Mandatory Influenza Vaccination for Healthcare Providers

The Time has Come

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Influenza

• Influenza Annually:
  – Infects 5-20% of US population
  – Over 200,000 hospitalizations
  – Average 36,000 deaths
  – Most common vaccine preventable disease

Epidemiology

• Influenza:
  – Easily transmissible
  – Short incubation period, 1-2 days
  – Small droplets spread
    • Airborne under some circumstances
  – Pre-symptomatic transmission risk
  – High attack rate, especially in settings with close contact
  – Variable virulence, dependent upon:
    • Age
    • Underlying conditions
    • Circulating strains

Why is Influenza Vaccination of Healthcare Workers Important?

• Frequent contact w/ high-risk patients
• Serve as a vehicle for spread of flu
• HCP absenteeism stresses health system
• Influenza vaccination of HCP may reduce patient mortality

HCW Transmission

• Influenza transmission in health care settings
  – Well-documented outbreaks
  – Patient – Healthcare worker
  – Healthcare worker – Healthcare worker
  – Healthcare worker – Patient
  – Patients in hospitals / LTACH / SNF are highly vulnerable

HCP Vaccination and Patient Mortality

[Graph showing patient mortality rates for vaccinated and non-vaccinated HCWs]
Prevention of Healthcare-Associated Influenza

- Early identification/isolation of suspect cases
- Source control/mask patient
- Restrict ill visitors/healthcare workers
- Spatial considerations
- Hand hygiene
- PPE (note aerosol generating procedures)
- Stay home when sick
- Vaccination of patients
- Vaccination of HCP
- Antiviral prophylaxis

Influenza Vaccines

- TIV (parenteral)
  - Regular strength IM
  - High dose IM
  - Intradermal
- LAIV (nasal spray)
- Trivalent (A H1N1, A H3N2, B)
- Since the virus mutates frequently, the vaccine must change often

Vaccine Efficacy

- Variable: overall 40-70%
- Children-higher, Elderly-lower
- LAIV better in children
- TIV better in adults
- Underlying conditions
- Year-to-year match to circulating strain
- Influenza like illness vs documented influenza
- Infection vs Hospitalization vs Death

Influenza Vaccine Efficacy

**Healthy Adults: Meta Analyses**

<table>
<thead>
<tr>
<th>Relative Risk Reduction</th>
<th>Influenza</th>
<th>Influenza-like illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinically defined</td>
<td>69% (54%-79%)</td>
<td>22% (9%-33%)</td>
</tr>
<tr>
<td>Serologically confirmed</td>
<td>70% (56%-80%)</td>
<td>25% (13%-35%)</td>
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Influenza Vaccine Effectiveness

<table>
<thead>
<tr>
<th>Vaccine Effectiveness</th>
<th>95% Confidence Interval</th>
<th>Odds Ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 65-84 y</td>
<td>46% (.36-.81)</td>
<td>.54</td>
<td>.003</td>
</tr>
<tr>
<td>Age &gt;84 y</td>
<td>34% (.43-1.02)</td>
<td>.66</td>
<td>.063</td>
</tr>
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Too Few HCP Getting Annual Flu Shot

Healthcare Worker Vaccination Rates

Factors related to higher vaccination rates:**
1. Smaller sized hospitals
2. Follow up with those who declined
3. Document and track reasons declined
4. Programmatic features in general
   - Roving cart, leadership, education, communication
5. Require signed declination

*CDC DPH Hospital Survey for 2009-2010 season

Fear of Adverse Effects

- TIV
  - Local-uncommon/mild: sore, red, low grade T
  - Systemic-uncommon: fever, aches, HA
  - Rare: allergy, GBS (1-2/million)
- LAIV
  - Local-uncommon/mild: runny nose, congestion, sore throat
  - Systemic-uncommon: fever, HA, wheezing
  - Rare: allergy

Vaccination Rates

Healthcare Worker Vaccination Rates:

<table>
<thead>
<tr>
<th>2009-2010 Season</th>
<th>CT*</th>
<th>US**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal Vaccine</td>
<td>63%</td>
<td>72%</td>
</tr>
<tr>
<td>H1N1 Vaccine</td>
<td>59%</td>
<td>51%</td>
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</tbody>
</table>

*CT DPH Hospital Survey
**CDC Hospital Healthcare Worker Survey

Stamford Hospital Full Time Employee Influenza Vaccination 2003/4 to 2010/11

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</thead>
<tbody>
<tr>
<td>2003-2004</td>
<td>65.6%</td>
<td>68.8%</td>
<td>65.2%</td>
<td>68.8%</td>
<td>67.1%</td>
<td>67.4%</td>
<td>65.9%</td>
<td>68.1%</td>
<td>64.4%</td>
</tr>
<tr>
<td>2004-2005</td>
<td>68.9%</td>
<td>65.2%</td>
<td>65.9%</td>
<td>69.1%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>66.1%</td>
<td>67.4%</td>
<td>65.1%</td>
</tr>
<tr>
<td>2005-2006</td>
<td>65.3%</td>
<td>65.9%</td>
<td>64.1%</td>
<td>66.1%</td>
<td>63.8%</td>
<td>64.7%</td>
<td>65.8%</td>
<td>67.4%</td>
<td>64.4%</td>
</tr>
<tr>
<td>2006-2007</td>
<td>65.0%</td>
<td>64.7%</td>
<td>64.1%</td>
<td>63.8%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>65.8%</td>
<td>67.4%</td>
<td>64.4%</td>
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<tr>
<td>2007-2008</td>
<td>64.7%</td>
<td>65.0%</td>
<td>63.8%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>67.4%</td>
<td>64.4%</td>
</tr>
<tr>
<td>2008-2009</td>
<td>64.7%</td>
<td>65.0%</td>
<td>63.8%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>67.4%</td>
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<tr>
<td>2009-2010</td>
<td>64.7%</td>
<td>65.0%</td>
<td>63.8%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>67.4%</td>
<td>64.4%</td>
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<tr>
<td>2010-2011</td>
<td>64.7%</td>
<td>65.0%</td>
<td>63.8%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>67.4%</td>
<td>64.4%</td>
</tr>
<tr>
<td>2011-2012</td>
<td>64.7%</td>
<td>65.0%</td>
<td>63.8%</td>
<td>65.0%</td>
<td>64.7%</td>
<td>65.0%</td>
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Methods to Improve HCW Vaccination Rates

- **Make it a priority:**
  - Strong and visible administrative leadership
  - Visible vaccination of key leaders
  - Vaccination champions
  - Provision of adequate staff and resources
  - Train-the-trainer programs that empower unit staff

- **Make it available:**
  - Off-hours clinics
  - Use of mobile vaccination carts
  - Vaccination at staff/departmental meetings
  - Provision of vaccine free of charge

Methods to Improve HCW Vaccination Rates

- **Tackle the myths:**
  - Targeted education
  - Assess comprehension of the message

- **Monitor and feedback progress:**
  - Tracking of individual & unit-based HCP vaccination compliance
  - Surveillance for healthcare-associated influenza

- **Make it mandatory/hard to refuse**
  - Signed declination statements
  - Condition of employment

Refusal Form

I understand that due to my occupation in healthcare, I may be at risk of acquiring influenza. In addition, I may be at risk of spreading influenza to my patients, other healthcare workers, and my family, even if I have no symptoms. This can result in a serious infection, particularly in hospitalized patients and other persons at high risk for influenza complications.

I decline influenza vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring influenza, potentially resulting in transmission to my patients.

Virginia Mason Experience

Annual influenza vaccination rates (percentage of healthcare workers [HCWs] who received vaccine) during our 5-year study of the mandatory influenza vaccination program at Virginia Mason Medical Center in Seattle, Washington.

Healthcare Worker Mandate

- **Virginia Mason Medical Center Mandated vaccination policy**
  - Rates > 98%
  - < 0.7% medical or religious exemption
  - < 0.2% refused and left

- **Duplicated by:**
  - HCA system
  - Barnes-Jewish (among others)
  - In CT, 5 hospitals 2011

- **Endorsed by multiple organizations including IDSA, SHEA, APIC**

- **CMS measure for 2013**
Mandating Vaccination: PROS

- It works
- Ethical imperative
- Protects patients and HCW
- Other conditions for employment exist:
  - Immunity to rubella/measles
  - Hepatitis B vaccination
  - Annual PPD testing
- Cost-effective
- Public relations - CMS measure
- Safety consensus

Mandating Vaccination: CONS

- How enforce?
- Resource requirement
- Coercive?
  - Most HCW in favor
  - HCW risk > patient risk
- Should fully implement other approaches
- Minimizes other influenza (viral) infection control interventions? (Not proven)

Rights Issue

Conflicting Rights:
Healthcare Workers’ Rights vs Patients’ Rights

Other precedents:
  ➢ Old philosophy:
    - Seat belt laws
    - Helmet laws
  ➢ New philosophy:
    - Truck driver drug testing
    - Second-hand smoke laws
  ➢ Precedents in healthcare
    - MMR, PPD, fit-testing, Hep B vaccination

Recommendations

- Controversy exists
- Mandate Influenza Vaccination
  - Exempt for legitimate medical contraindications
    • GBS, anaphylaxis hx
  - No religious exemption*
  - No personal exemption*
  - For those exempted
    • mask mandate at all times during season
    • re-assign to non-patient care area*
    • termination or loss of privileges