Immunization Update 2022

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Disclosures

Sara Couture, PharmD, has no disclosures to declare.

Eric Payeur, PharmD, has no disclosures to declare.

Learning Objectives

Identify and apply important recent changes to the immunization schedules and/or recommendations for adults and children in the United States.

Discuss the epidemiology of outbreaks of vaccine-preventable diseases in the United States.

Review and discuss vaccine resources, best practices for storage and handling, and error prevention techniques.

Influenza

Influenza Disease Burden

Influenza is the 2nd most frequent cause of death from a vaccine-preventable disease in the U.S. after COVID-19

Rates of infection are highest among children

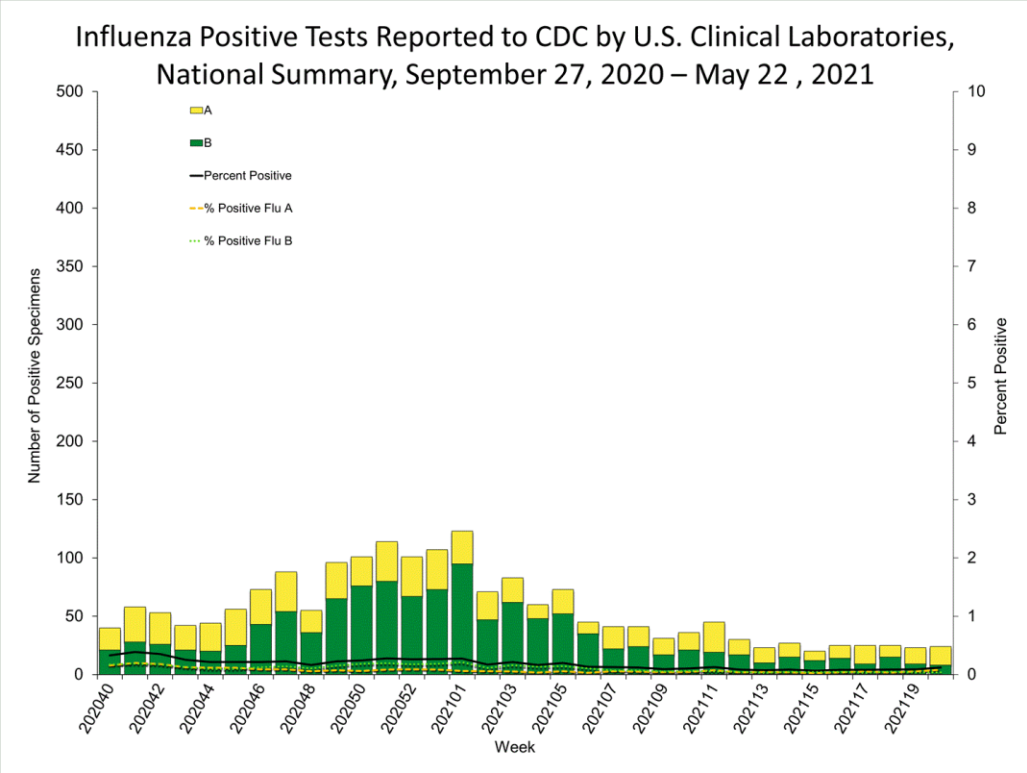
Risks for complications, hospitalizations, and deaths are higher among:

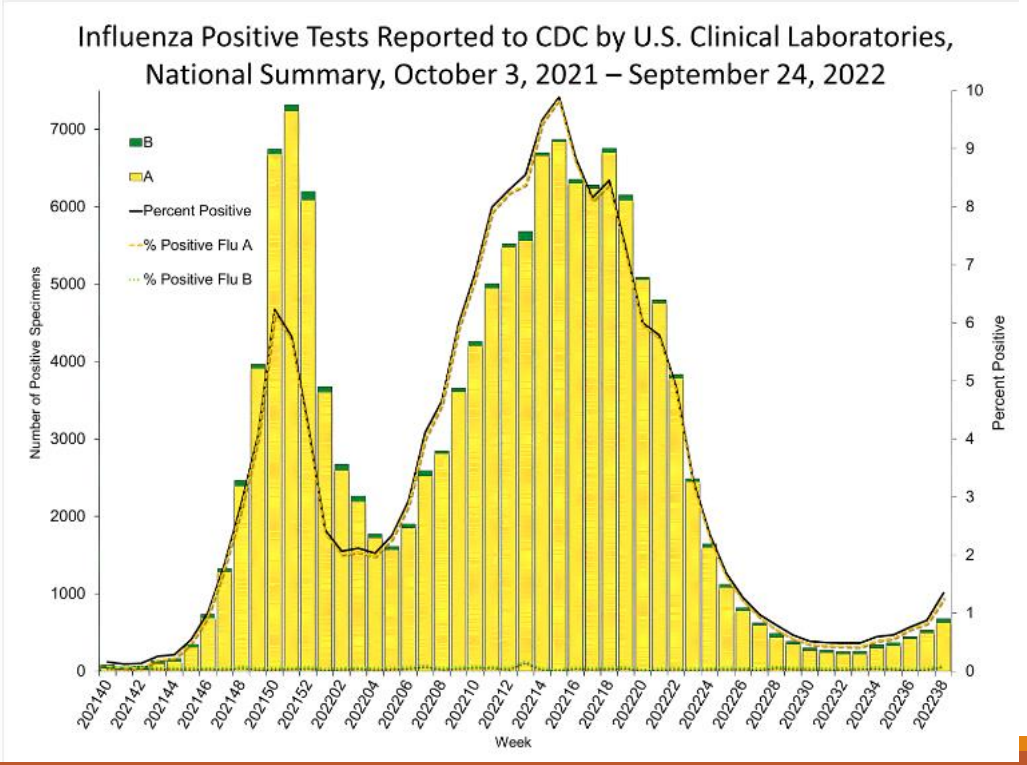
- Adults aged 65 years and older
- Children younger than 5 years
- Pregnant individuals
- People with medical conditions that place them at increased risk for complications.

Influenza Activity

Severity of 2021-22 season was low with activity from October 2021 through mid-June 2022

Flu cases remain down when compared to pre-COVID but are increasing





https://www.cdc.gov/flu/weekly/

Influenza – 2022-23 Vaccine Composition

The 2022–23 vaccines include new influenza A (H3N2) and influenza B/Victoria lineage virus vaccine antigens.

U.S. egg-based influenza vaccines (Fluad, Fluzone, Fluarix, Flulaval)

- A/Victoria/2570/2019 (H1N1)pdm09-like virus
- A/Darwin/9/2021 (H3N2)-like virus
- B/Austria/1359417/2021-like virus (B/Victoria lineage)
- B/Phuket/3073/2013 (B/Yamagata lineage)-like virus (for quadrivalent vaccines)

U.S. cell- or recombinant vaccines (Flucelvax, Flublok):

- A/Wisconsin/588/2019 (H1N1)pdm09-like virus
- A/Darwin/6/2021 (H3N2)-like virus
- B/Austria/1359417/2021-like virus (B/Victoria lineage)
- B/Phuket/3073/2013-like (B/Yamagata)-like virus (for quadrivalent vaccines)

https://www.cdc.gov/mmwr/volumes/71/wr/mm7129a1.htm

Influenza – CDC 2022-23 Recommendations

Annual flu vaccination continues to be recommended for everyone age 6 months and older.

- Children age 6 months through 8 years should receive a 2nd dose 4 weeks or more after the 1st dose if they are receiving flu vaccine for the first time

All available influenza vaccines in the United States continue to be quadrivalent

Flucelvax Quadrivalent (ccIIV4, Seqirus) is now FDA-approved for children ages 6 months and older.

Influenza – CDC 2022-23 Recommendations

ACIP recommends adults aged ≥65 years **preferentially** receive one of the following flu vaccines:

Quad high-dose inactivated (HD-IIV4)	Quad recombinant (RIV4)	Quad adjuvanted inactivated (aIIV4)
Fluzone HD	**Flublok**	**Fluad**

If none of these 3 vaccines are available, then any other age-appropriate flu vaccine should be used.

https://www.cdc.gov/flu/season/faq-flu-season-2022-2023.htm

Influenza – Vaccine Timing

Avoid flu vaccination of most adults in July and August unless there is a concern that later vaccination may not be possible.

Vaccination in July and August may be considered for people in their 3rd trimester of pregnancy.

Children who need one or two doses can get vaccinated in July and August.

Vaccination of everyone age 6 months and older should continue as long as flu viruses are circulating, and unexpired vaccine is available.

https://www.cdc.gov/flu/season/faq-flu-season-2022-2023.htm

Influenza Vaccination & Egg Allergy

History of egg allergy with only hives post egg exposure should receive flu vaccine without specific precautions. Any age-appropriate vaccine may be used.

People with reactions to eggs involving symptoms other than hives (e.g., angioedema or swelling, respiratory distress, lightheadedness, or recurrent vomiting) or who required epinephrine or other emergency medical attention can also receive any age-appropriate influenza vaccine.

- If a vaccine other than Flucelvax Quad (ccIIV, Seqirus) or Flublok Quad (RIV4, Sanofi) is given, the vaccine should be administered in an inpatient or outpatient medical setting

Previous severe allergic reaction to influenza vaccine is a contraindication to future receipt of the vaccine.

www.cdc.gov/mmwr/volumes/69/rr/pdfs/rr6908a1-H.pdf
"Influenza Vaccination of People with a History of Egg Allergy" www.immunize.org/catg.d/p3094.pdf

Assessment Question

Current influenza recommendations include which one of the following?

a. There is a preferential recommendation that individuals 65 and older should receive a high dose or adjuvanted influenza vaccine.

b. Influenza vaccines should be administered at least 14 days after a COVID vaccine

c. Due to declining influenza cases, receiving an influenza vaccine is now only recommended for those considered high-risk.

d. Receiving an influenza vaccine as early as possible will always provide the best protection.

Pneumococcal

Pneumococcal

Streptococcus pneumoniae causes acute bacterial infections

There have been over 100 serotypes of *S. pneumoniae* identified

Estimated that the 10 most common serotypes account for around 62% of the world's invasive disease

Clinical spectrum of infections

- Invasive disease (i.e., infection of normally sterile sites including osteomyelitis, bacteremia without focus of infection, pneumonia with bacteremia, septic arthritis, and meningitis)
- Non-invasive infections (i.e., pneumonia without bacteremia, otitis media, and sinusitis)
- Pneumococci cause more than 50% of all cases of bacterial meningitis in the U.S.
- Most common bacterial cause of childhood pneumonia
- Accounts for 10% to 30% of adult community-acquired pneumonia.

Pneumococcal Risk Factors

Although anyone can get pneumococcal disease, certain populations are at an increased risk.

Risk factors in children:

- Younger than 2 years old
- Chronic heart, lung, or kidney disease
- Cerebrospinal fluid (CSF) leak
- Cochlear implant Diabetes
- HIV infection, cancer, solid organ transplant, or another condition or taking medicine that weakens the immune system
- Nephrotic syndrome
- Sickle cell disease, a damaged spleen, or no spleen

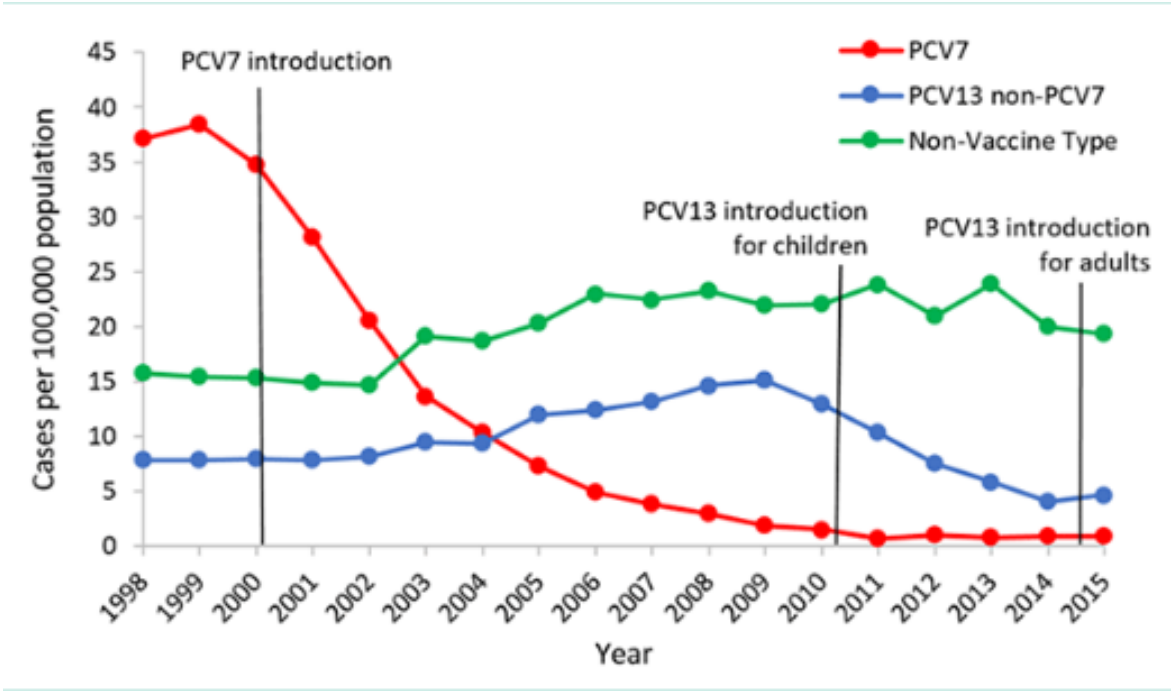
Risk factors in adults:

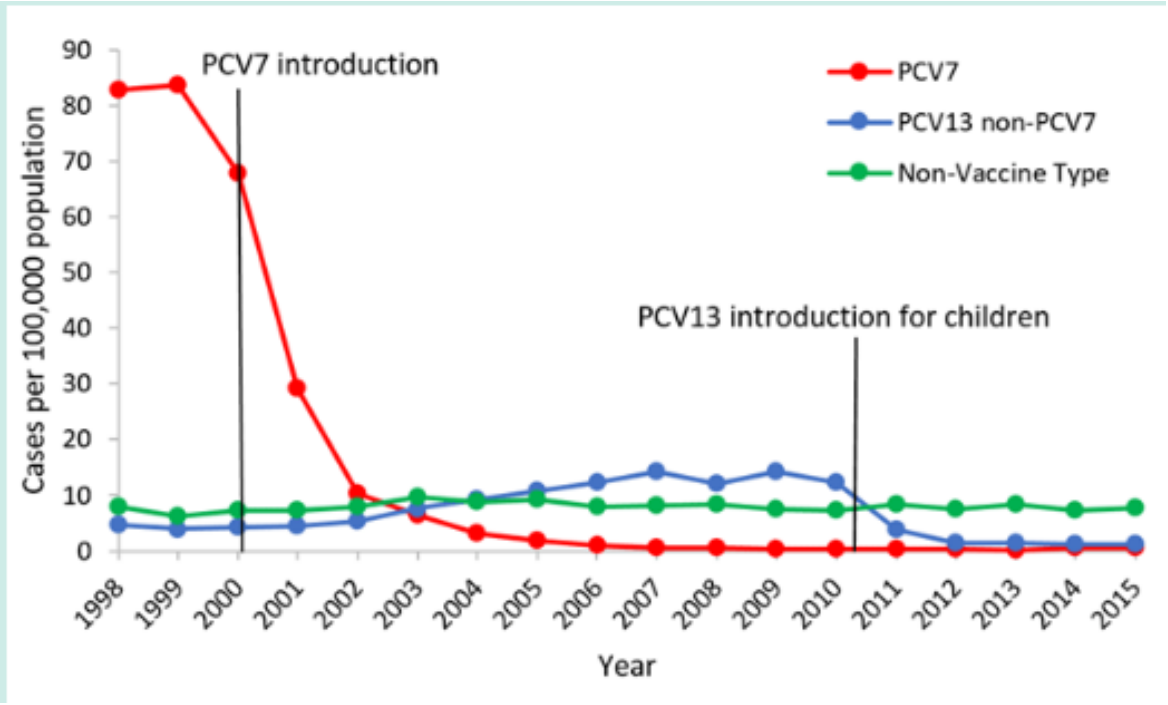
- Aged 65 years or older
- Alcoholism
- Chronic heart, lung, kidney, or liver disease
- Cochlear implant
- CSF leak
- Diabetes
- HIV infection, cancer, solid organ transplant, or another condition or taking medicine that weakens the immune system
- Nephrotic syndrome
- Sickle cell disease, a damaged spleen, or no spleen
- Smoke cigarettes

https://www.cdc.gov/pneumococcal/about/risk-transmission.html

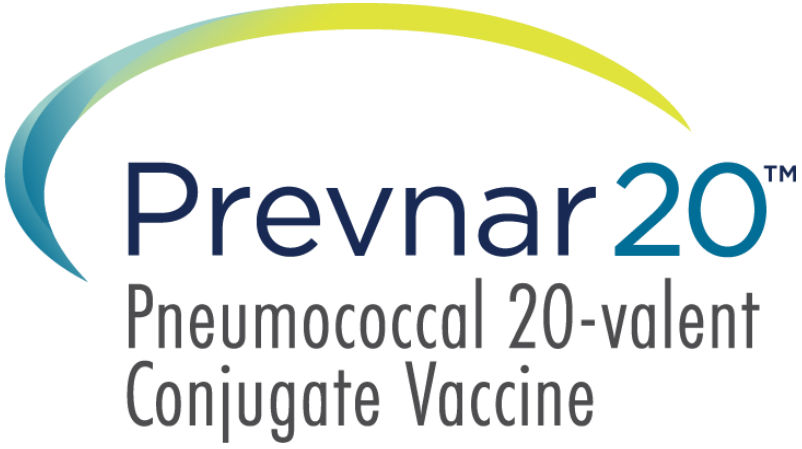
Trends in Pneumococcal Invasive Disease

Rates of invasive pneumococcal disease among children <5 years of age (left) and U.S. adults >65 years of age (right) 1998 – 2015

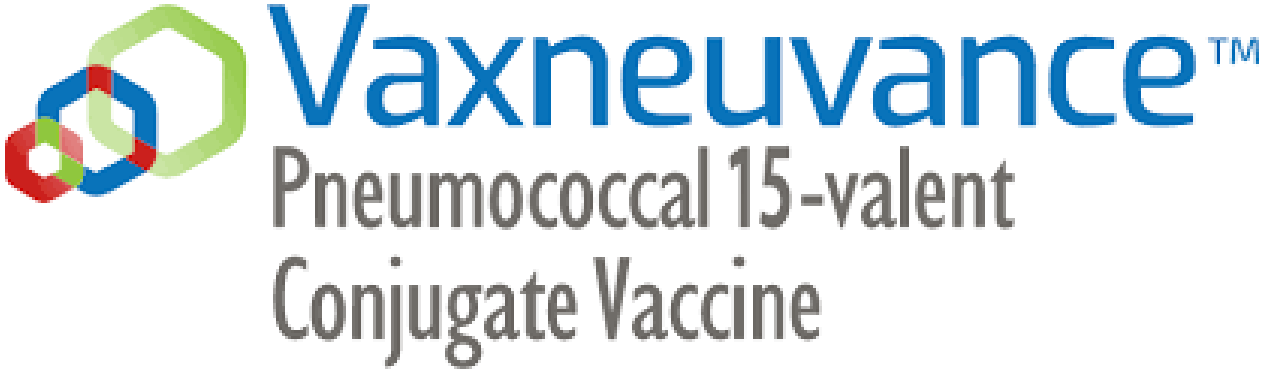




Pneumococcal – New Vaccines



FDA approved June 8, 2021



FDA approved July 16, 2021

Pneumococcal Vaccine Recommendations - Adults

Adults 19 through 64 years old with certain chronic medical conditions or other risk factors and Adults 65 years or older

For those who have not previously received any pneumococcal vaccine:

- Give 1 dose of PCV15 or PCV20.
- If PCV15 is used, this should be followed by a dose of PPSV23 at least one year later. The minimum interval is 8 weeks and can be considered in adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak.
- If PCV20 is used, a dose of PPSV23 is NOT indicated.

For those who have only received PPSV23:

- May give 1 dose of PCV15 or PCV20 at least one year after PPSV23
- Additional dose of PPSV23 is not recommended since they already received it.

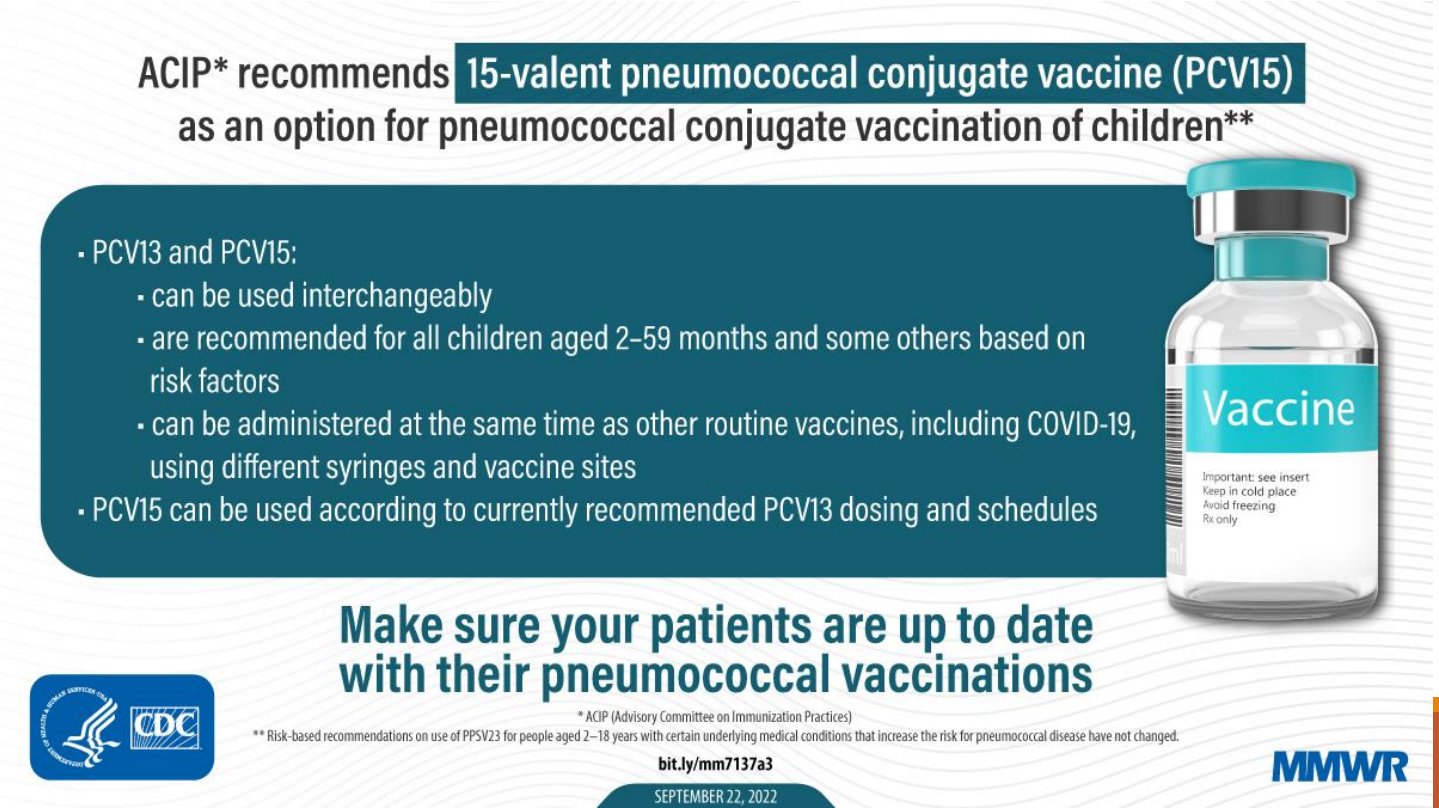
For those who have received PCV13 with or without PPSV23:

- Give PPSV23 as previously recommended
- The incremental public health benefits of providing PCV15 or PCV20 to adults who have received PCV13 only or both PCV13 and PPSV23 have not been evaluated.

Pneumococcal Vaccine Recommendations - Children

CDC recommends routine administration of pneumococcal conjugate vaccine for all children younger than 2 years of age:

- PCV13 or PCV15 as a series of 4 doses at age 2 months, 4 months, 6 months, and 12 through 15 months.



Assessment Question

What type of pneumococcal vaccine is indicated for a 26-year-old type I diabetic male who has never received pneumococcal vaccine?

a. PCV13

b. PPSV23

c. Either PCV15 followed by PPSV23 at least one year later, or PCV20

d. No pneumococcal vaccine is recommended

Assessment Question

What type of pneumococcal vaccine is indicated for a 19-year-old female who works in a childcare center?

a. PCV13

b. PPSV23

c. Either PCV 15 or PCV20

d. No pneumococcal vaccine is recommended

Assessment Question

What type of pneumococcal vaccine is indicated for a 59 year old diabetic male who has previously received PCV13?

a. PCV13

b. PPSV23

c. Either PCV15 or PCV20

d. No pneumococcal vaccine is recommended

Hepatitis B

Hepatitis B

HBV is transmitted through percutaneous (through the skin), mucosal, or non-intact skin exposure to infectious blood or body fluids.

Among adults in the U.S., HBV is transmitted primarily by percutaneous exposure to blood (for example, injection drug use) and sexual contact.

HBV remains infectious for at least 7 days on environmental surfaces and is transmissible in the absence of visible blood.

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

Hepatitis B – Clinical Features

Often asymptomatic

Signs/symptoms when present - nausea, lack of appetite, tiredness, muscle, joint, or abdominal pain, fever, diarrhea or vomiting, headache, dark urine, clay-colored stools, and jaundice

If signs or symptoms of illness occur, they begin an average of 90 days after exposure to HBV

Proportion of persons with acute HBV that progress to chronic HBV

- As many as 90% of infants
- 30% to 50% of children between age 1 and 5 years
- 5% of adults

Chronic infection responsible for most HBV-related morbidity and mortality

25% of persons infected as children and 15% of persons infected as adults will die prematurely

Persons with either acute or chronic HBV infection should be considered infectious any time that HBsAg is present in the blood

HBsAg can be found in blood and body fluids for 1 to 2 months before and after the onset of symptoms

Hepatitis B Vaccine Recommendations

ACIP recommends that the following people SHOULD receive hepatitis B vaccination:

- All infants
- Unvaccinated children aged <19 years
- Adults aged 19 through 59 years
- Adults aged 60 years and older with risk factors for hepatitis B

ACIP recommends that the following group MAY receive hepatitis B vaccination

- Adults aged 60 years and older without known risk factors for hepatitis B

Risk Factors

- Infection by sexual exposure (sex partners of people who tested positive, multiple sex partners, etc.)
- Infection by percutaneous or mucosal exposure to blood (current/recent IV use, health care personnel, etc.)
- International travel to areas of high prevalence
- Chronic liver disease/Hepatitis C infection
- HIV infection
- People who are incarcerated

https://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#vaccFAQ

Hepatitis B Vaccines

FDA approved from birth and up	FDA approved for 18 years and older
Engerix -B	Heplisav-B
Recombivax HB	PreHevbrio

Vaccine Schedule

- Most common for children and adults: 3 IM injections at 0, 1 and 6 months
- Alternate schedules have been approved for certain vaccines and/or populations
- Heplisav-B (FDA approved for those 18 years of age and older) 2 dose series at 0 and 1 month

The same manufacturer's vaccines should be used to complete the series. However, vaccination should not be deferred when the manufacturer of the previously administered vaccine is unknown or when the vaccine from the same manufacturer is unavailable.

Heplisav-B can be used as a substitute in a 3-dose series with a different hepatitis B vaccine, but a valid 2-dose series requires 2 doses of Heplisav-B with ≥4 weeks between doses.

https://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#vaccFAQ

Assessment Question

Which hepatitis B vaccine may be administered to adults 18 years of age or older as a 2-dose series?

a. Recombivax HB

b. Engerix-B

c. Heplisav-B

d. Havrix

Herpes Zoster

Varicella-Zoster Virus (VZV)

Primary infection = varicella (chickenpox)

Reactivation of latent infection = herpes zoster (or shingles)

VZV persists in the body as a latent infection after the primary infection in sensory nerve ganglia

The immunologic mechanism that controls latency of VZV is not well understood.

Factors associated with increased risk of developing herpes zoster disease:

- Aging (waning immunity)
- Immunosuppression
- Intrauterine exposure to VZV
- Having had varicella at younger than age 18 months

In the U.S., about 1 in 3 people will develop zoster in their lifetime

Approximately 50% of persons who live to age 85 years will have experienced zoster

Herpes Zoster – Clinical Features

Zoster rash generally occurs unilaterally in the distribution of a sensory nerve and does not cross the mid-line

Occurs most often in the trunk or face

Two to four days prior to the eruption, there may be pain and paresthesia in the involved area

Zoster rash are initially red macules and papules but progresses to form clusters of vesicular lesions before crusting over

The rash lasts for 7 – 10 days with healing in 2 – 4 weeks

In healthy persons there are few systemic symptoms. In immunocompromised persons, zoster may disseminate, causing generalized skin lesions and central nervous system, pulmonary, and hepatic involvement.

Herpes Zoster - Complications

Postherpetic neuralgia (PHN) is the most common complication

- Pain that persists in the area of the initial rash occurrence after the lesions have resolved
- Treatment is complex, with varying degrees of success in controlling the chronic pain
- Can last for weeks or months and occasionally may last a year or longer after the resolution of the rash.

Other complications include ophthalmic involvement, bacterial superinfection, cranial and peripheral nerve palsies, and visceral involvement, all of which often result in severe sequelae.

Herpes Zoster – Vaccine

Shingrix

- 2-dose series at 0, 2–6 months in persons age 50 years or older, and for adults 19 years and older who are or will be immunocompromised due to disease or therapy

No need to screen for a history of varicella (chickenpox) if history is unknown

Phase III multicenter clinical trial efficacy:

- 96.6% for participants age 50 through 59 years
- 97.4% for participants age 60 through 69 years
- 91.3% for participants age 70 years or older

Zostavax

- No longer available for use in the U.S as of late 2020
- Effectiveness of Zostavax wanes substantially over time
  - Efficacy among adults aged 70 to 79 years and adults aged 80 years and older is 41% and 18%, respectively, on average during the first 3 years following Zostavax vaccination.

https://www.cdc.gov/vaccines/pubs/pinkbook/herpes-zoster.html#pathogenesis

Human Papillomavirus

Human Papillomavirus (HPV) Infection Rates

Genital HPV is the most common STI in the U.S.

Common among adolescents and young adults

Estimated 79 million people in the U.S. are currently infected with HPV

14 million new infections/year and about 50% of these new infections occur in people over the age of 25

- About 50% are caused by HPV infections acquired after 20 years of age
- About 25% are caused by HPV infections acquired after 30 years of age

HPV Recommendations

HPV vaccine is recommended for routine vaccination at age 11 or 12 years. (Vaccination can be started at age 9.)

ACIP also recommends vaccination for everyone through age 26 if not adequately vaccinated when younger.

Vaccination is not recommended for everyone older than age 26 years.

- Some adults ages 27 through 45 years might decide to get the HPV vaccine based on discussion with their clinician.

https://www.cdc.gov/vaccines/vpd/hpv/hcp/recommendations.html

HPV Vaccine and Schedule

- Since late 2016, only Gardasil-9 (9vHPV) is distributed in the United States.
- Gardasil-9 protects against nine HPV types
  - 6, 11, 16, 18, 31, 33, 45, 52, and 58

Age 9-14	Age 15-26 Age 9-26 Immunocompromised	Age 27-45
• 2 Dose HPV Vaccine* • 0 and 6-12 months *3rd dose required if 2nd dose given at 5 months or sooner	• 3 dose HPV Vaccine • 0, 1-2, and 6 months	ACIP recommends shared clinical decision-making

Vaccine Efficacy Against HPV-related Cancers and Diseases in Women Aged 27 to 45 Years of Age

- 87.7% efficacy in preventing persistent infection (95% CI: 75.4%, 94.6%)
- 95.0% efficacy in preventing cervical dysplasia or genital warts (95% CI: 68.7%, 99.9%)

https://www.cdc.gov/vaccines/vpd/hpv/hcp/recommendations.html

COVID-19

COVID-19 Presentation

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus.

Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment.

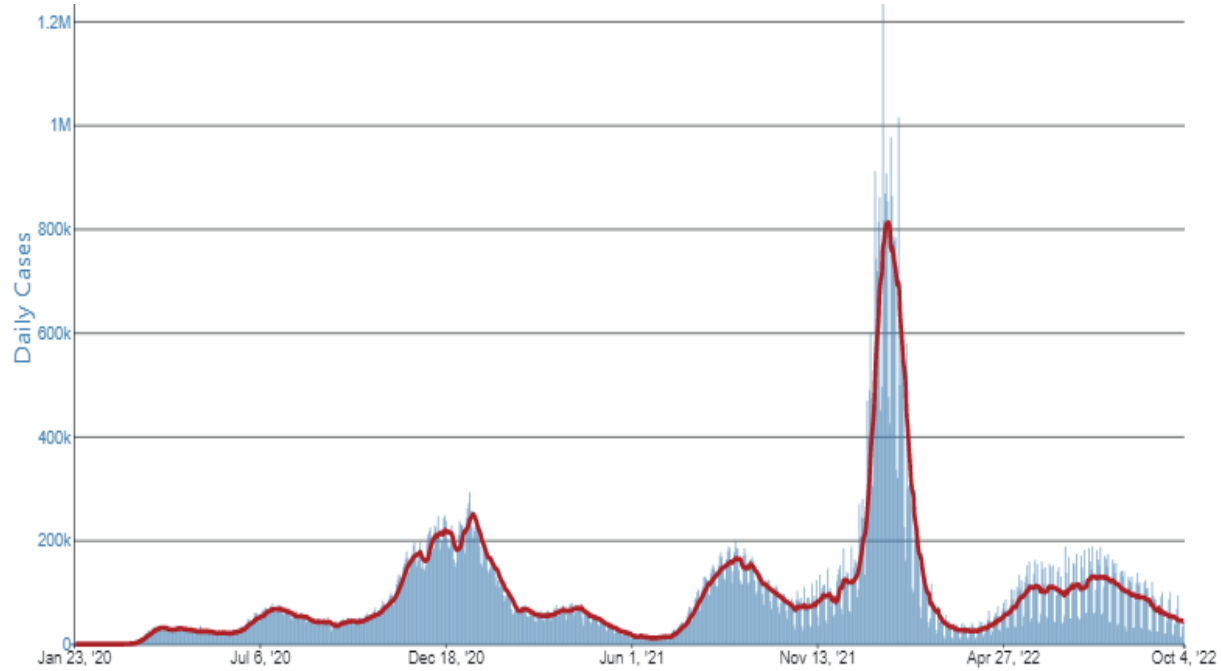
The elderly and those with underlying medical conditions (cardiovascular disease, diabetes, chronic respiratory disease, or cancer) are more likely to develop serious illness.

Anyone can get sick with COVID-19 and become seriously ill or die at any age.

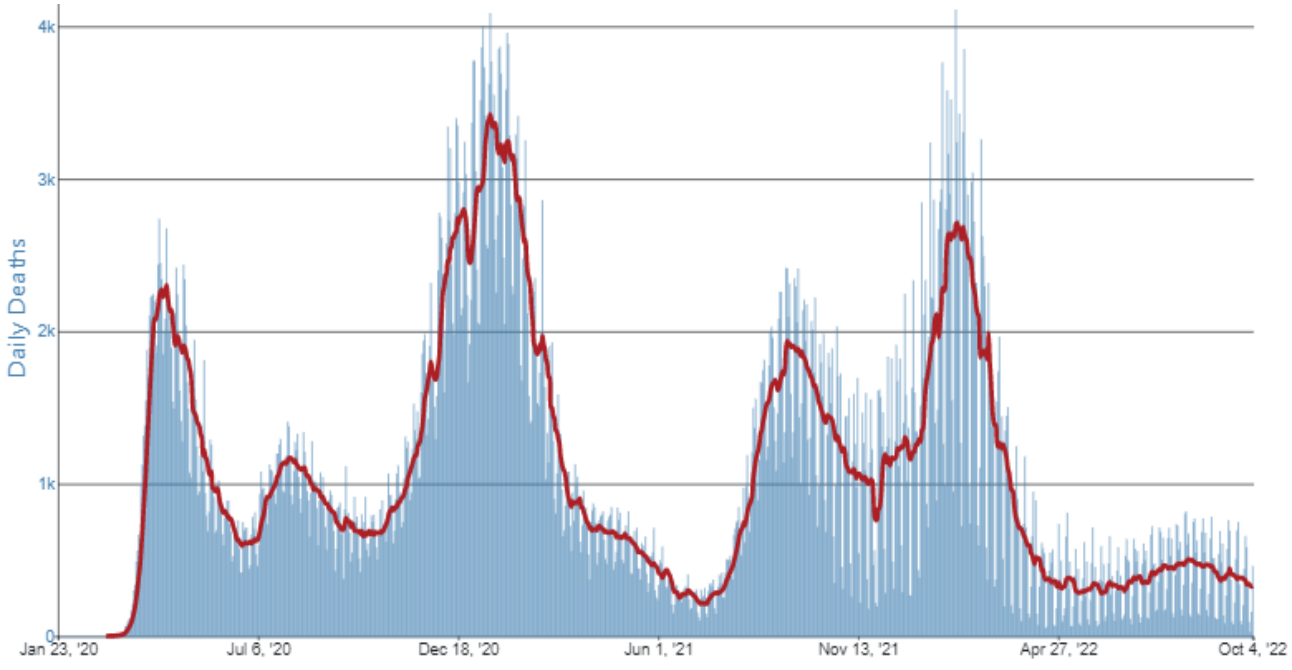
COVID-19 Burden

Total Cases: 96,301,553 (10/04/2022)
Total Deaths: 1,055,293 (10/04/2022)

Daily COVID-19 Cases in the U.S. Reported to CDC



Daily COVID-19 Deaths in the U.S. Reported to CDC



https://covid.cdc.gov/covid-data-tracker/#datatracker-home

COVID-19 Vaccine Types

mRNA vaccines utilize mRNA created in a laboratory to teach our cells how to make a protein—or even just a piece of a protein—that triggers an immune response inside our bodies.

Protein subunit vaccines contain pieces (spike proteins) of the virus that causes COVID-19.

Viral vector vaccines use a harmless, modified version of a different virus (a vector virus), and not the virus that causes COVID-19. The vector virus delivers instructions to our cells on how to recognize and fight the virus that causes COVID-19.

COVID-19 Vaccines

There are four approved or authorized vaccines in the United States.

mRNA Vaccines

- Pfizer-BioNTech (Comirnaty)
- Moderna (Spikevax)

Viral Vector Vaccine

- Johnson & Johnson's Janssen (J&J/Janssen)

Protein Subunit Vaccine

- Novavax

https://www.cdc.gov/coronavirus/2019-ncov/vaccines/stay-up-to-date.html

Bivalent COVID-19 Vaccine

Bivalent vaccine ("updated vaccine"): products are based on the original (ancestral) strain of SARS-CoV-2 and the Omicron BA.4 and BA.5 (BA.4/BA.5) variants of SARS-CoV-2.

Current Bivalent Products

- Pfizer: Bivalent
  - 12 years and older
  - FDA authorization granted for ages 5-11 years on 10/12/22
- Moderna: Bivalent
  - 18 years and older
  - FDA authorization granted for ages 6-17 years on 10/12/22

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

Updated COVID-19 Booster CDC Recommendations

People ages 5 years and older are recommended to receive 1 age-appropriate bivalent mRNA booster dose at least 2 months after completion of any FDA-approved or FDA-authorized monovalent primary series or previously received monovalent booster dose(s).

- **This new booster recommendation replaces all prior booster recommendations for this age group.**
- Monovalent mRNA vaccines are no longer authorized as a booster dose for people ages 5 years and older.

Both Moderna and Pfizer COVID-19 vaccines continue to be authorized for primary series administration in individuals six months of age and older.

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

Assessment Question

Which of the below vaccines is the first COVID-19 protein subunit vaccine that the CDC has recommended for use in the United States.

a. Vaxneuvance
b. Spikevax
c. Priorix
d. Novavax

Assessment Question

Who is recommended to receive a COVID-19 bivalent booster dose?

a. 14-year-old who previously received Pfizer-BioNTech COVID-19 primary series and monovalent booster 3 months ago

b. 4-year-old who completed the Pfizer-BioNTech COVID-19 primary series 3 months ago

c. 36-year-old who previously received a Moderna primary series and Moderna monovalent booster 1 month ago

d. 10-year-old who received his first dose of Moderna primary series 2 weeks ago

Patient Engagement Strategies

Patient Engagement Strategies at Retail

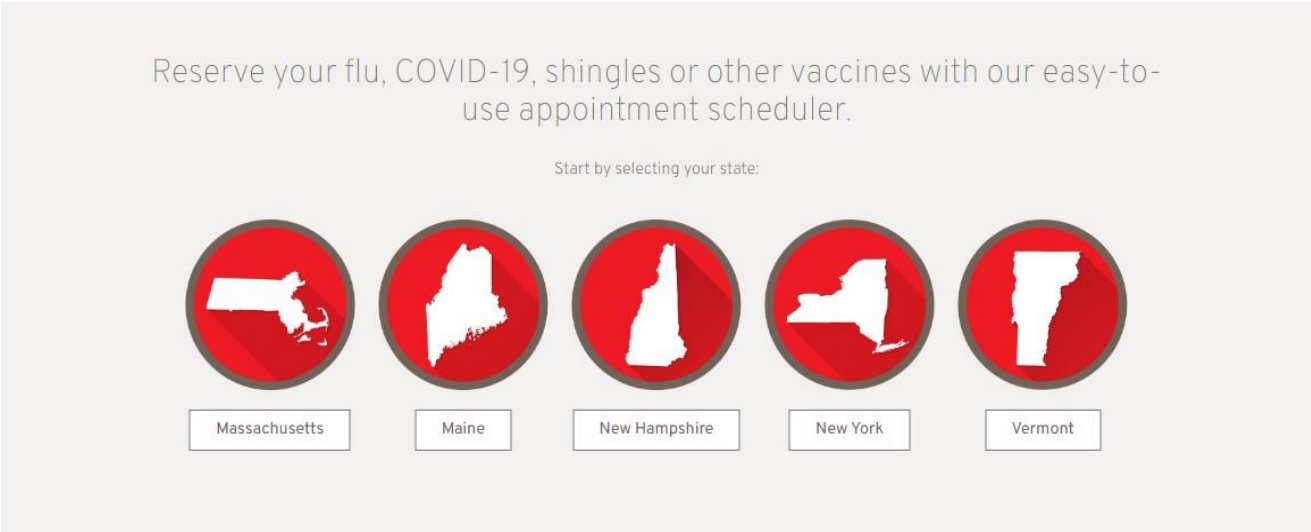
A strong pharmacist recommendation to receive an immunization has been shown to be an effective strategy to engage patients.

- “It appears you are overdue for your < vaccine name > vaccine. Would you like to receive it today while you wait for your prescription?”
- “While you are receiving your yearly flu vaccine today, you can also receive any other vaccinations you may be due for. Have you received < vaccine name >?”
- “You are due for the following vaccines today: < vaccine names >.”
- “< Vaccine name > is important because it prevents < preventable disease >. That’s why I am recommending that you receive this vaccine today.”
- During a pharmacist counseling session on a diabetic medication such as insulin. “The hepatitis B vaccine is recommended for individuals with diabetes. Have you received the hepatitis B vaccine?

Patient Engagement - Technology

Providers can leverage technology to keep patients engaged and healthy

- Online appointments
- Appointment reminders via text/email
- Automated vaccine reservations
- Able to provide links to vaccine information



https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2794447

Pharmacy Technician Immunizers

Technician Involvement – PREP Act

PREP Act authorize pharmacists who are NOT otherwise authorized in their state to ORDER and administer all CDC's ACIP immunization schedule vaccines to patients age 3 to 18 and to ORDER and administer COVID-19 vaccine to all patients age 3 and older

Authorizes pharmacy interns and pharmacy technicians who are NOT otherwise authorized in their state to administer all CDC's ACIP immunization schedule vaccines to patients age 3 to 18 and to administer COVID-19 vaccine to all patients age 3 and older under the pharmacist ORDER

Pharmacists, interns and technicians who provide immunizations or any covered countermeasure under this authority are protected under the PREP Act liability immunity

The PREP Act is effective until the end of the emergency declaration or until October 1, 2024, whichever comes first

Technician Involvement

Technicians must be licensed or registered with the state in accordance with state requirements

- Technicians in states that do not require licensure or registration must be Nationally Certified

Must complete an approved ACPE practical training course

Must have a current certificate in basic CPR (training may be online if accredited)

Must complete 2 hours of ACPE approved immunization related CE during each relevant state licensing period

The technician must act under the supervision of an appropriately trained and qualified pharmacist who is readily and immediately available

Technician Immunizers Advantages

Frees up pharmacist to work on “pharmacist only” tasks

Involve them in workflow process of setting up immunizations

Use technicians as a double check to confirm vaccines are drawn up for the correct volume

Train technicians to help identify patients who are eligible for a vaccine

Improved department morale with balanced workload

More opportunity for technician career development and growth

Vaccine Error Prevention

Vaccine Error Prevention

Use checklists and charts – do not rely on memory

Do not rely on cap color or vial border color alone – read labels closely, consider using colored stickers or labels

To ensure the correct dose volume is drawn, consider setting up a process for someone to double check your work

Label syringes once dose is drawn up

Take vaccines to administration area for one patient at a time

Ensure refrigerator storage units are organized and vaccine is separated

Ask the patient open ended questions prior to administration to confirm the age, correct vaccine is being administered, etc.

Use barcode scanners whenever possible and don’t rely on manual entry of vaccine vial NDC

Vaccine Storage and Handling

Store each vaccine or diluent in its original packaging and in a separate container

Store product 2-3 inches from unit walls/ceiling/floor/door

Arrange vaccine and diluents in rows and allow space in between product to promote air circulation

If using a household-grade unit, avoid storing product in front of cooling vents, in drawers, on the refrigerator door

Store vaccine and diluents with similar packaging or names with pediatric and adult formulations on different selves

Review vaccine package inserts for vaccine specific details

SIRVA

Shoulder injury related to vaccine administration

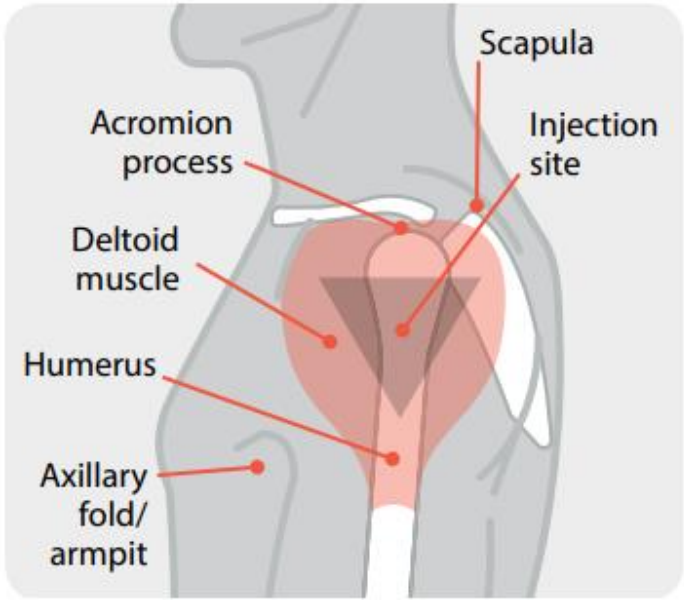
Caused by injury to the musculoskeletal structures of the shoulder (e.g., tendons, ligaments, bursae, etc.)

It manifests itself as shoulder pain and limited range of motion occurring after a patient receives a vaccine intended for IM administration.

These symptoms are thought to occur as a result of unintended injection of vaccine antigen or trauma from the needle going into and around the underlying bursa of the shoulder, resulting in an inflammatory reaction.

May result in patients having chronic shoulder pain and limited range of motion and require ongoing medical intervention

SIRVA Prevention



Use anatomic landmarks for identifying the deltoid muscle
Injection site

- Give in the central and thickest portion of the deltoid muscle
- Above the level of the armpit and approximately 2–3 fingerbreadths (~2") below the acromion process (high point of the shoulder).
- To avoid causing an injury, do not inject too high (near the acromion process) or too low.

Needle size 22–25 gauge, 1–1½" needle
Needle insertion

- Use a needle long enough to reach deep into the muscle.
- Insert the needle at a 90° angle to the skin with a quick thrust.
- Separate two injections given in the same deltoid muscle by a minimum of 1”

Pharmacist and patient should be seated. Don’t stand over the patient. Make sure you’re at the same level or the needle can go in at the wrong angle.
Don’t try to pull down or roll up a tight shirt, the patient’s arm should be relaxed and injection site fully exposed.

https://www.cdc.gov/vaccines/hcp/admin/downloads/IM-Injection-adult.pdf

Coadministration

If multiple vaccines are administered at a single visit, administer each injection in a different injection site. Best practices for multiple injections include:

- Prepare each injectable vaccine using a separate syringe.
- Label each syringe with the name and the dosage (amount) of the vaccine, lot number, the initials of the preparer, and the exact beyond-use time, if applicable.
- Separate injection sites by 1 inch or more, if possible.
- Administer vaccines that are known to be painful when injected (e.g., MMR, HPV) last. Because pain can increase with each injection, the order in which vaccines are injected matters. Injecting the most painful vaccine last when multiple injections are needed can decrease the pain associated with the injections.
- Administer vaccines that may be more likely to cause a local reaction (e.g., tetanus-toxoid-containing and PCV13) in different limbs, if possible.

Assessment Question

Which of the following is true regarding the best process to take to prevent SIRVA?

a. Patient and immunizer should be standing during the administration of the vaccine.

b. Using anatomical landmarks, administer the vaccine about 2 inches below the acromion process.

c. Always use a 22 – 25 gauge needle that is 1 inch in length.

d. When presented with a patient with low muscle mass, it's best to administer the vaccine as close to the acromion process as possible.

Vaccine Resources

CDC Vaccine Schedules Mobile App

This free tool provides the most current version of:

- Child and adolescent schedule with immunization recommendations from birth through age 18
- Catch-up schedule for children and adolescents 4 months through 18 years
- Adult schedule, including recommended vaccines for adults by age group and by medical conditions
- Adult Contraindications and precautions table

Features of the app:

- Color coding coordinates with printed schedules
- Hyperlinked vaccine name opens as a pop-up with dose specifics
- Catch-up schedule for children and adolescents
- Related vaccine resources and websites are included
- Any changes in the schedules will be released through app updates

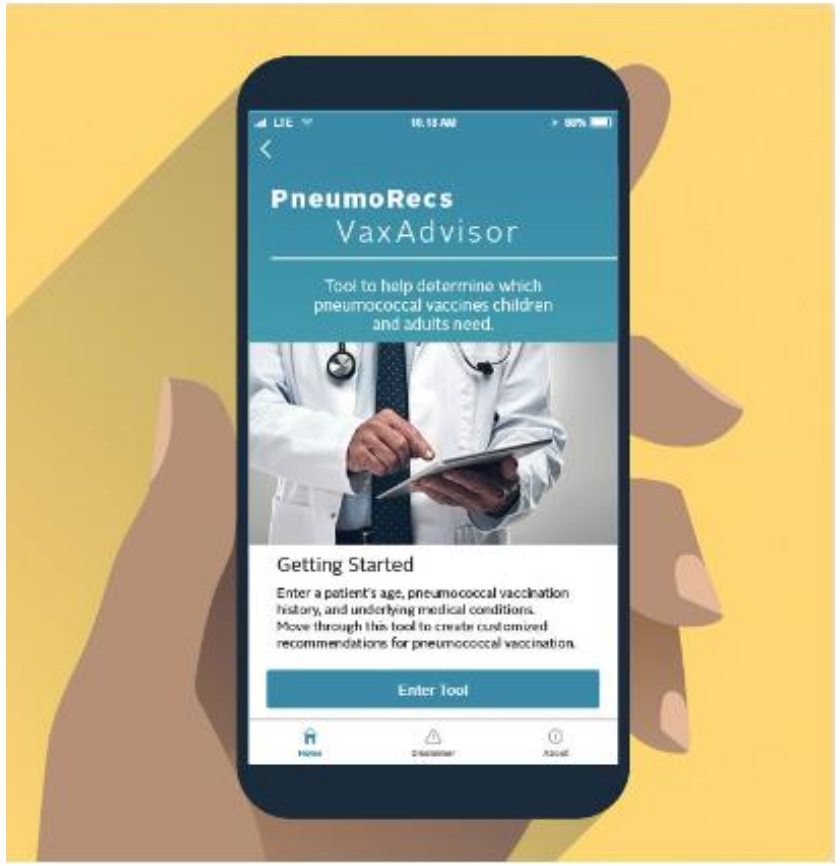
PneumoRecs VaxAdvisor Mobile App

The *PneumoRecs VaxAdvisor* mobile app helps vaccination providers quickly and easily determine which pneumococcal vaccines a patient needs and when.

Users simply:

- Enter a patient's age.
- Note if the patient has specific underlying medical conditions.
- Answer questions about the patient's pneumococcal vaccination history.

Then the app provides patient-specific guidance consistent with the immunization schedule recommended by the U.S. Advisory Committee on Immunization Practices (ACIP).



Pink Book

The Epidemiology and Prevention of Vaccine-Preventable Diseases

- General immunization recommendations
- Vaccine safety, storage and handling, and administration information
- Detailed information about vaccine-preventable diseases, including disease pathogenesis, clinical features, epidemiology, and secular trends in the U.S.
- Detailed information about vaccines, including vaccine characteristics, schedule and use, efficacy, safety, and contraindications and precautions

The 14th edition of the "Pink Book" was published August 2021 – may need to refer to updated MMWRs for most recent recommendations

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

Immunize.org Immunization Action Coalition (IAC)

Works to increase immunization rates and prevent disease

- Creates and distributes educational materials for healthcare professionals and the public that enhance the delivery of safe and effective immunization services.
- Facilitates communication about the safety, efficacy, and use of vaccines within the broad immunization community of patients, parents, healthcare organizations, and government health agencies.

Centers for Disease Control and Prevention (CDC) partners and has provided financial support to IAC for the purpose of educating healthcare professionals about U.S. vaccine recommendations.

Ask the Experts is a recurring feature where IAC experts answer challenging and timely questions about vaccines and their administration. More than 1,000 Q&As are available online.

Future Updates

Working towards a larger offering of mRNA products for other vaccines (flu, RSV, COVID/flu combo - not anticipated until 2024)

Potential in 2025 for all 3 vaccines to come together (RSV, COVID, flu)

COVID prefilled syringes also on the horizon

Questions?