Influenza Vaccination of Healthcare Workers: Beliefs and Barriers

Gina T. Mootrey
DD, MPH
Centers for Disease Control and Prevention

Types of Patients or Settings

Spinal Cord Injuries and Disorders

- Motivators:
  - Self protection (77%)
  - Patient protection (49%)
  - Prior vaccination (46%)
  - Convenience (46%)
  - Hospital recommendation (43%)
  - Recommended by physician or nurse (13%)

- Barriers:
  - Concern about side effects (48%)
  - Lack of effectiveness (20%)
  - Inconvenience (14%)
  - Fear of needles (11%)
  - Forgot (10%)
  - Not in risk group (9%)

- 23 Veterans Affairs spinal cord injury centers, survey response rate 73.3%, vaccination rate 51%
- Patient protection: practitioners (63%), psychosocial (54%), nurses (43%)
- Lack of effectiveness: psychosocial worker (27%), nurse (19%), practitioner (7%)
- Predictors of vaccination: >/50 years, male, belief in VE and importance of HCW vaccination
**Neonatal Intensive Care Units**

- Nursing staff of 3 Hartford area hospitals,
- Response rate 89%
- Vaccination rate: 1990-91 (15%), 1991-92 (20%), 1992-93 (17%)
- Motivators: knowledge of vaccine or national recommendations, belief vaccine safe and effective
- Barriers: concerns with adverse reactions, allergic, belief vaccine ineffective, lack of concern about acquiring influenza, inconvenience

**High-Risk Pediatric Patients**

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Neonatal Intensive Care Unit</th>
<th>Pediatric Intensive Care Unit</th>
<th>Oncology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy</td>
<td>57%</td>
<td>41%</td>
<td>17%</td>
</tr>
<tr>
<td>Fear of needles</td>
<td>33%</td>
<td>41%</td>
<td>28%</td>
</tr>
<tr>
<td>Vaccine side effects</td>
<td>52%</td>
<td>41%</td>
<td>60%</td>
</tr>
<tr>
<td>Vaccine too late to be effective</td>
<td>41%</td>
<td>28%</td>
<td>33%</td>
</tr>
<tr>
<td>Inconvenience</td>
<td>52%</td>
<td>33%</td>
<td>28%</td>
</tr>
</tbody>
</table>

**Emergency Department**

- 4 teaching hospitals in Ontario; response rate 80.5%
- Vaccination rate 37%
  - Respiratory therapists (45.9%), physicians and residents (35.3%), nurses (34.5%), allied health (27.1%)
- Motivators: Age >41 years, chronic illness, vaccine effective (51.6%)
- Barriers: adverse effects (28.3%), vaccine not effective (17.9%), not well informed (28.3%)
- Beliefs:
  - 52% support vaccination program, 24.4% support mandatory vaccination
  - 26.8% believe patients at increased risk of contracting influenza from ED staff, 58.3% believe staff at increased risk of contracting influenza from patients

**Long-Term Care Facilities**

- Survey and focus groups in 2 LTCF
- Response rate 58%, vaccination rate ~40%
- Motivators:
  - Vaccine safe and effective for self, family, residents, convenient, valuable
  - Other preventive measures more effective (72% hand washing and 56% nutritious diet and exercise)
- Belief:
  - Main purpose of vaccination is to protect residents’ health at the expense, potential harm and burden of the staff,
  - One-third believe vaccine likely to cause flu or flu-like illness
- Social influence:
  - Unvaccinated follow other’s advice less often
  - Physician recommendation: 77% of vaccinated, 27% of unvaccinated
Long Term Care Facilities
- Southern California, 30 LTCFs in 4 local HD jurisdictions
- Nurses, nursing assistants, rehab therapists, housekeeping
- Vaccination rate: 30% for 2000-01, 34% for 2001-02
- Barriers: misconceptions regarding influenza and the vaccine, vaccine accessibility,
  - None had written policies requiring employees to receive vaccine
  - Younger age, concerns about vaccine safety, effectiveness or side effects, strong immune system, forgot, too busy, believe get influenza from vaccine

Types of Institutions
- North Carolina, 5 types of institutions serving at-risk elderly
- Response rate 86% (268 institutions)
- Barriers:
  - Fear of side effects
  - Lack of vaccine effectiveness
  - Fear of needles
- Practices:
  - Only 38% had formal written employee vaccination policies
  - Assisted living facilities 3 times less likely to offer free vaccination
  - Educational efforts varied: hospitals (83%), nursing homes (70%), assisted living facilities (41%) home health agencies (33%), dialysis centers (16%)
- Belief: almost half would support mandating vaccination

Healthcare Worker Groups

National Data
- NHIS 2000 data
  - 1,651 respondents corresponding to national estimate of 10,305,843 HCWs
- Vaccination rate 38%
  - Health-diagnosing professions 46%
  - Health-assessing professions 37%
  - Health aides 30%
  - Health technicians 40%
  - Administrators and administrative support 40%
- Barriers: age less than 50 years, black, female
House Staff

  - University of Toronto, vaccination rate 51%
    - Community and occupational med residents (77%), pediatrics (75%), psychiatry, surgery, radiology (32%, 36%, 36%)
    - Motivators: self-protection, belief in efficacy, patient protection
    - Barriers: side effects, busy schedules, inconvenience
    - Beliefs: 44% believe vaccination should be mandatory

  - Western PA Hospital, vaccination rate 58%
  - Predictors of vaccination: post graduate level, prior vaccination, media influence, vaccinated co-residents, medical knowledge scores, plans to be vaccinated next year

House Staff

<table>
<thead>
<tr>
<th>Reasons for accepting vaccination</th>
<th>Reasons for rejecting vaccination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lester 2003</td>
<td>Toy 2005</td>
</tr>
<tr>
<td>Protect self</td>
<td>86.3</td>
</tr>
<tr>
<td>Protect patients</td>
<td>62.6</td>
</tr>
<tr>
<td>Protect colleagues</td>
<td>21.9</td>
</tr>
<tr>
<td>Protect family</td>
<td>30.7</td>
</tr>
<tr>
<td>Vaccine safe</td>
<td>56</td>
</tr>
<tr>
<td>Vaccine effective</td>
<td>36</td>
</tr>
<tr>
<td>Serious disease</td>
<td>28</td>
</tr>
<tr>
<td>Chronic illness</td>
<td>4</td>
</tr>
<tr>
<td>Not serious disease</td>
<td>17.8</td>
</tr>
<tr>
<td>Not interested</td>
<td>17</td>
</tr>
<tr>
<td>Fear of needles</td>
<td>11</td>
</tr>
<tr>
<td>Allergic</td>
<td>6</td>
</tr>
</tbody>
</table>

Nurses

  - 8 Focus groups of RNs, Alabama and Michigan
    - Vaccinated nurses more knowledgeable about influenza and risk factors
    - Unvaccinated less aware of ACIP recommendation, belief not at risk for flu, routine preventive measures minimize risk,
      - Barriers: not aware of the rationale for HCW vaccination, concerns about vaccine effectiveness and safety
      - Black nurses historical mistrust of vaccination programs, stemming from the Tuskegee Syphilis Experiment
      - Believe increasing convenience was the key to increasing staff receipt
Healthcare worker groups
• Cross-sectional survey in 2 urban tertiary care teaching hospitals
• Response rate 42%

Vaccination rate

Physicians | Medical students | Nurses | Aides | Admin
---|---|---|---|---
Pediatricians 84%, internists 69%, surgeons 43%

Reasons for Accepting or Rejecting Vaccination Among Physician Groups

<table>
<thead>
<tr>
<th>Reason</th>
<th>Internist %</th>
<th>Pediatrician %</th>
<th>Surgeon %</th>
<th>Other %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fear of transmission to patients</td>
<td>82</td>
<td>64</td>
<td>47</td>
<td>56</td>
</tr>
<tr>
<td>Fear of getting influenza</td>
<td>79</td>
<td>60</td>
<td>58</td>
<td>19</td>
</tr>
<tr>
<td>Vaccine is safe</td>
<td>83</td>
<td>79</td>
<td>27</td>
<td>69</td>
</tr>
<tr>
<td>Vaccine is effective</td>
<td>77</td>
<td>70</td>
<td>13</td>
<td>67</td>
</tr>
<tr>
<td>Contact with persons at high risk</td>
<td>67</td>
<td>61</td>
<td>30</td>
<td>67</td>
</tr>
<tr>
<td>Vaccine was free</td>
<td>48</td>
<td>36</td>
<td>40</td>
<td>67</td>
</tr>
<tr>
<td>Convenient</td>
<td>29</td>
<td>20</td>
<td>7</td>
<td>56</td>
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Reasons for Rejecting Vaccination Among Physician Groups

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<tbody>
<tr>
<td>Vaccine shortage</td>
<td>63</td>
<td>75</td>
<td>30</td>
<td>50</td>
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<tr>
<td>Inconvenience</td>
<td>21</td>
<td>17</td>
<td>46</td>
<td>25</td>
</tr>
<tr>
<td>Forget</td>
<td>26</td>
<td>17</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Concern about side effects</td>
<td>10</td>
<td>8</td>
<td>35</td>
<td>25</td>
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Reasons for Accepting Vaccination Among Healthcare Workers

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<tr>
<th>Reason</th>
<th>Physician %</th>
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<th>Technician or Aide %</th>
<th>Admin. Worker %</th>
<th>Medical Student %</th>
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<tr>
<td>Fear of getting influenza</td>
<td>77</td>
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<td>68</td>
<td>71</td>
<td>75</td>
</tr>
<tr>
<td>Fear of transmission to patients</td>
<td>78</td>
<td>53</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>36</td>
<td>63</td>
</tr>
<tr>
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<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>46</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>
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<td>40</td>
<td>58</td>
<td>53</td>
<td>34</td>
<td>49</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>Forget</td>
<td>18</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>11</td>
<td>8</td>
</tr>
</tbody>
</table>
Healthcare worker groups


- Cross-sectional survey in urban teaching hospital
- Response rate 99%
- Vaccination rate 73%
  - Nurses 62% (nursing 60%, patient care associates 73%)
  - Physicians 62% (attendings 67%, house staff 85%, med students 92%)
- Predictors: influenza knowledge in nurses, prior vaccination
- Barriers:
  - Nurses: belief in misconceptions (vaccine causes influenza 44%, not at risk 15%, lack of VE 13%, pregnancy or breast feeding 15%), fear of needles 15%
  - Physicians: lack of convenience 32%, forgot 26%

Healthcare Worker Groups

- Qualitative Assessment of Factors Influencing Immunization of Health Care Workers, CDC, unpublished data
- Individual in-depth interview or focus group at hospitals in 4 cities (NYC, Hollywood (FL), Scottsdale (AZ), San Francisco, August 2007
- Results
  - Professional schools were reported as a driver of vaccination
  - Believe vaccines are a mechanism to protect themselves from patients, rather than as a means to protect patients
  - Clinical workers demonstrated limited or inaccurate knowledge of infectious diseases and their routes of transmission
  - Resistance to seasonal influenza vaccination was characterized by:
    - Pronounced lack of trust in the vaccine
    - Perceptions of limited applicability to themselves
    - Perceptions of minimal consequences from contracting flu

Literature review


- 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

Literature review


- 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