Influenza Vaccination Rates Among Health Care Workers: Ambulatory Surgery Centers

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Introduction

- Influenza has been associated with significant morbidity and mortality
  - 3,000 and 49,000 deaths per year in the United States\(^1\)
- The Centers for Disease Control and Prevention, the Advisory Committee on Immunization Practices, and the U.S. Department of Health and Human Services recommend vaccination of healthcare workers (HCW)\(^2\)
  - Increased risk of exposure to the influenza virus as part of their occupation
  - In contact with the patient populations most at risk of developing severe complications

Image Source: http://wisequacks.org/wp2/?p=2849
The Maryland Health Care Commission (MHCC) has been tracking HCW influenza vaccination rates since the 2008–2009 season

- Regulatory agency designed to “promote informed decision making…[and] increase accountability”³

Data from acute care hospitals has been comprehensively organized, analyzed, and publicly reported since the 2009–2010 season

This project will instead examine influenza vaccination rates among HCW in ambulatory surgical centers, which have not received the same attention
History of Reporting

- **2008–2009 Influenza season**
  - MHCC begins collecting vaccination data from acute care hospitals

- **2009–2010 Season**
  - MHCC begins publically reporting data from acute care hospitals
  - MHCC begins collecting data from ambulatory surgical centers, but does not publicize this information

- **2013–2014 Season**
  - Maryland acute care hospitals begin reporting through the National Health Safety Network (NHSN), as required by the Centers for Medicare and Medicaid services (CMS)

- **2014–2015 Season**
  - Maryland ambulatory surgical centers begin reporting through NHSN, as required by CMS
Methods

- Data retrieved from the annual Maryland Freestanding Ambulatory Surgical Facility Survey
  - Data from 2009–2010 season to 2013–2014 season

- Calculation of rates:
  - Employee: all persons that receive a direct paycheck from the healthcare facility regardless of clinical responsibility or patient contact
Methods– Continued

Rate = \frac{\text{Number of full-time and part-time employees receiving either the influenza vaccination shot or FluMist}}{\text{Total Number of full and part-time employees}} \times 100\%
Five question supplemental survey developed

- Sent via email to 82 members of Maryland Ambulatory Surgery Association
- Received 13 responses

Results
HCW Influenza Vaccination Rates

Year        Percentage
2013        72.41
2012        71.29
2011        64.08
2010        53.4
2009        59.3
## ASC Influenza Vaccination Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>2009 (n=304)</th>
<th>2010 (n=278)</th>
<th>2011 (n=293)</th>
<th>2012 (n=297)</th>
<th>2013 (n=297)</th>
</tr>
</thead>
<tbody>
<tr>
<td># HCW vaccinated</td>
<td>1767</td>
<td>1469</td>
<td>1214</td>
<td>1975</td>
<td>2220</td>
</tr>
<tr>
<td># HCW total</td>
<td>2980</td>
<td>2751</td>
<td>2328</td>
<td>3082</td>
<td>3114</td>
</tr>
<tr>
<td>Rate</td>
<td>59.30%</td>
<td>53.40%</td>
<td>52.15%</td>
<td>64.08%</td>
<td>71.29%</td>
</tr>
</tbody>
</table>
ASCs Reporting Zero HCW Vaccinated

Percentage

Year

2009 2010 2011 2012 2013

0 5 10 15 20 25 30 35

18.42 30.83 19.06 9.9 12.12
Percentage of HCW Declining Vaccination

Year  | Percentage
--- | ---
2009  | 24.36
2010  | 20.03
2011  | 24.08
2012  | 20.42
2013  | 15.52
Reasons for Declination

Year | Percentage
--- | ---
2009 | 83.06 (Medical), 0.00 (Religious), 0.00 (Other)
2010 | 84.52 (Medical), 0.51 (Religious), 1.20 (Other)
2011 | 78.98 (Medical), 4.18 (Religious), 2.36 (Other)
2012 | 79.40 (Medical), 2.36 (Religious), 4.18 (Other)
2013 | 76.95 (Medical), 1.20 (Religious), 4.18 (Other)
Mean HCW Vaccination Rates of Mandatory vs Non-mandatory Policies

<table>
<thead>
<tr>
<th>Year</th>
<th>Mandatory</th>
<th>Non-Mandatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>88.31</td>
<td>52.56</td>
</tr>
<tr>
<td>2012</td>
<td>92.49</td>
<td>62.61</td>
</tr>
<tr>
<td>2013</td>
<td>92.78</td>
<td>61.54</td>
</tr>
</tbody>
</table>
HCW Vaccination Rates: ASCs vs Hospitals in Maryland

<table>
<thead>
<tr>
<th>Year</th>
<th>ASC</th>
<th>Hospitals</th>
<th>National Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>59.30</td>
<td>78.10</td>
<td>75.2</td>
</tr>
<tr>
<td>2010</td>
<td>52.15</td>
<td>81.40</td>
<td>75.2</td>
</tr>
<tr>
<td>2011</td>
<td>64.08</td>
<td>87.80</td>
<td>75.2</td>
</tr>
<tr>
<td>2012</td>
<td>71.29</td>
<td>96.40</td>
<td>75.2</td>
</tr>
<tr>
<td>2013</td>
<td>72.41</td>
<td>96.50</td>
<td>75.2</td>
</tr>
</tbody>
</table>
If “Other” was selected, what reasons fall into this category?

- “Fear of becoming ill”
- “I dislike needles”
- “I never had the flu and don’t expect to get it”
- “Ethical”
- “Pregnant”
Survey Results– Mandatory Policy Enforcement

- If so, does this policy have any stipulations if employees do not receive the influenza vaccine?
  - Termination of employment
  - Wear a mask
Survey Results – NHSN

Did your facility use the NHSN Health Personnel Vaccination Module to report healthcare worker vaccination rates for the year 2014–2015?

- 6 of 9 responding facilities use the NHSN Module
- “Set up…was labor intensive and time consuming”
- “Registration was cumbersome”
- “Application is rather tedious”
Limitations

Data
- Changing timeframes
- Multiple calculation methods
- No separation of ASCs from other outpatient settings in national rates
- Difficulty making comparisons across states or nationally

Supplemental Survey
- Very small sample size
- Limited generalizability
ASC Barriers

- Fluctuating number of employees
- Fewer resources than hospitals
  - Many facilities with small numbers of employees
    - In 2013, 61 of 297 facilities with less than 5 employees
- HCW attitudes towards influenza vaccination
Conclusions

- Vaccination rates among HCW in ASCs are on par with reported national rates among all HCW
- BUT well below those of Maryland acute care hospitals
- Perhaps lessons learned from raising the rates in Maryland acute care hospitals can be applied to ASCs
- However, ASCs face unique challenges and barriers that must also be addressed
Practice & Policy Implications

- NHSN reporting system
  - Standardized methodology
  - Improved comparisons
  - Streamlining registration process may be beneficial

- Currently, Maryland does not have a state-wide mandatory policy requiring HCW flu vaccination in place
  - Adoption of a state-wide policy may assist in raising ASC rates to those of acute care hospitals

- Public reporting of rates and mandatory policy adoption may encourage increased rates through peer comparison and competition or compliance
References


Acknowledgments

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- Theressa Lee, MHCC
- Wenwan Lu, MSPH Candidate
- Jennifer Le, JHSPH