Impact of a customized educational program on knowledge and beliefs about influenza and vaccination among working adults
Alexandra Dirlam Langlay, PhD

Presenter disclosures
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(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

Employment by commercial entity:
• I am employed as the Director of Research for Ofstead & Associates, Inc.

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• Sanofi Pasteur provided financial support and Fluzone® (Influenza Virus Vaccine) for the study.

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• The Employers Health Coalition provided input on study design and assisted in engaging the manufacturer.
• A large U.S. manufacturing corporation and four of its factories participated in the study.
• Minnesota Institute of Public Heath served as the IRB.
• HealthSCOPE Benefits, Inc. conducted claims data analysis.
Worksite Influenza Vaccination Study (WIVS) research team

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Challenges with influenza and vaccination

- Annual impact of influenza
  - 5% - 20% of the US population (15 to 62 million people)
  - Up to 0.8% of the US GDP ($109 billion)
  - 10% - 20% of employees lose 2+ days (absenteeism)
  - 80% still impaired upon return to work (presenteeism)

- Influenza vaccination
  - Stagnant or declining rates
  - Lack of provider recommendation

WIVS goals

- To increase influenza vaccination rates by:
  - Increasing knowledge
  - Addressing concerns and misconceptions
  - Reducing barriers

- To measure impact of worksite interventions on:
  - Knowledge and beliefs
  - Vaccination receipt
  - Outcomes (survey and claims data)
### WIVS sites and populations

<table>
<thead>
<tr>
<th>Site</th>
<th>Type of intervention</th>
<th>Covered workers</th>
<th>Total covered members</th>
<th>Employee gender (% male)</th>
<th>Mean age (years)</th>
<th>Surveys completed (2010)</th>
<th>Surveys completed (2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Employees only</td>
<td>2,195</td>
<td>4,690</td>
<td>65%</td>
<td>43</td>
<td>497</td>
<td>250</td>
</tr>
<tr>
<td>B</td>
<td>Employees &amp; dependents</td>
<td>2,634</td>
<td>5,368</td>
<td>64%</td>
<td>46</td>
<td>503</td>
<td>517</td>
</tr>
<tr>
<td>C</td>
<td>Control</td>
<td>1,682</td>
<td>3,462</td>
<td>67%</td>
<td>NA</td>
<td>NA</td>
<td>493</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>6,511</td>
<td>13,520</td>
<td>65%</td>
<td>45</td>
<td>1,000</td>
<td>1,260</td>
</tr>
</tbody>
</table>

*Note: Claims data included only for employees with continuous coverage from 9/1/10 – 3/31/11*

### Significant impact of influenza-like illness (ILI) (baseline survey; N=1,000)

- 45% Had ILI during the past year
- 82% Came to work sick with ILI
- >25% Missed work due to ILI
- ~30% Required medical care for ILI
- >$600k Lost wages & out-of-pocket costs per factory

### Knowledge and beliefs (baseline survey; N=1,000)

- Misconceptions were common
- Multiple barriers to vaccination
- Preferred sources of advice:
  - 84% Health care provider
  - 71% Family members
  - 69% Worksite clinic staff
- Preferred ways to learn about health topics at work:
  - 80% Read written materials
  - 63% Speak to health care provider privately
WIVS interventions and objectives

- Management briefings
  To gain leadership buy-in/support
- Training for health coaches, clinic staff, and factory artists
  To ensure understanding and enlist their support
- Flyers, home mailers, newsletter articles, posters, cartoons
  To address gaps in knowledge, misconceptions, and concerns
- Contact with local physicians having high volumes of employees
  To sign a letter encouraging universal vaccination
- Negotiations with mass vaccinator
  To improve convenient access to free vaccine

Examples of customized educational materials

- Afraid of needles?
  A third of our employees who don’t get flu shots say they don’t like needles. Catching influenza can feel much worse than a quick jab in the arm. Protect yourself and others by getting vaccinated this fall.
  Vaccination Prevents Influenza

- He wouldn’t take the field without pre-season training. Would you?
  The flu shot works like a training program for your body’s immune system. It helps your body recognize flu germs and fight them off when you get exposed, so you won’t get as sick. Start training your body for the flu months ahead by getting vaccinated this fall.
  Vaccination Prevents Influenza
Examples of customized educational materials

Impact of interventions

- Knowledge
- Beliefs and preferences
- Vaccination receipt
- Outcomes
  - Healthcare utilization
  - Vaccine side effects
  - Vaccine effectiveness
  - Total economic impact

Employee knowledge about influenza and vaccine

- More serious than 'bad cold' [T]: 87% 91%
- Influenza = 'stomach flu' [F]: 62% 65%
- Vaccine causes long-term health problems [F]: 61% 64%
- Vaccine rec for everyone 6+ [T]: 50% 54%
- Vaccine can transmit influenza [F]: 51% 50%
Reasons employees declined vaccine

- Vaccine could make me ill: 61% (2010), 57% (2011)
- Healthy, don't need it: 49% (2010), 45% (2011)
- Flu vaccine doesn't work: 35% (2010), 37% (2011)
- Don't like injections: 34% (2010), 34% (2011)
- Don't like vaccine in nose: 32% (2010), 22% (2011)
- Doctor does not recommend: 22% (2010), 14% (2011)

Reasons employees accepted vaccine

- Free or low-cost: 84% (2010), 86% (2011)
- Avoid missing work: 82% (2010), 79% (2011)
- Convenient: 80% (2010), 72% (2011)
- Not to transmit flu: 71% (2010), 71% (2011)
- Could have become ill: 43% (2010), 45% (2011)
- Doctor advice: 40% (2010), 40% (2011)

Vaccine events and uptake at the factories among employees and dependents

- Site A (Employees only)
  - Mass vax 3 days (Oct)
  - By request at HC (Nov-Feb)
- Site B (Employees & families)
  - Mass vax 4 days (Sept-Nov)
  - Offered to all at HC (Oct-Mar)
  - Factory events 4 days (Oct, Nov)
- Site C (Control)
  - 1 mass vax event (Oct)
  - By request at HC (Oct-Dec)
Factors contributing to vaccine uptake

- Convenient access to free vaccine (Odds ratio 2.5)
- Information about vaccination from the employer (Odds ratio 2.1)
- Concern about catching influenza (Odds ratio 1.8)
- Incrementally higher knowledge scores (Odds ratio 1.2)

Interventions that worked

- Free, convenient access at the worksite
- Engaging families
- Cues to action from the employer
- Leadership support
- Engaging worksite clinic staff
- Negotiating with the mass vaccinator
- Getting local physicians to sign a recommendation
- Festive atmosphere in a community setting

Importance of worksite vaccination programs
Link between employee/spouse vaccination status (Claims data)

<table>
<thead>
<tr>
<th>Site</th>
<th>Vaccinated worker (n=407)</th>
<th>Unvaccinated worker (n=467)</th>
<th>Vaccinated worker (n=349)</th>
<th>Unvaccinated worker (n=558)</th>
<th>Vaccinated worker (n=310)</th>
<th>Unvaccinated worker (n=384)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site A</td>
<td>30%</td>
<td>9%</td>
<td>94%</td>
<td>10%</td>
<td>13%</td>
<td>16%</td>
</tr>
<tr>
<td>Site B</td>
<td>30%</td>
<td>9%</td>
<td>94%</td>
<td>10%</td>
<td>13%</td>
<td>16%</td>
</tr>
<tr>
<td>Site C</td>
<td>30%</td>
<td>9%</td>
<td>94%</td>
<td>10%</td>
<td>13%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Conclusions and recommendations

- Bring vaccine to the people where they are
- Eliminate perceived barriers to vaccination
- Engage both employees and families
- Use education primarily as a cue to action
- Emphasize economic benefits of vaccination

Questions or comments

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