Seasonal Influenza Immunization: Protecting Patients and Healthcare Workers

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U.S. Department of Health and Human Services
Outline of Presentation

• Don Wright’s interest in flu and HCW

• Impact of influenza

• The under-vaccination problem
  – Patients
  – Health care personnel

• Possible solutions
Why is Don Wright talking about influenza?

- Initial training in Family Medicine
- Additional training in Occupational Medicine
- Director: Office of Occupational Medicine/OSHA
- HCW – Intersection Public Health and Occupational Health
Impact of Influenza—United States

- 5% to 20% of the population are infected every year.

- Approximately 36,000 annual influenza-associated deaths on average.

- Persons 65 years of age and older account for more than 90% of deaths.
Impact of Influenza—United States

- Highest rates of complications and hospitalization among young children and person 65 years and older

- Average of more than 200,000 influenza-related excess hospitalizations annually

- 57% of hospitalizations among persons younger than 65 years of age
Impact of Influenza in Health Care Personnel (HCP)

- In one randomized controlled trial of influenza vaccination of HCP, 26% of unvaccinated HCP had documented serologic evidence of influenza infection.

- Of these, 42% could not recall having any respiratory infection.\(^1\)

\(^1\) Wilde et al., JAMA 1999;281:908—13
Inactivated Influenza Vaccine Effectiveness

- 70%-90% effective among healthy persons younger than 65 years of age
- 30%-40% effective among frail elderly persons
- 50%-60% effective in preventing hospitalization
- 80% effective in preventing death
Impact of Influenza Vaccination of HCP on patients

• Over 12 years in one hospital, vaccination coverage increased from 4% to 67%
  – Laboratory-confirmed influenza cases among HCP decreased from 42% to 9%
  – Nosocomial cases among hospitalized patients decreased 32% to 0 (p<0.0001)\(^1\)

• Two randomized controlled trials evaluated impact of HCP influenza vaccination on residents in nursing homes\(^2,3\)
  – They estimated > 40% decrease in overall mortality among residents in the setting of high employee vaccination levels, regardless of patient vaccination levels.

\(^1\)Salgado et al., Inf Cont Hosp Epi 2004;25:923-8
\(^2\)Carman et al., Lancet 2000;355(9198): 93--7
\(^3\)Potter, et al., J Infect Dis 1997;175:1--6
Objective 14.29
Annual Influenza Vaccination, Adults

<table>
<thead>
<tr>
<th></th>
<th>2006, NHIS</th>
<th>2010 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Noninstitutionalized</td>
<td>64% (67% Q1 2007)</td>
<td>90%</td>
</tr>
<tr>
<td>adults aged ≥65 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Noninstitutionalized</td>
<td>25% 18-49 yrs</td>
<td>60%</td>
</tr>
<tr>
<td>high-risk adults 18-64</td>
<td>44% 50-64 yrs</td>
<td></td>
</tr>
<tr>
<td>years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Health care workers</td>
<td>42%</td>
<td>60%</td>
</tr>
<tr>
<td>aged 18-64 years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reasons Given for Not Receiving Influenza Vaccination

- Concern for side effects
- Do not need shot
- Vaccine not available
- Not offered by provider
- Shot does not work
- Not Aware of need
- Inconvenient time
- Inconvenient place
- Cost

Percent

65 & Older
18-64 High Risk

CDC Healthstyles 2001

Department of Health and Human Services
### Physician Perception of Barriers for Influenza Vaccination

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Influenza vaccination*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent concerns dominate visit</td>
<td>43</td>
</tr>
<tr>
<td>Not knowing patient immunization history</td>
<td>12</td>
</tr>
<tr>
<td>Patient concern about vaccine safety</td>
<td>58</td>
</tr>
<tr>
<td>Inadequate reimbursement</td>
<td>26</td>
</tr>
<tr>
<td>Identifying eligible patients</td>
<td>13</td>
</tr>
<tr>
<td>Lack of patient-oriented vaccine information</td>
<td>20</td>
</tr>
</tbody>
</table>

*Percent of physicians

## Meta-Analysis of Interventions that Increase Use of Adult Immunization

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Odds Ratio*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational change (e.g., standing orders, separate clinics devoted to prevention)</td>
<td>16.0</td>
</tr>
<tr>
<td>Provider reminder</td>
<td>3.8</td>
</tr>
<tr>
<td>Provider education</td>
<td>3.2</td>
</tr>
<tr>
<td>Patient financial incentive</td>
<td>3.4</td>
</tr>
<tr>
<td>Patient reminder</td>
<td>2.5</td>
</tr>
<tr>
<td>Patient education</td>
<td>1.3</td>
</tr>
</tbody>
</table>

*Compared to usual care or control group, adjusted for all remaining interventions

Influenza Vaccination of Health-Care Personnel

Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP)
Influenza Vaccination of Health-care Personnel

• Only 42 percent of U.S. health-care personnel were vaccinated in 2006

*MMWR 2006;55 (RR-2). February 24, 2006.*
### Reasons for Accepting Vaccination Among Health-care Personnel

<table>
<thead>
<tr>
<th>Reason</th>
<th>Physician %</th>
<th>Nurse %</th>
<th>Technician or Aide %</th>
<th>Admin. Worker %</th>
<th>Medical Student %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of getting influenza</td>
<td>77</td>
<td>77</td>
<td>60</td>
<td>71</td>
<td>75</td>
</tr>
<tr>
<td>Fear of transmission to patients</td>
<td>78</td>
<td>59</td>
<td>60</td>
<td>36</td>
<td>64</td>
</tr>
<tr>
<td>Vaccine is safe</td>
<td>77</td>
<td>56</td>
<td>42</td>
<td>38</td>
<td>63</td>
</tr>
<tr>
<td>Vaccine is effective</td>
<td>70</td>
<td>55</td>
<td>47</td>
<td>36</td>
<td>59</td>
</tr>
<tr>
<td>Vaccine was free</td>
<td>44</td>
<td>54</td>
<td>49</td>
<td>62</td>
<td>76</td>
</tr>
<tr>
<td>Close contact with high risk person at home</td>
<td>45</td>
<td>56</td>
<td>42</td>
<td>43</td>
<td>9</td>
</tr>
<tr>
<td>Convenient</td>
<td>28</td>
<td>38</td>
<td>44</td>
<td>45</td>
<td>53</td>
</tr>
</tbody>
</table>

# Reasons for Rejecting Vaccination Among Health-care Personnel

<table>
<thead>
<tr>
<th>Reason</th>
<th>Physician %</th>
<th>Nurse %</th>
<th>Technician or Aide %</th>
<th>Admin. Worker %</th>
<th>Medical Student %</th>
<th>Other %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccine shortage</td>
<td>57</td>
<td>40</td>
<td>58</td>
<td>53</td>
<td>34</td>
<td>48</td>
</tr>
<tr>
<td>Concern about side effects</td>
<td>17</td>
<td>34</td>
<td>36</td>
<td>25</td>
<td>23</td>
<td>28</td>
</tr>
<tr>
<td>Never get influenza</td>
<td>14</td>
<td>25</td>
<td>27</td>
<td>18</td>
<td>23</td>
<td>22</td>
</tr>
<tr>
<td>Inconvenience</td>
<td>26</td>
<td>9</td>
<td>4</td>
<td>7</td>
<td>34</td>
<td>13</td>
</tr>
<tr>
<td>Forgot</td>
<td>18</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>11</td>
<td>8</td>
</tr>
</tbody>
</table>

• Literature review of 32 studies performed 1985-2002
  – US, Canada, Europe

• Vaccination rates 2.1% - 82%

• Ideas encouraging influenza vaccination
  – To protect oneself (33-93%) - strongest motivation
  – To protect patients (2-98%) - secondary motivation
  – Free and convenient (11-58%)
  – Being previously vaccinated
  – Following the example set by peers
• Ideas preventing influenza vaccination
  – Fear of adverse events (8-54%)
  – Misconception that vaccination can cause influenza (10-45%)
  – Not at risk (6-58%)
  – Times/locations of vaccination were unsuitable (6-59%)
  – Doubt that influenza is a serious disease (2-32%)
  – Lack of vaccine efficacy (3-32%) - except physicians
  – Fear of injections (4-26%)

• 2 main barriers:
  – Misperception of influenza, its risks, the role of HCW in its transmission to patients, and the importance and risks of vaccination
  – Lack of (or perceived lack of ) conveniently available vaccine
Common Themes

- Reasons for accepting influenza vaccination
  - Protect self
  - Protect patients
  - Convenience
  - Peer influence
  - Prior experience

- Reasons for rejecting influenza vaccination
  - Concerns about vaccine safety or efficacy
  - Not at risk (healthy immune system)
  - Lack of understanding of transmission of influenza
  - Fear of needles
  - Not convenient
Notable Differences

- Differences in motivators, barriers and beliefs by
  - Category of healthcare worker
  - Type of institution
  - Age
  - Level of knowledge about influenza and vaccine
  - Level of trust
Month of Peak Influenza Activity
United States, 1976-2006

There is usually ample time to vaccinate before influenza occurs!
HHS Initiative for Influenza Vaccination of Health Care Personnel: Components

Two components

- Improving HHS health care employee influenza vaccination, with focus on
  - Federal Occupational Health
  - Indian Health Service
  - U.S. Public Health Service Commissioned Officers
  - NIH Clinical Center
  - CDC

- Promoting influenza vaccination to non-federal health care organizations and HCP
Three focus areas

- Developing office and agency specific strategies to improve HCP vaccination levels
- Measuring employee vaccination rates
- Disseminating a toolkit containing
  - Standard presentation
  - Relevant articles
  - Posters
  - Fact sheets, questions and answers
  - Vaccine information statements
  - Links to other resources
  - Toolkit will be available on HHS OPHS website
HHS Initiative for Influenza Vaccination of Health Care Personnel: Outreach

HHS will also promote Influenza Vaccination of Health Care Personnel (HCP) nationwide

Healthy People 2010 target: 60% of all HHS HCP will be vaccinated annually

By 2010

HHS plans to partner with many other organizations to promote HCP influenza vaccination, including the Summit

Potential Partners include:
- American Academy of Family Physicians
- American Academy of Pediatrics
- American College of Obstetricians and Gynecologists
- American College of Occupational and Environmental Medicine
- American College of Physicians
- American Hospital Association
- American Medical Association
- American Nurses Association
- American Society of Health-System Pharmacists
- Association for Professionals in Infection Control and Epidemiology, Inc.
- National Black Nurses Association
- National Hispanic Nurses Association
- National Foundation for Infectious Diseases
- National Influenza Vaccine Summit
- National Medical Association
- National Hispanic Medical Association
- National Medical Association
Other Standards and Recommendations

- Joint Commission on Accreditation of Healthcare Organizations (JCAHO)¹
  - New standard, effective 1/1/07: Influenza immunization offered to staff and licensed independent practitioners.

- Infectious Diseases Society of America (IDSA)²
  - January 2007- Recommendation that U.S. adopt policy to include mandatory annual influenza vaccination among healthcare workers

- American College of Physicians (ACP)³
  - October 2007 - Recommendation that annual influenza vaccine should be required for every health care worker with direct patient care activities.

²Pandemic and Seasonal Influenza Principles for U.S. Action, January 2007;
Influenza

From www.flu.com.au