Vaccinations in Older Adults

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Objectives

- Discuss risks and benefits of vaccines in older adults
- Explain the timing, side effects and administration of vaccinations in older adults
- Describe how to address patient concerns regarding vaccines and provide informed recommendations

Vaccine Outline

Influenza

Pneumococcal

Shingles

RSV

COVID

Influenza

Influenza

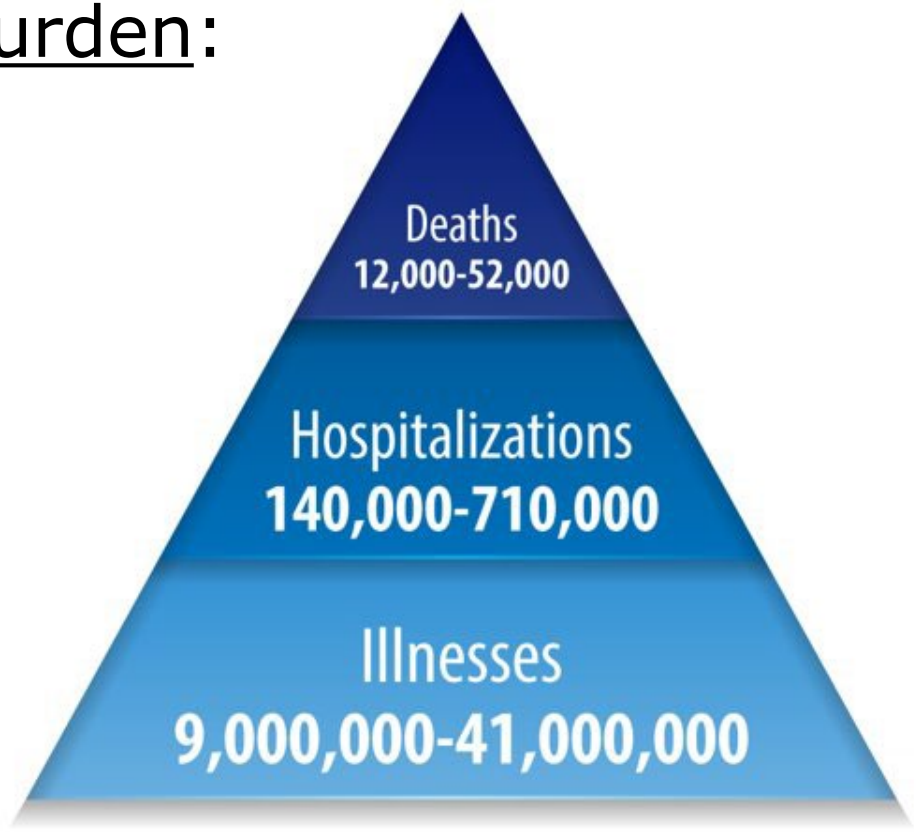
- Cause:
  - Influenza viruses
    - Two types cause outbreaks: A and B
    - Subtypes of type A influenza virus are identified by proteins on the surface of the virus
      - Hemagglutinin (H) and neuraminidase (N)
      - These proteins can mutate over time = people can get influenza infections multiple times
    - Seasonality
- Transmission:
  - Respiratory droplets
  - Incubation period is about 2 days
  - May pass virus from 1 day before symptom onset through 5-7 days after illness onset

Influenza: Questions and Answers. Influenza Vaccine Information. https://www.immunize.org/influenza/. Published September 2022. Accessed January 4, 2023.

Influenza

- Symptoms:
  - Sudden onset fever, aching muscles, sore throat and non-productive cough
  - May also include runny nose, headache, burning sensation in the chest, and eye pain and sensitivity to light
- Potential complications:
  - Pneumonia (most frequent), myocarditis, encephalitis, Reyes syndrome

- Burden:



Influenza: Questions and Answers. Influenza Vaccine Information. https://www.immunize.org/influenza/. Published September 2022. Accessed January 4, 2023.
Disease burden of flu. Centers for Disease Control and Prevention. https://www.cdc.gov/flu/about/burden/index.html. Published October 4, 2022. Accessed January 4, 2023.

Influenza Vaccine

- First influenza vaccine in the US was available in 1945
- Recommended for all people 6 months and over

Administration	Type	Production Technology	Strains	Age	Products	Abbr.
Injectable (IM) *Available as Pre-filled syringes (PFS), single dose vials (SDV) and multidose vials (MDV)*	Inactivated Virus	Egg based	Quad-rivalent	6 mo+	Afluria, Fluarix, FluLaval, Fluzone,	IIV4
				65+	Fluzone **HD**	HD-IIV4
		Egg based with **adjuvant**		65+	Fluad	aIIV4
		Cell culture based		2+	Flucelvax	ccIIV4
		Recombinant based		18+	Flublok	RIV4
Intranasal (IN)	Live Attenuated	Egg based		2-49	FluMist	LAIV

Influenza: Questions and Answers. Influenza Vaccine Information. https://www.immunize.org/influenza/. Published September 2022. Accessed January 4, 2023.
Table. influenza vaccines - united states, 2022–23 influenza season*. Centers for Disease Control and Prevention. https://www.cdc.gov/flu/professionals/acip/2022-2023/acip-table.htm. Published August 24, 2022. Accessed January 4, 2023.

Influenza Vaccine Risks

- Adverse Reactions:
  - Fever, malaise, myalgia
  - Injection site soreness
- Contraindications:
  - Anaphylactic reaction to vaccine in the past (or vaccine component)
- Precautions:
  - Acute febrile illness, Guillain-Barre Syndrome within 6 weeks of receiving vaccination
  - Egg allergy – NO LONGER any specific product recommendation – can use anything that is age appropriate per ACIP in 2023.

Influenza: Questions and Answers. Influenza Vaccine Information. https://www.immunize.org/influenza/. Published September 2022. Accessed January 4, 2023.
2023-2024 CDC flu vaccination recommendations adopted. Centers for Disease Control and Prevention. June 29, 2023. Accessed August 10, 2023. https://www.cdc.gov/flu/spotlights/2022-2023/flu-vaccination-recommendations-adopted.htm.

Influenza Vaccine

- Schedule:
  - 1 dose per year in September or October
  - Pt's age 65+ preferred products: **HD-IIV4, RIV4, or aIIV4**
    - WHY?

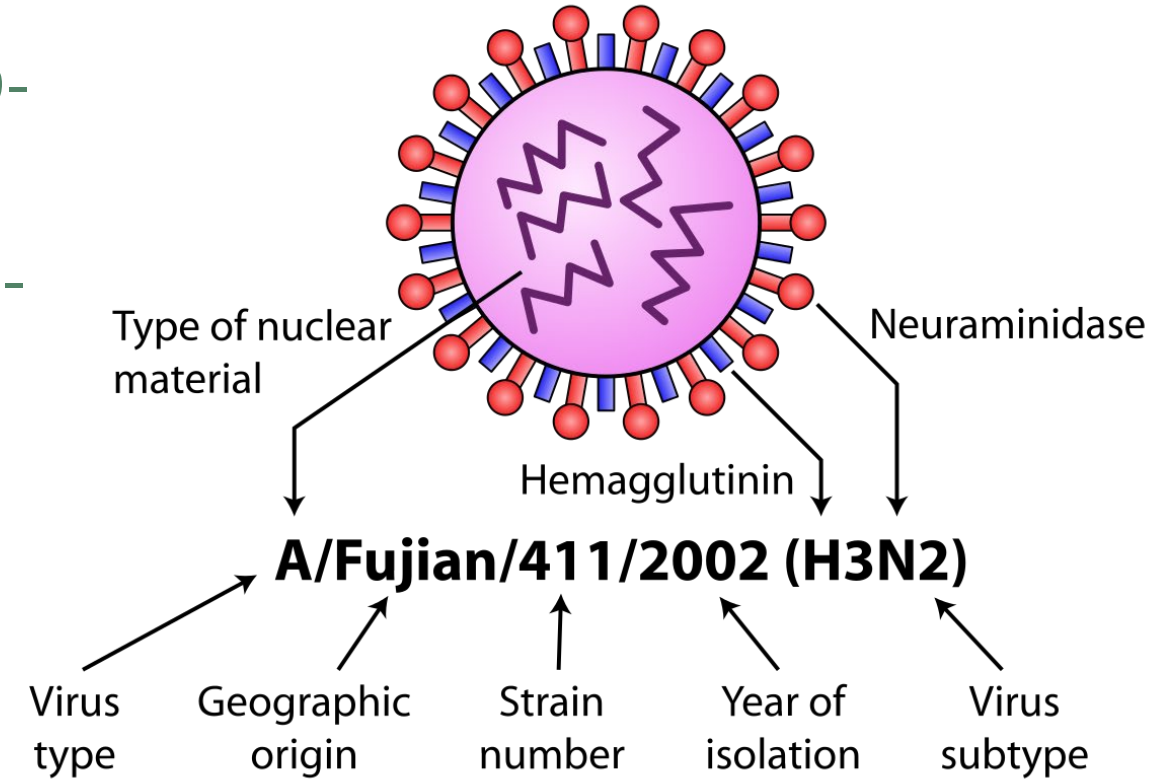
- Efficacy:
  - Protection varies based on similarity of vaccine strain(s) to circulating strains and the age and health of the recipient
    - When the match is close, the vaccine provides 40-60% protection
    - Healthy individuals age < 65 are more likely to have protection after vaccination
  - Vaccine is most effective at reducing risk of severe illness, secondary complications and deaths related to influenza

Influenza: Questions and Answers. Influenza Vaccine Information. https://www.immunize.org/influenza/. Published September 2022. Accessed January 4, 2023.

2023-24 Influenza Vaccine

Vaccine composition:

- A/Victoria/4897/2022 (H1N1) pdm09-like virus (egg-based vaccine)
  - Updated for 2023-24
- A/Wisconsin/67/2022 (H1N1) pdm09-like virus (cell or recombinant based)
  - Updated for 2023-24
- A/Darwin/9/2021 (H3N2)-like virus
- B/Austria/1359417/2021-like virus (B/Victoria lineage)
- B/Phuket/3073/2013-like virus (B/Yamagata lineage)



Frequently asked influenza (flu) questions: 2022-2023 season. Centers for Disease Control and Prevention. https://www.cdc.gov/flu/season/faq-flu-season-2022-2023.htm. Published November 21, 2022. Accessed January 4, 2023.
2023-2024 CDC flu vaccination recommendations adopted. Centers for Disease Control and Prevention. June 29, 2023. Accessed August 10, 2023. https://www.cdc.gov/flu/spotlights/2022-2023/flu-vaccination-recommendations-adopted.htm.

Which of the following vaccines is a live vaccine and is not approved for the elderly?

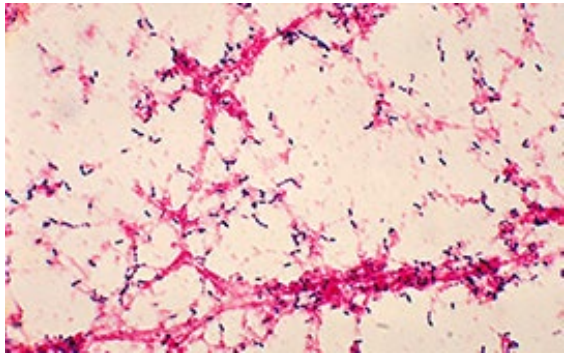
A. aIIV4
B. HD-IIV4
C. IIV4
D. LAIV
E. RIV4

Which of the following vaccines can safely be used in a patient with an egg allergy?

A. aIIV4
B. HD-IIV4
C. IIV4
D. LAIV
E. all of the above

Pneumococcal

Pneumococcal Disease



- Cause:
  - *Streptococcus pneumoniae*
    - A bacterium that has more than 100 serotypes
    - Most serotypes cause disease
    - Only a few produce the majority of invasive pneumococcal disease
  - Temporal pattern
    - Infection is more common in winter and early spring
- Transmission:
  - Respiratory droplets
    - Common inhabitants of the human respiratory tract

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed January 10, 2023.

Pneumococcal Disease

- Types of Infection:
  - **Pneumonia**
  - Bacteremia
  - Meningitis
  - Sinusitis
  - Otitis media

Most common presentations in children

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed January 10, 2023.
Pneumococcal disease. Centers for Disease Control and Prevention. https://www.cdc.gov/pneumococcal/index.html. Published January 13, 2022. Accessed January 10, 2023.

Pneumococcal Pneumonia

- Most common clinical presentation among adults
- Incubation period of 1-3 days
- Symptoms:
  - Abrupt onset of fever and chills or rigors, chest pain, cough, SOB, tachypnea or tachycardia and weakness
- Fatality rate is 5-7%
  - May be much higher among older adults and people with underlying medical conditions
- Accounts for up to 30% of adult community-acquired pneumonia
- Causes ~150,000 annual hospitalizations

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed January 10, 2023.
Pneumococcal disease. Centers for Disease Control and Prevention. https://www.cdc.gov/pneumococcal/index.html. Published January 13, 2022. Accessed January 10, 2023.

Pneumococcal vaccines

- Four products currently available:
  - Prevnar 13 (PCV13)
  - Vaxnuevance (PCV15)
  - Prevnar 20 (PCV20)
  - Pneumovax23 (PPSV23)

	1	2	3	4	5	6A	6B	7F	8	9N	9V	10A	11A	12F	14	15B	17F	18C	19A	19F	20	22F	23F	33F
PCV13	x		x	x	x	x	x	x			x				x			x	x	x			x	
PCV15	x		x	x	x	x	x	x			x				x			x	x	x		x	x	x
PCV20	x		x	x	x	x	x	x	x		x	x	x	x	x	x		x	x	x		x	x	x
PPSV23	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed January 10, 2023.

Prevnar 13: PCV13

- Pneumococcal conjugate vaccine

- **NO LONGER** recommended for use in adults
  - Use PCV15 or PCV20 instead
  - Will continue to see patients who have received in the past
    - Recommendations changed in 2022

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed January 10, 2023.
Pneumococcal disease. Centers for Disease Control and Prevention. https://www.cdc.gov/pneumococcal/index.html. Published January 13, 2022. Accessed January 10, 2023.

Vaxneuvance 15: PCV15

- Pneumococcal conjugate vaccine
  - 0.5mL IM injection

- <u>Adult Recommendations</u>:
  - Pts **age 65+** can receive 1 dose of PCV15 followed by 1 dose of PPSV23 (1 year after PCV15)
  - Pts **age 19-64** with underlying medical conditions or risk factors can receive 1 dose of PCV 15 followed by 1 dose of PPSV23

- <u>Pearls:</u>
  - Pts who started the pneumococcal **series with PCV13**, do NOT need PCV15

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed January 10, 2023.
Pneumococcal disease. Centers for Disease Control and Prevention. https://www.cdc.gov/pneumococcal/index.html. Published January 13, 2022. Accessed July 14, 2023.

Prevnar 20: PCV20

- Pneumococcal conjugate vaccine
  - 0.5mL IM injection

- Adult Recommendations:
  - Pts **age 65+** can receive 1 dose of PCV20
  - Pts **age 19-64** with underlying medical conditions or risk factors can receive 1 dose of PCV 20
  - Pts who started the pneumococcal **series with PCV13**
    - Can either finish series with PCV20 or PPSV23
- Pearls:
  - Can be used as an **alternative to PCV15 + PPSV23**
    - Do not need any additional pneumococcal vaccines at this time

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published June 19, 2023. Accessed July 14, 2023.
Pneumococcal disease. Centers for Disease Control and Prevention. https://www.cdc.gov/pneumococcal/index.html. Published January 13, 2022. Accessed July 14, 2023.

Pneumococcal conjugate vaccine

- Adverse Reactions:
  - Fever, malaise, loss of appetite, injection site soreness, headache
- Contraindications:
  - Anaphylactic reaction to vaccine in the past (or vaccine component)
  - Anaphylactic reaction to any diphtheria-toxoid containing vaccine (or component)
- Precautions:
  - Moderate or severe acute illness with or without fever

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed July 14, 2023.

Pneumovax 23: PPSV23

- Pneumococcal polysaccharide vaccine
  - 0.5mL IM or Sub-Q injection

- Adult Recommendations:
  - Pts **age 65+** who had 1 dose of PCV15 should receive 1 dose of PPSV23 (or PCV20)
    - Given 1 year after PCV15
  - Pts **age 19-64** with underlying medical conditions or risk factors who have had 1 dose of PCV 15 should receive 1 dose of PPSV23 (or PCV20)
- Pearls:
  - Should be given after PCV13 or PCV15
    - Minimum of 8 weeks separation

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed January 10, 2023.
Pneumococcal disease. Centers for Disease Control and Prevention. https://www.cdc.gov/pneumococcal/index.html. Published January 13, 2022. Accessed January 10, 2023.

Pneumococcal Polysaccharide Vaccine

- Adverse Reactions:
  - Fever, malaise, loss of appetite, injection site soreness, headache
- Contraindications:
  - Anaphylactic reaction to vaccine in the past (or vaccine component)
- Precautions:
  - Moderate or severe acute illness with or without fever

Ask the experts. Ask the Experts: Pneumococcal Vaccines. https://www.immunize.org/askexperts/experts_pneumococcal_vaccines.asp. Published July 26, 2022. Accessed January 10, 2023.

Pneumococcal Vaccine Efficacy

- PPSV23:
  - 60-80% effective in preventing invasive disease

- PCV vaccines:
  - 46% efficacy against vaccine-type pneumococcal pneumonia
  - 45% effective against non-bacteremic pneumococcal pneumonia
  - 75% efficacy against vaccine-type invasive pneumococcal disease

About Pneumococcal Vaccines. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccines/vpd/pneumo/hcp/about-vaccine.html. Published January 24, 2022. Accessed August 10, 2023.

Pneumococcal Vaccine Timing

Prior vaccines	Option A	Option B
None*	**PCV20**	**PCV15** → ≥1 year† → **PPSV23**
PPSV23 only at any age	≥1 year → **PCV20**	≥1 year → **PCV15**
PCV13 only at any age	≥1 year → **PCV20**	≥1 year† → **PPSV23**
PCV13 at any age & **PPSV23** at <65 yrs	≥5 years → **PCV20**	≥5 years§ → **PPSV23**

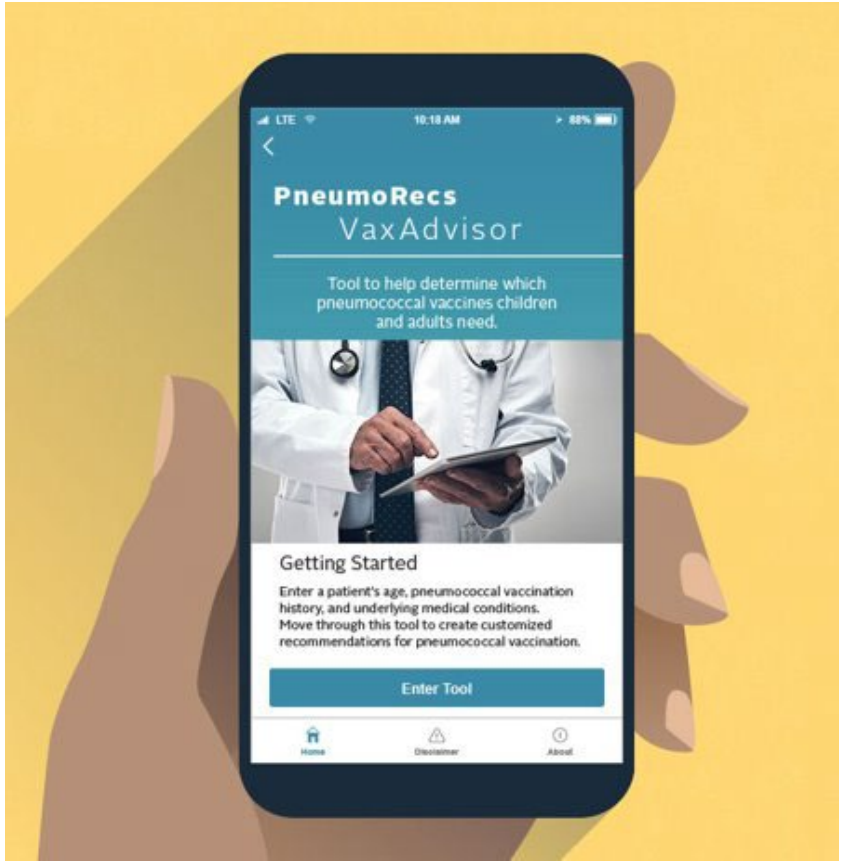
Pneumococcal Vaccine Timing for Adults. Centers for Disease Control and Prevention. March 15, 2023. Accessed August 11, 2023. https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.

Previously vaccinated

- Age when vaccinated?
- Which vaccine product(s) received?
- Are there any underlying medical conditions?

PneumoRecs VaxAdvisor

- App by the CDC
- Web Version also available



PneumoRecs vaxadvisor: Vaccine provider app. Centers for Disease Control and Prevention. February 15, 2023. Accessed August 11, 2023. https://www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html.

PPSV23 can be used alone because it covers more strains than the other pneumococcal vaccines.

A. True
B. False

Which of the following is not acceptable pneumococcal vaccine series for adults?

A. PCV20 alone
B. PPSV23 alone
C. PCV15 → PPSV23
D. PCV15 → PCV20

SO is a 72 year old female who has received the PCV13 at age 65 and PPSV23 1 year later. Does she need a dose of PCV15?

A. Yes

B. No

SO is a 72 year old female who has received the PCV13 at age 65 and PPSV23 1 year later. Does she need a dose of PCV20?

A. Yes

B. No

Herpes Zoster (Shingles)

Herpes Zoster (Shingles)

- Cause:
  - Reactivation of the varicella zoster virus
    - Immunosuppressed at greatest risk
- Transmission:
  - Fluid from the blisters can cause chickenpox in unvaccinated
    - Cover the rash to avoid spreading

Shingles (herpes zoster). Centers for Disease Control and Prevention. https://www.cdc.gov/shingles/. Published February 3, 2022. Accessed January 17, 2023.

Herpes Zoster (Shingles)

- Symptoms:
  - Painful rash that develops on one side of the body or face
    - Before rash appears, may have itching, tingling or pain in the area where the rash later appears
- Complications:
  - Post-Herpetic Neuralgia
    - Can last for months to years after rash clears
  - Blindness
    - If eye area is affected

Shingles (herpes zoster). Centers for Disease Control and Prevention. https://www.cdc.gov/shingles/. Published February 3, 2022. Accessed January 17, 2023.

Recombinant Zoster Vaccine

- Inactivated vaccine
  - 0.5mL IM injection
  - Stored in the fridge
  - Came to market in 2017
- Live Zoster vaccine was discontinued in 2020

Efficacy of Shingles Vaccines

	Recombinant Zoster (Shingrix)	Live Zoster (Zostavax)
Efficacy vs Shingles virus	91-97%	50%
Efficacy vs PHN	89-91%	65%

Ask the Experts. https://www.immunize.org/askexperts.asp. Published July 26, 2022. Accessed January 10, 2023.
Peper S, Md. New shingles vaccine shingrix much more effective. Nebraska Methodist Health System. Accessed August 11, 2023. https://bestcare.org/news/new-shingles-vaccine-shingrix-much-more-effective.

Recombinant Zoster Vaccine

- Adverse Reactions:
  - Injection site pain and redness
  - Myalgias, fatigue, headache

- Contraindications:
  - Anaphylactic reaction to vaccine in the past (or vaccine component)

- Precautions:
  - Moderate or severe acute illness with or without fever
  - Current infection with Herpes Zoster

Ask the Experts. https://www.immunize.org/askexperts.asp. Published July 26, 2022. Accessed January 10, 2023.

Recombinant Zoster Vaccine

Adult Recommendations:

- Age 50 and over: 2 doses
  - 2-6 months apart
- Age 19+ and immunocompromised: 2 doses
  - 2-6 months apart

- Not approved for children

Ask the Experts. https://www.immunize.org/askexperts.asp. Published July 26, 2022. Accessed January 10, 2023.

QT is a 55 year old female who is looking for her 2nd recombinant shingles vaccine. It has been 1 year since her last dose. What do you recommend?

A. Restart series
B. Give final dose now
C. Give 1 additional dose
D. Draw titer to determine

Respiratory Syncytial Virus (RSV)

RSV

- Cause:
  - Respiratory syncytial virus
    - Common respiratory virus that causes mild, cold-like symptoms
- Transmission:
  - Respiratory droplets
  - Incubation period is 4-6 days
  - Seasonality
- Symptoms:
  - Congested or runny nose, dry cough, low grade fever, sore throat, sneezing, headache
- Potential complications:
  - Pneumonia, repeat infections, otitis media

Respiratory syncytial virus (RSV). Mayo Clinic. Accessed August 11, 2023. https://www.mayoclinic.org/diseases-conditions/respiratory-syncytial-virus/symptoms-causes/syc-20353098.
For healthcare professionals: RSV (respiratory syncytial virus). Centers for Disease Control and Prevention. August 4, 2023. Accessed August 11, 2023. https://www.cdc.gov/rsv/clinical/index.html.

RSV Vaccine

- Inactivated vaccine
  - 0.5mL IM injection
- FDA approval in early summer of 2023
  - ACIP recommendation in June
- Working to have vaccine ready for fall
  - Vaccine can be ordered
  - Currently, being added to insurance formularies

GSK shares positive data for Arexvy, its respiratory syncytial virus (RSV) older adult vaccine, indicating protection over two RSV seasons. GSK. June 21, 2023. Accessed August 11, 2023. https://www.gsk.com/en-gb/media/press-releases/gsk-shares-positive-data-for-arexvy-its-respiratory-syncytial-virus-older-adult-vaccine-indicating-protection-over-two-rsv-seasons/.

Melgar M, Britton A, Roper LE, et al. Use of respiratory syncytial virus vaccines in older adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023. *MMWR Morbidity and Mortality Weekly Report*. 2023;72(29):793-801. doi:10.15585/mmwr.mm7229a4

RSV Vaccine

- Adverse Reactions:
  - Injection site pain and redness
  - Myalgias, fatigue, headache, nausea, diarrhea

- Contraindications:
  - Anaphylactic reaction to vaccine in the past (or vaccine component)

- Precautions:
  - Moderate or severe acute illness with or without fever

Melgar M, Britton A, Roper LE, et al. Use of respiratory syncytial virus vaccines in older adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023. *MMWR Morbidity and Mortality Weekly Report*. 2023;72(29):793-801. doi:10.15585/mmwr.mm7229a4

RSV Vaccine

Adult Recommendations:

- Age **60** and over may receive using shared clinical decision making
  - Consider patient's risk of severe RSV disease, patient characteristics, values and preferences, the healthcare provider's clinical discretion, etc.

- Single dose (currently)
  - Studies are ongoing to determine whether (and if so, when) revaccination may be needed

For healthcare professionals: RSV (respiratory syncytial virus). Centers for Disease Control and Prevention. August 4, 2023. Accessed August 11, 2023. https://www.cdc.gov/rsv/clinical/index.html.

COVID-19

COVID-19

- Cause:
  - SARS-CoV-2 coronavirus
    - Virus was first detected as a cause of human illness in late 2019
    - Triggered a global pandemic beginning in 2020
- Transmission:
  - Respiratory droplets
  - Incubation period is 2-14 days (average of about 5 days)
- Symptoms:
  - Fever or chills, cough, shortness of breath, difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, and diarrhea
- Potential complications:
  - Pneumonia, myocarditis, organ failure, ARDS, thrombosis

Ask the experts. Ask the Experts about COVID-19 - IAC experts answer Q&As. https://www.immunize.org/askexperts/experts_cov.asp. Published December 23, 2022. Accessed January 4, 2023.
Coronavirus disease 2019 (covid-19). Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/coronavirus/symptoms-causes/syc-20479963. Published December 17, 2022. Accessed January 4, 2023.

COVID-19 Vaccine… TBD

- All people 6 months and over are recommended to receive an age-appropriate series
  - Not included in vaccine schedule
- ACIP and CDC expected to have recommendations for a 2023 booster by the end of August
  - Targeting XBB.1.5 variant
- Expected to be available to the public in September or October, pending FDA approval and ACIP recommendations
  - Simplifying to one dose for all ages with the same composition

Current recommendations:

https://www.cdc.gov/vaccines/covid-19/downloads/COVID-19-immunization-schedule-ages-6months-older.pdf

Ask the experts. Ask the Experts about COVID-19 - IAC experts answer Q&As. https://www.immunize.org/askexperts/experts_cov.asp. Published December 23, 2022. Accessed January 4, 2023.
Tin A. New COVID vaccine and booster shots for this fall to be available by end of September. CBS News. August 9, 2023. Accessed August 11, 2023. https://www.cbsnews.com/news/covid-vaccine-booster-xbb-variants-september-2023/.

Vaccine concerns

https://www.aier.org/article/no-lockdowns-the-terrifying-polio-pandemic-of-1949-52/

https://www.theguardian.com/society/2020/may/26/last-iron-lung-paul-alexander-polio-coronavirus

https://www.nzherald.co.nz/lifestyle/smallpox-and-the-photos-anti-vaxxers-dont-want-you-to-see/24MJGHWAIJRJYD6LIPQ6ZTBKHI/

Vaccine Concerns

Safety

Contraindication

Hesitancy

Cost

Safety Concerns

- Adjuvants
- Fainting
- Guillain-Barre Syndrome
- Multiple Vaccinations at Once
- Thimerosal

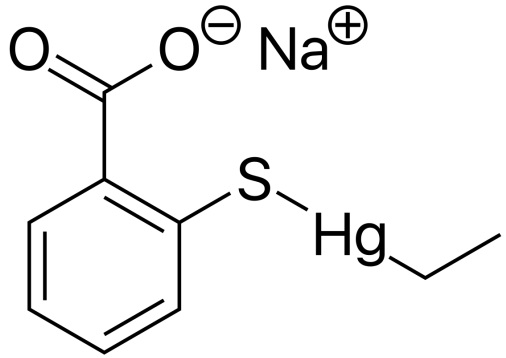
Questions and concerns. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccinesafety/concerns/index.html. Published July 17, 2020. Accessed January 5, 2023.

Adjuvants and Vaccines

- Adjuvant is used in some vaccines to help create a stronger immune response
  - Can cause more local reactions (redness, swelling, and pain at the injection site) and more systemic reactions (fever, chills, and body aches)
- Ex: Aluminum
  - Have been used in vaccines since the 1930's
  - If following the recommended vaccine schedule, exposure is low and not readily absorbed by the body
- Newer adjuvants are being developed to target specific components of the body's immune response, resulting in stronger and longer protection
  - Ex: AS01B, AS04, CpG 1018, Matrix-M, MF59

Questions and concerns. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccinesafety/concerns/index.html. Published July 17, 2020. Accessed January 5, 2023.

Thimerosal



- A mercury-based preservative
  - Contains ethylmercury
- Used in multi-dose vials of medicines and vaccines
  - Shown to be safe when used in vaccines
  - Most common side effect is redness and swelling at the injection site
- **Removed from childhood vaccines** in the US in 2001

- Methylmercury is found in fish and can be toxic to people at high doses
  - Guidelines to decrease the amount in the environment and food
- Ethylmercury is cleared from the human body more quickly and is less likely to cause any harm

Questions and concerns. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccinesafety/concerns/index.html. Published July 17, 2020. Accessed January 5, 2023.

Fainting

- Usually triggered by pain or anxiety
- Reports of people fainting after nearly all vaccines
  - Most commonly occurs with adolescent vaccines:
    - HPV
    - MCV4
    - Tdap
  - Believed to be due to the vaccination process vs the actual vaccines
- Preventative measures:
  - Giving patients a beverage, snack or reassurance about the procedure
  - Prevent falls by having the patient sit or lie down prior to vaccination
    - Patients should be observed for 15 minutes following vaccination
- If a patient faints:
  - Observation by medical personnel until they regain consciousness
  - Determine any additional treatment needs

Questions and concerns. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccinesafety/concerns/index.html. Published July 17, 2020. Accessed January 5, 2023.

Multiple Vaccines at Once

- **Combination vaccinations**
  - 2+ different vaccines that have been combined into a single shot
    - Ex: DTap (Diptheria-tetanus-pertussis)

- Children are given vaccines at a young age because that is when they are at the highest risk of getting sick or dying from the diseases

- Administering combination or multiple vaccines at once does not cause any chronic health problems

Questions and concerns. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccinesafety/concerns/index.html. Published July 17, 2020. Accessed January 5, 2023.

Guillain-Barre Syndrome

- GBS is a rare disorder where the body's immune system damages nerves which in turn causes muscle weakness and sometimes paralysis
  - Often follows infection with a virus or bacteria
- In 1976, there was a national campaign for people to get the swine flu vaccination
  - >45 million people were vaccinated
  - Found that the vaccinated had a slightly increased risk for developing GBS
  - Exact link/reason is uncertain
- Additional studies on the risk of GBS after influenza vaccination
  - Suggest an increased likelihood of getting GBS

Questions and concerns. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccinesafety/concerns/index.html. Published July 17, 2020. Accessed January 5, 2023.

Which population of patients is at the greatest risk of fainting during vaccination?

A. Infants
B. Adolescents
C. Adults
D. Seniors

Which vaccine is most likely to cause GBS?

A. COVID-19
B. MMR
C. TDAP
D. Influenza

Contraindications/Precautions

Allergy to component

(Anaphylaxis = contraindication)

Pregnancy

(temporary contraindication to live vaccines)

Immunosuppression

(temporary contraindication to live vaccines)

Moderate to severe illness

(precaution)

Recent blood product

(precaution for live vaccines)

Recent Vaccine or dose of Ig

(see upcoming slides)

Vaccines indicated for adults based on medical indications. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccines/schedules/hcp/imz/adult-conditions.html. Published February 17, 2022. Accessed January 3, 2023.
Vaccines indicated for persons aged 0 through 18 years based on medical indications. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccines/schedules/hcp/imz/child-indications.html. Published February 17, 2022. Accessed January 3, 2023.

Recent Vaccine

- If pt has received a **vaccine** recently, you will need additional information to determine if they are eligible for another vaccination
  - Live vs Non-live vaccine
  - Dosing interval

Combination	Simultaneous Administration	Minimum interval between doses (if not given simultaneously)
Non-live + Non-live	Yes	Any
Non-live + Live	Yes	Any
Live + Live	Yes	28 days

ACIP timing and spacing guidelines for immunization. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html. Published September 8, 2022. Accessed January 3, 2023.

Recent Immunoglobulin

- If pt has received an **immunoglobulin** recently, you will need additional information to determine if they are eligible for another vaccination

Immunobiologic Administered		Recommended Interval
First	**Second**	
Inactivated	Immunoglobulin	None
Immunoglobulin	Inactivated	None
Live	Immunoglobulin	2 weeks
Immunoglobulin	Live	At least 3 months

ACIP timing and spacing guidelines for immunization. Centers for Disease Control and Prevention. https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html. Published September 8, 2022. Accessed January 3, 2023.

Contraindication Myths

- Mild illness
- Current antibiotic therapy
- Recent disease exposure
- Premature birth
- Need for TB skin testing at the same time
- Too many vaccines at one time
- Family history of adverse events
- Diarrhea
- Lactation or breastfeeding

A patient presents to the clinic/pharmacy for their annual influenza vaccine. They state that they have a bit of a tickle in their throat and are wondering if they can still get their vaccine. How would you reply?

A. I recommend waiting to ensure you're not sick.
B. You get the best immune response when you're not fighting off another illness.
C. It's safe to get the vaccine with mild illness.

Addressing Patient Hesitancy

The CASE approach:

- **C**orroborate
  - Acknowledge the patients concern and find some point on which you can agree
  - Set the tone for a respectful, successful talk
- **A**bout Me:
  - Describe what you have done to build our knowledge base and expertise
- **S**cience:
  - Relate what the science says
- **E**xplain/Advise:
  - Explain your advice to patient, based on science

Brito D. Vaccine hesitancy: How to communicate with hesitant parents: The C.A.S.E. approach. EuroNet MRPH. September 26, 2018. Accessed August 15, 2023. https://euronetmrph.org/vaccine-hesitancy-how-to-communicate-with-hesitant-parents-the-c-a-s-e-approach/.

Addressing Patient Hesitancy

Motivational Interviewing Techniques

- When they decline, consider the following:
  - Asking, what specifically are you afraid of?
  - Summarize their thoughts (without agreeing or disagreeing):
    - Saying, "You are really worried that you might get sick after your vaccine."
    - Saying, "It sounds like you think you get too many shots."

Boness CL, Nelson M, Douaihy AB. Motivational Interviewing Strategies for Addressing COVID-19 Vaccine Hesitancy. *J Am Board Fam Med*. 2022;35(2):420-426. doi:10.3122/jabfm.2022.02.210327

Cost

- **Inflation Reduction Act**
  - Started January of 2023
    - Eliminated cost-sharing of recommended vaccines under Medicare Part D
      - Patients don't have to pay a co-pay for immunizations
        - Even if deductible is not met
    - Includes Shingles vaccine, RSV, and Tetanus vaccines

- **Part B**
  - Patients generally will not have a copay
  - Can be given in the clinic or in some pharmacies

Sayed B, Finegold K, Ashok K, Schutz S. Medicare part D enrollee savings from elimination of vaccine cost-sharing. March 15, 2023. Accessed August 15, 2023. https://aspe.hhs.gov/sites/default/files/documents/329fd579ada6515d3be404f06821c361/aspe-ira-vaccine-part-d.pdf.

Questions

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Thank You!


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