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Concise Communication

Healthcare personnel vaccination policies in Michigan long-term care facilities

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Abstract

Of the 461 licensed long-term care facilities (LTCFs) in Michigan, 129 responded to the first survey of LTCF healthcare personnel (HCP) immunization policies, coverage estimates, and perceived barriers to vaccination. Survey results suggest opportunities to improve HCP vaccination through polices, education, barrier removal, and HCP immunity status tracking in licensed LTCFs in Michigan.

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The Advisory Committee on Immunization Practices (ACIP) and the Centers for Disease Control and Prevention (CDC) recommend that all healthcare personnel (HCP) are vaccinated with influenza (annually), hepatitis B (HepB), tetanus, diphtheria and pertussis (Tdap), measles, mumps and rubella (MMR), and varicella to protect themselves and, potentially, their patients from serious disease.[1] The Healthcare Infection Control Practices Advisory Committee (HICPAC) additionally recommend routine assessment of employee immunity status and review of HCP vaccination policies.[1] Moreover, the CDC and HICPAC endorse a secure, computerized system to track HCP vaccination records to ensure access to HCP immunity status during an outbreak.[1] Literature is lacking on why long-term care facility (LTCF) HCP vaccination polices are limited, why LTCF HCP vaccination coverage is low, and why tracking of LTCF HCP immunity status for HCP recommended vaccines is minimal.

Methods

Survey

In total, 461 licensed LTCFs were identified from the Michigan Department of Licensing and Regulatory Affairs directory. An e-mail was sent to the LTCF administrators on January 9, 2017, with survey instructions. Follow-up e-mails were sent to nonresponders on January 17 and 19, 2017.

Data Collection

Facilities could respond for a single facility or for a facility network. Healthcare personnel were defined as all paid and unpaid persons working in healthcare with the potential for exposure to patients or to infectious materials, including bodily substances or contaminated medical supplies and equipment, environmental surfaces, and/or air.[1] The survey comprised 17 questions regarding facility demographics, HCP vaccination policies, and HCP vaccination barriers.

Analysis

Respondents that did not complete the survey beyond demographics were excluded. The numbers of HCP and residents were described with counts, median, and interquartile range (IQR). The median was used if a range was reported for the number of HCP or residents. Counts and percentages were used to describe the frequency of vaccination policies and barriers. The HCP immunization coverage estimates were characterized using median and IQR. Network respondent data were broken down to facility-level responses based on the number of sites reported; non-LTCF data were excluded.

Free-text responses for primary HCP barriers were sorted by 2 independent reviewers based on the literature[2–4] and response themes. Barrier categories included HCP misconceptions or lack of knowledge; fear; religious or personal beliefs and rights; no barrier or barrier not required; no response or unknown; and other. "Misconceptions or lack of knowledge" included HCP thinking that they would get the vaccine-preventable disease (VPD) from the vaccine, that the vaccine was not effective, that they were not at risk for VPD, and that VPD was not serious. "Fear" included fear of needles, vaccinations, and side effects. Vaccine specific and not required were included for non-influenza vaccines. If multiple barriers were indicated, the first was considered the primary barrier. Inter-rater reliability was assessed using an unweighted kappa coefficient, and differences in barrier categorization were discussed and agreed upon by the reviewers.

This study was considered exempt by the Michigan Department of Health and Human Services Institutional Review Board. All data were collected in SurveyMonkey and were then exported to Excel software (Microsoft, Redmond, WA) and SAS version 9.4 (SAS Institute, Cary, NC) for analysis.

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Results

Survey Responses

In total, 140 facilities responded to the survey; 3 network respondents increased the total number of facilities to 146. Of the network responders, 2 hospitals and an urgent-care facility were excluded. An additional 15 sites that did not fully complete the survey were excluded, resulting in responses from 129 of the 461 licensed LTCFs in Michigan (28%). The median number of HCP per facility was 142 (IQR, 96–215), and the median number of LTCF residents per facility was 89 (IQR, 65–125).

Annual influenza, HepB, and Tdap vaccines were most commonly required for employment (Table 1). Some respondents only required vaccinations for HCP with direct patient contact (Table 1). Overall, 80% of respondents strongly encouraged HepB, and 76% strongly encouraged annual influenza vaccination (Table 1). These vaccinations were also the most frequently offered on site for HCP, with 96% offering influenza vaccination and 64% offering HepB vaccination.

Furthermore, 75% of the respondents reported using paper forms to track HCP immunity status, 32% used a computer application, 23% used Michigan's immunization registry, the Michigan Care Improvement Registry (MCIR), and 3% did not track immunity status.

The most frequently reported primary barrier for annual HCP influenza vaccination was HCP misconceptions or lack of knowledge (37%). Many respondents did not report a primary barrier for HCP noninfluenza vaccinations (34%); however, the most frequently reported barriers were misconceptions or lack of knowledge (17%) and fear (13%) (Table 2). The unweighted kappa statistic for interrater reliability was 0.8, suggesting good agreement for barrier categorization.

In total, 76 respondents reported HCP annual influenza coverage, with a median of 86% (IQR, 51–98); 26 reported HCP HepB coverage, with a median of 76% (IQR, 25–100); and responses were low for the remaining HCP coverage estimates.

Discussion

Limited Policies

Similar to national estimates,[5] in our study, only 26% of respondents reported a policy requiring all HCP to receive an annual influenza vaccine; even fewer required HepB (12%), Tdap (12%), MMR (9%), and varicella (6%). Previous studies have demonstrated that HCP who are required by their employer to be vaccinated are more likely to be vaccinated than HCP without an employer requirement.[6] The high frequency of annual influenza vaccination policies highlight the need for increased awareness of HCP vaccination recommendations for noninfluenza vaccines.[8] Integrating influenza and noninfluenza HCP vaccinations into performance metrics would likely increase HCP vaccination polices, reporting, and coverage.[7]

Low Coverage

Overall, HCP in LTCF settings consistently have the lowest reported influenza vaccination rates among all HCP, with 68% coverage, nationally, during the 2016–2017 influenza season,[5] and our survey estimated LTCF flu coverage at 86% (n = 76). The 2015 national HCP coverage estimates were 64.7% for HepB[8] compared to our survey estimate of 76% (n = 26) for HepB. Coverage estimate responses were limited for the remaining HCP vaccinations, but a 2013 survey estimated all HCP Tdap coverage at 47.2% with LTCF HCP at 33.3%.[8,9] Knowledge of HCP vaccination rates is crucial in preventing transmission of VPDs.[1]

Table 2. Primary Healthcare Personnel (HCP) Vaccination Barriers as Reported by 129 Michigan Licensed Long-Term Care Facilities HCP Immunization Survey Respondents

Barrier	Influenza, No. (%)	Noninfluenza, No. (%)
Misconceptions/lack of knowledge[a]	48 (37.2)	22 (17.1)
No response/unknown	24 (18.6)	44 (34.1)
Fear[b]	21 (16.3)	17 (13.2)
Religious/personal beliefs/right	16 (12.4)	7 (5.4)
No barriers/required	11 (8.5)	3 (2.3)
Other[c]	9 (7.0)	13 (10.1)
Vaccine specific[d]	…	16 (12.4)
Not required[e]	…	7 (5.4)

[a]Includes HCP thinking they would get influenza/preventable disease (VPD) from the vaccine, that influenza/VPD vaccine was not effective, that they are not at risk for influenza/VPD, or that influenza/VPD is not serious.
[b]Includes fear of needles, vaccinations, and side effects.
[c]Examples of "other" include cost, inconvenience, or allergies.
[d]Examples of "vaccine specific" include multiple series vaccine (HepB), and specific vaccine is too expensive.
[e]Respondent reported "not required" as the primary barrier for noninfluenza vaccines.

Table 1. Healthcare Personnel (HCP) Vaccination Policies and Practices by Antigen, 129 Michigan Licensed Long-Term Care Facilities HCP Immunization Survey Responses

Survey Question[a]	Annual Influenza, No. (%)	Hepatitis B, No. (%)	MMR, No. (%)	Tdap, No. (%)	Varicella, No. (%)
All HCP are REQUIRED to receive or have documentation of receipt of vaccine as a condition of employment	33 (25.6)	15 (11.6)	12 (9.3)	15 (11.6)	8 (6.2)
Only HCP with direct patient care are REQUIRED to receive or have documentation of receipt of vaccine as a condition of employment	13 (10.1)	11 (8.5)	5 (3.9)	7 (5.4)	2 (1.6)
Vaccination strongly encouraged, but not required	98 (76.0)	104 (80.6)	24 (18.6)	28 (21.7)	25 (19.4)
Vaccine is offered on-site for HCP	124 (96.1)	82 (63.6)	9 (7.0)	16 (12.4)	7 (5.4)
HCP vaccination rates are tracked	106 (82.2)	55 (42.6)	6 (4.7)	11 (8.5)	7 (5.4)

[a]Survey responses are not mutually exclusive, respondents could select all that applied for multiple-choice questions.

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Only 23% of respondents indicated MCIR use, which allows LTCF to access and record HCP immunity status. Moreover, increased use of health level 7 (HL7) messaging for vaccine reporting (starting in 2012) has increased the timeliness, quality, and quantity of vaccine histories available through the MCIR.

HCP Immunization Barriers

While mandatory policy implementation can increase immunization rates, additional vaccination barriers exist. The primary barriers in our survey were HCP misconceptions and lack of knowledge. Education paired with on-site, low-cost, and promoted vaccination have been cited as methods to overcome low HCP vaccination.[3,4,10] Strengthened and multicomponent educational programs among LTCFs in Michigan could result in more immunized HCP.[2]

Limitations

This study has several limitations. First, LTCFs with an existing HCP vaccination policy may have been more apt to complete the survey. Also, self-report may have inflated the number of HCP, residents, and immunization coverage calculations. The survey was sent to administrators expected to be knowledgeable of site-level policies, but they may not accurately understand their HCP vaccination barriers. Due to limited survey responses, coverage estimates are likely not representative of all Michigan LTCFs and survey results cannot be generalized to other states.

Work settings put HCP at increased risk of acquiring and transmitting disease and vaccination can reduce disease and absenteeism among HCP.[1,2,10] Our survey results suggest that opportunities exist for improving HCP coverage through increasing attention to noninfluenza vaccines, strengthening LTCF immunization polices, encouraging electronic tracking of HCP immunity status, and pairing HCP education with barrier removal within licensed LTCFs in Michigan.

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