Influenza Vaccination as a Condition of Employment for a Large Regional Health Care System

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ABSTRACT

Aurora Health Care (Aurora) is a large integrated delivery system in eastern Wisconsin/northern Illinois that serves over 1.2 million patients per year and has over 30,000 employees. Aurora adopted a policy of annual influenza vaccination as a condition of employment for all employees during May 2011, to commence with the 2011-2012 influenza season. The percentage of employees vaccinated against influenza had been below 100%—the rate recommended by the Centers for Disease Control and Prevention. The intervention increased the percentage of employees vaccinated to 97.7% in the first year of implementation, compared to 71% in 2010 ($P < 0.00001$). No medical or economic reactions to this intervention were determined to be unmanageable. Aurora recommends that health systems that currently fail to achieve 90% employee influenza vaccination rates adopt a similar process.

BACKGROUND

Influenza vaccination of health care workers (HCWs) has been shown to protect patients against influenza virus infection and decrease influenza-related morbidity and mortality.[1]

HCWs are vulnerable to influenza virus infection and often serve as potential sources of influenza virus for their patients.[2] Many instances of in-hospital influenza outbreaks have been associated with unvaccinated HCWs,[3] and HCWs frequently continue to work despite being ill.[4]

HCWs represent a vital resource in times of increased demand for health care services. The Centers for Disease Control and Prevention (CDC) has recommended influenza vaccination for all HCWs since 1981.[5] The largest barrier to vaccination repeatedly has been shown to be HCWs' perceived misinformation and purported inconvenience.[5]

Since 1996, Aurora has conducted an annual HCW influenza vaccination program that involves a complex year-round partnership between the system's divisions of care management, employee health, pharmacy and logistics, information services, and communications. The multifaceted program includes decentralized distribution of vaccine, free vaccine administration, vaccination advocates, visible administrative support, and educational programs. In 2005, the system adopted a program of vaccination or active declination designed to counter misinformation related to vaccination. This was associated with a modest increase in vaccination coverage among HCWs from 2005 to 2010 (Figure 1).

In response to the early phase of the 2009 H1N1 influenza pandemic, the Infectious Diseases Society of America issued a statement supporting both seasonal and H1N1 vaccine mandates by health care institutions to protect patients against transmission of the influenza virus.[6] In November 2009, the National Patient Safety Foundation also issued a position statement supporting mandatory influenza vaccination for HCWs as a means to protect patients, fellow HCWs, and the community.[7]

Multiple health care systems throughout the United States have adopted mandatory influenza vaccination programs as a condition of employment. BJC Healthcare, a large Midwestern health care organization similar in size and revenue to Aurora, instituted a mandatory influenza vaccination program after failing to achieve an 80% vaccination rate. In the program's first year (2008-2009), the organization reported a HCW influenza vaccination rate of 98.4%.[8] Surveys of HCWs have shown that the majority of HCWs support a compulsory vaccination program.[9,10]

During the 2009 H1N1 influenza pandemic, Aurora engaged in unprecedented community and internal publicity, education, and other efforts to improve HCW influenza vaccination rates; however, the seasonal vaccination rate was not significantly different from rates the prior 2 years. The H1N1

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influenza virus was the circulating strain of influenza virus in 2009; HCWs were identified as a high priority population to vaccinate; and the monovalent H1N1 vaccine was available widely by the end of that year. Still, only 41% of the system's HCWs received the vaccine. In August 2009, senior leadership reviewed the system's influenza vaccination program and the unique challenges related to the 2009 influenza pandemic. Since 2007, the existing program was performing better than the programs of many health care systems reported in the literature prior to 2006, and similar to other systems with the same processes in place. They determined it was unlikely that HCW vaccination rates would increase significantly beyond the mid-70% range without a fundamental change. Despite the publicity during the 2009 influenza pandemic, HCWs did not adhere to internal or external calls for vaccination, putting the health care workforce—and patients—at risk. Therefore, Aurora adopted the "condition of employment" strategy in 2011 as a proven and acceptable intervention to reach nearly universal influenza protection of patients and HCWs.

METHODS

The proposal for an employment-related policy was shared with senior leadership in early 2011 and subsequently approved by the board of directors. The policy required annual influenza vaccination or an approved exemption for all employed persons both with and without direct patient contact, contracted providers, students, and volunteers ("employees") by December 31 each year. Exemptions were allowed for specific medical and religious reasons. An exemption review committee was created with members representing medicine, care management, employee health, human resources, organizational development, and legal. Medical exemptions required physician documentation of contraindications to current CDC influenza vaccination recommendations. Religious exemptions required evidence of a religious or ethical conviction that met the requirements of Title VII of the Civil Rights Act of 1964. Broad communications began immediately thereafter and continued periodically throughout the fall influenza vaccination season, emphasizing the requirement as a patient safety intervention.

Influenza vaccinations began in September 2011 and were recorded daily in the employee health database. Medical and religious exemption requests were accepted beginning August 16, and the review team met biweekly through the remainder of the vaccination season. Employee applicants or certifying physicians were contacted if further information was required to make an exemption determination. Review team determinations were shared with applicants beginning in November and recorded in the employee health database.

Managers were responsible for monitoring the vaccination/exemption status of employees in their department. Employees who were deficient in either vaccination documentation or exemption approval were notified in early December. Employees who did not have documentation of influenza vaccination or approved exemption were not scheduled to work after January 1, 2012.

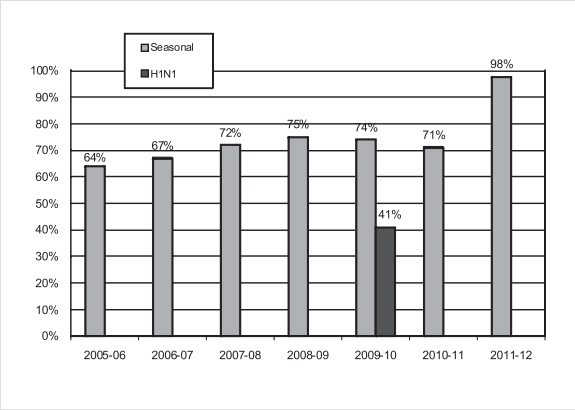

Figure 1. Percentage of employees receiving influenza vaccination during the 2005-6 through 2011-12 seasons Aurora Health Care

Table 1. 2011 Influenza Vaccination Results

	No. of HCWs	% of HCWs
Received vaccine	29,355	97.7%
Medical exemption	460	1.5%
Religious exemption	39	0.13%
Leave of absence	153	0.51%
Termination	41	0.14%
Total	**30,048**	**100%**

Abbreviations: HCW, health care workers

RESULTS

In the first year of the "condition of employment" policy, 29,355 (97.7%) of 30,048 employees received influenza vaccine (Table 1). This was significantly greater than the 71% vaccination rate of the 2010 season (χ^2 $P < 0.00001$) (Figure 1). Influenza vaccinations began the first week of October. The increase in vaccination rate was apparent by week 2 of the vaccination period (Figure 2).

There were a total of 637 exemption requests: 546 medical requests and 91 religious requests. Of these, 460 (1.5%) medical waivers and 39 (0.13%) religious waivers were accepted (Table 2). Additionally, 153 HCWs on a leave of absence or disability during the vaccination period were expected to show evidence of influenza vaccination prior to returning to work.

The voluntary resignation of 2 full-time and 9 part-time

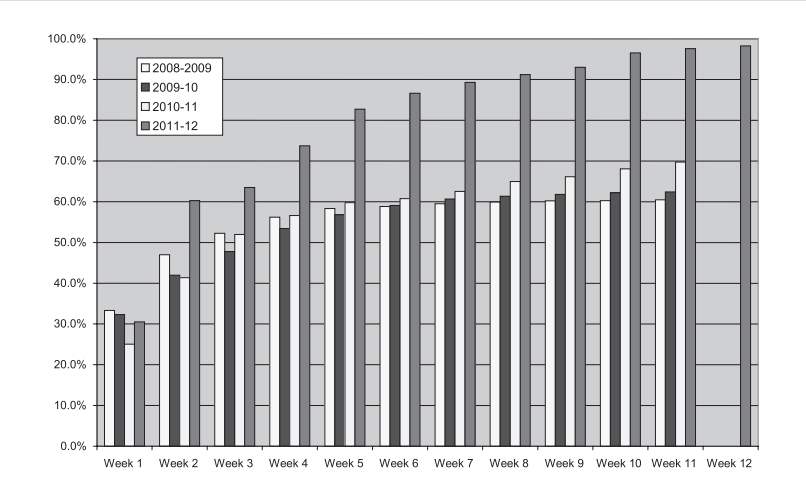

Figure 2, Percentage of employees receiving influenza vaccination by week during the vaccination period 2008-09 through 2011-12 seasons at Aurora Health Care.
Week 1=first week of October

Table 2. 2011 Influenza Vaccination Exemption Rates

	Exemptions	
	Approved	**Rejected**
Total (N= 637)	**499 (78%)**	**138 (22%)**
Medical (n=546)	460 (84%)	86 (16%)
Egg allergy	129	
Vaccine reaction	211	
Gullian Barre Syndrome / neurologic	70	
Other	50	
Religious (n= 91)	39 (43%)	52 (57%)

HCWs was attributed to the vaccination requirement. In addition to full- and part-time employment categories, the system uses the category "zero assigned hours," which refers to HCWs who may be requested to work in times of increased patient volume. The resignation of 30 "zero assigned" HCWs was attributed to the requirement.

DISCUSSION

The adoption of an influenza vaccination policy as a condition of employment was a successful patient safety intervention for the system. The processes employed, and the results achieved are similar to those reported by BJC Healthcare.[9]

Secondary objectives included the implementation of medical exemption processes to maximize HCW safety and religious exemption processes to support the organization's value of respecting diversity. The religious exemption process required the HCW to submit a statement describing how influenza vaccination would violate one's deep-seated belief system, and participate in a telephone interview if the exemption review team felt more information was necessary to make a determination. Legal counsel assisted the review team in developing standardized interview questions and criteria, which provided a consistent defensible framework.

Another secondary objective was to minimize any disruption of patient service through HCW dissatisfaction or influenza-related illness.

Many important questions related to these secondary objectives could not be measured due to limitations in the existing data systems. Adverse events related to vaccination and workers compensation are tracked in a single employee health database. There were 15 influenza vaccination workers compensation claims filed in 2011. The database does not allow a direct comparison to influenza vaccination-related workers compensation claims the previous year. One hospitalization occurred following vaccination of a HCW who had not been vaccinated before, and had not completed a request for an exemption. An independent medical examination opined that the vaccination was not a causal factor.

Minor adverse events were those that did not result in any lost working time or need for medical treatment. A formal analysis of the incidence of minor adverse events was not carried out. An informal assessment suggests a modest increase in the number of minor adverse events, due in part to a larger number of HCWs vaccinated and the heightened visibility of the mandatory program.

Service disruption to patients did not occur. Employed physicians and other clinicians were subject to the same requirement. The 1 union representing nursing was involved early in planning and was an effective and supportive partner. We strongly recommend that union representation participate throughout the process. Of the 11 regularly scheduled HCWs who resigned, 6 had requested exemptions. One of the 9 part-time HCWs who resigned already had submitted a resignation to take a position in early 2012 with a different employer, and one received the influenza vaccine in late December but chose to resign nonetheless. The 30 HCWs who were in the category of "zero assigned hours" were available to work only on an "as-needed" basis, and may not have worked for the organization in the recent past. Only 4 HCWs in this category requested an exemption.

Aurora has a formal process for measuring HCW job satisfaction, but the process did not include questions about the

vaccination policy. Positive and negative informal feedback was received from HCWs in the form of e-mail, letters, and flyers. The authors responded individually to those who provided feedback. The corporate communications department managed inquiries from local news media to emphasize the patient safety message, and to address concerns related to individual autonomy and vaccine related misinformation.

The organization did not have a means to measure HCW absence due to acute illness. The 2011-2012 influenza season in Wisconsin was mild.[11] Had such a measure of HCW absence existed, it is not believed that any difference would be seen.

Senior leadership support was critical to the program's success and its continuation. Policy modifications are being considered for 2012-2013. It proved challenging to evaluate late exemption requests over the holidays and meet the December 31 deadline. A November 15 date for vaccination has been proposed. The existing policy does not include 1072 nonemployed physician and advanced practitioners working in the system's facilities. Expanding the scope to include these clinicians is being explored.

Adoption of a similar process among health care systems that fail to achieve 90% employee vaccination rates has been proposed by the National Vaccine Advisory Committee. Such a program would have the greatest impact during severe influenza seasons, which disproportionally affect HCWs who must be available to serve the public.

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