Recommended Vaccinations for Patients with Chronic Lung Disease

RORY JOHNSON, PHARM.D., AE-C
ASSISTANT PROFESSOR
UNIVERSITY OF MONTANA

Disclosures

Nothing to Disclose

Learning Objectives

At the conclusion of this presentation, participants should be able to:

- Recommend appropriate immunizations for patients with chronic lung disease
- Utilize the adult and pediatric immunization schedules provided by the Centers for Disease Control and Prevention (CDC) in patient case scenarios.
Vaccines & the Immune Response

Vaccine Types

Live attenuated Vaccines
- Created from bacteria or viruses
- Must replicate to be effective

Inactivated Vaccines
- Created from bacteria or viruses
- Do not need to replicate
- Polysaccharide vs. Conjugate Polysaccharide

Considerations Between Live & Inactivated?
- Storage
- Dose Timing
- Protection Duration
- ADRs
- Contraindications

Vaccine Schedules

Children and Adolescents Aged 18 years or Younger
- Catch up immunization schedule available
- Vaccines based on medical indications

Adults Aged 19 Years or Older
- Two (2) schedules based on age & indication
- Many important footnotes!
- Approved by Advisory Committee on Immunization Practices (ACIP)
in the fall with release in January/February
- Updated versions always available on CDC website
Communication

Use your motivational interviewing skills
- Ask open-ended questions
- Demonstrate empathy/address concerns
- Avoid argument & direct confrontation
- Reframe & Reflect

Adopt an individualized approach
- Build Trust
- Use Science & Anecdotes
- Your Role in the Vaccine Decision
- Participatory vs. Presumptive Approach
- Success Comes in Many Forms

Common Vaccine Myths

Myth: MMR causes autism
Myth: Thimerosal causes autism
Myth: Giving an infant multiple vaccinations can overwhelm the immune system
Myth: It's better to space out vaccines using an alternative schedule
Myth: Natural infection is better than immunization
Myth: Ingredients in vaccines are harmful
Myth: Disease rates have dropped due to factors other than vaccination
Myth: Vaccines are not effective
Myth: VAERS data prove that vaccines are dangerous


Patient Case

Melanie and Donald have a 12-year-old son, Barrett. Their doctor encouraged that Barrett receive his influenza vaccination last fall. Don & Mel refused at the time, but are at the clinic today wanting to discuss the flu vaccine for Barrett as they hear it's been a “bad flu year.” They state that influenza vaccines don’t work and have heard they can cause autism.

- Break into small groups of 3 or 4. One member should play the healthcare professional and one member should play Don or Mel. Other members of the group can observe and take notes.

Influenza

Acute respiratory illness caused by influenza A or B viruses primarily during winter season.

Symptoms: fever, headache, myalgia, malaise, fatigue, nonproductive cough, sore throat, etc.

Complications: Primary influenza pneumonia & secondary bacterial pneumonia

High Risk Populations:
- LTCF residents, Adults over 65, & pregnant women
- Native Americans, Obesity (BMI > 40)
- Individuals w/ chronic medical conditions including: PULMONARY DISEASE, CVD, HTN, DM, etc.
Influenza Vaccine

**ACIP Recommendations:**
- Annual vaccination for all individuals 6 months of age or older
- Healthcare workers & high risk individuals (and close contacts) are high priority

**Special Considerations:**
- Children aged 6 months through 8 years
  - Administer 2 doses (separated by > 4 weeks) to children receiving flu vaccine for 1st time who haven’t received 1 dose
- Live Attenuated Influenza Vaccine (LAIV)
  - Not recommended for the 2016-2017 or 2017-2018 seasons
  - ACIP recently voted to include in 2018-2019 season
- ACIP recommends not using LAIV in patients with chronic pulmonary disorders including asthma and children 2 to 6 years of age who have had asthma or wheezing episodes within the past year.

Pneumococcal Disease

**Streptococcus pneumonia** – gram-positive bacteria that can cause many types of respiratory infections. Antibiotic resistance is common.

**Symptoms:** fever/chills, cough, difficulty breathing, chest pain

**Complications:** sinus & ear infections, pneumonia, meningitis, bacteremia, sepsis

**High Risk Populations:**
- Age <2 or >65, Native Americans, men, SMOKING, cochlear implants, etc.
- Chronic conditions including: CVD, liver disease, DM, COPD, EMPHYSEMA, and ASTHMA

**Pneumococcal Conjugate (PCV13)**

Prevnar 13 (Pfizer)
- 1 unique serotype not in PPSV23 (12 serotypes same)

**ACIP Recommendations:**
- Children: Routine Vaccination at 2, 4, 6, and 12-15 months
- Adults: Administer 1 dose to immunocompetent adults aged 65 years or older
**Pneumococcal Polysaccharide (PPSV23)**

Pneumovax 23 (Merck)
- 11 serotypes not found in PCV13 (12 serotypes same)

**ACIP Recommendations:**
- Children: Routine vaccination not recommended
- Adults: Administer 1 dose to immunocompetent adults aged 65 years or older

**Special Considerations:**
- Children: High-risk conditions (Chronic Heart Disease, CHRONIC LUNG DISEASE [includes asthma treated w/ high-dose OCS], and diabetes
  - One dose PPSV23 (at least 8 weeks after any prior PCV 13 dose) for children between 2 and 18.
- Adults: High-risk conditions – SMOKE[ers], CHRONIC LUNG DISEASE, heart disease, DM, etc.
  - One dose PPSV23 to adults age 19 through 64 with above chronic conditions

### Pneumococcal Vaccine Timing – For Adults

**Age 65 Years or Older**

<table>
<thead>
<tr>
<th>No history of pneumococcal vaccine</th>
<th>PPSV23</th>
<th>1 year</th>
<th>PPSV23</th>
<th>1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received PPSV23 before age 65</td>
<td>PCV13</td>
<td>PPSV23</td>
<td>PCV13</td>
<td>PPSV23</td>
</tr>
<tr>
<td>Received PPSV23 at age 65 or older</td>
<td>PCV13</td>
<td>PPSV23</td>
<td>PCV13</td>
<td>PPSV23</td>
</tr>
</tbody>
</table>

### Age 19-64 Years With Underlying Condition(s)

<table>
<thead>
<tr>
<th>A. Smoker, or Chronic conditions:</th>
<th>PCV13</th>
<th>8 weeks</th>
<th>PPSV23</th>
<th>8 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic lung disease including asthma</td>
<td>8 weeks</td>
<td>PPSV23</td>
<td>8 weeks</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Immunocompromised</th>
<th>PCV13</th>
<th>8 weeks</th>
<th>PPSV23</th>
<th>8 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic renal failure, nephrotic syndrome, or Asplenia (including failure)</td>
<td>8 weeks</td>
<td>PPSV23</td>
<td>8 weeks</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. CVI leaks or Catheter implants</th>
<th>PCV13</th>
<th>8 weeks</th>
<th>PPSV23</th>
<th>8 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 weeks</td>
<td>PPSV23</td>
<td>8 weeks</td>
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</tbody>
</table>

*Prior doses count towards doses recommended below and do not need to be repeated.
* If PCV23 given previously – wait any time before giving PPSV23.
* If group B, wait at least 5 years before giving a second dose of PPSV23.
* If more than two doses of PCV13, immunocompromised with multiple chronic conditions and receive thereafter.

**DO NOT administer PCV13 and PPSV23 at the same visit.**
**Pertussis (Whooping Cough)**

Bordetella pertussis – extremely contagious respiratory condition. Bacteria releases toxins, which damage cilia and cause airway swelling.

**Symptoms:**
- Early – runny nose, fever (low-grade), occasional cough
- Late – paroxysmal cough, vomiting, exhaustion

**Complications:** rib fractures, pneumonia, hypoxia, apnea, seizures, encephalopathy

**High Risk Populations:**
- Infants (<1 year) greatest risk of morbidity & mortality
- Most common in preschool/school age children, but can infect anyone

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**DTaP and Tdap Vaccinations**

Protect against tetanus, diphtheria, and pertussis

DTaP – Diphtheria & tetanus toxoids with acellular pertussis (indicated for <7 years age)

Tdap – Contains 1/3 dose of diphtheria antigen & lower pertussis antigen dose (booster)

ACIP Recommendations:
- Children: ROUTINE vaccination w/ DTaP at 2,4,6 & 15-18 months, then 4-6 years. Administer 1 dose Tdap to all adolescents aged 11-12 years, followed by 10 every 10 years.
- Adults: Administer 1 dose Tdap to all adults for whom pertussis vaccine status is unknown

Special Considerations:
- Children: For children 7 years w/ incomplete DTaP series, give 1 dose Tdap as 1st dose in catch-up
- Pregnant teens/women: Administer 1 dose Tdap during every pregnancy after 20 weeks gestation. (Preferably given weeks 27 through 36.)
- Adults: especially important for health care professionals and close contacts of infants.

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**Practice Cases: What Vaccines are Needed?**

Work in small groups to review scenarios and assess patient vaccination needs. Utilize the CDC’s vaccination schedules and footnotes during this activity. We will take 5 minutes following each case to discuss.
### Practice Case #1

Timothy is an otherwise healthy 8-year-old boy who presents to the clinic with his father, Ken. During the visit you ask Ken about Tim's vaccination history. Ken states Tim has completed most of his childhood vaccinations; however, he doesn't think he has received any vaccinations since age two. He mentions his wife had read an article on the internet prior to Tim starting kindergarten and decided not to go through with the recommended vaccinations at that time.

Which of the following vaccines would you offer/recommend for Tim today?

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Recommended (dose, schedule)</th>
<th>Not Recommended (why)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCV13</td>
<td></td>
<td></td>
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<tr>
<td>PPSV23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTaP</td>
<td></td>
<td></td>
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<tr>
<td>Tdap</td>
<td></td>
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<tr>
<td>Other</td>
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### Practice Case #2

Bubbles, a 56-year-old man was recently diagnosed with COPD. He has a 30 pack-year history of cigarette use, but recently quit due to this new diagnosis. You assess his vaccination history and he mentions he hasn't received any vaccinations since childhood, with the exception of an occasional influenza vaccination.

Which of the following vaccines would you offer/recommend for Bubbles today?

<table>
<thead>
<tr>
<th>Vaccine</th>
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<tbody>
<tr>
<td>Influenza</td>
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<td>PCV13</td>
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<tr>
<td>PPSV23</td>
<td></td>
<td></td>
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<tr>
<td>DTaP</td>
<td></td>
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<tr>
<td>Tdap</td>
<td></td>
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<tr>
<td>Other</td>
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### Practice Case #3

Carla is a 72-year-old female with persistent asthma that is currently well controlled with AirDuo Respliclick 25/74mcg, 1 puff twice daily. She approaches you today asking for your advice regarding zoster vaccinations. You take a complete vaccination history and determine Carla hasn't had any vaccinations since she was a child. Carla mentions that the influenza vaccination has been encouraged in the past due to her asthma, but she hasn't ever received it as she has an egg allergy. Which of the following vaccines would you offer/recommend for Carla?

<table>
<thead>
<tr>
<th>Vaccine</th>
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<tbody>
<tr>
<td>Influenza</td>
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<td>Tdap</td>
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<tr>
<td>Other</td>
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</tbody>
</table>
Practice Case #4

Ellen is a 33-year-old female who is 29-weeks into her 3rd pregnancy. She brings a prescription to your pharmacy today for gestational diabetes and you ask about her vaccination history. She states she received the Tdap and influenza vaccinations during her last pregnancy 2 years ago, but hasn’t received any vaccinations since then.

Which of the following vaccines would you offer/recommend for Ellen today?

<table>
<thead>
<tr>
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<th>Not Recommended (why)</th>
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<tbody>
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<td>Influenza</td>
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<td></td>
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<tr>
<td>DTaP</td>
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<tr>
<td>Tdap</td>
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<tr>
<td>Other</td>
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</tbody>
</table>

Practice Case #5

Delmar is a 66-year-old male and current smoker who presents at clinic today for his annual appointment. During his appointment you review his vaccination history. He states he received the Tdap about 4 years ago when his first grandson was born. His EMR confirms Tdap in 2014 along with a dose of PPSV23 in 2015 and the occasional flu shot.

Which of the following vaccines would you offer/recommend for Delmar today?

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Recommended (dose, schedule)</th>
<th>Not Recommended (why)</th>
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</thead>
<tbody>
<tr>
<td>Influenza</td>
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<tr>
<td>PCV13</td>
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<td>Other</td>
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References


MMWR Morb Mortal Wkly Rep. 2018;66(5). Available at [www.cdc.gov/mmwr](http://www.cdc.gov/mmwr/volumes/66/wr/mm6605e2.htm?ssc Caldwell6605e2)
