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Qualitative evaluation of Rhode Island's healthcare worker influenza vaccination regulations

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Abstract

Objective—To evaluate Rhode Island's revised vaccination regulations requiring healthcare workers (HCWs) to receive annual influenza vaccination or wear a mask during patient care when influenza is widespread.

Design—Semi-structured telephone interviews conducted in a random sample of healthcare facilities.

Setting—Rhode Island healthcare facilities covered by the HCW regulations, including hospitals, nursing homes, community health centers, nursing service agencies, and home nursing care providers.

Participants Staff responsible for collecting and/or reporting facility-level HCW influenza vaccination data to comply with Rhode Island HCW regulations.

Methods—Interviews were transcribed and individually coded by interviewers to identify themes; consensus on coding differences was reached through discussion. Common themes and illustrative quotes are presented.

Results—Many facilities perceived the revised regulations as extending their existing influenza vaccination policies and practices. Despite variations in implementation, nearly all facilities implemented policies that complied with the minimum requirements of the regulations. The primary barrier to implementing the HCW regulations was enforcement of masking among unvaccinated HCWs, which required timely tracking of vaccination status and additional time and effort by supervisors. Factors facilitating implementation included early and regular

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Conflict of interest statement

All authors report no conflicts of interest relevant to this article.

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communication from the state health department and facilities' ability to adapt existing influenza vaccination programs to incorporate provisions of the revised regulations.

Conclusions—Overall, facilities successfully implemented the revised HCW regulations during the 2012–2013 influenza season. Continued maintenance of the regulations is likely to reduce transmission of influenza and resulting morbidity and mortality in Rhode Island's healthcare facilities.

Keywords

Healthcare personnel; Influenza; Vaccination; Occupational health; Qualitative research

1. Introduction

For over two decades, the Advisory Committee on Immunization Practices (ACIP) has recommended healthcare workers (HCWs) receive seasonal influenza vaccination annually [1,2]. Influenza vaccination reduces influenza-like illness [3–5] and absenteeism [6,7] in HCWs. Since many HCWs work during respiratory illnesses [3,4], HCW influenza vaccination also reduces illness and death among patients [5,7,8]. Despite debate about whether evidence justifies healthcare facilities requiring HCW vaccination to protect patients [9], a recent systematic review showed good evidence that HCW influenza vaccination reduces patient mortality [10].

Nationally, over 200 healthcare facilities and systems have implemented HCW influenza vaccination requirements [11]. Sixteen states have HCW influenza vaccination requirements, although the facilities covered and requirements' scopes vary: some require employers to offer influenza vaccination to HCWs, others require signed declinations from unvaccinated HCWs [12]. Only recently have state-level requirements incorporated stricter provisions for HCWs who remain unvaccinated, such as requiring them to wear procedure masks during patient care [13–15]. County-level masking requirements have also been implemented in some places: for example, 23 local health jurisdictions in California require unvaccinated HCWs to wear masks although there is no state-level requirement [16]. State and county-level masking policies have yet to be evaluated, but individual healthcare systems and facilities have reported requiring unvaccinated HCWs to wear masks is highly effective in increasing influenza vaccination coverage [17–19].

In 2007, the Rhode Island Department of Health ("HEALTH") promulgated regulations requiring facilities licensed by HEALTH to provide influenza education and offer influenza vaccination to HCWs with direct patient contact, record vaccine declinations, and report HCW influenza vaccination coverage to HEALTH [20]. In support of these requirements, Rhode Island provides influenza vaccine at no cost to healthcare facilities for HCW vaccination. Despite these efforts, HCW influenza vaccination coverage in Rhode Island increased slowly, reaching 74% in hospitals, 55% in home healthcare agencies, and 60% in nursing homes during the 2011–2012 season [21]. In response, HEALTH's Director convened a Flu Task Force (FTF) to identify barriers to increasing Rhode Islanders' influenza vaccination, focusing particularly on HCWs. The FTF included representatives from health systems, individual healthcare facilities and providers, healthcare payers, state

chapters of provider or facility membership groups, advocacy organizations, and offices within HEALTH. After consulting with the FTF and conducting public hearings, HEALTH's Director issued a revision to Rhode Island's HCW vaccination regulations.

The revised Rules and Regulations Pertaining to Immunization, Testing, and Health Screening for Health Care Workers [15] ("the HCW regulations") require HCWs in licensed healthcare facilities either to receive annual influenza vaccination or formally decline vaccination by December 15 each year. Unvaccinated workers must wear a surgical face mask during patient contact when HEALTH's Director declares widespread influenza. Unvaccinated HCWs who fail to comply with masking face a $100 fine per violation if a complaint is filed with HEALTH, investigated, and heard by the appropriate licensing board. (The regulations do not define a penalty for facilities failing to report vaccination data to HEALTH.) The HCW regulations stipulate that ensuring compliance with the regulations is the responsibility of the facility's administrative head. The regulations define HCWs as any person temporarily or permanently employed by or at, volunteering at, or having an employment contract with a healthcare facility for whom face-to-face contact with patients is or may be routinely anticipated. The HCW regulations cover a variety of facilities, including but not limited to hospitals, community health centers, nursing homes, nursing service agencies, home nursing care providers, kidney disease treatment centers, and ambulatory surgical centers.

The revised regulations became effective October 25, 2012. On December 5, 2012, ten days before the regulation deadline, HEALTH's Director declared influenza widespread in Rhode Island [22]. To examine implementation of the HCW regulations and determine the impact of early widespread influenza circulation on implementation, HEALTH conducted a mixed-methods evaluation with the assistance of the Centers for Disease Control and Prevention (CDC). Qualitative results are presented here.

2. Methods

2.1. Participants and sampling

Semi-structured interviews were conducted in a sample of healthcare facilities subject to the HCW regulations. For the 2012–2013 influenza season, the regulations covered 271 facilities, of which 160 (59%) reported HCW influenza vaccination data to HEALTH.

Five facility types comprised the interview sampling frame: acute care hospitals, nursing homes, community health centers, nursing service agencies, and home nursing care providers. These types were targeted because they represented the largest numbers of facilities covered by the regulations. Facilities were selected for interviews in two groups based on whether they reported 2012–2013 vaccination data to HEALTH. Reporting facilities were stratified by facility type, size (two strata within each facility type based on number of employees), and reported HCW vaccination rate (above or below the median for that facility type). Participants were randomly selected from these strata. Among non-reporting facilities, participants were randomly selected without stratifying as data on number of employees and vaccination rate were unavailable.

2.2. Instruments

A standardized interview guide was adapted from instruments used in a previous evaluation of California's HCW vaccination regulations [23] and an evaluation of national HCW influenza vaccination reporting (CDC, unpublished). Additional items were included based on priorities identified by HEALTH staff involved in the evaluation. The guide included 20 items about facility HCW vaccination policies, efforts to promote HCW vaccination, interpretation and implementation of the HCW regulations including challenges and facilitators, and communication on the regulations by facilities and by HEALTH. Questions were open-ended; pre-defined probes were included to further explore participants' responses.

2.3. Data collection and analysis

Participants received a letter via e-mail signed by HEALTH's Director, describing HEALTH's effort to evaluate the HCW regulations and requesting their participation. The letter included assurances that participation was voluntary, confidential, and that responses would not be linked to respondents' identities. Subsequently, participants were contacted via e-mail or telephone to schedule and complete interviews, with 2–4 attempts made to contact each participant. Letters were sent to individuals identified by HEALTH as the primary person responsible for HCW vaccination data collection or reporting at their facility; this role was verified when participants were contacted to schedule interviews. This person was most often a member of the employee health or infection control staff or a director of nursing.

Interviews were conducted by three interviewers from JSI Research and Training Institute, Inc., a nonprofit public health research organization that provides technical assistance to public and private entities. Interviews were conducted via telephone from June 5–21, 2013 and transcribed. Two interviewers developed mutually agreed-upon coding themes for each question. Responses were coded individually by both interviewers and then reviewed jointly. Consensus on coding differences was reached through discussion. Common themes and illustrative quotes are presented.

This project was determined not to require institutional review board approval by human subjects representatives from CDC and HEALTH.

3. Results

A total of 20 facilities were selected for interviews: 15 reporting and 5 non-reporting facilities. Because several evaluation questions pertained specifically to the process of reporting HCW vaccination data and may not have been applicable to non-reporting facilities, we intentionally interviewed fewer non-reporting facilities. Of the selected facilities, 18 (90%) completed an interview, including 14 reporting and four non-reporting facilities. Interviews averaged 40 min (range: 30–45 min). Respondents had worked at their facilities for an average of 15 years (range: <1 to 37 years). We interviewed reporting and non-reporting facilities to improve representativeness of our data, but did not attempt to assess differences based on reporting status; combined results are presented below.

3.1. HCW influenza vaccination policy

The majority of facilities reported HCWs had mostly positive or compliant attitudes toward the facility's influenza vaccination policy, although about half of these noted that a small group of HCWs strongly resisted the policy:

> For the most part, I think that it was taken pretty well. We didn't get a whole lot of resistance. There were several employees that had a minor issue with it. They wanted to know why, they didn't understand. We did a little bit of education. We referred them to the Department of Health if they had further questions and everyone seemed to comply with that… (Facility P)

Less than one-quarter of facilities characterized HCW attitudes toward their policy as predominantly negative or resistant.

When asked about their facility policy for HCW influenza vaccination, most respondents reported adhering to the HCW regulations, with several explicitly referencing the regulations:

> We follow the Department of Health regulations. So whatever they recommended we followed this year. So we recommended that all staff get a flu shot. And if they did not they needed to get a medical exemption from their physician and they had to wear a mask. (Facility E)

However, respondents differed in their perceptions of whether the HCW regulations had affected their HCW influenza vaccination policy. Some respondents felt policies were similar to prior years, albeit with different consequences for non-vaccination:

> You know I don't think it has [affected it] because as I said before, we were one of the leading [facilities] in the state of Rhode Island to be very aggressive before the rules and [regulations] changed here in 2012, so we actually were in the forefront. (Facility A)

Others felt the regulations allowed them to more strongly enforce HCW influenza vaccination policies:

> Yes, it actually made our policy much stricter and actually let us put some bite into our policy because we have a union environment here […] we couldn't necessarily make a policy without union buy-in. And this way we were able to do it. (Facility B)

Facilities were approximately evenly divided between those applying the policy to all HCWs and those limiting it to HCWs with direct patient contact. Some facilities applying their vaccination policy to all HCWs cited reasons of convenience:

> We took the stand that all employees of the [healthcare] system whether they be a clerical position…away from the [facility] or someone in direct patient care [are] all healthcare workers because we just found it too hard to differentiate. (Facility B)

Others applied policies broadly due to a perception that everyone in a healthcare environment risks potential influenza exposure:

> Anyone who goes into one of our clinical sites. The way I put it to the staff is if you breathe the same air that the patients breathe, you are considered a healthcare worker… (Facility N)

Nearly all facilities that reported having non-employees (e.g. students, volunteers, contractors) included these HCWs in their influenza vaccination policy; one facility reported exempting contractors.

3.2. Promoting HCW influenza vaccination

Facilities reported using various strategies to promote influenza vaccination among HCWs, including posters, payroll reminders, in-services or educational sessions, mobile vaccination carts, walk-in vaccination, and prize drawings. Nearly all facilities reported providing influenza vaccine free of charge to HCWs. About half of facilities reported vaccine promotion strategies did not differ from prior years:

> It didn't differ much because we've always been very proactive with that… basically…I mean we had the same type of advertisement and different things. We used that same approach. (Facility H)

Facilities reporting differences mentioned increased education and greater emphasis on the need for vaccination due to the regulations:

> …We've always included the influenza vaccine as an in-service. But this year we spent a little more time explaining to them why they should have it and the use of the masks… (Facility F)

3.3. Tracking HCW influenza vaccination

Slightly over half of facilities interviewed believed their approach to tracking HCW influenza vaccination had not changed because of the regulations:

> No, nothing about measuring that, making sure that we were compliant has changed. We've been using the same process so the changes really are about the form itself, the language and the requirement to wear a mask. (Facility Q)

Facilities believing their approach had changed frequently stated HCW vaccination measurement was more thorough due to the regulations:

> …I think we were more diligent in trying to get accurate information […]. We wanted to make sure that if the Health Department did walk in at any time we could actually say yes this person had a vaccine, no this person had not… (Facility G)

Most facilities reported using paper records like vaccination consent or declination forms to gather HCW influenza vaccination data; six facilities reported using electronic systems (e.g. badge scanners or Excel databases) alone or in conjunction with paper records.

3.4. Communication of HCW regulations

All respondents felt HEALTH did a good job communicating the elements of the HCW regulations to facilities. Strategies cited included sending e-mail notifications to individual facilities and HCWs, providing information on HEALTH's website, and holding conference

calls between HEALTH staff and facilities. Several facilities mentioned public hearings held by HEALTH prior to implementing the regulations as a valuable information source. Facilities reported receiving HEALTH's declaration of widespread influenza in a timely fashion which allowed them to respond quickly.

Facilities used various strategies to communicate with HCWs about the regulations. The most commonly reported were in-services, group or individual meetings with HCWs, and mass communication to HCWs including posters, e-mail blasts, and pay-check letters. Internal web resources (intranet announcements, web-based learning) were also used for communication. Some facilities relied on a single communications strategy, but most combined multiple strategies to ensure HCWs were well-informed about facility influenza vaccination policies:

> Well, we had an in-service about it; they were notified when we had our staff meetings. We also had blast emails because of all our staff is on computer… we have monthly meetings and remind them every month during the staff meetings during flu season. (Facility R)

3.5. Implementing masking: Processes and challenges

Nearly all facilities interviewed reported masking of unvaccinated HCWs began immediately upon receipt of HEALTH's declaration of widespread influenza; one facility reported beginning the day after. Over half of facilities enforced the masking requirement by notifying HCWs' immediate supervisors of their vaccination status and the need for unvaccinated HCWs to wear masks. A few facilities provided individual education to unvaccinated HCWs:

> When we got that notice [of widespread influenza], we went to the [unvaccinated] individuals. We had supplies of masks available. We explained to them the potential consequences of not following the state regulation… (Facility M)

About half of respondents did not report any challenges to implementing masking among unvaccinated HCWs. A small number of facilities noted resistance from some HCWs:

> Just people kind of bucking the fact that they have to do it, because they would bring up things like family members could be coming in and they haven't been immunized…so a visitor could bring influenza into the building so they didn't really think it was right that they had to wear a mask and that visitors didn't. (Facility J)

A few facilities reported difficulty in monitoring HCWs who were required to wear masks:

> We have employees, not spies. So we have no idea if they were actually in compliance or not. And I'm not about to go chasing people and I don't expect the director of nurses to go out and chas[e] people […] (Facility O)

Two facilities noted HCW interaction with patients outside of patient care areas was constrained by masking:

> We did have an issue with one of the people that declined was a front desk receptionist […] when she had to open the window to talk to the patient, she was

> complaining that it was very difficult to communicate and that she scared some of the patients. (Facility P)

Most facilities stated they would not change how masking was implemented for the next influenza season, or would make changes only if the HCW regulations changed. However, one facility identified a need for updated communications to supervisors on which HCWs were required to wear masks, and one facility planned to aim for 100% vaccination coverage to avoid the need for masking.

Most respondents felt the early declaration of widespread influenza did not affect their facility because vaccination campaigns were finished prior to December 5 and few HCWs remained unvaccinated:

> By that time the majority of our people were either declined or had the vaccine… and the ones that didn't…it was addressed if they hadn't had the vaccine…or they didn't decline and they usually got the vaccine at that time… (Facility D)

One facility reported providing masks to a large number of HCWs due to delays in receiving a shipment of influenza vaccine needed to vaccinate HCWs.

4. Discussion

Overall, the facilities included in this evaluation successfully implemented the HCW regulations during the 2012–2013 influenza season. Many responding facilities perceived the regulations as extending existing influenza vaccination policies and practices rather than necessitating new processes for vaccine promotion or measurement. Most of these facilities felt HCWs accepted their influenza vaccination policies. Although some HCWs resented the state requiring vaccination or masking, respondents reported this sentiment was largely limited to HCWs who were already resistant to influenza vaccination. The primary barrier to implementing the regulations reported by facilities in this evaluation was enforcement of masking among unvaccinated HCWs, which required timely tracking of vaccination status and additional time and effort from supervisors or other HCWs.

Differences in implementing the HCW regulations were reported by facilities in this evaluation; however, nearly all of the facilities implemented policies that complied with the regulations' minimum requirements. About half of facilities interviewed applied vaccination and masking policies to all HCWs rather than only those with direct patient contact as specified in the regulations. Broad application of policies was often done for reasons of convenience, but may also have improved infection control: ACIP recommends influenza vaccination for all HCWs with risk of exposure to patients or infectious materials, which includes many facility personnel who do not directly care for patients [2]. Consistent with ACIP recommendations, the HCW regulations extend to non-employees including volunteers and contractors. All but one facility in this evaluation reported non-employee HCWs were covered by the facility's vaccination policy.

Facilities in other states that have successfully implemented masking requirements for unvaccinated HCWs have used multiple methods to facilitate identification of personnel requiring masks, including placing stickers on badges of vaccinated HCWs and providing

frequent updates on HCW vaccination status to supervisors [17–19]. In these facilities, responsibility for enforcement of masking requirements rests with managers or supervisors, similar to the Rhode Island regulations. While the level of enforcement in these facilities varied, all reported notable increases in HCW influenza vaccination following implementation of masking requirements [17–19].

Among other states with statewide laws requiring influenza vaccination of healthcare personnel, only California's law has been previously studied [23,25]. According to data reported to HEALTH, influenza vaccination coverage among employee HCWs in Rhode Island increased nearly 20 percentage points between the 2011–2012 and 2012–2013 influenza seasons [24]. By contrast, an evaluation of California's HCW influenza vaccination law found no effect on vaccination coverage [25]. This may be due to the permissiveness of California's law relative to Rhode Island's regulations: California law does not require masking of unvaccinated HCWs and does not specify penalties for noncompliance [25].

Interviews were conducted among a small number of facilities. Most respondents worked at facilities that reported HCW influenza vaccination data to HEALTH, but over 40% of facilities covered by the regulations did not report, so findings may not apply to non-reporting facilities. In order to protect the identities of participating facilities, interviews were de-identified in transcription and could not be linked to reporting status. Facility policies and practices were self-reported and not independently verified, and it was not possible to examine associations between facility policies and reported HCW influenza vaccination rates. Finally, qualitative data such as these provide rich information for hypothesis generation but cannot be used to make broad inferences about the experiences of healthcare facilities in Rhode Island.

Although the HCW regulations were released after the 2012–2013 influenza season started, most facilities in this evaluation reported being in compliance when widespread influenza was declared six weeks after the regulations' effective date. Factors that facilitated implementation included early and regular communication from HEALTH to facilities and facilities' ability to adapt existing influenza vaccination programs to incorporate provisions of the HCW regulations. In future years, HEALTH may consider providing additional guidance on strategies for facilities to use when enforcing masking among unvaccinated HCWs.

Although this qualitative evaluation cannot describe the experience of all healthcare facilities in Rhode Island, data reported to HEALTH support the idea that the HCW regulations were successfully implemented and resulted in increased influenza vaccination coverage among employee HCW in reporting facilities. Continued maintenance of the Rhode Island regulations is likely to reduce transmission of influenza and resulting morbidity and mortality in the state's healthcare facilities.

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