

## CONCISE COMMUNICATION

## Results of a National Survey of Infectious Diseases Specialists regarding Influenza Vaccination Programs for Healthcare Workers

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A minority of infectious diseases consultants currently work in healthcare institutions requiring influenza vaccination for healthcare workers, and in approximately half of these institutions, the healthcare workers who refuse vaccination do not face substantial consequences for their refusal. Although true mandatory policies are not common, a majority of infectious diseases consultants support such policies.

*Infect Control Hosp Epidemiol* 2010; 31(10):1063-1065

The long-term failure of voluntary policies to increase rates of healthcare worker (HCW) influenza vaccination has stimulated a debate about mandatory HCW influenza vaccination programs.<sup>1-5</sup> Since 2004, an increasing number of hospitals and healthcare facilities have introduced mandatory vaccination programs.<sup>6-8</sup> Some of these programs have resulted in vaccination coverage of more than 95%, but some mandatory policies have been challenged in court.<sup>9</sup> The purpose of our study was to describe the opinions and experiences of infectious diseases consultants regarding requirements for HCW influenza vaccination and to gauge the degree to which mandatory policies have been implemented.

### METHODS

The Infectious Diseases Society of America's Emerging Infections Network is a sentinel network of infectious diseases physicians (funded by the Centers for Disease Control and Prevention) who regularly engage in clinical activity and who volunteer to participate. The eligible study population consisted of all 1,326 members of the network. A 14-question survey<sup>10</sup> was sent via e-mail link or via fax to eligible members in December 2009. Two e-mail reminders were sent to nonresponders. All members were asked to provide information about influenza vaccination policies at the primary institution where they see patients and about their level of involvement in the HCW influenza vaccination campaign at this facility. The survey also examined the implementation of mandatory HCW influenza vaccination programs, the use of signed declination forms for those refusing vaccination, details on types of exemptions to vaccination allowed by the facility, consequences for not following the program requirements, and details regarding vaccine avail-

ability. Attitudes regarding mandatory HCW influenza vaccination programs, public reporting of institutional HCW influenza vaccination rates, and the impact of vaccine shortages and the novel H1N1 influenza A (2009 H1N1) pandemic on the vaccination program were also assessed.

Data were analyzed by use of SAS, version 9.2 (SAS Institute). The  $\chi^2$  test or the Fisher exact test was used to compare proportions between categorical variables, as appropriate.

### RESULTS

Of the 668 infectious diseases specialists who responded (50% response rate), 460 (68.9%) were involved in the influenza vaccination program at their institutions. The majority of respondents believe that influenza vaccination should be required for all HCWs (89% agree or strongly agree) and that HCWs refusing vaccination should be required to sign a declination statement (89% agree or strongly agree). Seventy-four percent agreed or strongly agreed that institutional HCW influenza vaccination rates should be reported publicly as a measure of patient safety.

Only 211 (37%) of 575 respondents reported that their healthcare institutions required influenza vaccination of HCWs. Of the 364 hospitals that did not require vaccination, the majority (186 [51%]) were either considering or attempting such a requirement. Of the 211 hospitals that required vaccination of HCWs, 193 (91%) allowed exceptions. Common exceptions in facilities requiring vaccination included medical contraindication (162 hospitals [84%]), religious beliefs (90 hospitals [47%]), and personal beliefs (71 hospitals [37%]). In addition, the consequences for refusing vaccination varied among hospitals (Table 1).

Of the 289 hospitals that required declination forms to be signed by HCWs refusing vaccination, the consequences for refusing to sign these forms were reported by 227 respondents: 123 (54%) reported no consequences; 49 (22%) were unsure that consequences existed; 20 (9%) reported job termination or stated that their facility did not allow HCWs to work until they signed the form; 7 (3%) required HCWs to get educated about influenza vaccination; 7 (3%) required HCWs to wear masks during patient care; and 4 (2%) reported that job evaluations were affected. Of the 211 hospitals that required vaccination, 34 (16%) did not provide free vaccination to their independent physicians, and 28 (13%) did not provide free vaccination to healthcare students. Of 575 healthcare institutions, 164 (29%) reported resistance to their respective vaccination programs from the following groups: administrators (10%), vaccination program personnel (5%), individual HCWs (76%), and HCW organizations (eg, unions [35%]).

TABLE 1. Data on Presence of Institutional Requirements for Influenza Vaccination of Healthcare Workers and Consequences for Refusing Vaccination, Collected from a Survey Sent to Infectious Diseases Specialists in December 2009

Survey data	No. (%) of hospitals ( <i>n</i> = 575)
No institutional requirement present	364 (63)
Institutional requirement present	211 (37)
Consequences <sup>a</sup>	
None	15 (7)
Required to sign declination form	129 (63)
Required risk assessment	14 (7)
Required to wear mask during patient care	82 (40)
Required job reassignment	14 (7)
Required job termination	26 (13)

<sup>a</sup> Answered by 205 of the 211 hospitals that reported an institutional requirement for influenza vaccination of healthcare workers. The total adds to more than 100%, because respondents could select all responses that apply.

Respondents were also asked about the level of seasonal vaccine shortage and associated disruptions of their hospital's vaccination campaign. They reported varying degrees of shortages (Table 2). Finally, in an open-text comment field, 99 respondents reported an increased demand for vaccine or improved rates of vaccination as a result of the 2009 H1N1 pandemic. Ten members reported increased compliance with seasonal influenza vaccination but poor compliance with 2009 H1N1 vaccination. Sixty-six members reported that vaccine shortages impeded their ability to vaccinate employees and to mandate vaccination. However, 27 members reported increased staff awareness and interest in influenza vaccination related to the 2009 H1N1 pandemic.

## DISCUSSION

We found that a minority of infectious diseases consultants work in healthcare institutions that require influenza vaccination for HCWs. Even in institutions that require vaccination, approximately half reported no substantial consequences for HCWs who refused vaccination. Although true mandatory policies are not widespread, we found that a majority of infectious diseases consultants believe that influenza vaccination of all HCWs should be required and that HCWs should be required to sign a declination statement if they refuse vaccination.

In recent successful examples of mandatory HCW influenza vaccination policies, annual seasonal vaccination has been made a condition of employment with few exceptions allowed. Recently, the Hospital Corporation of America achieved a vaccination rate of more than 95% in a system composed of 163 hospitals, 112 outpatient centers, and 368 physician practices employing 140,599 HCWs.<sup>11</sup> Our report will most likely increase interest in mandatory HCW vac-

ination programs. Indeed, the Infectious Diseases Society of America now formally recommends a mandatory approach to seasonal influenza vaccination for HCWs.

We found it interesting that, among the "mandatory" programs, only a minority had significant consequences for employees refusing vaccination. Indeed, a large majority of respondents reported that declination forms served as a "signature statement," simply noting the individual's intent to refuse vaccination. Yet, making vaccination a condition of employment has generated controversy and forced hospital administrators to reexamine priorities regarding patient safety and HCW autonomy. In some cases, HCW organizations have legally challenged mandates. Our results suggest that most resistance to mandatory programs was from individual HCWs or HCW organizations. Finally, a requirement for influenza vaccination was not significantly associated with the type of hospital (eg, university or community).

Our study has several limitations. Although our response rate was high and although the results represent physician responses from 47 states, our survey was not a population-based survey. Physicians whose healthcare institutions have mandated vaccination programs or are interested in mandating vaccination might have been more likely to respond, resulting in an overestimation of the frequency of such programs. We used the individual respondent as the unit of analysis and not the institution, so multiple respondents from a single institution could have biased our results. However, we estimate that these respondents represent 450 unique hospitals.

The inability to achieve desired vaccination coverage of HCWs through voluntary approaches and interventions, along with the recently reported successes of mandatory programs, has increased enthusiasm for mandatory approaches. In fact, a majority of the physicians in our survey responded that their hospitals considered or attempted influenza vaccination requirements for HCWs for the past influenza season. Our results confirm another recent report from a single center indicating general support for mandatory vaccination

TABLE 2. Data on Seasonal Vaccine Shortages and Associated Disruptions of Vaccination Campaigns, Collected from a Survey Sent to Infectious Diseases Specialists in December 2009

Survey data	Proportion (%) of respondents	
	Seasonal vaccine	H1N1 vaccine
Level of vaccine shortage		
None	145/573 (25)	54/565 (10)
Minor	220/573 (38)	130/565 (23)
Considerable	148/573 (26)	227/565 (40)
Very significant	60/573 (10)	154/565 (27)
Level of disruption to vaccine campaign <sup>a</sup>		
Major	93/208 (45)	224/381 (59)
Some or minor	110/208 (53)	145/381 (38)

<sup>a</sup> As reported by respondents with considerable or very significant shortages of vaccine.

among HCWs.<sup>11</sup> However, given that the meaning of “mandatory” appears to have different interpretations in different institutions, the success of mandatory influenza vaccination programs may depend largely on the enforcement mechanisms implemented and the consequences for HCWs refusing influenza vaccination.

#### ACKNOWLEDGMENTS

*Financial support.* Centers for Disease Control and Prevention (cooperative agreement U50 CCU112346).

*Potential conflicts of interest.* T.R.T. reports that he and his spouse have received research support from Sanofi Pasteur, that his spouse has received research support from Wyeth and VaxxInate, and that he has been a speaker for QuantiaMD and a consultant for Joint Commission Resources. All other authors report no conflicts of interest relevant to this article.

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Received May 23, 2010; accepted July 15, 2010; electronically published August 30, 2010.

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

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#### REFERENCES

1. Issacs D, Leask J. Should influenza immunisation be mandatory for healthcare workers? No. *BMJ* 2008;337:a2140.
2. Helms CM, Polgreen PM. Should influenza immunisation be mandatory for healthcare workers? Yes. *BMJ* 2008;337:a2142.
3. Hoffmann CJ, Perl TM. The next battleground for patient safety: influenza immunization of healthcare workers. *Infect Control Hosp Epidemiol* 2005;26:850–851.
4. Mah CL. What’s public? What’s private? Policy trade-offs and the debate over mandatory annual influenza vaccination for health care workers. *Can J Public Health* 2008;99:192–194.
5. Poland GA. Valuing influenza vaccine: medical, economic, and social benefits. *Clin Infect Dis* 2009;48:299–301.
6. Hagar BA. 2007 national influenza vaccine summit immunization excellence awards. Virginia Mason Medical Center’s mandatory vaccination campaign. April 20, 2007. Flu summit. Atlanta, Georgia. [http://www.preventinfluenza.org/summits/2007/Session\\_Four/Hagar\\_2007.pdf](http://www.preventinfluenza.org/summits/2007/Session_Four/Hagar_2007.pdf). Accessed April 23, 2010.
7. Cormier SB, Septimus EJ, Moody JA, Hickok JD, Perlin JB. Implementation of a successful seasonal influenza vaccine strategy in a large health-care system. In: *Programs and abstracts of the 16th Annual Scientific Meeting of the Fifth Decennial International Conference on Healthcare-Associated Infections*. Arlington, VA: Society for Healthcare Epidemiology of America, 2010. Abstract 385.
8. Babcock HM, Gemeinhart N, Jones M, Dunagan WC, Woeltje KF. Mandatory influenza vaccination of health care workers: translating policy to practice. *Clin Infect Dis* 2010;50:459–464.
9. Stewart AM. Mandatory vaccination of healthcare workers. *N Engl J Med* 2009;361:2015–2017.
10. Infectious Diseases of Society of America Emerging Infections Network (EIN) query: influenza vaccination programs 2009–2010: requirements and declines. [http://www.int-med.uiowa.edu/research/ein/Mandatory\\_fluvaccine\\_query.pdf](http://www.int-med.uiowa.edu/research/ein/Mandatory_fluvaccine_query.pdf). Accessed August 16, 2010.
11. Douville LE, Myers A, Jackson MA, Lantos JD. Health care worker knowledge, attitudes, and beliefs regarding mandatory influenza vaccination. *Arch Pediatr Adolesc Med* 2010;164(1):33–37.