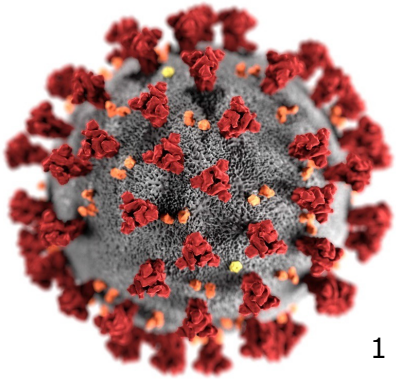
Immunization 101

Laurie Courtney MSN, RN
Immunization Nurse Manager
Massachusetts Department Of Public Health
Immunization Division



Presenter Disclosure Information

I, Laurie Courtney, have been asked to disclose any relevant financial relationships with ACCME-defined commercial entities that are either providing financial support for this program or whose products or services are mentioned during this presentation.

I have no relevant financial 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

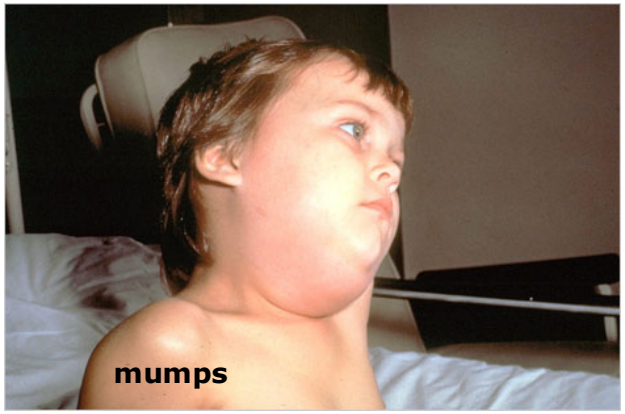
Outline

- Principles of vaccination
- 2022 adult immunization schedule
- Administering vaccines
- Contraindications and precautions to vaccination
- Vaccine administration documentation requirements
- Vaccine safety
- Vaccine adverse events and VAERS reporting
- COVID-19 guidance
- Resources


tetanus


measles


meningococcal


mumps

polio


diptheria


smallpox

This did not really happen. Cows' heads did not emerge from the bodies of people newly inoculated against smallpox. But fear of the vaccine was so widespread that it prompted British satirist James Gillray to create this spoof in 1802.

World Health Organization
2019 Top Ten Threats to Global Health

1. Air pollution and climate change
2. Noncommunicable diseases
3. Global influenza pandemic
4. Fragile and vulnerable settings
5. Antimicrobial resistance
6. Ebola and other high-threat pathogens
7. Weak primary healthcare
8. Vaccine hesitancy
9. Dengue fever
10. HIV

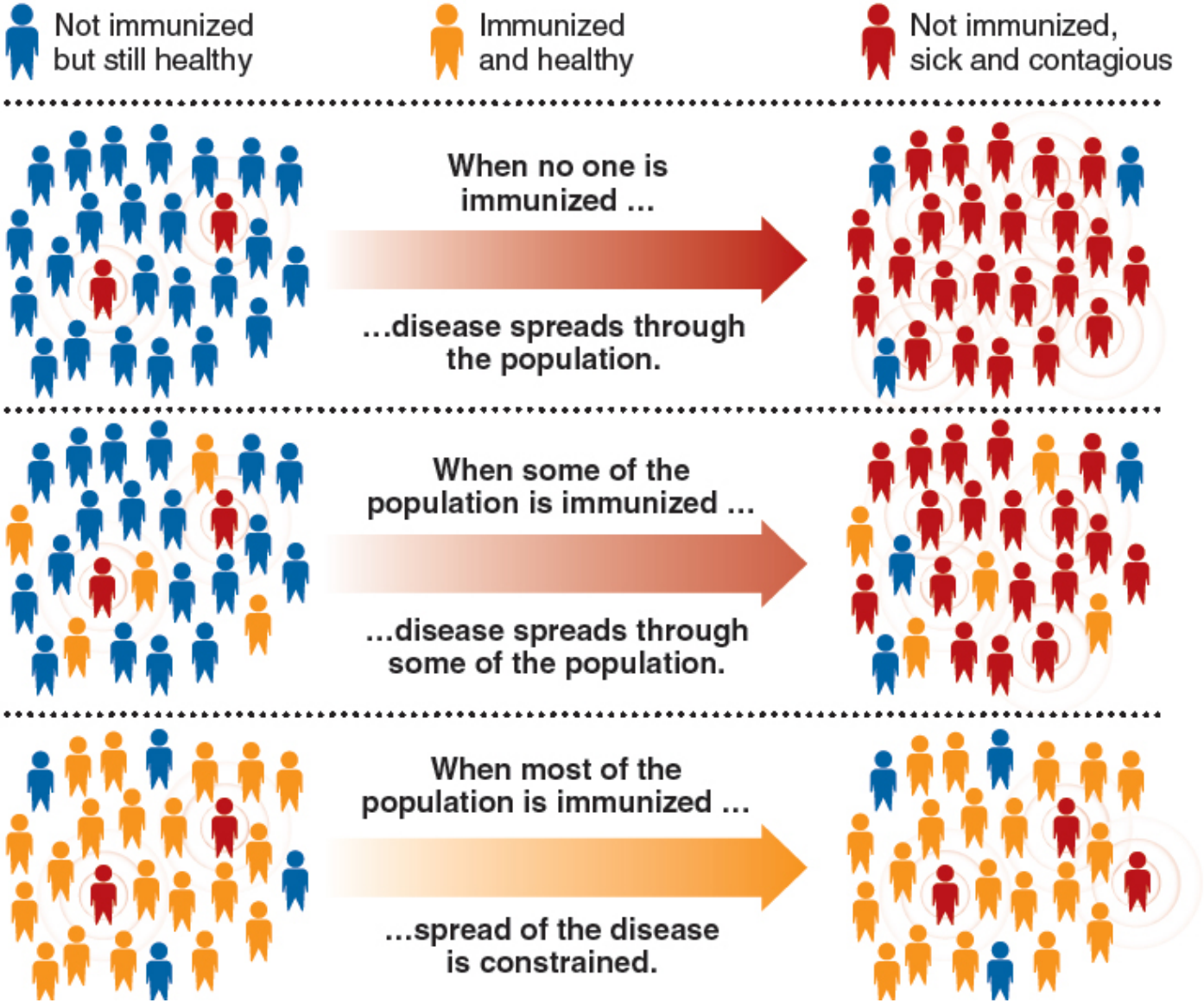
What Can You Do?

- Educate yourself
- Strong routine recommendation for vaccines
- Presumptive approach
- Speak from personal experience
- Avoid “missed opportunities”

What you say matters.
How you say it matters even more!

Principles of vaccination

Herd Immunity



https://www.mlive.com/news/2014/12/how_do_vaccinations_work_the_s.html

HOW VACCINES WORK

Vaccines contain a modified form of virus or bacteria that doesn't cause disease, but does "teach" your immune system what to do if you are ever attacked by the real, potentially dangerous virus or bacteria.

When you get vaccinated, your immune system responds just as it does to any other "intrusion", by creating antibodies to fight off the particular virus or bacteria.

After vaccination your body remembers this specific intruder. If you ever come in contact with the real virus or bacteria, the right antibodies quickly destroy it – before it has the chance to make you sick.

For some diseases, more than one dose of the vaccine, or a booster dose later in life, may be needed to ensure full and lasting protection.

https://www.euro.who.int/__data/assets/pdf_file/0004/365179/how-vaccine-work-eiw2018-eng.pdf

Types of Vaccines

- Inactivated vaccines
  Hep A, IIV, IPV, rabies
- Live-attenuated vaccines
  MMR, LAIV, Varicella, oral polio, rotavirus, BCG
- Subunit, recombinant, polysaccharide, and conjugate vaccines
  Pneumococcal, Hep B, MenACWY/B, Shingles, HPV, Hib, Pertussis
- Toxoid vaccines
  Diphtheria, Tetanus
- Messenger RNA (mRNA) vaccines
  COVID-19
- Viral vector vaccines
  COVID-19

https://www.vaccines.gov/basics/types

Timing and Spacing of Vaccines

Refer to ACIP General Best Practice Guidelines

- Guidelines
- Minimum age and interval tables
- Table of combination vaccines
- Spacing of live and inactivated antigens
- Spacing of antibody-containing products and vaccines

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

Minimum Ages & Intervals Table

Recommended and minimum ages and intervals between vaccine doses[a],[b],[c],[d]

Vaccine and dose number	Recommended age for this dose	Minimum age for this dose	Recommended interval to next dose	Minimum interval to next dose
DTaP-1[e]	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[f]	6 months[f]
DTaP-4	15-18 months	15 months[f]	3 years	6 months
DTaP-5[g]	4-6 years	4 years	—	—
HepA-1[e]	12-23 months	12 months	6-18 months	6 months
HepA-2	≥18 months	18 months	—	—
HepB-1[h]	Birth	Birth	4 weeks-4 months	4 weeks
HepB-2	1-2 months	4 weeks	8 weeks-17 months	8 weeks
HepB-3[i]	6-18 months	24 weeks	—	—
Hib-1[j]	2 months	6 weeks	8 weeks	4 weeks
Hib-2	4 months	10 weeks	8 weeks	4 weeks
Hib-3[k]	6 months	14 weeks	6-9 months	8 weeks
Hib-4	12-15 months	12 months	—	—
HPV-1 (Two-Dose Series)[l]	11-12 years	9 years	6 months	5 months

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

Timing and Spacing of Vaccines

TABLE 3-3. Guidelines for spacing of live and inactivated antigens

Antigen combination	Recommended minimum interval between doses
Two or more inactivated[a],[b]	May be administered simultaneously or at any interval between doses
Inactivated and live[c]	May be administered simultaneously or at any interval between doses
Two or more live injectable[c]	28 days minimum interval, if not administered simultaneously

(a) Certain experts suggest a 28-day interval between tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine and tetravalent meningococcal conjugate vaccine if they are not administered simultaneously.

(b) In persons with functional or anatomic asplenia, MCV-D and PCV13 should not be administered simultaneously and should be spaced by 4 weeks. Likewise for persons with immunosuppressive high-risk conditions indicated for PCV13 and PPSV23, PCV13 should be administered first, and PPSV23 should be administered no earlier than 8 weeks later. For persons 65 years old or older indicated for PCV13 and PPSV23, PCV13 should be administered first and PPSV23 should be administered 6-12 months later.

(c) The live oral vaccines Ty21a typhoid vaccine and rotavirus vaccine may be administered simultaneously with or at any interval before or after inactivated or live injectable vaccines.

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

Coadministration of COVID-19 Vaccines with Other Vaccines

COVID-19 vaccines **may be administered without regard to timing of other vaccines**.

Best practices for multiple injections include:

- Label each syringe with the name and the dosage (amount) of the vaccine, lot number, initials of the preparer, and exact beyond-use time, if applicable.
- Separate injection sites by 1 inch or more, if possible.
- Administer the COVID-19 vaccine and vaccines that may be more likely to cause a local reaction in different limbs, if possible.

https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html#Coadministration

Immunization schedules

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

A-Z Index

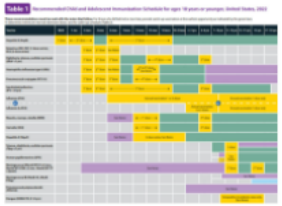
Search | Vaccines site | Advanced Search

Immunization Schedules

For Healthcare Providers

Child and Adolescent Schedule

Recommended vaccination schedule for ages 18 years or younger



Birth to 18 Years

Clinical Vaccination Resources

Download Schedule App for Healthcare Providers

Vaccination Resources for Healthcare Providers

Adult Schedule

Recommended vaccination schedule for ages 19 years or older

19 Years or Older

Interim COVID-19 Immunization Schedule for Ages 5+

Guidance for COVID-19 vaccination schedules based on age and medical condition

COVID-19 Vaccination Schedule

https://www.cdc.gov/vaccines/schedules/index.html

2022 Recommended Adult Immunization Schedules for Persons 19 Years or Older

MMWR Feb 18, 2022: 71(7);229–233

Available at:
https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html (CDC site, schedule with live links)
https://www.cdc.gov/mmwr/volumes/71/wr/mm7107a1.htm?s_cid=mm7107a1_w
https://www.cdc.gov/mmwr/volumes/71/wr/pdfs/mm7107a1-H.pdf

Adult Immunization Schedule

Recommendations for Ages 19 Years or Older, United States, 2022

COVID-19 Vaccination

ACIP recommends use of COVID-19 vaccines for everyone ages 5 and older. COVID-19 vaccine and other vaccines may be administered on the same day. See the COVID-19 Vaccine Product Information page for additional information.

Using the schedule

To make vaccination recommendations, healthcare providers should:

1. Determine needed vaccines **based on age** (Table 1)
2. Assess for **medical conditions and other indications** (Table 2)
3. Review **special situations** (Vaccination Notes)
4. Review **contraindications and precautions to vaccination** (Appendix)

Download the schedule

Printable schedule, color

Printable schedule, black & white

Download the mobile schedule app

Get Email Updates

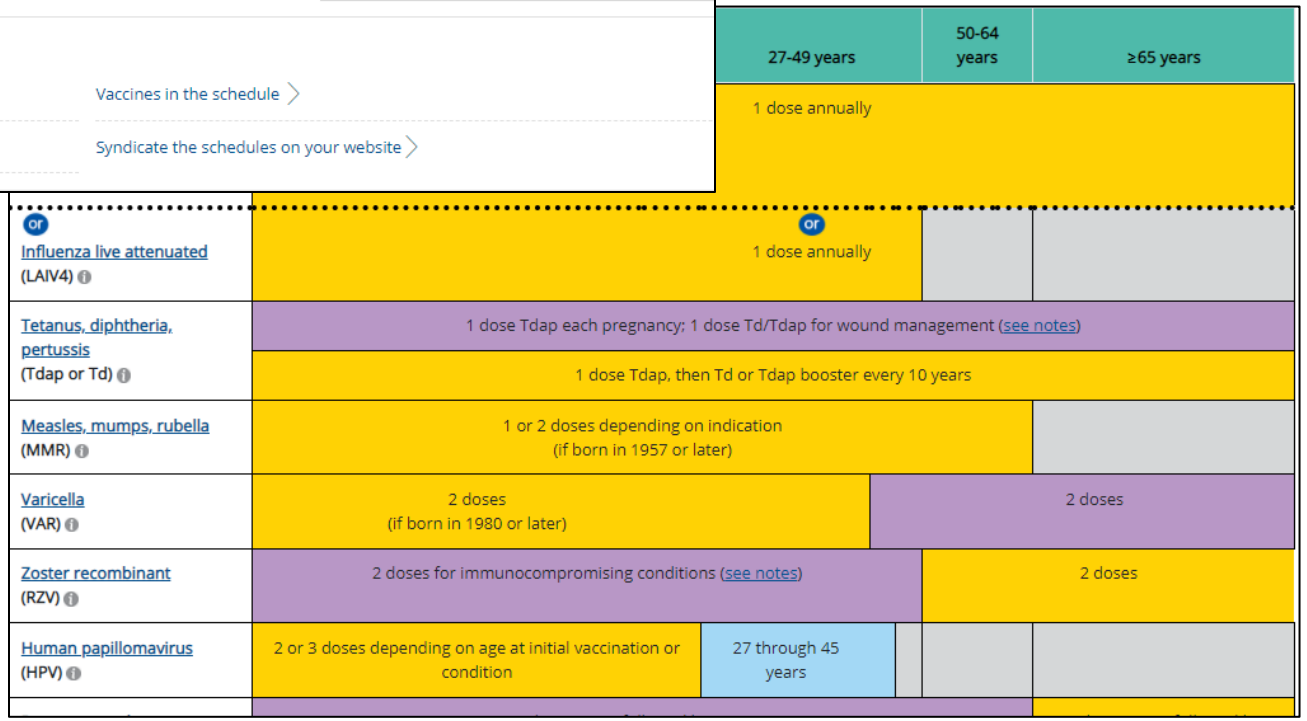
More schedule resources

Compliant version of the schedule

Vaccines in the schedule

Schedule changes and guidance

Syndicate the schedules on your website



Recommended Adult Immunization Schedule
for ages 19 years or older

UNITED STATES
2022

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 or other indication **(Table 2)**
3. Review vaccine types, frequencies, intervals, and considerations for special situations **(Notes)**
4. Review contraindications and precautions for vaccine types **(Appendix)**

Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
Haemophilus influenzae type b vaccine	Hib	ActHIB® Hiberix® PedvaxHIB®
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	Gardasil 9®
Influenza vaccine (inactivated)	IIV4	Many brands
Influenza vaccine (live, attenuated)	LAIV4	FluMist® Quadrivalent
Influenza vaccine (recombinant)	RIV4	Flublok® Quadrivalent
Measles, mumps, and rubella vaccine	MMR	M-M-R II®
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D MenACWY-CRM MenACWY-TT	Menactra® Menveo® MenQuadfi®
Meningococcal serogroup B vaccine	MenB-4C MenB-FHbp	Bexsero® Trumenba®
Pneumococcal 15-valent conjugate vaccine	PCV15	Vaxneuvance™
Pneumococcal 20-valent conjugate vaccine	PCV20	Prevnar 20™
Pneumococcal 23-valent polysaccharide vaccine	PPSV23	Pneumovax 23®
Tetanus and diphtheria toxoids	Td	Tenivac® Tdvax™
Tetanus and diphtheria toxoids and acellular pertussis vaccine	Tdap	Adacel® Boostrix®
Varicella vaccine	VAR	Varivax®
Zoster vaccine, recombinant	RZV	Shingrix

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add doses to vaccine series if there are 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), 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), and American Academy of Physician Associates (www.aapa.org), and Society for Healthcare Epidemiology of America (www.shea-online.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 (PPSV23) and zoster (RZV) 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.

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 Advisory Committee on Immunization Practices (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, 2022: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html
- ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/vaccines/acip/acip-scdm-faqs.html

Scan QR code for access to online schedule

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

CS310021-A

Table 1 Recommended Adult Immunization Schedule by Age Group, United States, 2022

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
Influenza inactivated (IIV4) or **Influenza recombinant** (RIV4)	1 dose annually			
or		or		
Influenza live, attenuated (LAIV4)	1 dose annually			
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (see notes)		2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal (PCV15, PCV20, PPSV23)	1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)			1 dose PCV15 followed by PPSV23 OR 1 dose PCV20
Hepatitis A (HepA)	2 or 3 doses depending on vaccine			
Hepatitis B (HepB)	2, 3, or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations			
	19 through 23 years			
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication			

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

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

Recommended vaccination based on shared clinical decision-making

No recommendation/ Not applicable

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2022

Vaccine	Pregnancy	Immuno-compromised (excluding HIV infection)	HIV infection CD4 percentage and count		Asplenia, complement deficiencies	End-stage renal disease, or on hemodialysis	Heart or lung disease; alcoholism[1]	Chronic liver disease	Diabetes	Health care personnel[2]	Men who have sex with men
			<15% or <200 mm³	≥15% and ≥200 mm³							
IIV4 or RIV4	1 dose annually										
or										or	
LAIV4	Contraindicated						Precaution			1 dose annually	
Tdap or Td	1 dose Tdap each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	Contraindicated*	Contraindicated	1 or 2 doses depending on indication								
VAR	Contraindicated*	Contraindicated		2 doses							
RZV		2 doses at age ≥19 years		2 doses at age ≥50 years							
HPV	Not Recommended*	3 doses through age 26 years		2 or 3 doses through age 26 years depending on age at initial vaccination or condition							
Pneumococcal (PCV15, PCV20, PPSV23)		1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)									
HepA	2 or 3 doses depending on vaccine										
HepB	3 doses (see notes)	2, 3, or 4 doses depending on vaccine or condition									
MenACWY	1 or 2 doses depending on indication, see notes for booster recommendations										
MenB	Precaution	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations									
Hib		3 doses HSCT[3] recipients only		1 dose							

- Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection
- Recommended vaccination for adults with an additional risk factor or another indication
- Recommended vaccination based on shared clinical decision-making
- Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction
- Contraindicated or not recommended—vaccine should not be administered.
  *Vaccinate after pregnancy.
- No recommendation/ Not applicable

1. Precaution for LAIV4 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 for ages 19 years or older, United States, 2022

For vaccine recommendations for persons 18 years of age or younger, see the Recommended Child and Adolescent Immunization Schedule.

COVID-19 Vaccination

COVID-19 vaccines are recommended within the scope of the Emergency Use Authorization or Biologics License Application for the particular vaccine. ACIP recommendations for the use of COVID-19 vaccines can be found at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19.html.

CDC's interim clinical considerations for use of COVID-19 vaccines can be found at www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html.

COVID-19 Vaccination:
Directs you to the Interim Clinical Considerations for use of COVID-19 vaccines

Haemophilus influenzae type b vaccination

Special situations

- **Anatomical or functional asplenia (including sickle cell disease):** 1 dose if previously did not receive Hib; if elective

Important details

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: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])

Special situations

- **At risk for hepatitis A virus infection:** 2-dose series HepA or 3-dose series HepA-HepB as above
  - **Chronic liver disease** (e.g., persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
  - **HIV infection**
  - **Men who have sex with men**
  - **Injection or noninjection drug use**
  - **Persons experiencing homelessness**
  - **Work with hepatitis A virus** in research laboratory or with nonhuman primates with hepatitis A virus infection
  - **Trav**
  - **hepa**
  - on
  - after
  - ende
  - adop
  - arriv
  - **Preg**
  - infec
  - **Sett**
  - or group homes and nonresidential day care facilities for developmentally disabled persons (individual risk factor screening not required)

Hepatitis B vaccination

Routine vaccination

- **Age 19 through 59 years:** complete a 2- or 3-, or 4-dose series
  - 2-dose series only applies when 2 doses of Heplisav-B* are used at least 4 weeks apart
  - 3-dose series Engerix-B or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks])
  - 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])
  - 4-dose series HepA-HepB (Twinrix) accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 mon
  - 4-dose series E
  - on adult hemo
  - normal adult d

Important details

*Note: Heplisav-B not recommended in pregnancy due to lack of safety data in pregnant women

Special situations

- **Age 60 years or older* and at risk for hepatitis B virus infection:** 2-dose (Heplisav-B) or 3-dose (Engerix-B, Recombivax HB) series or 3-dose series HepA-HepB (Twinrix) as above
  - **Chronic liver disease** (e.g., persons with hepatitis
  - e, alcoholic liver disease,
  - ne aminotransferase [ALT] or
  - AST] level greater than twice
  - ex partners of hepatitis B
  - itive persons; sexually active
  - nogamous relationships;
  - r treatment for a sexually
  - who have sex with men)
  - **drug use**
  - **isk for exposure to blood**
  - HBsAg-positive persons;
  - s 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; patients with diabetes)
  - **Incarcerated persons**
  - **Travel in countries with high or intermediate endemic hepatitis B**

*Note: Anyone age 60 years or older who does not meet risk-based recommendations may still receive Hepatitis B vaccination.

Human papillomavirus vaccination

Routine vaccination

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

Appendix Recommended Adult Immunization Schedule, United States, 2022

Guide to Contraindications and Precautions to Commonly Used Vaccines

Adapted from Table 4-1 in Advisory Committee on Immunization Practices (ACIP) General Best Practice Guidelines for Immunization: Contraindication and Precautions available at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html and ACIP's Recommendations for the Prevention and Control of 2021-22 Seasonal Influenza with Vaccines available at www.cdc.gov/mmwr/volumes/70/rr/rr7005a1.htm

Interim clinical considerations for use of COVID-19 vaccines including contraindications and precautions can be found at www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html

Vaccine	Contraindications[1]	Precautions[2]
Influenza, egg-based, inactivated injectable (IIV4)	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[3] (excluding egg)	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with egg allergy with symptoms other than hives (e.g., angioedema, respiratory distress) or required epinephrine or another emergency medical intervention: Any influenza vaccine appropriate for age and health status may be administered. If using egg-based IIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, cell culture-based inactivated injectable [(ccIIV4), Flucelvax® Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component[3] of ccIIV4	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, RIV, or LAIV of any valency. If using ccIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, recombinant injectable [(RIV4), Flublok® Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component[3] of RIV4	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, ccIIV, or LAIV of any valency. If using RIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, live attenuated [LAIV4, Flumist® Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[3] (excluding egg) • Adults age 50 years or older • Anatomic or functional asplenia • Immunocompromised due to any cause including, but not limited to, medications and HIV infection • Close contacts or caregivers of severely immunosuppressed persons who require a protected environment • Pregnancy • Cochlear implant • Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear, or any other cranial CSF leak • Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days.	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Asthma in persons aged 5 years old or older • Persons with egg allergy with symptoms other than hives (e.g., angioedema, respiratory distress) or required epinephrine or another emergency medical intervention: Any influenza vaccine appropriate for age and health status may be administered. If using LAIV4 (which is egg based), administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Persons with underlying medical conditions (other than those listed under contraindications) that might predispose to complications after wild-type influenza virus infection [e.g., chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus)] • Moderate or severe acute illness with or without fever

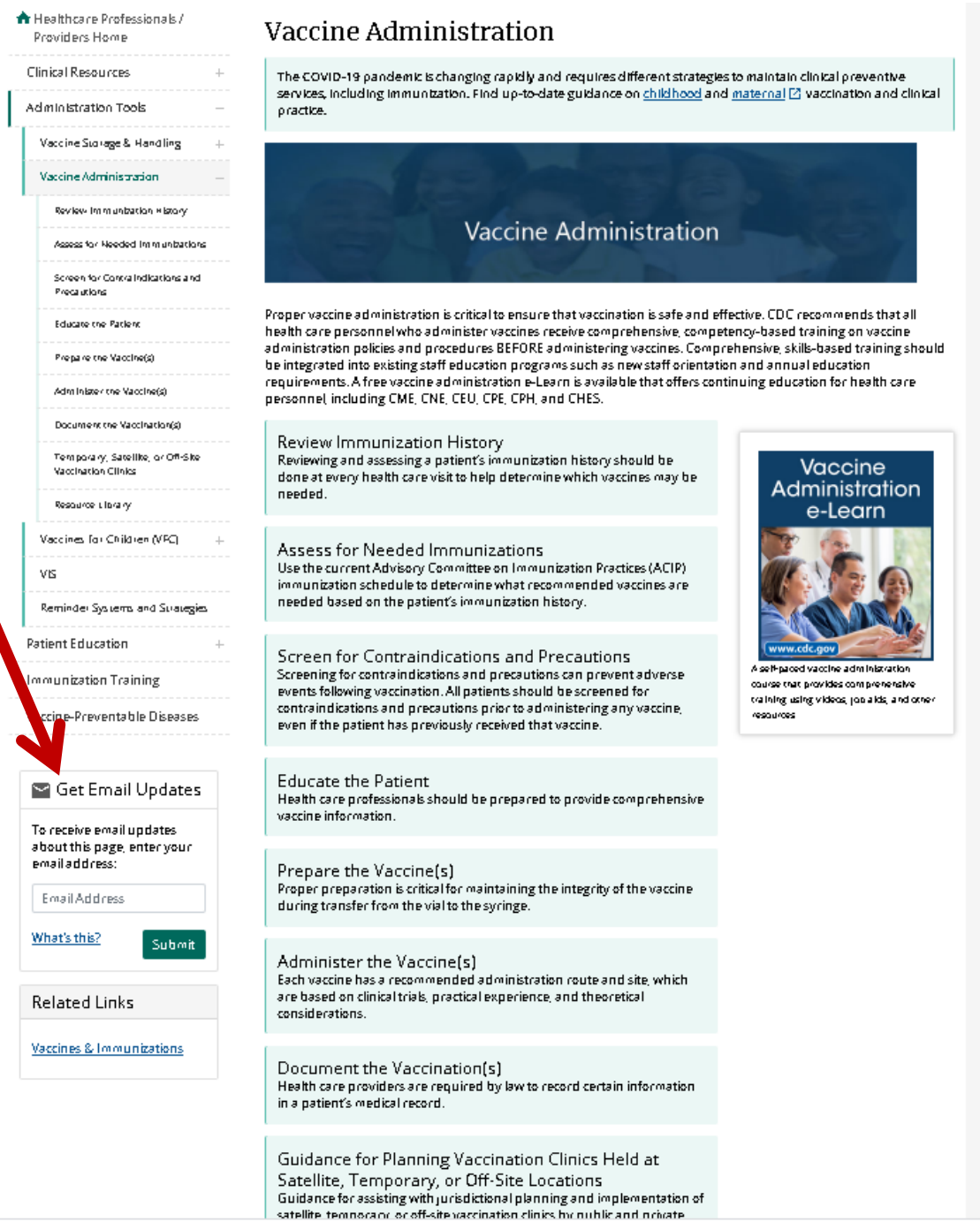
1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
3. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at www.fda.gov/vaccines-blood-biologics/approved-products/vaccines-licensed-use-united-states.

2022 Changes

- Hepatitis B: HepB vaccine universally recommended, detailed notes
- Influenza: "Special situations" section in the Influenza note was condensed by moving information on contraindications and precautions for influenza vaccines to the newly created appendix
- Meningococcal: A note was added at the end of section that states, "MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, when feasible."
- Pneumococcal: Added PCV15 and PCV20 to the list of pneumococcal vaccines and removed PCV13. Details added in notes.
- Zoster: "Special situations" section pregnancy bullet was revised to increase clarity. This bullet now states "There is currently no ACIP recommendation for RZV use in pregnancy. Consider delaying RZV until after pregnancy." Additionally, the immunocompromising conditions bullet was revised to reflect the new ACIP recommendations for zoster vaccination. This bullet now states "RZV is recommended for use in persons aged 19 years and older who are (or will be) immunodeficient or immunosuppressed because of disease or therapy."

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html
https://www.cdc.gov/mmwr/volumes/71/wr/mm7107a1.htm?s_cid=mm7107a1_wb

Administering vaccines



Vaccine Administration

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

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

Vaccine	Dose	Route
COVID-19	Pfizer-BioNTech •age 5 to <12 yrs: 0.2 mL pediatric formulation ("orange cap") •age ≥12 yrs: 0.3 mL adult/adolescent formulation for primary and booster doses	IM
	Moderna; ≥18 yrs: 0.5 mL primary series*; 0.25 mL booster Janssen: ≥18 yrs: 0.5 mL for primary & booster doses	
Diphtheria, Tetanus, Pertussis (DTaP, DT, Tdap, Td)	0.5 mL	IM
***Haemophilus influenzae* type b** (Hib)	0.5 mL	IM
Hepatitis A (HepA)	≤18 yrs: 0.5 mL	IM
	≥19 yrs: 1.0 mL	
Hepatitis B (HepB) *Persons 11–15 yrs may be given Recombivax HB (Merck) 1.0 mL adult formulation on a 2-dose schedule.*	Engerix-B; Recombivax HB ≤19 yrs: 0.5 mL ≥20 yrs: 1.0 mL	IM
	Heplisav-B ≥18 yrs: 0.5 mL	
Human papillomavirus (HPV)	0.5 mL	IM
Influenza, live attenuated (LAIV)	0.2 mL (0.1 mL in each nostril)	Intranasal spray
Influenza, inactivated (IIV); for ages 6–35 months	Afluria: 0.25 mL	IM
	Fluzone: 0.25 or 0.5 mL	
	Fluarix, Flucelvax, FluLaval: 0.5 mL	
Influenza, inactivated (IIV), ≥3 yrs; **recombinant** (RIV), ≥18 yrs; **high-dose** (HD-IIV) ≥65 yrs	0.5 mL	IM
	FluZone HD: 0.7 mL	
Measles, Mumps, Rubella (MMR)	0.5 mL	Subcut
Meningococcal serogroups A, C, W, Y (MenACWY)	0.5 mL	IM
Meningococcal serogroup B (MenB)	0.5 mL	IM
Pneumococcal conjugate (PCV)	0.5 mL	IM
Pneumococcal polysaccharide (PPSV)	0.5 mL	IM or Subcut
Polio, inactivated (IPV)	0.5 mL	IM or Subcut
Rotavirus (RV)	Rotarix: 1.0 mL	Oral
	Rotateq: 2.0 mL	
Varicella (VAR)	0.5 mL	Subcut

Injection Site and Needle Size

Subcutaneous (Subcut) injection

Use a 23–25 gauge needle. Choose the injection site that is appropriate to the person's age and body mass.

AGE	NEEDLE LENGTH	INJECTION SITE
Infants (1–12 mos)	⅝"	Fatty tissue over anterolateral thigh muscle
Children 12 mos or older, adolescents, and adults	⅝"	Fatty tissue over anterolateral thigh muscle or fatty tissue over triceps

Intramuscular (IM) injection

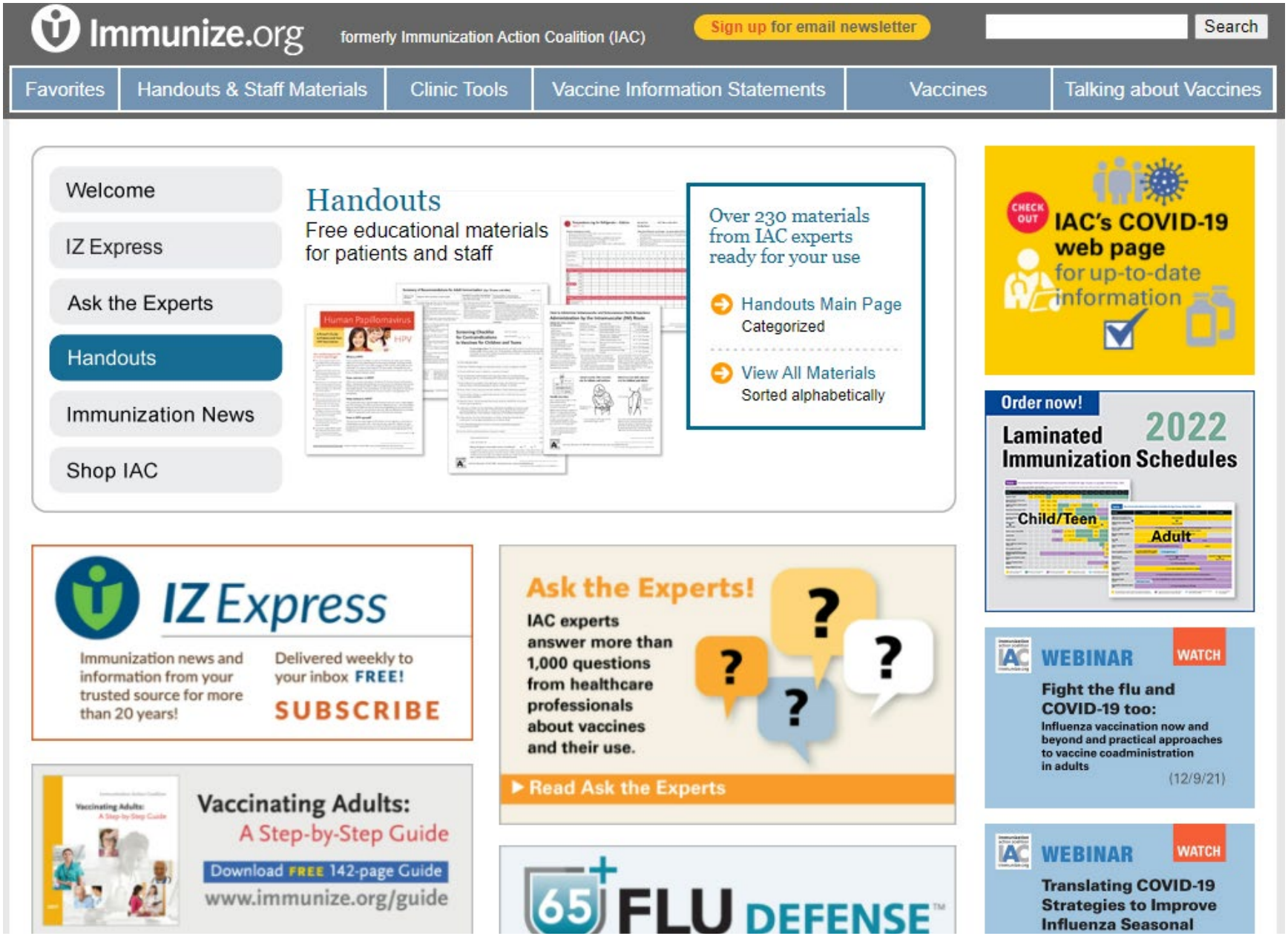
Use a 22–25 gauge needle. Choose the injection site and needle length that is appropriate to the person's age and body mass.

AGE	NEEDLE LENGTH	INJECTION SITE
Newborns (1st 28 days)	⅝"[1]	Anterolateral thigh muscle
Infants (1–12 mos)	1"	Anterolateral thigh muscle
Toddlers (1–2 years)	1–1¼"	Anterolateral thigh muscle[2]
	⅝–1"[1]	Deltoid muscle of arm
Children (3–10 years)	⅝–1"[1]	Deltoid muscle of arm[2]
	1–1¼"	Anterolateral thigh muscle
Adolescents and teens (11–18 years)	⅝–1"[1]	Deltoid muscle of arm[2]
	1–1½"	Anterolateral thigh muscle
Adults 19 years or older		
Female or male <130 lbs	⅝–1"[1]	Deltoid muscle of arm
Female or male 130–152 lbs	1"	Deltoid muscle of arm
Female 153–200 lbs Male 153–260 lbs	1–1½"	Deltoid muscle of arm
Female 200+ lbs Male 260+ lbs	1½"	Deltoid muscle of arm
Female or male, any weight	1½"	Anterolateral thigh muscle

[1] A ⅝" needle may be used in newborns, preterm infants, and patients weighing less than 130 lbs (<60 kg) for IM injection in the deltoid muscle only if the skin stretched tight, the subcutaneous tissue is not bunched, and the injection is made at a 90-degree angle to the skin.

[2] Preferred site

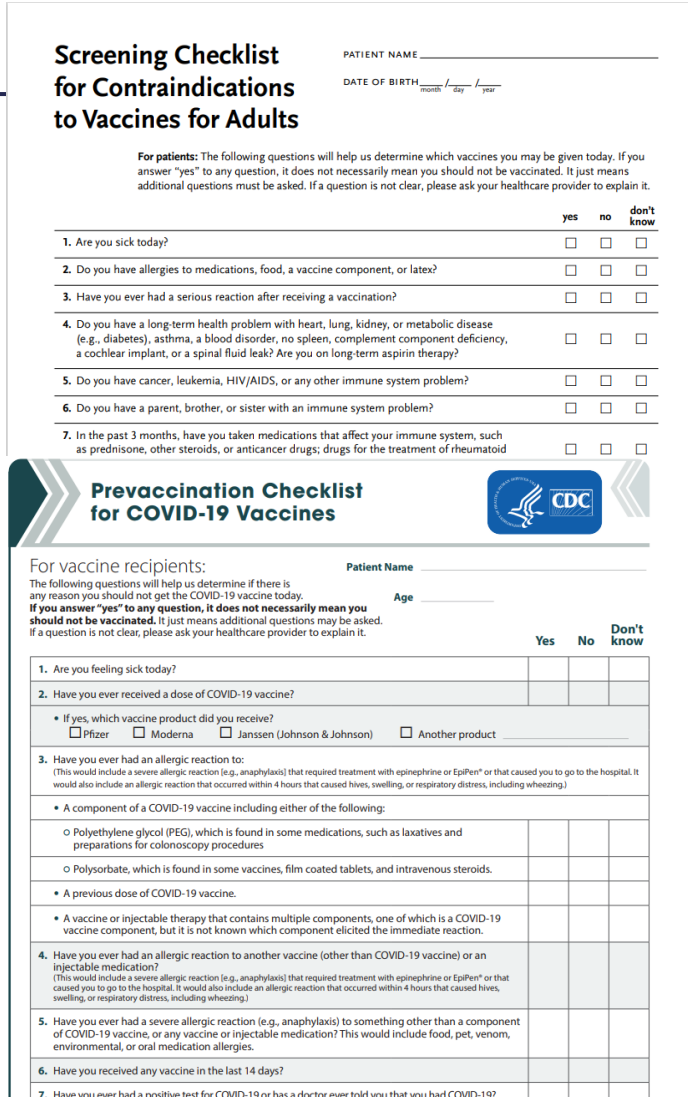
NOTE: Always refer to the package insert included with each biologic for complete vaccine administration information. CDC's Advisory Committee on Immunization Practices (ACIP) recommendations for the particular vaccine should be reviewed as



https://www.immunize.org/

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 facilitate effective screening
- For COVID-19 vaccine, screening will inform the length of the observation period



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, lung, kidney, or metabolic disease (e.g., diabetes), asthma, a blood disorder, no spleen, complement component deficiency, a cochlear implant, or a spinal fluid leak? Are you on long-term aspirin therapy?	☐	☐	☐
5. Do you have cancer, leukemia, HIV/AIDS, or any other immune system problem?	☐	☐	☐
6. Do you have a parent, brother, or sister with an immune system problem?	☐	☐	☐
7. 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	☐	☐	☐

Prevaccination Checklist for COVID-19 Vaccines

CDC

For vaccine recipients:

Patient Name _____

Age _____

The following questions will help us determine if there is any reason you should not get the COVID-19 vaccine today. **If you answer "yes" to any question, it does not necessarily mean you should not be vaccinated.** It just means additional questions may be asked. If a question is not clear, please ask your healthcare provider to explain it.

	Yes	No	Don't know
1. Are you feeling sick today?			
2. Have you ever received a dose of COVID-19 vaccine?			
• If yes, which vaccine product did you receive? ☐ Pfizer ☐ Moderna ☐ Janssen (Johnson & Johnson) ☐ Another product _____			
3. Have you ever had an allergic reaction to: (This would include a severe allergic reaction [e.g., anaphylaxis] that required treatment with epinephrine or EpiPen® or that caused you to go to the hospital. It would also include an allergic reaction that occurred within 4 hours that caused hives, swelling, or respiratory distress, including wheezing.)			
• A component of a COVID-19 vaccine including either of the following:			
○ Polyethylene glycol (PEG), which is found in some medications, such as laxatives and preparations for colonoscopy procedures			
○ Polysorbate, which is found in some vaccines, film coated tablets, and intravenous steroids.			
• A previous dose of COVID-19 vaccine.			
• A vaccine or injectable therapy that contains multiple components, one of which is a COVID-19 vaccine component, but it is not known which component elicited the immediate reaction.			
4. Have you ever had an allergic reaction to another vaccine (other than COVID-19 vaccine) or an injectable medication? (This would include a severe allergic reaction [e.g., anaphylaxis] that required treatment with epinephrine or EpiPen® or that caused you to go to the hospital. It would also include an allergic reaction that occurred within 4 hours that caused hives, swelling, or respiratory distress, including wheezing.)			
5. Have you ever had a severe allergic reaction (e.g., anaphylaxis) to something other than a component of COVID-19 vaccine, or any vaccine or injectable medication? This would include food, pet, venom, environmental, or oral medication allergies.			
6. Have you received any vaccine in the last 14 days?			
7. Have you ever had a positive test for COVID-19 or has a doctor ever told you that you had COVID-19?			

https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
https://immunize.org/clinic/screening-contraindications.asp
http://www.immunize.org/handouts/screening-vaccines.asp
https://www.cdc.gov/vaccines/covid-19/downloads/pre-vaccination-screening-form.pdf

Contraindication and Precautions

Contraindication

- Increases risk for a serious adverse reaction
- A vaccine should not be administered when present
- Many are temporary, vaccinations can often be administered later when the condition leading to a contraindication no longer exists

Precaution

- May increase the risk for a serious adverse reaction, cause diagnostic confusion, or compromise the ability of the vaccine to produce immunity
- In general, vaccinations should be deferred
- 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

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

Contraindications & Precautions

2022 Immunization Schedule, Appendix
https://www.cdc.gov/vaccines/schedules/downloads/adult/adult-combined-schedule.pdf

CDC: Table 4.1 in Best Practices
https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html

IAC: Guide to Contraindications and Precautions to Commonly Used Vaccines
https://www.immunize.org/catg.d/p3072A.pdf

IAC: Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults
https://immunize.org/catg.d/p3072.pdf

CDC: Interim Clinical Considerations for COVID-19 Vaccines
https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html

Guide to Contraindications and Precautions to Commonly Used Vaccines[1,*]

For information on contraindications and precautions when administering COVID-19 vaccine, see CDC's *COVID-19 Vaccine Quick Reference Guide for Healthcare Professionals* at www.cdc.gov/vaccines/covid-19/downloads/covid19-vaccine-quick-reference-guide-2pages.pdf.

Vaccine	Contraindications[1]	Precautions[1]
Hepatitis B (HepB)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component • Hypersensitivity to yeast	• Moderate or severe acute illness with or without fever • Infant weighing less than 2000 grams (4 lbs, 6.4 oz)[2]
Rotavirus (RV5 [RotaTeq], RV1 [Rotarix])	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component • Severe combined immunodeficiency (SCID) • History of intussusception	• Moderate or severe acute illness with or without fever • Altered immunocompetence other than SCID • Chronic gastrointestinal disease[3] • Spina bifida or bladder exstrophy[3]
Diphtheria, tetanus, pertussis (DTaP) **Tetanus, diphtheria, pertussis (Tdap)** **Tetanus, diphtheria (DT, 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, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of DTP or DTaP (for DTaP); or of previous dose of DTP, DTaP, or Tdap (for Tdap)	• Moderate or severe acute illness with or without fever • Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria- or tetanus toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine • For DTaP and Tdap only: Progressive or unstable neurologic disorder (including infantile spasms for DTaP), uncontrolled seizures, or progressive encephalopathy; defer until a treatment regimen has been established and the condition has stabilized
***Haemophilus influenzae* type b (Hib)**	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component • Age younger than 6 weeks	• Moderate or severe acute illness with or without fever
Inactivated poliovirus	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose	• Moderate or severe acute illness with or without fever

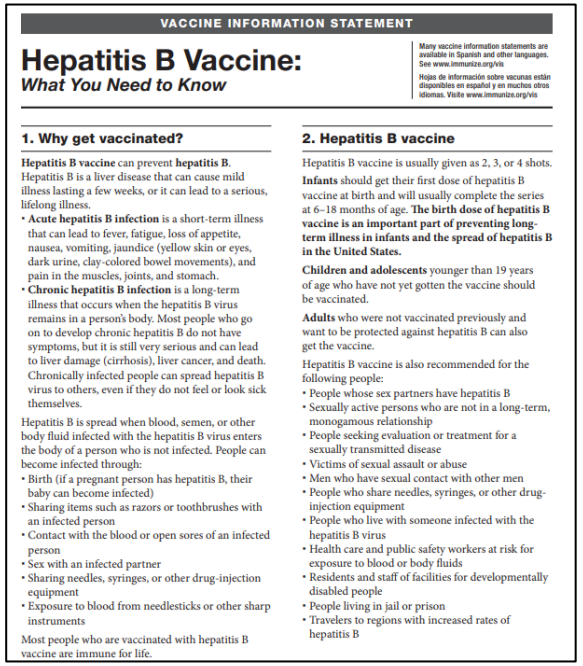
Appendix C: Triage of people with a history of allergies or allergic reactions

CONTRAINDICATION TO COVID-19 VACCINATION	PRECAUTION TO COVID-19 VACCINATION	MAY PROCEED WITH COVID-19 VACCINATION
History of the following: • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of a COVID-19 vaccine*† • Known (diagnosed) allergy to a component of a COVID-19 vaccine*	Among people without a contraindication, a history of: • Any immediate allergic reaction‡ to other vaccines (non-COVID-19) or injectable therapies§ • Non-severe, immediate (onset <4 hours) allergic reaction‡ after a previous dose of COVID-19 vaccine# Note: people with a contraindication to mRNA COVID-19 vaccines have a precaution to Janssen COVID-19 Vaccine, and vice versa¶	Among people without a contraindication or precaution, a history of: • Allergy (including anaphylaxis) to oral medications (including the oral equivalent of an injectable medication) • History of food, pet, insect, venom, environmental, latex, etc., allergies, including anaphylaxis • Family history of allergies
Actions: • Do not vaccinate • Consider referral to allergist-immunologist • Consider other vaccine alternative if age appropriate*¶	Actions: • Risk assessment • 30-minute observation period if vaccinated (see footnotes 5 and 6 for information on vaccination setting) • Consider referral to allergist-immunologist	Actions: • 30-minute observation period: people with history of anaphylaxis (due to any cause) • 15-minute observation period: all other people

Vaccine Information Statements (VISs) and EUA Factsheets for Vaccine Recipients

Healthcare provider requirements

- Public and private providers
- Give **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
- Available in multiple languages



VACCINE INFORMATION STATEMENT

Hepatitis B Vaccine:
What You Need to Know

Many vaccine information statements are available in Spanish and other languages. See www.immunize.org/vis

Hojas de información sobre vacunas están disponibles en español y en muchos otros idiomas. Visite www.immunize.org/vis

1. Why get vaccinated?

Hepatitis B vaccine can prevent **hepatitis B**. Hepatitis B is a liver disease that can cause mild illness lasting a few weeks, or it can lead to a serious, lifelong illness.

- **Acute hepatitis B infection** is a short-term illness that can lead to fever, fatigue, loss of appetite, nausea, vomiting, jaundice (yellow skin or eyes, dark urine, clay-colored bowel movements), and pain in the muscles, joints, and stomach.
- **Chronic hepatitis B infection** is a long-term illness that occurs when the hepatitis B virus remains in a person's body. Most people who go on to develop chronic hepatitis B do not have symptoms, but it is still very serious and can lead to liver damage (cirrhosis), liver cancer, and death. Chronically infected people can spread hepatitis B virus to others, even if they do not feel or look sick themselves.

Hepatitis B is spread when blood, semen, or other body fluid infected with the hepatitis B virus enters the body of a person who is not infected. People can become infected through:

- Birth (if a pregnant person has hepatitis B, their baby can become infected)
- Sharing items such as razors or toothbrushes with an infected person
- Contact with the blood or open sores of an infected person
- Sex with an infected partner
- Sharing needles, syringes, or other drug-injection equipment
- Exposure to blood from needlesticks or other sharp instruments

Most people who are vaccinated with hepatitis B vaccine are immune for life.

2. Hepatitis B vaccine

Hepatitis B vaccine is usually given as 2, 3, or 4 shots.

Infants should get their first dose of hepatitis B vaccine at birth and will usually complete the series at 6–18 months of age. **The birth dose of hepatitis B vaccine is an important part of preventing long-term illness in infants and the spread of hepatitis B in the United States.**

Children and adolescents younger than 19 years of age who have not yet gotten the vaccine should be vaccinated.

Adults who were not vaccinated previously and want to be protected against hepatitis B can also get the vaccine.

Hepatitis B vaccine is also recommended for the following people:

- People whose sex partners have hepatitis B
- Sexually active persons who are not in a long-term, monogamous relationship
- People seeking evaluation or treatment for a sexually transmitted disease
- Victims of sexual assault or abuse
- Men who have sexual contact with other men
- People who share needles, syringes, or other drug-injection equipment
- People who live with someone infected with the hepatitis B virus
- Health care and public safety workers at risk for exposure to blood or body fluids
- Residents and staff of facilities for developmentally disabled people
- People living in jail or prison
- Travelers to regions with increased rates of hepatitis B

https://www.cdc.gov/vaccines/hcp/vis/index.html
http://www.cdc.gov/vaccines/hcp/vis/index.html
http://www.immunize.org/vis/
https://www.cdc.gov/vaccines/covid-19/info-by-product/index.html

Healthcare Provider Documentation

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
- The address of the facility where the permanent record will reside
- Date printed on the appropriate VIS
- Date the VIS was given to the vaccine recipient, or the parents/legal representative
- Best practices also include documenting: dosage, site, route, vaccine expiration date, any adverse events, and any vaccine refusal
- The patient or parent should be provided with a personal immunization record that includes the vaccination(s) and date administered.

- All MA licensed health care providers must report administered IZs to the MIIS

https://www.cdc.gov/vaccines/pubs/pinkbook/vac-admin.html

COVID-19 Specific Documentation Requirements

- COVID-19 vaccination providers must document vaccine administration in their medical record systems within 24 hours of administration

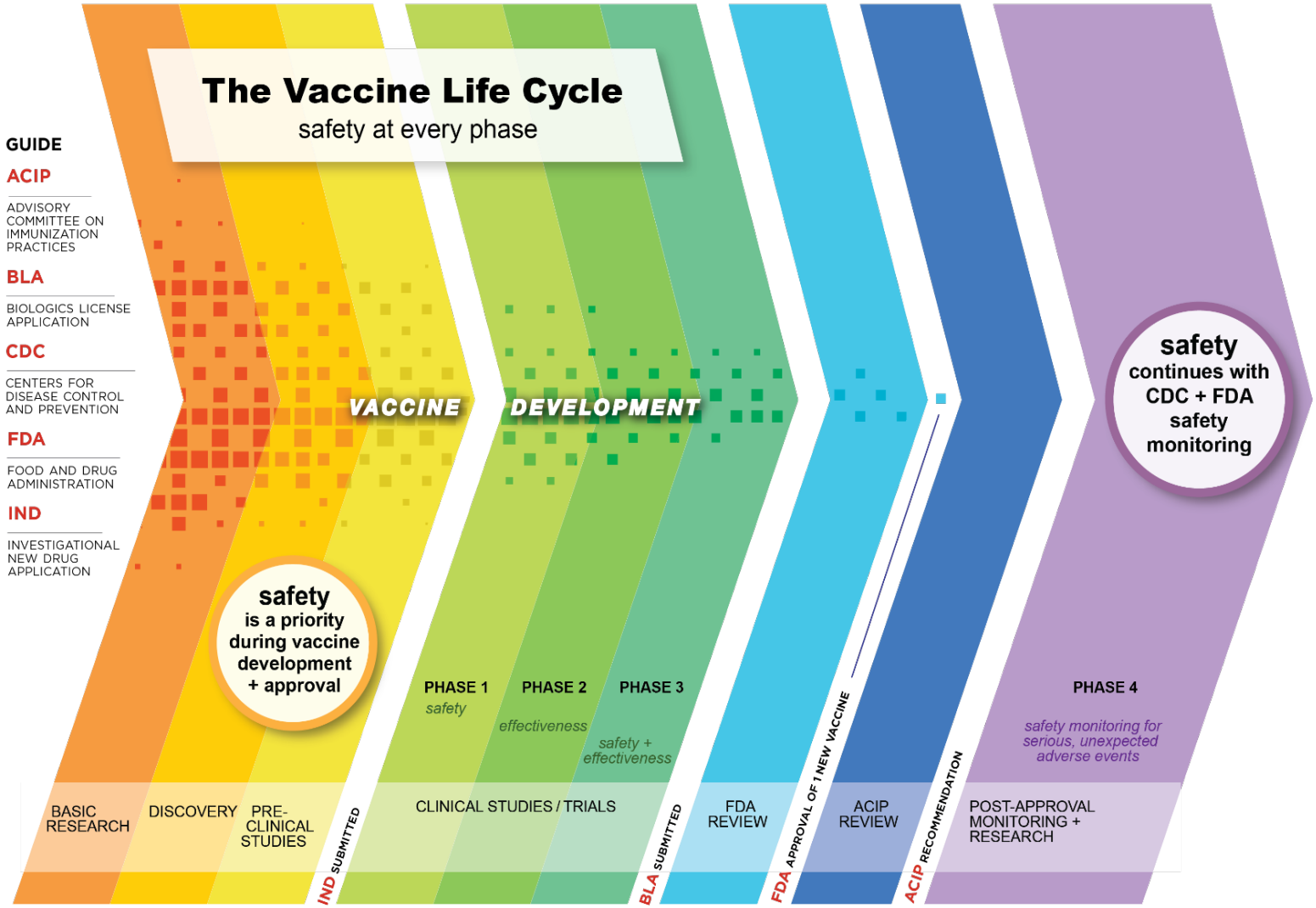
- Document each recipient's vaccine administration information:
  - Medical record:
    The vaccine and the date it was administered, manufacturer, lot number, vaccination site and route, name and title of the person administering the vaccine
  - Vaccination record card (given to recipient):
    Date of vaccination, product name/manufacturer, lot number, and name/location of the administering clinic or healthcare professional.
  - Immunization information system (IIS):
    Report the vaccination to the appropriate state/local IIS.

https://www.cdc.gov/vaccines/covid-19/info-by-product/moderna/downloads/standing-orders.pdf

Vaccine safety and adverse event reporting

Safety is a priority

during all phases of vaccine development, authorization or approval, and use



https://www.cdc.gov/vaccinesafety/ensuringsafety/history/index.html#anchor_1593624850886

Importance of Vaccine Safety

Public confidence in vaccine safety critical

- Higher standard of safety is expected of vaccines
- Vaccines generally given to healthy people to prevent disease (vs. ill to treat, for drugs)
- Lower public risk tolerance for adverse reactions, especially in healthy children
- Vaccination universally recommended and mandated

Vaccine Adverse Reactions

Adverse reaction

- An untoward effect caused by a vaccine
- A vaccine side effect

Adverse event

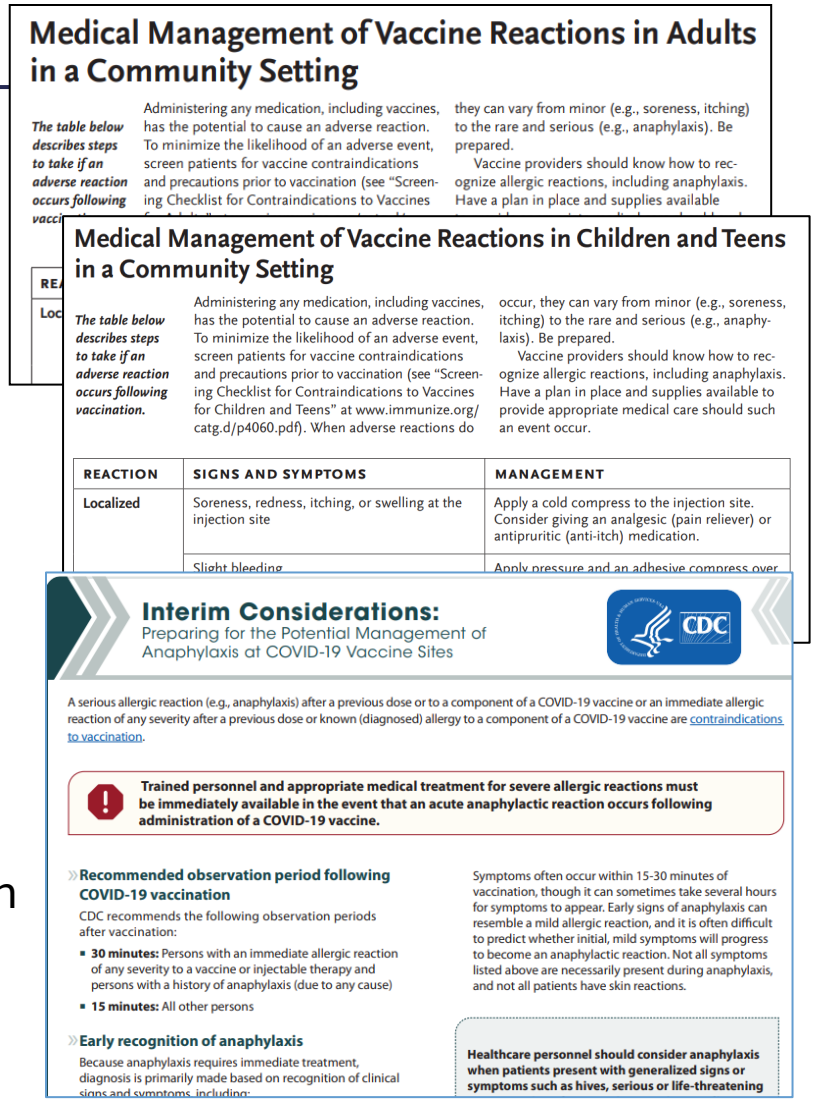
- Any medical event following vaccination
- May be true adverse reaction
- May be only coincidental

investigation is needed to distinguish between these

https://www.cdc.gov/vaccines/pubs/pinkbook/genrec.html

Managing Acute Vaccine Reactions

- Staff must have appropriate training and equipment to manage reactions
- Staff should be familiar with signs and symptoms of hypersensitivity/anaphylaxis
- All vaccination providers should be currently certified in CPR
- Severe reactions are rare
- Screening can help prevent reactions
- Post vaccination observation
- There must be a clinic emergency plan for dealing with reactions and you need to ensure that all staff are familiar with that plan
- Have Emergency Treatment Standing Orders signed before the clinic



Medical Management of Vaccine Reactions in Adults in a Community Setting

The table below describes steps to take if an adverse reaction occurs following vacci

Administering any medication, including vaccines, has the potential to cause an adverse reaction. To minimize the likelihood of an adverse event, screen patients for vaccine contraindications and precautions prior to vaccination (see "Screening Checklist for Contraindications to Vaccines

they can vary from minor (e.g., soreness, itching) to the rare and serious (e.g., anaphylaxis). Be prepared.

Vaccine providers should know how to recognize allergic reactions, including anaphylaxis. Have a plan in place and supplies available

Medical Management of Vaccine Reactions in Children and Teens in a Community Setting

The table below describes steps to take if an adverse reaction occurs following vaccination.

Administering any medication, including vaccines, has the potential to cause an adverse reaction. To minimize the likelihood of an adverse event, screen patients for vaccine contraindications and precautions prior to vaccination (see "Screening Checklist for Contraindications to Vaccines for Children and Teens" at www.immunize.org/catg.d/p4060.pdf). When adverse reactions do occur, they can vary from minor (e.g., soreness, itching) to the rare and serious (e.g., anaphylaxis). Be prepared.

Vaccine providers should know how to recognize allergic reactions, including anaphylaxis. Have a plan in place and supplies available to provide appropriate medical care should such an event occur.

REACTION	SIGNS AND 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 pressure and an adhesive compress over

Interim Considerations:
Preparing for the Potential Management of Anaphylaxis at COVID-19 Vaccine Sites

CDC

A serious allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of a COVID-19 vaccine or an immediate allergic reaction of any severity after a previous dose or known (diagnosed) allergy to a component of a COVID-19 vaccine are contraindications to vaccination.

Trained personnel and appropriate medical treatment for severe allergic reactions must be immediately available in the event that an acute anaphylactic reaction occurs following administration of a COVID-19 vaccine.

Recommended observation period following COVID-19 vaccination

CDC recommends the following observation periods after vaccination:

- **30 minutes:** Persons with an immediate allergic reaction of any severity to a vaccine or injectable therapy and persons with a history of anaphylaxis (due to any cause)
- **15 minutes:** All other persons

Early recognition of anaphylaxis

Because anaphylaxis requires immediate treatment, diagnosis is primarily made based on recognition of clinical signs and symptoms, including:

Symptoms often occur within 15-30 minutes of vaccination, though it can sometimes take several hours for symptoms to appear. Early signs of anaphylaxis can resemble a mild allergic reaction, and it is often difficult to predict whether initial, mild symptoms will progress to become an anaphylactic reaction. Not all symptoms listed above are necessarily present during anaphylaxis, and not all patients have skin reactions.

Healthcare personnel should consider anaphylaxis when patients present with generalized signs or symptoms such as hives, serious or life-threatening

https://www.immunize.org/catg.d/p3082.pdf
https://www.immunize.org/catg.d/p3082a.pdf
https://www.cdc.gov/vaccines/covid-19/downloads/IntermConsid-Anaphylaxis-covid19-vaccine-sites.pdf
https://www.cdc.gov/vaccines/pubs/pinkbook/vac-admin.html
https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/adverse-reactions.html

Recommended Meds and Supplies for the Management of Anaphylaxis

Should be available at all sites	If feasible, include at locations
Epinephrine (e.g., prefilled syringe, autoinjector)*	Pulse oximeter
H1 antihistamine (e.g., diphenhydramine, cetirizine)†	Oxygen
Blood pressure monitor‡	Bronchodilator (e.g., albuterol)
Timing device to assess pulse	H2 antihistamine (e.g., famotidine, cimetidine)
	Intravenous fluids
	Intubation kit
	Adult-sized pocket mask with one-way valve (also known as cardiopulmonary resuscitation (CPR) mask)

*COVID-19 vaccination locations should have **at least 3 doses** of age-appropriate epinephrine available at all times, and the ability to quickly obtain additional doses to replace supplies after epinephrine is administered to a patient.

https://www.cdc.gov/vaccines/covid-19/clinical-considerations/managing-anaphylaxis.html

Key Messages: Preparing for the Potential Management of Anaphylaxis

Early recognition of anaphylaxis symptoms

Prompt treatment with epinephrine

Activation of emergency medical services

MAIC 2022

https://www.cdc.gov/vaccines/covid-19/clinical-considerations/managing-anaphylaxis.html

CDC Vaccine Safety Monitoring

- Authorized COVID-19 vaccines are being administered under **the most intensive vaccine safety monitoring effort in U.S. history**
- Strong, complementary systems are in place—both new and established

v-safe	VAERS	VSD	CISA Project

Full list of U.S. COVID-19 vaccine safety monitoring systems

https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety.html

VAERS is the nation's early warning system for vaccine safety

CDC + FDA

VAERS

Vaccine Adverse Event Reporting System

http://vaers.hhs.gov

https://www.cdc.gov/vaccinesafety/ensuringsafety/monitoring/vaers/index.html
https://vaers.hhs.gov/about.html

VAERS

VAERS accepts all reports from everyone regardless of the plausibility of the vaccine causing the event or the clinical seriousness of the event

key strengths

- Rapidly detects potential safety problems
- Can detect rare adverse events

key limitations

- Inconsistent quality and completeness of information
- Reporting biases
- Generally, cannot determine cause and effect

What to Report to VAERS

- Providers are required by law to report to VAERS:
  - Any adverse event listed on the VAERS Table of Reportable Events Following Vaccination
  - Any adverse event listed by the vaccine manufacturer as a contraindication to further doses
- Providers are encouraged to report:
  - Any adverse event following the administration of a vaccine, whether or not it is clear the vaccine caused the event
  - Vaccine administration errors
- Manufacturers are required to report:
  - All adverse events that come to their attention

https://vaers.hhs.gov/resources/infoproviders.html
https://vaers.hhs.gov/reportevent.html

COVID-19:What to Report to VAERS

Required to report:

- Vaccine administration errors, whether or not associated with an adverse event
- Serious AEs regardless of causality. Serious AEs per FDA are defined as:
  - Death
  - A life-threatening AE
  - Inpatient hospitalization or prolongation of existing hospitalization
  - A persistent or significant incapacity or substantial disruption of the ability to conduct normal life functions
  - A congenital anomaly/birth defect
  - An important medical event that based on appropriate medical judgement may jeopardize the individual and may require medical or surgical intervention to prevent one of the outcomes listed above
- Cases of Multisystem Inflammatory Syndrome
- Cases of COVID-19 that result in hospitalization or death

Encouraged to report:

- Any additional clinically significant AEs following vaccination, even if they are not sure if vaccination caused the event.

https://vaers.hhs.gov/faq.html
https://www.cdc.gov/vaccines/covid-19/vaccination-provider-support.html

What to Report to VAERS

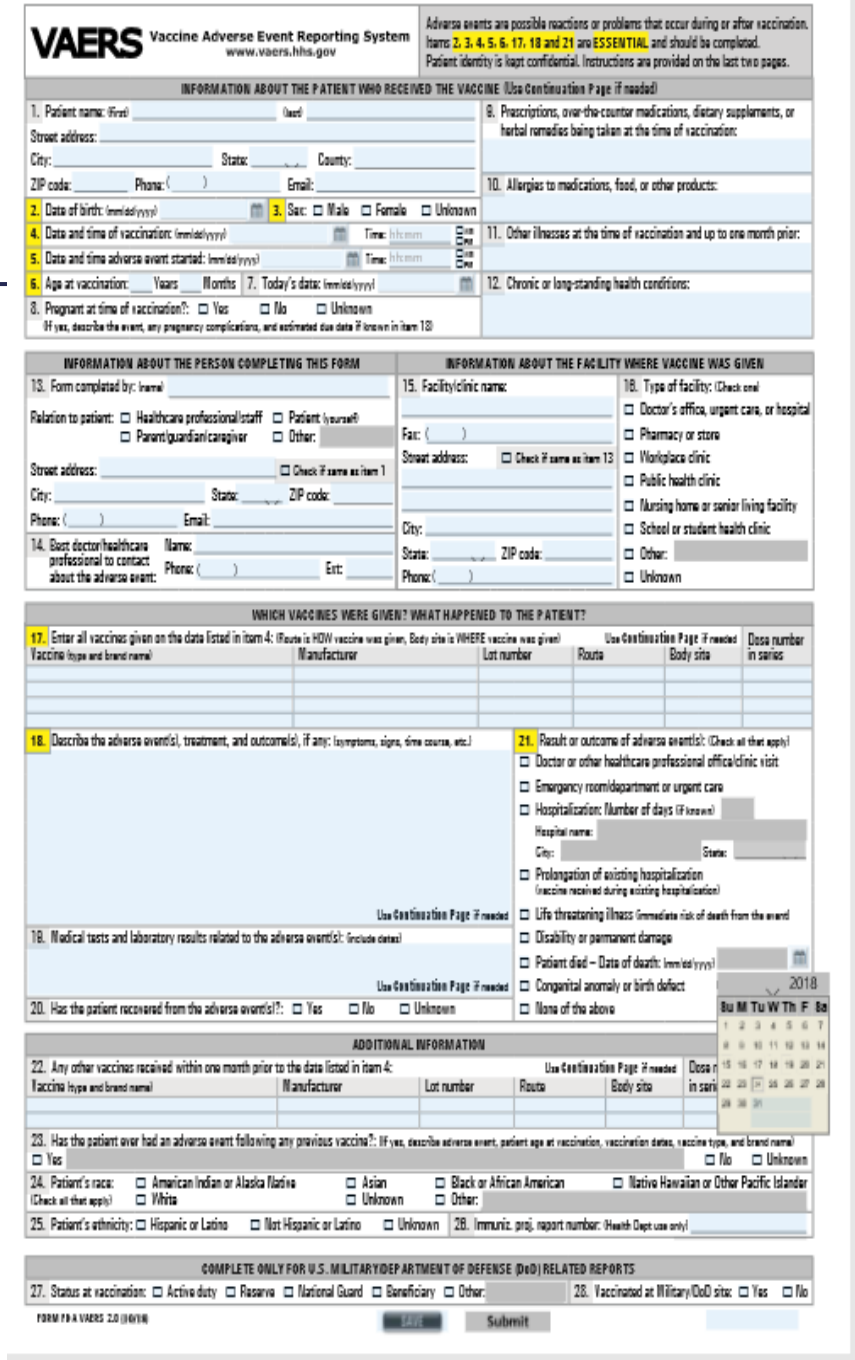
- Any **clinically significant or medically important** adverse event following immunization even if you are not certain the vaccine caused the event

- Some examples of adverse events to report
  - Local: unusual redness, swelling, pain at injection site
  - Systemic: unusual fever, myalgia, headache
  - Allergic: hives, pruritus, anaphylaxis
  - Vaccination errors (e.g., wrong drug administered)

https://vaers.hhs.gov/reportevent.html
https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/adverse-reactions.html

VAERS Form

- One page online form, found at: https://vaers.hhs.gov/
- Asks for information on:
  - Patient
  - Vaccine
  - Adverse event
  - Outcome of adverse event
- For help:
  - Call: 1-800-822-7967
  - Email: info@VAERS.org
  - Video instructions https://youtu.be/sbCWhcQADFE
- If COVID-19 vaccine related:
  - Put "*[brand name]* COVID- 19 Vaccine EUA" in the description


VAERS Vaccine Adverse Event Reporting System
www.vaers.hhs.gov

Adverse events are possible reactions or problems that occur during or after vaccination. Items 2, 3, 4, 5, 6, 17, 18 and 21 are ESSENTIAL and should be completed. Patient identity is kept confidential. Instructions are provided on the last two pages.

INFORMATION ABOUT THE PATIENT WHO RECEIVED THE VACCINE (Use Continuation Page if needed)

1. Patient name: (First) (Last)
Street address:
City: State: County:
ZIP code: Phone: ( ) Email:
2. Date of birth: (mm/dd/yyyy)
3. Sex: ☐ Male ☐ Female ☐ Unknown
4. Date and time of vaccination: (mm/dd/yyyy) Time: (hh:mm) ☐ AM ☐ PM
5. Date and time adverse event started: (mm/dd/yyyy) Time: (hh:mm) ☐ AM ☐ PM
6. Age at vaccination: ___ Years ___ Months
7. Today's date: (mm/dd/yyyy)
8. Pregnant at time of vaccination?: ☐ Yes ☐ No ☐ Unknown
(If yes, describe the event, any pregnancy complications, and estimated due date if known in item 18)
9. Prescriptions, over-the-counter medications, dietary supplements, or herbal remedies being taken at the time of vaccination:
10. Allergies to medications, food, or other products:
11. Other illnesses at the time of vaccination and up to one month prior:
12. Chronic or long-standing health conditions:

INFORMATION ABOUT THE PERSON COMPLETING THIS FORM

13. Form completed by: (name)
Relation to patient: ☐ Healthcare professional/staff ☐ Patient (yourself) ☐ Parent/guardian/caregiver ☐ Other:
Street address: ☐ Check if same as item 1
City: State: ZIP code:
Phone: ( ) Email:
14. Best doctor/healthcare professional to contact about the adverse event: Name: Phone: ( ) Ext:

INFORMATION ABOUT THE FACILITY WHERE VACCINE WAS GIVEN

15. Facility/clinic name:
Fax: ( )
Street address: ☐ Check if same as item 13
City: State: ZIP code:
Phone: ( )
16. Type of facility: (Check one)
☐ Doctor's office, urgent care, or hospital
☐ Pharmacy or store
☐ Workplace clinic
☐ Public health clinic
☐ Nursing home or senior living facility
☐ School or student health clinic
☐ Other:
☐ Unknown

WHICH VACCINES WERE GIVEN? WHAT HAPPENED TO THE PATIENT?

17. Enter all vaccines given on the date listed in item 4: (Route is HOW vaccine was given, Body site is WHERE vaccine was given) Use Continuation Page if needed

Vaccine (type and brand name)	Manufacturer	Lot number	Route	Body site	Dose number in series

18. Describe the adverse event(s), treatment, and outcome(s), if any: (symptoms, signs, time course, etc.) Use Continuation Page if needed
19. Medical tests and laboratory results related to the adverse event(s): (include dates) Use Continuation Page if needed
20. Has the patient recovered from the adverse event(s)?: ☐ Yes ☐ No ☐ Unknown
21. Result or outcome of adverse event(s): (Check all that apply)
☐ Doctor or other healthcare professional office/clinic visit
☐ Emergency room/department or urgent care
☐ Hospitalization: Number of days (if known)
Hospital name:
City: State:
☐ Prolongation of existing hospitalization (vaccine received during existing hospitalization)
☐ Life threatening illness (immediate risk of death from the event)
☐ Disability or permanent damage
☐ Patient died – Date of death: (mm/dd/yyyy)
☐ Congenital anomaly or birth defect
☐ None of the above

ADDITIONAL INFORMATION

22. Any other vaccines received within one month prior to the date listed in item 4: Use Continuation Page if needed

Vaccine (type and brand name)	Manufacturer	Lot number	Route	Body site	Dose number in series

23. Has the patient ever had an adverse event following any previous vaccine?: (If yes, describe adverse event, patient age at vaccination, vaccination dates, vaccine type, and brand name)
☐ Yes ☐ No ☐ Unknown
24. Patient's race: (Check all that apply) ☐ American Indian or Alaska Native ☐ Asian ☐ Black or African American ☐ Native Hawaiian or Other Pacific Islander ☐ White ☐ Unknown ☐ Other:
25. Patient's ethnicity: ☐ Hispanic or Latino ☐ Not Hispanic or Latino ☐ Unknown
26. Immuniz. proj. report number: (Health Dept use only)

COMPLETE ONLY FOR U.S. MILITARY/DEPARTMENT OF DEFENSE (DoD) RELATED REPORTS

27. Status at vaccination: ☐ Active duty ☐ Reserve ☐ National Guard ☐ Beneficiary ☐ Other:
28. Vaccinated at Military/DoD site: ☐ Yes ☐ No

FORM FDA VAERS 2.0 (10/19) Print Submit

2018

The Provider's Role

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

- Communication on benefit and risk, and expected side effects
- Vaccine storage and handling practices
- Accurate timing and spacing of vaccine doses
- Screening for eligibility, contraindications and precautions
- Vaccine preparation and administration, and appropriate observation period
- Being able to recognize early signs and symptoms
- Management of adverse reactions
- Trained in use of emergency equipment
- Reporting to VAERS and any additional COVID specific databases
- Documentation in MIIS and medical record

Vaccination and COVID-19 Pandemic

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Interim Guidance for Immunization Services During the COVID-19 Pandemic

- Purpose of Guidance
- Importance of Immunization Services During the COVID-19 Pandemic
- Vaccine Recommendations During the COVID-19 Pandemic
- Considerations for Routine Vaccination
- Additional Considerations for Influenza Vaccination
- Deferring Routine Vaccination Visits for Persons with Suspected or Confirmed COVID-19 Who Are in Isolation or Persons with a Known COVID-19 Exposure Who Are in Quarantine
- Vaccine Administration During the COVID-19 Pandemic
- General Practices for the Safe Delivery of Vaccination Services
- Interim Guidance to Prevent Mother-to-Child Transmission of Hepatitis B Virus

https://www.cdc.gov/vaccines/pandemic-guidance/index.html

Prevent Mother-to-Child Transmission (MCT) of Hepatitis B Virus

- Guidance for OB and pediatric staff to prevent MCT of hepatitis B during the COVID-19 pandemic and related disruptions in services
- Prioritize ACIP recommendations for prevention of mother-to-child transmission of HBV infection
- Ensure women can advocate for themselves and their baby
- HBIG and hepatitis B vaccine at birth (within 12 hours); timely completion of hepatitis B vaccine series; postvaccination serologic testing
- Perinatal Hepatitis B Prevention Program

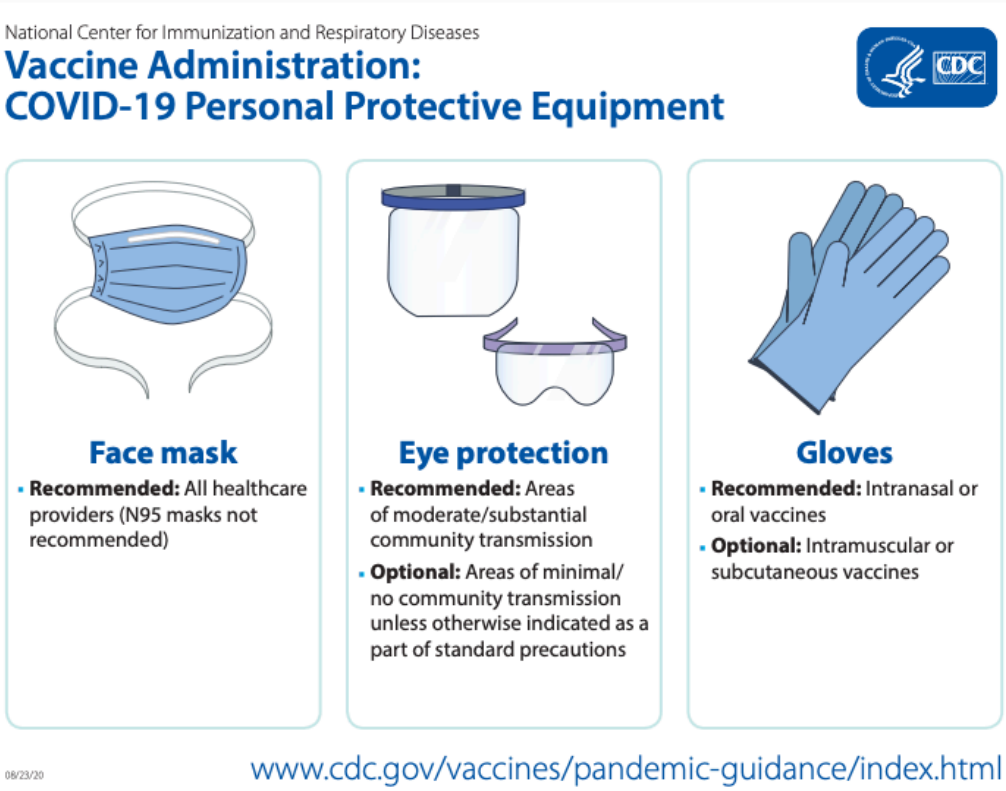
https://www.cdc.gov/vaccines/pandemic-guidance/index.htm
https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm

Universal Hepatitis B Birth Dose

- Provide the birth dose of hepatitis B vaccine to all other newborns within 24 hours of birth to prevent horizontal hepatitis B virus transmission from household or other close contacts.
- ACIP recommendation for ALL babies, within 24 hours of birth
  - Infants <2,000 grams, born to HBsAg negative mothers: administer 1 dose at chronological age 1 month or hospital discharge (whichever is earlier)
- Important safety net!!

https://www.cdc.gov/mmwr/volumes/67/rr/pdfs/rr6701-H.PDF

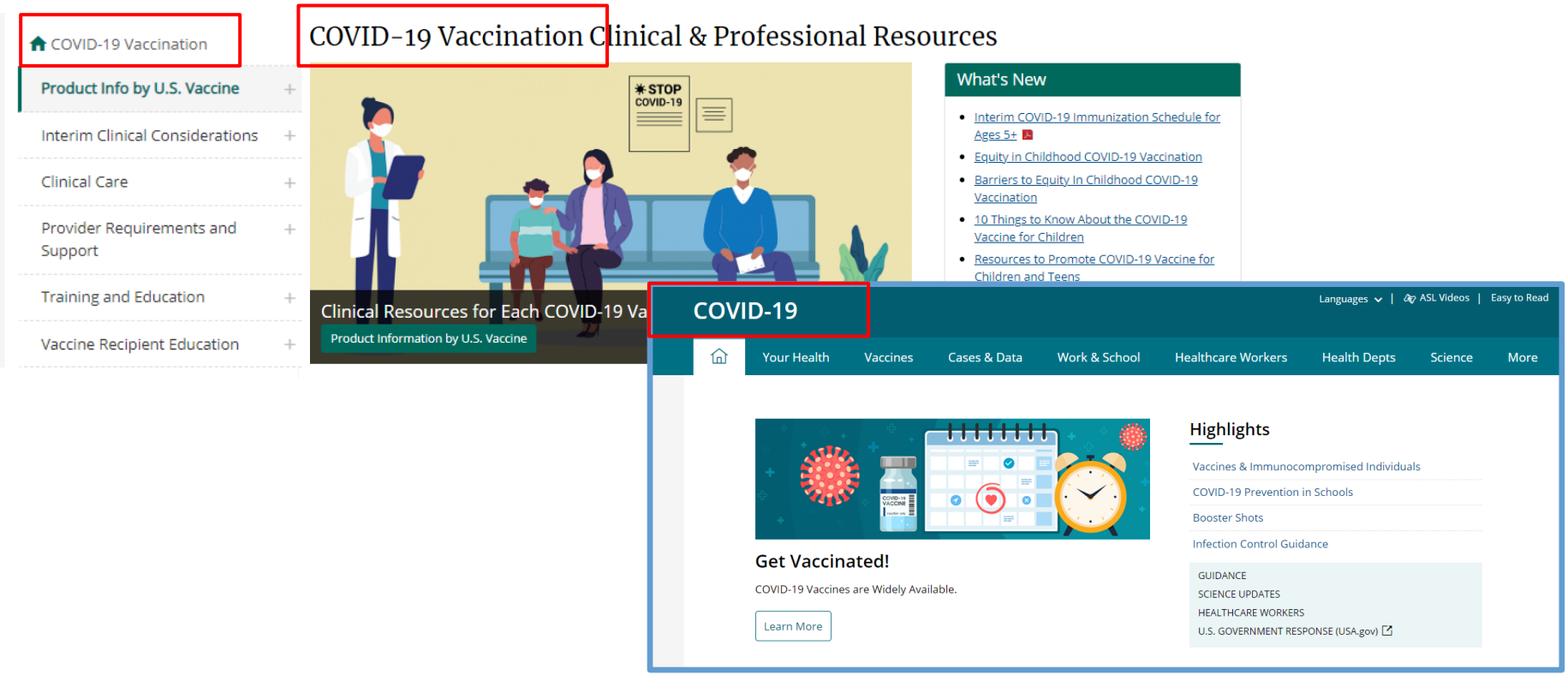
Use Personal Protection Equipment



- Gloves are not required unless the person administering the vaccine is likely to come in contact with potentially infectious body fluids or has open lesions on their hands
- If gloves are worn, they should be changed between patients
- Perform hand hygiene between patients, even if wearing gloves

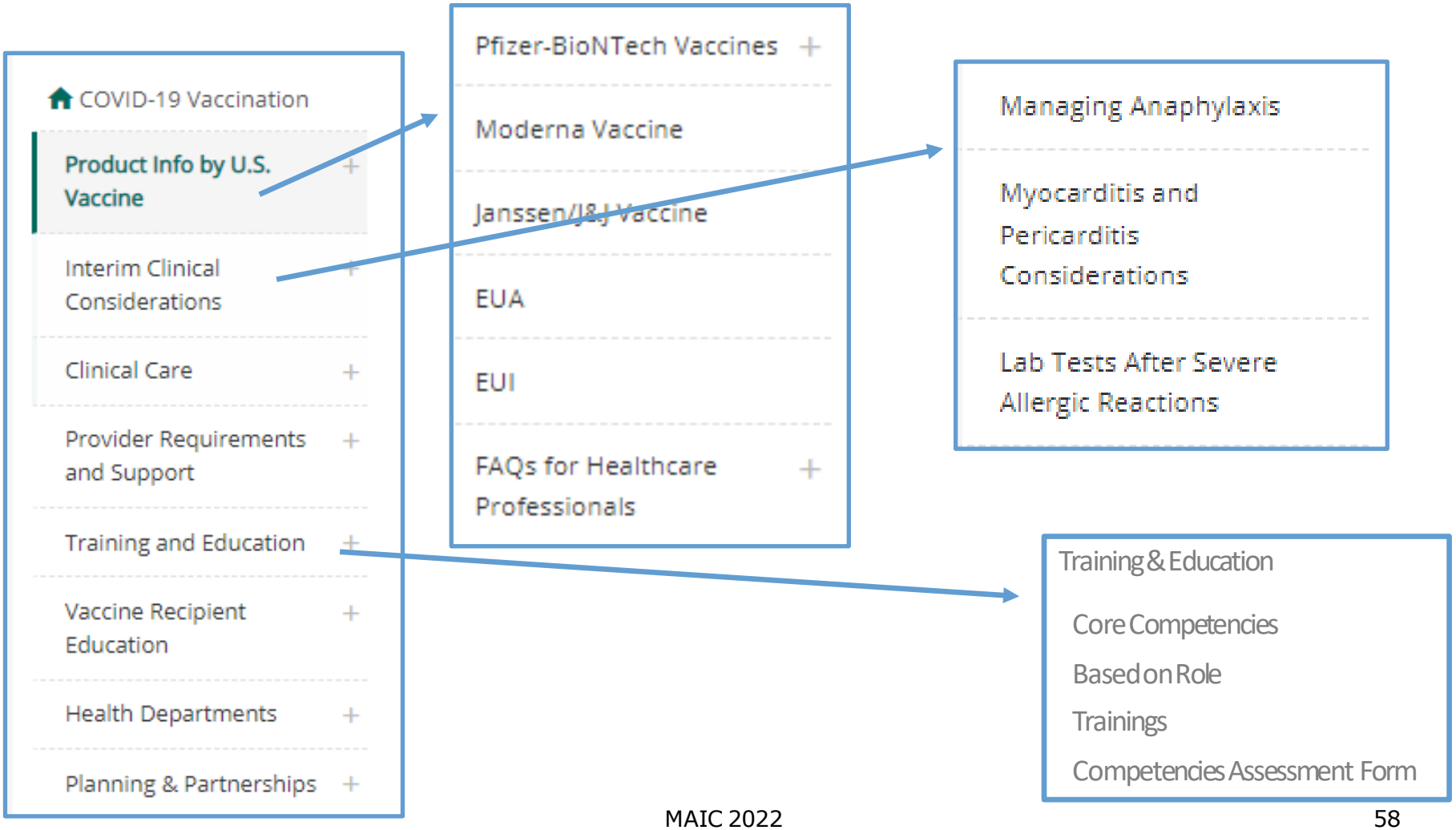
Recommendations are Rapidly Evolving…

Always check the websites for the latest guidance and information



https://www.cdc.gov/vaccines/covid-19/index.html
https://www.cdc.gov/coronavirus/2019-ncov/index.html

CDC COVID-19 Vaccination Gateway Page Takes You To…..



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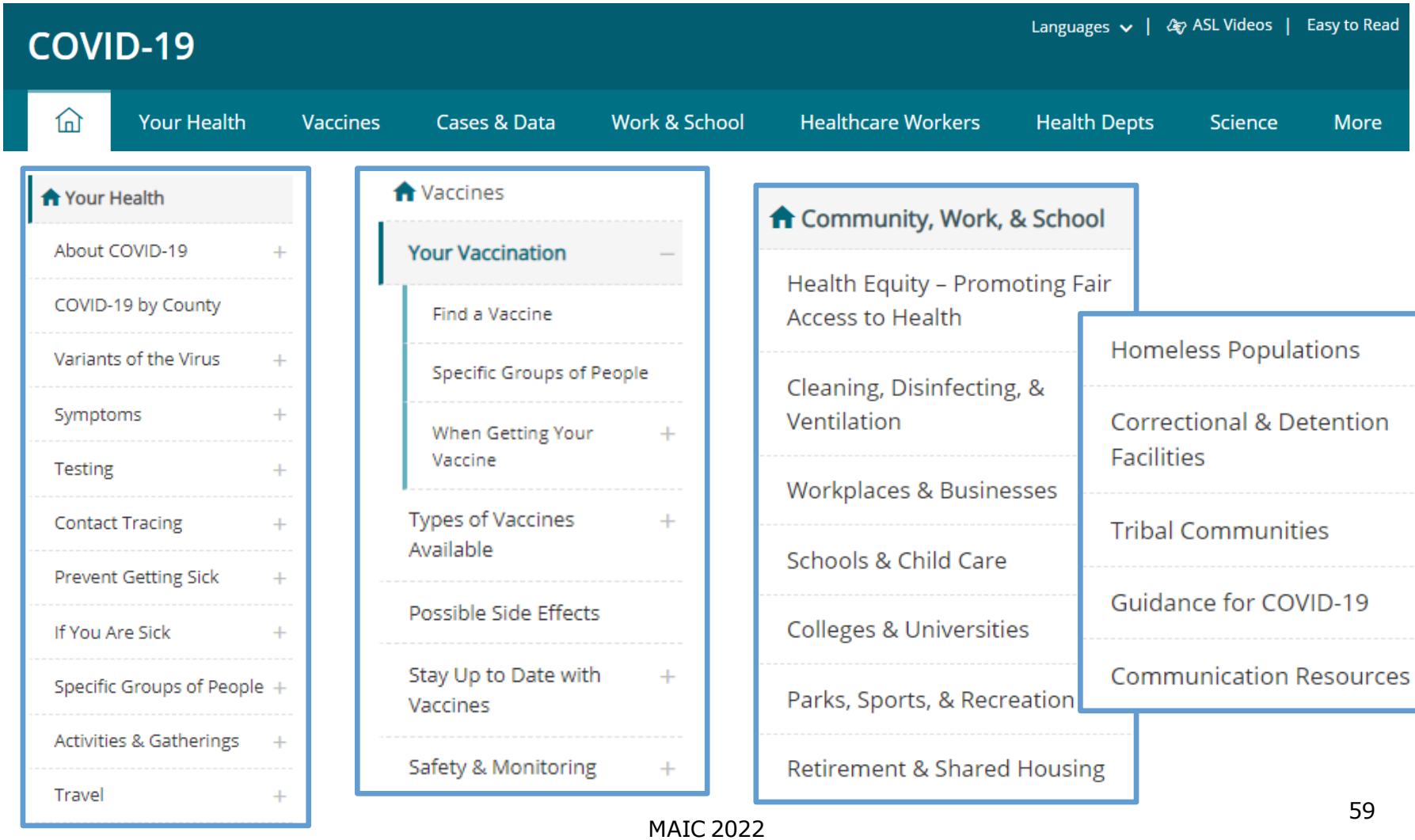
CDC COVID-19 Gateway Page Takes You To…..



https://www.cdc.gov/coronavirus/2019-ncov/index.html

Resources

https://immunize.org/

Some Favorite Immunize.org Resources

- IAC Express (subscribe) https://immunize.org/subscribe/
- Ask the Experts https://immunize.org/askexperts/
- Package Inserts https://www.immunize.org/fda/
- Vaccine Terms in Other Languages https://www.immunize.org/catg.d/p5122.pdf
- Hepatitis A and Hepatitis B Vaccines: Be Sure Your Patients Get the Correct Dose https://immunize.org/catg.d/p2081.pdf
- Vaccines with Diluents: How to Use Them https://www.immunize.org/catg.d/p3040.pdf
- Guide to Contraindications and Precautions to Commonly Used Vaccines https://immunize.org/catg.d/p3072a.pdf
- Don't Be Guilty of These Preventable Errors in Vaccine Administration https://www.immunize.org/catg.d/p3033.pdf
- Administering Vaccines (multiple info sheets) https://www.immunize.org/handouts/administering-vaccines.asp

https://immunize.org/

Education Resources

Immunization Education and Training Home Page
https://www.cdc.gov/vaccines/ed/index.html

- You Call the Shots (web-based training course)
  https://www.cdc.gov/vaccines/ed/youcalltheshots.html
- Current Issues in Immunization Webinar (CIIW)
  https://www.cdc.gov/vaccines/ed/ciiw/index.html
- Immunization Courses: Webcasts and Self Study
  https://www.cdc.gov/vaccines/ed/courses.html
- Pink Book Series
  https://www.cdc.gov/vaccines/ed/webinar-epv/index.html

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

COCA Calls/Webinars
https://emergency.cdc.gov/coca/calls/index.asp

CDC Vaccine Administration webpage
https://www.cdc.gov/vaccines/hcp/admin/admin-protocols.html

NFID Webinars
https://www.nfid.org/about-nfid/continuing-medical-education/webinars/

CDC Recommended and Minimum Ages and Intervals Between Vaccine Doses
https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html#antibody

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

Immunize.org
https://www.immunize.org/

MDPH Immunization events/webinars
https://www.mass.gov/service-details/immunization-division-events

MCAAP Immunization Initiative Webinars
http://mcaap.org/immunization-cme/

CHOP Vaccine Education Center
https://www.chop.edu/centers-programs/vaccine-education-center

ACIP Recommendations gateway page
https://www.cdc.gov/vaccines/hcp/acip-recs/index.html

https://www.immunize.org/acip/

COVID-19 Vaccine Training and Education Resources for Providers

The Immunization Division at MDPH has put together a resource page to help providers navigate the vast amount of available COVID-19 information online

https://www.mass.gov/info-details/covid-19-vaccine-training-and-education-resources-for-providers

CDC, in partnership with the U.S. Department of Veterans Affairs, offers an Interactive COVID-19 Vaccine Conversations Module for Healthcare Professionals to aid healthcare personnel in effective COVID-19 vaccine conversations with patients. The module includes:

- Tips for Having Effective Vaccine Conversations with Patients
- Five COVID-19 Vaccine Conversations in Practice: Case Scenarios

Storage and Handling Resources

- MDPH Guidelines for Compliance with Federal and State Vaccine Administration Requirements: https://www.mass.gov/doc/guidelines-for-compliance-with-federal-vaccine-administration-requirements/download

- CDC Storage and Handling Toolkit (with COVID-19 addendum): https://www.cdc.gov/vaccines/hcp/admin/storage/toolkit/index.html

- USP COVID-19 Vaccine Toolkit: Operational Considerations for Healthcare Practitioners: https://www.usp.org/covid-19/vaccine-handling-toolkit

MDPH Immunization Division Contact Information

Immunization Division Main Number

For questions about immunization recommendations, disease reporting, etc.

Phone: 617-983-6800 (24/7 MDPH Epi line)

Fax: 617-983-6840

Website: https://www.mass.gov/topics/immunization

MIIS Help Desk

Phone: 617-983-4335

Fax: 857-323-8321

Email questions to: miishelpdesk@mass.gov

Website: https://www.mass.gov/service-details/massachusetts-immunization-information-system-miis

MDPH Vaccine Unit

Phone: 617-983-6828

Email questions to: dph-vaccine-management@mass.gov

Website: https://www.mass.gov/service-details/vaccine-management

COVID email box:

COVID-19-Vaccine-Plan-MA@mass.gov

- Who can vaccinate
- Who can get vaccine
- Vaccine prioritization
- Where to get vaccinated
- How 'x' group will get vaccinated

MDPH Regional Immunization Nurses

Laurie Courtney
Nurse Manager
617-983-6811
Laurie.a.courtney@mass.gov

Phyllis Schilp
Metro Boston/MetroWest
617-983-6838 / 781-223-2336
phyllis.schilp@mass.gov

Denise Dillon
Northeast
978-851-7261 x4038 / 781-292-0668
denise.dillon@mass.gov

Theodora Wohler
Southeast
617-983-6837 / 781-675-0205
theodora.wohler@mass.gov

Linda Jacobs
Southeast
508-441-3980
linda.jacobs@mass.gov

Sharon Leary
Western/Central
617-620-6152
sharon.leary@mass.gov

THANK YOU!