
Megan C. Lindley, MPH
National Center for Immunization & Respiratory Diseases

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Co–Authors

• CDC: Suchita A. Lorick, Taranisia MacCannell, LaDora O. Woods, Brady Miller, Faroque Ahmed, Ronda Sinkowitz-Cochran
• New York City Department of Health and Mental Hygiene: Anita Geevarughese
• University of California San Francisco: Robert Harrison, Soo-Jeong Lee
• New Mexico Department of Health: Monear Makvandi, Carmela Smith
• University of Pittsburgh Medical Center: Dave Nace
• California Department of Health: Jon Rosenberg
Disclosures

The authors have no financial or other conflicts of interest to disclose.

The findings and conclusions in this presentation have not been formally disseminated by CDC and should not be construed to represent any agency determination or policy.

Presentation Outline

• Background
• Pilot Objectives
• Methods
• Results
• Discussion
• Next Steps
Background

- Several organizations recommend healthcare personnel (HCP) influenza vaccination as a national quality measure.

- A 2006 study showed a substantial lack of uniformity in the way U.S. hospitals measure HCP vaccination rates.

- Beginning in 2007, Joint Commission accreditation requires hospitals and long-term care organizations to:
  - Establish an annual influenza vaccination program that includes annual evaluation of vaccination rates.

Background (2)

- National Quality Forum
  - Recently issued a time-limited endorsement to a CDC-sponsored standardized measure ('NQF measure') for reporting HCP influenza vaccination rates.
  - Measure designed to ensure reported HCP influenza vaccination rate is comprehensive within a single institution and comparable across institutions.
Pilot Objectives

- Determine the feasibility of implementing the NQF measure in a variety of healthcare institutions
- Identify barriers to and facilitators of implementation

Methods: Overview

- Collaboration with 4 states/localities
- 323 healthcare institutions recruited
  - 92 acute care hospitals
  - 89 long-term care facilities
  - 51 dialysis clinics
  - 30 ambulatory surgery centers
  - 56 physician practices
  - 5 other outpatient facilities
- Primary data collection via web-based surveys
Methods: Data Collection

- Characteristics of institution and its influenza vaccination program
- Data collection processes
- Perceived barriers to reporting HCP vaccination data using NQF measure
  - Developed from key informant interview data
- Aggregate vaccination data (numerator) and number of HCP working at institution (denominator): cumulative reports

Data Reporting Timeline

2010-2011 VACCINATION DATA (~03/31/2011)

- REPORTING 1: Nov-Dec 2010 (10/1/10-10/31/10)
- REPORTING 2: January 2011 (10/1/10-12/31/10)
- REPORTING 3: April 2011 (10/1/10-3/31/11)
Methods: Denominator

• All paid and unpaid HCP, working full- or part-time for at least one day between October 1, 2010 and March 31, 2011

• Reported in 3 mutually exclusive groups:
  — Employees
  — Credentialed non-employees
  — Other non-employees

Methods: Numerator

• Four mutually exclusive categories:
  — HCP who received influenza vaccination offered by institution
  — HCP who received influenza vaccination elsewhere
  — HCP determined to have a medical contraindication to influenza vaccination
  — HCP who declined influenza vaccination for non-medical reasons
Data Collection Tool

Results

• Cumulative response rate: 81% (n=261)
  — 80 acute care hospitals
  — 20 ambulatory surgery centers
  — 44 dialysis clinics
  — 69 long-term care facilities (LTCFs)
  — 44 physician practices

• Focus on results at institutions with highest-risk patients: hospitals, long term care facilities, dialysis clinics
### Results: Institution Characteristics

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Hospitals</th>
<th>Dialysis</th>
<th>LTCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private for-profit</td>
<td>18.8%</td>
<td>59.1%</td>
<td>47.8%</td>
</tr>
<tr>
<td>Private not-for-profit</td>
<td>55.0%</td>
<td>38.6%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Public</td>
<td>26.3%</td>
<td>2.3%</td>
<td>18.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Hospitals</th>
<th>Dialysis</th>
<th>LTCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>57.5%</td>
<td>50.0%</td>
<td>50.7%</td>
</tr>
<tr>
<td>Suburban</td>
<td>21.3%</td>
<td>27.3%</td>
<td>27.5%</td>
</tr>
<tr>
<td>Rural</td>
<td>21.3%</td>
<td>22.7%</td>
<td>21.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yrs. offering HCP vaccine</th>
<th>Hospitals</th>
<th>Dialysis</th>
<th>LTCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4 years</td>
<td>5.0%</td>
<td>18.2%</td>
<td>13.0%</td>
</tr>
<tr>
<td>5 or more years</td>
<td>95.0%</td>
<td>81.8%</td>
<td>87.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yrs. measuring HCP rate</th>
<th>Hospitals</th>
<th>Dialysis</th>
<th>LTCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No experience measuring</td>
<td>0.0%</td>
<td>22.7%</td>
<td>30.4%</td>
</tr>
<tr>
<td>One year</td>
<td>3.8%</td>
<td>15.9%</td>
<td>13.0%</td>
</tr>
<tr>
<td>2-4 years</td>
<td>45.0%</td>
<td>13.6%</td>
<td>14.5%</td>
</tr>
<tr>
<td>5 or more years</td>
<td>51.3%</td>
<td>47.7%</td>
<td>42.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HCP vaccination policy*</th>
<th>Hospitals</th>
<th>Dialysis</th>
<th>LTCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended</td>
<td>24.1%</td>
<td>55.8%</td>
<td>26.5%</td>
</tr>
<tr>
<td>Declination required</td>
<td>74.7%</td>
<td>41.9%</td>
<td>70.6%</td>
</tr>
<tr>
<td>No policy</td>
<td>1.3%</td>
<td>2.3%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

*No institution reported a mandatory influenza vaccination policy enforced by termination for its HCP.
Results: Reporting Burden

<table>
<thead>
<tr>
<th>No. of people collecting reporting data</th>
<th>Hospitals</th>
<th>Dialysis</th>
<th>LTCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (respondent or other)</td>
<td>58.8%</td>
<td>77.3%</td>
<td>81.2%</td>
</tr>
<tr>
<td>2–5 people</td>
<td>18.7%</td>
<td>9.1%</td>
<td>10.1%</td>
</tr>
<tr>
<td>6 or more people</td>
<td>22.5%</td>
<td>13.6%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>

Median no. of hours spent (report for 10/1–12/31) |
- Hospitals: 20.0
- Dialysis: 2.0
- LTCFs: 7.0

% unable to estimate hrs. |
- Hospitals: 40.0%
- Dialysis: 31.8%
- LTCFs: 56.5%

Results: Perceptions of Measure

*Bars represent proportion reporting “agree” / “strongly agree”

- Easy to use
- Comprehensive
- Definitions were easy
- Relevant
- Would recommend
Results: Difficulty Counting HCP

*Bars represent proportion reporting "not easy" or "not at all easy" to count HCP

- Hospitals
  - Employees: 10%
  - Credentialed NE: 60%
  - Other NE: 70%

- Dialysis
  - Employees: 10%
  - Credentialed NE: 20%
  - Other NE: 50%

- LTCFs
  - Employees: 10%
  - Credentialed NE: 30%
  - Other NE: 40%

Results: Barriers to Reporting

*Bars represent proportion reporting "major barrier"

- Time to collect other NE data
  - Hospital: 20%
  - Dialysis: 40%
  - LTCF: 60%

- Time to collect credentialed NE data
  - Hospital: 20%
  - Dialysis: 40%
  - LTCF: 60%

- Inadequate existing process/system
  - Hospital: 10%
  - Dialysis: 20%
  - LTCF: 30%

- # of other NE at institution
  - Hospital: 20%
  - Dialysis: 40%
  - LTCF: 60%

- # of credentialed NE at institution
  - Hospital: 20%
  - Dialysis: 40%
  - LTCF: 60%

NE = non-employee
Results: Barriers to Reporting (2)

Bars represent proportion reporting "major barrier"

- Determining credentialed NE vaccination status
- Determining other NE vaccination status
- Determining status of HCP vaccinated elsewhere
- Distinguishing medical & non-medical declinations

NE = non-employee

Results: Denominator

Hospitals
- Employees
- Credentialed NE
- Other NE

LTCFs
- Employees
- Credentialed NE
- Other NE

Dialysis
- Employees
- Credentialed NE
- Other NE

NE = non-employee
### Results: Difficulty Reporting Denominator

<table>
<thead>
<tr>
<th></th>
<th>Hospitals</th>
<th>Dialysis</th>
<th>LTCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>% unable to report employees</td>
<td>1.3%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>% unable to report credentialed non-employees</td>
<td>16.3%</td>
<td>2.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>% unable to report other non-employees</td>
<td>13.8%</td>
<td>6.8%</td>
<td>11.6%</td>
</tr>
</tbody>
</table>

### Results: Difficulty Reporting Numerator

<table>
<thead>
<tr>
<th></th>
<th>Hospitals</th>
<th>Dialysis</th>
<th>LTCFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>% unable to report HCP vaccinated at institution*</td>
<td>1.3% - 15.0%</td>
<td>0.0% - 18.2%</td>
<td>1.5% - 20.3%</td>
</tr>
<tr>
<td>% unable to report HCP vaccinated elsewhere*</td>
<td>17.5% - 42.5%</td>
<td>2.3% - 22.7%</td>
<td>8.7% - 39.1%</td>
</tr>
<tr>
<td>% unable to report contraindicated HCP*</td>
<td>21.3% - 46.3%</td>
<td>2.3% - 22.7%</td>
<td>15.9% - 40.6%</td>
</tr>
<tr>
<td>% unable to report non-medical declinations*</td>
<td>18.8% - 42.5%</td>
<td>2.3% - 22.7%</td>
<td>10.1% - 39.1%</td>
</tr>
</tbody>
</table>

* Proportions are likely to change as participating institutions are still collecting data.
Discussion

- Most healthcare institutions can provide data on employees vaccinated at the institution

- Reporting vaccination data for non-employees is challenging for healthcare institutions
  - Divergent interpretation of protocol definitions within and between pilot jurisdictions

- Ability to report HCP vaccination data using the NQF measure varies by type of healthcare institution

Next Steps

- Final data collection survey fielded April 2011

- Validation phase
  - Use multiple methods to verify validity and reliability of vaccination data

- Present to NQF for possible full endorsement
  - Measure will be modified based on results of pilot

- Develop NHSN module for aggregate reporting based on approved measure
Potential Impact

• Availability of a standardized, feasibility-tested measure for HCP vaccination
  – Voluntary reporting initiatives
  – Institutional/state reporting requirements

• Some measures fully endorsed by NQF have been adopted for use in national healthcare quality reporting requirements
  – E.g. Centers for Medicare & Medicaid Services’ Hospital Inpatient Quality Reporting Program

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Jane Zucker (NYC DOHMH)

CDC
Carolyn B. Bridges
Alicia Shugart
Raymond A. Strikas
Cindy Weinbaum
Megan C. Lindley, MPH
National Center for Immunization & Respiratory Diseases
Mlindley@cdc.gov