



Moving the needle on nursing staff influenza vaccination in long-term care: Results of an evidence-based intervention



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ABSTRACT

Purpose: Influenza vaccination rates among healthcare providers (HCPs) in long-term care facilities (LTCFs) are commonly below the Healthy People 2020 goal of 90%. This study was conducted to develop and evaluate an intervention program designed to increase influenza uptake among HCPs in LTCFs.

Methods: This study was conducted in four Midwestern LTCFs. Baseline interviews, surveys, and administrative data analysis were performed following the 2013–2014 influenza season. Interventions implemented during the 2014–2015 season were based on the health belief and ecological models and included goal-setting worksheets, policy development, educational programs, kick-off events, incentives, a vaccination tracking roster, and facility-wide communication about vaccine uptake among HCPs. Outcomes were evaluated in 2015.

Results: At baseline, 50% of 726 nursing staff employed during the 2013–2014 influenza season had documented receipt of influenza vaccine (Site A: 34%; Site B: 5%; Site C: 75%; Site D: 62%), and 31% of 347 survey respondents reported absenteeism due to respiratory illness. At follow-up, 85% of HCPs had documented receipt of influenza vaccine ($p < 0.01$) and 19% of 323 survey respondents reported absenteeism due to respiratory illness ($p < 0.01$). Vaccination rates among respondents' family members increased from 31% at baseline to 44% post-intervention ($p < 0.01$). Reasons for declining vaccination did not change following exposure to educational programs, but HCPs were more likely to recommend vaccination to others after program implementation.

Conclusions: Vaccination rates among long-term care HCPs and their family members increased significantly and HCP absenteeism decreased after the implementation of multifaceted interventions based on an ecological model. The findings suggest that major increases in HCP vaccination can be achieved in LTCFs. More research is needed to evaluate the impact of increased HCP vaccination on the health and productivity of LTCF employees, their family members, and residents.

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1. Introduction

Influenza outbreaks continue to occur in long-term care facilities (LTCFs) despite high rates of resident vaccination [1,2]. Increasing influenza vaccination rates among healthcare professionals (HCPs) in LTCFs reduces absenteeism associated with influenza and illness among HCPs [3] and may prevent morbidity and mortality among elderly LTCF residents [2–5]. The Centers for Disease Control and Prevention (CDC) and the American Medical Directors Association (AMDA) emphasize the importance of HCP vaccination [6,7]. Despite these recommendations, HCP vaccination coverage in LTCFs remains below the Healthy People 2020 goal

of 90% [8], with rates from 38% to 55% reported in recent influenza seasons [9–11].

Low HCP vaccination rates have primarily been attributed to fears and misconceptions about vaccination, including a perceived lack of vaccine effectiveness [3,12], fear of side effects [3,12], and a belief that vaccination causes influenza [11,13,14]. Organizational barriers to HCP vaccination in LTCFs have also been identified, including an absence of formal policies [12], inadequate record keeping, high staff turnover, lack of communication about vaccination rates, and a lack of incentives for staff to receive vaccines [15]. Providing free vaccine [16], holding mass vaccination events [17,18], using declination forms [10,16,19], “vaccinate or mask” policies [19], and reporting vaccination rates to staff [10,17] have increased HCP vaccination rates. Although these interventions increased vaccine uptake among HCPs, vaccination rates in facilities that used these strategies typically remained below 90%

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[16,18]. One study found that LTCF sites with educational programs and mass vaccination events achieved only 53% vaccination [18], while another study found that LTCFs with declination policies had a median vaccination rate of 62% [16].

This study aimed to increase influenza vaccination rates among HCPs in LTCFs by designing and implementing evidence-based interventions tailored to these settings. The study was conducted in three phases, including a baseline assessment, the development and implementation of interventions, and an outcomes evaluation.

2. Methods

2.1. Study design

This study was conducted in four LTCFs located in Illinois, Indiana, Minnesota, and Wisconsin. Sites were recruited by contacting each state's ombudsman for long-term care services to request contact information for LTCF administrators who might be interested in participating. Numerous facilities and long-term care corporations were contacted, and researchers sent interested parties an overview of study goals, methods, inclusion criteria, and benefits of participating. Inclusion criteria were licensure for ≥ 90 beds, provision of skilled nursing services, certification by the Centers for Medicare and Medicaid Services (CMS), maintenance of records for resident and staff vaccination, and documentation of certification for nursing staff. Sites were excluded if they served primarily children or young adults, provided only acute or transitional care services, had a mandatory influenza vaccination policy for HCPs, or had previously achieved 100% HCP vaccination. In each state, the first LTCF that volunteered to participate and met the inclusion criteria was included. The study protocol was approved by organizations that managed the facilities, the administrator at each site, and the Western Institutional Review Board.

The study methods reflected the basic tenets of implementation science, namely performing a formative evaluation using a pre-implementation assessment, using an adaptation approach to enhance the likelihood of program success, and conducting a post-implementation evaluation [20]. The theoretical basis for the study incorporated elements of the Health Belief Model (HBM) and an ecological model. The HBM holds that people's willingness to accept prescribed treatments depends on their beliefs about the severity of the potential health problem, their susceptibility to the problem, and the benefits and risks associated with the treatments [21]. Previous research has found that educational interventions based on the HBM were insufficient to raise influenza vaccination rates among nurses, and concluded that an ecological model may be more effective [22,23]. Rather than relying on individual behavior change, ecological models engage policy makers, organizations, and communities to create an environment that supports risk reduction [24]. In this study, baseline assessments were conducted to identify barriers to HCP vaccination that could be addressed via educational interventions, institutional policies, and programs that enlisted facility-wide support for reducing the risk of respiratory infection among staff and residents.

2.2. Baseline assessments

At study initiation, administrative staff compiled data on employee and resident demographics and vaccination coverage. Researchers held face-to-face, structured interviews with administrators, unit managers, union representatives, and directors of nursing, education, and infection prevention. Interviews revealed that all sites lacked formal policies, goals, and tracking mechanisms for HCP vaccination. They had limited resources for vaccination campaigns and faced challenges associated with high staff turnover and absenteeism. Interviewees described previous

outbreaks of infection that affected residents' clinical status and quality of life, led to absenteeism, understaffing and increased workloads, and closed facilities to new admissions. One or more managers at each site expressed personal vaccine reluctance or declination, but supported efforts to increase HCP vaccination rates because of the negative effects of respiratory illness on residents, staff, and the facility. Managers expressed a need for improved HCP education and more efficient provision of vaccine. They provided input on strategies for conducting employee surveys and developing interventions. Union representatives supported HCP vaccination programs because of the impact of outbreaks on employee illness, absenteeism, and staffing levels.

A 51-item baseline survey of nursing staff was conducted in June 2014 (Appendix A). Survey items and methods were based on information from baseline interviews and questionnaires developed during previous studies by the research team [22,23,25,26]. Human resources (HR) employees at study sites distributed surveys to all nursing staff, including certified nursing assistants (CNAs), licensed practical nurses (LPNs) and registered nurses (RNs). Participation was voluntary, and each respondent received a \$5 gift card after completing the survey and placing it in a locked box. No personal identifiers were collected.

Baseline surveys were returned by 347 (62%) of 561 nursing staff employed by the four sites at that time. Most respondents were female (83%), 18–49 years of age (80%), and African-American (48%) or Caucasian (23%). Overall, 14% spoke English as a second language (range: 5–27%). The majority (79%) worked in the LTCF full-time, and 65% were CNAs, while 17% were LPNs and 15% were RNs. Twenty percent of respondents did not have health insurance. Most HCPs reported living with young children (54%) or elderly adults (12%), and 31% of these household members received influenza vaccination in the previous season. Absenteeism due to respiratory illness in the past year was reported by 31% of respondents. Eighty-five percent reported previously receiving vaccine, and 65% intended to receive influenza vaccination in the upcoming season. The most common reasons for receiving vaccination included the availability of free vaccine at work, wanting to avoid getting influenza or giving it to others, and missing work due to illness. Fifty-nine percent of unvaccinated HCPs believed influenza vaccine could transmit influenza. Sixty-nine percent of nursing staff had heard of the pneumococcal vaccine (92% RNs; 88% LPNs; 59% CNAs).

2.3. Intervention design

After the baseline assessment, researchers met with LTCF managers to share baseline data and discuss intervention strategies. The research team then developed customized interventions including educational programming, vaccination tracking mechanisms, and worksheets to assist with program implementation (e.g., goal-setting, policy development, and vaccination kick-off events). Educational materials included posters with LTCF imagery created by an artist (see examples in Appendix B) and a one-hour in-service course that emphasized risks associated with respiratory infections and the safety and efficacy of the vaccine. These materials incorporated stories about LTCF outbreaks and staff illnesses derived from management interviews, and capitalized on motivations for vaccination reported in baseline surveys, particularly protecting family members from illness and preventing absenteeism due to respiratory illness. An electronic roster was developed to help HR staff track employee vaccination status. To facilitate communication with employees about progress toward vaccination goals, researchers developed a four-foot tall vaccination gauge that was updated by each LTCF throughout the season. Researchers communicated with site personnel weekly throughout the summer and 2014–2015 influenza season to provide support and monitor progress.

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