PREVENTION OF RESPIRATORY INFECTIONS IN INDIVIDUALS WITH SCI: INFLUENZA AND PNEUMOCOCCAL VACCINES

Zulma Jimenez, MSN, RN, CRRN; Evelyn Quinones, MSN, RN
At the end of this presentation, participants will be able to:

1. Understand the risks for individuals with SCI of having influenza or pneumonia.

2. Describe the myths and misconceptions about the effects of the influenza and pneumonia vaccines and their effectiveness.

3. Describe best practices for developing a successful influenza campaign among individuals with SCI.
Influenza and pneumococcal infections can cause serious complications and even death among individuals with SCI/D. In fact, the primary cause of death after SCI, regardless of the level of injury, is caused by respiratory insufficiency and complications associated with impaired respiratory function. Vaccination is the safest, most effective way of protection. Yet a large percentage of individuals at increased risk remain unvaccinated, leaving them vulnerable.

Doubts about the vaccine effectiveness, fears of side effects, and the lack of programs to promote their use contribute to the underuse of these vaccines.
The most common causes of death in individuals with SCI during the first year are pneumonia and other respiratory illnesses (Garshick et al, 2005).

Research has demonstrated that persons with SCI/D who contract influenza were 37 times more likely to die from influenza or pneumonia than comparable individuals from the general Population (DeVivo et al, 1993).

Over the past recent decades, the leading cause of death among individuals with SCI in high-income countries has shifted from urological complications to respiratory problems, particularly pneumonia or influenza (WHO, 2013).
Relevance of Respiratory Illnesses After SCI

Fast Facts: Literature Review

In 2005, the CDC included spinal cord injury as one of the high-risk conditions, endorsing annual vaccination in this population for the first time in history (Goldstein, Weaver & Hammond, 2005).

“Pneumonia and influenza are the only infectious diseases among the top 10 causes of death in the United States, despite all that has been done in the last 100 years to reduce the incidence of infectious diseases” (Centers for Disease Control and Prevention (2016).

“Even with early diagnosis and aggressive treatment, many people, especially the elderly, will die of pneumonia or complications of influenza” (Whitney & Harper, 2004).
Influenza is a Risky Business

Ineffective clearance of secretions due to impaired cough and weak respiratory muscles place individuals with a spinal cord injury at a higher risk of developing respiratory complications.

Annual influenza vaccinations have proven to be an effective and yet simple way of preventing respiratory complications.
Pneumococcal Disease Can Lead to Pneumonia

PNEUMOCOCCAL DISEASE
• Pneumococcal disease is caused by the bacteria Streptococcus pneumoniae [pneumococcus].
• Pneumococcus can cause many types of infections; some may lead to severe illness or death.
• Pneumococcus is one of the most common causes of severe pneumonia.
• People at high risk for pneumococcal disease include:
  - Adults age 65 years or older
  - Persons with certain chronic illnesses or conditions
  - Smokers
  - Very young children

PNEUMONIA
• Pneumonia caused by pneumococcus is called pneumococcal pneumonia
• Is an infection of one or both lungs from bacteria, viruses, fungi or even a parasite
• Signs include fever, chills, coughing, fatigue, rapid breathing, and shortness of breath or chest pain

The best way to prevent pneumococcal disease is by getting vaccinated
Breathing is a two-step process: inspiration and expiration. Because the main muscle for inspiration is the diaphragm, located at C3-C5, people with injuries at C2 and above usually need a ventilator, C3-C5 can take small breaths, and C6 are able to take a deep breath. Expiration, on the other hand, is a problem with all injury levels down to T12. The expiratory muscles are the intercostals-between the ribs-and the abdominals.
Pneumonia Can be Prevented: Vaccines Can Help

2016 Recommended Immunizations for Adults: By Age

<table>
<thead>
<tr>
<th>Age</th>
<th>Flu Influenza</th>
<th>Pneumococcal PCV13</th>
<th>Pneumococcal PPSV23</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 – 21 years</td>
<td>Green</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>22 - 26 years</td>
<td>Green</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>27 – 49 years</td>
<td>Green</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>50 - 59 years</td>
<td>Green</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>60 – 64 years</td>
<td>Green</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>65 + years</td>
<td>Green</td>
<td>Green</td>
<td>Blue</td>
</tr>
</tbody>
</table>

More Information:
- You should get flu vaccine every year.
- You should get 1 dose of PCV13 and at least 1 dose of PPSV 23 depending on your age and health condition.
Flu And Pneumonia Vaccine: Myths And Facts

Fear and mistrust of the vaccine

Myth: “The flu shot can give me the flu!”
Fact: Flu vaccines administered via intramuscular injection are made two ways; vaccines made from inactivated viruses and vaccines made without any flu virus [recombinant]. Therefore, those who receive either one of the two types of vaccines, simply cannot get ill.

Concerns regarding the effectiveness of the vaccine

Myth: “I took the pneumonia shot and got pneumonia anyway”
Fact: The pneumonia vaccine is not 100% effective in preventing pneumonia. The vaccine protects against infections caused by a bacterium called Streptococcus pneumoniae. Pneumonia due to other infections, or due to aspiration, cannot be prevented with the pneumonia vaccine. However, the vaccine is effective in preventing complications of pneumococcal pneumonia (such as blood and brain infections) and death.
Flu And Pneumonia Vaccine: Myths And Facts

Lack of knowledge regarding influenza and transmission

**Myth:** “I was vaccinated last year; I don’t need to get vaccinated again!”

**Fact:** Getting the flu vaccine annually is essential because each year there are multiple strains of the flu virus and the vaccine differs from year to year in conjunction with the seasonal strain (Centers for Disease Control and Prevention, 2015b).

**Myth:** “The flu won’t kill me, it is just a cold!”

**Fact:** Both influenza and common cold are contagious respiratory illnesses with similar symptoms that are frequently confused with one another. A cold presents mild symptoms that can last a few days whereas influenza presents more severe symptoms that may lead to serious respiratory complications and even death in some people.
# Cold vs. Influenza: Know the Difference

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Cold</th>
<th>Influenza</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>Rare in adults and older children but can be as high as 102 degrees Fahrenheit in infants and young children</td>
<td>Usually 102 degrees Fahrenheit but can go up to 104 degrees and usually lasts 3 to 4 days</td>
</tr>
<tr>
<td>Headache</td>
<td>Rare</td>
<td>Sudden onset and can be severe</td>
</tr>
<tr>
<td>Muscle aches</td>
<td>Mild</td>
<td>Usual, often severe</td>
</tr>
<tr>
<td>Tiredness and weakness</td>
<td>Mild</td>
<td>Can last 2 or more weeks</td>
</tr>
<tr>
<td>Extreme exhaustion</td>
<td>Never</td>
<td>Sudden onset and can be severe</td>
</tr>
<tr>
<td>Runny nose</td>
<td>Often</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Sneezing</td>
<td>Often</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Sore throat</td>
<td>Often</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Cough</td>
<td>Mild, hacking cough</td>
<td>Usual and can be severe</td>
</tr>
</tbody>
</table>
Best Practices for Developing an Effective Influenza Campaign

- Start Planning the Campaign 6 Months Prior to Flu Season Initiation
- Make it Convenient
- Enforce Education
- Promote Communication
- Identify Champions
- Promote and administer seasonal influenza vaccine
- Evaluate Outcomes
Campaign Sustainability

First Year
- Set a goal. Strive for high vaccination rates
- Develop education materials
- Enhance communication

Second Year
- Evaluate outcomes
- Review and update education materials
- Set the bar higher

Third Year
- Continue to compare outcomes
- Continue to set higher goals
- Promote staff participation
Take Home Message

Get the Flu Shot!
The reasons are all around you.
Questions
References


References


