

Will carrots or sticks raise influenza immunization rates of health care personnel?

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New Joint Commission on the Accreditation of Healthcare Organizations standards require health care organizations to implement staff influenza immunization programs and track employee immunization rates. Although the Centers for Disease Control and Prevention have recommended influenza immunizations for health care workers since 1981, employee vaccination rates have stagnated at 30% to 40% for several years. With the recent attention on these low rates, some institutions have increased employee rates significantly with robust, multifaceted immunization programs. Others have attempted to require immunizations as a condition of employment. Declinations signed by those who refuse immunizations also have been proposed. This article examines recommendations for employee influenza immunizations and the evidence for effective strategies that increase coverage rates. With so much misunderstanding about the influenza immunization, robust interactive education, and onsite, easily accessible vaccination at no cost to employees—the carrots—may be more successful in increasing rates than are declinations and work exclusion—the sticks. Strong immunization programs may create the tipping point for making influenza immunizations as routine in health care as gloves. More robust staff immunization programs, evaluations of their effectiveness, surveillance of health care employee immunization rates, as well as further evidence of effectiveness of declinations and work exclusions should guide further policy formation and implementation. (*Am J Infect Control* 2007;35:1-6.)

A new Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) standard, effective January 2007, requires health care organizations to implement staff influenza immunization programs and track employee immunization rates.¹ Health care organizations' decision makers are challenged to implement programs, policies, and procedures that will yield high coverage rates. This paper examines the relationship between health care personnel (HCP) influenza immunizations and patient morbidity and mortality, recommendations for HCP influenza immunizations, evidence-based strategies for improving immunization uptake through education and easily accessible vaccination (the carrots), and the potential impact of requiring employees to receive influenza immunizations (the sticks).

INFLUENZA IMMUNIZATION, PATIENT ILLNESS, AND MORTALITY

The most commonly cited rationale for HCP influenza immunization is to reduce influenza illness and related complications in HCP and their patients.²⁻⁶ The ability of influenza immunizations to prevent influenza-like illness in recipients, especially when the vaccine and circulating viruses are well matched, has been well documented.³ Studies have examined the relationship between health care staff influenza immunization and influenza-related morbidity and mortality among patients, with inconsistent results. Low staff influenza immunization rates were linked with influenza outbreaks in hospitals and nursing homes in multiple studies.^{2-5,7-9} Potter et al⁹ found vaccination of HCP was associated with a 43% lower incidence of influenza-like illness and a 44% lower mortality among facility residents. Carman et al⁸ found that HCP immunization rates were associated with a decreased patient mortality from influenza-like illness, but yielded no difference in influenza infection rates. In contrast, another study found that staff and resident immunization rates jointly, but not independently, predicted the likelihood of an influenza outbreak in nursing homes; however, higher immunization rates were not associated with lower rates of hospitalization or deaths.¹⁰ A Cochrane Database Systematic Review looked at the

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Table I. Organizations’ recommendations to increase influenza immunization rates among HCP

Organization	Position overview	Require of employees	Require of employers	Declinations	Work exclusion	Payer for immunization	Monitor HCP immunization rates	Rationale
Association of Professionals in Infection Control (APIC) ⁸	Written policies for employee influenza immunization with robust programs including education, reduced barriers and facilitated processes. Track iatrogenic influenza and HCP immunization rates	—	Yes	—	—	Employer	Yes	“Infection control professional can play an integral role in improving HCP influenza vaccination rates, thereby reducing institutional outbreaks”
National Foundation for Infectious Diseases (NFID) ⁴	Employers need to commit resources toward institutionalizing immunizations in the workplace	—	—	—	—	Employer	Yes	Need to increase demand, enhance access, reduce provider barriers. No single strategy is sufficient
Society of Healthcare Epidemiology of America (SHEA) ¹¹	Targeted annual education for HCP, influenza immunization at no cost to HCP at convenient times and locations, signed declinations, and surveillance of immunization uptake and health care associated influenza	—	Yes	Yes	—	Employer	Yes	Staff nonimmunization is associated with patient infections. Protect patients, HCP, and families of HCP. Vaccine is safe
Healthcare Infection Control Practices Advisory Committee (HICPAC) and Advisory Committee on Immunization Practices (ACIP) ²	Educate HCP, offer vaccine annually at no cost to HCP, use evidence-based strategies such as mobile carts, offerings during all shifts. Monitor HCP immunization rates	—	Yes	Yes	—	Employer	Yes	“Vaccination of HCP is important component of influenza prevention programs, reducing transmission of influenza in health care settings, staff illness and absenteeism and influenza-related morbidity and mortality among (high risk) persons.”
American College of Occupational and Environmental Medicine (ACOEM) ¹³	Education, easily accessible free vaccinations. Opposes mandatory immunizations	No	—	Opposes	Opposes	Employer	—	Vaccine’s variable effectiveness, need for other controls, employee-employer relationship
American Society of Health System Pharmacists (ASHP) ¹⁴	Advocates that hospitals and health systems require HCP receive annual influenza immunization. Encourages policies, procedures, education of HCP	Yes	—	Yes	—	—	—	Voluntary policies not effective. MMR and varicella requirements have been effective

Table I. Continued

Organization	Position overview	Require of employees	Require of employers	Declinations	Work exclusion	Payer for immunization	Monitor HCP immunization rates	Rationale
Joint Commission Accreditation of Healthcare Organizations (JCAHO) ¹	"[T]o establish an annual influenza vaccination program ...; provide access to influenza vaccinations on-site; educate (HCP) about flu vaccination; ... annually evaluate vaccination rates and reasons for non-participation in the ... immunization program"	—	Yes	—	—	—	Yes	Preventing the spread of the flu protects patients and saves lives. Encouraging health care workers to be vaccinated can play a vital role in stopping the transmission

effects of HCP influenza immunization on the incidence of influenza and its complications on elderly residents in long-term facilities. The authors concluded, "There is no high quality evidence that vaccinating (HCP) reduced the incidence of influenza or its complications in the elderly in institutions.... Both the elderly in institutions and the (HCP) who care for them could be vaccinated for their own protection, but an incremental benefit of vaccinating (HCP) for the benefit of the elderly cannot be proven without better studies."¹¹

Hence, research does not yet provide unequivocal evidence of a patient benefit from HCP influenza immunization. Nonetheless, with the seriousness of the disease, especially among those with other health problems, and low risks of immunization, HCP influenza immunizations have been recommended for more than 25 years.¹²

RECOMMENDATIONS AND REQUIREMENTS

The Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), charged with developing national immunization guidelines, recommended that all HCP be immunized for influenza in 1981.¹² Health care staff immunization rates have stagnated around 40 % for several years.² The CDC's ACIP, with the Health Care Infection Control Practice Advisory Committee (HICPAC), revised the HCP recommendations in February 2006, calling for institutions to implement proactive influenza vaccination and infection control programs.²

Between 2004 and 2006, several organizations, in addition to ACIP and JCAHO, issued recommendations for health care organizations to have programs and policies in place to increase HCP influenza immunization

rates (Table 1).^{1,2,4-6,13,14} All call for more HCP education on the need for influenza immunizations and for influenza vaccination programs. At least 5 organizations recommend that immunizations be provided without cost to HCP. Four groups and JCAHO call for monitoring HCP immunization rates. The Association of Professionals in Infection Control (APIC) and the Society of Healthcare Epidemiology of America (SHEA) recommend tracking health care-acquired influenza cases among patients as well. SHEA, HICPAC/ACIP, and American Society of Health System Pharmacists (AHP) call for signed statements (declinations) by HCP who refuse to be immunized in the absence of a medical contraindication. One group, AHP, recommends requiring employees to be immunized as a condition of work. Requiring influenza immunizations as a condition of employment also was suggested in at least one frequently cited paper.¹⁵

The American College of Occupational and Environmental Medicine (ACOEM) raises concerns that mandatory influenza vaccination for HCP is not justified because of the vaccine's variable effectiveness and the ubiquitous nature of influenza in the community. Patients will continue to be exposed, regardless of HCP vaccination status. ACOEM also suggests that a coercive approach could harm the employer-employee relationship.¹³

Although recommendations can guide practice, implementation can be driven by accreditation standards, such as JCAHO, and regulatory requirements. Thirteen states have statutes that require long-term care HCP be immunized annually for influenza. These state statutes have vague language and impact, with minimal or no monitoring nor consequences for noncompliance.^{16,17}

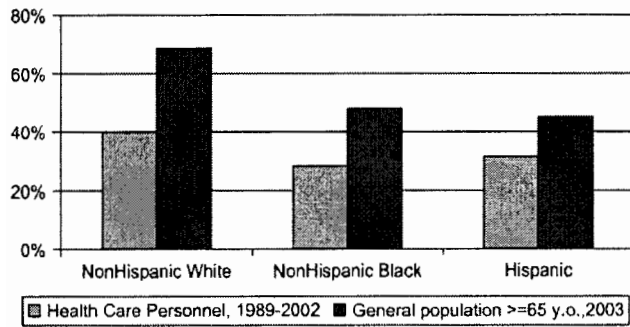


Fig 1. Influenza immunization rates, health care personnel, and seniors by race and ethnicity. Sources: Centers for Disease Control and Prevention³ and Walker et al.¹⁹

The Occupational Health and Safety Administration (OSHA) has not addressed HCP influenza immunization, because this is not in its scope of governance of occupational risks. Unlike OSHA's hepatitis B requirement, which is designed to protect employees, HCP influenza immunizations are recommended to protect patients.

In light of these recommendations, health care organizations are challenged to increase rates with effective programs that reach the full spectrum of individuals that is working in health care.

HEALTH CARE EMPLOYEES

Understanding the demographics and immunization patterns of the 12.5 million HCP in the United States can guide planning strategies and policies to increase the percentage of staff that is immunized for influenza. Forty percent of HCP work in hospitals, 22% work in long-term care, and 6% work in home health. The 2.7 million nurses, 15% of all HCP, are the largest single group working in health care. Only 3% of HCP are physicians. Most HCP are nonprofessional staff, such as food service workers, orderlies, and medical assistants. Three out of 4 do not have a college degree. Thirty percent do not have health insurance.¹⁸

HCP are ethnically and racially diverse. Overall, the health care and social services workforce is 16% black and 10% Hispanic. In hospitals, 8% are Hispanic and 15% are black. In nursing homes, 26% of employees are black and 8% are Hispanic.¹⁸

The 2003 National Health Interview Survey (NHIS) indicated that 40% of all HCP received the influenza immunization.³ An analysis of NHIS data from 1989-2002 revealed racial and ethnic differences in influenza immunization similar to those found among seniors in the general population in 2003 (Fig 1).^{3,19}

Influenza immunization also correlates with education level, which suggests the need for information

efforts that effectively reach HCP with less education. Those with some college education are more likely to be immunized (39.6%) compared with high school graduates (33.6%) and those with less than a high school education (28.3%).¹⁹

CARROTS: INCREASING AWARENESS, UNDERSTANDING, AND ACCESS

The CDC recommends that health care facilities offer influenza vaccination to all workers, including night and weekend staff, with convenient access at the work site, free of charge.² Multifaceted programs have been the most successful strategies to immunize HCP, and have increased rates to >80%.^{5,7,20-23} A study found that nursing homes that provided education alone had rates as low as did those with no interventions. Facilities that offered onsite vaccines immunized 45% of staff, whereas onsite vaccination combined with education was most successful, immunizing 53%.²⁴

Proactive multifaceted programs have not been implemented widely. Goldstein et al's²² survey of North Carolina health care institutions found only 38% had formal, written HCP vaccination policies. Fifty-two percent offered education. Vaccine was offered at no cost to employees in 69% of the facilities, although not always at times and locations that were convenient to staff.

The strategy of employer-provided education and immunizations at no cost to the employee is similar to OSHA requirements for hepatitis B immunization for employee protection. OSHA also requires the unimmunized worker to sign a declination. This has achieved >71% hepatitis B immunization coverage.²⁵

The lack of understanding and suspicion surrounding influenza immunization creates opportunity to increase coverage rates. Fear of side effects, including the belief that the influenza vaccine can cause the flu, and skepticism of influenza immunization effectiveness were associated frequently with not being immunized.^{20,26-30} Distrust rooted in the swine flu vaccine persists. Many HCP believe that good health and hand washing effectively prevent influenza and that immunizations are unnecessary.^{20,26,28} In contrast, increased immunization knowledge is linked to immunization participation. Nurses who answered 5 basic influenza vaccine questions correctly were more likely to be immunized (80%) than were the nurses who did not know the correct answers (49%).²⁶

The patient protection reason for staff influenza immunizations is not understood widely. Almost 90% of HCP in one study believed that the main benefit of influenza immunizations was to reduce employee sick leave; only 10% cited patient protection as a key benefit.²⁸ The increased publicity about the need for

health staff influenza immunizations in the past 2 years, coupled with the new ACIP recommendations and JCAHO standard, is likely to increase awareness.

Convenience facilitates immunization uptake.^{27,29,30} In one study, 90% of those who were immunized the previous year had received the vaccine at work.²⁰ In another study, 75% of registered nurses said that they had a flu shot because their employer provided it free of charge; however, unvaccinated nurses cited lack of access while working shift hours as a barrier.³⁰ The highly successful mobile carts, bringing the vaccine to the floors, not only provide easy access to vaccination, but also provide a face-to-face interaction to address employees' questions about influenza immunization.^{7,29}

Canning et al²⁸ found half of those who were not vaccinated indicated that they might be influenced to have the vaccine in the future. HCP report peer pressure could influence immunization decisions and immunized HCP were likely to recommend their co-workers be immunized.²⁰

Nursing associations, health care worker unions, and other employee representatives can be instrumental in gaining staff understanding of the value of influenza immunization, support for immunization programs, and high participation. Strategies of employer-provided education and immunizations are supported by the American Nurses Association and the Services Employees International Union.^{31,32}

STICKS: MANDATORY EMPLOYEE INFLUENZA IMMUNIZATION

While supporting employee influenza immunizations, nursing organizations and health care unions have voiced opposition to making them mandatory.^{31,32} Until thorough education and easily accessible immunizations are routine, requiring immunizations could be premature and may alienate important allies, cause large-scale staff resistance, and unintentionally reduce employee immunization rates. When Virginia Mason Medical Center in Seattle required influenza immunization of all staff, the nursing union rejected the requirement. Labor arbitration upheld the nursing union's objection to this unilateral requirement and urged bilateral negotiation.³¹ In Canada, unions' rejection of the Ontario HCP influenza immunization requirements in 1999-2000 were upheld in arbitration as violation of the employees' rights by requiring "enforced medical treatment."³² The low participation in recent smallpox vaccination programs is an example of potential impact of worker rejection of an immunization.

Some have expressed concern that education and voluntary immunizations may have a ceiling to their effectiveness and propose requiring annual influenza

immunization as a condition of continued employment.¹⁵ Rubella vaccination and annual tuberculosis testing have been required of health care staff for many years. Hepatitis B education and signed declination have been required. The rubella requirements were enacted in the 1960s on the heels of a national outbreak and in a different era of employer-employee relations. The influenza vaccination differs from these immunizations, however; it is required annually and is indicated for patient protection. Also, influenza generally is not a serious health risk to the employee on the same scale as is tuberculosis, hepatitis, or rubella. Additionally, the influenza vaccine has had variable effectiveness: as low as 52% among healthy adults in 2003 but 70% to 90% effective in healthy adults <65 years in other years.^{2,13}

ACOEM questions the value of declinations, given the lack of evidence of their effectiveness.¹³ Institutions that mandate immunization may find resources consumed with tracking exceptions. The opportunity cost of such expenditures may mean fewer resources for education and increasing access to immunizations on all shifts, at all locations. Although mandates work for school entry, only the rubella requirement has been used with adults. The existing, albeit weak, mandates for long-term care employees to have influenza immunizations have not yielded high coverage rates. The effectiveness of broader employee mandates is unknown.

Another policy strategy that has been discussed is exclusion of unimmunized personnel from work during an outbreak; however, the practicality of this option merits careful consideration. Such a policy may not generate enthusiasm for vaccination prior to an outbreak, but it may render health care institutions short staffed when an outbreak occurs.

CONCLUSION

Interactive education and free, onsite immunizations can increase immunization rates significantly. Culturally and linguistically appropriate programs have the potential to reduce the racial and ethnic gap in HCP influenza immunization. Education and immunization programs (carrots) may increase awareness and participation to a tipping point that makes influenza immunizations as routine and accepted by HCP as is wearing gloves.

Until we have more experience in implementing and evaluating multifaceted HCP influenza immunization programs, HCP requirements (sticks) are premature and counterproductive. With so much misunderstanding surrounding influenza immunization, an adversarial relationship with employees over mandated immunizations can weaken trust and decrease

immunization participation. The limited evidence of the effectiveness of declinations and of mandating annual employee influenza immunizations diminishes their value. The resources that are required to track declinations and to resist employees who oppose the requirement can detract from much needed efforts to educate employees and increase their access to the vaccines.

When we have more information and implemented robust programs, requiring immunizations may be needed or it may be unnecessary. The evidence should guide us.

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