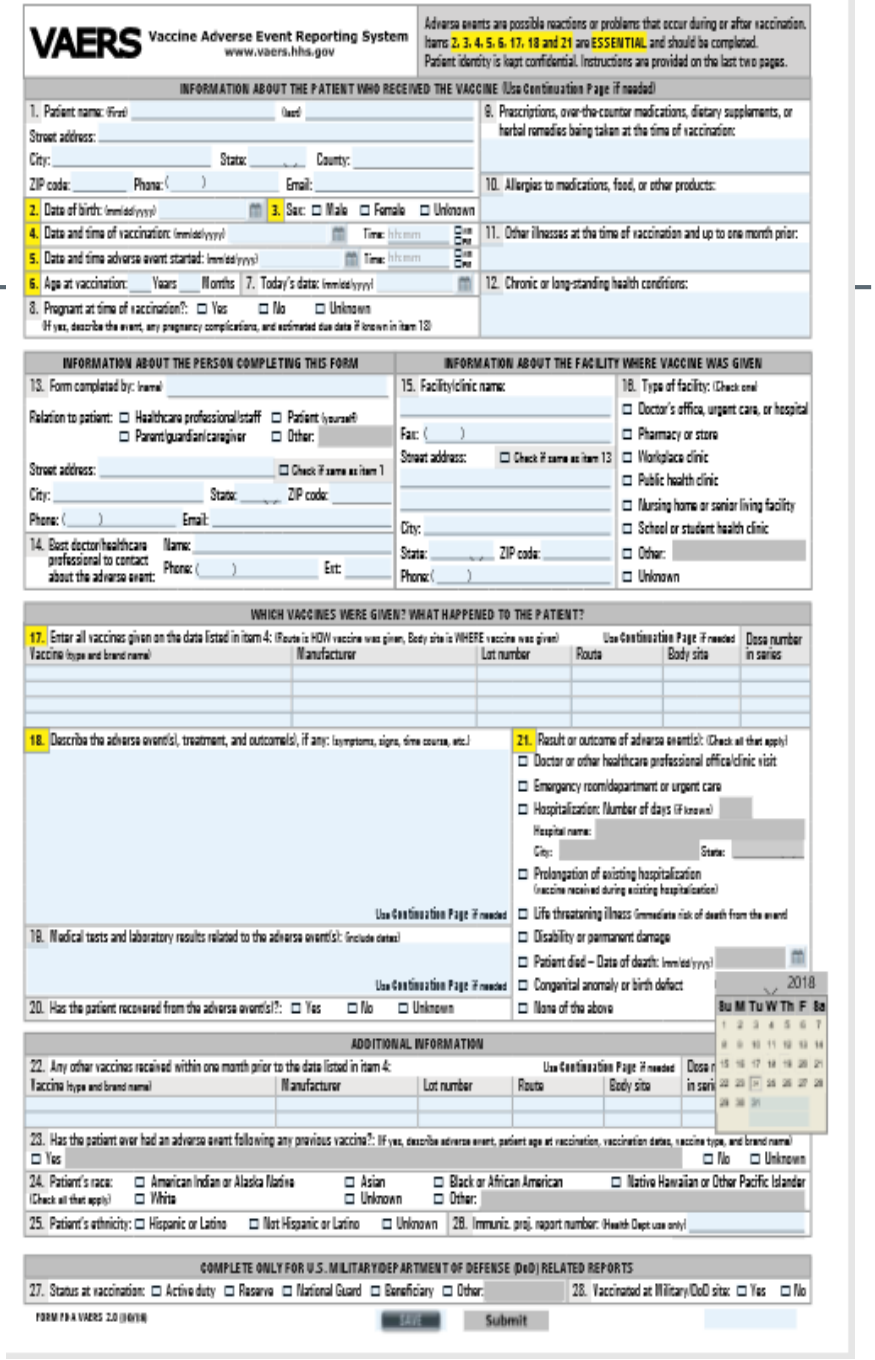
- National spontaneous (or passive) reporting system for adverse events after US-licensed vaccines
  - Received ~45,329 reports in 2018
  - Requires a report be filed
  - Accepts reports from anyone (healthcare providers, manufacturers, lay persons)
- Jointly administered by CDC and FDA, authorized by National Childhood
  - Vaccine Injury Act of 1986
- VAERS data publicly available for search (including by state) at: https://wonder.cdc.gov/vaers.html

What to Report to VAERS

- Any clinically significant or medically important adverse event following immunization even if you are not certain the vaccine caused the event
- Some examples of adverse events to report
  - Local: redness, swelling, pain at injection site
  - Systemic: fever, myalgia, headache
  - Allergic: hives, pruritus, anaphylaxis
  - Vaccination errors (e.g., wrong drug administered)
- The National Childhood Vaccine Injury Act mandates healthcare providers also report specific adverse events that occur after vaccination
  - Events listed in the Table of Reportable Events
    - https://vaers.hhs.gov/docs/VAERS_Table_of_Reportable_Events_Following_Vaccination.pdf

VAERS Form

- One page online form, found at: https://vaers.hhs.gov/
- Asks for information on:
  - Patient
  - Vaccine
  - Adverse event
  - Outcome of adverse event



Reporting of Vaccine Errors and Adverse Events

VAERS: Vaccine Adverse Event Reporting System

- Report all vaccine adverse events to VAERS at vaers.hhs.gov or (800) 822-7967. Report directly online or upload PDF.

ISMP: Institute for Safe Medication Practice

- Report vaccine administration errors (e.g., wrong route, wrong dose, and wrong age) to the (ISMP) via the Vaccine Error Reporting Program (VERP) website http://ismp.org.
- Vaccine administration errors should also be reported to VAERS (as described above), and MUST be reported if they resulted in an adverse event.

Vaccine Injury Compensation Program (VICP)

- Established by National Childhood Vaccine Injury Act (1986)
- "No fault" program
- Covers all routinely recommended childhood vaccines
- Vaccine Injury Table
  - Lists conditions associated with each vaccine
  - http://www.hrsa.gov/vaccinecompensation/vaccineinjurytable.pdf

http://www.cdc.gov/vaccines/pubs/pinkbook/safety.html

Standards for Adult Immunization Practice

- Assess immunization status of all patients in every clinical encounter
  - Avoid missed opportunities
- Strongly recommend vaccines that patients need
  - Speak from personal experience
- Administer needed vaccines or refer to a vaccinating provider and confirm receipt
  - Utilize standing orders
  - Offer vaccine only visits
- Reminder recall
- Provide information in foreign languages
- Document vaccines received by patients, including entering immunization into immunization registry (MIIS)

www.cdc.gov/vaccines/hcp/adults/for-practice/standards/index.html

Benefits of Standing Orders

- Overcome administrative barriers and save time
- Shown to be **effective** in both adults and children[1]
  - For children, use of standing orders is associated with a median increase in vaccination coverage of 28%
  - Most effective evidence-based method
- **REDUCES MISSED OPPORTUNITIES**
- Consider implementing standing orders for vaccination, particularly for the adolescent immunization 'bundle'
- 'Presumptive' recommendation in action

IAC model standing orders available at:
http://www.immunize.org/standing-orders/
MDPH model standing orders available at:
http://www.mass.gov/eohhs/gov/departments/dph/programs/id/immunization/model-standing-orders.html

Build an Immunization Team

Vaccination **IS** a **TEAM SPORT**

Care Manager	Pre-visit plan	Identify gaps in vaccination coverage; plan intervention at visit
Intake Clerk	Registration	Friendly face reminds patients to protect themselves and families
MA/Nurse	Check-in	Implement standing orders [SO] and vaccinate 'easy win patients'
	Visit	Vaccinate by physician order, Immunize patients in for 'vaccination only'
	Phone	Facilitate public education, Interface with vaccinating pharmacies
Provider/Nurse	Visit	Intervene with vaccine hesitant, Reinforce value/safety/import of necessary immunizations, Order vaccines not given under SO
	Education	Teach entire office team on vaccine value, indications, etc.
'Check Out' Staff		Reinforce value of vaccines Schedule next visit and note vaccine need (if deferred this visit)
Office Manager		Assure robust vaccine stock/inventory, Facilitate correct billing/collection, Monitor/control vaccine inventory Cost analysis of 'vax vs. refer' by payer Support 'vaccine walk-in' or 'vaccine clinics' as practical wins…

Overcoming Patient Barriers

Patient Issue	Solutions
Fear & Misconception	Educate patients •Use written materials (e.g., vaccine information statements) •Discuss ✓Pain of vaccination ✓Safety of vaccines—thimerosal/autism ✓Danger of illnesses caused by vaccines
Lack of Recommendation	Recommend vaccination to all patients
Lack of Access	Make it easier for patients ✓Express vaccinations, extended hours ✓Extended vaccination season ✓Vaccination in nontraditional settings ✓Target hospitalized patients
Lack of Awareness	Communicate with patients ✓ Telephone, letters/postcards, e-mail alerts ✓ "No one ever told me that"–stress the importance of vaccination in the context of underlying disease
Inability to Pay	Discuss options with patient
Language Barrier	Use translated educational materials

Nichol KL. Cleve Clin J Med. 2006;73:1009-1015.

RESOURCES

General Best Practice Guidelines for Immunization

Best Practices Guidance of the Advisory Committee on Immunization Practices (ACIP)

Kroger AT, Duchin J, Vázquez M

1. Introduction

The Centers for Disease Control and Prevention (CDC) recommends routine vaccination to prevent 17 vaccine-preventable diseases that occur in infants, children, adolescents, or adults. This report provides information for clinicians and other health care providers about concerns that commonly arise when vaccinating persons of various ages.

ACIP Best Practice Guidelines for Immunization

- Describes recommendations and guidelines on vaccination practice
- Updates on vaccination record policy, impact of ACA, characterization and protocol for anaphylaxis, definition of precaution; new information on simultaneous vaccination and febrile seizures
- Updated as needed online

https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html

Minimum Interval Table

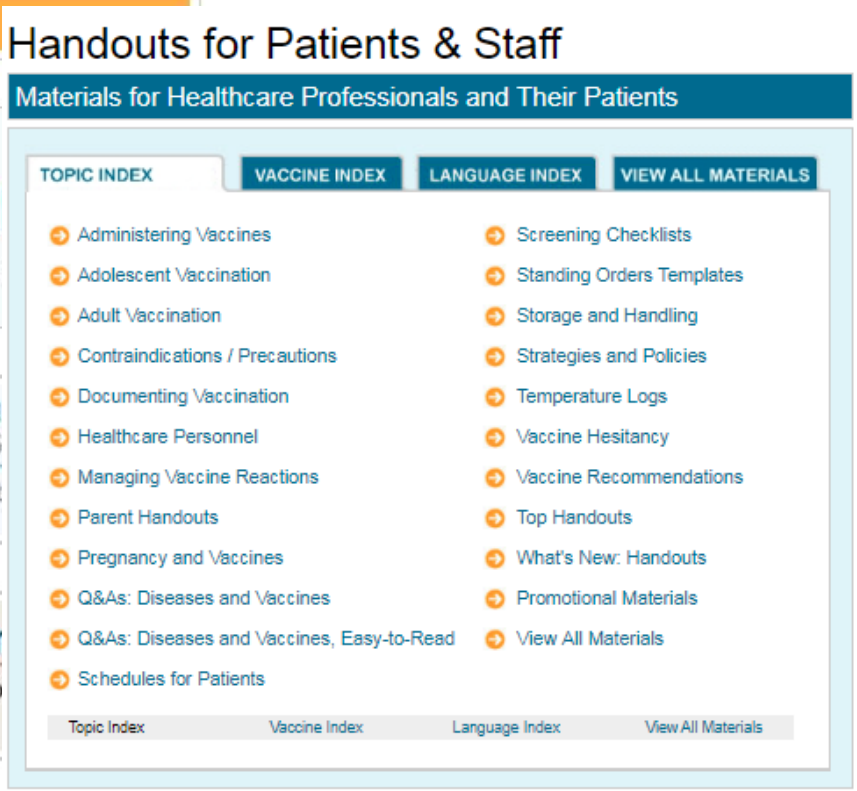
http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/A/age-interval-table.pdf

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

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Recommended interval to next dose	Minimum interval to next dose
Diphtheria-tetanus-acellular pertussis (DTaP)-1[5]	2 months	6 weeks	8 weeks	4 weeks
DTaP-2	4 months	10 weeks	8 weeks	4 weeks
DTaP-3	6 months	14 weeks	6-12 months	6 months[6]
DTaP-4[6]	15-18 months	12 months[6]	3 years	6 months
DTaP-5	4-6 years	4 years	—	—
Haemophilus influenzae type b (Hib)-1[5,7]	2 months	6 weeks	8 weeks	4 weeks
Hib-2	4 months	10 weeks	8 weeks	4 weeks
Hib-3[8]	6 months	14 weeks	6-9 months	8 weeks
Hib-4	12-15 months	12 months	—	—
Hepatitis A (HepA)-1[5]	12-23 months	12 months	6-18 months	6 months
HepA-2	≥18 months	18 months	—	—
Hepatitis B (HepB)-1[5]	Birth	Birth	4 weeks-4 months	4 weeks
HepB-2	1-2 months	4 weeks	8 weeks-17 months	8 weeks
HepB-3[9]	6-18 months	24 weeks	—	—

Immunization Action Coalition

www.immunize.org



Immunization Action Coalition

Vaccinating Adults:

A Step-by-Step Guide

http://www.immunize.org/guide/

MA Adult Immunization Coalition(MAIC)

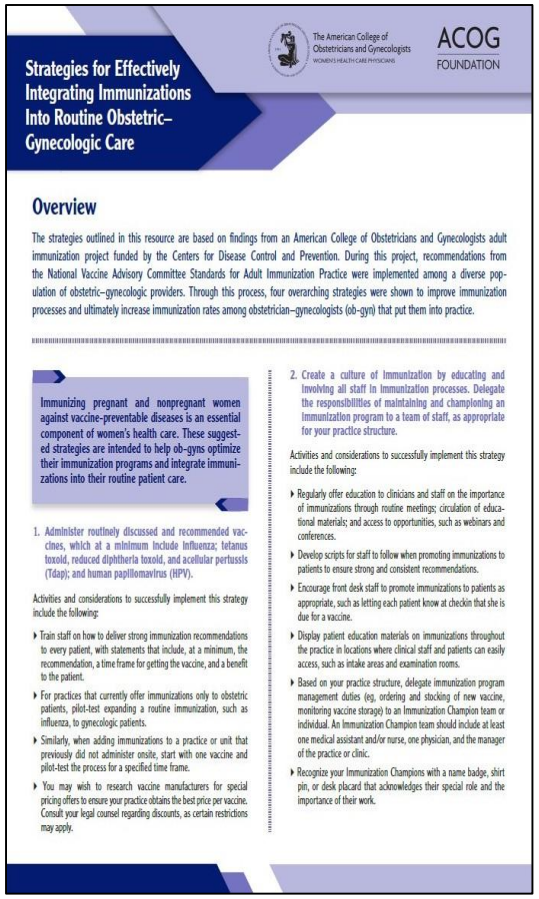
- MAIC is a collaborative partnership dedicated to increasing adult immunization through education, networking, and sharing innovative and best practices.
- There are currently over 200 members representing:
  - Local and state public health organizations
  - Community health centers
  - Health insurance plans
  - Pharmacies
  - Physicians
  - Vaccine manufacturers
  - Long-term-care and senior service organizations
  - Consumer advocacy groups
  - Hospitals
  - Home health
  - College health services

Learn more at
http://maic.jsi.com/

CDC's Toolkit for Prenatal Providers

https://www.cdc.gov/vaccines/pregnancy/hcp-toolkit/index.html

ACOG Summary Tip Sheet



Strategies for Effectively Integrating Immunizations Into Routine Obstetric–Gynecologic Care

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG FOUNDATION

Overview

The strategies outlined in this resource are based on findings from an American College of Obstetricians and Gynecologists adult immunization project funded by the Centers for Disease Control and Prevention. During this project, recommendations from the National Vaccine Advisory Committee Standards for Adult Immunization Practice were implemented among a diverse population of obstetric–gynecologic providers. Through this process, four overarching strategies were shown to improve immunization processes and ultimately increase immunization rates among obstetrician–gynecologists (ob-gyn) that put them into practice.

Immunizing pregnant and nonpregnant women against vaccine-preventable diseases is an essential component of women's health care. These suggested strategies are intended to help ob-gyns optimize their immunization programs and integrate immunizations into their routine patient care.

1. Administer routinely discussed and recommended vaccines, which at a minimum include influenza; tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap); and human papillomavirus (HPV).

Activities and considerations to successfully implement this strategy include the following:

- Train staff on how to deliver strong immunization recommendations to every patient, with statements that include, at a minimum, the recommendation, a time frame for getting the vaccine, and a benefit to the patient.
- For practices that currently offer immunizations only to obstetric patients, pilot-test expanding a routine immunization, such as influenza, to gynecologic patients.
- Similarly, when adding immunizations to a practice or unit that previously did not administer onsite, start with one vaccine and pilot-test the process for a specified time frame.
- You may wish to research vaccine manufacturers for special pricing offers to ensure your practice obtains the best price per vaccine. Consult your legal counsel regarding discounts, as certain restrictions may apply.

2. Create a culture of immunization by educating and involving all staff in immunization processes. Delegate the responsibilities of maintaining and championing an immunization program to a team of staff, as appropriate for your practice structure.

Activities and considerations to successfully implement this strategy include the following:

- Regularly offer education to clinicians and staff on the importance of immunizations through routine meetings; circulation of educational materials; and access to opportunities, such as webinars and conferences.
- Develop scripts for staff to follow when promoting immunizations to patients to ensure strong and consistent recommendations.
- Encourage front desk staff to promote immunizations to patients as appropriate, such as letting each patient know at checkin that she is due for a vaccine.
- Display patient education materials on immunizations throughout the practice in locations where clinical staff and patients can easily access, such as intake areas and examination rooms.
- Based on your practice structure, delegate immunization program management duties (eg, ordering and stocking of new vaccine, monitoring vaccine storage) to an Immunization Champion team or individual. An Immunization Champion team should include at least one medical assistant and/or nurse, one physician, and the manager of the practice or clinic.
- Recognize your Immunization Champions with a name badge, shirt pin, or desk placard that acknowledges their special role and the importance of their work.

- *Strategies for Effectively Integrating Immunizations into Routine Obstetric-Gynecologic Care* **tip sheet**
  - Highlights the strategies, as well as key activities and considerations for implementation of each

Strategies for Effectively Integrating Immunizations into Routine Obstetric-Gynecologic Care tip sheet

http://immunizationforwomen.org/integratingimmunizations.php

Other ACOG Immunization Resources

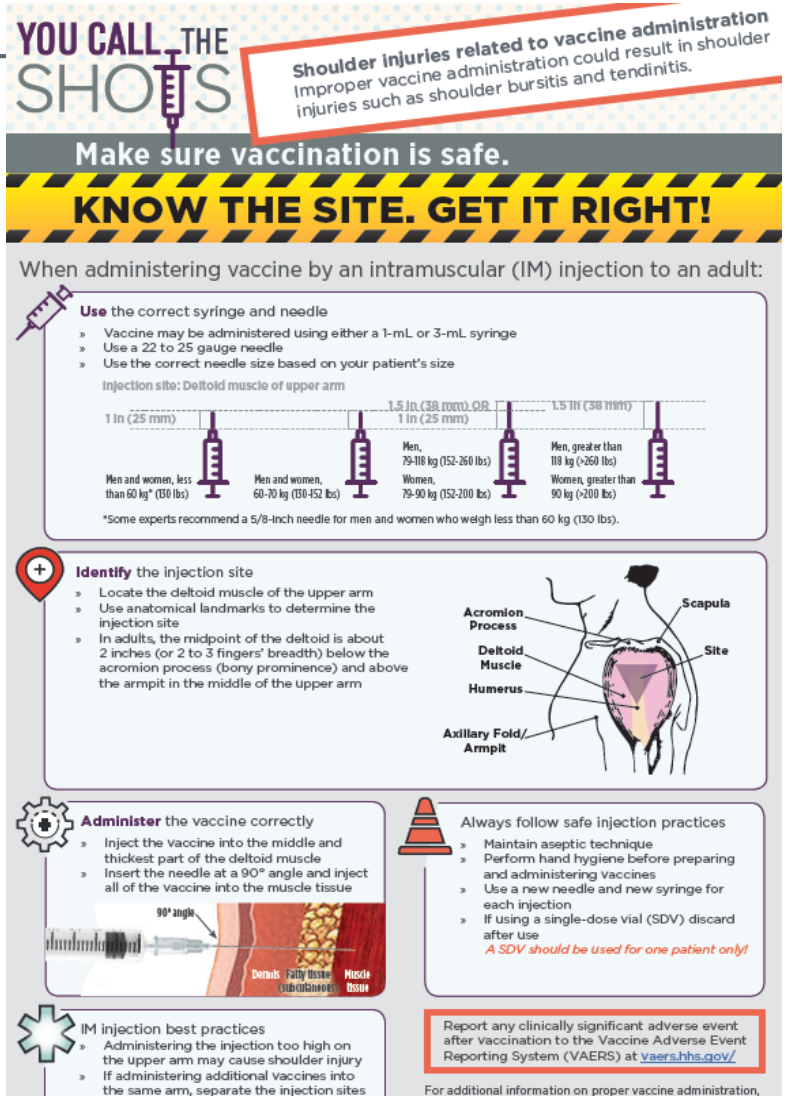
ImmunizationforWomen.org website

- Clinical guidance
- ACOG app with Immunization applet
- Toolkits & FAQs
- Coding and reimbursement resources
- Practice management resources
- Vaccine safety resources

Clinical Resources for Shoulder Injury Related to Vaccine Administration

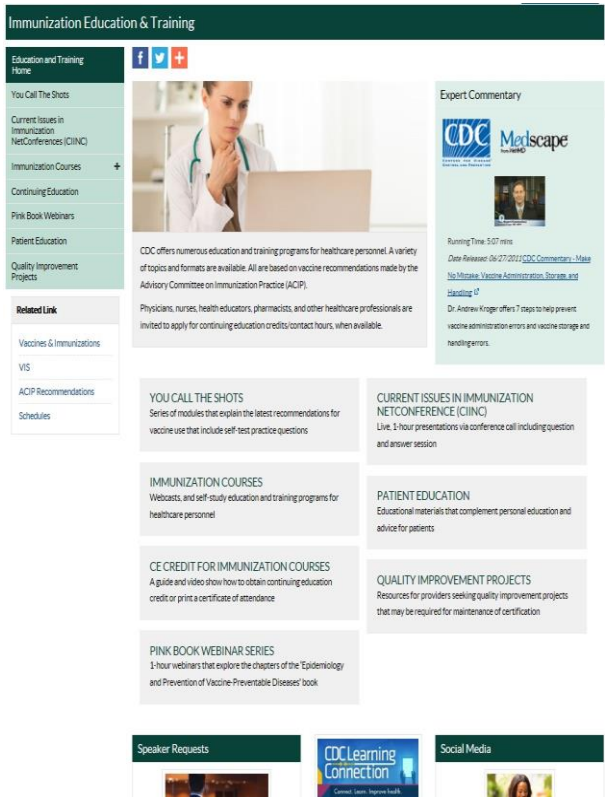
CDC's Know the Site, Get it Right!

https://www.cdc.gov/vaccines/hcp/infographics/you-call-the-shots-intramuscular-flu-vaccination.html



CDC Resources for Staff Education

- Competency-based education for staff is critical
- Multiple education products available free through the CDC website:
  - Immunization courses
  - "You Call the Shots" self-study modules
  - Netconferences
- Continuing education is available



http://www.cdc.gov/vaccines/ed/index.html

Vaccine Administration e-Learn

- The e-Learn is a free, interactive, online educational program that serves as a useful introductory course or a great refresher on vaccine administration
- Continuing education available for nurses, physicians, pharmacists, and other health care personnel
- It is available at: https://www2.cdc.gov/vaccines/ed/vaxadmin/va/ce.asp

Vaccine Administration

REVIEW IMMUNIZATION HISTORY
Reviewing and assessing a patient's immunization history should be done at every health care visit to help determine which vaccines may be needed.

ASSESS FOR NEEDED IMMUNIZATIONS
Use the current Advisory Committee on Immunization Practices (ACIP) immunization schedule to determine what recommended vaccines are needed based on the patient's immunization history.

SCREEN FOR CONTRAINDICATIONS AND PRECAUTIONS
Screening for contraindications and precautions can prevent adverse events following vaccination. All patients should be screened for contraindications and precautions prior to administering any vaccine, even if the patient has previously received that vaccine.

EDUCATE THE PATIENT
Health care professionals should be prepared to provide comprehensive vaccine information.

PREPARE THE VACCINE(S)
Proper preparation is critical for maintaining the integrity of the vaccine during transfer from the vial to the syringe.

ADMINISTER THE VACCINE(S)
Each vaccine has a recommended administration route and site, which are based on clinical trials, practical experience, and theoretical considerations.

DOCUMENT THE VACCINATION(S)
Health care providers are required by law to record certain information in a patient's medical record.

RESOURCE LIBRARY
Access web-based trainings, videos, checklists, and references related to vaccine administration.

https://www.cdc.gov/vaccines/hcp/admin/admin-protocols.html

MDPH Regional Immunization Nurses

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MDPH Immunization Division Contact Information

Immunization Division Main Number

For questions about immunization recommendations, disease reporting, etc.
Phone: 617-983-6800
Fax: 617-983-6840
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MIIS Help Desk

Phone: 617-983-4335
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MDPH Vaccine Unit

Phone: 617-983-6828
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THANK YOU!