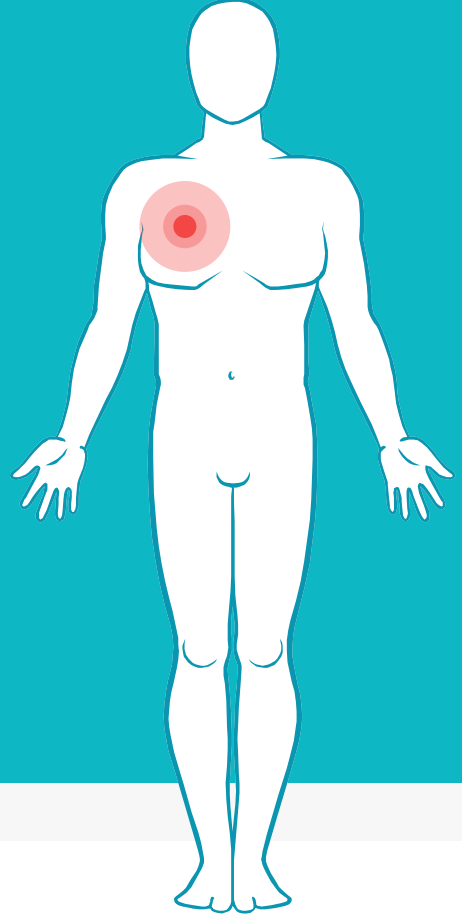


Pneumococcal Vaccines





HELLO!

I am Anton Grash

Family Medicine MD

Peoria, IL

Direct Primary Clinic

Attending FM Residency

Sponsored by the Illinois Academy of Family Physicians



Supported by the American Academy of Family Physicians (AAFP) and Pfizer Independent Grants for Learning and Change (IGLC)

ACCREDITATION & DISCLOSURE

Accreditation

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Speaker & Faculty Disclosures

Anton “TJ” Grasch, MD disclosed no relevant financial relationship or interest with a proprietary entity producing health care goods or services.

This program does not include any discussion or demonstration of any pharmaceuticals or medical devices that are not approved by the Food and Drug Administration (FDA) or that are considered “off-label.”

Objectives

- **Review Pneumococcal Disease:**
 - The pathogen
 - Epidemiology
 - Morbidity and Mortality
- **Review Pneumococcal Vaccines**
 - PCV-13 and PPSV-23
 - Schedules
 - Adverse Reactions and Contraindications
- **FAQs**

1. Pneumococcal Disease

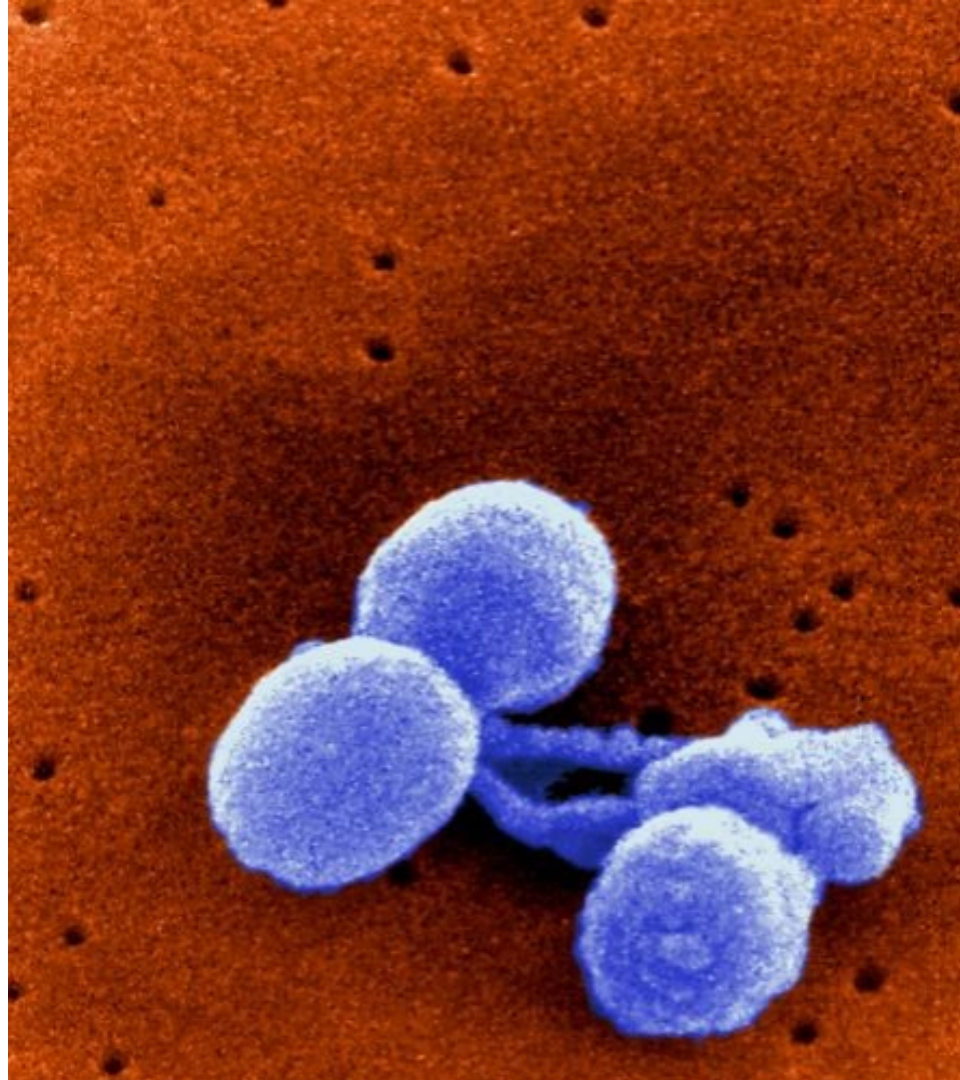
In the Mortality Bills, pneumonia is an easy second, to tuberculosis; indeed in many cities the death-rate is now higher and it has become, to use the phrase of Bunyan ‘the captain of the men of death.’

William Osler



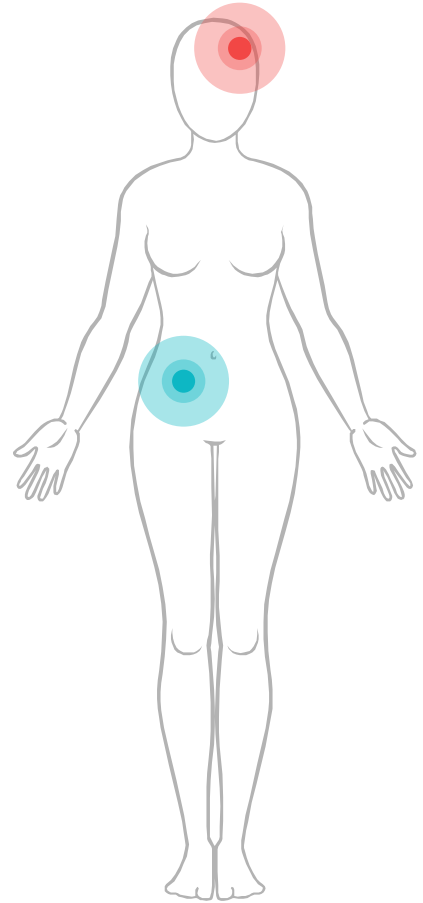
Streptococcus Pneumoniae

- Gram-positive diplococci
- >90 serotypes
- 10 MC=62% of disease
- Encapsulated=Pathogenic
- Air Droplets Spread
- 5-90% asx carriers



Not just Pneumonia

- ▶ MC:
 - ▶ Pneumonia
 - ◆ Empyema
 - ◆ Pericarditis
 - ◆ Endobronchial Obstruction
 - ▶ Meningitis
 - ▶ Bacteremia



400,000

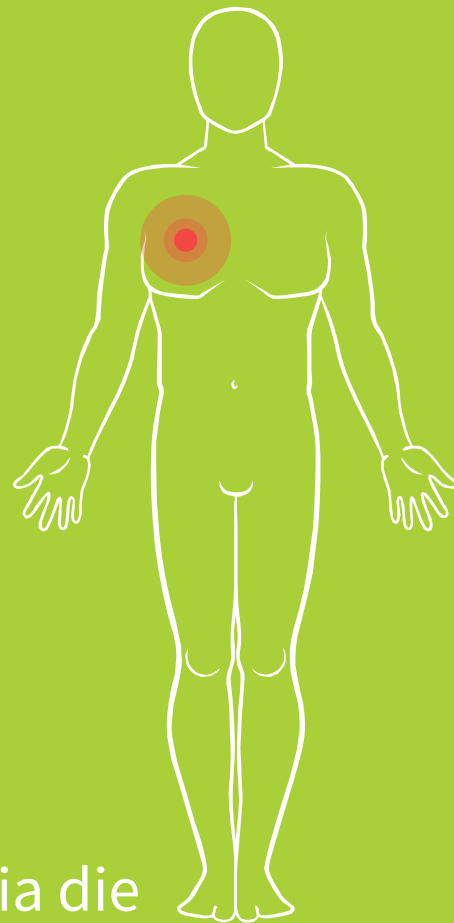
Pneumonia hospitalizations annually

36%

Adult community-acquired pneumonia

1 out of 20

Of those with pneumococcal pneumonia die



25-35%

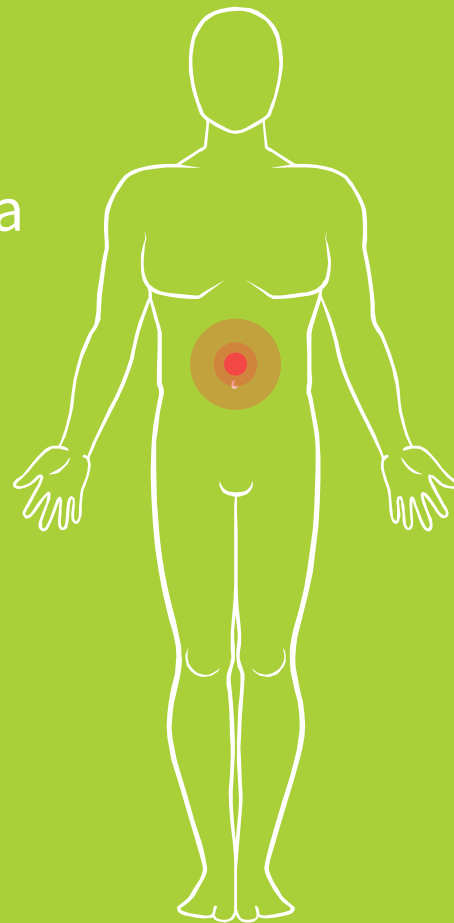
with pneumonia experience bacteremia

50,000

Cases of bacteremia yearly

20-60%

with pneumococcal bacteremia die



50%

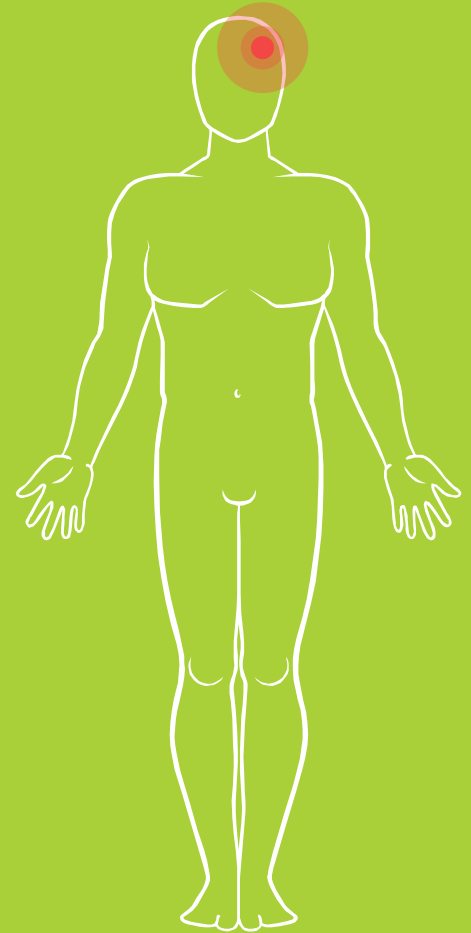
U.S. Meningitis cases

3000-6000

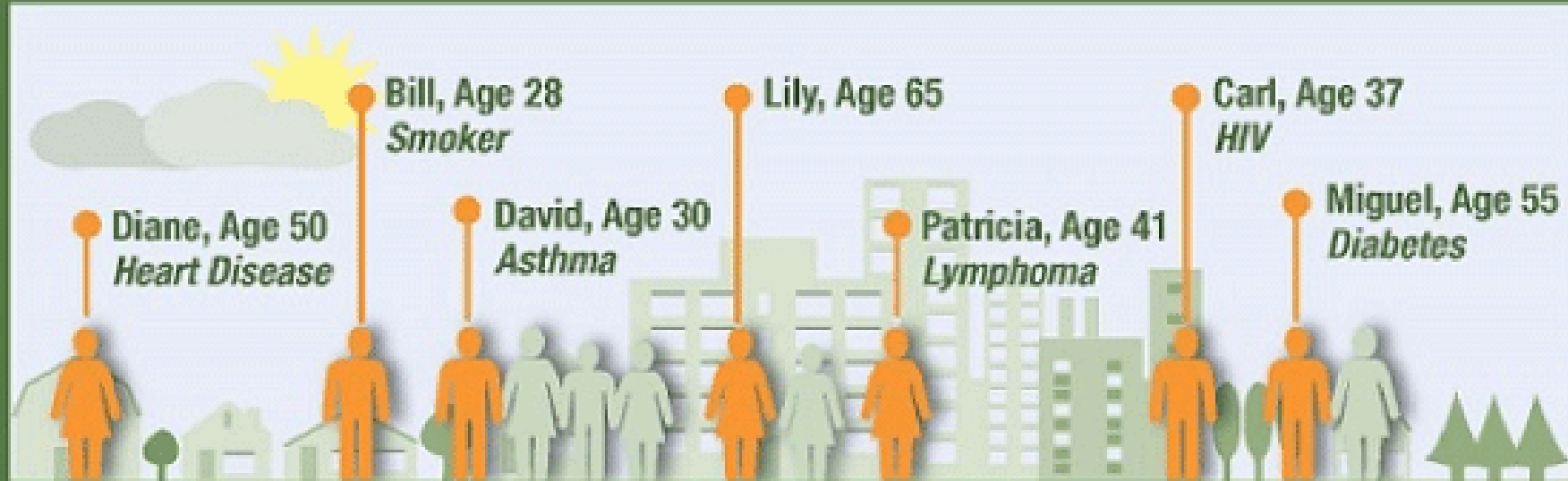
Cases yearly

22%

with Pneumococcal meningitis die



What do they all have in common?



They are all at increased risk for an infection called pneumococcal disease

Increased risk

Immunocompetent

Age

Behaviors:

Alcoholism

Tobacco Smoking

Chronic disease:

Liver, Heart, Lung

Anatomic:

Asplenia

CSF Leak

Cochlear implant

Immunocompromised

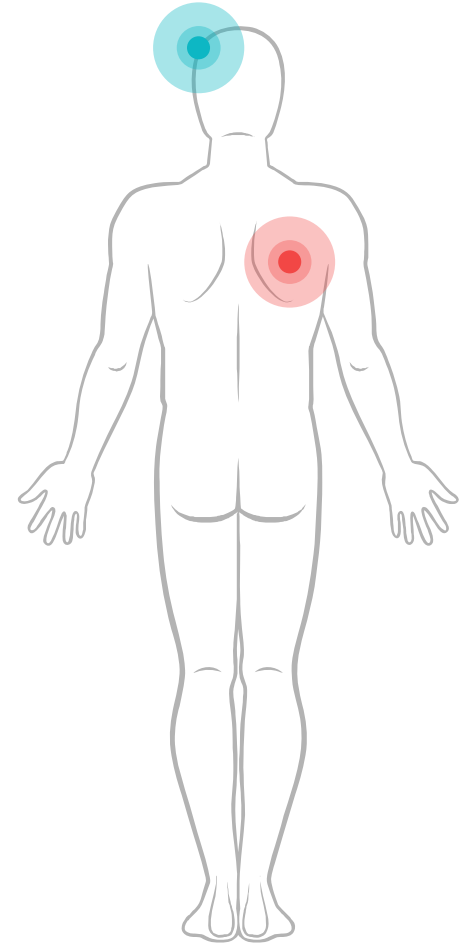
Kidney disease

Malignancy

Post-transplant

Immunodeficiencies

Immunosuppression



2.

Pneumococcal Vaccine

Through the years...

1977
PPSV14



1983
PPSV23



2000
PCV7



2010
PCV13



PPSV23

60-76% of strains~invasive
pneumococcal disease (IPD)
60-70% effective against IPD



PPSV23

Less effective in preventing non-bacteremic pneumonia

Avoid calling a “pneumonia” vaccine



PPSV23

1 dose for all >65 yo

1-2 doses for 19-64 yo w certain medical conditions



PCV13

<5 YO: 61% OF IPD

>65 YO: 20-25% OF IPD

10% OF CAP



PCV13

>65 YO:

45% effective against non-IPD

75% effective against IPD



PCV13

1 dose for those >65 yo wo
prior receipt

1 dose for those 19-65yo w
certain medical conditions



Adverse Reactions

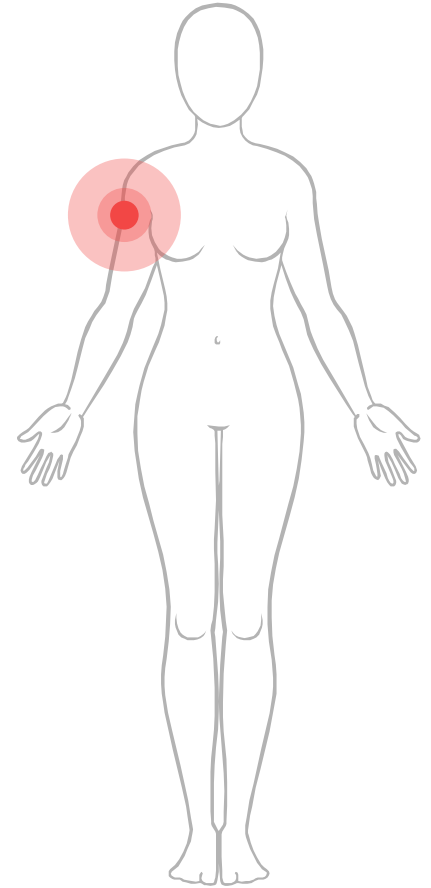
PCV13

Local Reactions 5-49%

Fever, Myalgia
24-35%

PPSV23

Local Reaction
30-50%
Fever, Myalgia
<1%



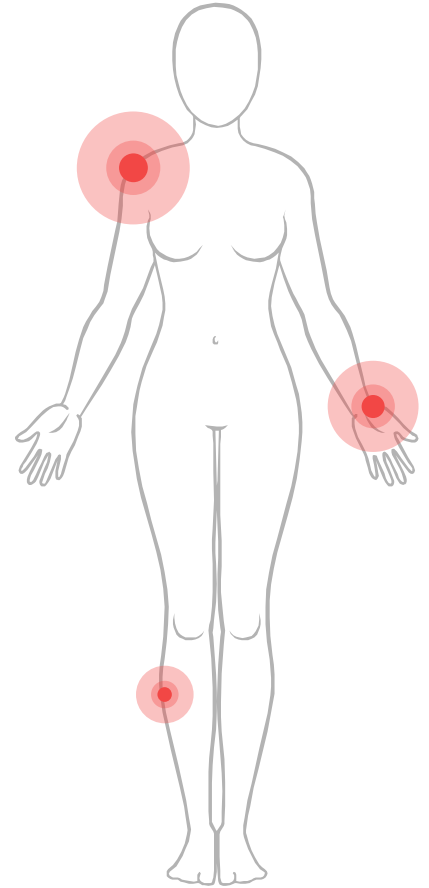
Contraindications

PCV13

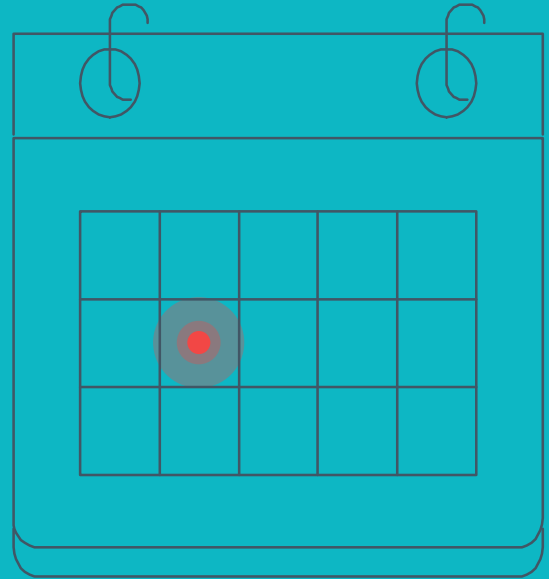
- Allergic Reaction to:
 - PCV13
 - PCV7
 - DTaP

PPSV23

- Allergic Reaction to:
 - PPSV
- Mod/Sev Illness
- <2yo
- “Pregnancy”



Schedules



Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

Two pneumococcal vaccines are recommended for adults:

- 13-valent pneumococcal conjugate vaccine (PCV13, Pnevna13®)
- 23-valent pneumococcal polysaccharide vaccine (PPSV23, Pneumovax®23)

PCV13 and PPSV23 should not be administered during the same office visit.

When both are indicated, PCV13 should be given before PPSV23 whenever possible.

If either vaccine is inadvertently given earlier than the recommended window, do not repeat the dose.

One dose of PCV13 is recommended for adults:

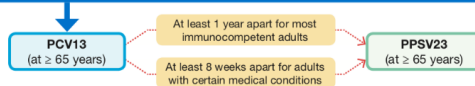
- 65 years or older who have not previously received PCV13.
- 19 years or older with certain medical conditions and who have not previously received PCV13. See Table 1 for specific guidance.

One dose of PPSV23 is recommended for adults:

- 65 years or older, regardless of previous history of vaccination with pneumococcal vaccines.
 - Once a dose of PPSV23 is given at age 65 years or older, no additional doses of PPSV23 should be administered.
- 19 through 64 years with certain medical conditions.
 - A second dose may be indicated depending on the medical condition. See Table 1 for specific guidance.

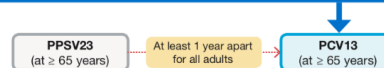
Pneumococcal vaccine timing for adults 65 years or older

For those who have not received any pneumococcal vaccines, or those with unknown vaccination history



- Administer 1 dose of PCV13.
- Administer 1 dose of PPSV23 **at least 1 year** later for most immunocompetent adults or **at least 8 weeks** later for adults with immunocompromising conditions, cerebrospinal fluid leaks, or cochlear implants. See Table 1 for specific guidance.

For those who have previously received 1 dose of PPSV23 at ≥ 65 years and no doses of PCV13



- Administer 1 dose of PCV13 **at least 1 year** after the dose of PPSV23 for all adults, regardless of medical conditions.

NCIRDig410 | 11.30.2015

www.cdc.gov/pneumococcal/vaccination.html

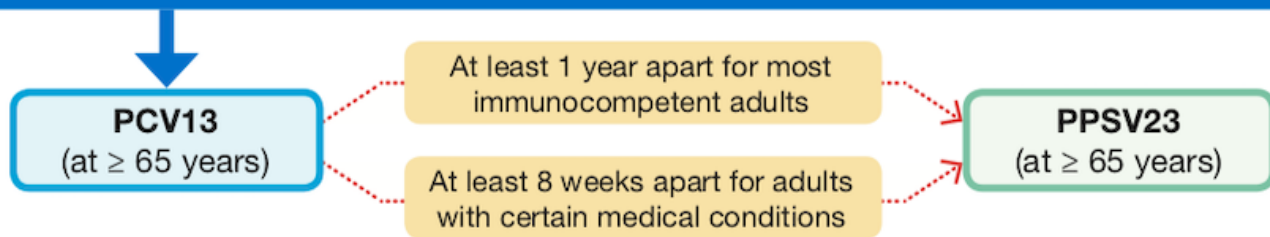


U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

Google: Pneumonia Vaccine Timing for Adults CDC

<https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf>

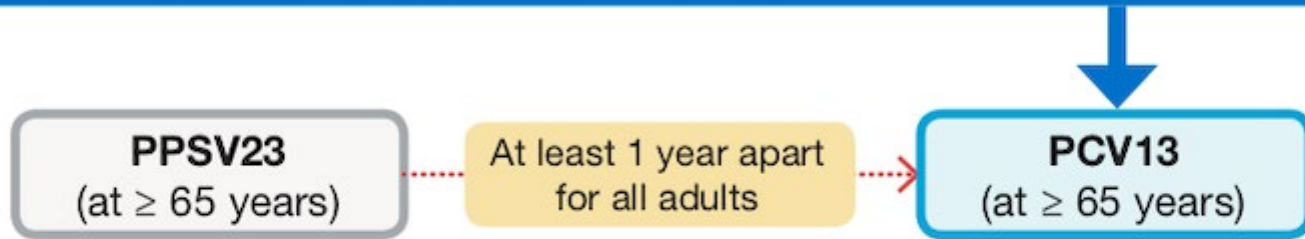
For those who have not received any pneumococcal vaccines, or those with unknown vaccination history



- Administer 1 dose of PCV13.
- Administer 1 dose of PPSV23 **at least 1 year** later for most immunocompetent adults or **at least 8 weeks** later for adults with immunocompromising conditions, cerebrospinal fluid leaks, or cochlear implants. See Table 1 for specific guidance.

Schedules >65 yo

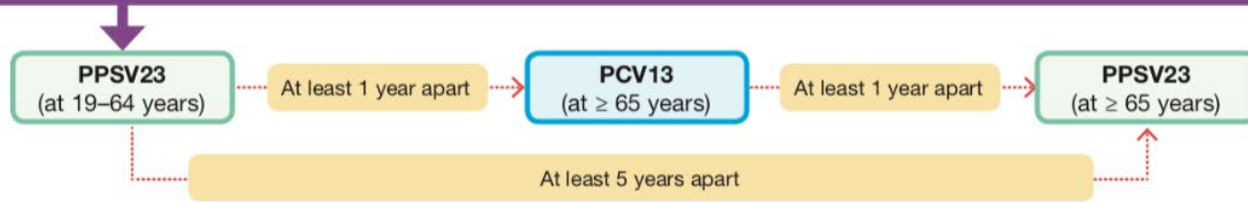
For those who have previously received 1 dose of PPSV23 at ≥ 65 years and no doses of PCV13



- Administer 1 dose of PCV13 **at least 1 year** after the dose of PPSV23 for all adults, regardless of medical conditions.

Schedules >65 yo

Indicated to receive 1 dose of PPSV23 at 19 through 64 years



Includes adults with:

- chronic heart or lung disease
- diabetes mellitus
- alcoholism
- chronic liver disease

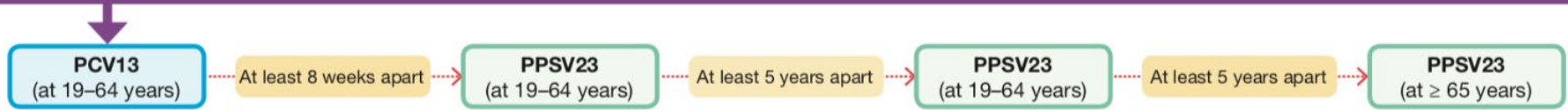
Also includes adults who smoke cigarettes

For those who have **not** received any pneumococcal vaccines, or those with unknown vaccination history:

- Administer 1 dose of PPSV23 at 19 through 64 years.
- Administer 1 dose of PCV13 at 65 years or older. This dose should be given **at least 1 year** after PPSV23.
- Administer 1 final dose of PPSV23 at 65 years or older. This dose should be given **at least 1 year** after PCV13 and at least 5 years after the most recent dose of PPSV23.

Schedules >19yo

Indicated to receive 1 dose of PCV13 at ≥ 19 years and 1 or 2 doses of PPSV23 at 19 through 64 years



Includes adults with:

- cerebrospinal fluid (CSF) leaks*
- cochlear implants*
- sickle cell disease or other hemoglobinopathies
- congenital or acquired asplenia
- congenital or acquired immunodeficiencies
- HIV infection
- chronic renal failure
- nephrotic syndrome
- leukemia
- lymphoma
- Hodgkin disease
- generalized malignancy
- iatrogenic immunosuppression
- solid organ transplant
- multiple myeloma

For those who have **not** received any pneumococcal vaccines, or those with unknown vaccination history:

- Administer 1 dose of PCV13.
- Administer 1 dose of PPSV23 **at least 8 weeks** later.
- Administer a second dose of PPSV23 **at least 5 years** after the previous dose (**note: a second dose is not indicated for those with CSF leaks or cochlear implants*).
- Administer 1 final dose of PPSV23 at 65 years or older. This dose should be given **at least 5 years** after the most recent dose of PPSV23.

Schedules >19yo

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

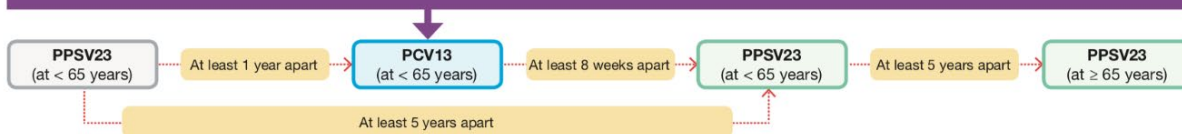
Medical indication	Underlying medical condition	PCV13 for ≥ 19 years	PPSV23* for 19 through 64 years		PCV13 at ≥ 65 years	PPSV23 at ≥ 65 years
		Recommended	Recommended	Revaccination	Recommended	Recommended
None	None of the below				✓	✓ ≥ 1 year after PCV13
Immunocompetent persons	Alcoholism		✓		✓	✓ ≥ 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 implants	✓	✓ ≥ 8 weeks after PCV13		✓ If no previous PCV13 vaccination	✓ ≥ 8 weeks after PCV13 ≥ 5 years after any PPSV23 at < 65 years
	CSF leaks					
Persons with functional or anatomic asplenia	Congenital or acquired asplenia	✓	✓ ≥ 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
	Sickle cell disease/other 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					

Vaccine ‘Rules’

- Not during same visit
- PCV13 before PPSV23
- 1 yr intervals btw PCV13 and PPSV23
- 5 yr intervals btw PPSV23 doses
- Do not repeat if erroneous interval
- Never >1 dose of PCV13 after 19 yo
- Never >1 dose of PPSV23 after 65 yo

Additional scenarios: completing the pneumococcal vaccination series for adults

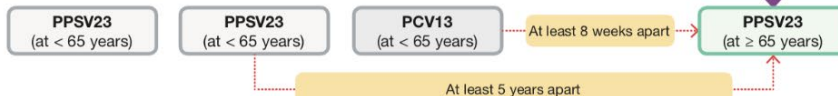
Adults recommended to receive PCV13 at ≥ 19 years who already received 1 dose of PPSV23 at < 65 years



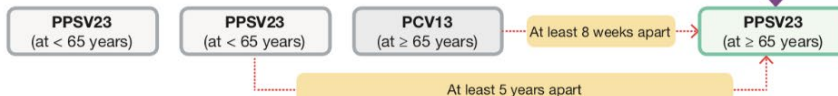
Adults recommended to receive PCV13 at ≥ 19 years who already received 2 doses of PPSV23 at < 65 years and 1 dose of PPSV23 at ≥ 65 years



Adults recommended to receive PCV13 at ≥ 19 years who already received 2 doses of PPSV23 and 1 dose of PCV13 at < 65 years



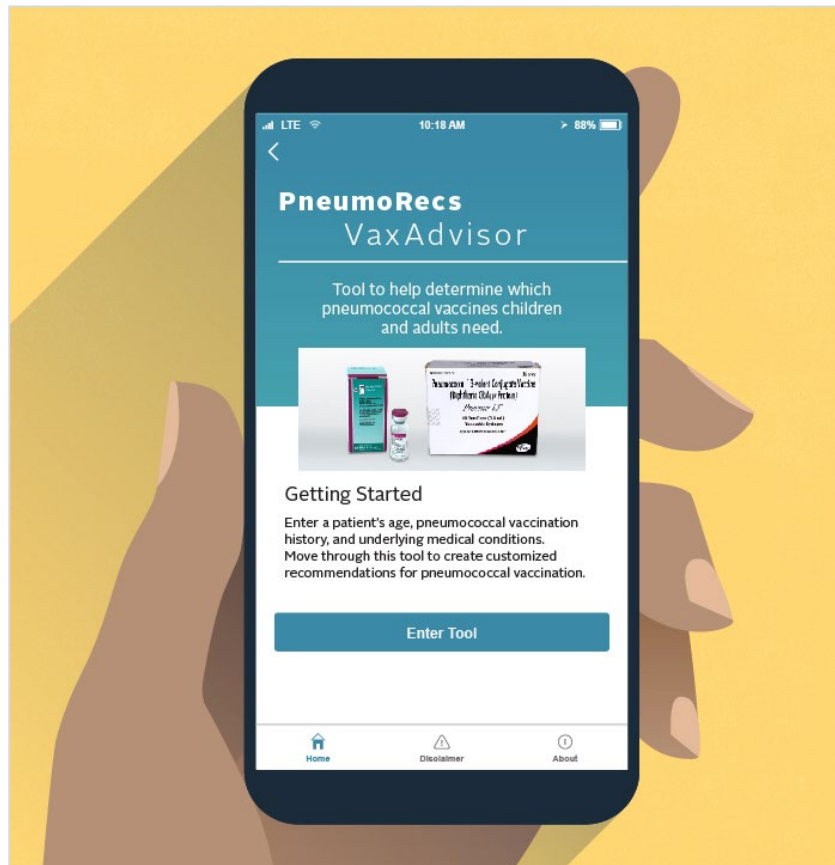
Adults recommended to receive PCV13 at ≥ 19 years who already received 2 doses of PPSV23 at < 65 years and 1 dose of PCV13 at ≥ 65 years



- For those who have already received 1 or more doses of PPSV23, or those with unclear documentation of the type of pneumococcal vaccine received:
 - Administer 1 dose of PCV13 **at least 1 year** after the most recent pneumococcal vaccine dose.
 - Administer a second dose of PPSV23 **at least 8 weeks** after PCV13 and at least 5 years after the previous dose of PPSV23 (*note: a second dose is not indicated for those with CSF leaks or cochlear implants*).
 - Administer 1 final dose of PPSV23 at 65 years or older. This dose should be given **at least 5 years** after the most recent dose of PPSV23.
- For those who have already received 1 dose of PCV13, do not administer an additional dose at 65 years or older.

PneumoRecs VaxAdvisor

iOS or Android



3. FAQs

What qualifies as Chronic Renal Failure for immunosuppression warranting vaccine?

- “We have left this determination up to the providers caring for patients who have chronic renal failure/chronic kidney disease. It might be worth noting that the indication for pneumococcal vaccines for patients with chronic renal failure/chronic kidney disease and nephrotic syndrome is included in the larger group recommendation for patients with immunocompromising conditions. For this reason, if a patient has stage 1 chronic kidney disease without immunocompromise and is not expected to progress further pneumococcal vaccines are likely not indicated. However, if a patient has stage 1 chronic kidney disease and is expected to progress to more severe chronic kidney disease then it would be best to vaccinate before their immune system is compromised by the kidney disease or a renal transplant.”

My <65 yo patient has a history of smoking but have quit, do they need a vaccine?

→ No, only active smokers.

My <65 yo patient chews tobacco, does this qualify for vaccination?

- No, no recommendation for smokeless tobacco products. Likewise for e-cigarettes.

My <65 yo patient smokes marijuana, does this qualify?

→ No, only tobacco smoking.

My <65 yo patient has a history of CSF leak but no longer, do they need a vaccine?

→ No, only those patients with active CSF leaks.

We don't stock PCVB for adults, should we delay PPSV23 so they can get PCVB first?

- Yes, refer them to the most convenient location to get PCV13 first and then they can return to you for PPSV23 1 year later.

Does Humira for RA warrant PCVB due to immunosuppression?

→ Yes.

Does OSA count for chronic lung disease under the vaccine recommendations?

→ No.

Does the PPSV23 vaccine <65yo for diabetics count for gestational diabetes?

→ No.

My patient had previous lab-confirmed pneumococcal pneumonia, do they need vaccine still?

→ Yes. Many different serotypes covered.

Can the Pneumococcal vaccines be given with other vaccines?

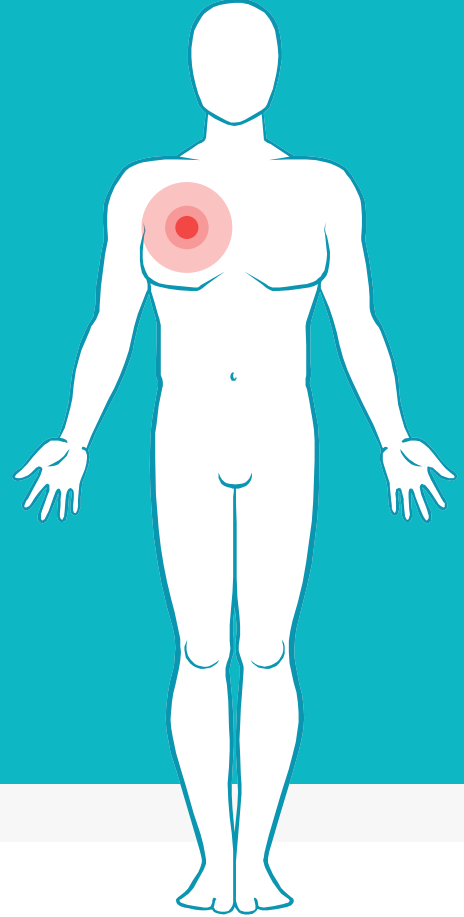
→ Yes. Even to...

- ◆ Zostavax and influenza vaccines (even the package insert says otherwise)

→ No only to....

- ◆ The two Pneumococcal vaccines at same time
- ◆ Menactra-branded MenACWY vaccine (asplenia pts)

Pneumococcal Vaccines



Questions?

Resources

→ IAFP resources

www.iafp.com/pneumococcal-qi

→ AAFP resources

<https://www.aafp.org/patient-care/public-health/immunizations/pneumococcal-grant.html>

<https://www.aafp.org/patient-care/public-health/immunizations/disease-population/pneumococcal.htm>

→ CDC Pneumonia Vaccine Timing for Adults

<https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf>

→ CDC PinkBook

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

→ IAC Ask the Experts

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

Questions?

Contact the Illinois Academy of Family Physicians

- iafp@iafp.com
- (630) 435-0257