ATHABASCA UNIVERSITY

HEALTHCARE WORKERS' PERCEPTIONS OF AN INFLUENZA IMMUNIZATION CAMPAIGN

BY

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Submitted by

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Acknowledgments

In the fall of 2015, I began the Master of Nursing (MN) program, with the intention to develop new skills enhancing my knowledge of my chosen profession of nursing. I value higher education. I enjoy learning and sharing it with others. I chose the MN thesis-based route as an opportunity to learn, experience and develop new skills required to do research. The MN program has expanded my view on the importance and the role of nursing research.

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Abstract

Unimmunized healthcare workers (HCW) are at risk of transmitting influenza to the vulnerable population for whom they provide care. Health organizations' influenza campaigns are often developed using theories of behavior change. The Health Belief Model (HBM) was used in this study as a framework to evaluate the effectiveness of influenza immunization campaign interventions that may include accessibility, messaging, education, and management support. Despite the evidence that influenza immunization is effective in decreasing morbidity, mortality, and facility outbreaks, HCWs' influenza immunization uptake remains below protective targets. The purpose of this study was to explore HCWs' perceptions of one health organization's influenza immunization campaign and the effectiveness of interventions designed to change HCWs' beliefs, attitudes, and behaviors towards influenza vaccine uptake. A qualitative exploratory case study was used to explore whether the influenza campaign interventions had the desired effect. Four main themes emerged from the study, including the perceptions of convenience, communication, management support, and personal choice. The influenza campaign interventions found to be most effective were email and posters.

Keywords: Health Belief Model, behaviour, healthcare workers, influenza campaign

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Chapter 1. Introduction

Influenza is ranked as one of the top 10 causes of mortality in Canada, with an average of 12200 hospitalizations and 3500 deaths yearly (Audrey & Stirling, 2017). The influenza virus infects the respiratory tract and is spread by droplets when a person coughs or sneezes (Alberta Health, 2014). Healthcare workers (HCWs) are encouraged to receive yearly influenza immunization as an effective prevention strategy offering 50-80% protection in healthy individuals (Sullivan et al., 2008). Even in years of vaccine mismatch to circulating influenza strains, it was found that there is 40% protection, with a decrease in the severity of disease; hence, immunization offers some protection, which is better than none (Hood & Smith, 2009). Immunized HCWs help protect those that are susceptible. For example, if a susceptible cancer patient is infected with influenza, they are at a 15-28% increased risk of death (Frenzel et al., 2016). In a study of laboratory-confirmed hospitalized influenza cases, it was found that 17.3% were healthcare-associated; that is, transmission occurred 96 hours after admission to the facility (To, Lai, Lee, Koh, & Lee, 2016). A study during an influenza season found that 23% of HCWs tested positive for influenza, and of those, 59% did not recall having influenza, and 28% were asymptomatic (Pearson, Bridges, & Harper, 2006).

Healthcare organizations' influenza immunization coverage rates are, on average, between 50 and 70% (To et al., 2016). The World Health Organization (WHO) recommends a protective target of 95% compliance with influenza vaccine uptake (World Health Organization, 2015). Low influenza immunization coverage rates in HCWs increases the potential risk of influenza virus transmission to the patients they care for (Sullivan et al., 2008) and leaves the facility vulnerable to outbreaks and increased morbidity and mortality (Chambers et al., 2012; Hood & Smith, 2009). Despite the evidence that supports the recommendation that HCWs

receive the seasonal influenza vaccine, uptake remains low (Buchan & Kwong, 2016). Therefore, understanding ways to increase uptake of seasonal influenza vaccine among HCWs is an important goal of research. Influenza immunization campaign components may include the following accessibility (clinics, roaming cart), manager support (lead by example), messaging (emails, posters) and education. The purpose of the study was to explore HCWs' perceptions of one health organization's influenza immunization campaign and the effectiveness of interventions designed to change HCWs' beliefs, attitudes, and behaviors towards influenza vaccine uptake.

Chapter 2. Literature Review

Influenza vaccine is recommended yearly for all HCWs to protect themselves and prevent transmission to the patients they care for (Buchan & Kwong, 2016). HCWs' yearly influenza vaccine coverage rates remain low despite this recommendation (Pless, McLennan, Nicca, Shaw, & Elger, 2017). HCWs are defined as physicians, nurses, allied health, and support staff who have direct face-to-face contact with patients. A cross-sectional study of Canadian HCWs found influenza coverage rates by occupation were as follows: physicians with the highest at 72%, registered nurses 58%, support staff 51%, and the lowest being chiropractors and midwives at 4% (Buchan & Kwong, 2016). Studies exploring HCWs' attitudes towards influenza vaccine are important to health organizations (Pless, Shaw, McLennan, & Elger, 2017a).

Health organizations develop and implement influenza campaigns and policies based on evidence from research on changing HCWs' behavior towards influenza immunization (Chambers et al., 2015). Studies designed to develop effective campaigns have systematically examined HCWs' behaviors that impact beliefs, attitudes, perceptions, and acceptance of vaccine (Kok et al., 2011; Looijmans-van et al., 2011). Studies of influenza campaigns examined numerous interventions such as voluntary or mandatory immunization, vaccinate-or-mask options, increased accessibility to vaccine, reporting receiving immunization or declination, support of the organization (e.g., upper management support, leadership receiving vaccine), and education in a variety of formats (Chambers et al., 2012; Garcell, Arias, García, Jiménez, & Alfonso, 2015; Kimura, Nguyen, Higa, Hurwitz, & Vugia, 2007). Despite the many interventions, HCWs that choose not to receive the influenza vaccine cited reasons such as belief that vaccines weaken the immune system, skepticism about vaccine efficacy, concerns about vaccine side effects, doubt that influenza can be serious, belief that they can get influenza ("the

flu") from the shot, and belief that influenza can be treated with antibiotics (Cohen & Casken, 2012; Quinn, 2014). The most effective interventions used in influenza programs have led to incremental increases in HCWs' influenza vaccine coverage rates and were rooted in behavior change theory (e.g., Health Belief Model, Theory of Planned Behavior) (Corace et al., 2016).

A systematic review of behaviour change frameworks found that 60% of the studies examined used the Health Belief Model (HBM) to predict HCW influenza vaccine uptake (Corace et al., 2016). The HBM was created in the 1950s by social psychologists working with the United States Public Health Service, and its constructs were developed from tenets of cognitive theory (Glanz, Rimer, & Viswanath, 2015). Cognitive theorists believe that a person's mental processes (thinking, reasoning) are influenced by the perceived consequences of their behavior, such as towards health (Glanz et al., 2015).

The HBM accurately predicts to 85-95% whether the HCW will immunize and potentially prevent influenza (Corace et al., 2016). The change in behaviour depends on the HCWs' belief that they are at risk for influenza (susceptible), or they may develop complications due to influenza (severity) (Glanz et al., 2015). The HBM, along with demographic information, assists in program design specific to the HCWs' attitudes and behaviors (Looijmans-van et al., 2009). Demographic information identified from previous studies associated with HCWs' influenza vaccine uptake included gender, age, role, years working in healthcare, and children living at home. One study found that HCWs with higher levels of education, older age, or a greater number of years working in healthcare were more likely to be immunized (Looijmans-van et al., 2009). According to the HBM, a person's expectation influences behavior – more specifically, if they choose a specific action (influenza immunization), it will result in the desired outcome (preventing illness). Therefore, the HBM is used as a guiding framework to predict

behavior towards health and to design health prevention programs (e.g., immunization clinics, screening for tuberculosis, prenatal classes) (Toronto & Mullaney, 2010). Modifying factors listed in the box on the left side of **Figure 1** aid in identifying the HCWs choice of cues to action and the influence the factors have on the decision-making process (Adams, Hall, & Fulghum, 2014). The HBM core constructs concerning influenza immunization, predicting an individual's willingness to be immunized, are perceived severity (seriousness of the impact of the disease on health), perceived susceptibility (vulnerability to disease), perceived benefits

Figure 1

Health Belief Model

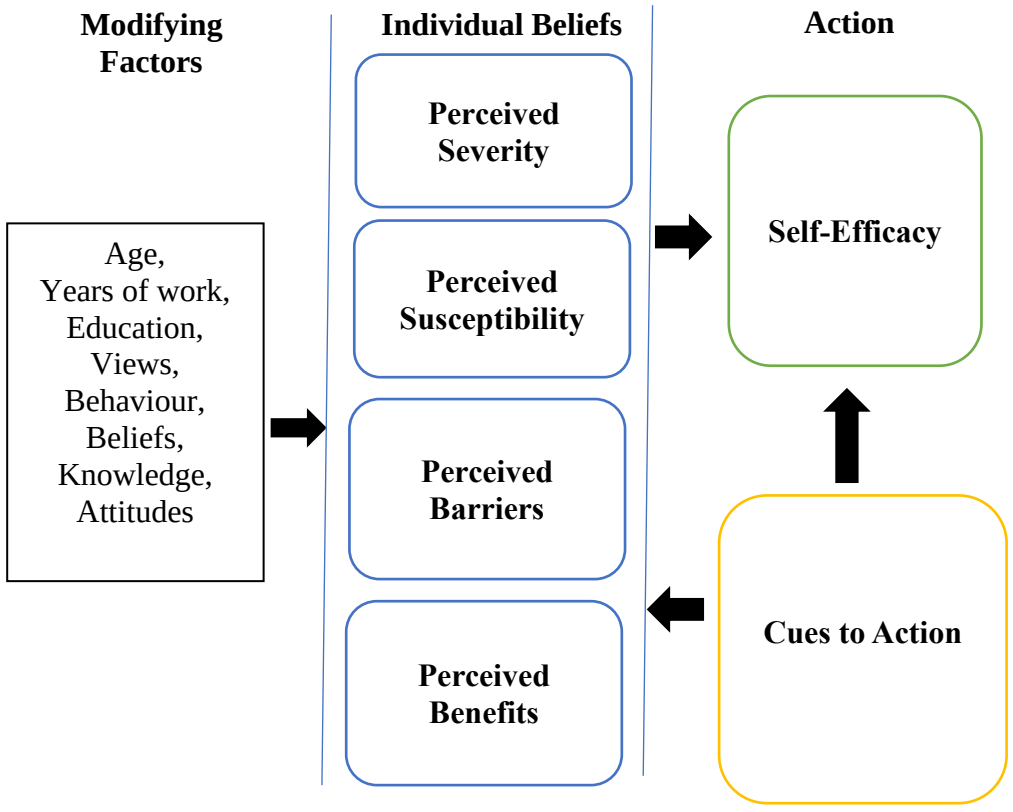


Figure 1. Health Belief Model. Adapted from Figure 5.1 Components of the Health Belief Model from Glanz, K., Rimer, B. K., & Viswanath, K. (2015). Health behavior: theory, research, and practice. San Francisco, CA: Jossey-Bass.

(personal value to self), perceived barriers (obstacles to receiving vaccine), cues to action (influenza campaign interventions), and self-efficacy (confidence in performing a behaviour) (Glanz et al., 2015).

The use of HBM constructs in designing interventions should be context specific as this increases the likelihood that a person will change their behavior towards health (Glanz et al., 2015). For example, integrating the HBM construct *perceived susceptibility*, an intervention developed would focus on strengthening a person's perception of disease vulnerability. One study found there was a difference in perceived susceptibility between the unimmunized HCW and the immunized HCW (Corace et al., 2016). The unimmunized HCWs perceived that the influenza vaccine was not necessary because they were healthy and thus not at risk for acquiring disease (Corace et al., 2016). Another example, a study of HCWs working in the emergency department, found that 73% did not believe they could transmit influenza to the patients increasing the patients' risk of nosocomial infection (Cohen & Casken, 2012). The HBM construct *perceived severity*, where the HCW perceived the potential impact of influenza on health as severe, resulted in uptake of the vaccine to protect themselves (Cohen & Casken, 2012). The opposite of the previous example was found in a systematic review of HCWs who believed that for healthy adults, influenza was no more serious a disease than the common cold (Lorenc, Marshall, Wright, Sutcliffe, & Sowden , 2017).

An integrative review using the HBM constructs to examine the factors that impact influenza vaccine uptake, such as HCWs' personal beliefs and perceptions, found that the most commonly *perceived barriers* were concerns around vaccine efficacy and adverse reactions (Toronto & Mullaney, 2010). Other potential barriers that resulted in vaccine refusal were demonstrated in the following two studies: in the first, 35% of nurses cited fear of needles and

injections, and in the second, nurses stated it was lack of time (Corace et al., 2013; Toronto & Mullaney, 2010). Perceived *benefits* of behaviour included receiving the influenza vaccine to reduce the potential transmission of influenza (Glanz et al., 2015). *Cues to action* were the intervention(s) (triggers) that led to action, including changing HCWs' perception of how the benefit of uptake directly outweighs their perception of severity and susceptibility to disease (Glanz et al., 2015). *Self-efficacy* was enhanced when the HCW has the confidence to accept the recommended health behaviour, resulting in the action of accepting vaccine and an outcome of not bringing the virus home (Glanz et al., 2015). Studies that have used the HBM constructs give us a better understanding of HCWs' beliefs and attitudes towards the influenza vaccine (Toronto & Mullaney, 2010).

A study done on nurses working in long-term care with low immunization rates found that there were many misconceptions about influenza vaccine and disease (Quinn, 2014). The effects of misinformation around influenza disease and vaccine (e.g., side effects, adverse reactions, efficacy, safety) triggers concerns in HCWs resulting in a decrease in vaccine uptake (Cohen & Casken, 2012). According to a cross-sectional study of 1019 registered nurses, the number one reason 39% of the participants did not immunize was due to a concern for adverse reactions. The number two reason was that 19% believed they could get influenza disease from the vaccine (Cohen & Casken, 2012).

In a review of factors that influenced beliefs and attitudes, Cohen and Caskin (2012) found that nursing staff with a higher level of knowledge around influenza vaccine and disease transmission had a much higher rate of vaccine uptake. These researchers found that education plays a vital role in dispelling myths caused by the lack of knowledge and misinformation (Cohen & Casken, 2012). Arming HCWs with the facts based on evidence, enables them to make

an informed choice. Education, as an intervention, was, however, only effective if the HCW was open to accepting the information as it was presented (Quinn, 2014). The HBM constructs assist in designing evidence-based education (intervention) to support or change HCWs' perceptions of influenza vaccine and disease (Toronto & Mullaney, 2010). Acceptance of vaccine may occur when the HCW perceives the information as meaningful, the education is holistic, the method of dissemination is appropriate (e.g., website, face-to-face, role models), and the HCW is allotted time to assimilate the new knowledge (Quinn, 2014).

Influenza campaign interventions that have been developed by health organizations to increase HCW vaccine uptake vary from successful, to making little or no difference. For example, the single most successful intervention was found to be mandatory immunization, resulting in a vaccine uptake of 95% (Gruben, Siemieniuk, & McGeer, 2014; Lytras, Kopsachilis, Mouratidou, Papamichail, & Bonovas, 2016;). The dilemma was that mandatory immunization had been viewed as a loss of autonomy by HCWs. HCWs view the lack of choice as a barrier, where the decision to receive vaccine was not their own (Quinn, 2014). A softer approach was declination, where a refusal of immunization would require a signed declination statement explaining their reasoning for refusal (Lytras et al., 2016). Declination was an intervention that was successful as it made vaccine resistant or indifferent HCWs think about their reasons for not accepting the vaccine (Garcell et al., 2015; Lytras et al., 2016). In some declination interventions, if they refused the influenza vaccine, HCWs were required to wear a mask from October to March (Frenzel et al., 2016). Another study described a new approach comparing an opt-in versus an opt-out intervention where an appointment was automatically booked with the Occupational Health Nurse (OHN) to receive the influenza vaccine, and it was up to the individual to cancel it (Lehmann, Chapman, Franssen, Kok, & Ruiter, 2016). The opt-

out option had a 12% increase in vaccine uptake over the opt-in option where the individual had to actively make an appointment on their own (Lehmann et al., 2016).

Influenza campaign development should encompass a variety of interventions as each of the components may have a cumulative effect such as increased access, active health promotion, education, and added incentives (e.g., gift cards, prize draws) (Lytras et al., 2016). However, more research is required to determine the best combination of influenza campaign interventions and how best to expand HCWs' exposure to them (Riphagen-Dalhuisen et al., 2013). Improving exposure to the influenza campaign could ensure the health organization's desired outcome of the HCWs accepting the influenza vaccine.

There are many quantitative studies that describe unimmunized HCWs' knowledge, behaviors, beliefs, and attitudes towards the influenza vaccine and their importance in the development of effective interventions. A limitation, however, is the lack of research on the individual and on combined interventions used in the influenza campaigns and their impact on HCW groups (e.g., physicians, nurses, lab technicians) (Lytras et al., 2016).

A review of the literature revealed that a limited number of studies had examined HCWs' experience with influenza immunization campaigns. In a qualitative study, Quinn (2014) focused on the attitudes and experiences of nurses with the influenza vaccine and found that nurses felt a loss of autonomy with decision making concerning mandatory immunization. The nurses consider themselves as professionals and believed there was a lack of trust with the organization if their right to choose whether or not to be immunized was taken away. The nurses also demonstrated a lack of knowledge related to the influenza vaccine: "I have known too many people personally, that become ill after getting the vaccine" (Quinn, 2014, p. 2), indicating a need for future studies on influenza campaign interventions that engage and empower nurses. A

second study explored unimmunized nurses' reasons for refusal of vaccine and found that they were based on personal health beliefs rather than evidenced-based information (Pless et al., 2017). Nurses had been taught to use evidence-based practice to ensure the best outcomes for their patients, but a study of nurses found they did not identify influenza immunization as an evidenced-based nursing intervention that protects their patients, but rather as a personal choice for their health (Rhudy, Tucker, Ofstead, & Poland, 2010). Interventions should be tailored to nurses and other health care workers, thus empowering them to make an informed choice (Pless et al., 2017).

An identified gap in the development of interventions is the role emotions and impulsive decision-making play in the HCW's choice to not immunize, based on feelings rather than facts (Kok et al., 2011). Research is needed to develop interventions that will change HCWs' behavior before refusing the vaccine, focusing on slowing down emotional decisions and thus allowing more time to reflect on evidence-based information (Kok et al., 2011).

In the literature reviewed for this study, most studies on influenza vaccine uptake focused on the reasons for refusal and the barriers to vaccine uptake. To yield a better understanding of influenza campaign effectiveness, researchers need to speak directly to HCWs and not about them (Kok et al., 2011). The piece that was missing in the literature was the unanswered questions of how, why, or what interventions led to acceptance (Pless et al., 2017). Thus, the purpose of the study was to explore HCWs' perceptions of the effectiveness of various components of one health organization's influenza immunization campaign designed to change behaviour beliefs, attitudes, and behaviors towards influenza vaccine uptake.

Chapter 3. Methodology

Research Question

What are HCWs' perceptions of the effectiveness of various components (interventions) of an influenza immunization campaign designed to change behavior towards influenza vaccine uptake?

Method

The research design used was a qualitative exploratory case study. The case study design was used to explore a phenomenon within a context to obtain a complete picture through a rich description (Taylor & Thomas-Gregory, 2015). The case was defined as HCWs' perceptions of the effectiveness of various components of the influenza immunization campaign, bounded by time (December 15, 2018, to March 1, 2019) and place (Queen Elizabeth II Regional Hospital, Grande Prairie, Alberta). A case study was used as there was no control over a participant's behavior (e.g., acceptance of vaccine) and there was a need to explore or explain if an intervention (influenza campaign) was having the desired effect (e.g., changing behaviour) (Yates & Leggett, 2016). The terms component and intervention were used interchangeably to describe activities that make up the influenza immunization campaign. One advantage of using a case study was that the focus could be on current practice (e.g., Alberta Health Services (AHS) influenza campaign) and within a real context (Creswell & Poth, 2018). One main disadvantage of using a case study was that the researcher must rely on the participant to effectively verbalize their perceptions in a truthful manner. As the researcher striving to obtain honest answers from the participants, I reassured them that their anonymity and confidentiality would be maintained.

Ethics

Ethics approval was obtained first from the Athabasca University Research Ethics Board. I submitted my application in September and received approval on October 9, 2018 (Ethics File No.: 23116). Subsequently, ethics approval was sought from the Alberta Health Services (AHS) Research Ethics Board, via the University of Alberta Health Research Ethics Board (REB). I received ethics approval (REB #: Pro00086263) on November 15, 2018. The final required step was AHS administrative approval for research at an AHS facility that entailed interviewing employees, which I received on December 10, 2018, before commencing the study.

Informed Consent

Prior to the interview (face-to-face or telephone), I reviewed with the participant the purpose of the study, any risk or benefit to participation, confidentiality, anonymity, and how the dissemination of the findings would be conducted (see Appendix A). If I could, I obtained signed informed consent from the participant. If a consent form was not signed before the interview, the participant gave verbal consent before the commencement of the interview that was audio-recorded after reviewing the letter of intent, and the informed consent form verbatim. All interviews were audio-recorded.

Risk assessment. Participation in the study was associated with minimal risk. There was one question during the interview that could potentially be perceived as sensitive for the participant, that being their influenza immunization status. Participants were asked, "Have you received the influenza vaccine in each of the last two years?" All participants were aware that disclosure was voluntary; they may decline to answer any question they did not feel comfortable answering and that all information collected would be kept confidential and anonymous.

Confidentiality and anonymity. I explained that participation in the study was voluntary and that they could refuse to answer any questions. The participants were informed that they

could withdraw from the study up until the commencement of data analysis and that if they withdrew from the study prior to the data analysis, their information would be destroyed ensuring that confidentiality was maintained. I informed the participants that I would keep participant information confidential and anonymous by assigning each participant an alphanumeric number and by ensuring that there was no identifying information attached to the data (e.g., transcripts, field notes), only the assigned number. The assigned numbers, with a list of corresponding names, was kept in a secure separate location from the data and was only be used to confirm participant identity if further clarification was required. If a participant withdrew prior to data analysis the assigned numbers would have been used to destroy their information. All original transcripts were securely stored and will be kept confidential for five years on an encrypted USB drive in a locked drawer.

Dissemination of results. Each participant was informed that dissemination of the study's findings might be within the Athabasca University community or AHS as an online presentation, or in academic journals. Participants were informed that only grouped data would be reported during the dissemination of the findings. Participants were informed that individual responses might be reported as quotations, along with other participants' responses within the context of the results, and only identified by the assigned participant number. If the results were reported in academic journals, they would not contain any information that could identify participants. It was explained that there was no direct benefit to them in participation; however, the study could help others as the information could be used to inform future studies and/or organizational influenza campaign initiatives.

Sampling

The setting and the sample were selected purposively. The study used purposeful sampling to intentionally recruit HCWs from a facility with low influenza vaccine uptake. The setting was the Queen Elizabeth II Hospital (QE II), which is an AHS regional acute care facility located in Grande Prairie, Alberta. The facility was chosen because their immunization coverage rates were below the AHS 2017 recommended protective target of 80% in each of the past two years, including 57% in 2015-2016 and 60% in 2016-2017 (Alberta Health Services, 2016; Alberta Health Services, 2017). The original projected sample size was between 8 and 12 HCWs in various roles, such as physicians, nurses, lab technicians, and support staff. Initially, recruitment for the study was through participant self-identification; however, only the first participant self-identified. The remainder of the six participants were recruited using snowball sampling. Snowball sampling enlists participants from the recommendations of those currently participating in the study (Richards & Morse, 2013).

Recruitment

The population of interest was HCWs that have face-to-face contact with patients and work in acute care. The focus of the study was to explore the perceptions of the effectiveness of the influenza vaccine interventions (components) of those that had been or could be immunized for influenza. A communication (letter of invitation) was sent out to recruit participants and included a summary of the study, participant inclusion criteria, and my contact information (see Appendix B). The letter of invitation to participate in the study was sent via potential participants' work email by their unit manager, and at the same time, a poster was hung up on staff bulletin boards within the targeted institution (see Appendices B and C). I confirmed with a staff nurse (entering the lounge) that the recruitment posters for the study were on staff lounge bulletin boards (I did not have access). The communication included a disclaimer informing the

participants that participation in the study was voluntary and that their confidentiality and anonymity would be protected. Additionally, I disclosed that I work for AHS as a communicable disease nurse (CDN) reporting to the Medical Officer of Health and that the information collected for the study was a requirement of my degree program and not my employer. I also informed prospective participants that their supervisor / employer would not be made aware of their participation.

Data Management

The NVivo 12 software program was used to store, organize, and manage the data collected, including a reflective journal. The reflective journal was collected using OneNote and imported into the NVivo 12 database. Before data collection, I became familiar with the use of the NVivo 12 database by accessing the online user webinars. Competence with the NVivo 12 database enabled me to enter data after participant verification of their transcript for accuracy. The latter was completed prior to data analysis.

Data Collection

The timeline of the study ended when the AHS 2018-2019 influenza campaign was over. The case study had defined boundaries, time and place and the data collection was bound to the dates of the influenza campaign (December 15, 2018, and March 1, 2019). I believed the data reached saturation prior to the end of the study, that is, the participants were saying the same thing, and the information was repetitious (Richards & Morse, 2013). Data saturation may not be an appropriate study endpoint for all qualitative research methods such as a case study because it is bound by time and place (Walker, 2012). According to Walker (2012) research methods that conclude with data saturation include for example, grounded theory, phenomenology, and ethnography.

Seven HCWs were interviewed and none withdrew from the study. I contacted the participants that agreed to take part in the study to set up a face-to-face or telephone interview. Each participant and I agreed upon an interview date and time that was convenient for both of us. One participant chose a face-to-face interview and determined the location where they felt comfortable sharing their perceptions of the influenza immunization campaign and where their anonymity and confidentiality could be maintained. Six of the seven participants preferred a telephone interview because they felt it would be more convenient.

Interviews

The participants were aware of the topic prior to the interview, as they received the letter of invitation, gave informed consent, and had an opportunity to ask questions (see Appendices A and B). The face-to-face or telephone interview lasted approximately 30 to 60 minutes. The participant interview consisted of a series of questions that explored their perceptions of the AHS influenza immunization campaign and the interventions used to increase influenza vaccine uptake. The interview included some demographic questions. I used a semi-structured interview guide to collect the data (see Appendix D). The semi-structured guiding questions were developed using a combination of my knowledge about the AHS influenza campaign and concepts from prior studies of influenza campaigns for HCWs that used the HBM as their framework (Adams et al., 2014; Corace et al., 2016; Looijmans-van et al., 2009; Toronto & Mullaney, 2010). The interview guide included a series of open-ended questions to initiate discussion exploring specific topics and helped ensure consistency between participants. The use of semi-structured interviews allowed for exploring the HCWs' perceptions without leading them so that the responses were their thoughts and not what they thought they should say (Richards & Morse, 2013).

The participant interviews were audio-recorded and transcribed word-for-word using Dragon Naturally Speaking software, which turns speech into text and enhances the quality of the data collected (Jozaghi & Reid, 2014). After each interview, I made subjective field notes that included observations capturing unsaid or non-verbal cues such as pauses or nervous laughter as well as posturing, facial expressions, and eye contact in the case of the face-to-face interview. Each transcript was compared to the audio recording to ensure the accuracy of the transcription. Prior to transferring transcripts into the NVivo 12 database, participants received by email their transcript to review for clarification, errors, or omissions to ensure their responses were accurately transcribed. To validate their information, the question the participants were asked was, "After reading the transcript of your interview, can you please confirm if it is correct and if there is anything further you would like to clarify?" They also had the opportunity to add any further thoughts through email. The participant, as part of the consent, agreed by initialing, "One week after the interview, I will have the opportunity to review the interview… if I do not return the transcript within one week, the researcher can conclude that I am agreeable to content" (see Appendix A). I reiterated this statement at the end of each interview to ensure the participant was clear on the next steps and that if they did not respond, this implied they were agreeable to the transcript as written. All participants responded to the email indicating they had verified their transcript. After the participant verified their transcript, the data was transferred into the NVivo 12 database.

Data Analysis

Thematic analysis was used to review the data (Glesne, 2016). After the data was entered and organized using NVivo 12, I looked for common patterns, creating categories (codes) making sense of the data (e.g., text from the interviews, notes in a reflective journal). The

classifying began with broad categories and as the data was reviewed expanding them into more categories and then defining the categories with codes to ensure consistency. The codes were used to navigate through the data like a roadmap linking the data and making connections. The codes assisted in data abstraction by combining categories to extract emerging themes (Creswell & Poth, 2018). I took notes as emerging themes developed to capture possible connections throughout the process. As the categories evolved, on-going reflection was used comparing the current data with the previous data coding and classifying common themes (Richards & Morse, 2013). I used coding as a tool, moving the data towards analysis by linking data, and then looking at its meaning and significance (Richards & Morse, 2013). During the data analysis process, I developed a description of the participants (demographic data) and examined the campaign components and the themes that emerged. The intent was to learn from the participants by reviewing their responses for similarities or differences.

Rigor

Validation of the quality and accuracy of the results helped ensure rigor of the qualitative exploratory study. For example, participants were provided with the opportunity to verify the accuracy of their transcripts prior to the commencement of data analysis. Trustworthiness of a study is enhanced through the detailed methodology, data collection, and analysis that best fits the research question (Richards & Morse, 2013). As the researcher in this qualitative case study, I was considered part of the study, as my presence and skill may affect the quality of the results. Rigor of the study was strengthened using the following strategies, including credibility, dependability, and reflexivity.

Credibility. The *credibility* of the study's findings was increased when the details of the methodology were known (e.g., ethics, sampling, and data collection) demonstrating how the

research was conducted, ensuring the reader can assess the accuracy of the findings (Houghton, Casey, Shaw, & Murphy, 2013). I used purposive sampling and intentionally selected participants (target audience) who had exposure to the AHS influenza immunization campaign and the various interventions used to increase vaccine uptake (the phenomenon of interest) (Richards & Morse, 2013). In the data collection, I was the only one administering the semi-structured interview guide, which helped safeguard consistency between participants (Richards & Morse, 2013).

Dependability. *Dependability* of the data (stability of the data) and the findings were realized with a robust outline of the research process providing confidence and rationale for the reader of the decisions and interpretation made throughout the study (Houghton et al., 2013). An audit trail was a tool that kept track of decisions made, rationale, interpretation and conclusions made from the data collected (Houghton et al., 2013). The use of the NVivo 12 database was ideal in generating an audit trail of the field notes as on-going real-time tracking of the decisions made of any process or methodological changes such as in data collection or interpretation (Houghton et al., 2013). The audit trail assists the reader retrace steps to arrive at the conclusion of the study (Creswell & Poth, 2018).

Reflexivity. *Reflexivity* was defined as full disclosure, being conscious of my biases and experiences with the phenomenon throughout the study, and how it might inform the interpretation of the findings (Creswell & Poth, 2018). I kept a reflective journal to document my thoughts, decisions, feelings, reactions, biases or responses to participants and influenza immunization (Houghton et al., 2013). It is important to be self-aware and acknowledge any biases and experiences (Creswell & Poth, 2018).

As a CDN, my experiences with HCWs, patients, and influenza outbreaks in facilities shaped the research question. My responsibility as a CDN is to coordinate a team that works with each facility for the management of influenza outbreaks (e.g., hospitals, long term care, and lodges). My role during an outbreak was to ensure the facility had strategies in place to stop the transmission of influenza such as enhanced cleaning, confirmation that staff who are caring for patients are immunized or are taking Tamiflu and continued ongoing surveillance. During the study, I kept a reflective journal, in addition to the audit trail, to help maintain transparency. The reflective journal provides a rationale for decisions I made reflecting self-awareness of my personal history and interests regarding the influenza vaccine (Houghton et al., 2013).

Chapter 4. Results

This case study explored HCWs' perceptions of the AHS influenza campaign components. Some of the participants also voluntarily shared their assumptions about their colleagues' reasons for refusal and acceptance of the influenza vaccine. The question that guided the research was, "What are HCWs' perceptions of the effectiveness of various components (interventions) of an influenza immunization campaign designed to change behavior towards influenza vaccine uptake?" This chapter will begin with a summary of participant demographics, then an outline of the AHS influenza campaign that is being explored, followed by a description of the findings of this study.

Participant Demographics

Participants' demographic information was gathered to give the reader a context to the study and to give meaning to the findings. Seven participants were interviewed. There were five Registered Nurses, one Licensed Practical Nurse, and one-unit clerk (department clerk). They ranged in age from 18 to 50, and four of the seven were over the age of 30. The participants worked 12-hour shifts at the QE II. Six out of seven worked on one of the high acuity departments (units): maternity, emergency department (ER), Intensive Care Unit (ICU), pediatrics, neonatal ICU, and medicine. All have worked for AHS at the QE II for at least one year and up to 21 years and thus have experienced at least two influenza campaigns. Four of the seven participants have children living at home.

The participants were asked, "Have you received the influenza vaccine in each of the last two years?" In the last two years, five out of seven participants received the influenza vaccine, and this year six out of seven received the vaccine. Participant P1 reported receiving the vaccine because of health and patients, "*I believe it's the best decision for my health, the best way to*

prevent immunocompromised people from being affected." P2's reason was to protect the patients, stating, "*partly work-related I feel if I am working in the NICU and pediatrics around babies that don't have the opportunity to get the vaccine that it's my responsibility".* P3's reason for getting the vaccine was family, "*because my brother is immunocompromised.*" One of the participants chose to accept influenza vaccine for their own health as well as that of patients stating, "*I can protect me but more importantly if we create those pillars in the community [herd immunity] then it protects those [who] actually can't [have] the vaccination*" (P6). In summary, those who chose to receive the influenza vaccine cited the following reasons: their health (themselves), their family's health, protecting patients, and contributing to the herd immunity, which helps protect those that cannot or do not receive the vaccine. One participant stated that their reason for not accepting the influenza vaccine was the previous negative reaction, "*the couple of times I have had it [vaccine] I have swollen-up where it gets very big and red and sore*" (P7).

Influenza Campaign

The influenza campaign that is evaluated in this study is one that is carried out by AHS and is described in what follows based on my knowledge of it in the context of my role as a CDN. AHS is a province-wide health organization that employs over 108000 people (Alberta Health Services, 2018). The AHS influenza campaign is designed by AHS Workplace Health and Safety (WHS) and is available across the province regardless of the employee's location or the type of facility they work in (e.g., acute care, long-term care, clinics, public health). It runs from September to March (influenza season) each year. The AHS *Influenza Immunization Position Statement*, which emphasizes the importance of yearly influenza immunization for all HCWs to protect themselves, colleagues, and patients supports the AHS influenza immunization

campaign (Alberta Health Services, 2017a). AHS, as an organization, supports the influenza immunization campaign as a strategy to increase HCWs' vaccine acceptance.

There are two influenza campaigns (staff and public) with the same goal to increase influenza vaccine uptake. The difference is their target audience and their messaging. In what follows, the term "AHS campaign" will be used when describing the staff influenza campaign, and "public campaign" will be used when describing the campaign for the public. The AHS campaign content targets the HCW. An example would be slogans on posters with a picture of a HCW and a caption such as, "I got my flu shot because…", "We want to protect our coworkers", or "I want to protect patients and families" (Alberta Health Services, 2017a). AHS campaign components attempt to gain buy-in by listing the benefits of vaccine acceptance (e.g., decrease sick time and not increase the unit's workload). The public campaign components target the community at large, that is, all Albertans six months of age and older, with a goal of creating herd immunity and protecting those that are vulnerable (Alberta Health, 2019). The public campaign focused messaging targets parents of young children, protecting children under six months of age who cannot be immunized, and seniors (over 65) who are at higher risk of complications.

The AHS campaign begins in the fall with two weeks of scheduled staff clinic times. The design of the AHS campaign encompasses supportive interventions such as voluntary immunization, accessibility to the vaccine (staff clinics, roaming carts), self-reporting of receiving immunization, support of management, messaging on influenza, and education. One of the goals is to reach more employees using a variety of mediums to disseminate information such as *Insite* (AHS employee-only access webpage), AHS external webpage, CEO Blogs and e-mails, HCW and patient testimonials (e.g., YouTube videos), e-learning modules, and posters.

The messaging component used in AHS facilities informs HCWs of why they should receive the influenza vaccine and where and when they could be immunized. Another medium used in messaging is circulating posters throughout AHS facilities. The posters contain slogans encouraging employees to protect themselves, their families, and their patients by being immunized.

AHS Campaign Components at the QE II

The OHN and site leadership determines which AHS campaign components will be used for their site. Initially, I had assumed that a "standardized" AHS campaign rollout of the components was available to all sites. The components of the AHS campaign accessed by all sites included emails, *Insite*, and an external web page. All other components previously described were optional and site-specific.

I confirmed the components used for the 2018-2019 influenza immunization campaign at the QE II with an environmental scan and information from the OHN. The environmental scan consisted of several visits to the QE II early in the campaign. I observed a temporary staff clinic near the cafeteria and posters in the staff elevators and staff lounge informing HCWs of the clinic dates and times. I did not see any educational posters at the QE II. Educational posters in prior years highlighted the differences in symptoms between influenza, common cold, and stomach flu. Also, in previous years, there were posters with slogans encouraging HCWs to get immunized. I confirmed with the participants that the site's OHN did send out emails with an attached poster that detailed the clinic dates, times, and locations.

Staff clinics. The HCW influenza immunization clinics ran for the first two weeks of October 2018, Monday to Friday from 0830-1630hr. There were three OHNs available during that timeframe to administer the influenza vaccine. Two of the OHNs offered immunization at a

temporary staff clinic near the cafeteria, and the third went from unit to unit with a roaming cart. In the second half of October, clinic days were decreased to Tuesday to Thursday, with one OHN in the clinic and a second OHN that went unit to unit with a roaming cart. If HCWs missed the clinics or roaming cart, there were other local options, such as public health clinics or pharmacies. A couple of units had site influenza champions, who were one of their nursing staff that was trained to administer the influenza vaccine and serve as a source for education.

Manager's Toolkit. AHS, to support those in leadership roles (e.g., managers, supervisors), developed a toolkit as a component of the campaign. The AHS Manager's Toolkit was designed to provide leaders with educational scripts and other resources that could be used to advocate and speak to their employees about influenza and influenza vaccine. The toolkit assists managers with having difficult conversations (e.g., not accepting influenza vaccine, ethical considerations, moral responsibilities of HCWs, adverse reactions, and vaccine efficacy). The toolkit was intended to be used as an educational component to ensure that the HCW's decision to receive a vaccine or not was informed. AHS developed scripts to answer the most common questions or concerns by presenting facts to dispel myths and misinformation. The facts could correct misinformation, such as the belief that when the HCW refused the influenza vaccine, and they were at home sick due to influenza, their time away would be unpaid. The correct information was that if a unit had an influenza outbreak, asymptomatic unimmunized HCWs would be excluded from work potentially without pay for the duration of the outbreak unless they were immunized and took antivirals for 14 days or took antivirals for the duration of the outbreak (Alberta Health Services, 2019a). This example highlights the importance of ensuring that the HCW had received the correct information needed to make an informed decision.

Education, such as using a toolkit, is an important component that is not standalone but rather integrated within all aspects of the AHS influenza immunization campaign. The education component of the toolkit, as presented by the manager, includes influenza facts (PowerPoint presentation, poster), the impact of HCW immunization (video), immunization facts (e.g., myths, efficacy, adverse reactions), and discussion on the information. In previous years, AHS WHS OHN encouraged leaders to request the toolkit. This year the site's OHN distribution targeted units (departments) with the lowest immunization rates. The rationale for the change was units that had previously used the toolkit had demonstrated higher coverage rates (communication from OHN, 2019).

Interview Findings

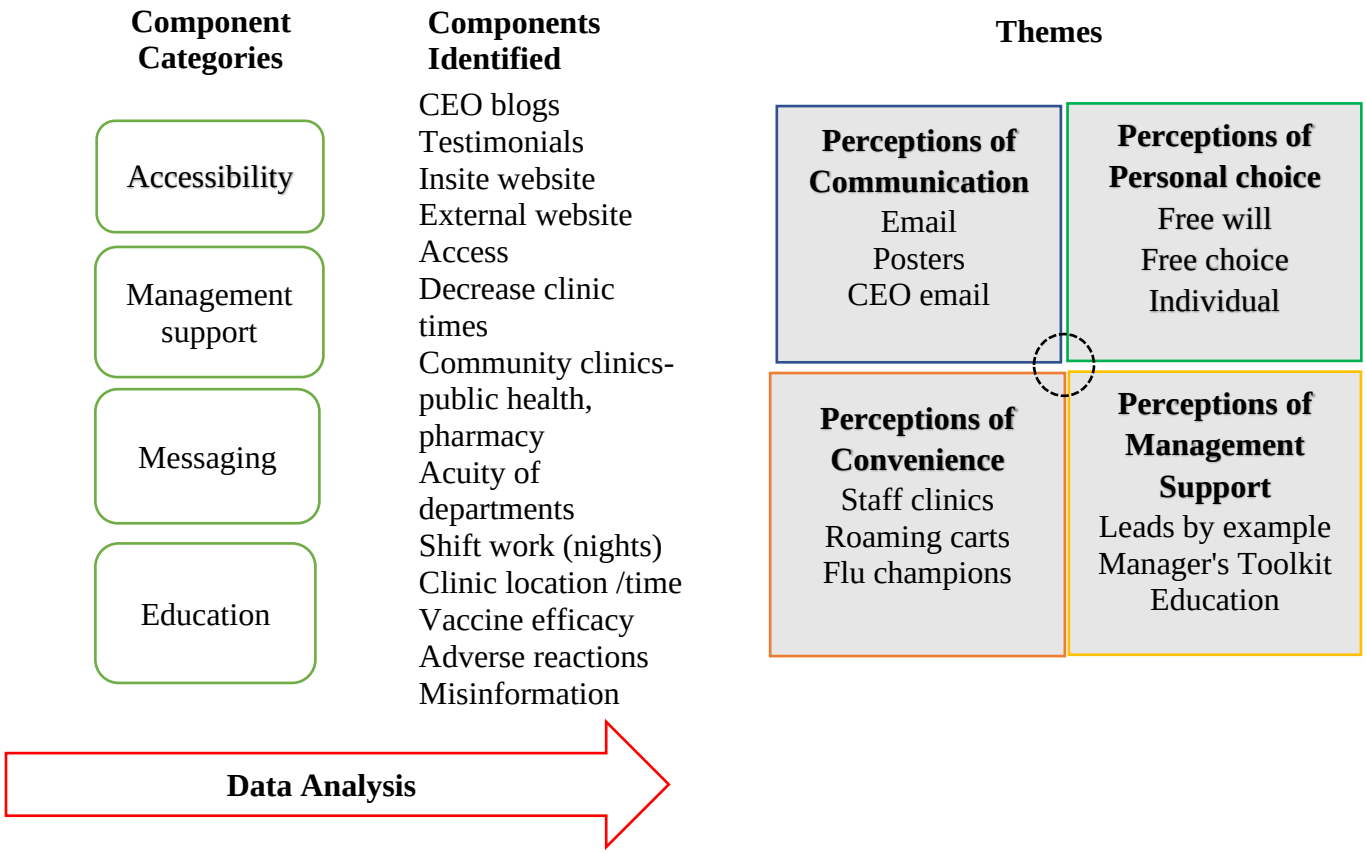
The first interview question was intended to determine the participants' general knowledge of the AHS campaign, "AHS has an annual influenza campaign that begins in the fall of each year. What can you tell me about it?" (see Appendix D). Two of the seven participants described the public campaign components (e.g., TV, billboards, radio) and not the current AHS campaign. One noted that *"They went more social media rather than putting posters or billboards around town [and on] Facebook" (P3)* and another stated that *"The public is made aware by radio contact, [there are] different social media aspects to this as well" (P6).* Four of the seven participants described the AHS campaign as a notification email and poster. Two participants said, "*generally a combination of communication between email and posters of when the clinics are available" (P2)* and "*we get emails that say that we need to get immunized against the flu" (P7).* The third participant referred to the influenza campaign included on the AHS internal website and said, "*Email and seeing it on Insite" (P4).*

AHS Campaign Components

After seeking information about participants' knowledge of the campaign, participants were asked to describe their perceptions of the AHS influenza campaign focusing on the various components. The interview continued prefaced with saying, "The following questions are related to the components … I would like to hear your perspective on each one. What do you think works well, making it an effective influenza campaign, or does not work well, and why?" (see Appendix D). Thematic analysis was conducted using the interview transcripts collected from the seven participants. In analyzing the transcripts, a *map* of *emerging themes* was developed to illustrate the connections between the components of the AHS campaign and the emerging themes in **Figure 2.** The map begins on the left with the analysis moving from component

Figure 2

Map of Emerging Themes



categories towards a list of components identified during the data analysis. The themes emerged from the completed analysis of the data (four squares shaded in grey) and included convenience, communication, management support, and personal choice in **Figure 2**. Below each theme is the three top-named components. The themes are interconnected wherein the center overlapping section (circle) represents the individual's decision to be immunized or not.

The participants' responses reflected a combination of their perceptions of the AHS campaign and their voluntarily disclosed understanding of other staff and managers' verbalized opinions of the AHS campaign. The semi-structured interview questions focused on the various AHS campaign components (e.g., accessibility, management support, messaging, and education) and participants were only prompted with examples of these components as needed (see Appendix D). This section is organized around the four themes identified (perceptions of convenience, communication, management support, and personal choice), including perceptions related to the effectiveness of AHS campaign components in changing behaviour towards influenza vaccine uptake.

Perceptions of Convenience

Convenience is defined as readily accessible, handy, or close at hand (Meriam-Webster.com, 2019). In relation to convenience, participants reported that there are three in-hospital staff options to access influenza immunization including staff clinics, the roaming cart, and unit flu champions. The participants' perceptions of these three AHS campaign components, in terms of convenience, will be explored in the following paragraphs.

Staff clinics. Four of the seven participants found that the staff clinic times were not convenient for shift workers. One said, "*I don't think accessibility is the greatest when you're*

working shift work like that. This year I ended up getting mine three weeks later than normal because I couldn't get to a clinic when it was convenient" (P2). For the HCW working the night shift (1900-0700hr), there were only two scheduled staff evening clinic per week, Tuesday and Thursday (1700-2300hr), as observed on a poster at the QE II. Two participants indicated that there were fewer clinic times available than in previous years (P2; P3) and the OHN confirmed that this was the case. Last year the campaign began in the first two weeks of October and had staff influenza immunization clinics Monday to Friday during the day (0830h-1630h) and on two evenings (1500-2300hr) during the week. The first two weeks were followed by staff clinics which were offered three days a week during the day for the last two weeks of October. In my past practice as a nurse, I worked the night shift and the first part of the shift was spent performing patient care (e.g., medications, personal care), with little time to attend an evening staff immunization clinic. Participant P4 explained that there were some shifts when due to patient acuity and/or staffing levels, leaving the floor was not an option and I interpreted this as meaning "leaving could impact patient safety."

Roaming cart. A second component of the AHS campaign was the OHN with a roaming cart who circulated from floor to floor, offering influenza vaccine following the same schedule as the staff clinics (dayshift) in October. The roaming cart was designed to increase accessibility for the HCW and lessen concerns that during a shift, there may be no time or not a good time to go to the clinic. Three of the seven participants mentioned they saw the roaming cart this year. P6 explained that "*The roaming cart… is ultra-convenient for everybody."* Two of the participants indicated they would not have received the vaccine if the roaming cart had not been present on their unit (P1; P6).

Flu champion. The flu champion is a nurse who received up-to-date education on influenza disease and vaccine and is trained to administer the influenza vaccine. A flu champion was a strategy used by managers to increase accessibility, opportunity, and perception of convenience for staff on their unit to receive the vaccine. P4 said that "*now that we have someone [casual staff] on our unit [that] is our designated vaccinator, I think our compliance … is much higher."* P4 voiced concern that their flu champion was not there every day and could not connect with all staff on the unit, stating that the *"biggest thing for shift workers is the availability of having somebody around at all hours" (P4).*

Perceptions of Communication

Communication was found to be a reoccurring theme. Communication is defined as an exchange of information through a common medium (emails, posters, testimonials, websites) and people to educate, inform others, and answer questions (MeriamWebster.com, 2019). It was important that during the campaign, messages answer the who, when, how, and what around influenza disease and vaccine (Alberta Health Services, 2017a). AHS campaign components related to communication include managers, emails, posters, *Insite* (AHS employee-only access webpage), AHS external webpage, CEO Blogs and e-mails, HCW and patient testimonials, and face-to-face communications.

All seven participants perceived that overall, the AHS campaign was effective. However, when asked what specifically made it effective, all seven participants responded only after being prompted with examples of the communication components. All seven participants remembered two AHS campaign components (after prompting), including emails and posters. The AHS campaign components available for HCWs at the QE2 did not include radio, television, or educational posters; however, three of the participants added examples of components from the

public campaign. One said, *"[I] heard some stuff on the radio as well and TV*" (P2). The second recalled seeing educational posters saying, "*I can remember … the only one I can remember that is [an] educational piece is the one in the waiting room here [at public-health]" (P3).* The third said, *"I have two young kids, so I've been to public health, and they have their posters up all the time and pharmacies [too]" (P4).* The responses, with the exception of the clinic dates and times (posters, emails), indicated components of the AHS campaign were not reaching the target audience (e.g., HCWs) as expected. However, the participants (and perhaps other HCWs) were also recalling the messages included in the public campaign. The participants' perceptions of the AHS campaign communication components, including emails, CEO emails, posters, testimonials, and education, will be explored in the following paragraphs.

Email. An email was sent to all HCWs in the fall by the OHN alerting them to the start of the influenza campaign with the clinic dates, times, and location via their manager. The OHN during the AHS campaign sent information to all HCWs on influenza and the influenza vaccine attached to an email. Five of the seven participants interviewed perceived emails as an effective method of communication. P1 said, "*When I get to work, the first thing I do is check my emails*". P5, when referring to emails, said, "*I kind of look at what's not important or what's not necessary for my shift and I delete them"* and P4 added, *"I just do a quick scroll [but] I don't really digest the information."* All participants indicated they filter through their email inbox at least once per shift and delete some messages based on the subject line. In keeping with this, four of the seven participants mentioned that they were deleting subsequent emails containing influenza in the subject line, which perhaps suggests that they were not seeking out additional information about influenza, once they had acquired the information they needed about the clinic dates and times. Alternatively, participants may have read the influenza information attached to

the OHN email if time permitted. One participant who read the OHN's emails, said "*[*for *influenza information] emails for me as a means is more effective*" (P1). Participants said that reading emails was influenced by the limited *time* that is available to read them; therefore, HCWs may only read those related to practice changes (e.g., medication, new product) or from human resources (e.g., shift change, trade request) (P5).

CEO email. One of the questions asked was about the effectiveness of communication from the CEO about the influenza campaign. Three of seven participants (P1; P6; P7) perceived them as effective; the other four participants did not (P2; P3; P4; P5). One participant when asked about reading CEO's email said, *"[pause; I do] not intentionally [read the email]" (P2)* and another said, *"I don't pay too much attention to them normally" (P3).* A third participant held a different view and stated that *"there has to be some support and acknowledgment from senior leadership, so yes. I think that it [CEO messages] is somewhat effective" (P6).* P3 believed that the CEO's on-going messaging could engage more of the audience, not just with written or spoken words, but also by including a visual aspect (e.g., pictures or graphs) highlighting the number of positive cases of influenzas and number of healthcare workers immunized. The information on influenza statistics the participant was referring to could be found on the AHS *Insite* page; however, navigation to the page was not intuitive.

Posters. The AHS campaign at the QE2 included posters in the staff elevator and staff lounge with the clinic dates, times, and location. Four of the seven participants perceived the posters as effective (P2; P3; P5; P6), but three did not as they could not recall what was on the poster. P1 stated, *"[a poster is] something on the wall I can ignore*." P5 suggested that posters should include "*some fun facts about influenza*." Another suggestion regarding information to include on the posters was "*statistics on how things are spread, how effective are they… for*

instance, the strain that's been attacking everybody… was [the strain] in the vaccine" (P5). Posters are a form of communication that requires no logging in or searching for information and thus may be a more convenient form of communication. I observed that this year there were no posters at the hospital with educational information.

Testimonials. All participants indicated testimonials (video or written, on *Insite* or by coworkers) would not influence their decision to be or not be immunized. P3 enjoyed reading staff testimonials located on *Insite,* stating, "*I like those, I have read through a bunch of them*". The participants denied that coworkers' testimonials impact their decision to receive or decline influenza immunization. However, four participants voluntarily reported that they overheard staff telling other staff the reason why they did not receive the influenza vaccine was due to "conspiracy theories [that vaccine is being pushed by pharmaceutical companies]"(P6) and "we hear … they [vaccines] have a 1% effective rate" (P7) and the participants believed they might influence others to also decline immunization (P1; P2; P3; P7).

Education. Educational information on influenza disease and vaccine was disseminated using different methods such as an attachment to emails from the OHN and CEO, on *Insite*, or the AHS external website, but not on posters. P5 felt time for education was a factor, stating, "*In acute care, you don't have time to be sitting there flipping through email and stuff".* The younger participants (i.e., less than 30 years of age) stated that they preferred information electronically, attached to an email, and would most likely ignore a poster (P1; P4). P1 stated, "*I do remember seeing a small amount of education on email [attachment]."* All agreed that they were more likely to read a quick email or poster than search websites. P1 and P4 perceived their colleagues' lack of knowledge as troublesome and felt that education could be more effective. One

participant expressed concern that colleagues did not know the difference between stomach flu and influenza, even though "*we do have extra education in healthcare*" (P4).

All participants agreed that current methods of communication are the least effective of the AHS campaign components. The participants perceived that there was not enough time available during an already busy shift to access, read, and assimilate the CEO blogs or emails, patient or staff testimonials, *Insite*, the external AHS website, or e-learning. One participant stated, *"[regarding] Insite, if I'm going through there [the homepage] to log into something, I'm kind of going there in a hurry [and] I don't really take the time to look through their website*" (P5). The findings from the study indicate that participants believed emails and posters were the preferred methods for communicating with HCWs.

Perceptions of Management Support

Communication between managers and staff can be direct or indirect, verbal (one-to-one, overhearing conversations), written (emails, letters), or non-verbal (eye-roll, posturing). Regardless of the method, such communications could influence others. All seven participants felt their managers were very supportive of the influenza campaign. They reported the managers would give them enough time to get immunized. The participants' perceptions of the AHS campaign components, including the Manager's Toolkit, education, leading by example, and time in terms of management support, will be explored in the following paragraphs.

Manager's Toolkit. The *Manager's Toolkit* for influenza described earlier in this chapter is designed to assist managers in increasing influenza immunization rates. The toolkit includes scripts on facts about influenza disease and vaccine. AHS developed the influenza toolkit for managers to use and to speak knowledgeably about influenza and influenza vaccine. In each interview, I asked participants if any manager had discussed the influenza information at staff

meetings, and the response, was "no" for six out of seven, indicating that they did not receive any specific influenza education from the managers (P1; P2; P3; P4; P5; P7). One participant said, "*[we] never had staff meetings… things get busy and not enough staff*" (P3). Another participant stated, "*[we receive influenza messaging] … occasionally we will do staff meetings during the [influenza] season*" (P6).

Education. Avoiding myths and misinformation is possible with managers' support if they take the time to read from the evidence-based script or play the videos from the toolkit. The participants provided several examples of misinformation related to the influenza vaccine and influenza disease that may lead to decisions not based on evidence. An example of misinformation on vaccine ingredients that was overheard and voluntarily disclosed by one participant included that, *"[a HCW] said to a few people that [the HCW] wasn't going to get vaccinated because there's too many chemicals in them [vaccine]" (P1)*. The perception of vaccine efficacy is also important to HCWs in making their decision to accept the influenza vaccine or not. P7 voiced concerns about vaccine efficacy, based on information that they believed to be true, stating, "*should I get my flu shot if it's only 1% effective?… I think that more people would probably get it if it [was] more effective*".

Adverse reactions are one of the most cited reasons why HCWs refuse the vaccine (Toronto & Mullaney, 2010). The *Manager's Toolkit* has credible resources (e.g., Influenza Immunization Summary FAQs, Myth/Fact document) (Alberta Health Services, 2017a) which could assist staff in understanding differences between a normal and an adverse reaction, such as "w*here it gets big and red and sore, so I have reacted to something in the vaccine"* as reported by P7. The participants' responses confirmed common reasons why HCWs do not accept the vaccine, including concerns about vaccine efficacy and adverse reactions.

Manager leading by example. A "vocal manager" was overheard by P3 encouraging staff to get immunized and advocating its importance. In relation to leading by example, one (P3) out of seven participants could confirm that their manager received their seasonal influenza vaccine. The participant said, *"The manager proudly wore a big sticker with a big slogan that said something like 'Flu shot - got it, did you?'"* (P3). Another participant reported overhearing a manager telling people that they were not going to be immunized (P1). P7 said of their manager receiving vaccine, "*some years yes [the manager would receive vaccine and], some years no*." The four other participants were unsure if their managers received the influenza vaccine.

Perceptions of Personal Choice

Personal choice, the fourth theme, is defined as an individual having the ability to make an informed decision without coercion (Doody & Noonan, 2016). In the literature, the terms "autonomy," "free will," and "personal choice" were used interchangeably (Pless et al., 2017; Quinn, 2014). For AHS HCWs, the decision to accept or not the influenza vaccine is a personal choice and is not mandatory. In this study, the seven participants were free to choose to accept or decline vaccine in the 2018-2019 season. Two of the six participants that received the vaccine disclosed making a personal choice that was different from previous years. The first participant said, "*this is my first flu shot in 12 years"* stating that previous years they had no time to receive vaccine, however, this year their partner asked them to go (P5). The second participant's choice may have been different if not for convenience, describing,"[the roaming cart was on the unit], *that's how I got vaccinated… very convenient for me*" (P1). One participant believed that the AHS campaign was effective even though the coverage rates were low, explaining "*it's the individual's choice [to refuse vaccine]… 60% [uptake] is not a reflection on how effective the campaign* [is]" (P7). Another participant believed the reason HCWs refuse vaccine was "*due to*

shiftwork [convenience] or just [because of their] beliefs [they] don't get it [vaccine]" (P5). Participants spoke about immunization, and similar to the findings in the literature, the nurses in this study wanted to protect their autonomy; that is, they believed in the right to become sick with influenza and the right to not be forced by management to be immunized (Pless et al., 2017). If immunization was mandatory, one participant believed, "*there would definitely be much more of a negative link to the experience [influenza immunization]*" (P4). Other participants added to that if immunization was mandatory, they believed that "*you're going to have a rebellion*" (P5), "*we would have trouble keeping staff*" (P6), and *"…[there would not be] free will*" (P7).

This chapter will conclude with the findings related to the overall perceptions of the AHS's campaign and then other successful interventions that could perhaps be added to the AHS campaign.

Overall Perception of Campaign Effectiveness

To understand the participants' perceptions of the AHS campaign effectiveness, I asked the question, "What percentage of HCWs working at the hospital do you think have chosen to be immunized?" Five out of seven believed it would be between 40 and 60%, which is well below the protective target of 90% recommended by the World Health Organization (2015). It did not surprise them that for the last three years, the QE II HCWs' influenza vaccine coverage rate was 40-60%. The participants believed that this was not related to the effectiveness of the campaign but rather that the low vaccine uptake was more about *"individual choices" (P6)* or HCWs' belief that they are not susceptible to influenza, as noted by one participant who stated, "*nurses who refuse to get the flu vaccine are the more senior nurses… and they always say I am just going to risk it*" (P3).

Participants were asked, "Is there anything you would change or add to the campaign?" Participants suggested several strategies that might increase vaccine uptake. One idea was to have a flu champion available in one-to-one (or small group) information sessions. The information sessions would be held year-round and be designed as an opportunity for HCWs that do not receive the influenza vaccine to ask questions (P1). Other suggested changes included mandatory immunization (P1; P2; P3), one-to-one or small group education (P1), and increased availability of the roaming carts to increase access to the vaccine (P4; P6).

Successful Interventions

A final question asked participants about four specific components (interventions) reported in the literature as being successful in increasing influenza vaccine uptake in other healthcare organizations and whether or not they believed they would be successful if they were added to the AHS campaign.

The first intervention involves an OHN automatically booking an appointment with the HCW for their influenza vaccine and making it the responsibility of the HCW to cancel it if they decide not to be immunized. None of the participants felt this would be an effective strategy due to shift work and outside commitments. All believed strongly there would be a lot of no-shows.

The second intervention required the HCW to wear a mask from October to March if they declined the influenza vaccine. Five of the seven participants' first reaction was laughter; however, they stated they believed it might work because HCWs hate wearing masks and it would push them to get immunized. One participant expressed concern, based on their perception that this intervention took away their right to choose whether to be immunized or not, "*it's telling them that they don't have free will*" (P7).

The third intervention was to complete a signed form that explains why the individual has declined influenza immunization. Six of seven participants felt this idea might work as it would make them more accountable. P4 said that "*if they didn't have a good reason, then it would probably seem silly to decline [the vaccine].*" P6 similarly noted that "*it makes you accountable for why you haven't [accepted the vaccine]*." P7 believed that "*some people would say that they decline for health reasons, that [they are] actually allergic to some of the components of influenza [vaccine] and other people [would] say that is not effective".*

The fourth intervention was the most controversial and entailed mandatory immunization, with exemptions only if the HCW has a documented prior adverse reaction or a medical reason for not receiving the influenza vaccine. Three of the seven participants believed this was a good idea (P1; P2; P3). The other four believed this would be a bad idea. One stated, "*I think there would be definitely much more of a negative link to the experience*" (P4). A second said, "*I think any time you make something mandatory you're going to have a rebellion*" (P5). One participant, like the previous respondent, said, "*I think what that might do is drive people away from whichever organization is making it mandatory*" (P6). The last participant believed that it should be a personal choice to immunize, stating HCWs have "*free will*" (P7).

Summary

Six out of seven participants were immunized; however, I was surprised by some of their responses concerning the influenza campaign components such as "*[refuse vaccine] due to shiftwork [clinics are not convenient]"*(P5), *"[a HCW] said … there's too many chemicals in them [vaccine]"* (P1), and that all seven participants filter and delete emails containing influenza in the subject line. Participants' perceptions of the effectiveness of various components of the AHS influenza immunization campaign were discussed in terms of perceptions of convenience,

communication, management support, and personal choice. Several participants believed that if adding new components to the campaign was needed, the wear-a-mask if they decline the influenza vaccine would be more successful than mandatory immunization.

Chapter 5. Discussion

The current study explored HCWs' perceptions of the effectiveness of the components of one organization's influenza campaign in changing behaviour towards vaccine uptake. The findings from the study suggest that HCWs' perceptions of the effectiveness of the influenza campaign components may not match those of the health organization. The study used the HBM as a guiding framework to explore the participants' perceptions of the current (2018-2019) AHS campaign components. The HBM constructs (severity, susceptibility, benefits, and barriers) are used to predict an individual's (HCW's) readiness to act (self-efficacy) to change health behavior (triggered by cues) to prevent disease by accepting vaccine (Glanz et al., 2015). In other words, the HBM depicts a pathway an individual follows towards choosing healthy behaviour such as accepting the influenza vaccine. In the case of the influenza campaign, the *cues to action* are the components of the campaign designed to assist the individual in believing there is a perceived threat, that he or she is at risk, that barriers can be overcome, and that benefits will be achieved leading to influenza vaccine uptake (Glanz et al., 2015). The HBM constructs will be used to evaluate the components of the AHS influenza campaign and guide the following discussion, which will also incorporate the themes that emerged from the data analysis, namely convenience, communication, management support, and personal choice. The literature review for this study found that previous studies examined "why" HCWs decline influenza vaccine or "how" interventions are used to increase vaccine uptake (Pless et al., 2017; Lytras et al., 2016), but few explored the influenza campaign components through the lens of HCWs. This study explores "what" are HCWs' perceptions of the effectiveness of the influenza campaign components (interventions) designed to change behaviour towards influenza vaccine uptake.

AHS, like other health organizations, develops and implements yearly influenza immunization campaigns to increase vaccine uptake, but with limited success (Kok et al., 2011). In the 2018-2019 AHS influenza campaign, immunization coverage rates at the QE II remained at less than 60% in comparison to AHS as an organization, which is slightly higher at 68% (Alberta Health Services, 2018a; Alberta Health Services, 2019). AHS recommends a protective immunization target of 80% compliance with influenza vaccine uptake for HCWs (Alberta Health Services, 2017). Immunization directly protects the HCWs and as compliance increases towards 80%, it indirectly offers protection to patients and other staff by reducing transmission or being infected (Logan et al., 2018). In the Alberta 2018-2019 influenza season, there were 1,976 hospitalizations and 52 deaths (in hospital) among people with lab-confirmed influenza (Alberta Health, 2019). Unimmunized HCWs can spread the influenza virus one day before symptom onset (Alberta Health, 2019). Low influenza immunization rates in HCWs increase the risk of transmission of influenza virus to patients and potential facility outbreaks (Chambers et al., 2012). The organization (AHS) supports HCWs receiving influenza immunization to protect patients and staff (Alberta Health Services, 2019).

The participants were asked to describe their perceptions of the AHS influenza campaign components. The first component of the campaign that all participants recalled is the messaging around 'getting the flu shot.' The participants described a blend of the AHS and public campaigns; they did not differentiate between the AHS campaign designed for HCWs (e.g., protect yourselves, protect your patient) and the public campaign intended for the community (e.g., protect those too young to be immunized, protect those at high risk of complications). The examples they gave of the campaign components are a blend of both the campaigns (e.g., radio, TV, billboards, emails, and posters). Both campaigns do have similar messaging; the most

significant difference is their target audience. Although this study focused on the AHS campaign, if the information in the messaging is similar between both campaigns and the end goal is to increase influenza vaccine uptake to protect the vulnerable and those that cannot be immunized, it should not matter where they obtain the information. An influenza campaign is a program of primary prevention, it is an action or set of actions designed to target a healthy population prior to illness creating protection for others (Allender, Rector & Warner, 2014).

This study explores the AHS campaign through the lens of the HCW to gain insight from their point of view on the effectiveness of the components. This research is important to the healthcare organization (AHS) as it examines the campaign outcomes where the benefits of having immunized HCWs outweigh, for the most part, negative consequences of low-uptake, such as the cost of increasing staff clinics (nursing hours), increased HCW sick time, risk of hospital-acquired influenza, and potential outbreaks (Toronto & Mullaney, 2010).

The AHS influenza campaign incorporates components (interventions) that are rooted in the HBM constructs (severity, susceptibility, benefits, and barriers) predicting self-efficacy in **Figure 3**. The campaign components (e.g., staff clinics, roaming carts, flu champion, emails, posters, manager support) are developed to influence the individual HCW and to improve influenza immunization uptake of all HCWs. For example, if the HCWs believe that influenza is severe, they are susceptible, and accepting vaccine is an advantage (benefit) against disease, but that clinic times are not convenient (barrier), a campaign component (cue to action) would be needed to overcome this barrier. The HBM constructs are used in this study is to gain a better understanding of the individual HCW's perceptions of the effectiveness of the AHS campaign components.

Figure 3

Health Belief Model

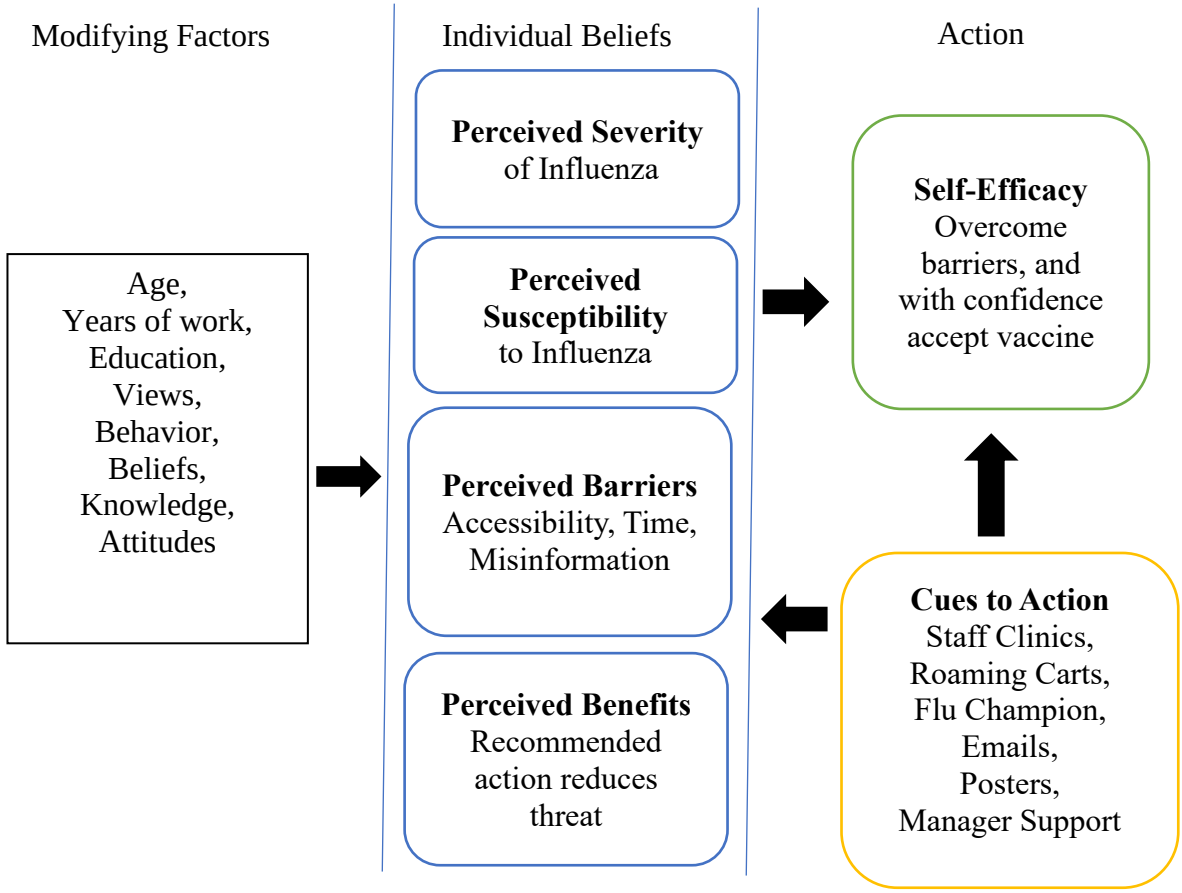


Figure 3. Health Belief Model revised. Adapted from Figure 5.1 Components of the Health Belief Model from Glanz, K., Rimer, B. K., & Viswanath, K. (2015). *Health behavior: theory, research, and practice*. San Francisco, CA: Jossey-Bass.

Perceived Severity and Susceptibility

The HBM construct perceived severity is described as the individual's belief they are at personal risk of severe consequences if they contract influenza (Glanz et al., 2015). The HBM construct perceived susceptibility is defined as the belief that there is a threat, that is, they are at personal risk for contracting influenza (Glanz et al., 2015). Participants voluntarily disclosed

overhearing unimmunized senior HCWs saying they do not perceive influenza as severe or that they are susceptible. Furthermore, some believed that immunization is (or should be) their personal choice, which suggests that personal choice may supersede or take precedence over perceptions severity and susceptibility in making a decision to accept or refuse influenza immunization.

Perceived Benefits

The HBM construct perceived benefits is described as the belief that there are advantages to following recommended action, such as accepting the influenza vaccine and reducing the threat of disease (Glanz et al., 2015). Other perceived benefits may be more altruistic such as by receiving vaccine, the HCW is protecting their patients and their coworkers (Glanz et al., 2015). The goal of the organization is to develop *actions* (components) that encourage the HCWs to believe in the benefit of receiving the influenza vaccine (Alberta Health Services, 2017). The HCW's perception of benefit may be about themselves and not necessarily the greater good (e.g., others). The emphasis on influenza immunization for HCWs gives rise to the question, "Should the campaign's cues' main focus be on the individual HCW or on others (e.g., protecting the vulnerable patient)?"

The findings of this study align with those of Cohen and Casken (2012) and suggest that the primary reason participants choose to immunize is to protect themselves and their family and then the patient. Four out of seven participants in this study who have children living at home perceived immunization as a benefit to themselves and their families. That is, by accepting the influenza vaccine the participant is protecting the family from being infected with influenza they could bring home. It is a requisite to design the components (cues) that assist the HCW in believing in the value of the influenza vaccine for themselves (and families) and patients.

Consistent with this, Cohen and Casken (2012) found that influenza immunization increases when there is better access to those that can immunize. Staff clinic times and roaming carts have the potential to be effective, but only for HCWs that have the flexibility to attend the scheduled clinics or are available when the roaming cart is present on the unit. A suggestion to resolve this concern is to increase access by decreasing staff clinic hours and using those hours to increase the number of hours the roaming cart can go from unit to unit.

In the previous C*hapter 4: Results*, the description of the AHS campaign identifies the components available to HCWs at the QE II, including emails, posters, CEO emails, and blogs. Communication is considered effective when the right combination of the campaign components reaches the target audience, engaging the HCW in health-promoting behaviour, reducing the risk of influenza (Riphagen-Dalhuisen et al., 2013). The findings of this study suggest that communication is useful (benefit) when the information is readily accessible (e.g., a computer is available to receive information), and HCWs have time to read, assimilate, and absorb the information.

AHS considers managers as an essential component of the AHS campaign as leaders of their units (or departments) (Alberta Health Services, 2017a). The manager that leads by example is a role model, receiving their influenza vaccine and then supporting their employees with time and encouragement to do the same. The managers have access to evidence-based scripts on influenza that could be explored with their unimmunized staff and used to discuss the reasons for their uncertainty about accepting the influenza vaccine possibly due to vaccine efficacy, or adverse reactions. All the participants in this study believe there is a benefit to having managers that support them receiving the influenza vaccine from an individual (protecting oneself) and organizational (protecting the vulnerable patient) perspective.

Perceived Barriers

The HBM construct perceived barriers is described as obstacles that prevent participants from taking action (Glanz et al., 2015). Before collecting data, I presumed that HCWs who received a yearly influenza vaccine would perceive the campaign components as effective; however, during this study, I discovered from the participants that this is not the case. Regardless of influenza immunization status, some of the barriers identified by participants are not perceived any differently, including accessibility (clinic times), messaging (emails) and education (concerns about potential side effects and vaccine efficacy), which are consistent with those reported in the literature (Toronto & Mullaney, 2010).

The healthcare organization to help eliminate barriers and increase convenience offers the following influenza campaign interventions to improve accessibility: staff on-site influenza clinics, roaming carts, and unit flu champions. The organization's concern is that HCWs may decide not to be immunized if they need to actively find a clinic (time, location), or an immunizer (roaming cart, flu champion). The participants in this study voiced concerns of decreased access due to fewer staff influenza clinic hours, in comparison to previous years and the limited clinic hours during night shifts. There might be greater vaccine acceptance when time and place are not a barrier in the HCWs' decision to be immunized (e.g., clinics and roaming carts are accessible 24 hours a day). On the other hand, increasing access by keeping staff clinics open 24 hours per day may not be practical, especially if HCW perceive that taking time to leave the unit to go to the clinic may put patients at risk or make a difference and may increase cost and time for the organization.

In this study, it was evident that the organization believes it is offering adequate clinic options (e.g. times), whereas the participants perceived the limited clinic times as inconvenient

(barrier). For example, one participant explained when the flu champion is working on the unit at the same time as the HCW, receiving vaccine it is convenient, but if the flu champion is working on their days off, it is viewed by the HCW as inconvenient. Has convenience become a standard expectation rather than a luxury? Incorporated into our daily lives is convenience where everything is at our fingertips, such as online shopping, meal delivery, or getting answers quickly from Google. In this study, four participants were concerned with convenience and did not find it convenient to receive the influenza vaccine at their place of work; they had to find alternative clinics. Two participants' decision to accept the influenza vaccine was connected to the perceptions of convenience--both acknowledged that if the roaming cart had not come by, they might not have deliberately gone to an alternate clinic, even though they believe in the benefits of influenza vaccine. This finding is similar to that of MacDonald (2015) who found that perceptions of convenience affects the decision to accept vaccine and both studies indicate that further investigation and strategies related to convenience are needed.

Another obstacle identified in this study is that the AHS campaign messaging is not reaching the participants beyond the initial launch of the AHS campaign (e.g., email and posters including the date, time, and location of the upcoming staff influenza clinics). It is important to understand the campaign's target audience and the obstacles preventing the HCW from receiving communication about the influenza vaccine (Glanz et al., 2015). In a study of generational differences by Leavitt (2014), the HCW baby boomers (born before 1964) are outnumbered by generation X (1965-1981) and millennials or generation Y (born after 1982). Five out of seven participants in this study are millennials (first-generation to grow up with the Internet) and tend to expect that communication includes more social media and email (Leavitt, 2014).

The participants reported that they access their email each shift. However, due to limited time during the shift, they filter through the emails by subject line deleting as they go. The deletion of emails by subject line is important information when redesigning the influenza campaign, given that the staff may not be reading new influenza educational information that is attached to an email. I wondered if some of the silent pauses or nervous laughter from participants observed during the interviews possibly reflected 'guilt' in disclosing that they did not read all the emails. For example, the emails that had mixed responses from participants were the "CEO emails" related to the AHS campaign; three of the seven participants (P1, P6, P7) were appreciative of senior leadership support, and the others simply deleted these emails.

Another barrier with the AHS influenza campaign emails is that they are competing with other emails containing information perceived as being of higher priority because it has immediate relevance for patient care. All but one participant (P7) reported this concern. When disseminating information, understanding how HCWs receive communications is crucial if it is to be effective. A suggestion to improve email communication would be to ensure that each HCW has access to a computer during their shift with dedicated time read, assimilate, and absorb the information.

Access to educational information is a perceived barrier, as identified by a participant (P4) who noted that it is difficult to retrieve the educational information (e.g., influenza disease, vaccine efficacy, or side effects). Information that is available on the website or attached to emails may not be easily located because search criteria are very specific, or the emails have been deleted. A suggestion to improve access is educational influenza posters that the managers or others can print and post on each unit.

Before engaging in this study, I believed that HCWs refuse the influenza vaccine because of their lack of knowledge, and all that is needed is education. I also thought that if they understood the facts about influenza disease and vaccine, they would change their minds and would accept vaccine, as predicted by the HBM. The findings of this study suggest otherwise. Consistent with this, Hornsey, Harris and Fielding (2018) explain that offering evidence-based education to change the attitudes of anti-immunizers may not make a difference (or perhaps backfire). The campaign components designed to trigger a change in behaviour (e.g., education) may not influence the anti-immunizer's beliefs or change their attitudes; however, the components may impact the individual who is undecided (Luz, Brown, & Struchiner, 2019). Like Quinn (2014), the findings of this study suggest that education as an intervention is only beneficial if done in a way that meets the HCWs' learning needs, which may include access to a knowledgeable person to answer questions about influenza or where/how to find the information. The inability to disseminate knowledge effectively and engage HCWs could be considered a potential barriers to increasing influenza immunization uptake.

Perceived Cues to Action

The HBM construct cues to action are campaign components (e.g., access, emails, clinics) designed to trigger action and result in influenza vaccine uptake (Looijmans-van et al., 2011). HCWs' health beliefs can be affected by external or internal modifying factors (e.g., demographics, psychosocial influences) that directly or indirectly affect behaviors (Glanz et al., 2015). The design of the AHS influenza campaign incorporates the HBM constructs to help identify effective interventions (components) that are context specific. It is necessary to understand what components influence the immunized and the unimmunized to accept or decline the influenza vaccine. In this study, cues to action perceived to effective included email, posters,

CEO email, and roaming carts and those perceived to be less effective included education, staff clinics and websites.

Participants gave their opinion on four interventions described in the previous chapter as having been successful in increasing influenza vaccine uptake in other healthcare organizations that could be added to the AHS campaign to increase HCW vaccine uptake. The four interventions are as follows: an OHN automatically books the HCW an appointment to be immunized, vaccinate-or-mask from October to March, signing a reason for declining vaccine form, and lastly, mandatory immunization. The first three interventions have mild consequences for HCWs who refuse influenza vaccine (other than for medical contraindications) that require them to consider their refusal such as cancelling a booked OHN appointment, wearing a mask, and signing a declination form. The fourth intervention involves mandatory immunization as a condition of employment and has been used in Ontario acute care hospitals since 2000, with 95% coverage rates (Gruben et al., 2014). Gruben et al. (2014) report that 57 to 85% of HCWs support mandatory immunization, which was also championed by three of the seven participants in this study (P1; P2; P3). The remaining four participants did not agree based on their belief that accepting (or not) influenza vaccine is (or should be) a personal choice (P4; P5; P6; P7). These four participants believed mandatory immunization is a barrier and that staff would complain about the loss of autonomy to make their own choices and the lack of control to make decisions for their health. Influenza vaccine is not mandatory for the AHS HCWs, but the health organization does recommend it. All four interventions have strengths and limitations. The intervention the participants in this study believed would be accepted is the immunize-or-mask from October to March option and the intervention that the participants believed would meet with resistance would be the mandatory immunization as the HCWs would perceive a loss of

freedom to choose. However, mandatory immunization has had 95% HCW vaccine uptake versus a immunize-or-mask program with rates 53-95% (Gruben et al, 2014).

Perceived Self-efficacy

The HBM construct perceived self-efficacy is described as a belief that one is confident that they can successfully perform a specific behavior that leads to a particular outcome (Glanz et al., 2015). Participants believed there to be barriers to receiving the vaccine (e.g., limited clinic times); however, this did not prevent them from receiving the vaccine or diminish their confidence in their ability to find other clinics to receive the vaccine (self-efficacy) (Glanz et al., 2015). Corace et al. (2016) indicate that those who have received influenza vaccine in previous years are more likely to continue receiving the vaccine, which is valid for 70% of participants in this study who have received the vaccine in each of the last two years and 85% of participants who received it last year. The participant's personal choice determines the action. Self-efficacy is controlled by cognitive processes that lead to a particular behavior resulting in a certain outcome (Glanz et al., 2015). Confidence in one's abilities is influenced by previous experience and, therefore, the individual is more likely to engage in health behaviour again, such as immunization (Glanz et al., 2015). That is, if the HCW possesses a high level of self-efficacy to receiving the influenza vaccine, they will choose to seek out alternative clinics; if they decide not to be immunized (low-level self-efficacy), they might blame the campaign component(s) and declare them not convenient (Glanz et al., 2015).

Limitations of HBM

The HBM is a logical model that concentrates on cognitions but does not include the emotional element of behavior (Glanz et al., 2015). For example, participants (and perhaps HCWs in general) chose to accept the influenza vaccine, based on the knowledge that the

evidence supports that the vaccine will protect them, versus refusing the vaccine based on emotion due to perceived fear of adverse reactions or potential side effects. The HBM is used to predict HCWs' health behaviour, motivation to change to prevent influenza, and their beliefs that influence their decisions (Toronto & Mullaney, 2010). It was determined the HBM construct *perceived barriers* was the most significant contributor to the HCWs' perceptions of the effectiveness of the components in changing beliefs and attitudes. The *barriers* identified in the study are obstacles, for the most part, and can be modified in the following year's influenza campaign. Corace et al. (2016) indicate that studies use the HBM as a framework, but their findings have not 'translated into uptake research" (p. 3239) in developing components that increase HCW vaccine coverage rates. The HBM focuses on predicting the individual's decision to act in preventing influenza based on their readiness and confidence to change (self-efficacy).

Another limitation of the HBM is that it focuses on the individual, not the individual in conjunction with others. In a study of registered nurses conducted by Rhudy et al. (2010), the nurses did not consider receiving the influenza vaccine as an evidence-based intervention to protect their patients. Influenza immunization for HCWs traditionally is perceived as a public health initiative (Rhudy et al., 2010). In public health campaigns 10 years ago, to increase uptake for HCWs, vaccine acceptance was promoted to the HCWs as a personal choice for their health (Rhudy et al., 2010), which is similar to the beliefs of the participants in this study. There is a need for a shift in influenza campaign goals, moving from the perception that influenza immunization as a personal choice to accepting vaccine influenza vaccine as an evidence-based patient safety intervention similar to hand hygiene, isolation, and personal protective equipment (Rhudy et al., 2010, p.112). The HCW may however feel a loss of autonomy if receiving vaccine became an infection control measure instead of a personal preference to protect oneself. The

recommendation for HCWs to receive a yearly influenza vaccine to protect themselves and their patients is based on scientific evidence (Buchan & Kwong, 2016). If the recommendation is evidence-based, then why are influenza immunization rates not increasing? Future research is needed to examine why HCWs believe that the decision to receive the influenza vaccine should be a personal choice rather than an evidence-based decision.

Personal Choice

Health care organizations spend time, effort, and money in developing effective influenza campaigns. Is there a conflict between the health organization's target of 80% compliance to protect the patients and the HCWs' belief that influenza immunization is a personal choice? Personal choice or autonomy is respecting an individual's right to choose their actions and manage their concerns without coercion (Doody & Noonan, 2016). Lorenc et al. (2017) examined studies from an ethical standpoint, comparing patient protection versus HCWs' autonomy. The discord stems from the HCW wanting the same respect they give to patients over autonomy in making decisions for their health and the HCW making their decision to accept vaccine or not (Lorenc et al., 2017).). The findings from this study are consistent with the literature concerning autonomy, that is, the perceptions of personal choice, free will, or freedom of choice, and that it is for the HCWs to decide whether to accept or decline the influenza vaccine (Quinn, 2014).

The themes identified in this study (e.g., convenience, communication, management support, personal choice) are important to consider in the design of future components aimed at changing the behaviour of the unimmunized HCW and increasing influenza vaccine uptake. Luz et al. (2019) describe three immunization groups: those that immunize, anti-immunizers, and the undecided. The *undecided* group is unsure if they should accept or decline the influenza vaccine

because they question the vaccine or have "no knowledge, no interest or no time" (Luz et al., 2019, p. 1). According to Pless et al. (2017), the unimmunized HCW (e.g., undecided, anti-immunizers) believes that the influenza vaccine is unnecessary as they are healthy, not at risk, and seeks to maintain autonomy over their body, basing their decision on emotion, not necessarily evidence.

The health organization needs to understand their target audience and the HCWs' perceptions of the influenza campaign components. The greatest gains to be had are in targeting the undecided, that is, knowing what cues are needed to (or are most effective to) trigger action for the HCWs to believe that behaviour leads to the desired outcome. If the campaign's target is the undecided, what changes to the components are needed to be supportive and lead to self-efficacy? Do the undecided hold onto misinformation that supports their beliefs? Lastly, do the undecided find the campaign intrusive, guilting them into thinking they have no freedom to choose, and they must comply? Future research is needed to explore the perceptions of the undecided HCW regarding the effectiveness of the AHS influenza campaign components in changing behaviour and attitudes towards influenza vaccine uptake.

HCWs' beliefs and attitudes towards vaccine due to vaccine hesitancy may be a result of emotions instead of evidence-based knowledge (Luz et al., 2019). A vaccine hesitant individual is undecided or uncertain, and not necessarily anti-immunizer (Bedford et al., 2018). Emotion is defined as a subjective reaction to a person, thing, or situation (MeriamWebster.com, 2019). For example, emotion-based decision making may include the HCW refusing vaccine as a reaction to the organization telling them what to do and their belief that it is should be their choice. The HBM only predicts self-efficacy if the HCW is not making an emotional decision. Instead, the HCWs' decision is based on their cognitive processes (thinking, reasoning) when refusing the

vaccine. The ideal situation would be to have campaign components that change HCWs' behaviour and attitudes before refusing the vaccine by focusing on slowing down impulsive and emotional decision-making based on feelings rather than evidence (Kok et al. 2011). That is, reluctance to vaccines may be due to emotional response instead of evidence-based knowledge (Luz et al., 2019). In this study, a participant (P1) overheard an unimmunized HCW refusing vaccine based on the emotion of *disgust*. Disgust is the transitory emotion developed to avoid contamination (e.g., putting chemicals into the body with vaccine). If the emotion of *disgust* guides vaccine attitudes and behaviour it will be difficult to override (Luz et al., 2019). Attitudes of disbelievers (undecided, anti-immunizers) are often developed through "motivated reasoning" where the individual is often unable to explain reasons that are based on *intuition, gut feeling, and emotions* and supported by hearsay and unconfirmed facts (Hornsey et al., 2018, p. 308). Future research could explore the decision-making process, examining at what point an individual's choice can be changed so that they decide based on evidence rather than emotion.

In summary, the participants perceived the AHS campaign components as not effective in changing behaviour towards the influenza vaccine as the coverage rates have not changed. The participants identified perceived barriers, for the campaign components to be effective the health organization must reach the target audience. Participants perceived that the AHS campaign components would be more effective with the following in place: clinics are accessible and convenient, communication reaches the intended target, campaign is supported by management, and is based on personal choice.

Chapter 6. Conclusion

Alberta Health Services (AHS) as a health organization invests time and money in the development of an annual influenza campaign for healthcare workers (HCWs) to attain the recommended protective target of 80% influenza immunization (Alberta Health Services, 2017). In the last four years, the influenza immunization coverage rates among HCWs at the QE II hospital have remained below 60% (Alberta Health Services, 2019). The goal of the AHS campaign interventions (components) is to change HCWs' behaviors and attitudes towards accepting the influenza vaccine.

The HBM is a logical behaviour model based on cognition, not emotion (Glanz et al., 2015). The HBM is used as a guiding framework in this study to explore HCWs' perceptions of the effectiveness of the AHS influenza campaign components in changing behavior towards vaccine uptake. The components are the *cues* that trigger *actio*n in the individual by facilitating a relationship between health beliefs and health behaviour change, leading the HCW to *self-efficacy* and acceptance of the influenza vaccine (Glanz et al., 2015). The AHS campaign was perceived by participants to be effective when components are not barriers but rather are useful; more specifically, when clinics are accessible and convenient, communication reaches the intended target, campaign is supported by management, and is based on personal choice.

In knowing and understanding the individual's reasoning for a behaviour, policymakers can use that information for program evaluation and identify what interventions will lead to success (Kok et al., 2011). The perception of convenience (or lack thereof) may be a deciding factor for some in receiving (or not) the influenza vaccine. The AHS campaign and the public campaign have similar influenza messaging that focuses on their respective target audience (HCWs versus families with young children and seniors) and in the future should include

messaging directed at the *undecided*. An effective institutional influenza campaign empowers HCWs to make an informed choice based on evidence (Quinn, 2014). Luz et al. (2019) believed that undecided HCWs' attitudes towards vaccine may not be evidence-based but rather based on emotion. A personal choice to receive the influenza vaccine may be evidence-based; however, if the individual perceives that the campaign (health organization) is telling them what to do, they might decide to refuse the vaccine based on emotion.

Strengths and Limitations of the Study

The following are possible strengths and limitations of the study that should be considered by the reader.

- The interviews were conducted during the second half of the AHS campaign after the participants had received the influenza vaccine (apart from one participant, who declined because of the previous reaction to the vaccine). It was unknown if the participants' responses would have been different if the interviews had been conducted earlier in the campaign before participants were immunized or just after. Another factor that might have influenced participants' responses is the time between the launch of the campaign and the interviews-- some aspects of the campaign may have been forgotten.
- The expected number of participants was between 8 and 12. The recruitment of participants was slow using self-identification. As a result, snowball sampling was used to recruit six of seven HCWs, of whom six were immunized. A possible limitation of this snowball sampling was the lack of variety of HCWs recruited (e.g., six of the seven participants were nurses; one was unit clerk); as a result, the responses may not be as varied as they might have been if other categories of HCW (e.g., physicians, lab technicians) were also included. However, the data collected from the participants

regardless of their role or unit where they worked, showed that they had similar perceptions of the effectiveness of influenza campaign components (e.g., accessibility, messaging, management support, education). It is unknown if having more unimmunized participants would have led to different findings.

- Snowball sampling was a potential strength for this study. In preparation for my research, I realized that the topic of influenza immunization was a sensitive subject for some HCWs. Recruitment was indirect (snowball sampling) as it was the participants that encouraged their co-workers to participate in the study, and perhaps created a sense of comfort before the interview.
- Another potential strength was that the idea for the research evolved from my participation in many years of influenza outbreak meetings as a CDN. Thus, to ensure transparency, I strove to be self-aware, acknowledged any bias, and kept a reflective journal and an audit trail. The audit trail was similar to a roadmap of the data collection, decisions made, rationale, interpretation, and was used to assist the reader in following the steps to the conclusions.

Future Research

The transferability of the findings from this case study is limited, given the small sample size; however, they could potentially be used as a starting point to inform future research or influenza immunization campaign initiatives (Houghton et al., 2013). For example,

1. The participants in this study indicated that the decision to receive the influenza vaccine yearly is a personal choice. Influenza vaccine is considered an evidence-based intervention like *handwashing or wearing a mask* as it prevents the transmission of disease (influenza) between HCW and patient. Findings from this study indicate that vaccine uptake was not due

to the belief that it is an evidence-based intervention; instead, the participants perceived vaccine acceptance to be a *personal choice* to protect themselves, their families, and then the patient. The *personal choice* of the participant to accept the vaccine may be evidence-based for themselves but not necessarily viewed as a protective intervention for their patients. Future research could potentially,

- examine why HCWs believe that the decision to receive the influenza vaccine should be a *personal choice* rather than an evidence-based intervention for their patients.
- explore the decision-making process, examining at what point an individual's choice can be changed, if the basis for their decision is intuition or emotion.

2. In the last four years, the HCW influenza coverage rates at the QE II hospital have remained at about 60% (Alberta Health Services, 2016, 2017, 2018a, 2019). Research indicates that those who have previously accepted the influenza vaccine will continue to receive vaccine in subsequent years (Corace et al., 2013). In contrast, the anti-immunizer who refuses the vaccine has already made up their mind, and additional education is unlikely to change it. Then there is the group in the middle, the *undecided*, who fall somewhere on the spectrum between those that accept vaccines and the anti-immunizers. The development of influenza campaign components should focus on the 40% that are not receiving the yearly influenza vaccine which includes *undecided* and anti-immunizers. It is perhaps among the *undecided* group that the most significant gains are to be had. Future research could potentially,

   - explore *undecided* HCWs' perceptions of the effectiveness of various components of the influenza campaigns to determine how they could be modified to change the behaviour of the *undecided*.

Recommendations for the AHS Influenza Campaigns

The following are suggestions for change in the AHS influenza campaign based on the key findings from this study.

1. Identified is the need for new strategies to improve the HCWs' perceptions of convenience to receive the influenza vaccine. One suggestion is to increase access by decreasing staff clinic hours and using those hours to increase the number of hours the roaming cart can go from unit to unit (increasing time spent on each unit during the day, evening and night shifts) during the first two weeks of the influenza campaign so the HCW can receive the vaccine without having to leave the unit. A second is by using those hours to increase the availability of flu champions on the unit.
2. Identified is the need to improve communication through email, including the time to read and assimilate each email. Consideration could be given to ensuring that each HCW has access to a computer during the shift, with scheduled time to do so (e.g., 20 minutes, not during their break time, as it is a work-related activity supported by management).
3. Identified is the need to increase access to influenza educational information for all HCWs. A solution could be to design information (education about influenza) posters as they are easy to access (no logging-in, no searching websites) that the managers (or other individuals) could print and post on each unit or staff lounge.
4. Identified is the need for an educational component in the campaign. The units flu champion or manager (with access to Manager's Toolkit scripts) could be available and identify themselves as a resource for staff with concerns or questions around influenza disease and vaccine (e.g., adverse events, vaccine efficacy).

In summary, the participants perceived the AHS campaign components as not effective in changing behaviour towards the influenza vaccine as the coverage rates have not changed. Comparable to study by Cohen and Casken (2012) the immunized participants in this study reported similar concerns to those that are unimmunized, such as vaccine efficacy, side effects, and accepting or refusing vaccine as a personal choice. HCWs that are unimmunized may be an anti-immunizer or *undecided*. The campaign components may require modifications developed through future research to reach the *undecided* HCW. The decision to accept influenza vaccine is considered an evidence-based intervention, that is, based evidence that influenza vaccine uptake prevents disease (susceptibility) and therefore protects others (herd immunity). The AHS campaign is offered to HCWs as a personal choice for their health, protecting themselves, their families and then patients. HCWs receiving the seasonal influenza vaccine should become the norm and not the exception.

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Appendix A: Consent

HEALTHCARE WORKERS' PERCEPTION OF AN INFLUENZA CAMPAIGN

Contact information: Carolyn Hayes, Master of Nursing student, by e-mail chayes1@athabasca.edu or Supervisor Dr. Donna Romyn at *dromyn@athabascau.ca*

CONSENT

I have read the Letter of Invitation regarding this research study, and all my questions have been answered to my satisfaction. I will keep a copy of this letter for my records that I have been given.

My signature below confirms that:

- I understand the expectations and requirements of my participation in the research;
- I understand the provisions around confidentiality and anonymity;
- I understand that my participation is voluntary, and that I am free to withdraw from the study up until data analysis begins with no negative consequences;
- I am aware that I may contact the researcher, or the Office of Research Ethics, if I have any questions, concerns or complaints about the research procedures.

Name: _____

Date: _____

Signature: _____

By initialing the statement(s) below,

_____ I am granting permission for the researcher to use an audio-recorder.

_____ I acknowledge that the researcher may use specific quotations of mine, without identifying me.

_____ One week after the interview I will have the opportunity to review the interview transcript for clarification, errors, or omissions and then return it to researcher by e-mail within one week. If I do not return the transcript within one week the researcher can conclude that I am agreeable to content.

e-mail address:

_____

_____ I would like to receive a summary of findings of this research study by *e-mail.*

University of Alberta ID Pro00086263

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Appendix B: Letter of Invitation

INVITATION TO PARTICIPATE
HEALTHCARE WORKERS' PERCEPTION
OF AN INFLUENZA IMMUNIZATION CAMPAIGN

December 11, 2018

Principal Investigator (Researcher):
Carolyn Hayes
Master of Nursing Student
Athabasca University
Chayes1@athabasca.edu

Supervisor:
Donna M. Romyn, PhD, RN
Associate Professor
Athabasca University
dromyn@athabascau.ca

My name is **Carolyn Hayes** and I am a **Master of Nursing** student at Athabasca University (AU). As a requirement of my degree, I am conducting a research project exploring how the Alberta Health Services (AHS) influenza immunization campaign is perceived by healthcare workers (HCW), including those who have and have not chosen to be immunized. I am conducting this project under the supervision of **Dr. Donna Romyn.**

I work for AHS as a communicable disease nurse reporting to the Medical Officer of Health. The information collected is for the study as a requirement of my degree and not my employment. The information you provide will be kept confidential and anonymous. Participation is confidential your supervisor/employer will not be made aware of your participation.

I invite you to participate in this project because as a healthcare worker, you are the influenza campaign's target audience. To participate you must be over 18 years of age, have face-to-face patient contact, speak and read English, work at the Queen Elizabeth II hospital, and have no medical contraindications to receiving the influenza vaccine. The purpose of this research project is to explore the effectiveness of the various components of the influenza campaign which are designed to increase influenza vaccine uptake.

Your participation in this project will involve an interview (face-to-face, telephone) with me that will last approximately 30 to 60 minutes. The interview will be audio-recorded and transcribed. The interview will take place between December 2018 and January 2019 and will occur at a time of your choice and location of your choice for a face-to-face interview. It will begin with me asking you to fill out a consent form that you will sign, or an audio recorded verbal consent after we review this letter of intent.

The interview will consist of a series of questions about your perceptions of the influenza campaign as well as some demographic questions. One week after the interview you will have the opportunity to review the transcript for errors, omissions or clarifications you want to make and then return it to me by e-mail within one week.

The research will benefit others as it will gather information from you about how HCWs perceive the influenza campaign. Findings from the research may inform future studies or

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organizational initiatives. Your participation in this study does not directly benefit you. I do not anticipate that you will face any risks because of participating in this research.

Participation is voluntary. If you agree to participate, you can refuse to answer any questions. You may withdraw from the study up until data analysis commences. If you withdraw prior to data analysis, your information will be destroyed ensuring privacy and confidentiality.

The information you provide will be kept confidential and anonymous. You will be assigned participant number. There will be no identifying information attached to your answers, only the assigned number. The list with your name and the assigned number will be kept in a secure separate location from the data. All original transcripts will be securely stored and kept confidential. The data will be kept for five years.

Results of this study may be disseminated within the AU community or AHS as an online presentation, or in academic journals. Only grouped data will be reported during the dissemination of the findings. Individual responses may be reported as quotations, along with other participant responses, within the context of the results, but you will not be identified in any way. If the results are reported in academic journals, they will not contain any information that would identify you.

Thank you for considering this invitation. If you have any questions or would like more information, please contact me, Carolyn Hayes, Master of Nursing student, by e-mail chayes1@athabasca.edu or my supervisor Dr. Donna Romyn at *dromyn@athabascau.ca*

Thank you.

Carolyn Hayes, BScN, RN, CCHN©
chayes1@athabasca.edu

This project has been reviewed by the Athabasca University Research Ethics Board ID 23116. Should you have any comments or concerns regarding your treatment as a participant in this project, please contact the Research Ethics Office by e-mail at rebsec@athabascau.ca or by telephone at 1-800-788-9041, ext. 6718. University of Alberta Research Ethics Office at 780-402-2615. University of Alberta ID Pro00086263.

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Appendix C: Poster

PARTICIPANTS NEEDED FOR RESEARCH
ON THE HEALTHCARE WORKERS' PERCEPTIONS OF
AN INFLUENZA IMMUNIZATION CAMPAIGN

I am looking for volunteers to take part in a study that will explore the Alberta Health Services influenza campaign which is designed to increase vaccine uptake.

As a participant in this study, you will be asked to take part in an interview to discuss your perceptions of the effectiveness of various components of the influenza campaign.

To participate you must be over 18 years of age, have face-to-face patient contact, speak and read English, work at the Queen Elizabeth II Hospital, and have no medical contraindications to receiving influenza vaccine. You may volunteer to participate in this study even if you have chosen not to be immunized.

Your participation is **entirely voluntary** and will take between 30 to 60-minutes of your time. The information you provide will be kept confidential and anonymous. By participating in this study, you will help us explore how an influenza campaign is perceived by its target audience.

To learn more or to volunteer to participate in this study,
please contact:

Carolyn Hayes, Master of Nursing Student, Athabasca University

chayes1@athabasca.edu

This study is supervised by Donna M. Romyn, PhD, RN (dromyn@athabascau.ca)

This study has been reviewed by the Athabasca University Research Ethics Board ID 23116 and

University of Alberta Ethics ID Pro00086263

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Appendix D: Interview Guiding Questions

Interview duration: approximately 30-60 minutes

Focus of interview
Research question: What are the HCWs' perceptions of the effectiveness of various components (interventions) of the influenza immunization campaign to change behavior towards influenza vaccine uptake?

Introduce myself
"First we will go over the letter of invitation and the consent"

- Informed consent signed
- If the interview is over the telephone and not face to face, I will request a signed consent is scanned send it to me. If they are unable to send the consent I will take a verbal consent prior to the interview with an audio recorder.

I will begin with question one, obtaining a baseline of the participant's perceptions of the influenza immunization campaign.

- Remind the participant that in all the information collected, confidentiality and anonymity will be maintained.
- Start audio recorder

"We will begin with our first question"

1. Alberta Health Services (AHS) has an annual influenza campaign that begins in the fall of each year. What can you tell me about it?
    - What specific parts or components of the influenza campaign come to mind?

After the participant responds to the first question the researcher will state the following to encourage the participant to answer the questions are focusing on the various components of the AHS influenza campaign. "The following questions are related to the components of the AHS influenza immunization campaign, for example, accessibility, messaging, and education. I would like to hear your perspective on each one. What do you think works well, making it an effective influenza campaign, or does not work well, and why?" Questions 2-7 I will begin with the central question for each component and depending on the participant's answer (i.e., if it does not cover all the questions), I will continue prompting the participants with the bulleted questions as required.
Potential HBM perceived barriers to receiving influenza immunization. The following questions are related to accessibility.

2. When thinking about the AHS influenza immunization campaign, I am curious to learn your perceptions of how effective the campaign is with respect to accessibility in changing behavior to vaccine uptake?

- An example of accessibility would be staff influenza immunization clinics.
  - Are they convenient for staff?
  - If yes, tell me more with respect to being immunized? For example, the clinic times and locations
  - Are there other options? such as public health clinics, physicians, pharmacies

Potential HBM perceived barriers to receiving influenza immunization. The following questions are related to influenza campaign support by management.

3. Management support is a component of the AHS influenza immunization campaign. What is your perceptions of this component of the campaign, is it effective in changing behavior towards vaccine uptake? Can you tell me more?
  - Examples, you are given time during the shift to attend a clinic, the manager leads by example and receives the vaccine

Potential HBM perceived barriers to receiving influenza immunization. The following questions are related to the influenza campaign messaging (advertisement).

4. The AHS influenza immunization campaign uses messaging (advertisement) in a variety of formats to communicate information on influenza and influenza vaccine to HCWs. What is your perceptions of the effectiveness of the AHS influenza immunization campaign's messaging? Can you give me an example?

Note: the researcher will skip over the messaging format (example) if answered above

- What is your perception of the messaging found on the AHS Insite page? Can you give me an example? Do you think it is effective?
- What is your perceptions of the messaging found on the AHS external (public) page? Can you give me an example? Do you think it is effective?
- What is your perceptions of the messaging found on posters around the hospital? Can you give me an example? Do you think it is effective?
- What is your perceptions of the messaging found on CEO blogs or emails? Can you give me an example? Do you think it is effective?
- What is your perceptions of the messaging around on testimonials from other staff or patients? Can you give me an example? Do you think it is effective?
- Overall in your opinion what style(s) of messaging is most effective? For what reason(s) do you think it works well?
  - Is there anything you would change?

Potential HBM perceived barriers to receiving influenza immunization. The following questions are related to the influenza campaign education.

5. The AHS influenza immunization campaign delivers education on influenza and influenza vaccine using a variety of formats. What is your perceptions of the effectiveness of the AHS influenza immunization campaign's education? Can you tell me more?

- Examples of influenza educational formats, in person as a group or one-to-one; through E-learning, reading AHS messaging (websites, posters, blogs)

The following questions are exploring the participant's perceptions of the effectiveness of the AHS influenza immunization campaign on vaccine uptake.

6. In your opinion, thinking about the AHS influenza immunization campaign components including those we have discussed, what is your perceptions of their effectiveness on vaccine uptake? Is there anything you would change or add to the campaign?

- In terms of the AHS influenza immunization campaign, what percentage of HCWs working at the hospital do you think have chosen to be immunized? Less than 40%? Between 40 and 60%? Between 60 and 80%? More than 80%?
- In the last few years HCW influenza vaccine uptake has been 60% does this change your perceptions of the effectiveness of the AHS influenza immunization campaign on vaccine uptake? Can you tell me more?

HBM cues to action for receiving influenza immunization and self-efficacy. The following questions are related to the interventions (components) found in the literature that other health organizations have used to increase vaccine uptake.

7. We have discussed the current AHS influenza immunization campaign. Other health organizations have also used a variety of components in their campaign to increase vaccine uptake in HCWs.

For each example I give you, I would like your perceptions of how effective the component would be if added to the AHS campaign at increasing immunization rates.

- An occupational health nurse automatically books an appointment with the HCW for their influenza vaccine and it is up to the HCW to cancel it if they decide not to be immunized.
  - Do you perceive that this would be effective in increasing immunization rates? Why or why not?
- The HCW is required to wear a mask from October to March if they decline the influenza flu vaccine.
  - Do you perceive that this would be effective in increasing immunization rates? Why or why not?
- Complete a signed form that explains why they have declined influenza immunization
  - Do you perceive that this would be effective in increasing immunization rates? Why or why not?
- Mandatory immunization, except if HCW has a prior documented adverse reaction or a medical reason to influenza vaccine.

- Do you perceive that this would be effective in increasing immunization rates? Why or why not?

Demographic questions. The following questions to put the study in context, describing the participants. Remind the participant that with all the information collected confidentiality and anonymity will be maintained.

How long have you worked for AHS?
- What unit(s)?
- On this unit?
- In this hospital?
- How long have you worked in healthcare?

What is your role?
Age range 18-30, 31-40, 41-50, 51 and older
Do you have children living in your home?
Do you have seniors living in your home?
Have you received the influenza vaccine in each of the last two years?
- If yes, for what reason(s) did you choose to be immunized?
- If not, for what reason(s) did you choose not to be immunized?

Researcher: "Thank you for participating in this study. I will email you the transcripts in one week from today. I would ask that you review them for any clarifications, errors, or omissions and then return it to me by email within one week. If at the end of the week I have not received an email from you, I will conclude that you are agreeable with the content."

Appendix E: Athabasca University Ethics Approval

Athabasca University
RESEARCH CENTRE

CERTIFICATION OF ETHICAL APPROVAL

The Athabasca University Research Ethics Board (AUREB) has reviewed and approved the research project noted below. The AUREB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and Athabasca University Policy and Procedures.

Ethics File No.: **23116**

Principal Investigator:
Ms. Carolyn Hayes, Graduate Student
Faculty of Health Disciplines\Centre for Nursing & Health Studies

Supervisor:
Dr. Donna Romyn (Supervisor)

Project Title:
Healthcare Workers' Perception of an Influenza Immunization Campaign

Effective Date: October 09, 2018 **Expiry Date**: October 08, 2019

Restrictions:

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

A Project Completion (Final) Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date:** October 9, 2018

Donna Clare, Chair
Faculty of Health Disciplines, Departmental Ethics Review Committee

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Athabasca University Research Ethics Board
University Research Services, Research Centre
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.675.6718

Appendix F: University of Alberta Ethics Approval

Approval Form

Date:	November 15, 2018
Study ID:	Pro00086263
Principal Investigator:	Carolyn Hayes
Study Title:	Healthcare Workers' Perception of an Influenza Immunization Campaign
Approval Expiry Date:	Thursday, November 14, 2019

Approved Consent Form:	Approval Date	Approved Document
	11/15/2018	Appendix C Consent

Thank you for submitting the above study to the Health Research Ethics Board - Health Panel. Your application, including the following, has been reviewed and approved on behalf of the committee:

- Appendix B HCW Poster (11/13/2018)
- Appendix A Letter of Invitation (11/13/2018)
- Appendix D Interview (10/20/2018)
- HCW Proposal Influenza (10/20/2018)

A renewal report must be submitted next year prior to the expiry of this approval if your study still requires ethics approval. If you do not renew on or before the renewal expiry date, you will have to re-submit an ethics application.

Approval by the Health Research Ethics Board does not encompass authorization to access the patients, staff or resources of Alberta Health Services or other local health care institutions for the purposes of the research. Enquiries regarding Alberta Health Services approvals should be directed to (780) 407-6041. Enquiries regarding Covenant Health should be directed to (780) 735-2274.

Sincerely,

Anthony S. Joyce, PhD.
Chair, Health Research Ethics Board - Health Panel

Note: This correspondence includes an electronic signature (validation and approval via an online system).