Strategies to Increase Influenza Vaccine Uptake among Healthcare Workers in Greece

Helena Maltezou, MD, PhD
Department for Interventions in Healthcare Facilities
Hellenic Center for Disease Control and Prevention
Athens, Greece

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Seasonal influenza in developed countries

- the most frequent vaccine-preventable disease

- every year

  40,000 deaths in the European Union

  36,000 deaths in the United States

European Centre for Disease Control and Prevention

United States Advisory Committee on Immunization Practices
Nosocomial influenza

- follows the activity of influenza in the community
- extremely fast spread within closed settings
- crowded wards and staff shortage facilitate influenza transmission and onset of outbreaks
Nosocomial influenza outbreaks

- Intensive Care Units
- Neonatal Intensive Care Units
- Pulmonary Departments
- Neurologic - Psychiatric Departments
- Bone Marrow Transplantation Units
- Long - Term Care Facilities
Nosocomial influenza outbreaks (cont)

- attack rates up to 55.6% among patients and up to 18.1% among personnel*

- up to 25% case fatality rate among neonates in Neonatal Intensive Care Units (NICUs)**


Meara et al. Influenza A outbreak in a community hospital. Ir Med J 2006;99: 175-177
Which patients are at risk from nosocomial influenza?
Nosocomial influenza: serious morbidity and mortality

• patients with underlying diseases
• immunocompromised patients
• neonates and young infants
• elderly

Outbreak of novel influenza A (H1N1) in an adult haematology department and haematopoietic cell transplantation unit: clinical presentation and outcome.

Lalayanni C, Sirigou A, Iskas M, Smias C, Sakellari I, Anagnostopoulos A.

- 8 (38%) among 29 patients were infected

- 5 patients developed severe pneumonia

- 3 patients were transferred to the Intensive Care Unit

- 3 patients died

- 2 patients who survived remained under oxygen for 2-3 months
Sources for spread of nosocomial influenza

patients with undiagnosed influenza

visitors

unvaccinated healthcare workers

Healthcare workers continue to work often despite the presence of influenza-like symptoms.
HCWs vaccination against influenza ...

The Main preventive measure against transmission of influenza within healthcare facilities
HCWs vaccination against influenza ...

The Main preventive measure against transmission of influenza within healthcare facilities
Why should HCWs get vaccinated against influenza?

in order to protect

• themselves – occupational infection

• their vulnerable patients

• the essential healthcare services
HCWs vaccination against influenza

The goal is to protect patients at high risk for complications from nosocomial influenza.

- frequent visits – admissions
- prolonged hospitalization

Herd immunity
Influenza vaccination of HCWs in long-term care facilities


**↓↓** total mortality

**↓↓** total mortality from influenza-like illness

**↓↓** admissions in hospitals
Advantages from the implementation of influenza vaccination programs for HCWs within healthcare facilities

↓↓ influenza episodes

↓↓ febrile respiratory infections

↓↓ absence from work


Onset of influenza nosocomial outbreaks when vaccination rates among HCWs were low

High HCW influenza vaccine uptake

→ limited spread of influenza among patients

Vaccination coverage among HCWs

- low vaccination rates worldwide (< 40%)
- mandatory vaccination in US hospitals: > 98%


2005 nation-wide campaign to promote HCWs influenza vaccination in hospitals

- informative leaflets
- suggested strategies to increase vaccine uptake
- suggested educative materials

HCWs influenza vaccination rate increased from 1.72% (2004-2005) to 16.36% (2005-2006) (9.5-fold)
Suggested strategies included:

• To inform the hospital Manager about the importance of increasing HCWs influenza vaccine uptake and organizing a vaccination program
• To train the Infection Control Nurse about the vaccination program
• To appoint a specific person for organizing the vaccination program
• To use informative posters, leaflets and videotapes
• To organize lectures on nosocomial influenza and influenza vaccine
• To schedule frequent meetings with the personnel
• To offer vaccination to HCWs in a specifically designated area
• To use a mobile vaccination team
Aim of our study

To investigate the contribution of various strategies to increase vaccine uptake by HCWs in hospitals

In Greece influenza vaccine is offered to HCWs at their workplace and free of charge.
Results

- 132 hospitals participated (response rate: 97%)

- In 75% (99/132) of hospitals vaccination rates < 25%

- Mean HCWs influenza vaccination rate: 16.36% (14,191 of 86,765 HCWs), range: 0% - 85.96%

- In 75% (99/132) of hospitals vaccination rates < 25%

- 37.1% of hospitals had HCWs influenza vaccination programs in the past
Distribution of hospitals per vaccination rate

Vaccination rate

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Number of Hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-24%</td>
<td>99</td>
</tr>
<tr>
<td>25%</td>
<td>25</td>
</tr>
<tr>
<td>50%</td>
<td>6</td>
</tr>
<tr>
<td>75-100%</td>
<td>1</td>
</tr>
</tbody>
</table>
### Strategies used to increase HCW influenza vaccination

<table>
<thead>
<tr>
<th>Strategy</th>
<th>% of hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directors informed about the importance of HCWs vaccination</td>
<td>88.6</td>
</tr>
<tr>
<td>Infection Control Nurse trained about the vaccination program</td>
<td>73.5</td>
</tr>
<tr>
<td>Appointed person for organizing the vaccination program</td>
<td>88.6</td>
</tr>
<tr>
<td>Use of posters</td>
<td>31.8</td>
</tr>
<tr>
<td>Use of leaflets</td>
<td>62.1</td>
</tr>
<tr>
<td>Use of videotapes</td>
<td>15.8</td>
</tr>
<tr>
<td>Lectures on nosocomial influenza</td>
<td>64.4</td>
</tr>
<tr>
<td>Frequent meetings with the personnel</td>
<td>67.4</td>
</tr>
<tr>
<td>Vaccination in specifically designated areas</td>
<td>25.8</td>
</tr>
<tr>
<td>Mobile vaccination team</td>
<td>32.6</td>
</tr>
</tbody>
</table>
Univariate analysis for strategies associated with HCW influenza vaccination rates above the mean rate (16.36%)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Group A* (%)</th>
<th>Group B* (%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directors informed about the program</td>
<td>69 (95.8)</td>
<td>47 (100)</td>
<td>0.218</td>
</tr>
<tr>
<td>trained Infection Control Nurse</td>
<td>55 (76.4)</td>
<td>41 (87.2)</td>
<td>0.109</td>
</tr>
<tr>
<td>person for organizing the program</td>
<td>70 (97.2)</td>
<td>46 (97.9)</td>
<td>0.488</td>
</tr>
<tr>
<td>posters</td>
<td>22 (30.6)</td>
<td>19 (40.4)</td>
<td>0.181</td>
</tr>
<tr>
<td>leaflets</td>
<td>54 (75.0)</td>
<td>27 (57.4)</td>
<td>0.036</td>
</tr>
<tr>
<td>videotapes</td>
<td>9 (12.5)</td>
<td>10 (21.3)</td>
<td>0.154</td>
</tr>
<tr>
<td>lectures</td>
<td>46 (63.9)</td>
<td>38 (80.9)</td>
<td>0.036</td>
</tr>
<tr>
<td>frequent meetings with the personnel</td>
<td>50 (69.4)</td>
<td>39 (83.0)</td>
<td>0.072</td>
</tr>
<tr>
<td>specific area for vaccination</td>
<td>49 (68.1)</td>
<td>26 (55.3)</td>
<td>0.113</td>
</tr>
<tr>
<td>mobile vaccination team</td>
<td>20 (27.8)</td>
<td>23 (48.9)</td>
<td>0.016</td>
</tr>
<tr>
<td>massive vaccine prescription</td>
<td>19 (26.4)</td>
<td>14 (29.8)</td>
<td>0.420</td>
</tr>
<tr>
<td>vaccination program in the past</td>
<td>29 (40.3)</td>
<td>20 (42.6)</td>
<td>0.477</td>
</tr>
</tbody>
</table>

* Groups A and B: hospitals with vaccination rates below and above the mean vaccination rate, respectively
** Hospitals with available data on strategies
Multivariate analysis for strategies associated with vaccination rates above the mean vaccination rate*

- **use of a mobile vaccination team**
  
  (OR: 2.942, 95% CIs: 1.154-5.382; p-value=0.016)

- **organization of lectures**
  
  (OR: 2.386, 95% CIs: 0.999-5.704; p-value=0.036)

* Mean vaccination rate: 16.36%
Conclusions

• In Greece influenza vaccination rates among HCWs remain suboptimal (16.36% during 2005-2006).

• A limited-budget nation-wide campaign had a significant impact on HCWs vaccination rates (9.5-increased rate).

• Use of a mobile vaccination team and organization of lectures were associated with increased HCWs influenza vaccination rates.
Strategies associated with increased vaccination rates in the literature

- vaccination at hospital
- vaccination free of charge
- use of mobile vaccination teams
- organization of vaccination campaigns
- organization of lectures about vaccine safety and efficacy
- use of reminding systems
- mandatory vaccination

Maltezou, Tsakris. Vaccination of HCWs against influenza: our obligation to protect our patients. *Influenza and Other Respiratory Viruses Journal* 2011 [Epub ahead of print]
Thank you for your attention!