Immunization Update 2023

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Disclosures

Sara Couture, PharmD, has no disclosures to declare.

Learning Objectives

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

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

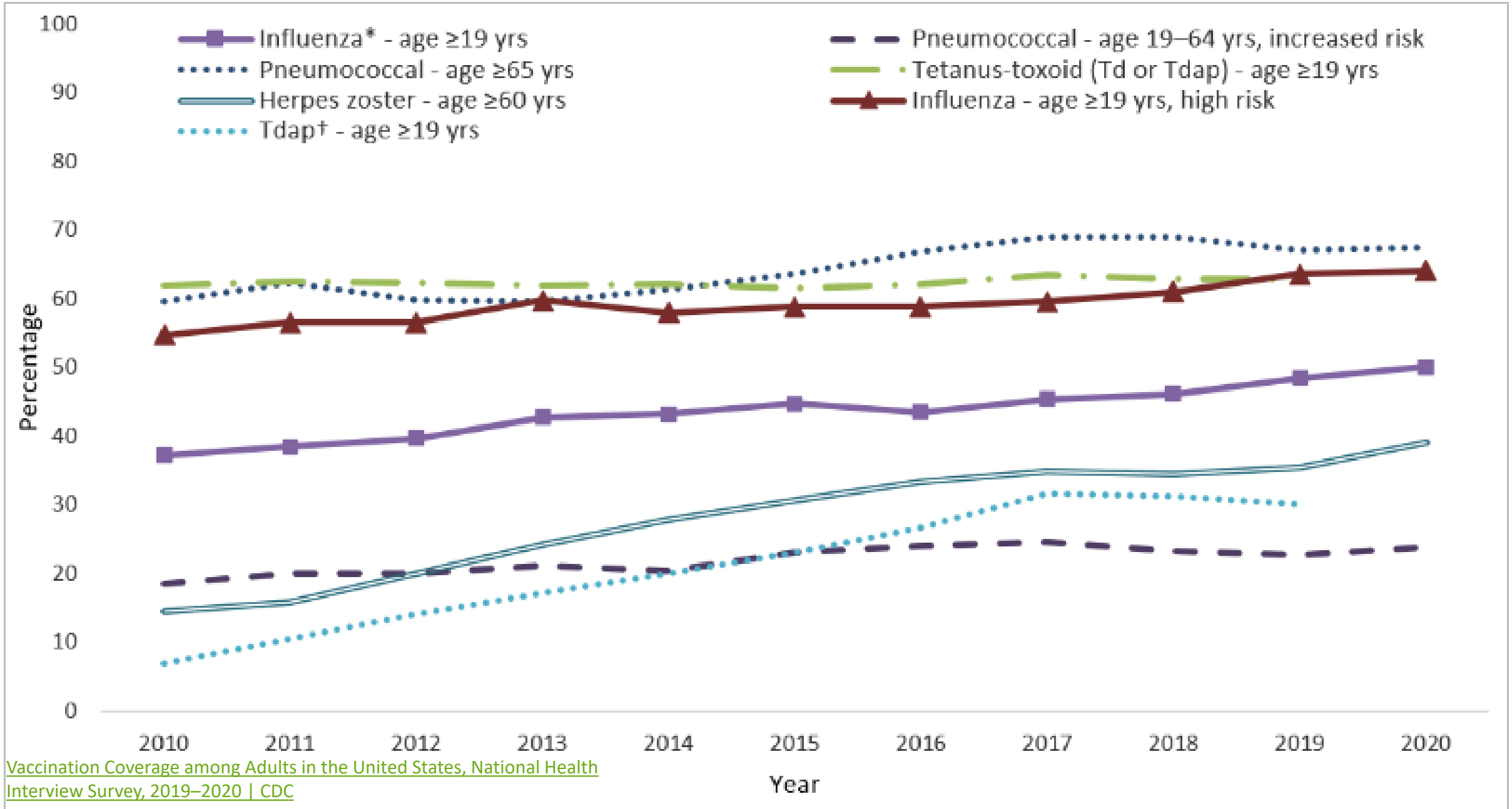
Demonstrate techniques and strategies to make strong vaccine recommendations and get patients immunized.

Gaps in Vaccination Rates

National Health Interview Survey (NHIS) – data from 2017 – 2021 used to assess adult (aged ≥19 years) vaccination rates

- Lower coverage among Black and Hispanic adults compared with White adults.
- Increased for influenza and herpes zoster vaccination
- Remained stable for pneumococcal vaccination among adults aged 19–64 years at increased risk of disease
- Decreased for pneumococcal vaccination among adults aged ≥65 years.
- Overall vaccination coverage among U.S. adults remains low for most vaccines.

Trends in Adult Vaccination Coverage NHIS 2010-2020



Vaccination Coverage among Adults in the United States, National Health Interview Survey, 2019–2020 | CDC

Influenza

Influenza Disease Burden

Rates of infection are highest among children

Most people recover without serious complications, but influenza can lead to serious illness

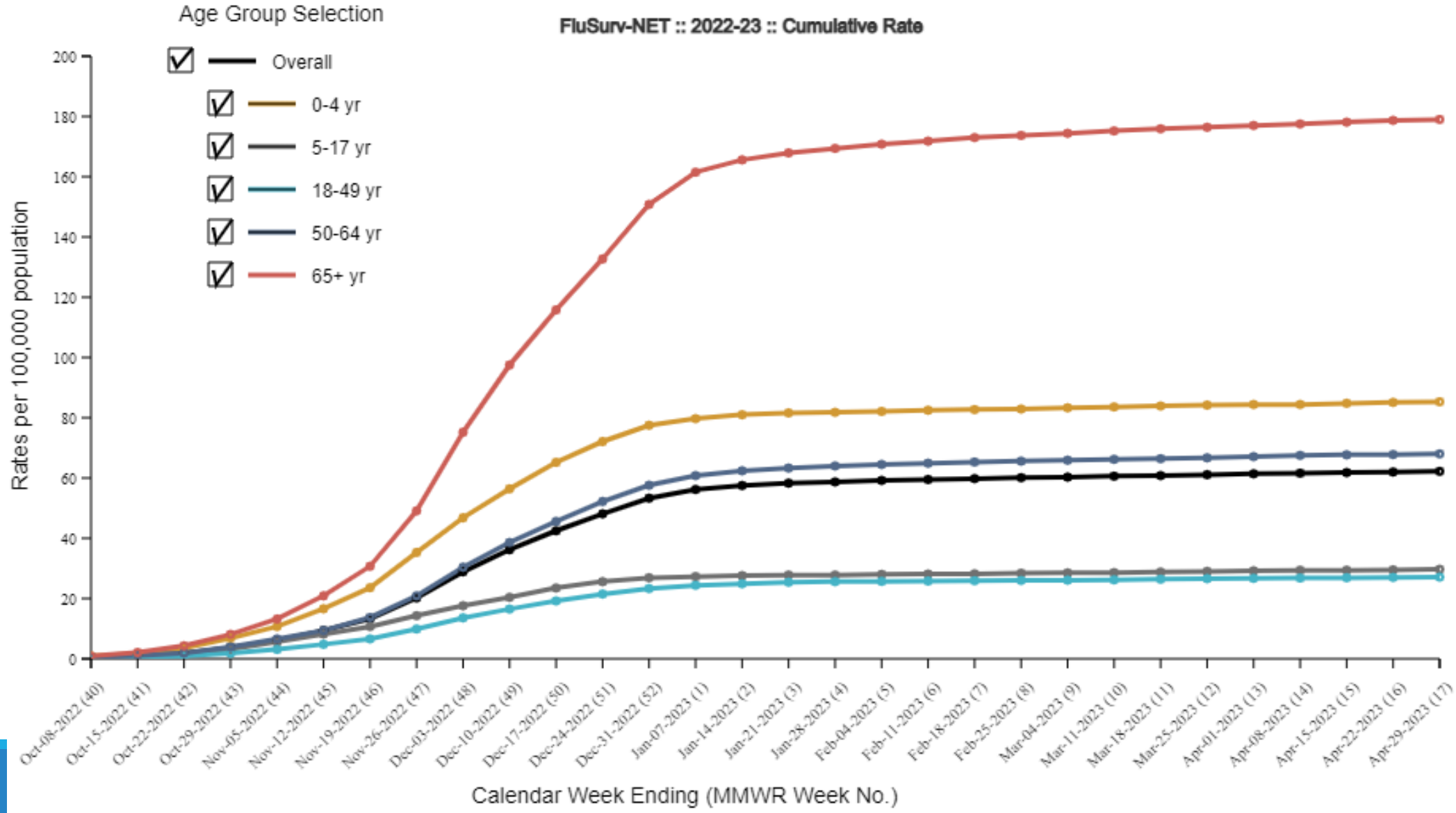
Risks for complications, hospitalizations, and deaths are highest among:

- 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 also is an important cause of missed work and school

FLUVIEW interactive

Laboratory-Confirmed Influenza Associations, FluSurv-NET, 2022-23



Influenza Burden Prevented by Vaccination

During each of the six influenza seasons from 2010–11 through 2015–16, influenza vaccination prevented an estimated

- 1.6–6.7 million illnesses
- 790,000–3.1 million outpatient medical visits
- 39,000–87,000 hospitalizations
- 3,000–10,000 respiratory and circulatory deaths

During the severe 2017–18 season (long duration of widespread high influenza activity and higher rates of outpatient visits/hospitalizations), vaccination prevented an estimated:

- 7.1 million illnesses
- 3.7 million medical visits
- 109,000 hospitalizations
- 8,000 deaths

Overall estimated vaccine effectiveness of 38%

Influenza – CDC 2023-24 Recommendations

Routine annual influenza vaccination is recommended for all persons aged ≥6 months who do not have contraindications.

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

Recommendations for older adults are similar to last season

Changes for this season:

- Updated vaccine composition
- Recommendations for vaccination for persons with egg allergy

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023–24 Influenza Season | MMWR (cdc.gov)

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

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023–24 Influenza Season | MMWR (cdc.gov)

Influenza – 2023-24 Vaccine Composition

U.S. egg-based influenza vaccines (i.e., vaccines other than ccIIV4 and RIV4) will contain HA derived from (Fluad, Fluzone, Fluarix, Flulaval):

- an influenza A/Victoria/4897/2022 (H1N1)pdm09-like virus,
- an influenza A/Darwin/9/2021 (H3N2)-like virus,
- an influenza B/Austria/1359417/2021 (Victoria lineage)-like virus, and
- an influenza B/Phuket/3073/2013 (Yamagata lineage)-like virus.

U.S. cell culture–based inactivated (ccIIV4) and recombinant (RIV4) influenza vaccines will contain HA derived from (Flucelvax, Flublok):

- an influenza A/Wisconsin/67/2022 (H1N1)pdm09-like virus,
- an influenza A/Darwin/6/2021 (H3N2)-like virus,
- an influenza B/Austria/1359417/2021 (Victoria lineage)-like virus, and
- an influenza B/Phuket/3073/2013 (Yamagata lineage)-like virus.

Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023–24 Influenza Season | MMWR (cdc.gov)

Influenza Vaccines by Age Indication, United States, 2023–2024 Influenza Season

Vaccine type		0 through 6 months	6 through 23 months	2 through 17 years	18 through 49 years	50 through 64 years	≥65 years
IIV4s	Standard-dose unadjuvanted inactivated (IIV4)		Afluria Quadrivalent Fluarix Quadrivalent FluLaval Quadrivalent Fluzone Quadrivalent				
	Standard-dose Cell culture-based inactivated (ccIIV4)		Flucelvax Quadrivalent				
	Standard-dose adjuvanted inactivated (aIIV4)						Fluad Quadrivalent*
	High-dose inactivated (HD-IIV4)						Fluzone High-Dose Quadrivalent*
RIV4	Recombinant (RIV4)				Flublok Quadrivalent*		
LAIV4	Live attenuated (LAIV4)			FluMist Quadrivalent			

IIV4=quadrivalent inactivated influenza vaccine **RIV4**=quadrivalent recombinant influenza vaccine **LAIV4**=quadrivalent live attenuated influenza vaccine

Not approved for age group *Egg-based* *Not egg-based*

* Preferred for those aged ≥65 years

Influenza – Older Adults

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 Effectiveness Among Older Adults

Season	Overall VE, % (all ages, viruses, and vaccine types)	≥65 yrs (all viruses and vaccine types)
2021–22	36 (21, 48)	10 (-60, 49)*
2019–20	39 (32, 44)	39 (9, 59)
2018–19	29 (21, 35)	12 (-31, 40)
2017–18	38 (31, 43)	17 (-14, 39)
2016–17	40 (32, 46)	20 (-11, 43)
2015–16	48 (41, 55)	42 (6, 64)
2014–15	19 (10, 27)	32 (3, 52)
2013–14	52 (44, 59)	50 (16, 71)
2012–13	49 (43, 55)	26 (-10, 50)
2011–12	47 (36, 56)	43 (-18, 72)

* Age ≥50 yrs

Past Seasons' Vaccine Effectiveness Estimates

- Influenza vaccines are often less effective for older adults compared with younger populations.
- Data support greater potential effectiveness of HD-IIV3, aIIV3, or RIV4 compared with standard-dose unadjuvanted IIVs.
  - Most data available for HD-IIV3.
  - Comparisons of these vaccines with one another are limited, as are data for currently available quadrivalent HD-IIV and aIIV.

Egg Allergy

Affects approximately 1–3% of children by age 3 years.

Resolves for many in later childhood/adolescence (~68% by age 16 years).

While more common among children, some adults might be concerned about receiving flu vaccine due to egg allergy.

- Severe allergic reaction to any vaccine component is listed as a contraindication in package inserts for egg-based flu vaccines.

Previously it was recommended that all with egg allergy should receive any flu vaccine appropriate for age and health status.

- Those with severe egg allergy recommended to be vaccinated in a medical setting if an egg-based vaccine used.

ACIP Evidence to Recommendations (EtR) Framework: Safety of Influenza Vaccines for Persons with Egg Allergy | CDC

Egg Allergy – Update for 2023-2024

All people aged ≥6 months with egg allergy should receive influenza vaccine.

Any influenza vaccine (egg based or non-egg based) that is otherwise appropriate for the recipient's age and health status can be used.

No recommendations for specific vaccines or vaccination setting.

Egg allergy in and of itself necessitates no additional safety measures for influenza vaccination beyond those recommended for any recipient of any vaccine, regardless of severity of previous reaction to egg.

- All vaccines should be administered in settings in which personnel and equipment needed for rapid recognition and treatment of acute hypersensitivity reactions are available.

ACIP Evidence to Recommendations (EtR) Framework: Safety of Influenza Vaccines for Persons with Egg Allergy | CDC

Question

Which of the following is true regarding flu vaccine recommendations for a patient with an egg allergy?

a. Patient should receive a cell-based flu vaccine only
b. Patient can receive an egg-based vaccine if it is administered in an inpatient or outpatient medical setting supervised by a provider able to recognize and manage severe allergic reactions
c. Patient can receive any flu vaccine (egg based or nonegg based) that is otherwise appropriate for the recipient's age and health status
d. Patients with an egg allergy are not recommended to receive a flu vaccine at an outpatient pharmacy setting

COVID-19

COVID-19 Disease Burden

Varies by age and underlying conditions with those ages≥ 65 years and those with multiple underlying conditions having the highest risk of severe outcomes

Currently lower than at previous points in the pandemic but there are still thousands of hospitalizations and hundreds of deaths each week

Children and adults ages 5-49 had the lowest hospitalization rates overall

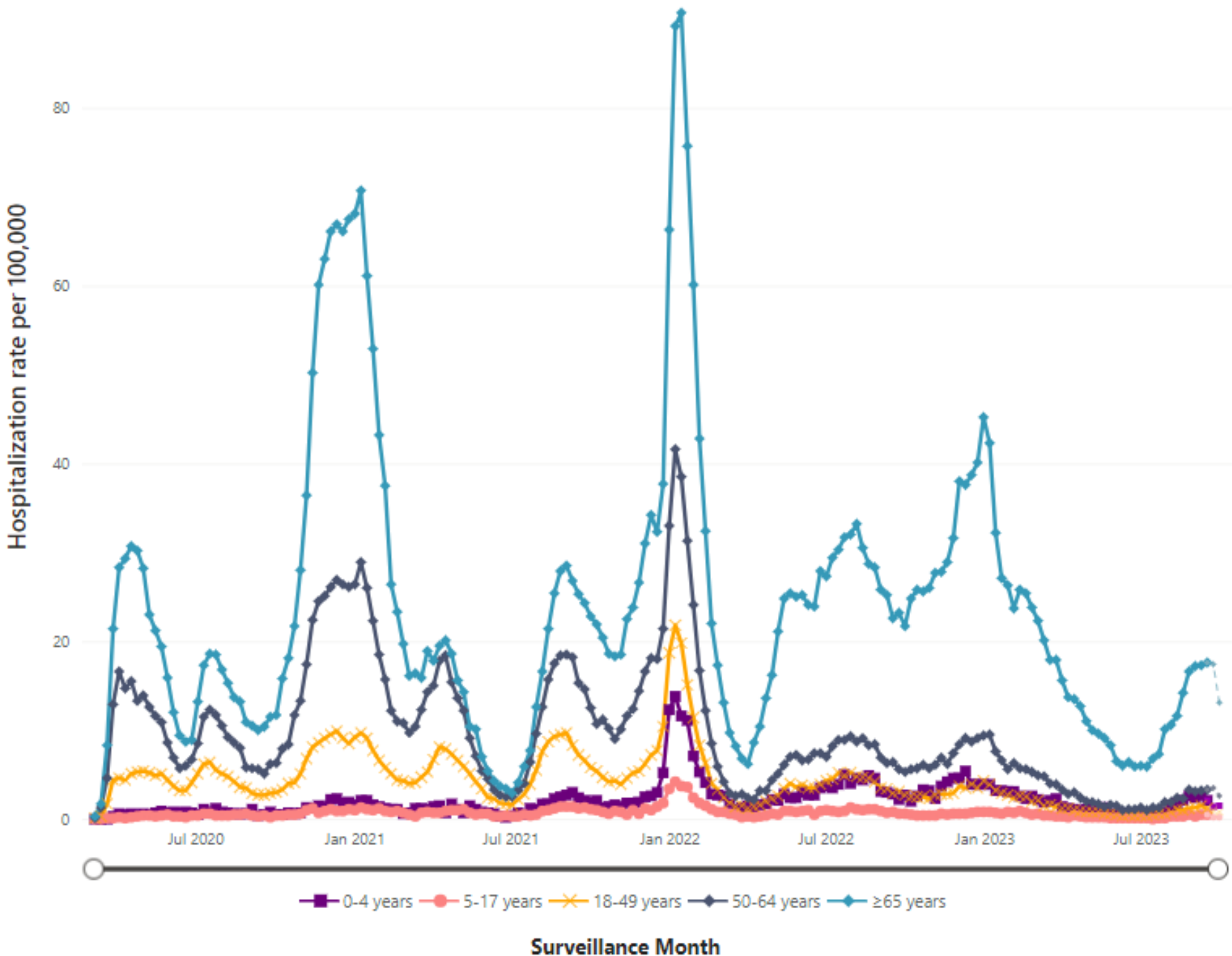
- Severe outcomes occur in this age group, including people with no underlying conditions

Majority of US population has some level of immunity due to infection or vaccination

- Vaccine and infection induced immunity wane and new variants have emerged suggesting that susceptibility remains and may increase over time

Racial and ethnic minority groups have been disproportionately affected by COVID-19

Rates of COVID-19 Associated Hospitalization



2023 – 2024 COVID-19 Vaccines

mRNA vaccines
- Moderna
  - Authorized for children ages 6 months–11 years
  - SPIKEVAX is the licensed Moderna product for people ages 12 years and older.
- Pfizer-BioNTech
  - Authorized for children ages 6 months–11 years
  - COMIRNATY is the licensed Pfizer-BioNTech product for people ages 12 years and older.

Protein subunit vaccine
- Novavax
  - Authorized for people ages 12 years and older.

2023-2024 COVID-19 Vaccine Recommendations

COVID-19 vaccination is recommended for everyone ages 6 months and older

There is no preferential recommendation for the use of any one COVID-19 vaccine over another

2023–2024 formulation for all COVID-19 vaccines licensed or authorized in the United States has been updated to a monovalent vaccine based on the Omicron XBB.1.5 sublineage of SARS-CoV-2

The Original monovalent and bivalent (Original and Omicron BA.4/BA.5) formulations should no longer be used

COVID-19 Vaccination Schedule

people who are **NOT** moderately or severely immunocompromised

Unvaccinated	2 doses Moderna	3 doses Pfizer-BioNTech	1 dose Moderna	1 dose Pfizer-BioNTech	1 dose Moderna	1 dose Pfizer-BioNTech	2 doses Novavax
	6 months – 4 years*		5-11 years		≥ 12 years		

*Primary series must be homologous. At least 1 dose of 2023-2024 formula.

Previously Vaccinated	1 dose Moderna	1 dose Pfizer-BioNTech	1 dose Moderna	1 dose Pfizer-BioNTech	1 dose Novavax
	6 months – 11 years		>12 years		

2023–2024 COVID-19 vaccine dose is recommended at least 2 months after receipt of the last COVID-19 vaccine dose

COVID-19 Vaccination Schedule

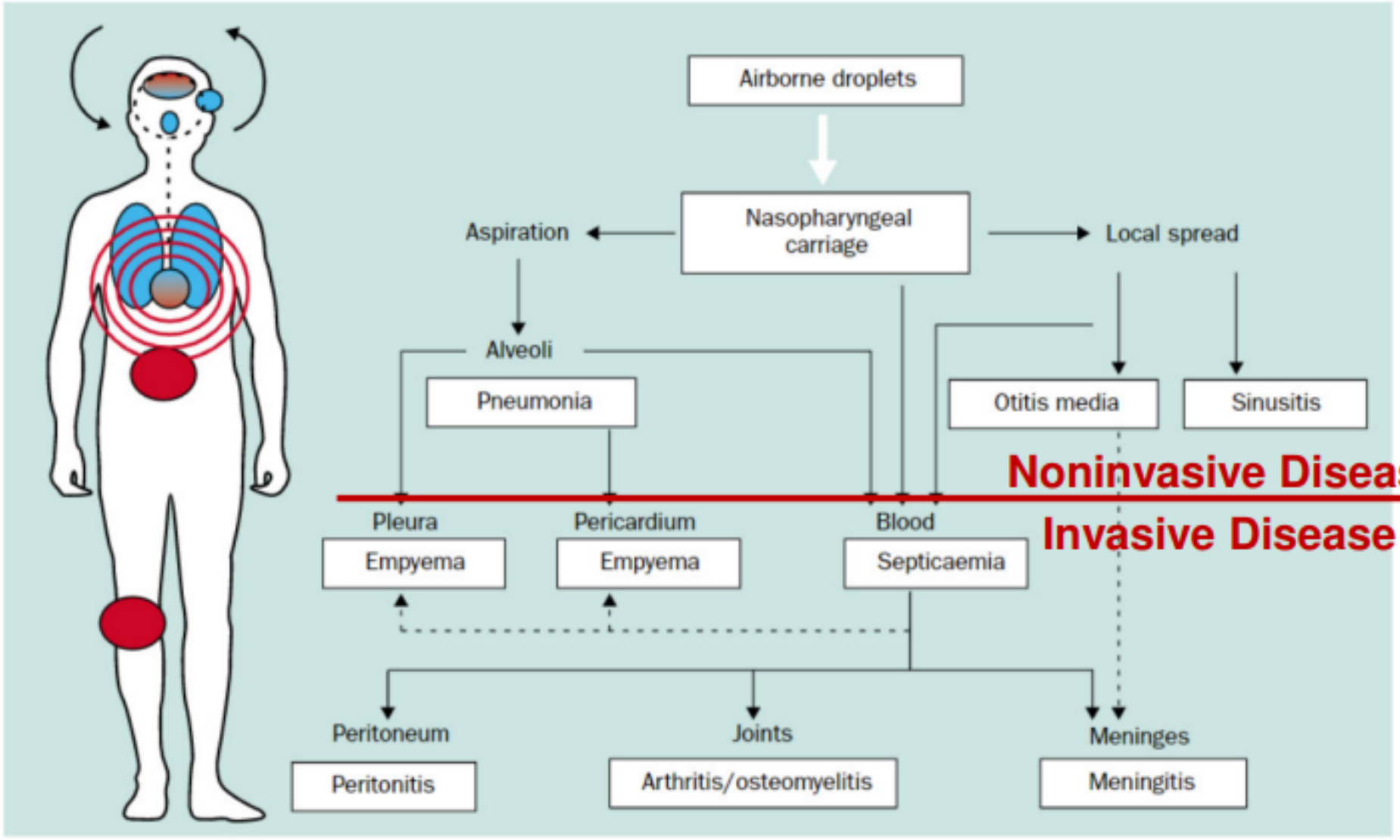
people who **ARE** moderately or severely immunocompromised

Unvaccinated	3 doses Moderna	3 doses Pfizer-BioNTech	3 dose Moderna	3 dose Pfizer-BioNTech	3 doses Moderna	3 doses Pfizer-BioNTech	2 doses Novavax
	6 months – 4 years		5-11 years		≥ 12 years		
	Primary series must be homologous						

Previously Vaccinated	1 dose Moderna	1 dose Pfizer-BioNTech	1 dose Moderna	1 dose Pfizer-BioNTech	1 dose Moderna	1 dose Pfizer-BioNTech	1 dose Novavax
	6 months – 4 years		5-11 years		≥ 12 years		
	Must be homologous to primary series		Can be either mRNA manufacturer		Any updated formula can be used		

Pneumococcal Disease

Pneumococcal carriage is precursor to pneumococcal disease

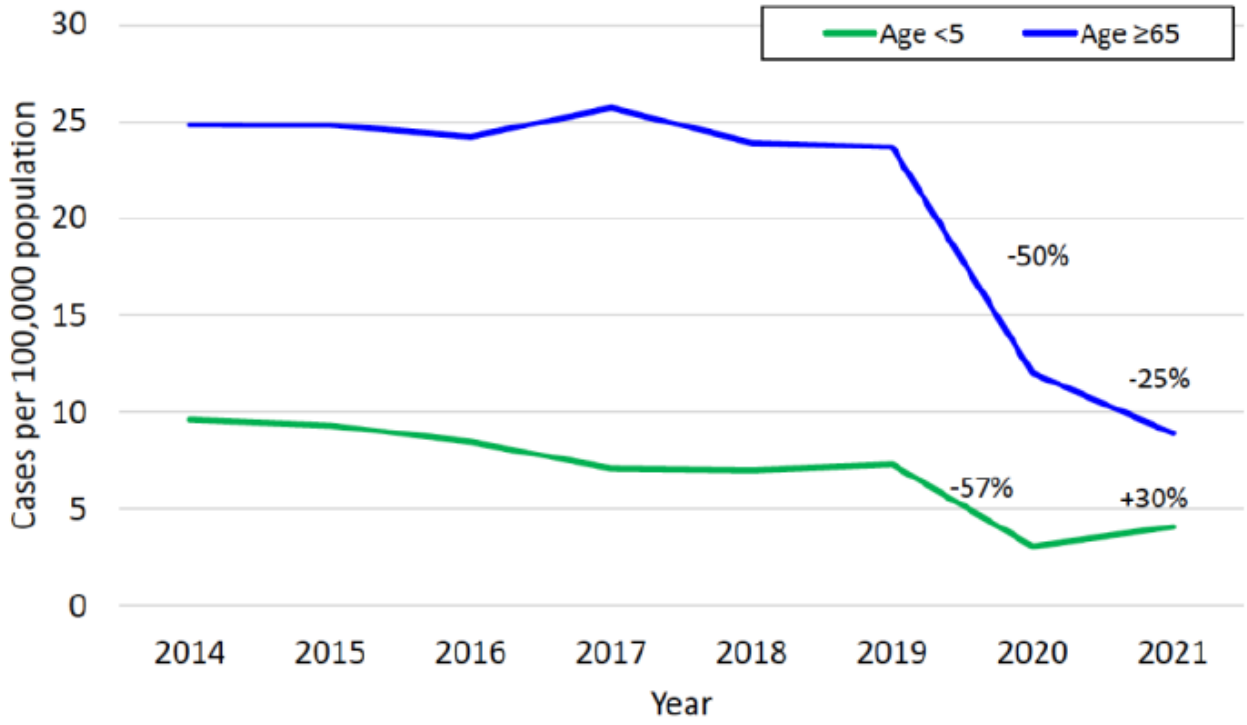


More frequent

Less frequent

Figure 1. Pathogenic route for S pneumoniae infection. Redrawn from reference 2. Organs infected through the airborne and haematogenic routes are depicted in blue and red, respectively.

Overall Invasive Pneumococcal Disease (IPD) incidence decreased in both adults and children early during the COVID-19 pandemic.



Children < 5 years

57% decline in overall IPD in 2020,
30% increase in 2021

Adults ≥ 65 years

50% decline in overall IPD in 2020,
additional 25% decline in 2021

CDC Active Bacterial Core surveillance unpublished data

Pneumococcal Disease Risk Factors

IPD in 2019:

- ~43% of adult cases occurred in the ≥65 years or older age group
- ~50% of adult cases were in the persons aged 19-64 years who were at increased risk for pneumococcal disease
- Indicates more than 90% of current IPD burden is in these two populations

Chronic health conditions or other factors that increase risk for pneumococcal disease include:

- Alcoholism
- Cerebrospinal fluid leak
- Chronic heart/liver/lung disease
- Cigarette smoking
- Cochlear implant
- Diabetes mellitus

CDC Active Bacterial Core Surveillance (ABCs) tracks IPD

- Patients ≤2 and ≥ 65 years of age have the highest rates of IPD
- About 10% of patients with IPD die of their illness but fatality rates are higher for elderly or those with certain underlying illness

Pneumococcal - Vaccine Preventable Diseases Surveillance Manual | CDC

Pneumococcal Vaccines

- PPSV23 (Pneumovax23), a 23-valent pneumococcal polysaccharide vaccine
- PCV13 (Prevnar13), a 13-valent pneumococcal conjugate vaccine
- PCV15 (Vaxneuvance), 15-valent pneumococcal conjugate vaccine
- PCV20 (Prevnar20), a 20-valent pneumococcal conjugate vaccine

Pneumococcal Vaccine Schedule - Adults Aged ≥ 65 years

	Any/No Underlying Condition	No specified immunocompromised condition	Immunocompromising condition, CSF leak, cochlear implant
Vaccine Previously Received (at any age)	**Schedule A**	**Schedule B**	**Schedule B**
None/unknown/PCV7	PCV20	PCV15 then PPSV23 ≥1 year later	PCV15 then PPSV23 ≥ 8 weeks later
PPSV23 only	PCV20 ≥1-year interval after PPSV23	PCV15 ≥1 year after PPSV23 was administered	PCV15 ≥1 year after PPSV23 was administered
PCV13 only	PCV20 ≥1-year interval after PCV13	PPSV23 ≥1 year after PCV13 was administered	PPSV23 ≥ 8 weeks after PCV13 was administered
PCV13 + PPSV23 but no PPSV23 at age ≥65 years	PCV20 ≥5-year interval since last PCV13 or PPSV23 dose	PPSV23 ≥1 year after PCV13 was administered and ≥ 5 years since last PPSV23 dose	PPSV23 ≥8 weeks after PCV13 was administered and ≥ 5 years since last PPSV23 dose
PCV13 + PPSV23 PPSV23 was admin at age ≥ 65 years	Shared Clinical Decision Making PCV20 ≥5-year interval since last PCV13 or PPSV23 dose	N/A	N/A

Pneumococcal Vaccine Schedule - Adults Aged 19 – 64 yrs with specified immunocompromising conditions

Vaccine Previously Received (at any age)	**Schedule A**	**Schedule B**
None/unknown/PCV7	PCV20	PCV15 then PPSV23 ≥ 8 weeks later
PPSV23 only	PCV20 ≥1-year interval after PPSV23	PCV15 ≥1 year after PPSV23 was administered
PCV13 only	PCV20 ≥1-year interval after PCV13	PPSV23 ≥8 weeks after PCV13 was administered Administer 2nd dose PPSV23 ≥ 5 years after last PPSV23 dose*
PCV13 + 1 dose PPSV23	PCV20 ≥5-year interval since last PCV13 or PPSV23 dose	PPSV23 ≥8 weeks after PCV13 was administered and ≥ 5 years since last PPSV23 dose*
PCV13 + 2 doses PPSV23	PCV20 ≥5-year interval since last PCV13 or PPSV23 dose	*review pneumococcal recommendations once patient turns age 65

Immunocompromising Conditions: Chronic renal failure congenital or acquired asplenia, congenital or acquired immunodeficiency, cancer, HIV infection, Hodgkin disease, iatrogenic immunosuppression (including disease requiring treatment with immunosuppressive drugs such as long-term systemic corticosteroids and radiation therapy), nephrotic syndrome, sickle cell disease, and solid organ transplant.

Pneumococcal Vaccine Schedule - Adults Aged 19 – 64 years with Cerebrospinal Fluid Leak or Cochlear Implant

Vaccine Previously Received (at any age)	**Schedule A**	**Schedule B**
None/unknown/PCV7	PCV20	PCV15 then PPSV23 ≥ 8 weeks later
PPSV23 only	PCV20 ≥1-year interval after PPSV23	PCV15 ≥1 year after PPSV23 was administered
PCV13 only	PCV20 ≥1-year interval after PCV13	PPSV23 ≥8 weeks after PCV13 was administered*
PCV13 + 1 dose PPSV23	PCV20 ≥5-year interval since last PCV13 or PPSV23 dose	*review pneumococcal recommendations once patient turns age 65

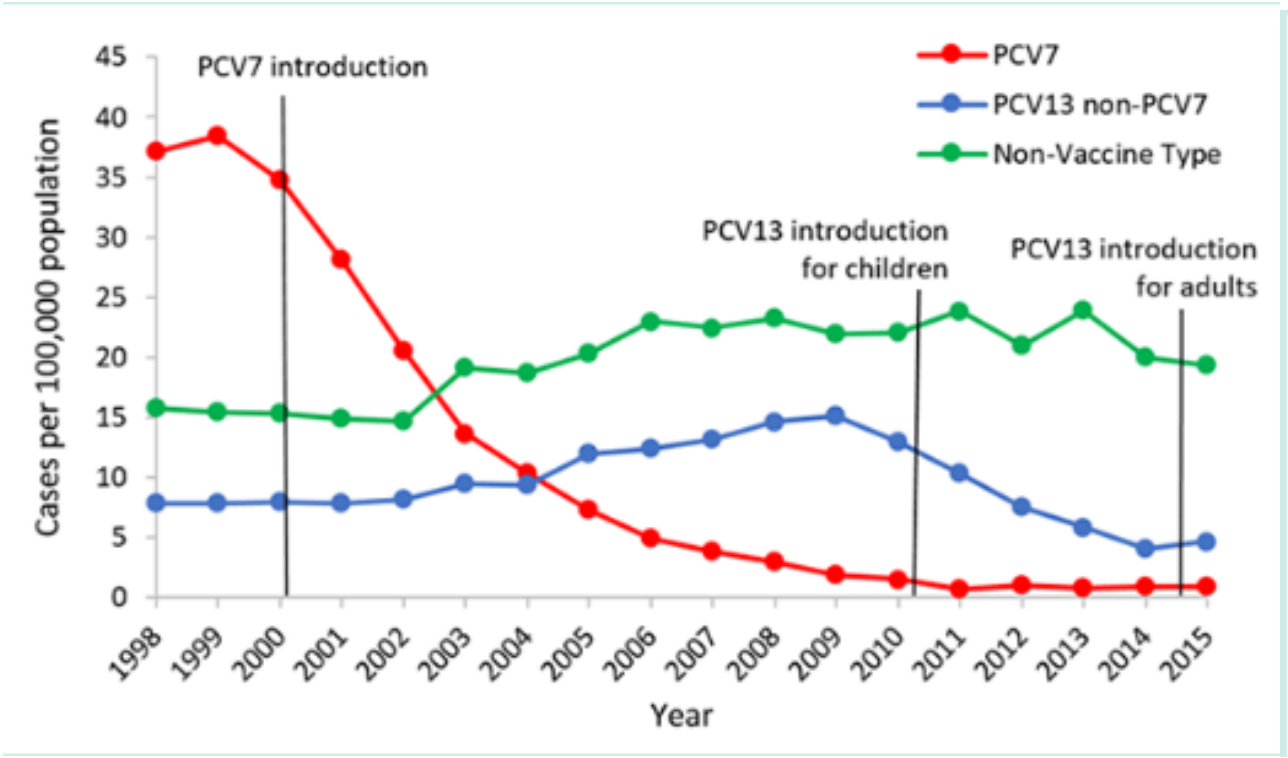
Pneumococcal Vaccine Schedule - Adults Aged 19 – 64 years with a Chronic Medical Condition

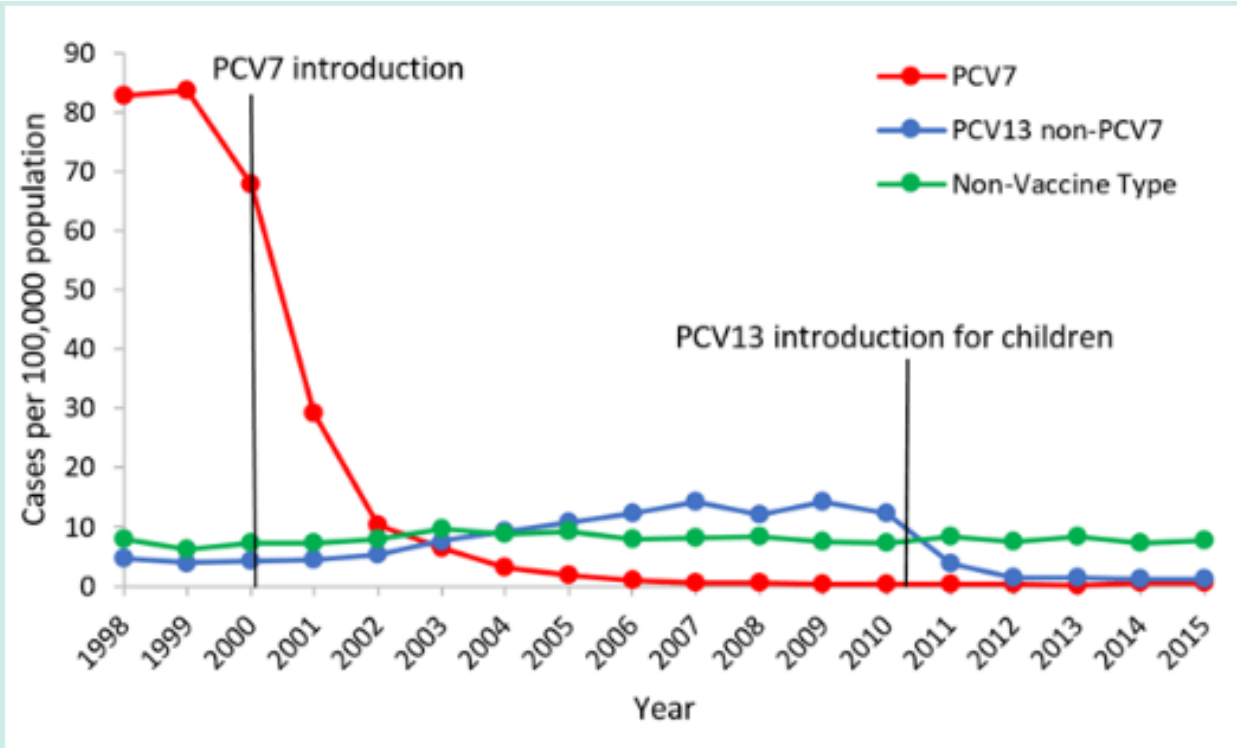
Vaccine Previously Received (at any age)	Schedule A	Schedule B
None/unknown/PCV7	PCV20	PCV15 then PPSV23 ≥ 1 year later
PPSV23 only	PCV20 ≥1-year interval after PPSV23	PCV15 ≥1 year after PPSV23 was administered
PCV13 only	PCV20 ≥1-year interval after PCV13	PPSV23 ≥ 1 year after PCV13 was administered*
PCV13 + 1 dose PPSV23	*review pneumococcal recommendations once patient turns age 65	*review pneumococcal recommendations once patient turns age 65

Chronic Conditions: Alcoholism; chronic heart disease, including congestive heart failure and cardiomyopathies; chronic liver disease; chronic lung disease, including chronic obstructive pulmonary disease, emphysema, and asthma; cigarette smoking; or diabetes mellitus.

Trends in Pneumococcal Invasive Disease

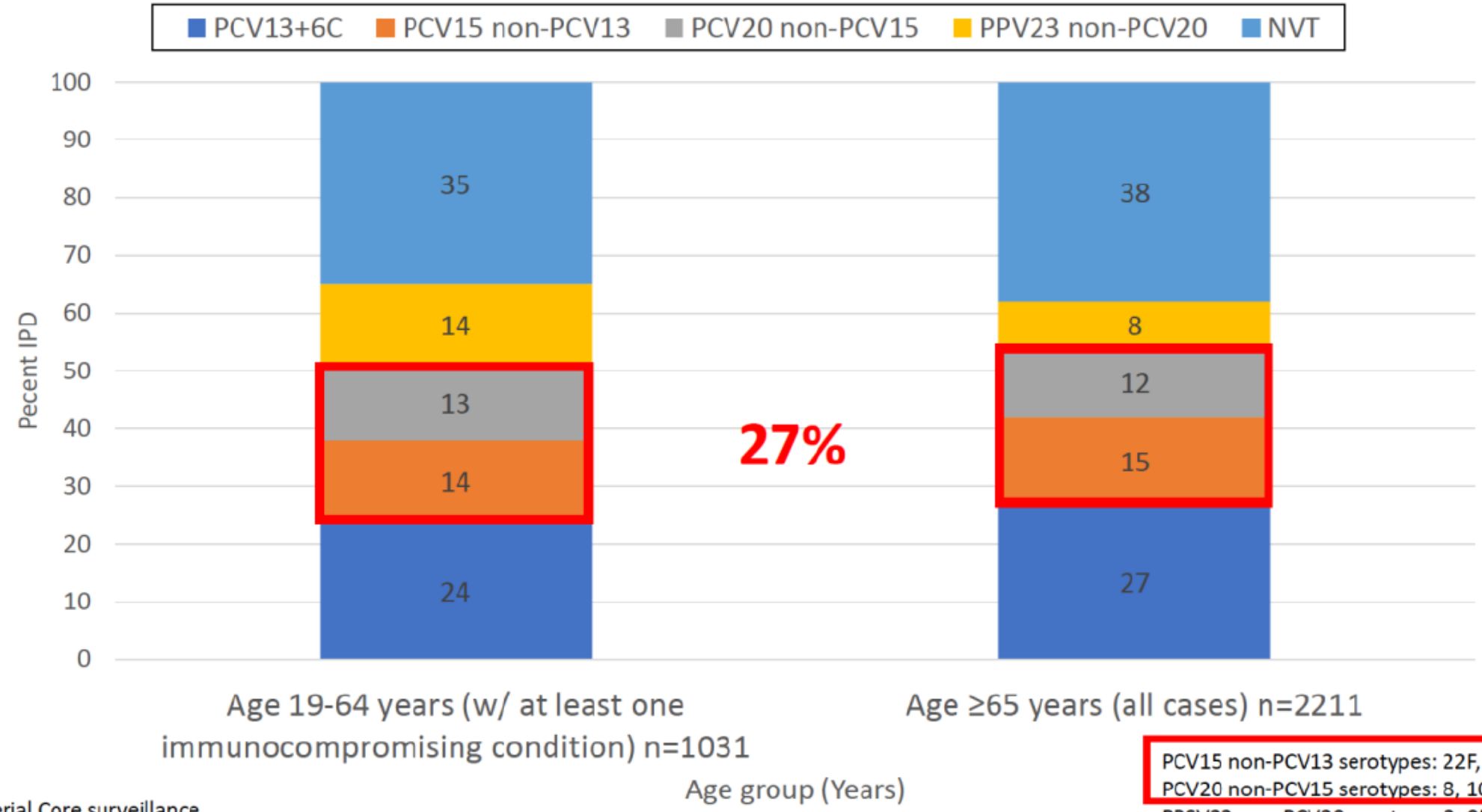
Rates of IPD among children <5 years of age (left) and U.S. adults >65 years of age (right) 1998– 2015





Pneumococcal - Vaccine Preventable Diseases Surveillance Manual | CDC

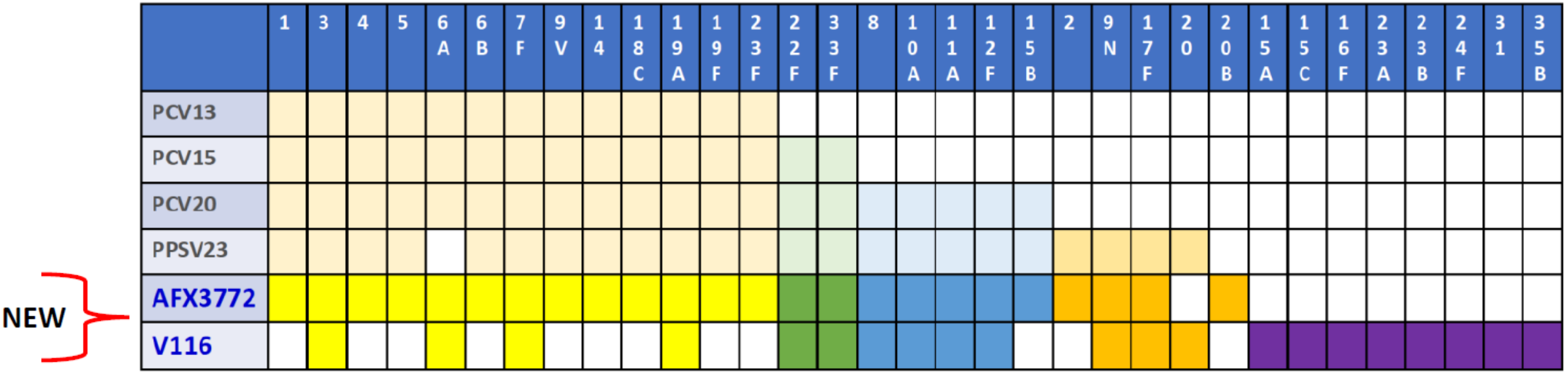
Pneumococcal serotypes contained in PCV20 but not in PCV13 caused 27% of Invasive Pneumococcal Disease in Adults in 2018–2019



CDC Active Bacterial Core surveillance

PCV15 non-PCV13 serotypes: 22F, 33F
PCV20 non-PCV15 serotypes: 8, 10A, 11A, 12F, 15B
PPSV23 non-PCV20 serotype: 2, 9N, 17F ,20

Context: New Adult Pneumococcal Vaccines in Advanced Stages of Development



24-valent pneumococcal vaccine — AFX3772, GSK

- Completed phase 1/2 study for adults[1]

21-valent pneumococcal conjugate vaccine — V116, Merck

- Completed phase 1/2 study for adults[2]
- Phase 3 immunobridging studies in adults are currently ongoing

1. Chichili et al. Vaccine 2022; 2. Platt et al. Lancet ID 2022.

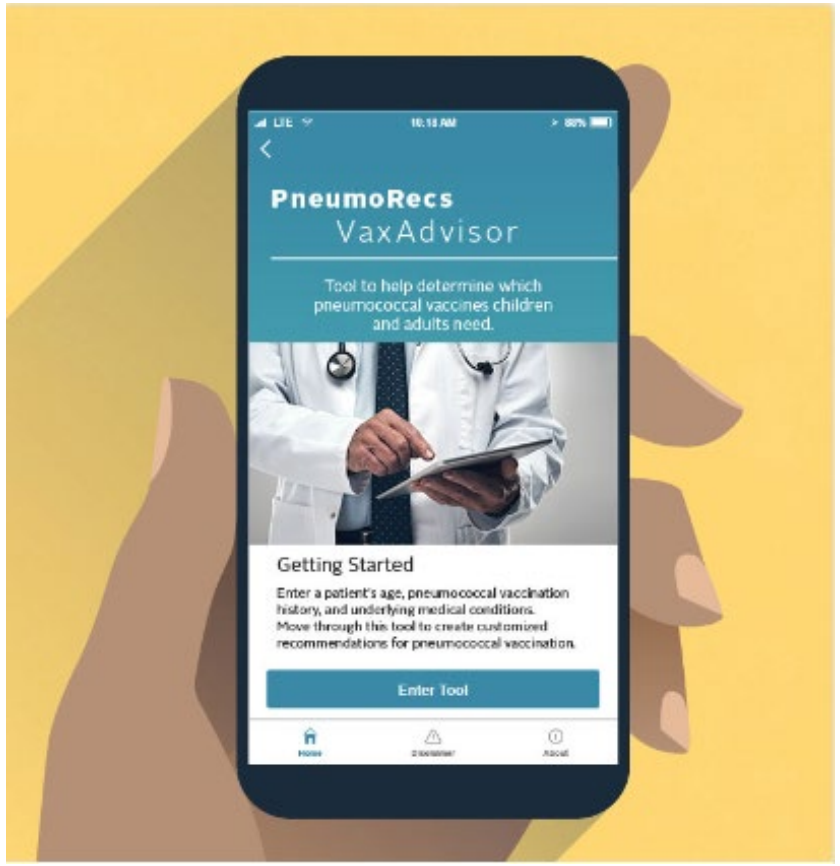
PneumoRecs VaxAdvisor Mobile App

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).



Question

Pneumococcal serotypes contained in PCV20 but not in PCV13 caused what portion of the invasive pneumococcal disease seen in adults > 19 years of age in 2018-19?

a. 5%
b. 9%
c. 19%
d. 27%

Respiratory Syncytial Virus (RSV)

RSV Disease Burden

COVID-19 pandemic disrupted RSV seasonality but RSV activity in August and September 2023 suggests that transmission patterns are returning to pre-pandemic seasonal RSV trends with an expected peak in cases in winter months

RSV causes substantial morbidity and mortality in older adults, including lower respiratory tract disease (LRTD), hospitalization, and death.

Estimated 60,000–160,000 hospitalizations and 6,000–10,000 deaths annually among adults aged ≥65 years

Increased risk of RSV-associated hospitalization

- COPD, asthma, CHF, CAD, CVD, DM, CKD
- Residents of long-term care facilities
- Frailty
- Persons with compromised immunity
- Advanced age (highest rates of hospitalization among those aged ≥75 years

Use of Respiratory Syncytial Virus Vaccines in Older Adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023 | MMWR (cdc.gov)

RSV Disease Burden

Common cause of Lower Respiratory Tract Infection (LRTI) in infants

Leading cause of hospitalization among U.S. infants

Approximately 58,000–80,000 RSV-associated hospitalizations and 100–300 RSV-associated deaths occur annually among U.S. children aged <5 years

An estimated 79% of children aged <2 years hospitalized with RSV had no underlying medical conditions

RSV-associated hospitalization rates are highest in infants aged <6 months

Use of the Pfizer Respiratory Syncytial Virus Vaccine During Pregnancy for the Prevention of Respiratory Syncytial Virus–Associated Lower Respiratory Tract Disease in Infants: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023 | MMWR (cdc.gov)

RSV Vaccines

Arexvy, GSK - adjuvanted recombinant stabilized prefusion F protein vaccine

Abrysvo, Pfizer - recombinant stabilized prefusion F protein vaccine

RSV Vaccine Efficacy

Efficacy Evaluation Period	Vaccine efficacy against RSV-associated Lower Respiratory Tract Disease (LRTD) in adults aged 60 years and older	
	Pfizer*	**GSK****
Season 1	88.9%	82.6%
Season 2	78.6%	56.1%
Combined Seasons 1 and 2	84.4%	74.5%

*Pfizer trial : Randomized, double-blinded, placebo-controlled phase 3 clinical trial; 7 countries; 36,862 participants

**GSK trial: Randomized, double-blinded, placebo-controlled phase 3 clinical trial; 17 countries; 24,973 participants

RSV Vaccine Recommendation – Older Adults

Adults aged ≥60 years may receive a single dose of RSV vaccine, using shared clinical decision-making

No preferential recommendation between the 2 available vaccines

Medical Conditions associated with an increased risk for severe RSV disease

- Lung disease (such as COPD or asthma)
- Cardiovascular disease (such as congestive heart failure and coronary artery disease)
- Moderate or severe immune compromise
- Diabetes mellitus
- Neurologic or neuromuscular conditions
- Kidney, liver, or hematologic disorders

Other factors associated with an increased risk for severe RSV disease

- Frailty
- Advanced age
- Residence in a nursing home or other long-term care facility
- Other underlying factors or conditions that a health care provider determines might increase risk for severe disease

Use of Respiratory Syncytial Virus Vaccines in Older Adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023 | MMWR (cdc.gov)

Shared Clinical Decision Making

Who is comfortable with SCDM?

What is the difference between SCDM and a routine recommendation?

Why does a vaccine receive the designation of SCDM?

Shared Clinical Decision Making

Generally, ACIP makes shared clinical decision-making recommendations when individuals may benefit from vaccination, but broad vaccination of people in that group is unlikely to have population-level impacts.

Health care provider as anyone who provides or administers vaccines: primary care physicians, specialists, physician assistants, nurse practitioners, registered nurses, and pharmacists.

ACIP Shared Clinical Decision-Making Recommendations | CDC

RSV – SCDM

Clinical trials demonstrated moderate to high efficacy in preventing symptomatic RSV-associated LRTD among adults aged ≥60 years.

- Underpowered to estimate efficacy against RSV-associated hospitalization and death
- Prevention of LRTD, suggests that vaccination might prevent considerable morbidity from RSV disease among adults aged ≥60 years.

Both vaccines were generally well-tolerated with an acceptable safety profile

6 cases of inflammatory neurologic events were reported

- Not enough data to determine if events occurred due to chance, or if RSV vaccination increases the risk for inflammatory neurologic events

Until additional evidence becomes available from postmarketing surveillance clarifying the existence of any potential risk, RSV vaccination in older adults should be targeted to those who are at highest risk for severe RSV disease and therefore most likely to benefit from vaccination.

RSV Vaccine Recommendation – Pregnant Persons

Pregnant persons are recommended to receive a one-time dose of **Pfizer (Abrysvo)** at 32 weeks – 36 weeks gestation using seasonal administration (meaning September-January for most of the continental U.S.).

Coadministration: can be administered to pregnant persons with other recommended vaccines without regard to timing, including simultaneous vaccination at different anatomic sites on the same day

Additional Vaccine Doses in Subsequent Pregnancies: Currently no data. Recommendations may be updated in the future as data becomes available.

Efficacy:

- Efficacy against medically attended RSV-associated lower respiratory tract infection: 57.3%
- Efficacy against hospitalization for RSV-associated lower respiratory tract infection: 48.2%

Use of the Pfizer Respiratory Syncytial Virus Vaccine During Pregnancy for the Prevention of Respiratory Syncytial Virus–Associated Lower Respiratory Tract Disease in Infants: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023 | MMWR (cdc.gov)

Vaccine Safety

Although not statistically significant, in the full trial population:

- More preterm births and hypertensive disorders of pregnancy (including preeclampsia) were observed in persons administered the vaccine rather than the placebo
- More infants whose mothers received the vaccine had low birthweight ≤5.5 lbs and neonatal jaundice compared with infants whose mothers received the placebo.

Use of the Pfizer Respiratory Syncytial Virus Vaccine During Pregnancy for the Prevention of Respiratory Syncytial Virus–Associated Lower Respiratory Tract Disease in Infants: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023 | MMWR (cdc.gov)

Vaccine Safety

The data reviewed by ACIP support that limiting vaccine administration to the approved dosing interval (32–36 weeks' gestation) reduces the potential risk for preterm birth and thereby, the potential for related complications vs. dosing interval of 24–36 weeks' gestation.

TABLE 2. Preterm birth (<37 weeks' gestation), low birthweight and neonatal jaundice outcomes in Pfizer RSVpreF vaccine phase 3 trial for the trial dosing interval and the approved dosing interval*

	Group, trial dosing interval (24–36 wks' gestation)†				Group, approved dosing interval (32–36 wks' gestation)§			
	RSVpreF N = 3,568		Placebo N = 3,558		RSVpreF N = 1,628		Placebo N = 1,604	
Outcome	No.	% (95% CI)	No.	% (95% CI)	No.	% (95% CI)	No.	% (95% CI)
Preterm birth¶	202	5.7 (4.9–6.5)	169	4.7 (4.1–5.5)	68	4.2 (3.3–5.3)	59	3.7 (2.8–4.7)
Low birthweight**	181	5.1 (4.4–5.8)	155	4.4 (3.7–5.1)	67	4.1 (3.2–5.2)	54	3.4 (2.5–4.4)
Neonatal jaundice	257	7.2 (6.4–8.1)	240	6.7 (5.9–7.6)	102	6.3 (5.1–7.6)	107	6.7 (5.5–8.0)

*All differences between vaccine group and placebo group were not statistically significant as determined by nonoverlapping CIs

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Patient Engagement Strategies

Strategies for getting patients up up-to -date

Assess vaccination status at every pharmacy or clinic encounter

Strong Vaccination Recommendation

SHARE Technique

Motivational Interviewing

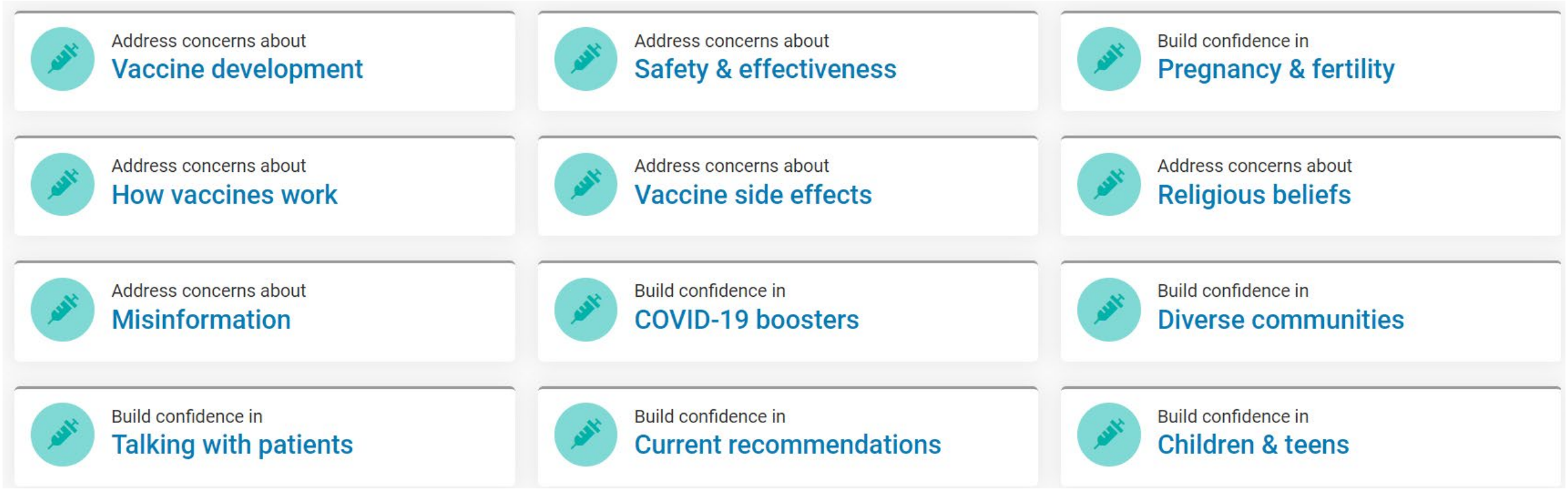
Coadministration

Incorporate vaccine administration into daily workflow

Enlist the help of pharmacy technicians, medical assistants, nurses, and clerical staff

Vaccine Confident

https://vaccineconfident.pharmacist.com/



Strong Vaccination Recommendation

A recommendation from a health care provider remains the#1 reason patients decide to vaccinate. Research has also shown the way a recommendation is presented makes a difference.

When providers use a presumptive approach (one that assumes patients will choose to vaccinate), patients are more likely to accept vaccines than when a participatory approach (one that presents a decision to make) is used.

Example presumptive approach: “Your child needs DTaP, Hib, and hepatitis B shots today.”

Example participatory approach: “Have you thought about the shots your child needs today?”

Talking with Patients about COVID-19 Vaccination | CDC

Strong Vaccination Recommendation

“It appears you are overdue for your < vaccine name > vaccine. Would you like to receive it today while you wait for your prescription?”

“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.”

SHARE Technique

- ***S*hare** the tailored reasons why the recommended vaccine is right for the patient
- ***H*ighlight** positive experiences with vaccines (personal or in the practice), as appropriate, to reinforce the benefits and strengthen confidence in vaccination.
- ***A*ddress** patient questions and concerns about the vaccine.
- ***R*emind** patients that vaccines protect them and their loved ones from many common and serious diseases.
- ***E*xplain** the potential costs of getting the disease, including serious health effects, time lost (missing work or family obligations), and financial costs.

Motivational Interviewing (1-5 minutes)

Step 1: Embrace an attitude of empathy and collaboration

- Be compassionate, show empathy, and be genuinely curious about the reasons why the patient feels the way they do.
- Be sensitive to culture, family dynamics, and circumstances that may influence how patients view vaccines.
- Remember: Arguing and debating do not work. Taking a strong initial stand may also backfire, especially with people who have concerns about vaccines.

Motivational Interviewing (1-5 minutes)

Step 2: Ask permission to discuss vaccines

"If it is okay with you, I would like to spend a few minutes talking about COVID-19 vaccines and your family."

- **If the patient says no**, respect that.
  - **Option 1:** Move on and say, *"I respect that, and because I care about your overall health, maybe we could talk about the vaccines at a future time."*
  - **Option 2:** Based on the patient's demonstrated emotions and your assessment of the patient's worldview and values, you could explore why the patient doesn't want to talk about it. The goal is to understand, not to change their mind. **If the patient says yes** to talking about the vaccines, move to Step 3.
- **If the patient asks a question** about COVID-19 vaccine safety, vaccine risks, or their health or mental health, see potential responses in Step 4.

Motivational Interviewing (1-5 minutes)

Step 3: Motivational interviewing

Ask the patient a scaled question. For example, *"On a scale of 1 to 10, how likely are you to get a COVID-19 vaccine?"* (1 = never; 10 = already have an appointment to get vaccinated). Then explore both sides of whatever number is given.

- **Example:** Let's assume someone says 4. This is where curiosity comes in. You can say, *"Okay, why 4? And why not a lower number?"* Let them answer, and ask a follow-up question like, *"What would help you move to a 5 or 6?"*

The goal is to help the patient become more open to moving toward higher numbers—in other words, getting vaccinated.

Talking with Patients about COVID-19 Vaccination | CDC

Motivational Interviewing (1-5 minutes)

Step 3: Motivational interviewing (*continued*)

- You want them to **talk about this out loud** because talking actually changes how they process their choices and can develop forward momentum.
- People hesitant about vaccines usually have more practice explaining why they haven't gotten vaccinated.
- Be compassionate and curious about the patient's mixed feelings. It is important to show support for the patient to incorporate their personal values and the health needs of their family and community as they make their decision.

Talking with Patients about COVID-19 Vaccination | CDC

Motivational Interviewing (1-5 minutes)

Step 4: Respond to questions about vaccines, health, or mental health

If a patient asks a question about vaccine safety, vaccine risks, or their health or mental health, respond within the boundaries of your competence, ethics, and scope of practice.

- **If you feel competent and aware of how to answer the patient's question**, respond with empathy and provide scientific information as needed.
- **If the patient's question is outside of your competence or awareness**, recommend that they speak with their medical or mental health provider or a knowledgeable expert, as needed.

Coadministration

In accordance with General Best Practice Guidelines for Immunization, routine administration of all age-appropriate doses of vaccines simultaneously (i.e., administering more than one vaccine on the same day or “coadministration”) is recommended for children, adolescents, and adults if there are no contraindications at the time of the healthcare visit.

Coadministration is encouraged in patients you think might have a difficult time coming back for additional appointments or are at high risk of vaccine preventable disease.

ACIP Timing and Spacing Guidelines for Immunization | CDC

Coadministration

Best practices for multiple injections include:

- Prepare each injectable vaccine using a separate syringe and label clearly
- Separate injection sites by 1 inch or more, if possible.
- For older children and adults, the deltoid muscle can be used for more than one intramuscular injection
- 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 with adjuvants that are more likely to cause a local reaction in different limbs, if possible.

ACIP Timing and Spacing Guidelines for Immunization | CDC

Question

Which of the following is a strategy to improve vaccination rates post-pandemic at your practice site?

a. Avoid administering multiple vaccines in the same visit.
b. Address vaccination status at every patient encounter.
c. Defer vaccination until next visit when your pharmacy isn't as busy.
d. Disregard patient concerns regarding vaccine misinformation they saw on social media

Questions?