Brigham and Women's Hospital
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Adult Immunization

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- Infectious Disease Fellowship with a focus on HIV@ BWH/MGH
- Assistant Professor, Harvard Medical School
- Associate physician, BWH
  - Clinical focus: HIV, General ID, Mastitis
  - Education focus: Undergraduate Medical Education
  - Research focus: Medical Education

DISCLOSURES

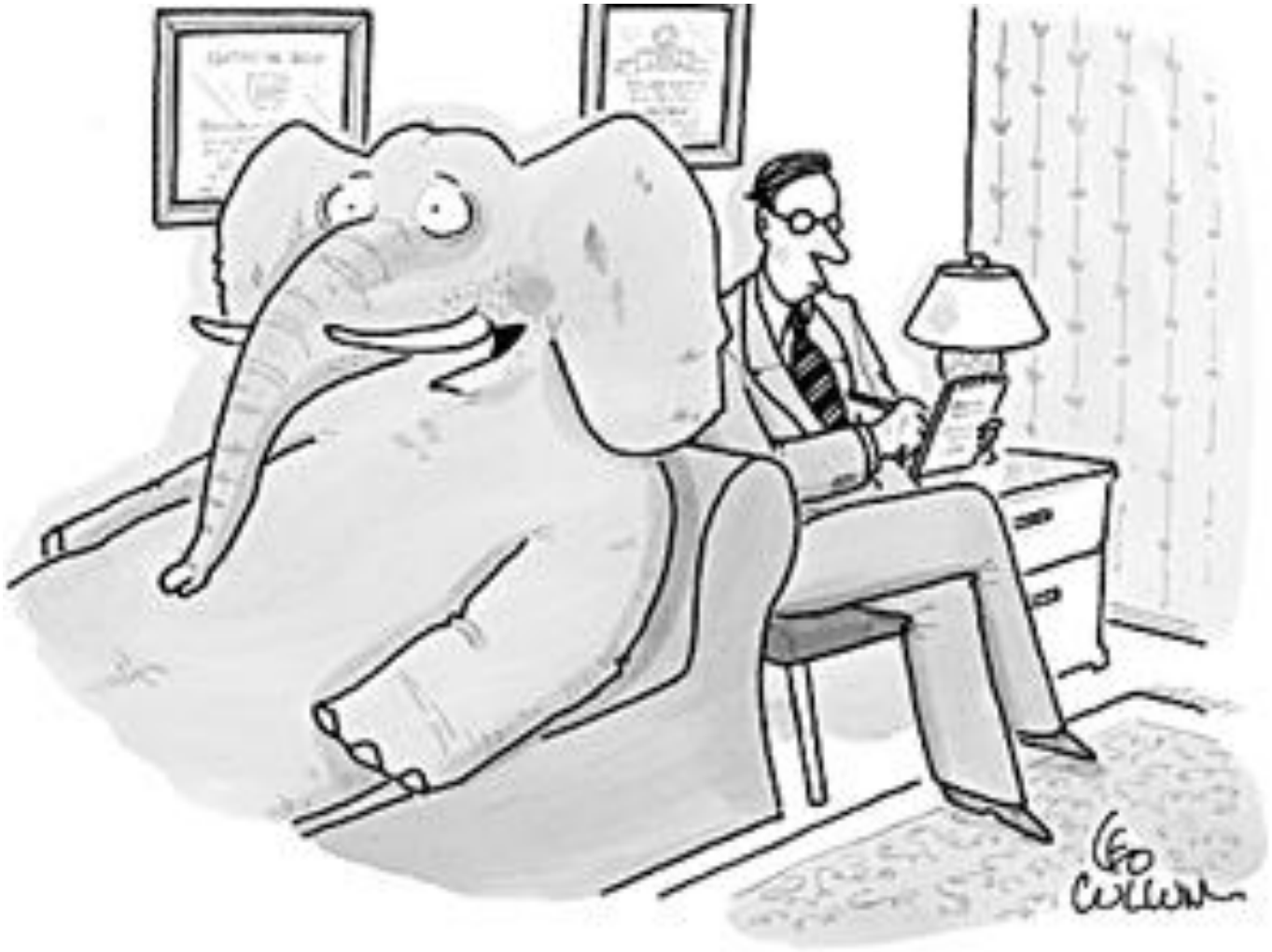
I have no financial disclosures

I LOVE vaccines

OBJECTIVES

Upon completion of this activity, participants will be able to:

- Advise patients regarding vaccine recommendations
- Explain the reasoning behind changes
- Evaluate data behind recent changes in vaccine guidelines
- Assess areas of controversy



"I'm right there in the room, and no one even acknowledges me."

Not everyone loves vaccines as much as I do

“Those who do not remember the past are condemned to repeat it.”

The Washington Post

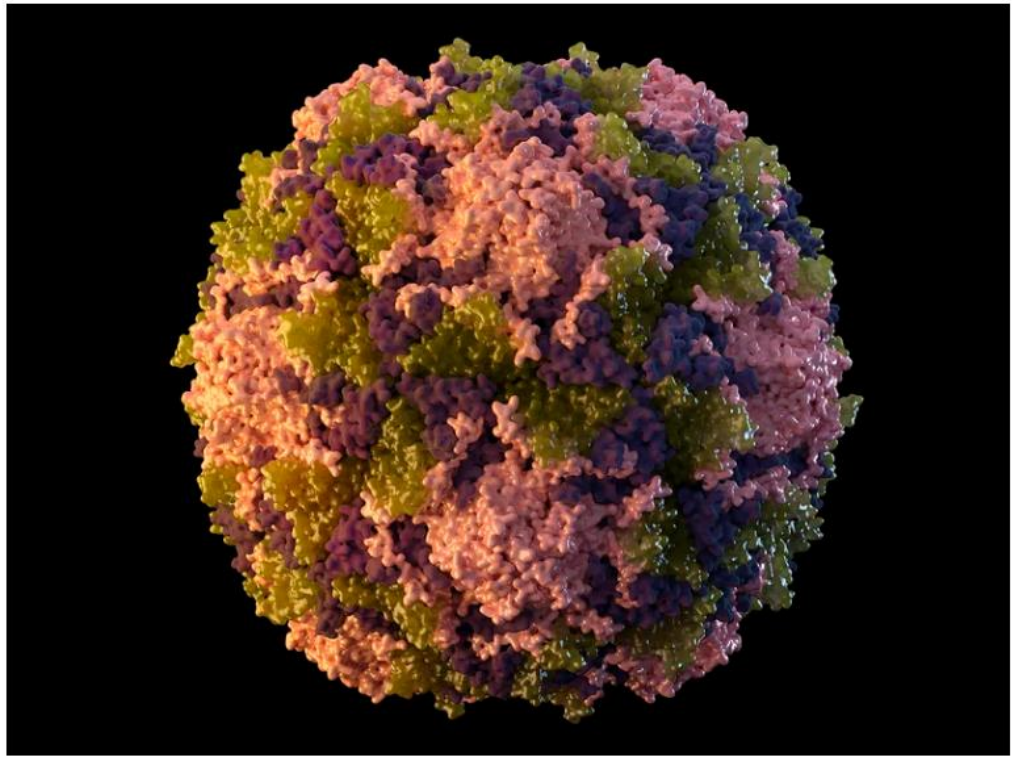
[U.S. measles cases reach 33-year record high as outbreaks spread]

HEALTH

Poliovirus detected in more wastewater near New York City

September 10, 2022 · 5:17 AM ET

THE ASSOCIATED PRESS



Major updates were proposed to the new US Childhood Immunization Schedule and then overturned by lawsuit brought to US District Court in MA

MIRRORINDY

U.S. schedules for vaccines recommended to all children

VACCINE	OLD GUIDELINES	NEW GUIDELINES
Hepatitis B	✓ (universal, birth dose ≤24 hrs + series)	✗ High risk & SCDM
Rotavirus	✓ (routine infant series)	✗ SCDM
DTaP and Tdap	✓	✓
Polio (IPV)	✓	✓
Hib	✓	✓
Pneumococcal (PCV)	✓	✓
MMR (Measles, Mumps, Rubella)	✓	✓
Varicella (Chickenpox)	✓	✓
Hepatitis A	✓	✗ High risk & SCDM
Influenza	✓ (annual for all ⩾6 months)	✗ SCDM
Meningococcal (MenACWY)	✓ (routine adolescents)	✗ High risk & SCDM
HPV	✓	✓ but 1 dose instead of 2
COVID-19	✓ (included in routine framework)	✗ SCDM
RSV (monoclonal)	✓ if the mother was not vaccinated in pregnancy or baby is high risk	✗ High risk, which is defined as the mother not being vaccinated during pregnancy.

*SCDM = shared clinical decision-making. This means the vaccine is still available via discussion between patient and clinicians.

Vaccines in 2026: Promise and Perils

Vaccine development is happening at the fastest pace in history
Vaccines continue to be the most impactful tool for disease prevention worldwide

- Trust in public health agencies is tenuous
- The anti-vaccine and anti-science movement in the United States is stronger than ever

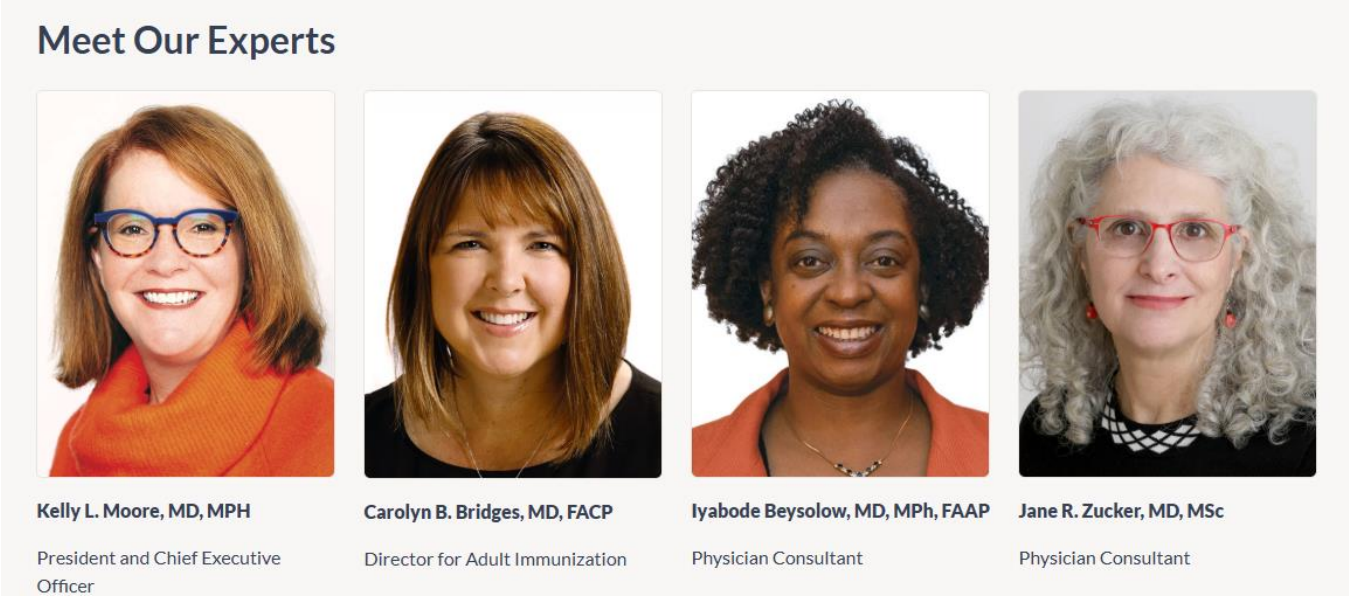
Road Map

Zoster/VZV
TDAP
MMR
Pneumococcus
HPV
RSV
COVID
Hepatitis B
Lyme

Vaccine	19-26 years	27-49 years	50-64 years	≥65 years
COVID-19	At least 1 dose of the current COVID-19 vaccine			65+: At least 2 doses.
Influenza/Flu	Every Year			
RSV	If pregnant during RSV season		If aged 50 through 74 years	If aged 75 years or older
Tdap/Td	Tdap every pregnancy. Td/Tdap every 10 years for all adults.			
MMR	If aged 68 years or younger			
Chickenpox	If U.S. born and aged 45 years or younger			
Shingles				
HPV		Aged 27–45 years		
Pneumococcal				
Hepatitis A				
Hepatitis B	Through 59 years			
Meningococcal				
Hib				
Mpox				

Where to get more information?

Ask the Experts: http://www.immunize.org/askexperts/



CDC ACIP:
https://www.cdc.gov/vaccines/schedules/hcp/adult.html

RZV

Recombinant Zoster Vaccine

Herpes Zoster

Question 1

Case 1

45-year-old man presents one month after an episode of shingles. Does he need to have the RZV vaccine? If so, when?

A. Yes, give it now
B. Yes, but wait until acute symptoms abate
C. Yes, but he has to wait until age 50
D. No, he is now immune

Efficacy of Shingles Vaccines

Age group	Zostavax (ZVL) Efficacy*^
50-59	70%
60-69	64%
70+	38%

***Protection declines to <35% after 6 years**

^Do not give live vaccine if immunocompromised

NEJM 2015

And it likely also decreases risk of dementia…

Receipt of RZV was associated with 5.8% lower risk for dementia (95% CI, 3.9 to 7.5) and 24% relative risk reduction

What about in immunocompromised hosts <50?

Immunocompromised group	Vaccine efficacy
Autologous stem cell transplant recipient	68.2%
Hematologic malignancies	87.2%
Immune mediated diseases (not on immunosuppression)	90.5%

Anderson TA et al. *MMWR.* January 21, 2022

Recombinant Zoster Vaccine (RZV) Highlights

- Approved for patients 50 years and older + immunocompromised pts ≥18-49
- Two dose series, separated by at least 8 weeks
- High immunogenicity
- Subunit (not live) vaccine

If second dose delayed from shortages there is no need to restart the series. Just give #2

Special Populations

Condition	Recommended?
Received ZVL in past	
No known history of chicken pox	
On suppressive valacyclovir for HSV	
Age >50 and history of shingles	
Age <50 and history of shingles	
Pregnant	
Breast feeding	

Question 1 Answer

Case 1

45-year-old man presents one month after an episode of shingles. Does he need to have the RZV vaccine? If so, when?

A. Yes, give it now

B. Yes, but wait until acute symptoms abate

C. Yes, but he has to wait until age 50

D. No, he is now immune

2 Quick questions

- 56 year old woman never recalls having chickenpox. Should we check her varicella ab prior to giving RZV?

No

- What if her varicella ab was checked for some reason and was negative. She receives 2 doses of varicella vaccine. Does she still need RZV?

ACIP says "Sure"

Can you get Zoster after VZV vaccine?

- Yes, rarely the live varicella vaccine can establish latent infection and then shingles

What will the future of RZV be in 2045?

Most pts turning 50 in that year will have received the VZV vaccine since it became mandatory in 1995

Hambleton et al., JID 2008

Tdap

Tetanus
Diphtheria
Pertussis

Question 2

Case 2

- 67-year-old male had his last tetanus shot 10 years ago. What do you give him as a booster?
  A. Tdap today and Tdap q10 years
  B. Td today and Td q10 years
  C. Tdap today and then Td q10 years

Tdap indications

- Adults should receive at least **one Tdap**
- Subsequent every-10-year doses can be with Tdap or Td (update as of October 26, 2019)
  - Make sure those around children, healthcare workers and college students get it

Exceptions

- Pregnant women—must receive dose Tdap with every pregnancy
- Close contacts of newborns
- Anyone traveling internationally due to pertussis outbreaks need Tdap within 10 years

Question 2 Answer

Case 2

- 67-year-old male had his last tetanus shot 10 years ago. What do you give him as a booster?
  - **A. Tdap today and Tdap q10 years**
  - B. Td today and Td q10 years
  - **C. Tdap today and then Td q10 years**

MMR

Measles
Mumps
Rubella

Question 3

Case 3

My patient was born in 1986. He is going to a new graduate program, so I checked a measles titer which was negative. His immunization record shows that he had one dose of MMR in childhood. What do you advise?

A. Give booster MMR
B. Give booster MMR then recheck titer 1-2 months later
C. Documentation of 1 vaccine supersedes negative titers, no need for another shot

What counts as presumptive immunity?

ANY of the following

- Birth before 1957
- Laboratory confirmation of measles
  (verbal history does not count)
- Laboratory evidence of immunity
- Written documentation of adequate vaccination*

https://www.medinaction.com/your-immune-system-vaccines-and-traveling/

Adults – One Dose or Two?

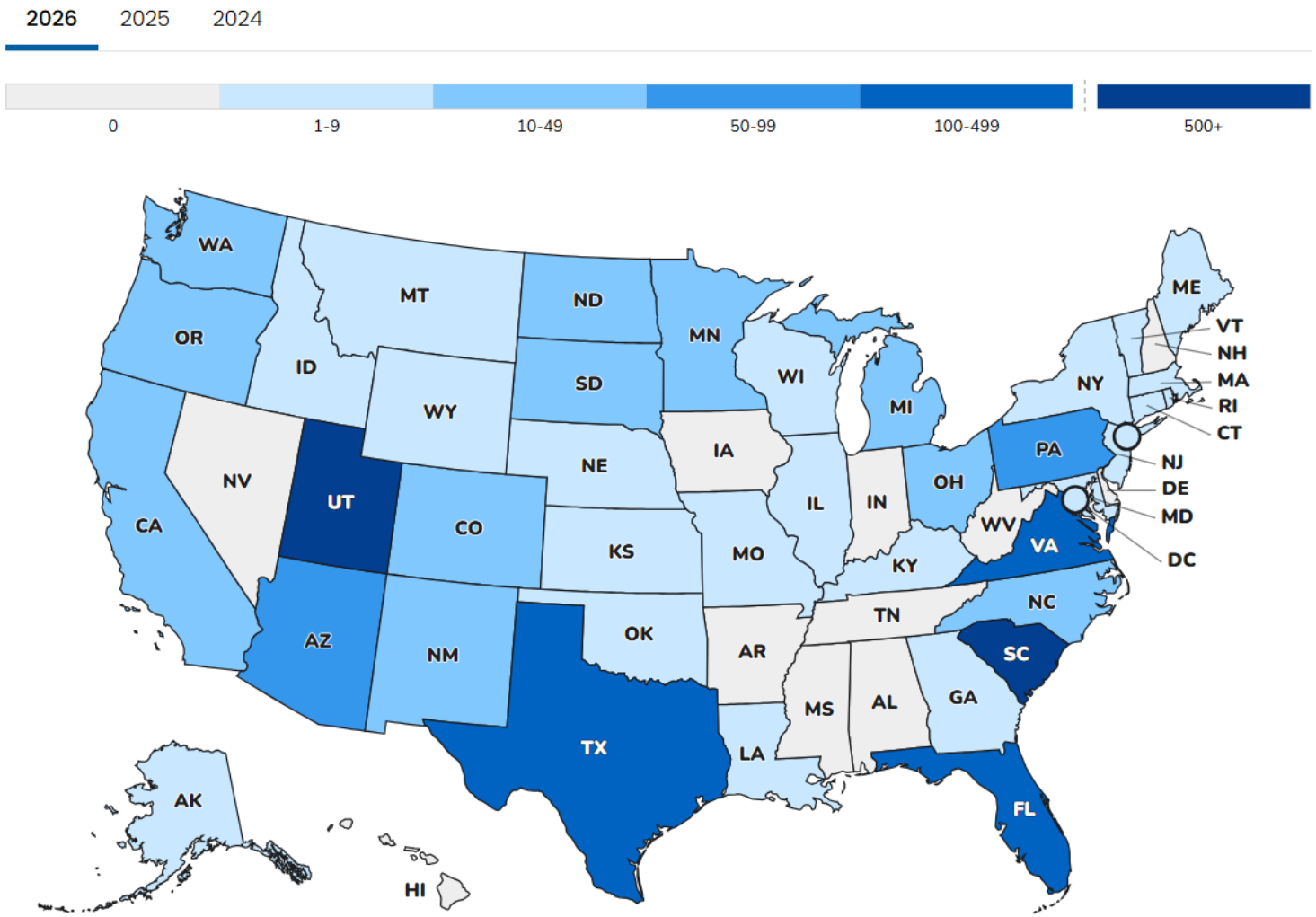
- 1957-1989: one dose
- 1989: changed to two dose series

Number of doses	Seroprotection
1	93%
2	97%

<u>One dose is considered sufficient, except for:</u>

- Healthcare personnel
- International travelers
- Persons attending college or other post-high school institution
- Those at increased risk during measles outbreak

Measles cases continue to rise



Measles map-updated 7.2.2026

https://www.cdc.gov/measles/data-research/index.html

Question 3 Answer

My patient was born in 1986. He is going to a new graduate program, so I checked a measles titer which was negative. His immunization record shows that he had one dose of MMR in childhood. What do you advise?

A. Give booster MMR

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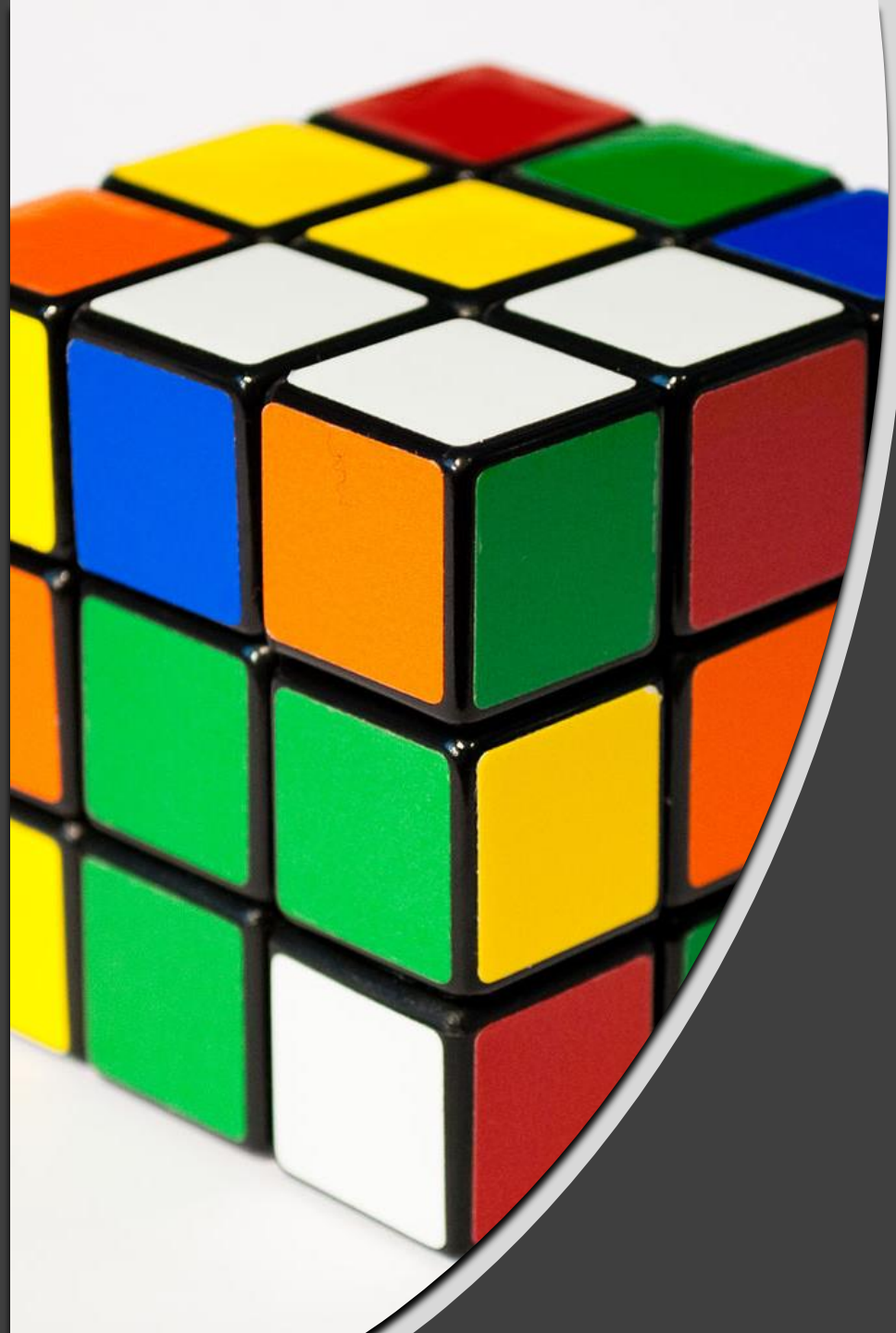


Pneumococcal

Pneumococcal vaccine Case series

What pneumococcal series, including booster, does each patient need?

65-year-old with no medical problems.

52-year-old with no medical problems.

20-year-old with cochlear implants

26-year-old with sickle cell disease and functional asplenia

26-year-old with multiple sclerosis on ocrelizumab

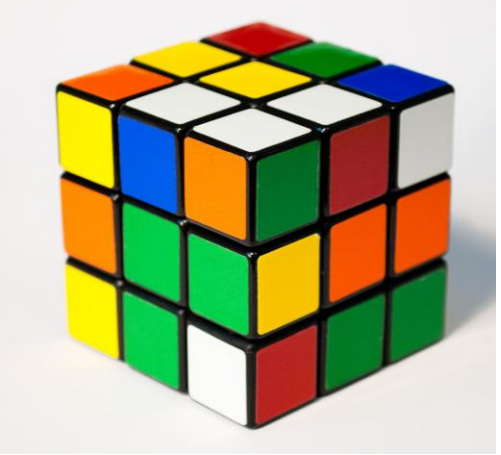


Table 1. Medical conditions or other indications for administration of PCV13 and PPSV23 for adults

Medical indication	Underlying medical condition	PCV13 for ≥ 19 years	PPSV23* for 19 through 64 years		PCV13 at ≥ 65 years	PPSV23 at ≥ 65 years
		Recommended	Recommended	Revaccination	Recommended	Recommended
None	None of the below				✓	✓ ≥ 1 year after PCV13
Immunocompetent persons	Alcoholism		✓		✓	✓ ≥ 1 year after PCV13 ≥ 5 years after any PPSV23 at < 65 years
	Chronic heart disease†					
	Chronic liver disease					
	Chronic lung disease§					
	Cigarette smoking					
	Diabetes mellitus					
	Cochlear				✓ no previous 13 vaccination	✓ ≥ 8 weeks after PCV13 ≥ 5 years after any PPSV23 at < 65 years
	CSF leaks					
Persons with functional or anatomic asplenia	Congenita asplenia				✓ no previous 13 vaccination	✓ ≥ 8 weeks after PCV13 ≥ 5 years after any PPSV23 at < 65 years
	Sickle cel hemoglobinopathies					
Immunocompromised persons	Chronic renal failure	✓	✓ ≥ 8 weeks after PCV13	✓ ≥ 5 years after first dose PPSV23	✓ If no previous PCV13 vaccination	✓ ≥ 8 weeks after PCV13 ≥ 5 years after any PPSV23 at < 65 years
	Congenital or acquired immunodeficiencies¶					
	Generalized malignancy					
	HIV infection					
	Hodgkin disease					
	Iatrogenic immunosuppression‡					
	Leukemia					
	Lymphoma					
	Multiple myeloma					
	Nephrotic syndrome					
	Solid organ transplant					

October, 2021

PCV20 alone

OR

PCV15 + PPSV23 one year later

- All patients ≥65 years old

AND

- Patients 19-64 years old with underlying medical condition or risk factors

No boosters.

Kobayashi M et al. *MMWR*. January 28, 2022

Wait…PCV 21???

June, 2024

ACIP recommends PCV21 as an option for adults aged ≥19 years who currently have a recommendation to receive a dose of PCV.

PCV-21 is not just PCV-20 + 1

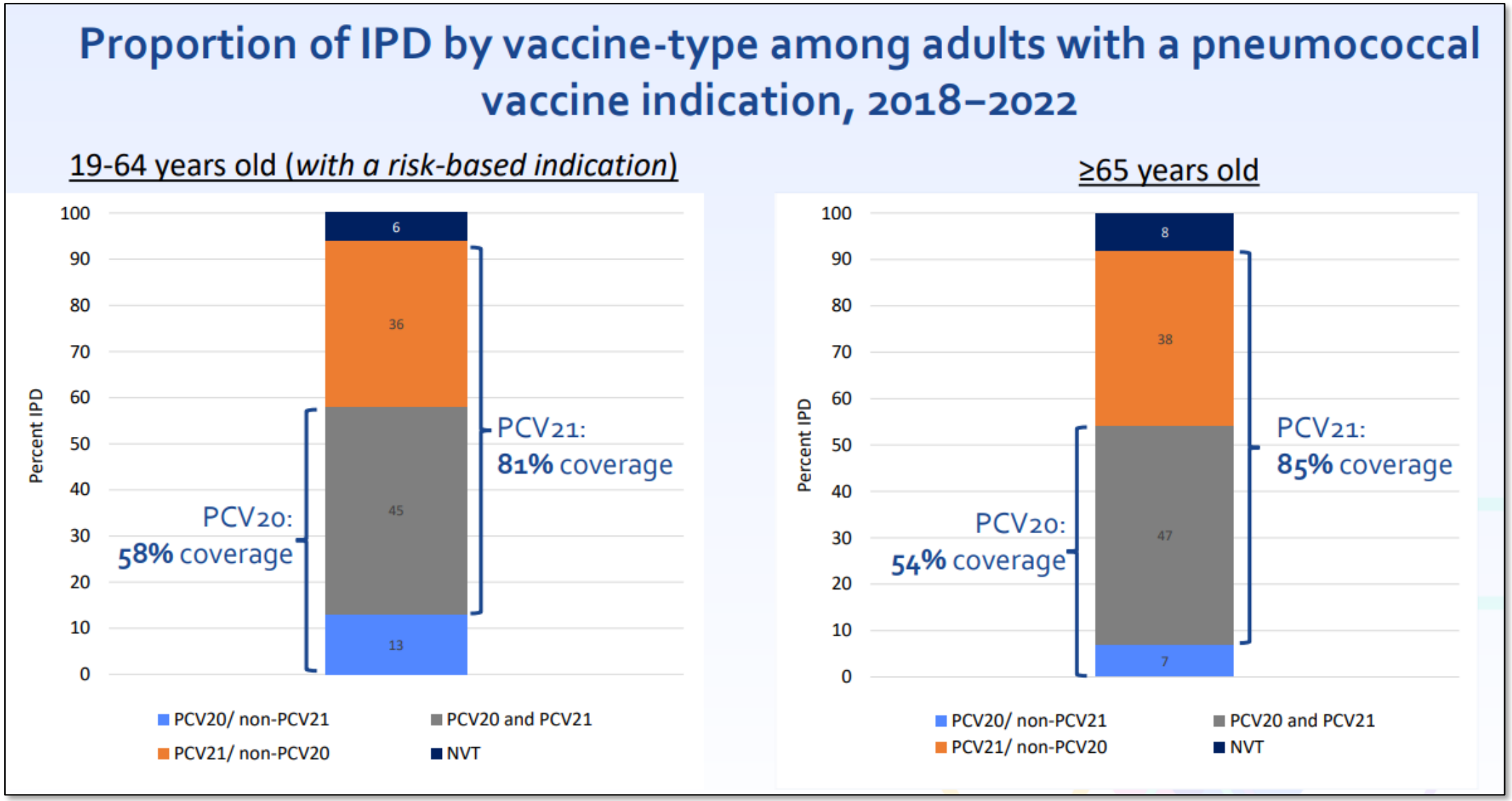
21-valent pneumococcal conjugate vaccine (CAPVAXIVE™, Merck):

- Approved by the FDA for adults aged ≥18 years on June 17, 2024[1]

	1	3	4	5	6A	6B	7F	9V	14	18C	19A	19F	23F	22F	33F	8	10A	11A	12F	15B	2	9N	17F	20	15A	15C	16F	23A	23B	24F	31	35B
PCV15																																
PCV20																																
PPSV23																																
PCV21																																

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-06-26-28/01-Pneumococcal-Loehr-508.pdf

PCV-21 is not just PCV-20 + 1



https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-06-26-28/01-Pneumococcal-Loehr-508.pdf

2025 Pneumococcal vaccine recommendations

- PCV-21 recommended for anyone ≥ 50 years old or anyone with an underlying condition or risk factor*
- People who have previously been vaccinated with PCV-20 **do not** need a dose of PCV-21

No boosters.

*Conditions
Alcohol use disorder
Heart disease
Liver disease
Lung disease
CKD
Cigarette smoking
Cochlear implant
Asplenia
CSF leak
Diabetes
Malignancy
HIV
Hodgkin disease
Immunodeficiency
Immunosuppression
Solid organ transplant
Sickle cell disease

Pneumococcal vaccine pearl

	1	3	4	5	6A	6B	7F	9V	14	18C	19A	19F	23F	22F	33F	8	10A	11A	12F	15B	2	9N	17F	20	15A	15C	16F	23A	23B	24F	31	35B
PCV15																																
PCV20																																
PPSV23																																
PCV21																																

"Higher concentrations of **serotype 4** reported in parts of the Western United States, including Alaska, Colorado, New Mexico, and the Navajo Nation."

Consider PCV-20 if you practice in these regions

Pneumococcal vaccine Case series

What pneumococcal series, including booster, does each patient need?

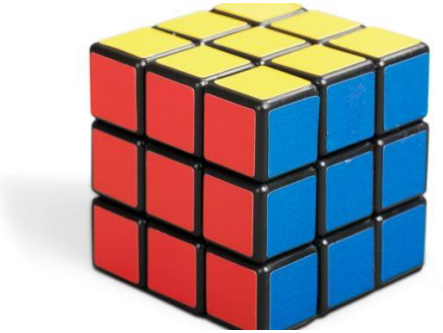
PCV-21 x1*

PCV-21 x1*

PCV-21 x1*

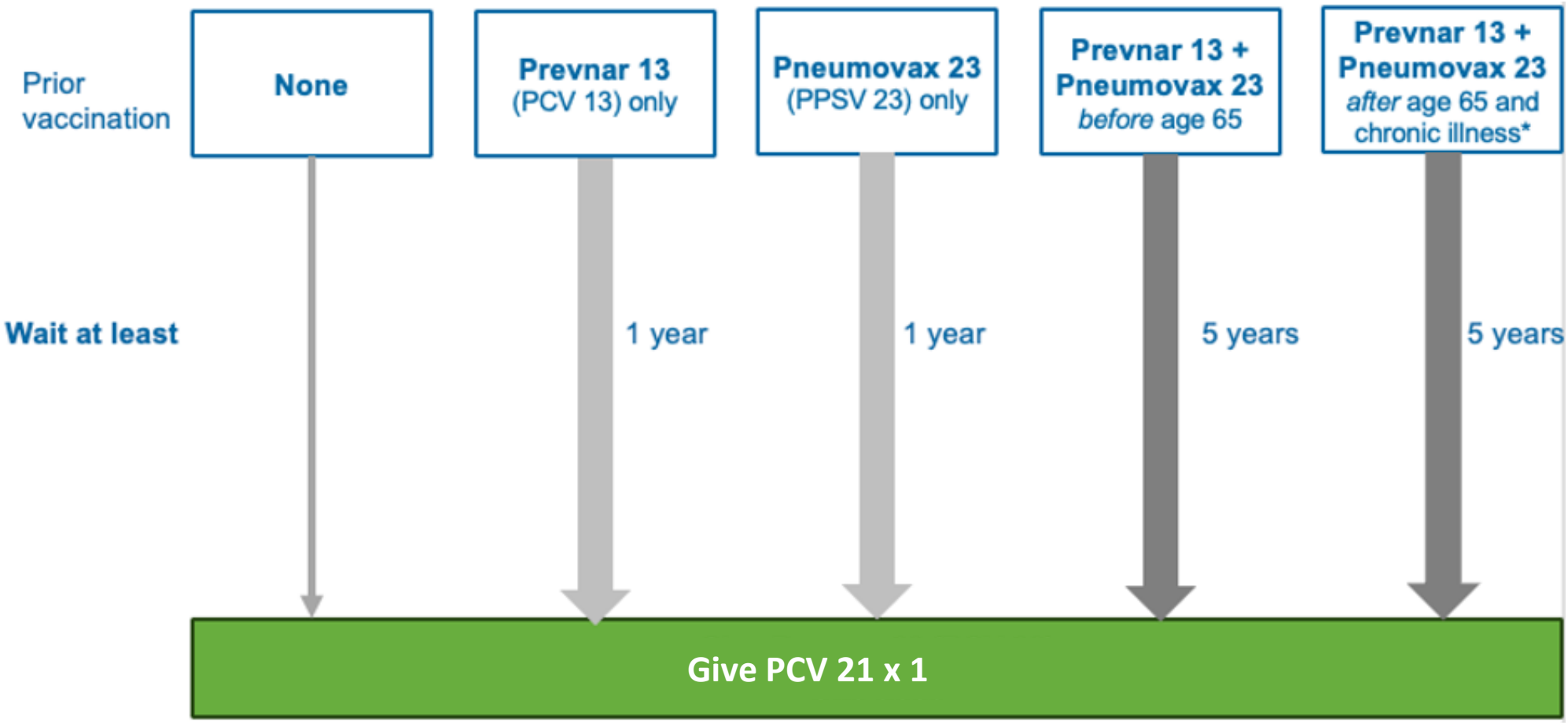
PCV-21 x1*

PCV-21 x1*



*or PCV-20 orPCV-15 + PPSV-23

“But I already started…”



But wait…there's more

New Adult Pneumococcal Vaccines in Advanced Stages of Development

	1	3	4	5	6A	6B	7F	9V	14	18C	19A	19F	23F	22F	33F	8	10A	11A	12F	15B	2	9N	17F	20	15A	15C	16F	23A	23B	24F	31	35B	16F	7C
PCV15	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■																			
PCV20	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■														
PPSV23	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■										
PCV21		■			■		■				■			■	■	■	■	■	■			■	■	■	■	■	■	■	■	■	■	■		
Pn-MAPS24v	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■										
VAX-24	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■										
VAX-31	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		■	■	■		■	■	■	■

24-valent pneumococcal vaccines:

- **Pn-MAPS24v (GSK):** Completed phase 1/2 study for adults; Breakthrough Therapy Designation granted and Phase 3 study in preparation; undergoing phase 2 studies in infants[1]
- **VAX-24 (Vaxcyte):** Completed phase 1/2 studies for adults, completed enrollment for phase 2 studies in infants[2]

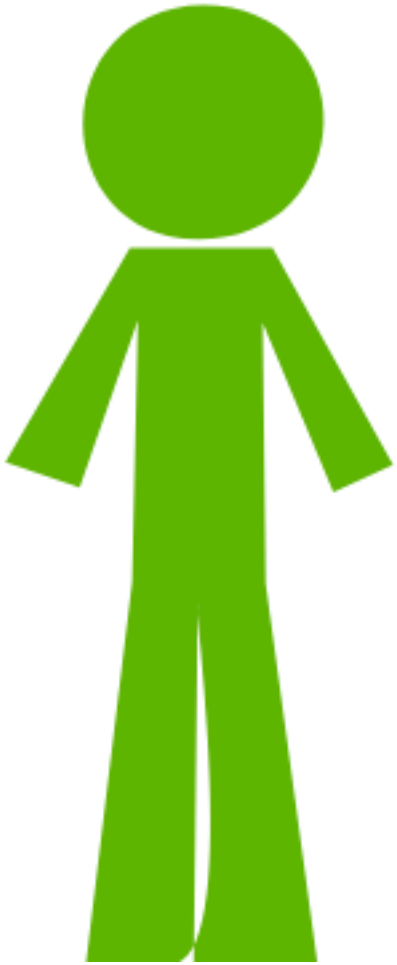
31-valent pneumococcal vaccine (VAX-31, Vaxcyte):

- Completed enrollment of phase 1/2 study in adults aged ≥50 years[3]

https://www.cdc.gov/vaccines/acip/meetings/downloads/slides-2024-06-26-28/01-Pneumococcal-Loehr-508.pdf

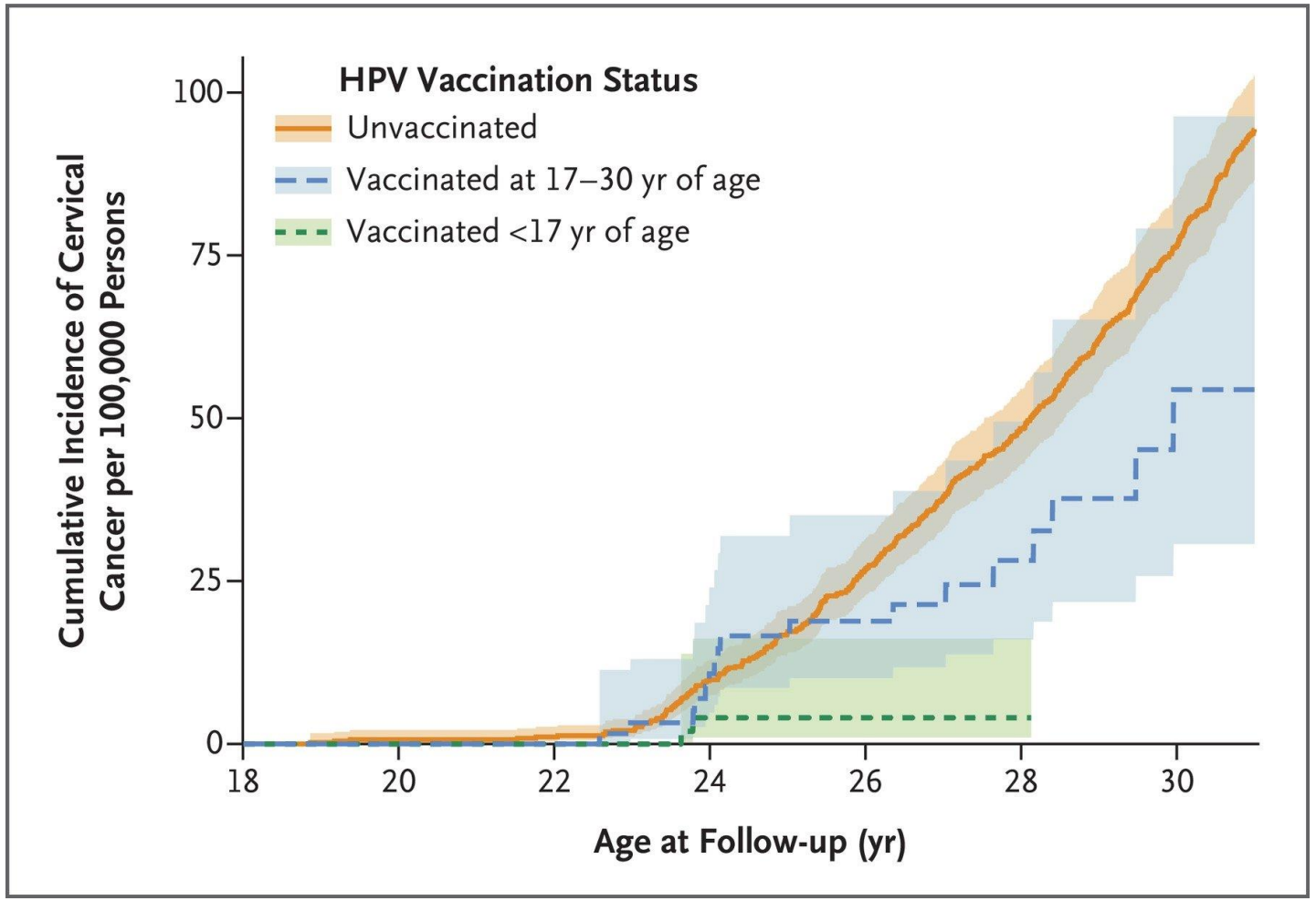
Predictions…

- Polysaccharide vaccine (PPSV-23) will be phased out (nearly gone)
- Rolling approval of conjugate vaccines with broader serotype coverage
- Will people previously vaccinated with PCV-20 or PCV-21 need broader serotype boosters when available?



HPV

The greatest anti-cancer innovation of all time?



Lei J et al. NEJM Oct 1, 2020

HPV Recommendations

- HPV recommended for children and adults aged 9-26 years.
- There is **no** difference between males + females
- Ok to give to adults btw 27-45yo who might benefit (shared decision making)
- Not licensed for those >45 yo

Which 27-45yo patients should receive HPV vaccine?

- Not yet sexually active or minimal partners to date
- Ongoing new sex partners

Probably not needed for those in long term, mutually monogamous sexual partnerships

One dose of HPV vaccine may be non-inferior to two doses in children

ORIGINAL ARTICLE

Noninferiority of One HPV Vaccine Dose to Two Doses

Authors: Aimée R. Kreimer, Ph.D., Carolina Porras, M.S., Danping Liu, Ph.D., Allan Hildesheim, Ph.D., Loretto J. Carvajal, M.D., Rebeca Ocampo, M.D., Byron Romero, M.D., +21 , and Rolando Herrero, M.D. Author Info & Affiliations

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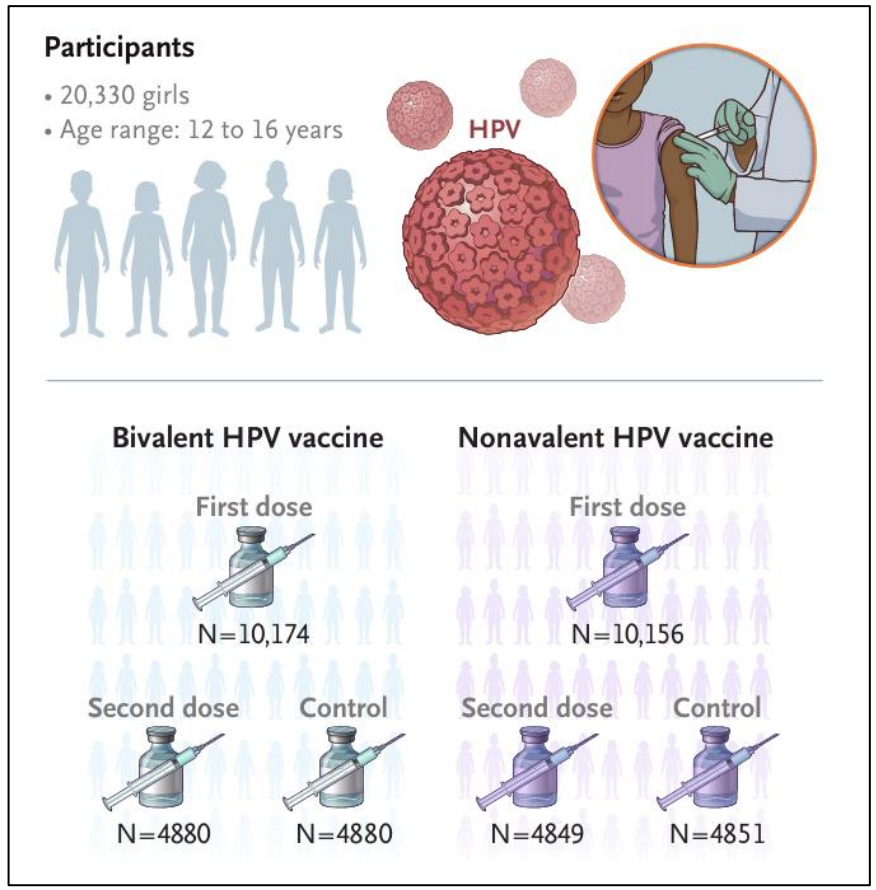
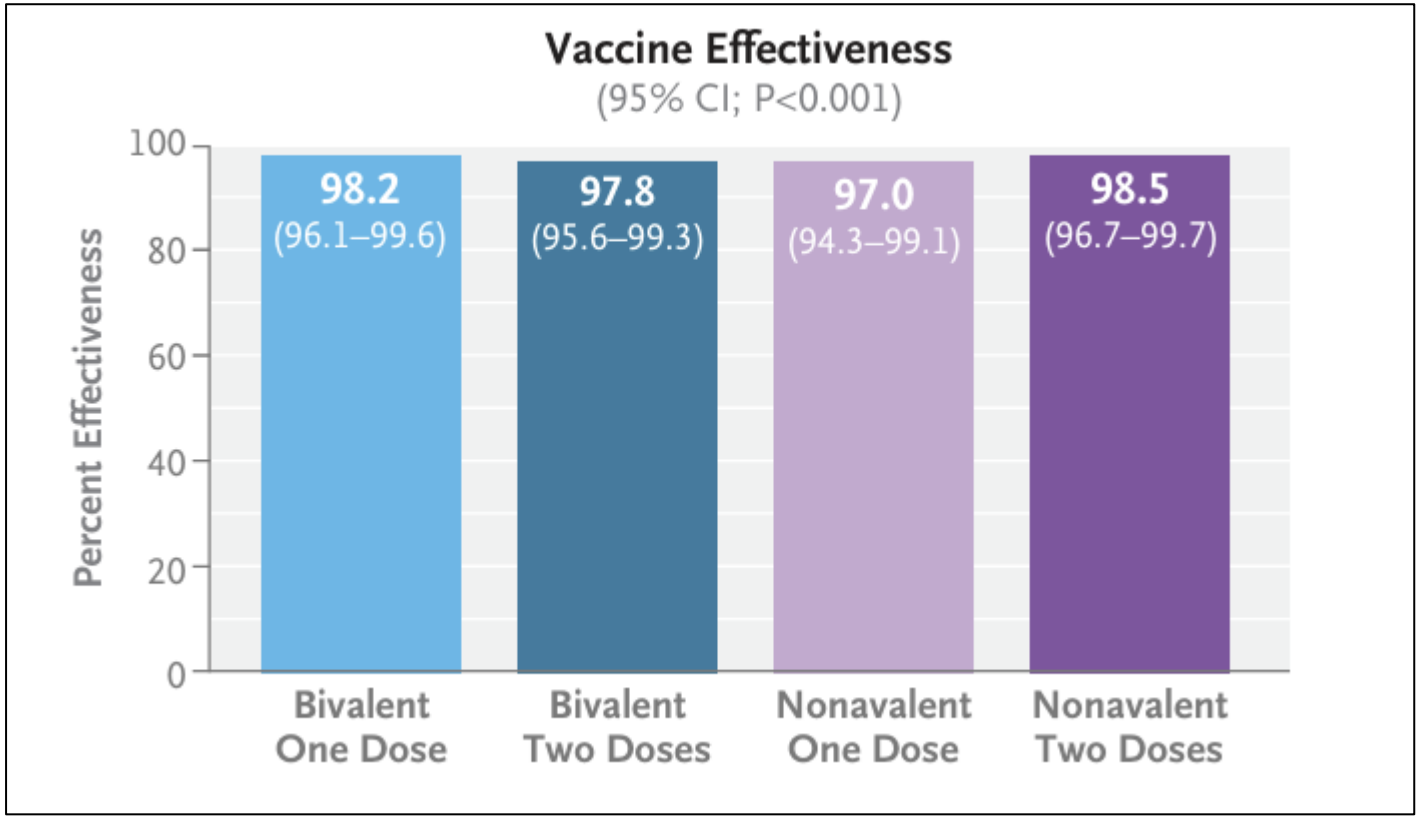




Kreimer AR et al. New Engl J of Med. 2025

RSV

Question 4

Case 4

- 51-year-old woman with history of moderate-severe asthma asks about the RSV vaccine. What do you recommend?
  A. Wait till she is 60
  B. Wait till she is 75
  C. Give RSV vaccine x 1

June, 2025

UPDATE

ACIP June 2025

ACIP Advisory panel vote:

1. One dose RECOMMENDED for anyone age 75 and older

2. One dose RECOMMENDED for **50**-74 who are at high risk for severe RSV disease

3. For people **50-**74 who are NOT at risk for severe RSV disease, RSV vaccine is NOT RECOMMENDED.

RSV vaccination will have the most benefit if given in late summer or early fall.

Adults who have already received a dose of RSV vaccine DO NOT need to receive another dose this year.

Who is at high risk of serious RSV disease?

- Patients who live in congregate living situations (e.g., assisted living or skilled nursing facility).

- Patients with cardiopulmonary disease, kidney disease, liver disease, diabetes mellitus, chronic or progressive neurologic or neuromuscular conditions, and hematologic disorders.

- Patients with moderate to severe immunocompromise

Sept 2023

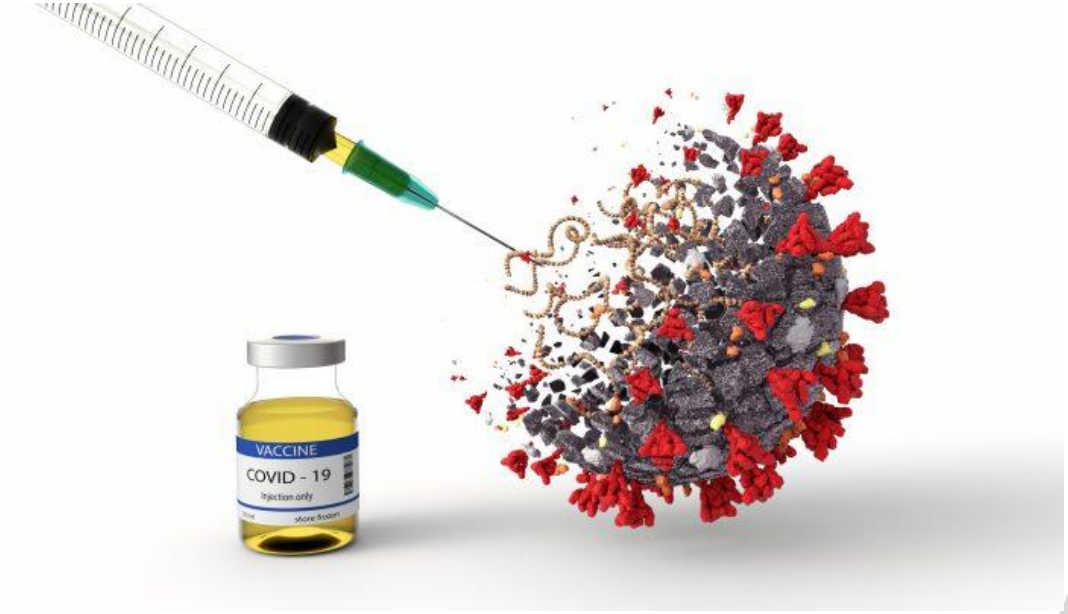
For pregnant women, CDC and ACOG *recommend*:

Seasonal administration of one dose of RSV vaccine for pregnant people during weeks 32 through 36 of pregnancy between September to January.

Question 4 Answer

Case 4

- 51-year-old woman with history of moderate-severe asthma asks about the RSV vaccine. What do you recommend?
  A. Wait till she is 60
  B. Wait till she is 75
  C. Give RSV vaccine x 1



COVID

Question 5

Case 5

A healthy 33-year-old woman who is 20 weeks pregnant comes for her yearly primary care visit. She asks whether she should get the COVID vaccine while pregnant either here in primary care or at her upcoming OB appointment

A. Yes
B. No
C. Not sure, defer to OB

Covid vaccines are safe in pregnancy

Safety Outcome	BNT162b2 (Pfizer)		mRNA-1273 (Moderna)	
	# Studies	Findings	# Studies	Findings
Miscarriage*	1	No safety concern	1	No safety concern
Stillbirth†	3	No safety concern	2	No safety concern
Congenital anomalies‡	1	No safety concern	1	No safety concern

*Sheth 2025. LaCroix 2025 also reported miscarriage incidence of 0.4% and 0.0% with BNT-162b2 and mRNA-1273, respectively.
†Denoble 2024, Mensah 2024, Suseeladevi 2024.
‡Jorgensen 2024. Tamir-Hostovsky 2024 also reported similar frequency of major congenital anoma
controls, 4/78 (5%) vaccinated cases. Kim 2025 found similar similar rates of congenital malformatio
births overall, 95%CI: 71-84).

CIDRAP

NEWS TOPICS & PROJECTS PODCASTS NEWSLETTERS ABOUT

Special project

Vaccine Integrity Project

Safety Outcome	BNT162b2 (Pfizer)		mRNA-1273 (Moderna)	
	# Studies	Findings	# Studies	Findings
SGA*	3 studies	No safety concern	1 study	No safety concern
Preterm birth†	3 studies: Mensah 2024 Hall 2025 Suseeladevi 2024	**Mixed, possible protective effect** **OR: 0.86 (0.83, 0.90)** aHR: 1.12 (0.88, 1.42) **aHR: 0.93 (0.87, 0.99) for 32-36 weeks,** **aHR 0.79 (0.65, 0.97) for 24-<32 weeks**	2 studies: Mensah 2024 Hall 2025	**Possible protective effect** **OR: 0.86 (0.81, 0.93)** aHR: 0.84 (0.60, 1.16)

Research Letter

Modeling the Health Impact of Discontinuing COVID-19 Vaccination During Pregnancy in the US

Nathan C. Lo, MD, PhD[1]; Yvonne Maldonado, MD[2]; Helen Y. Chu, MD, MPH[3] ; et al

» Author Affiliations | Article Information

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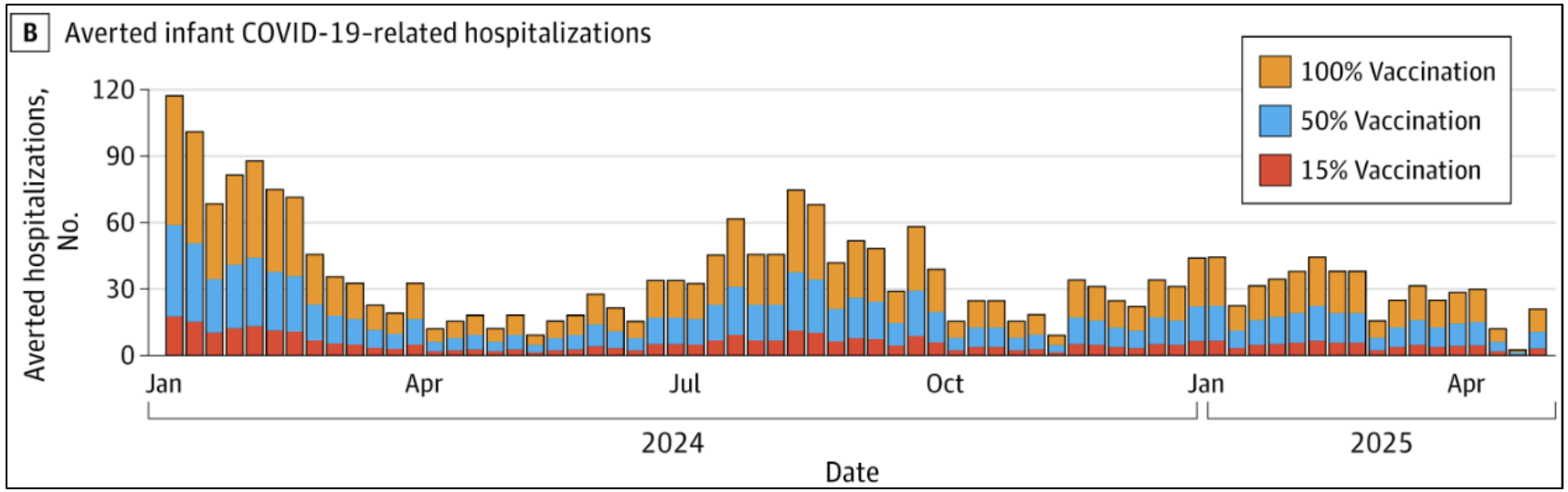


- 2502 hospitalizations averted in young infants
- 456 severe infections averted in pregnant women

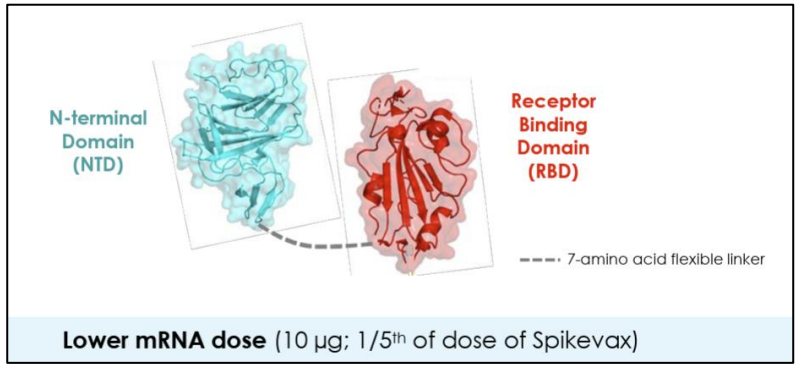
"ACOG continues to recommend that all pregnant and lactating individuals receive an updated Covid-19 vaccine."

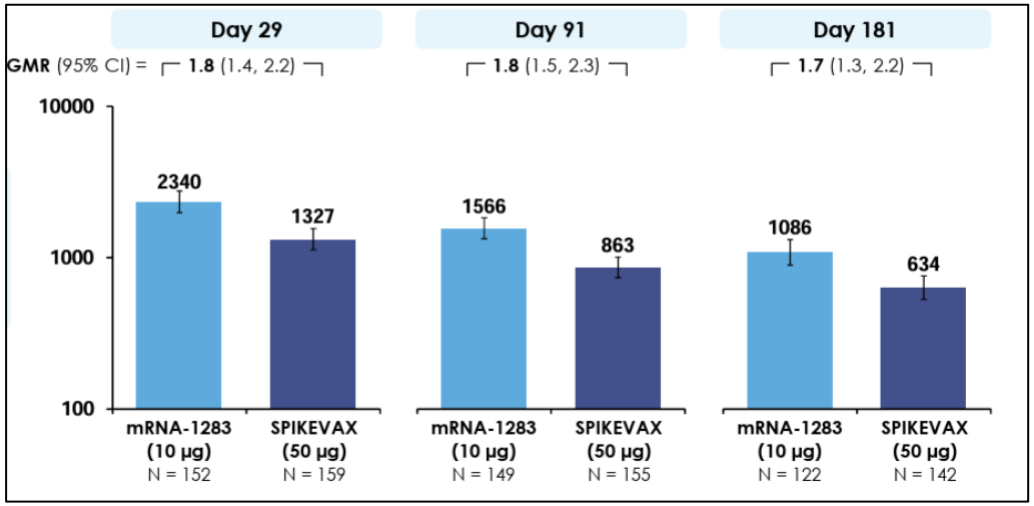
Lo NC et al. JAMA Pediatrics. Sept 2025

Available Covid vaccines

mRNA-1283: Mnexspike

- Uses only a portion of the spike protein
- Lower dose
- Higher immunogenicity over time in adults ≥ 65
- Relative efficacy favorable for individuals with co-morbidities





Participants with COVID-19, % [n/N]	mRNA-1283 (10 µg)	SPIKEVAX (50 µg)
≥ 1 comorbidities	10.2% [267/2617]	12.4% [329/2658]
And ≥ 50 Years	9.6% [169/1755]	12.4% [228/1833]
And ≥ 65 years	8.5% [78/913]	11.8% [110/929]

Question 5 Answer

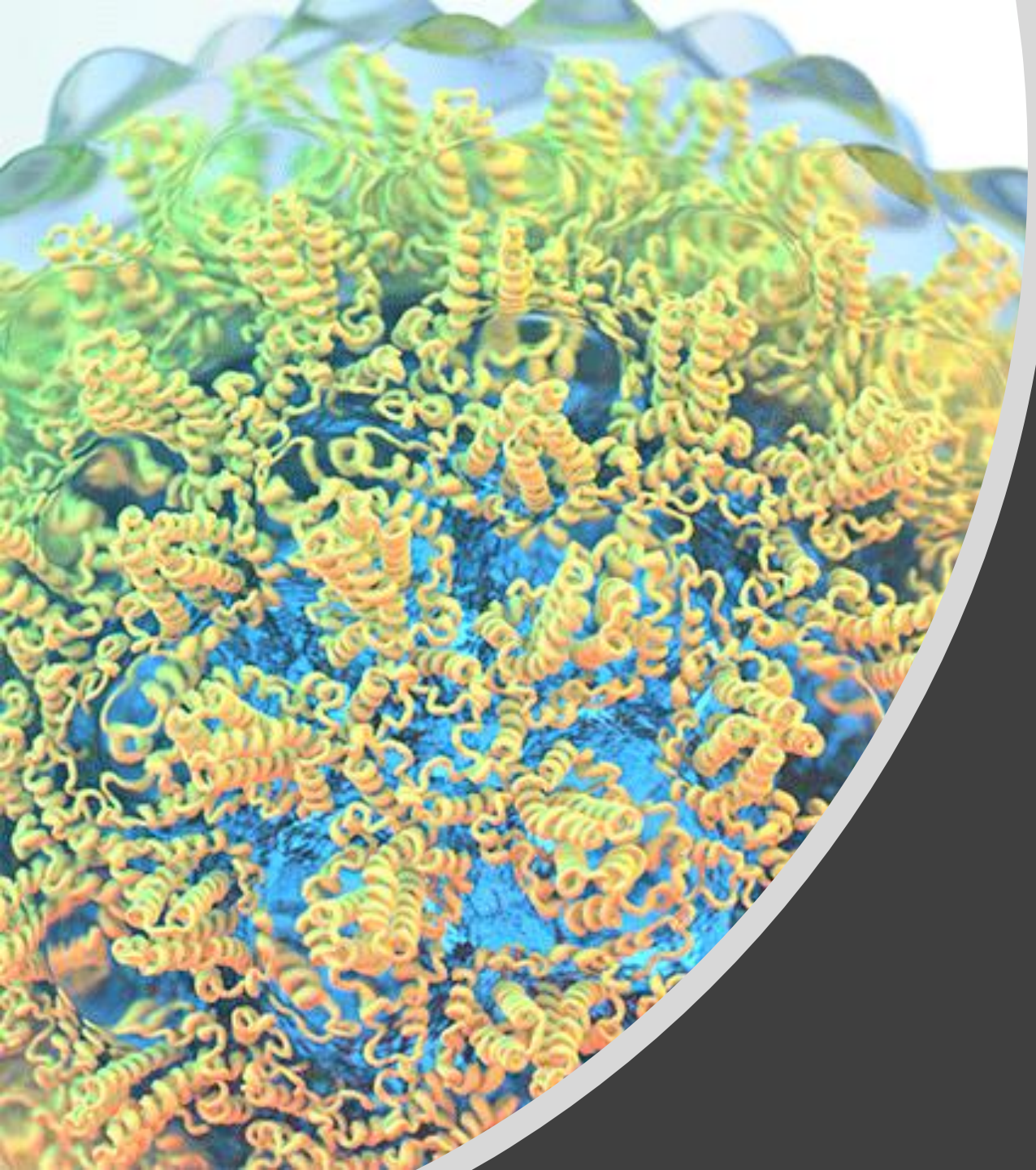
Case 4

A healthy 33-year-old woman who is 20 weeks pregnant comes for her yearly primary care visit. She asks whether she should get the COVID vaccine while pregnant either here in primary care or at her upcoming OB appointment

A. Yes

B. No

C. Not sure, defer to OB



Hepatitis B

Question 6

Case 6

45-year-old healthy woman who is transferring hospitals to take a new job as a hospitalist. She previously had 3 doses of Hep B vaccine and had Titer >10 mIU/mL during her pre-residency testing. Now her Hep B titer is 3mIU/mL (negative) on repeat check. What do you recommend?

A. Do nothing
B. Restart the 3 shot series of the standard HBV vaccine
C. Restart the 2 shot series with Heplisav-B
D. Give one shot of standard vaccine and repeat titer 4-8 weeks later. If negative, rinse and repeat.

Strategy to eliminate HBV transmission in US

- Universal vaccination of all infants beginning at birth
- Routine vaccination of previously unvaccinated children <19
- Vaccination of ALL adults <60 and anyone over 60 who wants it or has risk factors

Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos
1st dose	2nd dose			←3rd dose→			

If there is a delay, there is no need to restart the vaccine series. Just pick up where you left off!

Who needs titers after vaccination?

- Infants born to HBsAg-positive women
- Healthcare professionals, public safety works with exposure to blood
- Patients on hemodialysis
- HIV-infection or other immunocompromised
- Sex partners or needle sharing partners of HBsAg-positive persons

Perform titers 1-2 months after last dose. Provide booster if non-immune.

Titers may wane over time, but will boost with re-exposure. Any positive hep B titer in the past counts as immunity.

Heplisav-B

- Contains novel immunostimulatory adjuvant to boost immune response
- Approved by FDA November 2017
- ACIP included as option for HBV vaccination in adults ≥18
- Recommended as vaccine for all patients with HIV

Parameter	Engerix-B	Heplisav-B
Schedule	3 doses (0, 1 mo, 6 mo)	2 doses (0, 1 mo)
Efficacy (% achieving seroprotection)	65-81%	90-95%
Side effects	No significant difference	No significant difference
Covered by insurance?	Yes	Yes (including medicare)

Question 6 Answer

Case 6

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All vaccines can be given together (no upper limit) except in the following situations

1. **If 2 Lives vaccines are not given on the same day then you have to wait to give the second live vaccines 4 weeks later**

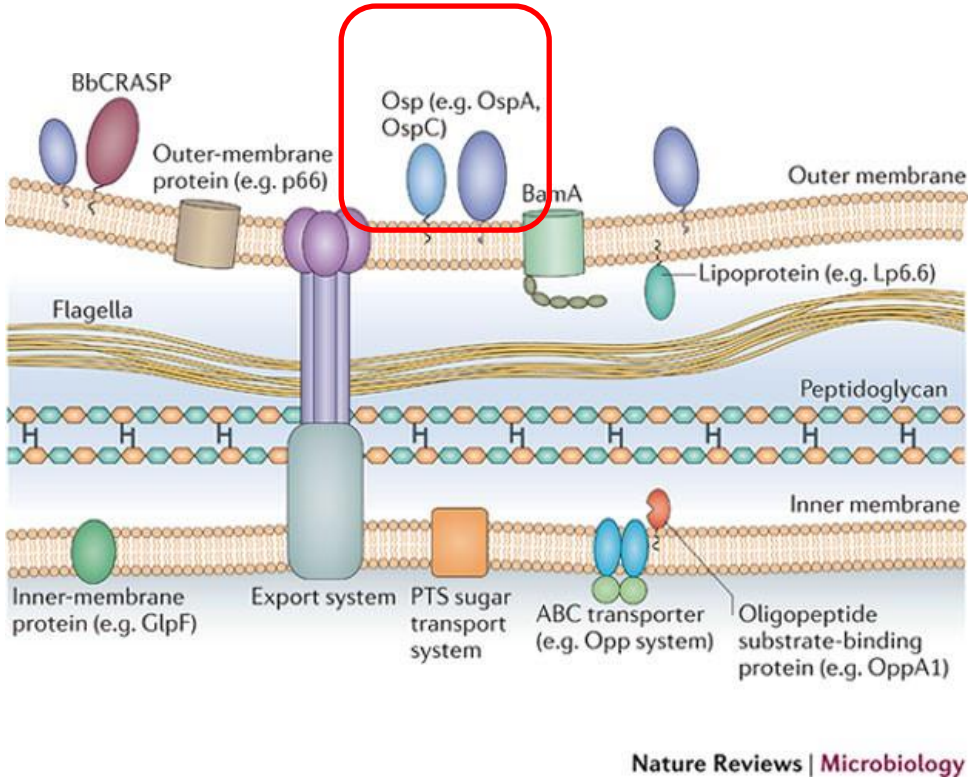
What about Medicare coverage for these vaccines?

- **Vaccines covered by Part B**
  - Flu shot
  - PCV21
  - COVID vaccine
  - Hepatitis B if medium to high risk
  - Tetanus vaccine or Rabies vaccine if have acute bite/wound

- **Vaccines only covered by Part D**
  - Shingles vaccine
  - RSV
  - MMR
  - Hep A/B for low risk patients
  - Meningococcal
  - Tdap

Future Lyme Disease Vaccine?

VALOR:
Vaccine **A**gainst **L**yme Disease for **O**utdoor **R**ecreationists



- Phase 3 study of a 6-valent Lyme vaccine (LBV6)
- Target: OspA
- Series: 0 months, 2 months, 6 month supported by phase 2 data
- Disease endemic areas in Europe and U.S
- Outcomes: RR of confirmed Lyme, antibody response

Wagner Laura et al. Lancet ID. 2025

Pfizer and Valneva Announce Lyme Disease Vaccine Candidate Demonstrates Strong Efficacy in Phase 3 VALOR Trial

Monday, March 23, 2026 - 06:45am

- Efficacy of 73.2% from 28 days post-dose 4 (season 2) (95% CI 15.8, 93.5)

Lyme vaccine may be on the horizon!

MOC REFLECTIVE STATEMENT (BRIEF TAKE HOME POINTS)

- RZV (Shingrix) for immunocompromised 18-49 and everyone ≥ 50
- Anyone who will have close contact with a newborn needs to be up to date on Tdap
- PCV-21 for those ≥ 50 + anyone 19-49 with medical conditions
- RSV for those ≥ 75 + anyone 50-74 who is at risk of severe RSV
- HPV vaccine for everyone up to 26 and for some btw 27-45
- Data supports Pregnant women getting the COVID vaccine
- Hep B sAB + titer in the past counts as immunity

Key References

1) CDC Ask the Experts:

http://www.immunize.org/askexperts/

Thank you to Dr. Daniel Solomon for consultation and for sharing slides for this talk.