Challenges to Improving Immunization Rates in LTC Residents and HCW

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Chief of Medical Affairs
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Conflicts of Interest

- Dr. Nace is the Principal Investigator on an investigator initiated grant evaluating the immunogenicity of regular versus high dose influenza vaccine in nursing home residents.
- Dr. Nace does not have any additional conflicts to disclose.
Objectives

• Describe the importance of LTC
• Discuss the limitations of resident vaccination
• Highlight importance of HCW vaccination
• Describe challenges and potential strategies to address HCW vaccination

LTC Population

• Nursing Homes (NH)
  – 1.3 – 1.6 Million Residents
  – 40% Lifetime Risk of NH Admission

• Assisted Living (ALF)
  – > 28,000 Facilities
  – > 1 Million AL Residents

Administration on Aging. A Profile of Older Americans: 2011
Aging of the U.S. Population

Older Population by Age: 1900-2050 - Percent 60+, Percent 65+, and 85+

Influenza Vaccine Coverage U.S.

Adults 65+ Years:

<table>
<thead>
<tr>
<th></th>
<th>2007-08</th>
<th>2008-09</th>
<th>2009-10</th>
<th>2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>% 60+</td>
<td>72.3%</td>
<td>74.0%</td>
<td>69.6%</td>
<td>66.6%</td>
</tr>
</tbody>
</table>

U.S. Nursing Home Influenza Vaccine Coverage:

Median = 72.7% (49.4%-80.9%)

1. CDC http://www.cdc.gov/flu/professionals/vaccination/trends/age-groups.htm (8/20/2013)
### Nursing Home Outbreaks Despite Vaccination

**Navarre, Spain 2012**

<table>
<thead>
<tr>
<th></th>
<th>NF 1</th>
<th>NF 2</th>
<th>NF 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>66</td>
<td>22</td>
<td>523</td>
</tr>
<tr>
<td>Mean Age</td>
<td>80.3 (42-97)</td>
<td>81.2 (59-97)</td>
<td>86.4 (62-104)</td>
</tr>
<tr>
<td>2010-11 Vaccine Coverage Rate</td>
<td>97%</td>
<td>91%</td>
<td>82%</td>
</tr>
<tr>
<td>Cases ILI</td>
<td>44</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Attack Rate</td>
<td>67%</td>
<td>18%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Attack Rate Vaccinated</td>
<td>66%</td>
<td>20%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Attack Rate Unvaccinated</td>
<td>100%</td>
<td>0%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Influenza Related Hospitalizations</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Influenza Related Deaths</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>


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### Nursing Home Outbreaks Despite Vaccination

**Wisconsin 1992-1994**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza Type</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Total Residents</td>
<td>690</td>
<td>670</td>
</tr>
<tr>
<td>Age</td>
<td>76 (±10)</td>
<td>76 (±10)</td>
</tr>
<tr>
<td>Male</td>
<td>80%</td>
<td>78%</td>
</tr>
<tr>
<td>Residents Vaccinated (%)</td>
<td>86%</td>
<td>89%</td>
</tr>
<tr>
<td>Nursing Staff Vaccinated (%)</td>
<td>56%</td>
<td>46%</td>
</tr>
<tr>
<td>Cases</td>
<td>104 (15.5%)</td>
<td>68 (9.8%)</td>
</tr>
<tr>
<td><strong>Vaccination Rate Cases</strong></td>
<td><strong>85%</strong></td>
<td><strong>90%</strong></td>
</tr>
</tbody>
</table>

- **Circulating strains matched both years (B/Panama/45/90-like; A/Beijing/32/92-like/H3N2)**
- **Case = ILI and culture confirmation**

Nursing Home Outbreaks Despite Vaccination
Rochester, MN 1996

<table>
<thead>
<tr>
<th>Variable</th>
<th>Residents</th>
<th>HCW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>62</td>
<td>67</td>
</tr>
<tr>
<td>% Vaccinated</td>
<td>95%</td>
<td>72%</td>
</tr>
<tr>
<td>Age</td>
<td>87 (±4)</td>
<td>-</td>
</tr>
<tr>
<td>Attack Rate</td>
<td>44% (n=27)</td>
<td>24% (n=16)</td>
</tr>
<tr>
<td>Vaccination Rate Among Cases</td>
<td>96% (n=26)</td>
<td>52% (n=9)</td>
</tr>
</tbody>
</table>

- A/Wuhan/H3N2 matched the vaccine strain, A/Nanchang/H3N2
- Authors felt findings more consistent with decreased host response rather than vaccine failure due to rates among older residents vs younger staff.


Frail LTC Residents at High Risk

- **LTC environment**
  - Close contact with HCW
  - Frequent contact with other residents
  - Structure of units/buildings
  - Poor accessibility of accurate, timely diagnostic tests

- **Resident characteristics**
  - Frail
  - Comorbid illness
  - Medications that impact immune function
  - Nutritional status

- **Case Fatality Rates = 0-55%**

- **Influenza factors**
  - Symptoms nonspecific, so mimics other conditions

Nace DA, Drinka P, Mann J, Poland GA. LTC Information Series: Immunization in the Long-Term Care Setting. 2nd ed. Columbia, MD: American Medical Directors Association; 2010.

Strategies to Stop Transmission of Flu in Healthcare Facilities

Patient Immunization

Healthcare Worker Immunization

Antiviral Agents

University of Pittsburgh
Division of Geriatric Medicine

Impact of Healthcare Worker Immunization on Mortality of Nursing Home Residents

<table>
<thead>
<tr>
<th>Study</th>
<th>HCW Non-Vaccinated Homes</th>
<th>HCW Vaccinated Homes</th>
<th>Confidence Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potter 1997</td>
<td>17%</td>
<td>10%</td>
<td>0.4 -0.8</td>
</tr>
<tr>
<td>Carman 2000</td>
<td>22.4%</td>
<td>13.6%</td>
<td>0.4-0.84</td>
</tr>
</tbody>
</table>

Figure 3. Flu vaccination coverage among health care personnel by work setting, Internet panel survey, United States, early November 2013


BHWP HCW Rates

PLTCVP HCP Results

<table>
<thead>
<tr>
<th>Facility</th>
<th>2002 (%)</th>
<th>2003 (%)</th>
<th>Raw Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative Group</td>
<td>39.2</td>
<td>50.1</td>
<td>10.9</td>
</tr>
<tr>
<td>Facility A</td>
<td>56.9</td>
<td>67.2</td>
<td>10.3</td>
</tr>
<tr>
<td>Facility C</td>
<td>14.3</td>
<td>36.2</td>
<td>21.9</td>
</tr>
<tr>
<td>Facility E</td>
<td>46.4</td>
<td>46.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Non-collaborative Group</td>
<td>29.3</td>
<td>25.8</td>
<td>-3.5</td>
</tr>
<tr>
<td>Facility B</td>
<td>23.1</td>
<td>12.5</td>
<td>-10.6</td>
</tr>
<tr>
<td>Facility D</td>
<td>47.1</td>
<td>30.3</td>
<td>-16.7</td>
</tr>
<tr>
<td>Facility F</td>
<td>17.8</td>
<td>34.7</td>
<td>16.9</td>
</tr>
</tbody>
</table>


Staff Turnover

- Prevalent issue
  - 44.9% turnover rate in 2010
- Focus groups identified staff turnover as major barrier to HCW immunizations
  - Frequent key staff changes = frequent policy changes
  - Vaccination culture never has chance to develop

Division of Geriatric Medicine

Vaccination Rates
RISE Program

Strategies for Success

- Cede Vaccination Policy to Pharmacy Control
- Standing Orders
- Eliminate Consent Forms
- Require Declinations

AHRQ Innovations Exchange
http://www.innovations.ahrq.gov/content.aspx?id=4095

Pharmacy Role

- Distribution of educational materials
- In-service training
- Annual campaign
- Performance monitoring and feedback
- Ongoing email communication

AHRQ Innovations Exchange
http://www.innovations.ahrq.gov/content.aspx?id=4095
Getting Started

- Approach your LTC pharmacy
- Start with few early adopters
- Offer education and training support
- Do not expect immediate results

AHRQ Innovations Exchange
http://www.innovations.ahrq.gov/content.aspx?id=4095

Sustaining Progress

- Monitor and share data
  - Incorporate into your QAPI process
- Keep abreast of state and national requirements
- Consider mandatory vaccination programs

AHRQ Innovations Exchange
http://www.innovations.ahrq.gov/content.aspx?id=4095
Communicating with HCW
An Approach for Opinion Leaders

- **S** – Consider the Setting for Interaction
- **P** – Ask for HCW’s Perception about Vax
- **I** – Seek Invitation to Share Information
- **K** – Transfer Knowledge Appropriately
- **E** – Explore Emotions, Emphasizing
- **S** – Summarize and Strategize

http://theoncologist.alphamedpress.org/content/5/4/302.full

Conclusions

- Despite vaccination, frail LTC residents remain at risk for influenza
- LTC healthcare worker vaccination rates are lower than other settings
- Staff turnover is an important challenge to vaccination that must be considered
- Bundled approaches appear to be successful in addressing HCW vaccination