



Review

Ethical analyses of institutional measures to increase health care worker influenza vaccination rates



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ABSTRACT

Health care worker (HCW) influenza vaccination rates are modest. This paper provides a detailed ethical analysis of the major options to increase HCW vaccination rates, comparing how major ethical theories would address the options. The main categories of interventions to raise rates include education, incentives, easy access, competition with rewards, assessment and feedback, declination, mandates with alternative infection control measures, and mandates with administrative action as consequences.

The aforementioned interventions, except mandates, arouse little ethical controversy. However, these efforts are time and work intensive and rarely achieve vaccination rates higher than about 70%. The primary concerns voiced about mandates are loss of autonomy, injustice, lack of due process, and subsuming the individual for institutional ends. Proponents of mandates argue that they are ethical based on beneficence, non-maleficence, and duty. A number of professional associations support mandates. Arguments by analogy can be made by mandates for HCW vaccination against other diseases.

The ethical systems used in the analyses include evolutionary ethics, utilitarianism, principlism (autonomy, beneficence, non-maleficence, and justice), Kantism, and altruism. Across these systems, the most commonly preferred options are easy access, assessment and feedback, declinations, and mandates with infection control measures as consequences for non-compliance.

Given the ethical imperatives of non-maleficence and beneficence, the limited success of lower intensive interventions, and the need for putting patient safety ahead of HCW convenience, mandates with additional infection control measures as consequences for non-compliance are preferred. For those who opt out of vaccination due to conscience concerns, such mandates provide a means to remain employed but not put patient safety at risk.

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1. Underlying problem, burden, and disease facts

Despite the US national Healthy People 2020 goal of 90% vaccination rates against influenza among health care workers (HCWs), actual rates are modest, reported at 67% in 2011–2012 [1]. This leads to 3 problems: First, and foremost, infected health care workers can transmit influenza to patients; indeed, influenza is highly

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contagious and can be transmitted readily by both aerosolized droplets and direct contact. HCWs often transmit influenza to co-workers and patients because they tend to work despite having febrile respiratory illness [2,3]. Transmission occurs during the incubation period prior to clinical illness and during the peak of clinical illness. Transmission is a particular concern among vulnerable patients in hospitals and long-term care institutions [4]. Such patients typically have high-risk conditions, such as chronic heart or lung disease, that can predispose to complications from influenza. Second, absenteeism due to influenza reduces the workforce and can leave institutions short-staffed, with resultant reductions in the quality and/or quantity of patient care. Third, given a universal recommendation for vaccination of all persons in the US aged 6 months or older [5], mediocre HCW vaccination rates sets a poor example for the larger population; indeed, unvaccinated HCW may be poor proponents for vaccination of patients. While many editorials and policy statements have encouraged HCW influenza vaccination and suggested strategies as mandates, detailed analyses based on systematic ethical theories are limited [6–9]. The purpose of this paper is a detailed ethical analysis of the major options to increase HCW influenza vaccination rates, comparing how major ethical theories would address the options. Given that this issue is typically faced by institutional leaders, I will use a framework used for ethical analyses in institutions, which starts with relevant facts and concludes with suggested actions [10]. Given the breadth of a review on institutional ethics, the issues of the ethics of state or federal laws or rules will not be addressed but have been reviewed elsewhere [9,11].

2. Relevant vaccination facts

Impact of influenza vaccine: A recent meta-analysis reported that inactivated influenza vaccination is 59% effective in adults [12]. Some have objected that that HCW vaccination has not been proved to significantly reduce influenza disease among hospitalized patients [13]. However, published trials of HCW influenza vaccination in long term care facilities show lower mortality among residents [14,15]. In fact, a review of 4 randomized trials showed a 5–20% reduction in overall seasonal mortality in residents of chronic care institutions where staff vaccination rates were 51–70% in intervention groups versus 3.5–32% in control groups [16]. One algorithm predicted that if all HCW in a facility were vaccinated, then about 60% of influenza infections among patients could be prevented [17].

Serious adverse effects of influenza vaccine are rare, namely anaphylaxis. The evidence is conflicting evidence exists about whether or not Guillian-Barré syndrome occurs rarely (1 in a million) in some years after influenza vaccination [18]. In 2004, influenza vaccine was added to the National Vaccine Injury Compensation Program to allow compensation for rare serious adverse effects.

Reasons given for non-vaccination: HCW avoid vaccination due to concerns about vaccine safety and efficacy, competing demands, and perception that disease risk is low [19]. Some claim philosophic or religious objection.

3. Intervention options to raise vaccination rates

Interventions to raise rates: The main categories of interventions to raise rates include education, incentives, easy access, competition with rewards, assessment and feedback, declination, mandates with alternative infection control measures, and mandates with administrative action as consequences (Table 1). The aforementioned interventions, except for mandates, can result in rates of 40–87.4% [20–25]. However, these efforts are labor-intensive and rarely able to achieve vaccination rates higher than 70% [26].

Table 1
Intervention options to raise vaccination rates with examples.

Common options for increasing HCW vaccination rates	Examples
Education	Mandatory online education, reminder emails
Incentives	Raffles, food, reduced co-insurance
Easy access	Free vaccine, vaccine available at wards at all shifts
Competition with reward	Highest unit receives a pizza party, perhaps at the expense of the loser
Assessment and feedback	Feedback of a unit's vaccination rates to management with expected corrective actions Unit vaccination thermometer using peer pressure or peer spirit
Declination form	Signed declination required in order to forgo vaccination
Mandate with alternative infection control measures	Mandate to either receive vaccine or wear a mask during influenza disease season
Mandate with administrative action as consequence	Mandate to either receive vaccine or be terminated

True mandates require vaccination and provide consequences for non-compliance which include two main types: (1) requirement for alternative infection measures, such as masking, during the influenza season when around patients or (2) administrative measures, such as termination of employment. In a national study, the change in vaccination rates in hospitals with mandates with consequences (19.5%) was nearly double that of the hospitals with mandates without consequences (11%; $P = .002$) [27]. Another team found similar findings: Miller et al. report the largest improvement in vaccination rates occurred among hospitals with mandates which terminated noncompliant HCWs (24%) and the smallest improvement (10%) among those without consequences for non-compliance [28]. Indeed, a number of hospitals that mandate HCW influenza vaccination report vaccination rates >90% [24,29–33].

4. Primary stakeholders

The primary stakeholders include patients, HCWs, HCW unions, and institutional management. Patients are stakeholders as their safety is at risk, from nosocomial infection and from potential reductions in staffing if too many are sick during the influenza season. HCWs are stakeholders as they bear any burden and the benefits of being vaccinated, the risk of influenza from infected but unvaccinated co-workers, and the risk of working in situations where staffing is limited due to high absenteeism from a local influenza outbreak. Unions represent HCW concerns and may oppose management efforts to increase vaccination rates. One reason for management concern is the current Centers for Medicare and Medicaid Services requirement for acute care hospitals to report HCW vaccination rates as part of the Hospital Inpatient Quality Reporting Program [1]. In Iowa, a statewide effort by hospital management resulted in a mean HCW influenza vaccination rate of 87% among hospitals without a policy mandating influenza vaccination [24]. The Joint Commission also has a HCW influenza vaccination performance standard [34,35]. A third reason for management concern is maintaining appropriate staffing levels during surges in patient care load during influenza outbreaks, which can be challenging if many staff are absent due to influenza.

5. Constraints

Constraints include vaccine supply, burden of measures to increase rates, national quality improvement and reporting programs, and HCW opposition. Influenza vaccine availability was

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