Carrots and Sticks:

*Influenza Vaccination of Healthcare Workers*

Susan Coffin
Children’s Hospital of Philadelphia
June, 2010
Overview

Rationale behind HCW influenza vaccination

Barriers to HCW vaccination

Implementing a mandatory flu vaccination program at CHOP

Discussion....
HCW Flu Vaccination: Why do we care?

Prevent disease in patients
- 2 cases of probable fatal nosocomial influenza in 1st report of pediatric influenza deaths (2003-2004)\textsuperscript{1}
- Influenza likely cause of \(~10\%\) of pediatric patients with nosocomial ARI\textsuperscript{2}

Prevent disease in healthcare workers
- Personal and economic benefits to employee
  - Fewer missed days of work due to illness
- Economic benefits to employer
  - More stable workforce

\textsuperscript{1}Bhat et al NEJM 2005; \textsuperscript{2}Vayalumkal, ICHE, 2009
Nosocomial Influenza at CHOP (2000-2006)
Complications experienced by 56 patients with nosocomial influenza*  

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number (%)</th>
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<tbody>
<tr>
<td>Death</td>
<td>2 (3.6%)</td>
</tr>
<tr>
<td>Respiratory failure</td>
<td>3 (5.4%)</td>
</tr>
<tr>
<td>Suspected bacterial pneumonia</td>
<td>12 (21.4%)</td>
</tr>
<tr>
<td>Bacteremia</td>
<td>1 (1.8%)</td>
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*2000-2004; complications determined by detailed chart review
Preventing nosocomial influenza: challenges

- Virus primarily transmitted by large respiratory droplets
  - Minimal benefit from hand hygiene

- Virus can be shed 24 hrs before symptom onset

- Adults can have asymptomatic infections
  - 20-50% of infected HCW were asymptomatic

- Many hospitalized pediatric patients too young to receive vaccine or unable to mount protective immune response
Direct Benefits of HCW Vaccination

FIGURE 1. Percent of reduction in noted outcomes in healthcare workers receiving influenza vaccination.\textsuperscript{35-39} The two bars noting reductions in patient mortality data after healthcare worker vaccination reflect data from two separate studies.\textsuperscript{36,37} All values were statistically significant when compared with those for unvaccinated control healthcare workers ($P < .05$).

Talbot, ICHE, 2005
Vaccination reduces the rate of nosocomial influenza

- Observational study at University of Virginia hospital
- Over 13 seasons
- Increasing vaccination rate among HCW associated with reduced proportion of nosocomial influenza (32% in 1987-88 to 3% in 1998-99)

Salgado, ICHE, 2004
What level of HCW vaccination is ideal?

- Likely related to proportion of vaccinated staff and patients...

  - Retrospective study of 301 nursing homes (2004-2005)

  - **Combined immunization rate** of staff and residents inversely associated with risk of outbreak

  - 60% reduced risk of outbreak associated with staff immunization rates of 55% and resident immunization rates of 89% (OR 0.41; CI 0.19, 0.89)

Shugarman, J Am Med Dir Assoc, 2006
OVERCOMING BARRIERS
Cognitive Dissonance 101

Flu is bad for me and my patients.

I don't get flu vaccine.

I will get vaccinated.

Flu vaccine is unsafe.

I don't get flu.

Flu vaccine doesn’t work.

You Can’t Make Me!!!
Strategies that work

- Education
  - Risks of disease
  - Vaccine safety and efficacy
- Internal marketing
- Improving access to vaccine
  - Mobile carts
  - Walk-in clinics, after-hours clinics
- Expanding responsibility
  - Vaccine deputies
  - Charge nurses as educators

1) Bryant, ICHE 2004; 2) Tapiainen ICHE 2005; 3) Spillman, 40th National Immunization Conference Atlanta, March 2006
Wake Forest Declination Form (2005)

“I realize I am eligible for the flu shot and that my refusal of it may put patients, visitors, and family with whom I have contact, at risk should I contract the flu. Regardless . . . .”

Adoption was associated with doubling of immunization rates (35% to 70% over 4 yr period)

Spillman SS presented at 40th National Immunization Conference Atlanta, March 2006
### Why CHOP HCW decline flu vaccine

<table>
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<tr>
<td>Allergy/Reaction</td>
<td></td>
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<tr>
<td>Rec’d vaccine elsewhere</td>
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<tr>
<td>Concern about side effects</td>
<td></td>
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<tr>
<td>Never get flu</td>
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<tr>
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<td>Fear of needles</td>
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<td><strong>TOTAL</strong></td>
<td>276</td>
<td>392</td>
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### Why CHOP HCW decline flu vaccine

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<tbody>
<tr>
<td>Allergy/Reaction</td>
<td>39</td>
<td>26</td>
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<tr>
<td>Rec’d vaccine elsewhere</td>
<td>36</td>
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<td>Concern about side effects</td>
<td>34</td>
<td>193</td>
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<tr>
<td>Never get flu</td>
<td>9</td>
<td>27</td>
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<tr>
<td>Personal choice</td>
<td>119</td>
<td>53</td>
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<tr>
<td>Religious</td>
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<td>0</td>
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<td>Other</td>
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<td>15</td>
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<tr>
<td>Pregnancy</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Fear of needles</td>
<td>7</td>
<td>0</td>
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<td><strong>TOTAL</strong></td>
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Vaccination of non-physicians:

2007-2008

34% of clinical sites ≥80% (34/99)
72.6% vaccinated (2903/3998)

2008-2009

74% of clinical sites ≥80% (87/118)
82.8% vaccinated (3608/4358)
Vaccination of physicians

2007-2008

16% MD groups ≥80% (5/31)

2008-2009

53% MD groups ≥80% (19/36)

22% MD groups fully vaccinated (8/36)

81% of MDs vaccinated (623/777)
Are Declination Forms Enough?

**PRO**
- HCW vaccination no longer a “passive decision”
- Provides final opportunity to frame issue
- Creates focus on individual accountability

**CON**
- Signals acceptance of non-vaccination
- Polarizing effect reported by some
July, 2009: “The CHOP Patient Safety Committee recommends mandatory annual influenza vaccine for all staff* working in buildings where patient care was provided or whom provide patient care.”

*includes clinicians, support staff, volunteers, students; vendors informed of policy and asked to ensure compliance.
Key Strategies, 2009-2010

PROGRAM ELEMENTS

- Create accurate list of targeted staff and assure ability to provide timely, accurate reports

- Establish method for evaluating requests for medical and religious exemptions

- Determine timeline and educate
Program Timeline, 2009-2010

PLAN:
- 6 week program (9/15-10/31/09)
- 2 week furlough for staff unvaccinated and without exemption as of 11/1/09
- Termination if unvaccinated and without an exemption as of 11/15/09

REALITY:
- 2 week extension due to delays in receipt of seasonal flu vaccine
What happened: 2009-2010

- >9000 HCW vaccinated
- 50 persons established medical exemptions
- 2 persons established religious exemptions
- 145 received temporary suspension
- 9 persons terminated
Anonymous survey to assess attitudes toward mandate

- Random sample of all targeted employees

- 20 item questionnaire adapted from validated previously published instrument

- Domains
  - Previous experience with influenza / influenza vaccination
  - Reasons for previous vaccination or non-vaccination
  - Attitudes toward current influenza mandate and other workplace mandates
  - Attitudes toward vaccines in general
  - Sociodemographic characteristics
Preliminary Results: survey

- 53% response rate
- 60% < 45 years of age
- 66% have worked at CHOP <10 years
- 8.5% had never received flu vaccine before
- >90% felt they had received info they needed from CHOP to make decision about flu vaccination
Preliminary results: rationale for prior decisions

Previously vaccinated
- Protection of self, family and patients
- Job responsibility
- Education received at work

Not previously vaccinated
- Not being at high risk
- Fear of side effects
- Belief that vaccine is not effective
Preliminary results: attitudes toward mandate

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<thead>
<tr>
<th></th>
<th>CLINICAL</th>
<th>NON-CLINICAL</th>
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<tbody>
<tr>
<td>Agree with mandate</td>
<td>56%</td>
<td>41%</td>
</tr>
<tr>
<td>Intended to receive vax before mandate</td>
<td>80%</td>
<td>49%</td>
</tr>
<tr>
<td>Considered declining vax before mandate</td>
<td>10%</td>
<td>39%</td>
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~55% of both groups agree that societal rights outweigh individual rights when it comes to vaccination
Results: Survey

- ~85% of both groups agree that parents have an obligation to make sure their children receive recommended vaccines

- 85-90% of both groups agree with policies for requiring vaccination or screening for TB, HepB, measles, rubella and varicella
Do Mandates Improve Patient Outcomes?
The Team...

Occupational Health
- Mary Cooney
- Sue Price
- Barbara Spiotto
- Karla Abdullah
- Sandy Kittell
- Kadya Hester-Bey
- Sharon Burt

ID Pharmacist
- Talene Metjian

Infection Control
- Keith St. John
- Eileen Sherman
- Brie Alexander
- Susy Rettig
- Sarah Smathers
- Eva Teszner

Department Chairs

Human Resources
- Alex Jorgenson
- Rob Croner
- Virginia Byrd

Senior Administration
Discussion
## History and Influencing Factors

<table>
<thead>
<tr>
<th>Season</th>
<th>% Vaccinated</th>
<th>Program Changes</th>
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<tbody>
<tr>
<td>2004-2005</td>
<td>57</td>
<td>First formalized program; collaboration with IPC</td>
</tr>
<tr>
<td>2005-2006</td>
<td>69</td>
<td>Unit flu captains; reports by unit; voluntary declination forms</td>
</tr>
<tr>
<td>2006-2007</td>
<td>73</td>
<td>Increased leadership involvement; multi-disciplinary approach</td>
</tr>
<tr>
<td>2007-2008</td>
<td>90</td>
<td>Part of institutional strategic safety plan; early planning, public relations; logo, T-shirts, posters; Mandatory participation – vaccine or declination</td>
</tr>
<tr>
<td>2008-2009</td>
<td>92</td>
<td>Consequence for non-participation (performance eval)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physician leadership involvement</td>
</tr>
<tr>
<td>2009-2010</td>
<td>99.6</td>
<td>Mandatory vaccine supported by Patient Safety Committee</td>
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Labor Relations 101

- 2 meetings to negotiate
  - Impasse declared

- Grievance filled
  - CHOP: Termination for just cause
    - “Behaviors that are detrimental to the institution
    - “insubordination”
  - Union: Breech of contract
    - Not included in negotiated contract
Quotes from 10/26/09 negotiation:

- “You’re not making sure everyone who comes into CHOP is vaccinated.”
- “Why can’t we just wear masks all winter?”
- “No other institutions or regulatory groups support this.”
- “This discriminates against employees who have less access to educational resources on the internet.”