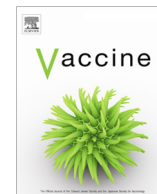


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Short communication

The role of healthcare provider attitudes in increasing willingness to accept seasonal influenza vaccine policy changes

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ABSTRACT

Background: This research explored the role of a attitudes in acceptance of organizational change initiatives.

Methods: A survey assessed factors associated with health care provider (HCP) likelihood to accept seasonal influenza vaccine policy changes. We evaluated the impact of knowledge and individual attitudes on this outcome measure.

Results: Knowledge of seasonal influenza vaccine and influenza recommendations was a significant predictor of HCP's attitudes toward vaccine at the individual ($p < 0.001$), organizational ($p < 0.05$), and legislative level ($p < 0.05$). Mixed results were obtained when investigating the impact of knowledge on actual willingness to accept vaccine, suggesting that knowledge was only a significant predictor at the organizational ($p < 0.05$) and legislative levels ($p < 0.05$). Attitudes fully mediated the impact of knowledge at both the organizational and legislative levels.

Interpretation: Knowledge of seasonal influenza and vaccine recommendations is an important, but insufficient predictor of willingness to accept policy change.

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1. Introduction

Health care provider (HCP) rates of vaccination remain well below the recommended target of greater than 90% [1]. In response to the failure of voluntary methods of increasing vaccine uptake amongst HCP, more than 300 facilities in the United States have mandated immunizations as a condition of employment [2], with subsequent vaccine compliance rates exceeding 99% [3]. The Society for Healthcare Epidemiology of America (SHEA) endorses a policy that requires annual influenza vaccination to be a condition of ongoing employment [4].

Due to the failure of voluntary interventions, some jurisdictions in Canada have attempted to increase seasonal influenza vaccine uptake through policy changes such as declinations [5], mandatory masking programs [6], or consideration of legislative changes [3].

In 2012, British Columbia became the first jurisdiction in the country to put in place a province-wide policy requiring designated HCPs to receive the seasonal influenza vaccine or wear a mask [7]. Immunization rates rose from 40% to 74% [8]. In New Brunswick, where a similar policy was implemented in 2012 in one of the two provincial health authorities, immunization rates rose from 40% to 65% [8]. Some healthcare facilities in Ontario enacted similar policies during the 2013 influenza season.

In both British Columbia and Ontario, unions grieved the implementation of mandatory immunization or masking policies [9,10] and both decisions went to arbitration. Interestingly, although the British Columbia arbitrator determined that the provincial government policy was "a valid exercise of the employer's management rights" [9], the 2015 decision by the Ontario arbitrator deemed the mandatory "vaccinate or mask" policy to be an unreasonable requirement [10]. Both decisions highlighted the importance of consultation with the employees who would be affected by the policy and the need to understand the knowledge and opinions of HCPs.

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Considering the ongoing debate around the topic of mandatory seasonal influenza vaccination for HCPs, it is important to consider the individual factors that will assist in lessening the resistance associated with HCP influenza vaccination policy changes. The purpose of this research was to determine if HCP knowledge and attitudes were important predictors for the willingness to accept changes to local, organizational, and legislative policy associated with seasonal influenza vaccination. As healthcare organizations have traditionally used information-based campaigns to increase awareness of the benefits of vaccine and its efficacy, it is important to determine if “seasonal influenza vaccine” specific knowledge is sufficient to influence willingness to accept small and large-scale policy change initiatives. For example, although smokers typically have a great deal of knowledge about the dangers of smoking, this is often insufficient to change attitudes (and thus intentions) toward quitting. Assessing the overall impact of seasonal influenza vaccine attitudes was a secondary objective of this research.

2. Method

During September and October 2010, we circulated a self-report survey to a broad sample of HCPs in a pediatric care facility in Nova Scotia, Canada. This facility is an inpatient and ambulatory facility that provides primary and consultative services to the Halifax Regional Municipality (population approximately 500,000) and secondary and tertiary care facilities for Canada’s Maritime Provinces (population approximately 2 million). At the time of the survey, a mandatory influenza vaccination policy was not under consideration. The survey was designed to elicit a range of knowledge, attitudes, and beliefs specific to seasonal influenza vaccine. Of specific interest were the factors associated with willingness to accept policy change associated with seasonal influenza vaccination.

We created a survey of individual perceptions of likelihood to accept a mandatory seasonal influenza vaccination policy for HCPs. This survey was designed based on a number of variables validated in previous social psychological research, including the Theory of Reasoned Action and the Theory of Planned Behaviour [11]. Cronbach’s alpha for the attitude scale was 0.929. Items designed to assess knowledge of seasonal influenza vaccination (9 items) and perceptions of seasonal influenza vaccination policy change (3 items) were developed by subject matter experts within the fields of vaccinology and applied social psychology.

All employees, volunteers, and students (approximately 4000) at the Health Centre were given the opportunity to participate via an email invitation. A total of 202 individuals completed the survey for a response rate of approximately 5%. Although this response rate may appear low, it is typical of surveys completed in this organization. Respondents came from all occupational groups, falling into the following four broad categories: (1) administrative support (49%; e.g., non-clinical management, admitting clerks, staffing clerk, etc.); (2) allied health professionals (22%; e.g., dietitians, social workers, respiratory therapists, etc.); (3) nurses (22%); and (4) medicine (6%). Two respondents (1%) did not complete the occupational grouping category.

Using SPSS version 23.0, a series of mediated regression analyses were conducted to assess the impact of knowledge and attitudes toward seasonal influenza vaccination on a variety of proposed policy changes. The impact of knowledge on acceptance of policy change was assessed in a regression analysis controlling for attitude. Thus, a mediational model was examined using procedures outlined by Baron and Kenny [12]. This model specified that knowledge influenced attitudes, and that these attitudes in turn accounted for the majority of variance in likelihood to accept policy change within a HCP population. If this hypothesis is correct,

we would expect that the standardized regression coefficient (B) in the mediation model would differ significantly from zero, when assessed via a *t*-test.

Furthermore, analyses were conducted to assess if there were differences in participants willingness to accept policy change. First, at the *local level* they were asked if they (as individuals) should be asked to sign a declination if they refused vaccination. Second, at the *organizational level*, they were asked if their institution should have a mandatory vaccination policy. Finally, at the *legislative level* they were asked regarding their opinion on a provincial policy of mandatory immunization for HCPs.

3. Results

Of those who completed the survey, ninety-one percent (91%) were female; and the sample was composed of both clinical and non-clinical positions (50% vs 49%). Age was divided between three major groupings (age range 25–34 = 20.8%, age range 35–44 = 28.7%, and age range 45–54 = 29.7%).

The majority (87%) of respondents reported receiving seasonal influenza vaccine the year they completed the survey; however, this spike could be related to recent campaign to heightened awareness of H1N1 within the facility. Seventy-five percent of respondents reporting receiving seasonal influenza vaccine prior to the H1N1 pandemic (see Tables 1 and 2). To further explore potential differences between individuals that received vaccine versus those that did not a secondary analysis was performed. Results indicate that there were significant differences such that individuals who reported receiving a seasonal influenza vaccination had more positive attitudes toward seasonal influenza vaccine and were more likely to accept organizational policy change than those who did not receive the vaccine (see Table 3).

3.1. HCP’s likelihood to accept change at the local level—signed declination

Knowledge of seasonal influenza vaccine was a significant predictor of HCP’s attitudes toward seasonal influenza vaccine such that as knowledge increased so did positive attitudes toward seasonal influenza vaccine ($B = 0.18$, $t = 5.09$, $p < 0.001$). Interestingly, knowledge did not have a direct influence on willingness to accept

Table 1
Wording and descriptive statistics for predictor and outcome measures.

Predictors	Mean	N
I owe it to my patients to get the flu vaccine	4.11	202
It is my moral responsibility to receive the flu vaccine each year	3.65	202
It is my duty as a health care worker to get the flu vaccine	4.24	202
Health care workers should receive an annual flu vaccination	4.37	202
Receiving the flu vaccine is important to me	4.21	202
Getting the flu vaccine will protect my family from getting the flu	3.99	202
Vaccinating health care workers against influenza will protect patients from getting the flu	4.42	202
I will be less likely to miss work if I receive a flu vaccine	3.78	202
Outcome measures	Mean	
Local level policy change – If I do not receive the flu vaccine, I should be asked to sign a form that I understand the risks and benefits of the vaccine	3.03	202
Organization level policy change – This health-care organization should implement a policy requiring all employees to receive the annual flu vaccine	2.60	202
Legislative level policy change – The Government of Nova Scotia should pass legislation requiring health care workers be vaccinated against flu each year unless they have a valid medical contraindication	2.88	202

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