Immunization Insights 2024: What Pharmacists Need to Know

DUSTIN WATERS, PHARMD, BCIDP
INFECTIOUS DISEASES CLINICAL PHARMACIST
INTERMOUNTAIN HEALTH-MCKAY DEE HOSPITAL

UTAH PHARMACY ASSOCIATION MIDYEAR MEETING

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Disclosure

Dustin Waters has no relevant financial relationships with ineligible companies to disclose.

AI was used in this presentation for development of a title and for acronyms to assist in remembering strategies to deal with vaccine hesitancy.

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Objectives

Upon successful completion of this course, pharmacists should be able to:

- Differentiate recommendations for vaccination among preparations of COVID-19 and influenza vaccines
- Assess the need for pneumococcal vaccination, given a patient care scenario
- Compare and contrast respiratory syncytial virus vaccine products to recommend vaccination in adult populations
- Apply vaccine recommendations to special populations that may be at high-risk for vaccine adverse events
- Formulate a strategy to address vaccine hesitancy by discussing data relating to common vaccine-hesitant concerns and misconceptions

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Objectives

Upon successful completion of this course, pharmacy technicians should be able to:

- Review the recommendations for vaccination among preparations of COVID-19 and influenza vaccines
- Compare and contrast respiratory syncytial virus vaccine products
- Recognize special populations that may be at high-risk for vaccine adverse events
- Support the pharmacist in addressing vaccine hesitancy

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Overview

- Pharmacists/pharmacy technicians are paramount to providing vaccinations in the community
- According to the CDC:
  - Pharmacies are the most common location in which patients get influenza vaccination (48%)
  - Pharmacies are the most common location in which patients get COVID-19 vaccination (71.5%)
  - Pharmacies are the most common location in which patients get RSV vaccination (81.7%)

https://www.cdc.gov/vaccines/imz-managers/coverage/national-state-vaccination-estimates.html#:~:text=Pharmacies%20or%20drug%20stores%20were,7.9%25)%20for%20RSV%20vaccinations

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COVID-19 VACCINE UPDATES

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COVID-19 Vaccination Recommendations for 2024-2025

- Vaccine efficacy
  - Adults - Based on 2023-2024 vaccine efficacy data
    - Medically attended COVID – 43%
    - COVID-associated hospitalization – 44%
    - COVID-associated death – 23%
  - Children
    - Only one study was available assessing medically attended COVID – vaccine efficacy = 80%

https://www.cdc.gov/mmwr/volumes/73/wr/mm7337e2.htm

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COVID-19 Vaccination Recommendations for 2024-2025

- Vaccine Safety
  - Signal of increased risk of Guillain-Barre Syndrome (GBS) in patients greater than 65 years of age
    - Not identified prior to 2023-24 vaccine
    - No conclusive data to suggest increased risk
  - Signal identified for increased risk of ischemic stroke in patients greater than 50 years of age
    - No conclusive data to suggest increased risk
  - Summary of vaccine safety data: https://www.cdc.gov/vaccine-safety/vaccines/covid-19.html#cdc_generic_section_6-a-closer-look-at-the-safety-data

https://www.cdc.gov/mmwr/volumes/73/wr/mm7337e2.htm

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COVID-19 Vaccine Products and Dosing

Vaccine Product	Dosing	Preferred Site of Administration	How Supplied	Storage Requirements
Pfizer-BioNTECH	• 6 months – 4 years: 0.3 mL/3mcg • 5-11 y/o: 0.3ml/10mcg • >12 y/0.3mL/10 mcg	• 6 months - 2 years: Thigh • 2-4 years: Deltoid • ≧ 5 years: Deltoid	• 6 months – 4 years: Multi dose vial; yellow cap and yellow label • 5 – 11 years: Single dose vial, blue cap, blue label • ≧ 12 years: Manufacturer filled syringe	• -90˚ -- -60˚ C until expiration • 2-8˚ C for 10 weeks • 8-25˚C for 12 hours prior to puncture
Moderna	• 6 months – 11 years: 0.25 mL/25 mcg • ≧ 12 years: 0.5 mL/ 50 mcg	• 6 months - 2 years: Thigh • ≧ 3 years: Deltoid	• 6 months – 11 years: Pre-filled syringe • ≧ 12 years: Prefilled syringe	• -50˚ -- -15˚ C until expiration • 2-8˚ C for 10 weeks • 8-25˚C for 12 hours
Novavax	• ≧ 12 years: 0.5 mL	• Deltoid	• ≧ 12 years: Prefilled syringe	• 2-8˚ C until expiration

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Recommendations for 2024-2025 COVID-19 vaccination – Ages 5 and greater who are Not Moderately to Severely Immunocompromised

TABLE 1. Recommended 2024–2025 COVID-19 vaccination schedule for persons aged ≥5 years who are not moderately or severely immunocompromised,* by previous COVID-19 vaccination history — United States, September 2024

Previous COVID-19 vaccination history†,§	2024–2025 COVID-19 vaccine	No. of 2024–2025 doses indicated	Interval between doses
Unvaccinated	Moderna	1	NA
	or Pfizer-BioNTech	1	NA
	or Novavax (aged ≥12 yrs only)	2	3–8 wks between dose 1 and dose 2
Previously received ≥1 COVID-19 vaccine dose¶	Moderna	1	≥8 wks after last dose
	or Pfizer-BioNTech	1	≥8 wks after last dose
	or Novavax (aged ≥12 yrs only)	1	≥8 wks after last dose

https://www.cdc.gov/mmwr/volumes/73/wr/mm7337e2.htm

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Recommendations for 2024-2025 COVID-19 vaccination – Ages 6 months to 4 years who are not Moderately to Severely Immunocompromised

TABLE 2. Recommended COVID-19 vaccination schedule for children aged 6 months–4 years who are not moderately or severely immunocompromised,* by previous COVID-19 vaccination history — United States, September 2024

Previous COVID-19 vaccination history†,§	2024–2025 COVID-19 vaccine	No. of 2024–2025 doses indicated	Interval between doses
Unvaccinated	Moderna	2	4–8 wks between dose 1 and dose 2
	or Pfizer-BioNTech	3	3–8 wks between dose 1 and dose 2 ≥8 wks between dose 2 and dose 3
Previously received Moderna vaccine			
1 dose any Moderna	Moderna	1	4–8 wks after dose 1
≥2 doses any Moderna	Moderna	1	≥8 wks after last dose
Previously received Pfizer-BioNTech vaccine			
1 dose any Pfizer-BioNTech	Pfizer-BioNTech	2	3–8 wks between dose 1 and dose 2 ≥8 wks between dose 2 and dose 3
2 doses any Pfizer-BioNTech	Pfizer-BioNTech	1	≥8 wks after dose 2
≥3 doses any Pfizer-BioNTech	Pfizer-BioNTech	1	≥8 wks after last dose

https://www.cdc.gov/mmwr/volumes/73/wr/mm7337e2.htm

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Recommendations for 2024-2025 COVID-19 vaccination – Ages 6 months and greater who **ARE** moderately to severely immunocompromised

- All patients should receive at least one dose of COVID-19 2024-25 vaccine
- Unvaccinated ages 6 months – 11 years
  - 3 doses from same manufacturer
- Unvaccinated ages 12 and greater
  - 3 doses of mRNA 2024-25 vaccine from same manufacturer (Pfizer or Moderna
  - 2 doses of Novavax 2024-25 vaccine

https://www.cdc.gov/mmwr/volumes/73/wr/mm7337e2.htm

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Recommendations for 2024-2025 COVID-19 vaccination – Ages 6 months and greater who **ARE** moderately to severely immunocompromised

- If patients have received one dose of the 2024-25 COVID-19 vaccine they MAY receive a 2nd dose AT LEAST 2 months after the last 2024-25 vaccine
- Dosing recommendations for immunocompromised patients are very complex – would recommend individual consultation at:
  - https://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#immunocompromised
  - Consult for recommendations about patients who either have had a break in immunosuppression or who will shortly be resuming immunosuppressive therapies

https://www.cdc.gov/mmwr/volumes/73/wr/mm7337e2.htm

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COVID-19 2024-25 Vaccine Recommendations – Test Your Knowledge

- A 3 year-old boy comes to your pharmacy with his parents who have enquired about getting the COVID-19 vaccine. The boy's past medical history is remarkable only for asthma and seasonal allergies. He has previously been unvaccinated for any COVID-19 vaccine. Which of the following vaccine regimens is most appropriate for him to follow?
  - Pfizer-BioNTech – 3 vaccine doses, each separated by 4 weeks
  - Novavax – 2 vaccine doses, each separated by 4 weeks
  - Moderna – 2 vaccine doses, each separated by 6 weeks

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INFLUENZA VACCINE UPDATES

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Influenza Vaccination – 2024-2025 influenza season recommendations

- Who should get influenza vaccination?
  - Everyone 6 months of age and older (very few exceptions)
- When should vaccination occur?
  - For most groups, vaccination in September or October is appropriate
  - For most adults, but ESPECIALLY those ≥ 65 years or age or pregnant in the first or second trimester, vaccination SHOULD NOT occur in July or August – unless vaccination cannot occur after that
- Children ages 6 months-8 years who have not had 2 doses prior to July 1, 2024 should receive 2 doses at least 4 weeks apart

https://cdc.gov/flu/media/pdfs/2024/08/acip-2024-25-summary-of-recommendations.pdf

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Influenza Vaccination – Trivalent Vaccination for 2024-2025 season

- Since March of 2020 Influenza B viruses from the Yamagata lineage have become extinct
- Subsequently all vaccines for 2024-2025 season will be trivalent instead of quadrivalent
- 2024-2025 influenza vaccines will include the following antigens or virus particles
  - Influenza A(H1N1)
  - Influenza A(H3N2)
  - Influenza B(Victoria lineage)

https://www.cdc.gov/flu/vaccine-types/trivalent.html

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Abbreviations Associated with Influenza Vaccinations

- Abbreviations
  - IIV3 – Inactivated influenza vaccine
  - RIV3 – Recombinant influenza vaccine
  - LAIV3 – Live attenuated influenza vaccine
- Prefixes
  - cc – Cell culture based IIV
  - A – Adjuvanted IIV
  - HD – for High Dose IIV

https://cdc.gov/flu/media/pdfs/2024/08/acip-2024-25-summary-of-recommendations.pdf

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Dosage Forms of Inactivated Influenza Vaccinations 15 mcg Hemagglutinin antigen (HA) in 0.5 mL; 7.5 mcg in 0.25 mL

Trade Name (Manufacturer)	Approved Ages	Dose	Comments
Afluria (Seqirus)	≥ 6 months	6 months – 35 months: 0.25 mL ≥ 3 years: 0.5 mL	Egg based; Use jet injector only for ages 18-64 y/o
Fluarix (GlaxoSmithKline)	≥ 6 months	≥ 6 months: 0.5 mL	Egg based
Flucelvax (Seqirus)	≥ 6 months	≥ 6 months: 0.5 mL	Cell-culture based
FluLaval (GlaxoSmithKline)	≥ 6 months	≥ 6 months: 0.5 mL	Egg-based
Fluzone (Sanofi Pasteur)	≥ 6 months	6 – 35 months: 0.25 mL or 0.5 mL ≥ 3 years: 0.5 mL	Egg-based

Table adapted from: https://www.cdc.gov/flu/media/pdfs/2024/08/acip-2024-25-summary-of-recommendations.pdf

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High Dose, Adjuvanted IIV3s

- High Dose - HD-IIV3: High-dose (60 µg hemagglutinin per virus component in 0.5 mL)
  - Fluzone High-Dose (Sanofi Pasteur) – For use in patients ≥ 65 years of age and older; dose 0.5mL – one of preferred agents for patients over age 65
- Adjuvanted - aIIV3: Standard-dose, with MF59 adjuvant (15 µg hemagglutinin per virus component in 0.5 mL)
  - Fluad (Seqirus) – For use in patients ≥ 65 years of age and older; dose 0.5mL – one of preferred agents for patients over age 65

https://www.cdc.gov/flu/media/pdfs/2024/08/acip-2024-25-summary-of-recommendations.pdf

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Recombinant and Live Influenza Vaccines

- Recombinant – Recombinant HA (45 µg hemagglutinin per virus component in 0.5 mL)
  - Flublok (Sanofi Pasteur) For use in patients ≥ 18 years of age and older; dose 0.5mL – one of preferred agents for patients over age 65
- Live Attenuated Influenza Vaccine (LAIV3)
  - FluMist (AstraZeneca) – 0.2 mL (0.1 mL in each nostril), egg-based

https://www.cdc.gov/flu/media/pdfs/2024/08/acip-2024-25-summary-of-recommendations.pdf

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How should we deal with apparent contraindications to influenza vaccines?

- Multiple studies indicate that egg-allergic persons are not at increased risk of severe allergic reactions to egg-based influenza vaccines.
- Any influenza vaccine that is otherwise appropriate for the recipient's age and health status (egg based or non-egg based) can be administered to persons with egg allergy.
- Only true influenza vaccine contraindications are allergy to vaccine components (not eggs)
- Live vaccines are contraindicated in immunocompromised patients

https://www.cdc.gov/flu/hcp/acip/?CDC_AAref_Val=https://www.cdc.gov/flu/professionals/acip/summary/summary-recommendations.htm

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PNEUMOCOCCAL VACCINE UPDATES

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Pneumococcal vaccine updates

- Why is pneumococcal vaccination so important?
  - Prior to the COVID-19 pandemic there were ~ 100,000 cases of non-invasive pneumococcal pneumonia-related hospitalization annually
  - Compounded by ~30,000 cases of invasive pneumococcal disease annual
  - Both these numbers are in adults, children different – will focus on adults
- Unofficial poll questions
  - How many of you give pneumococcal vaccination at your pharmacies
  - If you give pneumococcal vaccination, what percentage of your overall vaccine administration is pneumococcal vaccine?

https://www.cdc.gov/mmwr/volumes/73/wr/mm7336a3.htm?s_cid=mm7336a3_w

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Current Pneumococcal Vaccine Products

- PCV 15
  - If used, must give a dose of PPSV23 one year later
  - 8 week interval should be considered for those with:
    - Immunocompromising condition
    - Cochlear Implant
    - Cerebrospinal fluid leak
- PCV20
  - If used, a subsequent dose of PPSV23 is NOT indicated
- PPSV23

https://www.cdc.gov/pneumococcal/hcp/vaccine-recommendations/index.html

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Shared Clinical Decision-Making

Shared Clinical Decision-Making

PCV20 or PCV21 Vaccination for Adults 65 Years or Older

Adults 65 years of age or older have the option to receive supplemental PCV20 or PCV21 (not both) if they previously completed the pneumococcal vaccine series with both PCV13 and PPSV23 and meet the following criteria:

- Previously received one dose of PCV13 (but not PCV15, PCV20, or PCV21) at any age, and
- Previously received all recommended doses of PPSV23 (including 1 dose of PPSV23 at or after 65 years of age)

The determination to administer PCV20 or PCV21 is based on a shared clinical decision-making (SCDM) process between a patient and their health care provider. SCDM recommendations are optional and informed by the characteristics, values, and preferences of the patient, and the clinical discretion of the health care provider.

https://www.cdc.gov/vaccines/hcp/admin/downloads/job-aid-SCDM-pneumococcal-508.pdf

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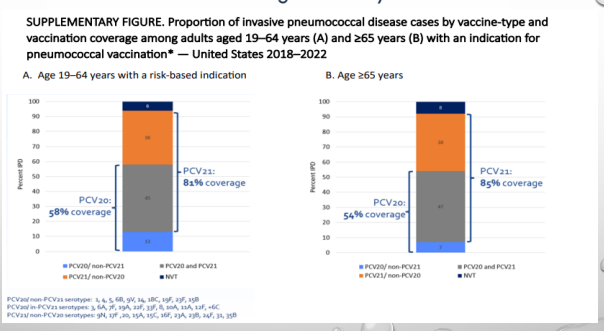
Why do we need another pneumococcal vaccine? Don't we have enough already?

SUPPLEMENTARY FIGURE. Proportion of invasive pneumococcal disease cases by vaccine-type and vaccination coverage among adults aged 19–64 years (A) and ≥65 years (B) with an indication for pneumococcal vaccination* — United States 2018–2022



https://stacks.cdc.gov/view/cdc/160379

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21-Valent Pneumococcal conjugate vaccine (Capvaxive)

- PCV 21 has been evaluated in multiple studies and has been shown with moderate certainty to prevent vaccine-type (VT) invasive pneumococcal disease (IPD), VT nonbacteremic pneumococcal pneumonia (NBPP)
  - Important caveat – these data were only serologic data
  - PCV 21 performed better serologically that PCV20 for 10/20 serotypes in PCV20, and was non-inferior for other 10
- No serious safety vaccine-related ADEs have been reported

https://www.cdc.gov/vaccines/acip/recs/grade/pcv21-adults-19-and-older.html;
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10761273/

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ACIP recommendations for PCV 21

Risk or age group	Vaccine received previously	Options for vaccination
Adults aged ≥65 years	None or PCV7 only at any age	A single dose of PCV21, PCV20, or PCV15. If PCV15 is administered, a single dose of PPSV23* should be administered ≥1 year after the PCV15 dose. A minimum interval of 8 weeks can be considered if PCV15 is used in adults with an immunocompromising condition,† cochlear implant, or CSF leak.
	PPSV23 only	A single dose of PCV21, PCV20, or PCV15 ≥1 year after the last PPSV23 dose.
	PCV13 only	A single dose of PCV21, PCV20, or PPSV23≥1 year after the PCV13 dose. When PPSV23 is used for adults with an immunocompromising condition,† cochlear implant, or CSF leak, administer PPSV23 ≥8 weeks after the PCV13 dose.
	PCV13 at any age and PPSV23 at age <65 years	A single dose of PCV21, PCV20, or PPSV23. If PCV21 or PCV20 is used, it should be administered ≥5 years after the last pneumococcal vaccine dose. If PPSV23 is used, it should be administered ≥1 year after the PCV13 dose (or ≥8 weeks since the PCV13 dose for adults with an immunocompromising condition,† cochlear implant, or CSF leak) and ≥5 years after the previous PPSV23 dose.
	PCV13 at any age and PPSV23 at age ≥65 years	Shared clinical decision-making is recommended regarding administration of either a single dose of PCV21 or PCV20 for any adult aged ≥65 years who has completed the recommended vaccination series with both PCV13 and PPSV23 (i.e., PPSV23 administered at age ≥65 years) but PCV21, PCV20 or PCV15 not yet received. If a decision to administer PCV21 or PCV20 is made, a single dose is recommended ≥5 years after the last pneumococcal vaccine dose.

https://www.cdc.gov/mmwr/volumes/73/wr/mm7336a3.htm?s_cid=mm7336a3_w#T1_down

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ACIP recommendations for PCV 21

Adults aged 19–64 years with an immunocompromising condition,† a CSF leak, or a cochlear implant	None or PCV7 only at any age	A single dose of PCV21, PCV20, or PCV15. If PCV15 is used, administer a single dose of PPSV23* ≥8 weeks after the PCV15 dose.
	PPSV23 only	A single dose of PCV21, PCV20, or PCV15 ≥1 year after the last PPSV23 dose.
	PCV13 only	A single dose of PCV21, PCV20, or PPSV23. If PCV21 or PCV20 is used, it should be administered ≥1 year after the PCV13 dose. If PPSV23 is used, administer PPSV23 ≥8 weeks after the PCV13 dose. When PPSV23 is used instead of PCV21 or PCV20 for these adults, a single dose of PCV21, PCV20 or PPSV23 dose is recommended ≥5 years after the first PPSV23 dose.
	PCV13 and 1 dose of PPSV23	A single dose of PCV21 or PCV20, or ≥1 dose of PPSV23. If PCV21 or PCV20 is used, it should be administered ≥5 years after the last pneumococcal vaccine dose. When a second PPSV23 dose is used instead of PCV21 or PCV20, it should be administered ≥8 weeks after the PCV13 dose and ≥5 years after the first PPSV23 dose. The pneumococcal vaccination recommendations should be reviewed again when the person reaches age 65 years. If PCV21 or PCV20 is used in place of any dose of PPSV23, the series is complete, and it need not be followed by additional pneumococcal vaccine doses.
	PCV13 and 2 doses of PPSV23	The pneumococcal vaccination recommendations should be reviewed again when the person turns age 65 years. Alternatively, a single dose of either PCV21 or PCV20 should be administered ≥5 years after the last pneumococcal vaccine dose. If PCV21 or PCV20 is used, the series is complete, and it need not be followed by additional pneumococcal vaccine doses.

https://www.cdc.gov/mmwr/volumes/73/wr/mm7336a3.htm?s_cid=mm7336a3_w#T1_down

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ACIP recommendations for PCV 21

Adults aged 19–64 years with chronic medical conditions[5]	None or PCV7 only at any age	A single dose of PCV21, PCV20, or PCV15. If PCV15 is administered, a single dose of PPSV23* should be administered ≥1 year after the PCV15 dose.
	PPSV23 only	A single dose of PCV21, PCV20, or PCV15 ≥1 year after the last PPSV23 dose.
	PCV13 only	A single dose of PCV21, PCV20, or PPSV23 ≥1 year after the PCV13 dose.
	PCV13 and 1 dose of PPSV23	The pneumococcal vaccination recommendations should be reviewed again when the person reaches age 65 years.

https://www.cdc.gov/mmwr/volumes/73/wr/mm7336a3.htm?s_cid=mm7336a3_w#T1_down

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How do you keep straight who needs pneumococcal vaccination and in what order???

- CDC VaxAdvisor is a valuable resource
  - https://www2a.cdc.gov/vaccines/m/pneumo/pneumo.html
  - Can input patient info given essentially any scenario and get pneumococcal vaccine recommendations

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Pneumococcal vaccination – Test your knowledge!

- A 55 year-old man presents to your pharmacy inquiring about his need for a pneumococcal vaccination. Ten years ago he was involved in a serious car accident and required splenectomy for a ruptured spleen. At hospital discharge after splenectomy he received the PPSV-23 vaccine. He has seen commercials on TV for Capvaxive (PCV21) and wants to know if he should get that vaccine.
  - What is your recommendation?

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RESPIRATORY SYNCYTIAL VIRUS (RSV) VACCINE UPDATES

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Respiratory Syncytial Virus Vaccines (RSV) Test your knowledge!

True/False:

RSV vaccines are all protein subunit vaccines.

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Respiratory Syncytial Virus Vaccines

- On June 26, 2024, the ACIP voted to approve **ONE** dose of any RSV vaccine (discussed in subsequent slides) for adults ages ≥ 75 years
  - Adults ages 60-74 who are at risk for RSV disease can also get one dose
    - At risk patients are generally those with chronic obstructive pulmonary disease [COPD], asthma, chronic respiratory disease, heart failure, diabetes mellitus, advanced liver disease, and/or advanced renal disease
    - Immunocompromised patients should receive one dose
    - Nursing home residents should receive one dose

https://www.cdc.gov/acip/grade/mrna-rsv-vaccine-older-adults.html?CDC_AAref_Val=https://www.cdc.gov/vaccines/acip/recs/grade/mrna-rsv-vaccine-older-adults.html; https://www.cdc.gov/mmwr/volumes/73/wr/mm7332e1.htm

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Respiratory Syncytial Virus Vaccines

- Vaccine Products
  - mRNA RSV vaccine (Moderna – mResvia)
    - Contains 50 µg of mRNA encoding the prefusion RSV F protein
    - Indicated for patients ≥ 60 years and older (see previous slide)
    - Vaccine efficacy – 78% in preventing symptomatic, lower respiratory tract disease with 2 or more symptoms and 80% in preventing symptomatic, lower respiratory tract disease with 3 or more symptoms
    - Vaccine safety – no increased risk of serious adverse events (GBS, myocarditis, or pericarditis) compared to placebo

https://www.cdc.gov/mmwr/volumes/73/wr/mm7332e1.htm

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Respiratory Syncytial Virus Vaccines

- Vaccine Products
  - Protein Subunit vaccines (GSK – Arexvy and Pfizer – Abrysvo)
    - Vaccine efficacy ranges from 75-82% and is similar across vaccine products
      - Vaccine efficacy similar across age groups (≥ 75 vs 60-74 years old)
    - Vaccine safety
      - No clear increased risk of GBS
      - Statistical signal of increased risk of immune thrombocytopenia (ITP)
        - After review, most patients started with ITP PRIOR to receipt of vaccine

https://www.cdc.gov/mmwr/volumes/73/wr/mm7332e1.htm

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VACCINES IN SPECIAL POPULATIONS: PREGNANCY AND BREASTFEEDING

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Vaccines in Special Populations - **Pregnancy**

- Should pregnant patients get vaccinated?
  - Multiple studies show benefit of vaccination in pregnancy while not increasing risk to fetus, and even showing benefit once the child is born
  - Vertical protection to infants is incredibly important – antibody production in mother can protect the baby after birth
  - Excellent resources from the CDC on risk vs. benefit, adverse effects, and overall safety for moms and babies found here: https://www.cdc.gov/vaccines-pregnancy/resources/index.html

https://www.cdc.gov/vaccines-pregnancy/about/index.html

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Vaccines in Special Populations - **Pregnancy**

- Recommended vaccines in pregnancy
  - Tdap
    - Recommended every pregnancy between 27-36 weeks
      - Decreases risk of pertussis in infant by 78%
  - Influenza
    - Reduces risk of influenza by up to 50%
    - Multiple studies on safety show no increased risk

https://www.cdc.gov/pertussis/vaccines/tdap-vaccination-for-pregnant-people.html; https://www.cdc.gov/flu/vaccine-safety/vaccine-pregnant.html#cdc_generic_section_11-cdc-studies-conducted-on-flu-vaccine-during-pregnancy;

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Vaccines in Special Populations - **Pregnancy**

- Recommended vaccines in pregnancy
  - RSV vaccination
    - Pregnant patients should receive RSV vaccination (Pfizer's Abrysvo) between 32-36 weeks of pregnancy if between September and January
    - Decreases RSV-related hospitalization in newborn by 68% and RSV-related healthcare visits by 57% within 3 months after birth
    - For reference there are between 50,000-80,000 RSV-related hospitalizations in the United States each year in children under 5 years old

https://www.cdc.gov/rsv/hcp/vaccine-clinical-guidance/pregnant-people.html; https://www.cdc.gov/mmwr/volumes/73/wr/mm7309a4.html.

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Vaccines in Special Populations - **Pregnancy**

- Recommended vaccines in pregnancy
  - COVID-19
    - mRNA vaccination (Pfizer or Moderna) is recommended during pregnancy
    - Multiple studies have shown that COVID-19 vaccines are safe in pregnancy
      - One study of 94,303 infants born to mothers vaccinated during pregnancy showed no increased risk of intracranial hemorrhage, hypoxic-ischemic encephalopathy, and neonatal mortality (in fact COVID-19 vaccination was associated with LOWER rates of these outcomes)
    - COVID-19 vaccination has been shown to reduce hospitalization in infants ≤ 6 months of age

https://jamanetwork.com/journals/jama/fullarticle/2814537; https://www.cdc.gov/covid/vaccines/pregnant-or-breastfeeding.html.

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Vaccines in Special Populations - **Pregnancy**

- Vaccines NOT recommended in pregnancy
  - All live vaccines
    - MMR
    - Varicella
    - Live Attenuated Influenza
    - Live Typhoid

https://www.cdc.gov/vaccines-pregnancy/hcp/vaccination-guidelines/index.html

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Pregnant Patient – Test your knowledge!

- Sarah is a 28-year-old woman, 22 weeks pregnant, who visits your pharmacy for advice about vaccines. She expresses concern about getting the flu shot due to her pregnancy. Additionally, she asks if any other vaccines are needed or should be avoided during pregnancy.

Which vaccines are recommended for Sarah during pregnancy?

How would you explain the benefits of vaccination during pregnancy to Sarah to alleviate her concerns?

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Vaccines in Special Populations - **Breastfeeding**

- Only two vaccines are **CONTRAINDICATED** in breastfeeding
  - Live vaccines
    - Mpox/Smallpox (ACAM2000)
    - Yellow Fever
  - All other vaccines, including other live vaccines are considered **SAFE** in breastfeeding
    - Live Influenza
    - MMR
    - VZV
    - Live Typhoid
    - Mpox (JYNNEOS)

https://www.cdc.gov/breastfeeding/breastfeeding-special-circumstances/vaccinations-medications-drugs/vaccinations.html

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VACCINE HESITANCY

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Vaccine Hesitancy

- What is vaccine hesitancy?
  - "State of indecision and uncertainty about vaccination before a decision is made to act (or not act)."
  - In 2019, the World Health Organization listed vaccine hesitancy as a "Top Ten" global health threat
    - Measles incidence has increased 30%
    - Goal to globally eradicate polio

https://www.nejm.org/doi/full/10.1056/nejmra2106441; https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019

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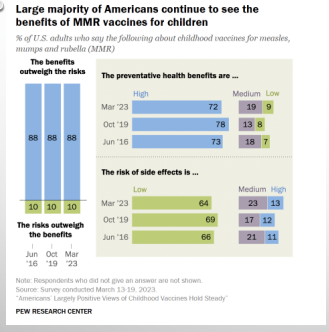
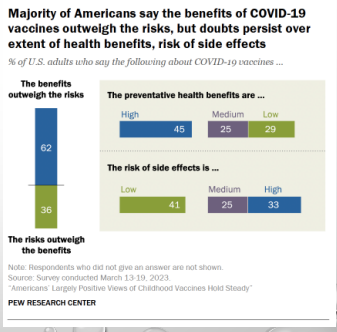
To what extent are Americans Vaccine Hesitant?





https://www.pewresearch.org/science/2023/05/16/what-americans-think-about-covid-19-vaccines/

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What are some reasons for vaccine hesitancy?

- Perceived risk of autism – MMR vaccine
- Perceived risk of death, myocarditis, Guillain-Barre Syndrome and other ADEs – COVID-19 vaccine
- Concern over "rushing" COVID-19 vaccine, or "not enough patients tested"
- Perceived risk of Guillain-Barre Syndrome – Influenza vaccine
- Belief that vaccines "cause" disease
- Lack of trust (government, vaccine manufacturers, etc.)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9503596/

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Risk of Autism – MMR Vaccine

- Does the MMR vaccine increase the risk of autism?
  - Stems from fraudulent study published in 1998, that has since been retracted by the journal
- Multiple studies show no increased risk of autism in MMR-vaccinated children
  - 2019 Danish study in 657,461 children showed no increased risk of autism (adjusted HR 0.93, 95% CI 0.85-1.02)
  - 2015 US study in 95,727 children with older siblings with and without autism – evaluation after 1 and multiple doses of MMR vaccine showed no increased risk of autism even in children with older siblings with and without autism

https://pubmed.ncbi.nlm.nih.gov/30831578/; https://jamanetwork.com/journals/jama/fullarticle/2275444

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COVID-19 Vaccine and Adverse Events

- COVID-19 vaccine brought with it a lot of controversy for many reasons
- To make a long story short…..
  - Myocarditis and pericarditis are extraordinarily rare (between 50-105 cases per million, depending on age group)
  - Anaphylaxis – rate 5 cases/million patients (contrast that with penicillin = 200 cases/million)
  - GBS – No increased risk with Moderna and Pfizer vaccine (vastly increased risk with J&J vaccine)
  - Overall mortality – Multiple studies show no increased risk of overall mortality with COVID-19 vaccine (multiple products evaluated)

https://www.cdc.gov/vaccine-safety/vaccines/covid-19.html; https://jamanetwork.com/journals/jama/fullarticle/2788346;

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Strategies to address vaccine hesitancy

- Measure hesitancy – to what extent are your patients vaccine hesitant?
- Social media campaigns/health care professional information to combat misinformation
- Use participatory communication ("Would you like to…." vs "We're going to give you….")
- Use motivational interviewing
- Provider/pharmacist recommendations are key! We must educate to benefits and accurately state risks in ways that patients will understand

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8997018/

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How can we help patients overcome vaccine hesitancy?

- Be CLEAR!
  - C – Communicate transparently
  - L – Listen to concerns
  - E – Educate with accurate information
  - A – Address myths and misinformation
  - R – Reassure with data
- Data can help us illustrate the efficacy and safety of vaccination!

Acronym created using ChatGPT4o mini – Accessed 10/9/2024

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Vaccine Hesitancy – Case-based Application

- Don is a 75 year-old man who has a history of heart failure with reduced ejection fraction, hypertension, type 2 DM, and benign prostatic hypertrophy. He presents to your pharmacy to discuss getting an updated COVID vaccine, however, he is torn about doing so because he has friends who say getting the "jab" will make his heart worse, and that they haven't been tested well enough. He also fears that he may be at increased risk of severe COVID due to his multiple comorbidities.
  - What would you tell him?
  - What resources are available to help him make his decision?
  - How can we address vaccine hesitancy without being demeaning or judgmental, but also while conveying accurate information that helps make the case that vaccines are safe and effective?

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Conclusion

- COVID-19, Influenza, and RSV vaccination all recommended for "respiratory virus season" this year
- PCV21 pneumococcal vaccination recommended for patients who need pneumococcal vaccination
  - Vaccine recommendations are complex – consult reference to see if patients qualify and for which vaccine
- Most vaccines (non-live) can be given to pregnant or breastfeeding women
- Use proven strategies to address vaccine hesitancy

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QUESTIONS?

CDUSTINWATERS@GMAIL.COM

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Immunization Insights 2024: What Pharmacists Need to Know

1 Redeem your credit online at CEimpact.com

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2 From the CEimpact.com Homepage – enter the code provided in the 'Enter Code' box and click SUBMIT.

3 Complete the Exam & Evaluation as prompted; click SUBMIT to send your information to CPE Monitor. Follow instructions to access your CPE Statement of Credit on CPE Monitor or access your Certificate of Completion in MyCourses.

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