

## **INFLUENZA VACCINATION OF THE HEALTH CARE WORKFORCE: *A Literature Review***

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## EXECUTIVE SUMMARY

Since 1981, the Centers for Disease Control and Prevention (CDC) has recommended that all health care workers (HCWs) receive an annual influenza vaccination. The Healthy People objectives aimed for 60% coverage of HCW influenza vaccination by 2010 and 90% coverage by 2020. Although influenza vaccine uptake among HCWs has trended upward over the past several years, the percentage of immunized HCWs has remained approximately 40% between 2004 and 2008.

In order to complete the literature review, researchers identified and analyzed peer reviewed literature, news articles, professional organization position statements, and institutional policies published between 1991 and 2011. In the absence of evidence from the United States experience, materials relevant to Canada, France and the United Kingdom were reviewed.

*Defining Health Care Workers and Settings:* The healthcare workforce could be individuals who have direct exposure or have the potential for indirect exposure to patients or infectious materials including: body substances, contaminated medical supplies and equipment, environmental surfaces or air. They may be paid or unpaid, an employee, contractor, volunteer, visitor, or student. Health care workers work in a broad range of institutional and community settings.

*Health Care Workers Impact Patient Safety:* HCWs who have direct contact with patients are the primary source of infectious disease outbreaks in health-care facilities. During an average season, 23% of HCWs are infected with the virus, show mild symptoms, and continue to work despite being infectious. Over the past 30 years, nosocomial influenza outbreaks have been documented throughout the United States and abroad.

*Strategies to Encourage Voluntary Vaccination Among HCWs:* Healthcare facilities, and government and professional organizations have developed and supported various strategies to encourage voluntary influenza vaccination among HCWs, including: 1) educational and promotional campaigns, 2) increased access to the seasonal influenza vaccine, 3) declination statements, and 4) health programs that incorporate several strategies.

*State-Mandated School Immunization and Exemption Policies:* State laws that require vaccination as a condition for school attendance translate national recommendations into immunization practice. These laws have proven to be the most effective mechanism to protect children and their families from the effects of vaccine-preventable disease. Historical and modern examination of school vaccination laws provides a context for understanding the benefits of compulsory vaccination policy when applied to the health workforce.

All jurisdictions include "opt-out" or exemption provisions that permit parents to refuse immunizations for their children for one of three reasons: 1) medical contraindication, 2) religious beliefs, or 3) personal, moral, or philosophical beliefs. Two jurisdictions employ declination statements as a fourth option to allow refusal.

*Mandatory Influenza Vaccination Policies in Healthcare Facilities:* Beginning in 2004, healthcare facilities and local health departments began to require influenza vaccination as a condition of employment. Currently, 87 facilities in 30 states and the District of Columbia have implemented HCW mandatory influenza vaccination programs.

*Professional and Government Organizations Position Statements Related to Health Care Worker Influenza Vaccination:* Several professional, government, non-profit organizations have indicated their support of mandatory influenza vaccination of HCWs as the most effective strategy to protect patients. However, the largest health care union, representing several categories of the health care workforce, opposes mandatory influenza vaccination.

*Health Care Workers' Attitudes and Beliefs Related to Influenza Vaccination:* The workforce continues to present several common arguments against influenza vaccination, including: 1) fear, 2) a belief in popular myths and misinformation, and 3) inconvenience. However, others accept the vaccination as an effective method to protect themselves, their families, and their patients.

## INTRODUCTION

The mandatory immunization of the population has been a seminal issue in public health law for nearly two centuries. Since 1981, the Centers for Disease Control and Prevention (CDC) has recommended that all health care workers (HCWs) receive an annual influenza vaccination.<sup>1</sup> This recommendation is reflected in the Healthy People 2020 objectives that have set a goal of 90% coverage for this population.<sup>2</sup> However, national coverage rates remain lower than the recommended goals.

## BACKGROUND

The Increasing Influenza Vaccination Coverage Among Healthcare Workers Working Group, (Working Group) was established to implement the *HHS Action Plan to Prevent Healthcare-Associated Infections*. The Working Group is co-chaired by the Centers for Disease Control and Prevention (CDC) and the National Vaccine Program Office (NVPO). It includes agency representatives from the Department of Health and Human Services, Veterans Affairs, the Occupational Safety and Health Administration, and the Joint Commission on Accreditation of Health Care Organizations.

The goals of the Working Group are to develop and enhance evidence and tools for improving influenza vaccination of health-care personnel, enroll stakeholders in the initiative, identify and enhance existing standards for influenza vaccination of HCWs, and develop a list of benchmarks for measuring short term, mid-term, and long-term progress towards the Healthy People 2020 objective of increasing influenza vaccination among HCWs.

In 2010, the Working Group asked researchers at The George Washington University Medical Center, Department of Health Policy (GWU), to examine how state laws address influenza vaccination of HCWs. GW will:

- Assist States in creating a legal environment that encourages influenza vaccination of all healthcare workers (HCWs).
- Identify and collaborate with Federal, state and local policymakers, management of health care facilities, workforce representatives, professional associations, and patient advocates.
- Develop a literature review related to the environment surrounding influenza vaccination of HCWs for distribution to interested stakeholders.
- Review the legal environment surrounding influenza vaccination of HCWs and review evidence-based practice of seasonal influenza vaccination.

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<sup>1</sup> Center for Disease Control. Recommendation of the Public Health Service Immunization Practices Advisory Committee: Influenza Vaccine 1980-1981. *Annals of Internal Medicine*. 1980; 93:466-468.

<sup>2</sup> U.S. Department of Health and Human Services. Healthy People 2020 Topics and Objectives. Available at: <http://www.healthypeople.gov/2020/topicsobjectives2020/default.aspx>. Accessed March 15, 2011.

- Develop recommendations and model language for Federal and state laws associated with HCW influenza immunization.

This report provides an overview of the literature related to influenza vaccination of the health workforce. The review is organized as follows:

- Common definition of HCW
- Relationship between vaccination of HCWs and disease rates among patients
- Strategies facilities have implemented to encourage voluntary vaccination among HCWs
- School mandates as a tool to increase coverage rates
- Mandatory influenza vaccination policies in healthcare facilities
- Position statements of professional and government organizations related influenza vaccination of HCWs
- HCW attitudes and beliefs toward influenza vaccination

## **METHODS**

In order to complete the literature review, researchers identified and analyzed peer reviewed literature, news articles, professional organization policy statements, and institutional policies published between 1991 and 2011. Additionally, documented influenza outbreaks in health care facilities from 1980 to 2007 were identified. In the absence of evidence from the United States experience, materials relevant to Canada, France and the United Kingdom were reviewed.

## DEFINING THE HEALTH WORKFORCE

### Defining Health Care Workers

Because the healthcare workforce is diverse, employers and advisory groups have adopted varying definitions to describe the individuals who will be included under influenza vaccination recommendations, policies, and programs. The factors that have been considered when identifying the target population include whether the individual:

- has direct exposure to patients or infectious materials including: body substances, contaminated medical supplies and equipment, environmental surfaces or air,
- has the potential for indirect exposure to patients or infectious materials, including: body substances, contaminated medical supplies and equipment, environmental surfaces or air, and
- is paid or unpaid, an employee, contractor, volunteer, visitor, or student.

The most inclusive definition includes all employees, volunteers and contract personnel.<sup>3</sup>  
<sup>4 5</sup> Examples of facilities and organizations that have adopted this expansive definition include:

## GOVERNMENT ORGANIZATIONS

### *Centers for Disease Control and Prevention*

Healthcare personnel are defined as all persons whose occupational activities involve contact with patients or contaminated material in a healthcare, home healthcare, or clinical laboratory setting. Healthcare personnel are engaged in a range of occupations, many of which include patient contact even though they do not involve direct provision of patient care, such as dietary and housekeeping services . . . . The term “healthcare personnel” includes not only employees of the organization or agency, but also contractors, clinicians, volunteers, students, trainees, clergy, and others who may come in contact with patients.<sup>6</sup>

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<sup>3</sup> Babcock HM, Gemeinhart N, Jones M, Dunagan C, Woeltje K. Mandatory Influenza Vaccination of Health Care Workers: Translating Policy to Practice. *Clinical Infectious Disease*. 2010; 50.4: 459-464. Available at: <http://cid.oxfordjournals.org/content/50/4/459.full>. Accessed February 21, 2011.

<sup>4</sup> National Foundation for Infectious Diseases. Immunizing Healthcare Personnel Against Influenza: A Report on Best Practices. 2007. Available at: <http://www.nfid.org/HCWtoolkit/report.html>. Accessed February 21, 2011.

<sup>5</sup> MedStar Health. Corporate Policy: Mandatory Influenza Vaccination Policy. Available at: [www.franklinsquare.org/documents/MedStarFluPolicy.pdf](http://www.franklinsquare.org/documents/MedStarFluPolicy.pdf). Accessed April 18, 2011.

<sup>6</sup> Centers for Disease Control and Prevention. Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel. July 15, 2010. Available at: [http://www.cdc.gov/h1n1flu/guidelines\\_infection\\_control.htm#a](http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm#a). Accessed February 21, 2011.

***Healthcare Infection Control Practices Advisory Committee and Advisory Committee on Immunization Practices Recommendation:*** a federal advisory committee that advises the CDC and the Secretary of the Department of Health and Human Services (HHS) regarding health care infection control and strategies for surveillance, prevention, and control of health care associated infections:

Health care professional (HCP) refers to all paid and unpaid persons working in healthcare settings who have the potential for exposure to infectious materials, including bodily substances, contaminated medical supplies and equipment, contaminated environmental surfaces, or contaminated air. HCP might include (but are not limited to) physicians, nurses, nursing assistants, therapists, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, autopsy personnel, students and trainees, contractual staff not employed by the health-care facility, and persons (e.g., clerical, dietary, housekeeping, maintenance, and volunteers) not directly involved in patient care but potentially exposed to infectious agents that can be transmitted to and from HCP.<sup>7</sup>

### ***World Health Organization***

An HCW is anyone whose focus or activity is to improve health. This definition includes providers (e.g., doctors, nurses and midwives) as well as technicians and managers.<sup>8</sup> Nine categories of HCWs have been identified: physicians, nurses and midwives, dentists and dental assistants, pharmacists, laboratory scientists and technicians, environment and public health workers, community health workers and traditional healers, other health care providers, and health managers and support workers.<sup>9</sup>

## **HEALTH CARE FACILITIES**

***BJC Healthcare:*** a St. Louis, Missouri healthcare organization with approximately 26,000 employees.

All BJC employees, regardless of job function, including clinical and nonclinical staff, contracted clinical personnel, and volunteers. Hospital-employed physicians, including hospitalists, residents, and fellows, were included in the policy.<sup>10</sup>

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<sup>7</sup> Centers for Disease Control and Prevention. Influenza Vaccination of Health-Care Personnel, Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP). Recommendations and Reports. February 24, 2006; MMWR: 55(RR-2). Available at: [www.cdc.gov/mmwr/pdf/rr/rr5502.pdf](http://www.cdc.gov/mmwr/pdf/rr/rr5502.pdf). Accessed February 21, 2011.

<sup>8</sup> World Health Organization. Global Atlas of Health Workforce: Definitions of Health Workforce Data. Available at: <http://apps.who.int/globalatlas/docs/HRH/HTML/Dftn.htm>. Accessed February 25, 2011.

<sup>9</sup> *Id.*

<sup>10</sup> Babcock HM, Gemeinhart N, Jones M, Dunagan C, Woeltje K. Mandatory Influenza Vaccination of Health Care Workers: Translating Policy to Practice. *Clinical Infectious Disease*. 2010; 50.4: 459-464. Available at: <http://cid.oxfordjournals.org/content/50/4/459.full>. Accessed February 21, 2011.

**MedStar Health:** a regional healthcare system in the Maryland and Washington, DC area with approximately 26,000 associates and 5,300 affiliated physicians.

All MedStar Health associates, medical staff members, other credentialed professionals, residents (employed and affiliated), volunteers, students, contractors, and all vendors who work for, provide services to or otherwise do business with MedStar Health or any of its subsidiaries while on MedStar Premises (collectively, those individuals are referred to as “covered individuals”).<sup>11</sup>

**Boulder Community Hospital:** Boulder Community Hospital in Colorado is a community-owned and operated not-for-profit hospital comprised of five major medical facilities and two hospitals with a combined total of 219 beds.<sup>12</sup>

All healthcare workers, contractors, and volunteers, as well as clerical, dietary, janitorial, and laboratory staff.<sup>13 14</sup>

## PROFESSIONAL AND NON-PROFIT ORGANIZATIONS

### *Association for Professionals in Infection Control and Epidemiology*

The term HCP includes: all paid and unpaid persons working in health-care settings who have the potential for exposure to patients with influenza or infectious materials, including: body substances, contaminated medical supplies and equipment, contaminated environmental surfaces or contaminated air. HCP might include (but are not limited to) physicians, nurses, nursing assistants, therapists, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, autopsy personnel, students and trainees, contractual staff not employed by the health-care facility, and persons (e.g., clerical, dietary, housekeeping, maintenance, and volunteers) not directly involved in patient care but potentially exposed to infectious agents that can be transmitted to and from HCP.<sup>15</sup>

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<sup>11</sup> MedStar Health. Corporate Policy: Mandatory Influenza Vaccination Policy. Available at: [www.franklinsquare.org/documents/MedStarFluPolicy.pdf](http://www.franklinsquare.org/documents/MedStarFluPolicy.pdf). Accessed March 15, 2011.

<sup>12</sup> Boulder Community Hospital. Fast Facts: Boulder Community Hospital. 2011. Available at: <http://www.bch.org/about-bch/fast-facts-default.aspx>. Accessed May 25, 2011.

<sup>13</sup> Immunization Action Coalition. Honor Roll for Patient Safety: Institutional Mandates. 2011. Available at: <http://www.immunize.org/honor-roll/>. Accessed February 21, 2011.

<sup>14</sup> Boulder Community Hospital. Facts about Influenza: BCH Influenza Vaccination Policy. 2011. Available at: <http://www.bch.org/quality--patient-safety/flu-update.aspx>. Accessed April 12, 2011.

<sup>15</sup> Green LR, Cain TA, Dolan SA, et al. APIC Position Paper: Influenza Immunization of Healthcare Personnel. Available at: [http://www.apic.org/Content/NavigationMenu/PracticeGuidance/HealthcareWorkersInfectionPrevention/Healthcare\\_Worker\\_R.htm](http://www.apic.org/Content/NavigationMenu/PracticeGuidance/HealthcareWorkersInfectionPrevention/Healthcare_Worker_R.htm). Accessed April 12, 2011.



***The Joint Commission:*** The Joint Commission, an independent, non-profit organization that accredits and certifies more than 18,000 health care organizations and programs in the U.S.

The term healthcare personnel (HCP) is defined broadly as all paid and unpaid persons working in health care settings who have the potential for exposure to infectious materials.<sup>16</sup>

### ***National Foundation for Infectious Diseases***

The term ‘healthcare personnel’ is used to describe people employed in any of a variety of jobs in the field, including: health-diagnosing workers, health-assessing workers, health aids, health technicians, health care support staff; administrators and administrative support.<sup>17</sup>

## **Defining Health Care Settings**

The individuals who are governed by vaccination policies work in a broad range of health care settings including: acute care hospitals, nursing homes, skilled nursing facilities, physician’s offices, urgent care centers, outpatient clinics, home health care, emergency medical services, schools, correctional facilities, rehabilitation centers, chronic care facilities, long-term care facilities, assisted living facilities, specialty care assisted living facilities, comprehensive care facilities, extended care facilities, and adult day care facilities.

Thus, the type of health care facility should be clearly identified when developing a comprehensive influenza vaccination policy. The following outlines definitions developed by government organizations, professional societies, and non-profit organizations:

## **GOVERNMENT ORGANIZATIONS**

### ***Centers for Disease Control and Prevention***

This guidance applies to healthcare personnel working in the following settings: acute care hospitals, nursing homes, skilled nursing facilities, physician’s offices, urgent care centers, outpatient clinics, and home healthcare agencies. It also includes those working in clinical settings within non-healthcare institutions, such as school nurses or personnel staffing clinics in correctional facilities.<sup>18</sup>

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<sup>16</sup> The Joint Commission. Providing a Safer Environment for Healthcare Personnel and Patients Through Influenza Vaccination. Strategies from Research and Practice. 2009. Available at: [www.jointcommission.org/assets/1/18/Flu\\_Monograph.pdf](http://www.jointcommission.org/assets/1/18/Flu_Monograph.pdf). Accessed February 25, 2011.

<sup>17</sup> National Foundation for Infectious Diseases. Immunizing Healthcare Personnel Against Influenza: A Report on Best Practices. 2007. Available at: <http://www.nfid.org/HCWtoolkit/report.html>. Accessed February 21, 2011.

<sup>18</sup> Centers for Disease Control and Prevention. Interim Guidance on Infection Control Measures for 2009 H1N1 Influenza in Healthcare Settings, Including Protection of Healthcare Personnel. July 15, 2010. Available at: [http://www.cdc.gov/h1n1flu/guidelines\\_infection\\_control.htm#a](http://www.cdc.gov/h1n1flu/guidelines_infection_control.htm#a). Accessed February 21, 2011.

***Healthcare Infection Control Practices Advisory Committee and Advisory Committee on Immunization Practices Recommendation***

The recommendations in this report apply to HCP in acute care hospitals, nursing homes, skilled nursing facilities, physician's offices, urgent care centers, and outpatient clinics, and to persons who provide home health care and emergency medical services.<sup>19</sup>

**PROFESSIONAL AND NON-PROFIT ORGANIZATIONS**

***Association for Professionals in Infection Control and Epidemiology***

The influenza immunization recommendations apply to HCP in acute care hospitals, nursing homes, skilled nursing facilities, physician's offices, urgent care centers, and outpatient clinics, and to persons who provide home health care and emergency medical services.<sup>20</sup>

***The Joint Commission***

The full range of HCP work in a variety of settings, including acute care hospitals, long term care facilities, skilled nursing facilities, rehabilitation centers, physician's offices, urgent care centers, outpatient clinics, home health care agencies, and emergency medical services.<sup>21</sup>

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<sup>19</sup> Centers for Disease Control and Prevention. Influenza Vaccination of Health-Care Personnel, Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP). Recommendations and Reports. February 24, 2006; MMWR: 55(RR-2). Available at: [www.cdc.gov/mmwr/pdf/rr/rr5502.pdf](http://www.cdc.gov/mmwr/pdf/rr/rr5502.pdf). Accessed February 21, 2011.

<sup>20</sup> Green LR, Cain TA, Dolan SA, et al. APIC Position Paper: Influenza Immunization of Healthcare Personnel. Available at: [http://www.apic.org/Content/NavigationMenu/PracticeGuidance/HealthcareWorkersInfectionPrevention/HealthcareWorker\\_R.htm](http://www.apic.org/Content/NavigationMenu/PracticeGuidance/HealthcareWorkersInfectionPrevention/HealthcareWorker_R.htm). Accessed April 12, 2011.

<sup>21</sup> The Joint Commission. Providing a Safer Environment for Healthcare Personnel and Patients Through Influenza Vaccination. Strategies from Research and Practice. 2009. Available at: [www.jointcommission.org/assets/1/18/Flu\\_Monograph.pdf](http://www.jointcommission.org/assets/1/18/Flu_Monograph.pdf). Accessed February 25, 2011.

## RELATIONSHIP BETWEEN VACCINATION OF HCWS AND DISEASE RATES AMONG PATIENTS

### Current Health Care Worker Influenza Vaccination Coverage Rates

Since 1981, the CDC has recommended that all HCWs receive an annual influenza vaccination.<sup>22</sup> Additionally, the Healthy People 2010 objectives established a 60% coverage rate for HCW influenza vaccination by 2010 and 90% coverage by 2020.<sup>23</sup>

However, influenza vaccine uptake among HCWs has remained approximately 40% between 2004 and 2008.<sup>24 25 26 27</sup> See table below:

<b>TABLE 1: HCW Influenza Vaccination Coverage Rates, 2004-2010</b>	
<b>YEAR</b>	<b>PERCENT of HCWs WHO RECEIVED INFLUENZA VACCINE</b>
2004-2005	35.5
2005-2006	41.8
2006-2007	44.4
2007-2008	49.0
2009-2010	61.9 H1N1 Pandemic
<b>SOURCE:</b> Helms, C, et al. Voluntary reporting of employee influenza vaccination rates by acute care hospitals in Iowa: The impact of a four year provider-based statewide performance improvement project. Vaccine. 2011; CDC. Interim Results: Influenza A (H1N1) 2009 Monovalent and Seasonal Influenza Vaccination Coverage among Health-Care Personnel – United States, August 2009-January 2010.	

<sup>22</sup> Center for Disease Control. Recommendation of the Public Health Service Immunization Practices Advisory Committee: Influenza Vaccine 1980-1981. *Annals of Internal Medicine*. 1980; 93:466-468.

<sup>23</sup> U.S. Department of Health and Human Services. Healthy People 2020 Topics and Objectives. Available at: <http://www.healthypeople.gov/2020/topicsobjectives2020/default.aspx>. Accessed March 15, 2011.

<sup>24</sup> Fiore AE, Shay DK, Broder K, et al. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). *Recommendations and Reports*. 2007; *MMWR*: 56(RR06):1–54.

<sup>25</sup> Tosh, PK, Poland, GA. Healthcare worker influenza immunization. *Medscape Infectious Diseases: Expert Column*. Dec. 21, 2007. Available at: <http://www.medscape.org/viewarticle/567336>. Accessed: March 16, 2011.

<sup>26</sup> Reedy AM. Fighting the flu: a vaccination program for healthcare workers. *Oncology Nursing Forum*. 2008; 35(2).

<sup>27</sup> Harper SA, Fukuda K, Uyeki TM, Cox NJ, Bridges CB. Prevention and control of influenza: recommendations from the Advisory Committee on Immunization Practices (ACIP). *Recommendations and Reports*. July 29, 2005; *MMWR*: 54(RR08): 1-40. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr54e713a1.htm>. Accessed February 21, 2011.

## INFLUENZA OUTBREAKS IN HEALTH CARE FACILITIES

Health care workers who have direct contact with patients are the primary source of infectious disease outbreaks in health-care facilities.<sup>28</sup> Outbreaks of influenza in health care settings attributed to the unvaccinated workforce have been well described.<sup>29</sup> During an average season, 23% of HCWs are infected with the virus, show mild symptoms, and continue to work despite being infectious.<sup>30</sup> Those with serological evidence of infection do not consistently recall their illness and may continue to work while infectious.<sup>31</sup> Additionally, during outbreaks, facilities are frequently required to request staff to work additional shifts, or to pool workers, in order to replace ill staff.<sup>32</sup>

Outbreaks of nosocomial influenza can last from 2 to 69 days, affect 3 to 50% of exposed patients and 11 to 59% of exposed workers, resulting in median mortality range from 16% in a general ward setting to 33 to 60% in a transplant setting.<sup>33</sup> These outbreaks have contributed to patient complications or death and increased economic costs to the health care system.<sup>34</sup>

Over the past 30 years, nosocomial influenza outbreaks have been documented in California, Hawaii, Illinois, New York, Virginia, and West Virginia. Additionally, outbreaks have been documented in Canada, France, and the UK. In one example, from a 1999 influenza outbreak in an internal medicine ward, 23% of staff became ill. The outbreak resulted in 14 person-days of sick leave, postponement of eight scheduled admissions, suspension of emergency admissions for 11 days and an average additional cost per patient of \$3,798. The total cost of the outbreak was \$34,179.<sup>35</sup> A 1997 study showed that vaccinating HCWs and reducing absenteeism can save employers \$2.58 for every dollar invested in an influenza vaccination program.<sup>36</sup>

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<sup>28</sup> Stewart AM, Rosenbaum, S. Vaccinating the Health-Care Workforce: State Laws vs. Institutional Requirements. *Law and the Public's Health*. July-August 2010; 125: 615-618.; Poland GA, Toshi P, Jacobson RM. Requiring influenza vaccination for health care workers: seven truths we must accept. *Vaccine*. 2005; 23(17-18):2251-2255.

<sup>29</sup> Babcock HM, Gemeinhart N, Jones M, Dunagan C, Woeltje K. Mandatory Influenza Vaccination of Health Care Workers: Translating Policy to Practice. *Clinical Infectious Disease*. 2010; 50.4: 459-464. Available at: <http://cid.oxfordjournals.org/content/50/4/459.full>. Accessed February 21, 2011.

<sup>30</sup> *Id* at 28.

<sup>31</sup> Tilburt, JC, Mueller PS, Ottenberg AL, Poland GA, Koenig BA. Facing the challenges of influenza in healthcare settings: The ethical rationale for mandatory seasonal influenza vaccination and its implications for future pandemics. *Vaccine*. September 2008; 26 (4): D27-D30.

<sup>32</sup> Lundstrom T, Pugliese G, Bartley J, Cox J, Guither C. Organizational and environmental factors that affect worker health and safety and patient outcomes. *American Journal of Infection Control*. 2002; 30:93-106.

<sup>33</sup> *Id* at 31.

<sup>34</sup> National Foundation for Infectious Diseases. Call to Action: Influenza Immunization Among Healthcare Workers. Available at: <http://www.nfid.org/publications/>. Accessed March 15, 2011.

<sup>35</sup> Sartor C, Zandotti C, Romain F, et al. Disruption of services in an internal medicine unit due to a nosocomial influenza outbreak. *Infection Control and Hospital Epidemiology*. 2002; 23(10):615-9.

<sup>36</sup> Anikeeva O, Braunack-Mayer A, Rogers W. (2009). Requiring influenza vaccination for health care workers. *American Journal of Public Health*. 2009; 99 (1): 24-29.

The New York State Department of Health detailed the number of reported influenza outbreaks in the state's health care facilities during influenza seasons from 2001 to 2006.<sup>37</sup> See table below:

<b>TABLE 2: NY State Health Care Facility Influenza Outbreaks, 2000-2007</b>								
	<b>2000-2001</b>	<b>2001-2002</b>	<b>2002-2003</b>	<b>2003-2004</b>	<b>2004-2005</b>	<b>2005-2006</b>	<b>2006-2007</b>	<b>Total</b>
<b>Number of reported outbreaks</b>	31	173	24	199	451	205	70	1153
<b>SOURCE:</b> Healthcare Personnel Influenza Vaccination Requirements. NY State Statute: Public Health Law Sections 2803, 3612, and 4010, Title 10.								

During the 2005-2006 influenza season, 1,896 suspected and confirmed cases of influenza were associated with 205 outbreaks in state hospitals and long term care facilities.<sup>38</sup>

### **Documented Influenza Outbreaks in Health Care Facilities 1980 to 2000**

Nosocomial influenza occurs in almost all types of hospital wards, causing morbidity, mortality, and cost consequences. Nosocomial outbreaks are often under-reported and under-detected. Because visitors, patients, and HCWs can transmit disease, it is difficult to determine the source of infection.<sup>39</sup> The following details examples of documented influenza outbreaks in health care facilities from 1980 to 2000 in the United States and abroad:

#### ***Edouard Herriot Hospital, France, 2004-2005, 2005-2006, and 2006-2007***

A prospective study was conducted to estimate the relative risk of hospital-acquired influenza-like illness (ILI), based on exposures to other contagious individuals. Surveillance of influenza was conducted over 3 seasons. A total of 21,519 patients and 2,153 HCWs were included in developing the relative risk estimates.<sup>40</sup>

The study demonstrates that risk of ILI for patients is approximately 2 times higher in the hospital than in the community. The relative risk of a patient developing ILI is 5.48 when exposed to 1 contagious HCW, 17.96 when exposed to at least one contagious patient and 34.75 when exposed to at least one contagious patient and one contagious HCW. These results

<sup>37</sup> Healthcare Personnel Influenza Vaccination Requirements. NY State Statute: Public Health Law Sections 2803, 3612, and 4010, Title 10.

<sup>38</sup> *Id.*

<sup>39</sup> Voirin N, Barret B, Metzger MH, Vanhems. Hospital-acquired influenza: a synthesis using the Outbreak Reports and Intervention Studies of Nosocomial Infection (ORION) statement. *The Journal of Hospital Infection.* 2009; 71:1-14.

<sup>40</sup> Vanhems P, Voirin N, Roche S, et al. Risk of Influenza-Like Illness in an Acute Health Care Setting During Community Influenza Epidemics in 2004-2005, 2005-2006, and 2006-2007. *Archives of Internal Medicine.* January 2011; 171(2):151-157.

demonstrate the increased risk of contracting ILI from potentially infectious persons within a hospital setting.<sup>41</sup>

***Infectious Disease and AIDS Hospitalization Ward, Spain, February 2001***

This study described a 17-day nosocomial influenza outbreak when no influenza activity was present at the community level. In the 23-bed infectious disease ward of an 800-bed tertiary care hospital, 29 of 57 HCWs and eight of 23 hospitalized patients met the case definition for influenza.

Affected patients were isolated and all admissions into the ward were cancelled for 2 weeks and symptomatic HCWs were sent home for one week. Of all HCWs, 93% had not been vaccinated against influenza for the season. Based on the lack of influenza in the community and low HCW vaccination rates, the study data suggests transmission from HCWs to patients.<sup>42</sup>

***Hospital Rangueil, Toulouse Cedex, France, 1999-2000***

Four cases of influenza A virus infection were reported during a 4-day outbreak in a 12 single-room organ transplant unit. None of the patients had been immunized against influenza. Three patients had not been visited by their relatives in the time between admission and influenza infection. Three nurses, among the 27 healthcare workers, presented with clinical flu symptoms at times consistent with nosocomial transmission.<sup>43</sup>

***Schoondonck Clinic of the Medical Center, the Netherlands, April 1999***

Of 22 patients with severe pulmonary disease admitted to the clinic in April 1999, 13 developed influenza-like illness within one week. Eleven of the 13 patients who developed illness had previously been immunized against influenza. The time between vaccination and onset of illness, combined with the lack of systematic staff vaccination in the medical center was the likely source for the development of this outbreak.<sup>44</sup>

***Neonatal Intensive Care Units of 2 Barcelona Hospitals, Spain, February to May 1999 & October 1999***

Thirty of 95 screened infants admitted to two NICUs tested positive for influenza A during two separate outbreaks. The likely source of infection was a community strain introduced either by HCWs or the infants' parents. Control measures and vaccination of all HCWs who

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<sup>41</sup> *Id.*

<sup>42</sup> Horcajada JP, Pumarola T, Martinez JA, et al. A nosocomial outbreak of influenza during a period without influenza epidemic activity. *European Respiratory Journal*. February 2003; 21(2):303-307.

<sup>43</sup> Malavaud S, Malavaud B, Sanders K, et al. Nosocomial outbreak of influenza virus A (H3N2) infection in a solid organ transplant department. *Transplantation*. August 2001; 72(3):535-7.

<sup>44</sup> Berg HF, Gendt JV, Rimmelzwaan GF, Peeters MF, Keulen PV. Nosocomial Influenza Infection among Post-influenza-vaccinated Patients with Severe Pulmonary Diseases. *Journal of Infection*. 2003; 46:129-132.

have direct contact with the patients was cited as a fundamental means for controlling nosocomial influenza outbreaks.<sup>45</sup>

### ***McMaster University Medical Centre, Ontario, Canada, 1998***

In a neonatal intensive care unit, 19 infants were infected with influenza, and one death resulted from influenza complications. The likely source of influenza transmission for the outbreak was from health care worker contact, as only 15% of the unit staff had been immunized against influenza.<sup>46</sup>

### ***New York Presbyterian Hospital, January 1998***

An outbreak of influenza A occurred in the adult Bone Marrow Transplant Unit, lasting for one week. During the outbreak there were 7 cases of health-care associated influenza, 6 of the patients also developed pneumonia and one patient died. Five staff members developed influenza-like illness during the outbreak. Multiple measures were implemented to control the outbreak and in the following influenza season more rigorous infection control prevention measures were instituted, including:

- isolating and placing all patients with influenza on strict precautions
- remaining patients placed on reverse precautions
- the number of staff entering the rooms of patients with influenza was minimized
- only one visitor per patient was allowed on the unit
- the unit visitor lounge was closed
- use of security personnel to enforce visitor limitations
- nonessential admissions were postponed
- nasopharyngeal swabs for influenza were performed on all patients with respiratory illness
- non-BMT staff were not floated to BMT unit
- rimantadine prophylaxis given to staff and patients
- all patients and their families educated about the outbreak and new restrictions
- turnaround time improved through cooperation with the microbiology laboratory
- in-service sessions on influenza conducted for all day and night staff
- influenza vaccination offered to all staff
- maintained a log of all patients with respiratory symptoms to ensure prompt identification and isolation of potential influenza cases.<sup>47</sup>

### ***Skilled Nursing Home Facility in New York State, 1992***

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<sup>45</sup> Sagrera X, Ginovart G, Raspall F, et al. Outbreaks of influenza A virus infection in neonatal intensive care units. *The Pediatric Infectious Disease Journal*. March 2002; 21(3):196-200.

<sup>46</sup> Cunney RJ, Bialachowski A, Thornley D, Smaill FM, Pennie RA. An outbreak of influenza A in a neonatal intensive care unit. *Infection Control and Hospital Epidemiology*. July 2000; 21(7):449-51.

<sup>47</sup> Weinstock DM, Eagan J, Malak SA, et al. Control of influenza A on a bone marrow transplant unit. *Infection Control and Hospital Epidemiology*. November 2000; 21(11):730-2.

An influenza outbreak occurred in a nursing home facility and lasted approximately 4 weeks. Thirty-seven residents and 18 health care professionals developed influenza-like illness. The health care professional illnesses began 16 days prior to those of the facility residents. While 90% of the residents had received the influenza vaccination, only 10% of the health care professionals were vaccinated. Six of the residents developed pneumonia and 3 residents died as a result of the illness.<sup>48</sup>

#### ***Nursing Home Facility in New York, December 1991-January 1992***

An influenza outbreak occurred in a long term care facility and lasted four weeks. Of 337 residents, 19% developed influenza-like illness. Half of the patients with influenza-like illness subsequently developed pneumonia, one-third were hospitalized, and 2 died. Only 10% of the health care professionals had been vaccinated, and 65 of the workers developed influenza-like illness during the outbreak period.<sup>49</sup>

#### ***Nursing Home Services in a Multi-Ward Chronic Care Hospital in Honolulu, 1989-1990***

This outbreak occurred in one unit of a five-unit long-term care facility and lasted approximately 13 months. During the outbreak period 11 of the 39 residents in the facility developed influenza and six of the residents died. Thirty-six of the 39 residents had received an influenza vaccination, and 10 of the 11 who developed influenza had received the vaccination. The authors of the study suspect that the virus was spread from health care professionals who carried the virus on their hands or from fomites, such as medical cart items.<sup>50</sup>

#### ***Edward Hines Jr. Veterans Administration Hospital, Illinois, 1989***

This outbreak occurred in a 1,156-bed hospital. Forty-nine patients and 118 health care professionals suffered from influenza-like illness. The hospital was able to control the outbreak after vaccinating one-third of nursing and physician personnel.<sup>51</sup>

#### ***University of Virginia Health Sciences Center, January-April 1988***

An influenza outbreak occurred that lasted 69 days. Ten patients, ages 5 months to 83 years, acquired influenza. 171 health care providers had direct contact with influenza patients,

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<sup>48</sup> Coles FB, Balzano GJ, Morse DL. An outbreak of influenza A (H3N2) in a well immunized nursing home population. *Journal of the American Geriatrics Society*. June 1992; 40(6):589-92

<sup>49</sup> Centers for Disease Control and Prevention. Outbreak of influenza A in a nursing home-New York, December 1991-January 1992. *Morbidity Mortality Weekly Report*. 28 February 1992, 41:129-131.

<sup>50</sup> Morens DM, Rash VM. Lessons from a nursing home outbreak of influenza A. *Infection Control and Hospital Epidemiology*. May 1995; 16(5):275-80.

<sup>51</sup> Pachucki CT, Pappas SA, Fuller GF, Krause SL, Lentino JR, Schaaf DM. Influenza A among hospital personnel and patients. Implications for recognition, prevention and control. *Archives of Internal Medicine*. January 1989; 149(1):77-80.



while only 7 of the exposed workers had been vaccinated. In an attempt to increase health care professional vaccination, the facility instituted the use of mobile vaccination carts.<sup>52</sup>

### ***Cedar Sinai Medical Center, Los Angeles, 1986-1987***

A study of nosocomial influenza in an acute care hospital was completed. In this instance, 43 cases of influenza were identified, 17 occurring among hospital employees, 14 cases in the emergency room or clinics, 10 community-acquired cases among hospitalized patients, and 2 nosocomial cases. Both of the nosocomial cases were associated with extended hospital stays and pneumonia. The potential reservoir for infection identified in these cases was the health care providers who were caring for the patients.<sup>53</sup>

### ***Veterans Administration Medical Center, West Virginia, March 1980***

An influenza outbreak occurred in a 180-bed acute care hospital, involving 29 patients, most of whom were elderly. Influenza-like illness among staff in the weeks prior to the outbreak suggested staff-to-patient transmission of the infection. There was an increased hospital cost associated with these cases of outbreak, and the results of the study suggest that influenza immunization of hospital staff is a worthwhile effort.<sup>54</sup>

### **HCW Influenza Vaccination Effectiveness Studies**

Several studies demonstrate that HCW vaccination is an effective tool to reduce illness among both the workers and patients:

#### ***Prince of Wales Hospital, Hong Kong, 2004-2005***

This study was conducted in the emergency department of the hospital and investigated the association between influenza vaccination of HCWs and illness and absenteeism. Fifty-five-percent of HCWs who had not been vaccinated took sick leave for influenza-like illness, while only 30.3% of the vaccinated HCWs required sick leave.<sup>55</sup>

#### ***Large Chain of UK Care Homes, 2003-2005***

The purpose of this study was to determine whether vaccination of care home staff against influenza indirectly protects residents. The vaccine was offered to staff in intervention homes, but not to those in control homes.

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<sup>52</sup> Adal KA, Flowers RH, Anglim AM, et al. Prevention of nosocomial influenza. *Infection Control and Hospital Epidemiology*. October 1996; 17: 641-648.

<sup>53</sup> Weingarten S, Friedlander M, Rascon D, Ault M, Morgan M, Meyer RD. Influenza surveillance in an acute-care hospital. *Archives of Internal Medicine*. January 1988; 148(1):113-6.

<sup>54</sup> Van Voris LP, Belshe RB, Shaffer JL. Nosocomial influenza B virus infection in the elderly. *Annals of Internal Medicine*. February 1982; 96(2):153-8.

<sup>55</sup> Stewart SC. Does vaccinating ED health care workers against influenza reduce sickness absenteeism? *The American Journal of Emergency*. September 2007; 25(7): 808-811.

In 2003-2004, vaccine coverage among full-time staff in intervention homes was 48.2% and 5.9% in control homes. There were significant decreases in influenza-like illness and mortality among residents in intervention homes compared with control homes. No significant differences were found in when there was no influenza activity.<sup>56</sup>

In 2004-2005, uptake rates were 43.2% and 3.5%. No significant differences were found that year.<sup>57</sup>

### ***Nursing Homes, Japan, 1999-2000***

A study was conducted in nursing homes to evaluate the effectiveness of influenza vaccines against influenza-like illness among nursing home residents. By increasing vaccination rates for HCWs and residents, illness decreased from 24.3% during the 1998-1999 influenza season to 8.8% for the 1999-2000 influenza season. The authors concluded that a high vaccination rate for both residents and HCWs may reduce the risk of influenza-like illness and institutional outbreaks in nursing homes.<sup>58</sup>

### ***Pediatric and Women's Hospital, Australia, 1998***

Seasonal influenza vaccination was offered to staff in a 250-bed pediatric hospital and a 250-bed women's hospital, with approximately 720 staff accepting influenza vaccination. A study was then undertaken to compare incidences of sick leave between vaccinated and unvaccinated staff. Analysis revealed a significant reduction in influenza-like illness for the vaccinated group - 32.6%, when compared with the unvaccinated group at 59.6%. The staff who received the vaccination reduced their likelihood for influenza-like illness by 67%.<sup>59</sup>

### ***Two Pediatric Hospitals, Finland, 1996-1997***

A randomized, placebo-controlled, double blind study on vaccine efficacy was conducted in HCWs. The primary endpoint was days of work lost due to respiratory infections. Influenza vaccination reduced absenteeism due to respiratory infections by 28%.<sup>60</sup>

### ***Long-term Care Hospitals, Glasgow, United Kingdom, 1996-1997***

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<sup>56</sup> Hayward AC, Harling R, Wetten S, et al. Effectiveness of an influenza vaccine programme for care home staff to prevent death, morbidity, and health service use among residents: cluster randomized controlled trial. *British Medical Journal*. December 2006; 333(7581): 1241.

<sup>57</sup> *Id.*

<sup>58</sup> Saito R, Suzuki H, D, Oshitani H, et al. The Effectiveness of Influenza Vaccine Against Influenza A (H3N2) Virus Infections in Nursing Homes in Niigata, Japan, During the 1998-1999 and 1999-2000 Seasons. *Infection Control and Hospital Epidemiology*. February 2002; 23(2): 82-86.

<sup>59</sup> Jones C. Influenza vaccination: impact on absenteeism among nursing and medical staff in a metropolitan teaching hospital. *Australian Infection Control*. 1999; 4(3): 14 - 17.

<sup>60</sup> Saxén H, Virtanen M. Randomized, placebo-controlled double blind study on the efficacy of influenza immunization on absenteeism of health care workers. *Pediatric Infectious Disease Journal*. September 1999; 18(9):779-83.

HCWs in 20 long-term elderly-care hospitals were randomly offered or not offered influenza vaccine and deaths among patients were recorded over a 6-month period. Influenza vaccination uptake was 50.9% in hospitals where vaccination was offered and 4.9% when it was not offered. Vaccination of health care workers was associated with a substantial decrease in mortality among patients.<sup>61</sup>

***Long-term Care Hospitals, Glasgow, United Kingdom, 1994-1995***

Among 12 geriatric medical long-term care facilities, a staff influenza immunization rate of 61% was associated with significant reductions of up to 17% in total patient mortality and up to 17% in total influenza-like illness.<sup>62</sup>

***Two Large Teaching Hospitals, Baltimore, MD, 1992-1995***

Over three consecutive years, a study of hospital-based HCWs was conducted to determine the effectiveness of influenza vaccine in reducing infection, illness, and absenteeism. Cumulative days off for respiratory illness among influenza vaccinated HCWs were 28.7 per 100 subjects compared to 40.6 per 100 for control HCWs. Days of absence were 9.9 per 100 in influenza vaccinated HCWs and 21.1 per 100 for control HCWs.<sup>63</sup>

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<sup>61</sup> Carman, WF, Elder AG, Wallace LA, et al. Effects of influenza vaccination of health-care workers on mortality of elderly people in long-term care: a randomised controlled trial. *The Lancet*. January 2000; 355(9198): 93-97.

<sup>62</sup> Potter J, Stott DJ, Roberts MA, et al. Influenza vaccination of health care workers in long-term- care hospitals reduces the mortality of elderly patients. *Journal of Infectious Disease*. 1997; 175:1-6.

<sup>63</sup> Wilde JA, McMillan JA, Serwint J, Butta J, O'Riordan MA, Steinhoff MC. Effectiveness of influenza vaccine in health care professionals: a randomized trial. *JAMA*. March 1999; 281(10):908-13.

## **STRATEGIES FACILITIES HAVE IMPLEMENTED TO ENCOURAGE VOLUNTARY VACCINATION AMONG HCWS**

Healthcare facilities throughout the United States and government and professional organizations have employed various strategies to encourage voluntary influenza vaccination of HCWs. Despite the availability of promotional and educational tools, healthcare facility strategies, and CDC recommendations, no significant impact has been made in the overall coverage rate.<sup>64</sup>

Studies show that the average annual coverage rate for HCWs has remained approximately 40% in the United States.<sup>65 66 67</sup> A 2007 survey of 991 Infectious Disease Consultants indicated that approximately 7% of facilities achieved HCW annual influenza vaccination rates higher than 80%.<sup>68</sup>

Healthcare facilities have attempted to increase their HCW vaccination rates using four strategies, including: educational and promotional campaigns, increased access to seasonal influenza vaccine, declination statements, and combination programs.

### ***Educational and Promotional Campaigns***

The intent of educational and promotional programs is to increase HCW knowledge about the influenza vaccination, respond to common HCW concerns surrounding vaccine safety and efficacy, and for facilities to better understand the reasons why HCWs refuse the influenza vaccination. Studies show:

- During the 2005-2006 influenza season Registered Nurses at a large health care facility were subject to longstanding, multifaceted education programs. It was found that while they had received appropriate information, 64.5% of the RNs indicated they intended to receive the vaccine.<sup>69</sup>
- Prior to the 2004 influenza season, employees of the Cleveland Clinic Foundation were mailed either an educational letter surrounding influenza, a raffle ticket for a Caribbean vacation, or both. There was no difference in the vaccination rates of those

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<sup>64</sup> Tosh, PK, Poland, GA. Healthcare worker influenza immunization. *Medscape Infectious Diseases: Expert Column*. Dec. 21, 2007. Available at: <http://www.medscape.org/viewarticle/567336>. Accessed: March 16, 2011.

<sup>65</sup> Polgreen, PM, Polgreen LA, Evans T, Helms C. A statewide system for improving influenza vaccination rates in hospital employees. *Infection Control and Hospital Epidemiology*. May 2009; 30(5): 474–478.

<sup>66</sup> Tosh, PK, Poland, GA. Healthcare worker influenza immunization. *Medscape Infectious Diseases: Expert Column*. Dec. 21, 2007. Available at: <http://www.medscape.org/viewarticle/567336>. Accessed: March 16, 2011.

<sup>67</sup> Reedy AM. Fighting the flu: a vaccination program for healthcare workers. *Oncology Nursing Forum*. 2008; 35(2).

<sup>68</sup> Polgreen P, Chen Y, Beekmann S, et al. Elements of Influenza Vaccination Programs That Predict Higher Vaccination Rates: Results of an Emerging Infectious Network Survey. *Clinical Infectious Disease*, 2008; 46:14-19.

<sup>69</sup> Ofstead, CL, Tucker SJ, Beebe TJ, Poland GA. Influenza vaccination among Registered Nurses: information receipt, knowledge, and decision-making at an institution with a multifaceted educational program. *Infection Control and Hospital Epidemiology*. February 2008; 29(2); 99-106.

who did not receive educational or promotional materials, compared to those who received the materials. That year, 41% of the employees were vaccinated.<sup>70</sup>

- A 2010 literature review of twelve studies found that campaigns involving only educational components resulted in minimal improvements in coverage.<sup>71</sup>

### ***Increased Immunization Access***

A second strategy facilities have used to improve HCW influenza vaccination rates includes the offer of free vaccination in the workplace. Increased immunization access has proven to be more effective than educational and promotional campaigns alone in increasing HCW influenza vaccination rates. Studies show:

- In 2002, seventy long-term care facilities in California participated in “Vaccine Day,” and provided free influenza vaccinations at the worksite. As a result, vaccination rates increased to 46% coverage. The coverage rate increased to 53% coverage when an educational campaign was combined with “Vaccine Day”. These rates were an increase from previous facility rates of 30% and 34%.<sup>72</sup>
- During the fall of 2005, twelve hospitals in metropolitan Atlanta provided free influenza vaccinations to employees in on-site clinics. On average, 41% of employees were vaccinated.<sup>73</sup>
- In 2003, the University of Iowa Hospital and Clinics offered free influenza vaccination for 4 weeks during an influenza vaccination campaign. Due to low worker response, the campaign was extended and employees were reminded of vaccination in one of two ways: 1) when the chief resident was informed of employee vaccination rates and the vaccine was offered at departmental conferences, vaccination rates increased 38%; or 2) when employees were reminded to receive the vaccine via email or educational posters, vaccination rates increased 13%.<sup>74</sup>
- In 2000, New York state law required all long-term care facilities to offer influenza vaccination to all residents and HCWs and to document vaccine refusal. While health

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<sup>70</sup> Doratotaj S, Macknin ML, Worley SL. A novel approach to improve influenza vaccination rates among health care professionals: a prospective randomized controlled trial. *American Journal of Infection Control*. May 2008; 36(4): 301-303.

<sup>71</sup> Lam PP, Chambers LW, McDougall DM, McCarthy AE. Seasonal influenza vaccination campaigns for health care personnel: systematic review. *CMAJ*. September 2010; 182(12): E542-E548.

<sup>72</sup> Kimura AC, Nguyen CN, Higa JI, Hurwitz EL, Vugia. The effectiveness of Vaccine Day and educational interventions on influenza vaccine coverage among health care workers at Long-Term Care Facilities. *American Journal of Public Health*. April 2007; 97(4): 684-690.

<sup>73</sup> Gazmararian JA, Coleman M, Prill M, et al. Influenza vaccination of health care workers: policies and practices in a community setting. *American Journal of Infection Control*. September 2007; 35(7): 441-447.

<sup>74</sup> Polgreen PM, Pottinger J, Polgreen L, Diekema DJ, Herwaldt LA. Influenza vaccination rates, feedback, and the Hawthorne Effect. *Infection Control and Hospital Epidemiology*. January 2006; 27(1): 98-99.

department data showed that overall vaccination of residents improved to 80% or greater, the response rate among HCWs was approximately 45%.<sup>75</sup>

- Following an outbreak of influenza, the University of Virginia Health System instituted a mobile vaccination cart, which increased the HCW influenza vaccination rate from 4% during the 1987-1988 influenza season to 67% during the 1999-2000 season. The increase in vaccine acceptance was associated with a significant decrease in nosocomial influenza cases.<sup>76</sup>

### *Declination Statements*

A declination statement is a form that HCWs may be required to sign to indicate their receipt or refusal of the influenza vaccination. Declination statements are a common component of HCW Hepatitis B vaccination programs, and have recently been used with influenza vaccination.<sup>77</sup> In a survey of 1,000 hospitals, 15% of 555 respondents indicated that the hospital had implemented a declination policy during the 2005-2006 influenza season.<sup>78</sup>

The purpose of a declination statement is to ensure that HCWs are appropriately informed of the rationale for influenza vaccination, to promote the message of patient safety, to dispel commonly held misconceptions regarding influenza and influenza vaccination, and to encourage greater participation in vaccination programs.<sup>79</sup> Studies show:

- In a 2007 survey of 22 hospitals, the use of declination forms increased vaccination rates by 11.6%. For the season before implementation, the mean for the influenza vaccination rate of HCWs was 54%  $\pm$ 14.5%, and for the season after implementation, the average was 65%  $\pm$ 15.7%. However, the data did not suggest that the use of a declination statement alone would improve vaccination coverage levels.<sup>80</sup>
- During the 2006-2007 influenza season, an evaluation of the utility and impact of a declination form in a 9,200 employee health system was unable to determine its actual influence in increasing vaccination rates, and the facility anticipated a transition to mandatory influenza vaccination.<sup>81</sup>

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<sup>75</sup> Healthcare Personnel Influenza Vaccination Requirements. NY State Statute: Public Health Law Sections 2803, 3612, and 4010, Title 10.

<sup>76</sup> Salgado, CD, Gianetta ET, Hayden FG, Farr BM. Preventing nosocomial influenza by improving the vaccine acceptance rate of clinicians. *Infect Control and Hospital Epidemiology*. November 2004; 25(11):923-8.

<sup>77</sup> Occupational Safety and Health Administration. Hepatitis B vaccine declination (mandatory)-1910.1030 App A. Available at: [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10052](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10052). Accessed March 20, 2011.

<sup>78</sup> Talbot, TR. Do declination statements increase health care worker influenza vaccination rates? *Clinical Infectious Diseases*. September 2009; 49(5): 773-779.

<sup>79</sup> *Id.*

<sup>80</sup> Polgreen PM, Septimus EJ, Parry MF, et al. Relationship of influenza vaccination declination statements and influenza vaccination rates for healthcare workers in 22 US hospitals. *Infection Control and Hospital Epidemiology*. July 2008; 29(7): 675-677.

<sup>81</sup> Ribner BS, Hall C, Steinberg JP, et al. Use of mandatory declination form in a program for influenza vaccination of healthcare workers. *Infection Control and Hospital Epidemiology*. April 2008; 29(4): 302-308.

- During the 2005-2006 influenza season, employees in the 1,100-bed Cleveland Clinic were required to log onto the intranet and select "vaccine received," "contraindicated," or "declined." Declining employees automatically received a screen with education about vaccination. Employees were notified of the program via letters and reminders provided through managers and newsletters. Eighty-nine percent accessed the intranet. Fifty-five percent of responding employees indicated "vaccine received" versus 38% for the previous influenza season.<sup>82</sup>

### *Combination Programs*

Other programs have employed a hybrid approach, incorporating promotional and educational activities, encouragement, and free and accessible vaccines. However, only one facility was able to achieve coverage levels above 75% for HCWs.<sup>83</sup> Studies show:

- During the 2006-2007 influenza season, eleven acute care facilities in a large health system executed a program that included education, publicity, free and easily accessible influenza vaccines, mobile vaccination carts, and incentives. Influenza vaccination rates of HCWs increased influenza vaccination rates increased system-wide from 32.4% to 39.6%.<sup>84</sup>
- During the 1990-1991 influenza season, 442 residents and medical students were subject to one of four interventions: (1) an educational memorandum outlining vaccine indications sent to all study group members; (2) a personal letter mailed to a random sample of half of the remaining unimmunized persons; (3) a telephone call to half of the unimmunized letter recipients; and (4) vaccine offered directly to the remaining unimmunized persons in clinics and conferences. All the combined efforts resulted in a coverage rate of 62%.<sup>85</sup>
- Fifty University-affiliated hospitals were surveyed regarding their HCW influenza vaccination programs for the 2007-2008 influenza season to assess vaccination adherence and availability, use of declination statements, education methods, accountability, and data reporting. The hospitals used a combination of these strategies and achieved a median vaccination rate of 55%.<sup>86</sup>

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<sup>82</sup> Bertin M, Scarpelli M, Proctor AW, et al. Novel use of the intranet to document health care personnel participation in a mandatory influenza vaccination reporting program. *American Journal of Infection Control*. February 2007; 35 (1): 33-37.

<sup>83</sup> Norton S, Scheifele DW, Bettinger JA, West RM. Influenza vaccination in pediatric nurses: cross-sectional study of coverage, refusal, and factors in acceptance. *Vaccine*. 2008; 26: 2942-2948.

<sup>84</sup> Zimmerman R, Nowalk MP, Lin CJ, et al. Factorial design for improving influenza vaccination among employees of a large health system. *Infection Control and Hospital Epidemiology*. July 2009; 30(7): 691-697.

<sup>85</sup> Ohrt CK, McKinney WP. Achieving compliance with influenza immunization of medical house staff and students. A randomized controlled trial. *JAMA*. March 1992; 267(10): 1377-80.

<sup>86</sup> Talbot TR, Dellit TH, Hebden J, Sama D, Cuny J. Factors associated with increased healthcare worker influenza vaccination rates: results from a national Survey of University Hospitals and Medical Centers. *Infection Control and Hospital Epidemiology*. May 2010; 31(5); 456-462.

- A 2010 survey of over 250 Certified Medical Directors in long-term care settings found that 95.3% provided annual education to HCWs, 84.6% took the vaccine to employees, 79.8% offered vaccine clinics at various times, 89.7% removed cost barriers, 93.3% educated HCWs about CDC annual vaccination recommendations, 86.6% provided education to let workers know the vaccine cannot cause influenza, and 86.3% offered the vaccine as soon as it became available each year.<sup>87</sup>
- A vaccination program conducted during the 2005 and 2006 influenza seasons at St. Jude Children's Research Hospital in Memphis, Tennessee yielded 80% and 96% vaccination rates, respectively. This program included educational components, free vaccination offerings, and alerting managers of those employees in their division who had not been vaccinated. St. Jude attributed its successes to the amount of time and effort dedicated to the program, the endorsement from hospital administration, and the development of a culture of acceptance within the hospital.<sup>88</sup>

### ***Reporting and Tracking of HCW Vaccination Rates***

Voluntary tracking and public reporting of HCW influenza vaccination rates is another strategy that has recently been explored in Iowa and Maryland:

- In Iowa in 2006, a voluntary provider-based project was initiated to improve HCW influenza vaccination rates in acute care hospitals. A website was used to submit and circulate hospital-specific vaccination rates, and information was reported to participating hospitals and made publically available. Statewide median HCW vaccination rates trended upward from 73% in the first season to 93% in the fourth season. By the fourth season, 35% of hospitals had reached or exceeded a 95% vaccination rate. Additionally, over 4 years of the program, the number of healthcare facility vaccination mandates increased from 2 to 19.<sup>89</sup>
- The Maryland Health Care Commission sponsors a web-based tool for voluntary reporting of HCW seasonal influenza vaccination through the Maryland Healthcare Personnel Immunization Initiative. During the 2009-2010 influenza season the state averaged 78.1% influenza vaccination coverage of HCWs.<sup>90</sup>

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<sup>87</sup> American Medical Directors Association. Survey of Certified Medical Directors, Long Term Care Setting Influenza Education Outreach Activities. 2010. Available at: [http://www.amda.com/cmedirect/webinars/Immunization\\_12\\_10.cfm](http://www.amda.com/cmedirect/webinars/Immunization_12_10.cfm). Accessed: February 24, 2011.

<sup>88</sup> National Foundation for Infectious Diseases. Immunizing Healthcare Personnel Against Influenza: A Report on Best Practices. 2007. Available at: <http://www.nfid.org/HCWtoolkit/report.html>. Accessed February 21, 2011.

<sup>89</sup> Helms C, Polgreen P, Polgreen L, et al. Voluntary reporting of employee influenza vaccination rates by acute care hospitals in Iowa: The impact of a four year provider-based statewide performance improvement project. *Vaccine*. April 2011; 29(18):3483-3488.

<sup>90</sup> Maryland Health Care Commission. Healthcare-Associated Infections: Health Care Worker Seasonal Influenza Vaccinations. Available at: [http://mhcc.maryland.gov/consumerinfo/hospitalguide/hospital\\_guide/reports/healthcare\\_associated\\_infections/healthcare\\_associated\\_infections\\_detail.asp](http://mhcc.maryland.gov/consumerinfo/hospitalguide/hospital_guide/reports/healthcare_associated_infections/healthcare_associated_infections_detail.asp). Accessed April 1, 2011.



## **STRATEGIES GOVERNMENT AGENCIES AND PROFESSIONAL ORGANIZATIONS USE TO ENCOURAGE HCW VACCINATION:**

Federal agencies, professional organizations, and state health departments provide resources intended to encourage increased uptake of influenza vaccine among HCWs:

*The U.S. Department of Health and Human Services:*<sup>91</sup> provides a toolkit on health care worker influenza vaccination that includes the following elements:

- Memorandum from the Secretary of Health and Human Services on the importance of HCW influenza vaccination
- Presentation on recommended strategies to improve vaccination to be utilized by health care administrators
- Relevant articles on the importance of health care worker vaccination
- Posters for promoting HCW vaccination to be used by facilities
- Vaccine information statements
- Fact sheets on HCW vaccination
- Q & A sheet for HCWs

*The American Medical Directors Association:* is the professional association of medical directors, attending physicians, and others practicing in the long term care continuum.<sup>92</sup> The organization provides a DVD entitled *Influenza Immunization and the Health Care Worker*.<sup>93</sup>

*The American Society of Health System Pharmacists:* represents pharmacists who practice in hospitals, health maintenance organizations, long-term care facilities, home care, and other components of health care systems.<sup>94</sup> They provide an Immunization Campaign Toolkit that includes: planning tools; promotional tools; information tools; declination forms; and Vaccine Information Statements.<sup>95</sup>

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<sup>91</sup> U.S. Department of Health & Human Services. Health Care Personnel Initiative to Improve Influenza Vaccination and Toolkit. Available at: <http://www.hhs.gov/ophs/initiatives/vacctoolkit/index.html>. Accessed February 15, 2011.

<sup>92</sup> American Medical Directors Association. About AMDA: AMDA's Mission and History. The American Medical Directors Association Website. Available at: <http://www.amda.com/about/mission.cfm>. Accessed March 24, 2011.

<sup>93</sup> National Influenza Vaccine Summit. Information for healthcare professionals: vaccinating healthcare workers. Available at: [http://www.preventinfluenza.org/profs\\_workers.asp](http://www.preventinfluenza.org/profs_workers.asp). Accessed February 24, 2011.

<sup>94</sup> American Society of Health-system Pharmacists. ASHP: About Us. The American Society of Health-system Pharmacists Website. Available at: <http://www.ashp.org/aboutus/>. Accessed March 24, 2011.

<sup>95</sup> American Society of Health-system Pharmacists. Stop the Flu- It Starts with You! Available at: <http://www.youcanstoptheflu.com/>. Accessed February 24, 2011.

***The Association for Professionals in Infection Control and Epidemiology:***<sup>96</sup> provides the following HCW influenza immunization resources:<sup>97</sup>

- Resource materials: *Protect Your Patients. Protect Yourself*
- Influenza immunization program checklist
- Sample employee education materials
- APIC position statement on influenza vaccination
- Sample declination forms

***The Joint Commission:***<sup>98</sup> accredits and certifies health care organizations and programs in the United States. They provide the following HCW influenza immunization resources:

- Evidence based clinical guidelines
- Policies
- Documents and forms
- Educational Resources

***The National Foundation for Infectious Diseases:*** educates the public and healthcare professionals about the causes, treatment, and prevention of infectious diseases.<sup>99</sup> They provide the following HCW influenza immunization resources:<sup>100</sup>

- Best practices report
- Flu posters
- News clips

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<sup>96</sup> Association for Professionals in Infection Control and Epidemiology, Inc. About APIC. The Association for Professionals in Infection Control Website. Available at:

[http://www.apic.org/AM/Template.cfm?Section=About\\_APIC](http://www.apic.org/AM/Template.cfm?Section=About_APIC). Accessed March 24, 2011.

<sup>97</sup> Association for Professionals in Infection Control and Epidemiology, Inc. Protect Your Patients. Protect Yourself. Available at:

[http://www.apic.org/Content/NavigationMenu/PracticeGuidance/Topics/Influenza/toolkit\\_contents.htm](http://www.apic.org/Content/NavigationMenu/PracticeGuidance/Topics/Influenza/toolkit_contents.htm). Accessed February 24, 2011.

<sup>98</sup> National Influenza Vaccine Summit. Information for healthcare professionals: vaccinating healthcare workers.

Available at: [http://www.preventinfluenza.org/profs\\_workers.asp](http://www.preventinfluenza.org/profs_workers.asp). Accessed February 24, 2011.

<sup>99</sup> National Foundation for Infectious Diseases. About NFID. National Foundation for Infectious Diseases Website. Available at: <http://www.nfid.org/info/>. Accessed March 24, 2011.

<sup>100</sup> National Foundation for Infectious Diseases. Immunizing Healthcare Personnel against Influenza. Available at: <http://www.nfid.org/HCWtoolkit/#container>. Accessed February 24, 2011.

***Maryland Infectious Disease and Environmental Health Administration:*** provides resources through the *Maryland Healthcare Personnel Immunization Initiative*, a collaboration among the Maryland Department of Health and Hygiene, Maryland Partnership for Prevention and professional associations across the state. The goal of the initiative is to raise awareness locally and nationally about the importance of vaccination among health care professionals. They provide the following HCW influenza immunization resources:<sup>101</sup>

- Articles and general information about vaccine-preventable diseases and vaccination of HCWs
- Listings of Maryland hospitals with the highest HCW vaccination rates
- Examples of successful strategies for increasing vaccination among HCWs
- Facts and frequently asked questions
- Vaccine information statements
- Sample standing orders
- Sample vaccination declination forms

***Minnesota Department of Health:*** provides resources to stress the importance of HCW influenza vaccination through its *Flu Safe* program. It provides the following HCW influenza immunization resources:<sup>102</sup>

- Sample declination form
- Template for tracking HCW decline of vaccination
- Fact sheet to address employee concerns
- Information on the Live Attenuated Influenza Vaccination
- Ideas for achieving high HCW vaccination rates
- Estimation of vaccination rates across the state

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<sup>101</sup> Maryland Partnership for Prevention. Maryland Healthcare Personnel Immunization Initiative, 2010-2011 Toolkit. Available at: <http://ideha.dhmh.maryland.gov/IMMUN/maryland-healthcare-immunization-initiative.aspx>. Accessed March 24, 2011.

<sup>102</sup> Minnesota Department of Health. Flu Safe: Vaccinating Staff, Protecting Patients. The Minnesota Department of Health Website. Available at: <http://www.health.state.mn.us/divs/idepc/diseases/flu/hcp/vaccine/vaxhew/flusafe/flusafe.html>. Accessed March 24, 2011.

## SCHOOL MANDATES AS A TOOL TO INCREASE COVERAGE RATES

State laws that require vaccination as a condition for school attendance translate national recommendations into immunization practice and have increased access to vaccines.<sup>103</sup> These laws have proven to be the most effective mechanism to protect children and their families from the effects of vaccine-preventable disease. Historical and modern examination of school vaccination laws provides a context for understanding the benefits of compulsory vaccination policy when applied to the health workforce.<sup>104</sup>

School immunization laws have increased coverage rates among all children, reduced racial and ethnic disparities among school-age children and have decreased the incidence of infectious disease.<sup>105</sup><sup>106</sup> Increased access to immunizations has been documented for children who live in low-income families, for those who have been unable to establish a medical home, as well as for those who would not otherwise have access to these services.<sup>107</sup><sup>108</sup><sup>109</sup>

Immunization mandates have withstood multiple legal challenges. Courts have repeatedly affirmed a state's right to develop measures that "protect the health and safety" of its citizens<sup>110</sup> and the constitutionality of school entry requirements.<sup>111</sup>

In 1827, Boston enacted the first mandate. Students were required to be inoculated against smallpox.<sup>112</sup> By 1963, 20 states and the District of Columbia required various vaccines for school entry.<sup>113</sup> By the early 1980s, every state required students to demonstrate that they had received certain immunizations as a prerequisite for school attendance.<sup>114</sup>

However, not all states enforced the mandates with equal vigor. Outbreaks of measles in the late 1960s and early 1970s highlighted the effectiveness of school entry requirements and the need for strong enforcement.<sup>115</sup> Districts that had robust enforcement policies experienced lower

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<sup>103</sup> Stewart A. Childhood Vaccine and School Entry Laws: The Case of HPV Vaccine. Public Health Report. Nov-Dec 2008; 123(6):801-3.

<sup>104</sup> Hodge JG, Gostin, LO. School Vaccination Requirements: Historical, Social and Legal Perspectives. Available at: <http://www.publichealthlaw.net/Research/PDF/vaccine.pdf>. Accessed February 22, 2011.

<sup>105</sup> Briss PA, Rodewald LE, Hinman AR, et al. Reviews of Evidence Regarding Interventions to Improve Vaccination Coverage in Children, Adolescents, and Adults. American Journal of Preventive Medicine. January 2000; 18(1 Suppl):97-140.

<sup>106</sup> Orenstein WA, Hinman AR. The immunization system in the United States – the role of school immunization laws. Vaccine. 1999; 17(3): S19-S24.

<sup>107</sup> *Id.*

<sup>108</sup> Averhoff F, Linton L, Peddecord KM, Edwards C, Wang, W, Fishbein D. A Middle School Immunization Law Rapidly and Substantially Increases Immunization Coverage Among Adolescents. American Journal of Public Health. June 2004; 94(6):978-84.

<sup>109</sup> Wilson TR, Fishbein DB, Ellis PA. The Impact of a School Entry Law on Adolescent Immunization Rates. Journal of Adolescent Health. December 2005;37(6):511-6.

<sup>110</sup> *Jacobsen v. Massachusetts*, 197 US 11 (1905) at 25

<sup>111</sup> *Zucht v. King*, 260 US 174 (1922).

<sup>112</sup> Hodge JG, Gostin LO. School vaccination requirements: historical, social, and legal perspectives: A state of the art assessment of law and policy. Center for Law and the Public's Health. February 15, 2002.

<sup>113</sup> James Colgrove. *State of Immunity: The Politics of Vaccination in Twentieth-Century America* 176-77 (2006).

<sup>114</sup> *Id.*

<sup>115</sup> *Id.*

rates of disease than districts that had failed to employ stringent measures to facilitate compliance with the laws.

### ***Exemption Policy***

All jurisdictions include "opt-out" or exemption provisions in their laws that permit parents to refuse immunizations for their children for one of three reasons depending on the state. All states and the District of Columbia grant exemptions for medical contraindication when it can be reasonably predicted that a child would experience adverse effects from a vaccination. All states except Arizona, Mississippi, Missouri and West Virginia, grant exemptions based on a claim that a religious belief opposes vaccination. Finally, eighteen states allow exemptions based on a parent's personal, moral, or philosophical beliefs.<sup>116</sup>

Virginia and the District of Columbia have enacted HPV vaccine requirements, and have expanded opportunities for parents or guardians to refuse vaccination for their daughters. The District permits parents to decline the vaccine "for any reason".<sup>117</sup> In Virginia, at the "parent or guardian's sole discretion," he or she "may elect for their child not to receive the . . . vaccine, after having reviewed materials describing the link between [HPV] and cervical cancer."<sup>118</sup> This broad refusal right is permitted "[b]ecause [HPV] is not communicable in a school setting."<sup>119</sup>

Despite the availability of opt outs, more than 95% of all school-age children receive mandated immunizations with only approximately 2-3% of parents nationwide choosing to reject immunizations.<sup>120</sup> Some states have developed simple procedures that make exemptions easy to obtain. These states are associated with decreased coverage rates and higher incidence of disease when compared to states that have developed more difficult opt-out procedures.<sup>121</sup>

For the 2009-2010 school year, kindergarten exemption rates for 46 states and the District of Columbia varied widely by location.<sup>122</sup> Exemptions ranged from less than 1% to 6.2%, with 15 states having exemption rates of at least 3.0%.<sup>123</sup> Medical reasons were cited from less than 1% to 1.7%, while nonmedical exemptions ranged from 0.2% to 5.8%.<sup>124</sup>

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<sup>116</sup> The states that permit philosophical or moral belief exemptions are Arizona, Arkansas, California, Colorado, Idaho, Louisiana, Maine, Michigan, Minnesota, New Mexico, North Dakota, Ohio, Oklahoma, Texas, Utah, Vermont, Washington and Wisconsin.

<sup>117</sup> DC. Bill B17-30, Sec.5. (B)(iii).

<sup>118</sup> VA. §32.1-46 D3

<sup>119</sup> Stewart A. Childhood Vaccine and School Entry Laws: The Case of HPV Vaccine. Public Health Reports. Volume 123. November-December 2008. Available at: <http://www.publichealthreports.org/archives/issueopen.cfm?articleID=2124>.

<sup>120</sup> Boodman SG. More Parents Refuse to Have Their Children Immunized. Miami Herald. June 17, 2008. Available at: <http://www.miamiherald.com/living/health/story/571720.html>.; Steinhauer J. Public Health Risk Seen as Parents Reject Vaccines. N.Y. Times. March 21, 2008. Available at:

<http://www.nytimes.com/2008/03/21/us/21vaccine.html>. Accessed May 11, 2011.

<sup>121</sup> Omer SB, Pan WK, Halsey NA, et al. Nonmedical exemptions to school immunization requirements: secular trends and association of state policies with pertussis incidence. JAMA. October 2006; 296(14): 1757-1763.

<sup>122</sup> Stokley S, Stanwyck C, Avey B, Greby S. Vaccination Coverage Among Children in Kindergarten--- United States, 2009-10---School Year. MMWR. June 3, 2011; 60(21): 700-704.

<sup>123</sup> *Id.*

<sup>124</sup> *Id.*

Schools with high numbers of exemptors are associated with increased disease outbreaks and threaten herd immunity in neighboring communities.<sup>125</sup> On average, individuals claiming religious and/or philosophical exemptions are 35 times more likely to acquire measles than vaccinated individuals and a 23-fold increased risk for pertussis.<sup>126</sup> For example, each 1% increase in exemptors in a school increases the risk of a pertussis outbreak by 12%.<sup>127</sup> <sup>128</sup> <sup>129</sup> Additionally, between 2001 and 2008, the largest 3 outbreaks since the US declared measles elimination in 2000 were among personal belief exemptors.<sup>130</sup>

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<sup>125</sup> May T, Silverman RD. “Clustering of exemptions” as a collective action threat to herd immunity. *Vaccine*. March 2003; 21(11-12):1048-51.

<sup>126</sup> Salmon DA, Haber M, Gangarosa EJ, Phillips L, Smith NJ, Chen, RT. Health Consequences of Religious and Philosophical Exemptions from Immunization Laws: Individual and Societal Risk. *JAMA*. July 1999; 282(1):47-53.

<sup>127</sup> Feikin DR, Lezotte DC, Hamman RF, Salmon DA, Chen RT, Hoffman, RE. Individual and Community Risks of Measles and Pertussis Associated with Personal Exemptions to Immunization. *JAMA*. December 2000; 284(24):3145-50.

<sup>128</sup> Omer SB, Y. Pan WK, Halsey NA. Nonmedical Exemptions to School Immunization Requirements: Secular Trends and Association of State Policies with Pertussis Incidence. *JAMA*. October 2006; 296(14): 1757-1763.

<sup>129</sup> Glanz JM, McClure DL, Magid DJ, et al. Parental Refusal of Pertussis Vaccination Is Associated with an Increase Risk of Pertussis Infection in Children. *Pediatrics*. June 2009; 123(6): 1446-1451.

<sup>130</sup> Fiebelkorn AP, Redd SB, Gallagher K, et al. Measles in the United States during the postelimination Era. *Journal of Infectious Diseases*. November 2010; 202(10):1520-8.

## MANDATORY INFLUENZA VACCINATION POLICIES IN HEALTHCARE FACILITIES

In September 2004, Virginia Mason Hospital, an acute care hospital in Seattle, Washington became the first facility to implement a mandatory influenza vaccination program. All employees were required to receive seasonal influenza vaccine as a condition of employment. Only those who had a religious objection or a documented vaccine allergy were exempted from the new policy.<sup>131</sup>

Following Virginia Mason, 87 facilities in 30 states and the District of Columbia have implemented similar vaccination policies. Currently, three local health departments, Cook County Health & Hospitals System in Illinois, Garland Health Department in Texas, and RiverStone Health in Montana have HCW influenza vaccination mandates.<sup>132</sup>

Facilities that have implemented mandatory programs have realized record levels of seasonal influenza vaccination among HCWs. For example:

- Coverage rates at Virginia Mason Medical Center have been over 98.5% for HCW influenza vaccination since 2006.<sup>133</sup>
- Loyola University Health Systems in Illinois expected the rate to reach 100% vaccination coverage for the 2010-2011 influenza season.<sup>134</sup>
- In the first year of the program, St. John's Health System in Springfield, Missouri achieved a 99% coverage rate. The 1% of HCWs who did not receive the vaccination were required to wear a mask during influenza season.<sup>135</sup>
- During the 2009-2010 influenza season MedStar Health achieved 99.9% compliance with its new mandatory influenza vaccination policy.<sup>136</sup>
- In the 2009-2010 influenza season Philadelphia Children's Hospital in Pennsylvania, achieved a 99.3% vaccination rate with a mandatory vaccination policy.<sup>137</sup>

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<sup>131</sup> Rosenbaum S. When Worlds Collide: Public Health and Union Rights in Virginia Mason Hospital vs. Washington State Nurses Association. Public Health Reports. September-October 2008.

<sup>132</sup> Immunization Action Coalition. IAC's Honor Roll for Patient Safety: Institutional Mandates. Available at: <http://www.immunize.org/honor-roll/>. Accessed February 17, 2011.

<sup>133</sup> Keller DM. Hospital Reaches Near 100% Flu Vaccination Rate of Staff With Mandate. Medscape Medical News. November 8, 2010. Available at: <http://www.medscape.com/viewarticle/732085>. Accessed February 17, 2011.

<sup>134</sup> Vaccination for Seasonal Flu is Now Mandatory for Loyola Employees. Loyola Medicine. September 2, 2009. Available at:

[http://www.loyolamedicine.org/News/News\\_Releases/news\\_release\\_detail.cfm?var\\_news\\_release\\_id=973441018](http://www.loyolamedicine.org/News/News_Releases/news_release_detail.cfm?var_news_release_id=973441018).

<sup>135</sup> Belote, B. St. John's gives Nearly All of Its Workers the Flu Shot. Kspr.com. February 21, 2011. Available at: <http://www.kspr.com/news/local/kspr-st-johns-gives-nearly-every-workers-the-flu-shot-20110221,0,1025298.story>. Accessed February 17, 2011.

<sup>136</sup> Karanfil, LV, Bahner J, Hovatter J, Thomas WL. Championing Patient Safety through Mandatory Influenza Vaccination for All Healthcare Personnel and Affiliated Physicians. Infection Control and Hospital Epidemiology. April 2011; 32(4):375-9.

Table 3, shows the facilities that have implemented mandatory influenza vaccination programs. (As of June 2011)

<b>TABLE 3: Mandatory Influenza Policies</b>	
<b>State</b>	<b>Health Systems</b>
Arizona	Tuba City Regional Health Care Corporation
California	Children's Hospital of Orange County Community Hospital of Long Beach Hoag Hospital Kindred Hospital Long Beach Memorial Medical Center Miller Children's Hospital Orange Coast Memorial Medical Center Pacific Hospital of Long Beach Petaluma Valley Hospital Saddleback Memorial Medical Center Santa Rosa Memorial Hospital St. Jude Medical Center St. Joseph Health System Tri-City Medical Center UC-Davis Health System UC-Irvine Healthcare
Colorado	Boulder Community Hospital Swedish Medical Center The Children's Hospital
Connecticut	Hospital of Saint Raphael
District of Columbia	Georgetown University Hospital (MedStar Health) National Rehabilitation Hospital (MedStar Health) Washington Hospital Center (MedStar Health)
Florida	HCA-Fort Walton Beach Medical Center
Georgia	Emory Healthcare Grady Health System MCG Health
Idaho	Saint Alphonsus Regional Medical Center
Illinois	Kewanee Hospital Loyola University Health System
Indiana	The Women's Hospital
Iowa	Iowa Health-Des Moines Waverly Health
Maryland	Johns Hopkins Health System Franklin Square Hospital Center (MedStar Health) Good Samaritan Hospital (MedStar Health) Harbor Hospital (MedStar Health)

<sup>137</sup> Feemster KA, Prasad P, Smith MJ, et al. Employee designation and health care worker support of an influenza vaccine mandate at a large pediatric tertiary care hospital. *Vaccine*. 2011; 29: 1762-1769.



**TABLE 3: Mandatory Influenza Policies**

State	Health Systems
	Montgomery General Hospital (MedStar Health) St. Mary's Hospital (MedStar Health) Union Memorial Hospital (MedStar Health)
Massachusetts	Seven Hills Pediatric Center
Michigan	Battle Creek Health System Bronson Methodist Hospital Kalamazoo Center for Medical Studies Michigan State University Northern Michigan Regional Health System Saint Joseph Mercy Health System Spectrum Health Hospitals
Missouri	BJC Healthcare Capital Region Medical Center St. John's Health System
Nebraska	Creighton University Madonna Rehabilitation Hospital
New Jersey	Atlantic Health Hospitals Hackettstown Regional Medical Center St. Francis Medical Center
New York	New York Presbyterian Hospital
North Carolina	Davidson HealthCare High Point Regional Health System Johnston Health Moses Cone Health System
North Dakota	Altru Health St. Joseph's Hospital and Health Center
Ohio	Cincinnati Children's Hospital Medical Center Genesis HealthCare System TriHealth, Good Samaritan and Bethesda North Hospitals University Hospital
Oklahoma	Unity Health Center
Oregon	Cottage Gove Community Hospital
Pennsylvania	Abbingdon Memorial Hospital Children's Hospital of Philadelphia Geisinger Medical Center Hospital of the University of Pennsylvania Main Line Health System
South Carolina	AnMed Health Georgetown Hospital System Medical University of South Carolina Health
Tennessee	Wellmont Health System
Texas	Baptist Health System

<b>TABLE 3: Mandatory Influenza Policies</b>	
<b>State</b>	<b>Health Systems</b>
Virginia	Children's Hospital of The King's Daughters Health System
Washington	Pacific Medical Centers Virginia Mason Medical Center
West Virginia	Charleston Area Medical Center
Wisconsin	Aurora Health Care Lakeview Medical Center
Puerto Rico	Hospital Auxilio Mutuo
<b>SOURCE:</b> Immunization Action Coalition. IAC's Honor Roll for Patient Safety: Institutional Mandates. Available at: <a href="http://www.immunize.org/honor-roll/">http://www.immunize.org/honor-roll/</a> . Accessed June 9, 2011.	

**POSITION STATEMENTS:  
PROFESSIONAL AND GOVERNMENT ORGANIZATIONS POSITION STATEMENTS  
RELATED TO HCW INFLUENZA VACCINATION**

Several professional and government organizations have issued position statements regarding influenza vaccination of HCWs. Policies support the development of influenza vaccination programs for the workforce.

**PROFESSIONAL AND NON-PROFIT ORGANIZATIONS**

***The American Medical Association (AMA)***

The AMA's mission is to promote the art and science of medicine and the betterment of public health through leadership, excellence, integrity, and ethical behavior. The AMA aims to be an essential part of the professional life of every physician.<sup>138</sup>

The AMA supports the ideal that physicians who serve high-risk populations must be immunized against influenza in a timely and equitable manner in order to serve their patient populations, as recommended by the CDC's Advisory Committee on Immunization Practices.<sup>139</sup>

***The American Academy of Pediatrics (AAP)***

The AAP represents 60,000 pediatricians committed to the attainment of optimal physical, social, and mental health for all infants, children, adolescents and young adults.<sup>140</sup>

The AAP supports mandatory influenza vaccination of health care workers as long as there is clear medical value to the individual and the public health benefit of the mandatory intervention is clear to justify infringement upon personal rights. Further, the AAP believes this practice is ethically justified because religious and medical exceptions to the mandate are permitted.<sup>141</sup>

***The American College of Physicians (ACP)***

The ACP is a national organization of internists. ACP is the largest medical-specialty organization and second-largest physician group in the United States. ACP's mission is to

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<sup>138</sup> American Medical Association. About the American Medical Association. American Medical Association Website. Available at: <http://www.ama-assn.org/ama/pub/about-ama.page>. Accessed April 1, 2011.

<sup>139</sup> American Medical Association. H-440.873 Update on Influenza Immunization. Available at: <https://ssl3.ama-assn.org/apps/ecom/PolicyFinderForm.pl?site=www.ama-assn.org&uri=/ama1/pub/upload/mm/PolicyFinder/policyfiles/HnE/H-440.873.HTM>. Accessed March 31, 2011.

<sup>140</sup> American Academy of Pediatrics. About AAP. American Academy of Pediatrics Website. Available at: <http://www.aap.org/about.html>. Accessed April 1, 2011.

<sup>141</sup> American Academy of Pediatrics. Policy Statement-Recommendation for Mandatory Influenza Immunization of All Health Care Personnel. October 4, 2010. Available at: <http://www.aap.org/advocacy/releases/sept-flu.htm>. Accessed March 31, 2011.

enhance the quality and effectiveness of health care by fostering excellence and professionalism in the practice of medicine.<sup>142</sup>

The ACP supports the recommendation of the Advisory Committee on Immunization Practices (ACIP) that an annual influenza vaccination should be required for every health care worker with direct patient care activities, unless a medical contraindication or a religious objection exists. If health care workers invoke those exceptions, they must still fulfill their ethical obligations to patients and colleagues by avoiding direct patient care activities if influenza-like symptoms are present. In addition, those health care workers who cannot receive flu vaccines due to medical or religious contraindications should either be re-assigned to non-patient care areas during influenza season or wear a mask at all times during influenza season in the context of patient care.<sup>143</sup>

### ***The American Academy of Physician Assistants (AAPA)***

The AAPA is the professional organization representing Physician Assistants across all medical and surgical specialties in all 50 states, the District of Columbia, Guam, the armed forces, and the federal services. AAPA provides comprehensive support and advocacy for Physician Assistants so that they may provide patients with increased access to quality, cost-effective health care.<sup>144</sup>

The position of the AAPA supports practices that protect PAs from disease, and protects patients from acquiring provider-to-patient infections.<sup>145</sup>

### ***The American Nurses Associations (ANA)***

The ANA is the only full-service professional organization representing the interests of the nation's 3.1 million registered nurses. The ANA advances the nursing profession by fostering high standards of nursing practice, promoting the rights of nurses in the workplace, projecting a positive and realistic view of nursing, and by lobbying the Congress and regulatory agencies on health care issues affecting nurses and the public.<sup>146</sup>

The ANA “supports the implementation of aggressive and comprehensive influenza vaccination programs for registered nurses that aim for 100% vaccination rates, but that also provides an ‘opt-out’ with the completion of an informed declination form.”<sup>147</sup>

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<sup>142</sup> American College of Physicians. About ACP. American College of Physicians Website. Available at: [http://www.acponline.org/about\\_acp/](http://www.acponline.org/about_acp/). Accessed April 1, 2011.

<sup>143</sup> American College of Physicians. ACP Policy on Influenza Vaccination of Health Care Workers. October 3, 2007. Available at: <http://www.acponline.org/pressroom/hcw.htm>. Accessed March 31, 2011.

<sup>144</sup> American Academy of Physician Assistants. About AAPA. American Academy of Physician Assistants Website. Available at: <http://www.aapa.org/about-aapa>. Accessed April 1, 2011.

<sup>145</sup> American Academy of Physician Assistants. Immunizations in Children and Adults. 2006. Available at: <http://www.aapa.org/advocacy-and-practice-resources/clinical-issues/clinical-topics/immunizations>. Accessed March 31, 2011.

<sup>146</sup> American Nurses Association. About ANA. The American Nurses Association Website. Available at: <http://www.nursingworld.org/FunctionalMenuCategories/AboutANA.aspx>. Accessed April 1, 2011.

<sup>147</sup> American Nurses Association. Report to the Board of Directors on Seasonal Influenza Vaccination for Registered Nurses. December 8, 2006. Available at: [www.preventinfluenza.org/ANAonHCW.pdf](http://www.preventinfluenza.org/ANAonHCW.pdf). Accessed March 31, 2011.

### ***The American Pharmacists Association (APhA)***

The APhA members are recognized as essential in all patient care settings and supports optimal medication use that improves health, wellness, and quality of life. Through information, education, and advocacy APhA empowers its members to improve medication use and advance patient care by providing timely and accurate information, raising societal awareness about the role of pharmacists, providing state-of-the-art resources, educating policy makers, regulators, and the public, and creating unique opportunities for members to connect.<sup>148</sup>

The APhA supports “efforts to increase immunization rates of healthcare professionals, for the purpose of protecting patients, and urges all pharmacy personnel to receive all immunizations recommended by the CDC for healthcare workers”.<sup>149</sup>

### ***The American Society of Health-System Pharmacists (ASHP)***

ASHP is a 35,000-member national professional association that represents pharmacists who practice in hospitals, health maintenance organizations, long-term care facilities, home care, and other components of health care systems. ASHP is the only national organization of hospital and health-system pharmacists and has a long history of improving medication use and enhancing patient safety.<sup>150</sup>

The ASHP advocates that all hospitals and health systems require HCWs with direct patient care responsibilities to receive an annual influenza vaccination, except when it is contraindicated, the worker has a religious objection, or the worker signs an informed declination. Further, they encourage all hospital and health-system pharmacists to be vaccinated against influenza and encourage them to take a leading role in developing and implementing policies and procedures for vaccinating HCWs.<sup>151</sup>

### ***The Association of Professionals in Infection Control and Epidemiology (APIC)***

APIC’s mission is to improve health and patient safety by reducing risks of infection and other adverse outcomes. More than 13,000 members have primary responsibility for infection prevention, control and hospital epidemiology in healthcare settings around the globe. APIC

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<sup>148</sup> American Pharmacists Association. About APhA. The American Pharmacists Association Website. Available at: [http://www.pharmacist.com/AM/Template.cfm?Section=About\\_APha2&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=83&ContentID=19994](http://www.pharmacist.com/AM/Template.cfm?Section=About_APha2&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=83&ContentID=19994). Accessed April 5, 2011.

<sup>149</sup> American Pharmacists Association. 2007 Action of the APhA House of Delegates. March 16-19, 2007. Available at: <http://www.pharmacist.com/>. Accessed March 31, 2011.

<sup>150</sup> American Society of Health-system Pharmacists. ASHP: About Us. The American Society of Health-system Pharmacists Website. Available at: <http://www.ashp.org/aboutus/>. Accessed April 5, 2011.

<sup>151</sup> American Society of Health-system Pharmacists. Letter to Linda Slepicka, Division of Standards and Survey Methods, the Joint Commission. February 10, 2006. Available at: <http://www.youcanstoptheflu.com/resources/3665.pdf>. Accessed March 31, 2011.

advances its mission through education, research, consultation, collaboration, public policy, practice guidance and credentialing.<sup>152</sup>

The APIC recommends that hospitals, long-term care, and other facilities that employ HCWs implement a comprehensive strategy incorporating all of the recommendations for HCW influenza vaccination of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP). As part of this comprehensive strategy, APIC recommends that annual influenza vaccination be required for all HCWs with direct patient care, and an informed declination for employees that decline the vaccine.<sup>153</sup>

### ***The Infectious Disease Society of America (IDSA)***

The IDSA represents physicians, scientists and other health care professionals who specialize in infectious diseases. IDSA's purpose is to improve the health of individuals, communities, and society by promoting excellence in patient care, education, research, public health, and prevention relating to infectious diseases.<sup>154</sup>

The IDSA supports universal influenza immunization of HCWs by inpatient and outpatient healthcare facilities through mandatory vaccination programs, citing that these are the most effective means for protecting patients and HCWs alike. IDSA supports a policy where influenza vaccination is a condition of employment, unpaid service, or receipt of professional privileges, and employees who cannot be vaccinated for medical contraindications should be required to wear masks or be re-assigned away from direct patient care.<sup>155</sup>

### ***The National Foundation for Infectious Diseases (NFID)***

The NFID is a non-profit organization dedicated to educating the public and healthcare professionals about the causes, treatment and prevention of infectious diseases. NFID educates the public and health care professionals, supports research and training in infectious disease, builds coalitions, and honors scientific, public, legislative, and philanthropic contributions in infectious disease.<sup>156</sup>

The NFID believes that measures should be taken to ensure that HCWs have convenient access to influenza vaccination and that employers of HCWs need to commit resources towards

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<sup>152</sup> Association for Professionals in Infection Control, Inc. About APIC. The Association for Professionals in Infection Control, Inc. Website. Available at: [http://www.apic.org/AM/Template.cfm?Section=About\\_APIC](http://www.apic.org/AM/Template.cfm?Section=About_APIC). Accessed April 5, 2011.

<sup>153</sup> Association for Professionals in Infection Control and Epidemiology, Inc. APIC Position Paper: Influenza Immunization of Healthcare Personnel. Available at: <http://www.apic.org/AM/Template.cfm?Section=Influenza>. Accessed March 31, 2011.

<sup>154</sup> Infectious Disease Society of America. About IDSA. The Infectious Disease Society of America Website. Available at: <http://www.idsociety.org/Content.aspx?id=280>. Accessed April 5, 2011.

<sup>155</sup> Infectious Disease Society of America. IDSA Policy on Mandatory Immunization of Health Care Workers against Seasonal and Pandemic Influenza. Available at: [www.idsociety.org/redirector.aspx?id=15413](http://www.idsociety.org/redirector.aspx?id=15413). Accessed March 31, 2011.

<sup>156</sup> National Foundation for Infectious Diseases. About NFID. National Foundation for Infectious Diseases Website. Available at: <http://www.nfid.org/info/>. Accessed April 5, 2011.

institutionalizing immunization in the workplace to demonstrate that immunization is critical to employee and patient safety.<sup>157</sup>

### ***The Society for Healthcare Epidemiology of America (SHEA)***

The SHEA helps to define best practices in healthcare epidemiology worldwide and is dedicated to advancing the science and practice of healthcare epidemiology, preventing and controlling morbidity, mortality, and the cost of care linked to healthcare-associated infections. The society partners with epidemiologists, infectious disease practitioners, basic scientists, public health specialists, consumers, policymakers, and others, to achieve better healthcare outcomes.<sup>158</sup>

In order to promote safety for patients and HCWs, the SHEA endorses a policy that includes annual influenza vaccination as a condition of both initial and continued HCW employment and/or professional privileges. The requirement applies to all HCWs, without regard to direct patient care responsibilities. SHEA feels that the implementation of a vaccination requirement should be part of a multifaceted, comprehensive influenza infection control program.<sup>159</sup>

### ***The American Hospital Association (AHA)***

The AHA is the national organization that represents and serves all hospitals, health care networks, patients, and communities. AHA membership is comprised of approximately 5,000 hospitals, health care systems, networks, other providers of care and 40,000 individual members. AHA provides education for health care leaders and is a source of information on health care issues and trends. Through representation and advocacy activities, AHA ensures that members' perspectives and needs are heard and addressed in national health policy development, legislative and regulatory debates, and judicial matters.<sup>160</sup>

The AHA strongly supports the 2010 revisions to the CDC's *Updated Guidance: Prevention Strategies for Seasonal Influenza in Healthcare Settings* document, and the emphasis on annual vaccination as the most important measure to prevent seasonal influenza infection, protecting HCWs, patients, and visitors. AHA is committed to working with CDC to improve hospital HCW vaccination rates.<sup>161</sup>

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<sup>157</sup> National Foundation for Infectious Diseases. Call to Action: Influenza Immunization Among Healthcare Workers. Available at: [www.nfid.org/pdf/publications/calltoaction.pdf](http://www.nfid.org/pdf/publications/calltoaction.pdf). Accessed March 31, 2011.

<sup>158</sup> Society for Healthcare Epidemiology of America. About SHEA. Society for Healthcare Epidemiology of America Website. Available at: <http://www.shea-online.org/AboutSHEA/MissionHistory.aspx>. Accessed April 5, 2011.

<sup>159</sup> Talbot TR, Babcock H, Caplan AL, et al. Revised SHEA Position Paper: Influenza Vaccination of Healthcare Personnel. *Infection Control and Hospital Epidemiology*. October 2010; 31(10).

<sup>160</sup> American Hospital Association. About the American Hospital Association. The American Hospital Association Website. Available at: <http://www.aha.org/aha/about/index.html>. Accessed April 5, 2011.

<sup>161</sup> American Hospital Association. Letter to Julie Edelson, Influenza Coordination, Centers for Disease Control and Prevention, RE: CDC Updated Guidance: Prevention Strategies for Seasonal Influenza in Health Care Settings. July 22, 2010. Available at: [www.aha.org/aha/letter/2010/100722-cl-cdc-guidance.pdf](http://www.aha.org/aha/letter/2010/100722-cl-cdc-guidance.pdf). Accessed April 5, 2011.

### ***The American College of Occupational and Environmental Medicine (ACOEM)***

The ACOEM is the nation's largest medical society dedicated to promoting the health of workers through preventive medicine, clinical care, research, and education. Members include specialists in a variety of medical practices who develop positions and policies on vital issues relevant to the practice of preventive medicine both within and outside of the workplace.<sup>162</sup>

ACOEM supports various program elements that serve as indicators of a robust occupational influenza prevention program. These elements include staff education of signs and symptoms of flu and flu transmission, staff education in a language that workers understand, staff education at convenient times and in convenient locations, compliance rates of education reported to senior leadership, influenza vaccination provided at no charge, well-publicized vaccination, monitored vaccination rates that are reported to senior leadership, solicitation of candid feedback on the program, use of employee feedback adjust the program, infection control practices that are monitored and enforced, establish and track institutional goals for education and vaccination rates among workers and patients, and track nosocomial influenza infections.<sup>163</sup>

### ***The Joint Commission***

The Joint Commission is an independent, non-profit organization that accredits and certifies more than 18,000 health care organizations and programs in the U.S. Joint Commission accreditation and certification is recognized nationwide as a symbol of quality that reflects an organization's commitment to meeting certain performance standards. The Joint Commission aims to continuously improve health care for the public in collaboration with other stakeholders, by evaluating health care organizations and inspiring them to excel in providing safe and effective care of the highest quality and value.<sup>164</sup>

The Joint Commission requires all critical access hospitals, hospitals, and long-term care facilities have a standard specific to HCW influenza vaccination programs. This requirement means that facilities establish an annual influenza vaccination program including at a minimum staff and licensed independent practitioners. The programs must: provide access to influenza vaccination on site, educate staff and licensed independent practitioners about influenza, annually monitor vaccination rates, and implement enhancements to the program to increase participation.<sup>165</sup>

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<sup>162</sup> American College of Occupational and Environmental Medicine. ACOEM Overview. The American College of Occupational and Environmental Medicine Website. Available at: <http://www.acoem.org/aboutACOEM.aspx>. Accessed April 5, 2011.

<sup>163</sup> American College of Occupational and Environmental Medicine. Guidance Statement: Seasonal Influenza Prevention in Health Care Workers. November 17, 2008. Available at: [http://www.acoem.org/SeasonalInfluenzaPrevention\\_HealthCareWorkers.aspx](http://www.acoem.org/SeasonalInfluenzaPrevention_HealthCareWorkers.aspx). Accessed April 1, 2011.

<sup>164</sup> The Joint Commission. About the Joint Commission. The Joint Commission Website. Available at: [http://www.jointcommission.org/about\\_us/about\\_the\\_joint\\_commission\\_main.aspx](http://www.jointcommission.org/about_us/about_the_joint_commission_main.aspx). Accessed April 5, 2011.

<sup>165</sup> The Joint Commission. FAQ Page: What does my organization have to do about this year's influenza season to satisfy Joint Commission requirements?. Available at: <http://www.jointcommission.org/about/JointCommissionFaqs.aspx?CategoryId=32>. Accessed April 1, 2011.



## GOVERNMENT ORGANIZATIONS

### *The Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP)*

The Healthcare Infection Control Practices Advisory Committee (HICPAC) is a federal advisory committee comprised of external infection control experts who provide advice and guidance to the Centers for Disease Control and Prevention (CDC) and the Secretary of the Department of Health and Human Services (HHS) regarding the practice of health care infection control and strategies for surveillance, prevention, and control of health care associated infections. The primary function of the committee is to issue recommendations for preventing and controlling health care associated infections in the form of guidelines, resolutions and informal communications.<sup>166</sup>

The Advisory Committee on Immunization Practices (ACIP) consists of experts in fields associated with immunization, who have been selected by the Secretary of HHS. The ACIP provides guidance related to the control of vaccine-preventable diseases and strategies to increase the safe use of vaccines. The Committee develops written recommendations for the routine administration of vaccines to children and adults in the civilian population.<sup>167</sup>

The HICPAC and ACIP jointly recommend that all HCWs are vaccinated annually against influenza and encourage all facilities employing HCWs to provide the vaccine to their staff and use evidence-based approaches to maximize vaccination rates.<sup>168</sup>

### *The Occupational Safety and Health Administration (OSHA)*

OSHA is operated within the U.S. Department of Labor and ensures safe and healthful working conditions for working men and women. OSHA sets and enforces standards and provides training, outreach, education, and assistance.<sup>169</sup>

OSHA supports HCW influenza vaccination, as HCWs are at a high risk for contracting influenza through their exposure to high risk patients and the possibility of spreading the illness to their families and patients. OSHA supports strategies to encourage influenza vaccination of HCWs in order to increase vaccination rates, enhance HCW safety, and increase productivity.<sup>170</sup>

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<sup>166</sup> Centers for Disease Control and Prevention. Healthcare Infection Control Practices Advisory Committee (HICPAC). Available at: <http://www.cdc.gov/hicpac/>. Accessed May 24, 2011.

<sup>167</sup> Centers for Disease Control and Prevention. Advisory Committee on Immunization Practices (ACIP): About ACIP. Available at: <http://www.cdc.gov/vaccines/recs/acip/#about>. Accessed May 24, 2011.

<sup>168</sup> Pearson, ML, et al. Influenza Vaccination of Health-care Personnel: Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the Advisory Committee on Immunization Practices (ACIP). Recommendations and Reports. February 24, 2006; MMWR: 55(RR02): 1-16.

<sup>169</sup> Occupational Health and Safety Administration. About OSHA. United States Department of Labor Website. Available at: <http://www.osha.gov/about.html>. Accessed April 5, 2011.

<sup>170</sup> Occupational Health and Safety Administration. OSHA Fact Sheet: Seasonal Influenza Vaccination-Important Protection for Health Care Workers. Available at: [www.osha.gov/Publications/seasonal-flu-factsheet.pdf](http://www.osha.gov/Publications/seasonal-flu-factsheet.pdf). Accessed April 1, 2011.

## EMPLOYEE UNIONS

### *Service Employees International Union*

The SEIU represents more than 2.2 million members and is the largest healthcare union with more than 1.1 million members, including doctors, nurses, LPNs, lab technicians, nursing home workers, and home care workers.<sup>171</sup>

The SEIU opposes mandatory vaccination of health care workers. They cite that numerous myths still exist for HCWs surrounding the flu vaccination, that mandatory vaccination is not morally or ethically sound, and can have a negative impact on workers. The SEIU supports comprehensive educational programs to dispel myths and increase voluntary vaccination rates.<sup>172</sup>

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<sup>171</sup> Service Employees International Union. Our Union. Service Employees International Union Website. Available at: <http://www.seiu.org/our-union/>. Accessed May 7, 2011.

<sup>172</sup> Borwegen W. Information About Mandatory Flu Vaccine Programs. SEIU Healthcare. October 29, 2010. Available at: [www.seiu.org/flu](http://www.seiu.org/flu). Accessed March 25, 2011.

## HCW ATTITUDES AND BELIEFS TOWARD INFLUENZA VACCINATION

A literature review of health care worker attitudes and beliefs toward influenza vaccination was conducted in 2006. Of the thirty-two studies that were identified, seven barriers were commonly cited as reasons preventing HCWs from obtaining the influenza vaccine.<sup>173</sup>

1. **Fear of adverse effects.** This was the most dissuasive pressure in 17 of the studies, cited by 8-54% of HCWs across all studies.
2. **Misconception that the vaccination can cause influenza.** In the studies, 10-45% of HCWs feared getting influenza from the vaccine.
3. **Not at risk for contracting influenza.** 6-58% of HCWs expressed the feeling that they were healthy and that they had good natural defenses against influenza.
4. **Time and location of vaccine delivery was unsuitable.** This was cited by 6-59% of HCWs as a major barrier in the studies. This was the reason most commonly cited by medical house staff and students.
5. **Belief that influenza is not a serious disease.** This was demonstrated by the low response rates of 2-32% for HCW influenza vaccination.
6. **Inefficacy of the influenza vaccine.** In 18 of the studies, between 3% and 23% of HCWs, excluding physicians, considered influenza vaccine to be ineffective in preventing disease and therefore not worth having.
7. **Fear of injections.** 4-26% of HCWs cited that the fear of injections outweighs the possible benefits of obtaining influenza vaccination.

Additionally, HCWs have offered other reasons to reject the influenza vaccination:<sup>174 175</sup>

1. Reliance on homeopathic treatments
2. Belief that their own host defenses would prevent influenza
3. Lack of physician recommendation
4. Lack of free vaccinations
5. Belief that the vaccine is unnecessary for those younger than 65 years old
6. Current standing myths that the influenza vaccination is unsafe

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<sup>173</sup> Hofmann F, et al. Influenza Vaccination of Healthcare Workers: a Literature Review of Attitudes and Beliefs. Clinical and Epidemiological Study. Infection 34:6, 2006.

<sup>174</sup> US Department of Health and Human Services. HHS Action Plan to Prevent Healthcare-Associated Infections: Influenza Vaccination of Healthcare Personnel. Available at: [http://www.hhs.gov/ash/initiatives/hai/tier2\\_flu.html](http://www.hhs.gov/ash/initiatives/hai/tier2_flu.html). Accessed May 3, 2011.

<sup>175</sup> *Id* at 163.

7. Vaccination rates among hospital workers is on the rise
8. Comprehensive infection control programs are effective
9. Professional organizations reject mandatory influenza vaccination programs
10. No federal or state governmental health agency supports mandatory influenza vaccination, nor does any other country
11. The influenza vaccine may lead to a false sense of security
12. Mandatory vaccination programs and masking requirements can have a negative impact on workers

**Reasons HCWs accept the influenza vaccination:**<sup>176</sup>

1. Desire for self-protection
2. Desire to protect patients
3. Desire to protect family members
4. Previous receipt of influenza vaccine
5. Perceived effectiveness of the vaccine
6. Desire to avoid missing work
7. Peer recommendation
8. Personal physician recommendation
9. Strong worksite recommendation
10. Had contracted influenza previously
11. Belief that receiving the vaccine is a professional responsibility
12. Access to vaccination/coverage
13. Vaccinations provided free of charge
14. Belief that the benefits of vaccination outweigh the risk of side effects

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<sup>176</sup> US Department of Health and Human Services. HHS Action Plan to Prevent Healthcare-Associated Infections: Influenza Vaccination of Healthcare Personnel. Available at: [http://www.hhs.gov/ash/initiatives/hai/tier2\\_flu.html](http://www.hhs.gov/ash/initiatives/hai/tier2_flu.html). Accessed May 3, 2011.