

While the crude post-HAI LOS and risk of death was greater for patients with HAI sepsis than patients with HAI only, the small number of HAI-sepsis cases prevented us from adjusting for the severity of illness at HAI onset. Therefore, we are unable to assess the attributable impact of HAI sepsis on post-HAI LOS and 30-day mortality. This study was conducted at a tertiary-care, academic children's hospital and may have limited generalizability. Finally, our use of retrospective data may have led to misclassification bias, which may have prevented us from assessing the precise temporal relationship between the onset of HAI symptoms and sepsis.

While HAIs were uncommonly associated with hospital-onset sepsis, additional studies are needed to define the temporal relationship between these conditions and identify potential prevention opportunities.

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Influenza Vaccination Requirements for Healthcare Personnel in U.S. Hospitals: Results of a National Survey

The Advisory Committee on Immunization Practices and Healthcare Infection Control Practices Advisory Committee recommend annual influenza vaccination for all healthcare personnel (HCP) in the United States.¹ Despite recommendations and positions of healthcare authorities, overall vaccination coverage of HCP has recently been estimated at 75.2%, with coverage exceeding 95% in settings with mandatory vaccination policies.² Vaccination coverage for HCP within the Department of Veterans Affairs (VA)—which does not have a national mandate for compulsory vaccinations³—has been estimated at roughly 55% over the past several seasons.⁴ Given the successes that mandates have had on HCP vaccination rates, we were interested in determining what proportion of U.S. hospitals, including non-federal and VA facilities, require influenza vaccination for HCP who provide patient care.

METHODS

The current study was part of an ongoing panel survey in which we asked infection preventionists across the United States what practices their hospitals are using to prevent common healthcare-associated infections.⁵ The study design, national random sampling strategy, and survey instrument

TABLE 1. Cited Reasons for Lack of Influenza Vaccination Requirement for Healthcare Personnel

Reason Cited	Non-VA	VA
	(n = 215), No. (%) ^a	(n = 76), No. (%)
Administration/HR will not mandate	48 (22.3)	0
Federal agency (cannot mandate) ^b	NA	43 (56.6)
Strongly recommended, but not mandatory	47 (21.9)	7 (9.2)
Declination policy (signed form and/or mask required)	46 (21.4)	1 (1.3)
Currently not, but will be mandated for the 2013–2014 influenza season	21 (9.8)	0
Union issues	18 (8.4)	21 (27.6)
Staff rights/concerns	16 (7.4)	3 (3.9)
State/county laws	11 (5.1)	0
Discussing potential mandate	9 (4.2)	0
Voluntary	9 (4.2)	5 (6.6)
Concerns about efficacy	3 (1.4)	0
No reason given	21 (9.8)	6 (7.9)

NOTE. VA, Department of Veterans Affairs; HR, human resources; NA, not applicable.

^aValues are expressed as No. (%) of hospitals citing reason. Cited reasons within columns do not sum to 100% because certain responding hospitals provided multiple reasons. Denominators were based on hospitals responding “No” to the following question: “Are healthcare workers at your hospital who provide patient care required to receive influenza vaccination?”

^bAlthough the VA does not have a national vaccination receipt requirement, this does not preclude individual VA facilities from instituting their own policies regarding vaccination.

have been previously described.⁵ The third wave, distributed in May 2013, included the question “Are healthcare workers at your hospital who provide patient care required to receive influenza vaccination?” Respondents answering no to this question were asked to specify the reason HCP were not required to receive the vaccination. Sampling weights based on the inverse probabilities of selection and responses were utilized to create nationally representative estimates. Descriptive statistics are reported as weighted proportions.

Institutional review board approval was obtained from the University of Michigan and the VA Ann Arbor Healthcare System.

RESULTS

The overall survey response rate for the 2013 wave was 69% (483 of 697); the non-VA hospital response rate was 71% (403 of 571) and the VA hospital response rate was 63% (80 of 126). Of 483 hospitals that responded, a total of 386 non-VA respondents (96%) and 77 VA respondents (96%) completed the survey question related to HCP influenza vaccination. Overall, 42.7% of non-VA hospitals responded that HCP are required to receive an influenza vaccination compared with only 1.3% of VA hospitals. Table 1 lists the reasons for not requiring HCP influenza vaccination. The most commonly cited reasons for non-VA hospitals were (1) that hospital administration does not mandate it, (2) that vaccination is not mandated but strongly encouraged, and (3) that declination policies were in use. The reasons most commonly cited for VA hospitals were the lack of a VA mandate and union resistance.

DISCUSSION

The Department of Health and Human Services Healthy People 2020 goal for vaccination of healthcare personnel is 90%.⁶ Findings from our study suggest that less than half of non-VA hospitals require HCP vaccination. Although essentially none of the VA hospitals require HCP vaccination, since the beginning of fiscal year 2013, VA facilities have been expected to gradually work toward the 2020 Healthy People vaccination goal for HCP.⁷ Recent estimates indicate that settings with mandatory vaccination for HCP may yield nearly 98% coverage, followed by approximately 72% coverage in settings where vaccinations are not required but are promoted and only 48% coverage in settings lacking both vaccination requirements and promotion.² Prior studies have shown significant increases in vaccination coverage following the implementation of institutional requirements, with the greatest increases in coverage found among institutions with strict consequences (including termination of employment) for unvaccinated HCP.⁸ Although mandating vaccinations leads to increased vaccination coverage of HCP, other successful strategies (eg, influenza campaigns, incentives, signed declination policies, and vaccination rates as a quality measure) have been well described.⁹

Several limitations of our study should be considered. First, although our survey question regarding HCP vaccination attempted to assess whether or not actual receipt of the vaccination was required, the question as stated lacked specific details on what “required” vaccination could entail. We acknowledge that some hospitals have influenza vaccination programs in which participation is required, but the requirement can be met by alternatives to actual vaccination receipt

(eg, signing a declination). A second, related consideration is that numerous hospitals not explicitly requiring vaccinations at the time of the survey noted that required vaccinations were going into effect for the 2013–2014 influenza season and/or that institutional influenza policies requiring declination signatures and masks were in place. As such, our reported percentage of U.S. hospitals currently requiring vaccinations is likely conservative. Third, we were unable to collect information on the extent of vaccination coverage at the respondent hospitals. Other studies, however, have addressed this question.^{2,4} Although there is likely variation in how respondent hospitals define HCP, our survey question broadly addressed this by explicitly inquiring about required vaccinations among HCP that provide direct patient care. Finally, we did not collect influenza infection rate data and were unable to demonstrate whether or not influenza rates differed by mandatory vaccination or VA status. However, current evidence strongly suggests that facilities with explicit mandates obtain the highest vaccination coverage² and achieving high vaccination coverage is viewed as an essential influenza prevention strategy.

Limitations notwithstanding, our findings suggest that opportunities remain for many healthcare organizations to consider the use of compulsory vaccination policies to increase coverage rates, while appropriately weighing and managing the moral, ethical and legal implications associated with implementing them. We acknowledge that mandated vaccinations are not a simple panacea and will continue to be met with challenges and opposition for numerous reasons. Nevertheless, mandatory vaccinations and other proven strategies to increase vaccination rates will be key as U.S. hospitals strive to reach the Healthy People 2020 goal of 90% vaccination coverage among HCP.

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