

Between Persuasion and Coercion: Situating Mandatory Influenza Vaccination Policy
of Healthcare Personnel (HCP)

by

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ABSTRACT

Vaccinations are important for preventing influenza infection. Maximizing vaccination uptake rates (80-90%) is crucial in generating herd immunity and preventing infection incidence. Vaccination of healthcare professionals (HCP) against influenza is vital to infection control in healthcare settings, given their consistent exposure to high-risk patients like: those with compromised immune systems, children, and the elderly (Johnson & Talbot, 2011). Though vaccination is vital in disease prevention, influenza vaccination uptake among HCP is low overall (50% on average) (Pearson et al., 2006). Mandatory vaccination policies result in HCP influenza vaccination uptake rates substantially higher than opt-in influenza vaccination campaigns (90% vs. 60%). Therefore, influenza vaccination should be mandatory for HCP in order to best prevent influenza infection in healthcare settings. Many HCP cite individual objections to influenza vaccination rooted in personal doubts and ethical concerns, not best available scientific evidence. Nevertheless, HCP ethical responsibility to their patients and work environments to prevent and lower influenza infection incidence overrules such individual objections. Additionally, mandatory HCP influenza vaccination policies respect HCP autonomy via including medical and religious exemption clauses. While vaccination as a prevention method for influenza is logically sound, individuals' actions are not always rooted in logic. Therefore, I analyze HCP perceptions and actions toward influenza vaccination in an effort to better explain low HCP uptake rates of the influenza vaccine and individual objections to influenza vaccination. Such analysis can aid in gaining HCP trust when implementing mandatory HCP influenza vaccination policies. In summary, mandatory HCP influenza vaccination policies are ethically justified, effective, scientifically-

supported method of maximizing HCP influenza vaccine uptake and minimizing the spread of the influenza virus within healthcare settings.

DEDICATION

To scientific and technological collaboration, innovation, and diplomacy grounding a permanent, peaceful, and productive United States-Israel relationship.

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CHAPTER 1: INTRODUCTION

To vaccinate or not to vaccinate – that is the question. Recently, the unpopularity of vaccination has contributed to increased disease outbreaks, occupied public health resources, and encouraged polarized debates between “pro-vaxxers” and “anti-vaxxers” (Colgrove, 2016). James Colgrove displays the “distinct 21-century character” of these conflicts, due to the internet’s contribution of both information and misinformation. Nevertheless, vaccination conflicts are not unique to the 21st century by any means. Such conflicts have deep historical roots riddled scientific, ethical, and political challenges that struggle with balancing coercive (mandatory) and persuasive (non-mandatory) vaccination interventions (Colgrove, 2016).

Coercion is the “grandfather” of public health interventions. In the 19th century, compulsory-smallpox-vaccination laws imposed penalties upon those who refused vaccination, such as exclusion from school for unvaccinated children and fines and/or quarantine for unvaccinated adults (Colgrove, 2016). The effectiveness of coercive laws was soon demonstrated, with jurisdictions showing significantly fewer disease outbreaks (Colgrove, 2016). While the 1905 Supreme Court case of *Jacobson vs. Massachusetts* upheld the constitutionality of coercive vaccination laws, concerns of state imposition on individual liberties remained (Colgrove, 2016). Mandatory vaccination laws in the 19th century contained no exemption clauses; however, today they do, in the form of medical, religious, or philosophical exemptions (Colgrove, 2016). Even still, a mandatory vaccination law with exemption clauses may still have a coercive effect depending on exemption availability (Colgrove, 2016). For this reason, mandatory vaccination laws and policies continue to be a target of anti-vaccination campaigns (Colgrove, 2016).

Persuasion's importance rose in the 1920s with the rise of mass media and the development of the then-emerging fields of advertising and public relations' agenda to promote the importance of childhood immunization against diphtheria and pertussis (Colgrove, 2016). A shift away from mandatory vaccination laws occurred as public health professionals began to "make a case" for vaccination via contextualizing the attitudes, beliefs, and social contexts that contributed to vaccination-related behaviors (Colgrove, 2016). This shift motivated increased research surrounding factors influencing the decision to get vaccinated or not. Persuasive approaches are often preferable as they are less restrictive, and therefore ethically preferable and politically acceptable in comparison to coercive approaches (Colgrove, 2016). Nevertheless, evidence shows that persuasive approaches, in comparison to coercive approaches, are also more time consuming, labor-intensive, and less effective in increasing vaccination uptake (Colgrove, 2016).

In forming vaccination laws, methods of persuasion and coercion are both necessary, for neither is sufficient (Colgrove, 2016). To what extent each intervention should be implemented is circumstantial, based on disease severity, disease prevalence, vaccination uptake rate, and population. In this paper, I advocate for a mandatory (coercive) policy approach to influenza vaccination among healthcare personnel (HCP) based on: (1) the established threat influenza within healthcare settings, (2) the efficacy of influenza vaccine to prevent influenza infection, (3) contemporary low HCP flu vaccine uptake, (4) the inadequacy of current policy toward influenza vaccination and HCP (5) the success of already-implemented mandatory HCP influenza vaccine campaigns, (6) the ethical responsibility of HCP to themselves and their patients to receive the influenza vaccine, despite individual

objections, and (7) explaining influences that contribute to the decision of HCP to vaccinate against influenza (or not).

I begin my argument by emphasizing the significant danger of modern low HCP uptake rates of the influenza vaccine, given the high daily risk of influenza contraction for HCP working in healthcare settings. Then, I outline policy directed toward HCP influenza vaccination: institutional recommendations, opt-in HCP influenza vaccination campaigns, and mandatory influenza vaccination policies. Given the ethical concerns of mandatory vaccination policies, I then ethically justify mandatory HCP influenza vaccination policies. This begs the clarification of certain ethical objections to mandatory HCP influenza vaccination. Subsequently, I unpack factors contributing to HCP decision to vaccinate against influenza or not via describing HCP perceptions, attitudes, and actions toward the influenza vaccine.

Influenza is a major threat to healthcare settings, and vaccination is the only influenza prevention method rooted in best available scientific knowledge. Healthcare personnel (HCP) work in healthcare settings and frequently come in contact with high-risk patients: those with compromised immune systems, the elderly, and children. From what is known regarding the efficacy of influenza vaccines (that they are generally effective in preventing influenza within HCP), the comparatively small risks involved in influenza vaccination, and the herd immunity that mass influenza vaccination of healthcare personnel (HCP) could generate, influenza vaccination within the HCP population is crucial in preventing influenza infection incidence. However, low HCP uptake rates of the influenza vaccine (averaging around 50%) display that individuals' actions are not always consistent with disease prevention methods rooted in best available scientific knowledge.

Current policy regarding HCP influenza vaccination (in the United States) is insufficient, largely embodied in the form of governmental or institutional recommendations. Such recommendations do not sufficiently promote vaccination among HCP (Talbot et al., 2010), since healthcare institutions have no available enforcement mechanism. Incentivized recommendations, in the form of workplace-implemented “opt-in” vaccination campaigns that provide the influenza vaccination to HCP free of charge at their place of work, also have limited success and struggle to raise HCP influenza vaccine uptake rates above 60% (Ajenjo et al., 2010). Mandatory HCP influenza vaccination policies consistently result in HCP influenza vaccination uptake rates of over 90%, and therefore merit implementation.

I am aware of certain ethical and personal objections to requesting, expecting, and/or requiring influenza vaccination. However, individual HCP protests to mandatory influenza vaccination policy are overruled by ethical responsibility to the population to prevent and lower influenza infections. I therefore advocate for mandatory HCP influenza vaccination. Nevertheless, I investigate such individual objections via analyzing HCP perceptions, actions and attitudes towards influenza vaccination. I find that HCP perceptions, actions, and attitudes towards influenza vaccination are not consistent such individual objections that are primarily founded upon bodily autonomy infringement and claims to professional responsibility. Mandatory HCP influenza policies respect both HCP freedom of autonomy and professional responsibility with the inclusion of religious and medical exemption clauses.

Instead of continuing discussions focused on current policy towards HCP influenza vaccination that insufficiently promote HCP influenza vaccination, or ethical questions (of what we “should” do), discussions must shift to encourage

mandatory HCP vaccination rooted based on HCP words and actions that consistently support such change. Ethical concerns will therefore be contextualized. It can also be used to garner trust from skeptical HCPs when implementing mandatory HCP influenza vaccination policies. Cognizant of policy alternatives, respective of ethical concerns, and grounded in an understanding HCP perceptions, attitudes, and actions towards influenza vaccination, I make a case in favor of the implementation of mandatory HCP influenza vaccination policies.

CHAPTER 2: HEALTHCARE PERSONNEL (HCP) AND INFLUENZA WITHIN HEALTHCARE SETTINGS

Healthcare Personnel (HCP)

For the purposes of this paper, HCP will be defined as “persons who have special education on health care and who are directly related to the provision of healthcare services” (“Health Care Personnel (HCP) Law & Legal Definition,” n.d.). This term generally refers to physicians, nurses, physician and nursing assistants, technicians, emergency medical service personnel, dental personnel, pharmacists, laboratory personnel, and students. HCP work in healthcare settings, and therefore have increased exposure to at-risk patients: those with weakened immune systems, the elderly, and children. However, professionals not directly related to patient care are often also categorized as HCP if they work in healthcare delivery settings or are regularly in contact with HCP that provide direct patient care, such as hospital janitorial staff (“Health Care Personnel (HCP) Law & Legal Definition,” n.d.). The conducted research is most relevant to clinically-working HCP who experience “substantial occupation risk” for contracting and spreading influenza (Fiore et al.,

2010), such as doctors and nurses, as compared to non-clinical HCP who do not provide direct patient care, such as administrative assistants and students.

While employers and HCP may define the unique roles, responsibilities, and characteristics of the job differently, HCP training and education usually consists of shared “elements of professionalism” (van Mook et al., 2009). These professional responsibilities are outlined in the Physicians Charter on Professionalism by the American Board of Internal Medicine, the European Federation of Internal Medicine, the American College of Physicians, and the American Society of Internal Medicine.

HCP duties include professional competence, honesty with patients, patient confidentiality, maintaining appropriate relationships with patients, improving quality of care, just distribution of finite resources, maintaining modern scientific knowledge, and managing conflicts of interest, (van Mook et al., 2009). These [wrong word] responsibilities are separate from the professional values taught in healthcare and medical curricula, including altruism, respect for others, honor, integrity, ethical and moral standards, accountability, excellence, and duty/advocacy (Competence & Communications, 1995). Nevertheless, there are clashing viewpoints regarding how much emphasis should be placed on each individual responsibilities and values – if at all. Sometimes, medical educators include the values of “autonomy”, “self-regulation”, and “dealing with uncertainty” (Swick, 2000), while others discard these notions altogether (van Mook et al., 2009).

Collaboration is the cornerstone of HCP responsibilities. Healthcare is a system involving many different actors and collaborations in order to be maximally effective (Torrens, n.d.). According to Torrens, there are up to seven key players who must perform for a team task to be executed properly in a healthcare setting: entry point, clinical leader/decision maker, technical expert/consultant, support service(s)

provider, point of continuing contact, resource manager/coordinator, and information coordinator/communicator. Some tasks require more players, and some less. Chains of communication ultimately lead up to patient contact in a healthcare setting.

Transmission of disease (in this case, influenza) has potential to occur at every point of contact along the chain. If consensus agreement on HCP responsibilities includes “respect for others” and “ethical and moral standards”, then protecting patients against influenza seemingly fits these responsibilities. However, if HCP are simultaneously presented with the duty to “self-regulate”, mandates regarding influenza vaccination may not serve a purpose due to HCP personal objections.

I do not provide commentary on medical curriculum, professionalism, or the development and education of HCP before they enter the workforce, though it is important to acknowledge the complexity and debate on the topic of preparation and education of HCP. I keep this in mind as I investigate certain relationships that HCP have to technology (influenza vaccination), to others’ (in particular, to their patients), ethical and personal dilemmas (whether or not to receive the influenza vaccine), and policy (including, but not limited to, the plausibility of mandatory influenza vaccination among HCP).

The Threat of Influenza

Influenza is a substantial, present threat to healthcare settings. Influenza outbreaks in long-term care facilities are frequent, occurring in as many as 50% of facilities (Kuster et al., 2011). During annual epidemics, children are at the highest risk for contraction, with attack rates of 15% to 50%, many requiring hospitalization (Norton, Scheifele, Bettinger, & West, 2008). A meta-analysis of studies of seasonal influenza estimated that on average, about 1 in 5 HCP are infected with influenza and symptomatic each year (Kuster et al., 2011). HCP are believed to be at increased risk

of influenza infection (Kuster et al., 2011) due to their regular exposure to populations most vulnerable to influenza contraction: the elderly, youth, and patients with underlying medical conditions (Babcock et al., 2010). In fact, less than half of influenza virus infections are symptomatic (Carrat et al., 2008), and HCP often work while ill (Vanhems et al., 2011) which further increases the risk of secondary transmission of respiratory viruses to vulnerable patients (Henkle et al., 2014). In order to generate herd immunity against the influenza virus, 80% influenza vaccination coverage among healthy persons and 90% influenza vaccination coverage among high-risk persons is necessary (Plans-Rubió, 2012). Maximum HCP uptake of influenza vaccination is the only way to achieve such herd immunity in healthcare settings, especially if over half of HCP influenza infections are asymptomatic.

Vaccination as Influenza Prevention Method

Influenza vaccination is the only prevention method grounded in the best available scientific evidence. According to the CDC, vaccines prevent infection by introducing killed or weakened germs of the disease into a person's immune system, stimulating the production of antibodies, just as if the person had been exposed to the live disease (Services, n.d.). Vaccination affects recipients differently due to diversity among individuals within a population and similarities between the flu strain and vaccine ("Vaccine Effectiveness - How Well Does the Flu Vaccine Work?", n.d.). While the CDC acknowledges that vaccines will never be 100% effective, recent studies show that influenza vaccination drastically reduces influenza risks including hospitalizations and deaths ("Vaccine Effectiveness - How Well Does the Flu Vaccine Work?", n.d.)

Despite differing statistics, studies consistently support the ability of influenza vaccination to reduce influenza infection incidence by 50% to 60% ("Vaccine

Effectiveness - How Well Does the Flu Vaccine Work?", n.d.). This does not mean that 40%-50% of those who are vaccinated against influenza will become infected with influenza, but rather that the influenza vaccine will not be directly responsible for preventing them against influenza vaccination for the given season. Each season, newly mutated strains of influenza arise, and while they are similar to the previous season's strain (from which the seasonal influenza vaccine is developed), they are not identical. Therefore, influenza vaccination effectiveness is limited. In an ideal world, influenza vaccinations would be able to be individually tailored and developed the same season of administration but we have not reached this point yet in 2016. Nevertheless, within some populations, influenza efficacy is much higher than 50%-60%. For example, within young adults, particularly military recruits, the effectiveness of the influenza vaccine has been cited to be between 70% and 90% (Wilde et al., 1999).

Nevertheless, seasonal influenza vaccination uptake is low. In 2015-2016, only 41.7% of American adults (>18 years old) received their influenza vaccination – a decrease of 1.9% from 2014-2015's influenza vaccination uptake rate of 43.6% ("Flu Vaccination Coverage, United States, 2015-16 Influenza Season CDC," n.d.). 59.3% of children were vaccinated against influenza in 2015-16 (the same amount as in 2014-15) ("Flu Vaccination Coverage, United States, 2015-16 Influenza Season CDC," n.d.). Low influenza vaccination uptake is hypothesized to be due to many beliefs not rooted in best available scientific knowledge. Such beliefs include the notion that influenza is relatively not threatening as compared to other vaccine-preventable diseases (Takayanagi, Cardoso, Costa, Araya, & Machado, 2007). Additionally, people often fear costs or potential pain resulting from influenza vaccine administration, despite consistent studies supporting the influenza vaccine's

relatively non-invasive, painless, and low cost (often free) administration (Lambert & Fauci, 2010).

HCP Uptake of Influenza Vaccine

Influenza vaccinations of HCP are effective in preventing HCP-contracted influenza infections. Repeated scientific studies strongly support the benefits of universal HCP influenza vaccination (Kuster et al., 2011). Additionally, these studies point out the dangers of large numbers of unvaccinated HCP, including the ability for the influenza virus to propagate quicker, faster, and in higher numbers before healthcare institutions are able to realize it, and increased severity of influenza virus strain. Unvaccinated HCP have the potential to spread the influenza virus 24-48 hours before symptoms begin to show, and 70% of HCP continue to work when they are sick (Scheide, 2010). The virus can be transferred for up to five to ten days (McLennan & Wicker, 2010).

Higher vaccination rates among HCP are associated with lower incidence of nosocomial influenza cases (Marti, 2006). For example, in a study conducted in a tertiary care clinic over twelve consecutive influenza seasons between 1987 and 2000, influenza vaccination uptake was increased within HCP from 4% in 1987-1988 to 68% in 1999-2000 (Marti, 2006). During this time frame, the proportion of nosocomial influenza cases within HCP decreased from 42% in 1990-1991 to 9% in 1997-2000 (Marti, 2006). The proportion of nosocomial influenza cases among hospitalized patients decreased from 32% to 0 (Marti, 2006). Consequently, data suggests a significant inverse relationship between HCP vaccination rates and patient influenza contraction, suggesting that HCP vaccination aided in the decrease of patient influenza cases (Marti, 2006).

In Wilde et al.'s influenza vaccine effectiveness study within HCP, overall vaccine response was noted in 57% of subjects for influenza A (H3N2) and 40% of subjects for influenza B. For influenza A, these results translated to 1.1 infections among vaccinated HCP and 8.9 infections among controls per 100 HCP, displaying an overall effectiveness rate of 88%. For influenza B, 0.6 infections among vaccinated HCP and 5.0 infections per 100 HCP, displaying an overall effectiveness rate of 89%. Only 1 of 43 (2.3%) vaccinated HCP got sick (Wilde et al., 1999). An overall effectiveness rate of 88-89% for the influenza vaccine is similar to results of different studies (Edwards et al., 1994) of vaccine effectiveness in young adults, suggesting that the influenza vaccine is not "weaker" within HCP to do their heightened exposure to influenza.

Vaccination rates for HCP are low overall (G. A. Poland, Tosh, & Jacobson, 2005; Rakita, Hagar, Crome, & Lammert, 2010), in spite of the notion that harm [influenza] will occur if no preventative action (influenza vaccination) is taken (Weinstein et al., 2007). While many governmental and non-governmental institutions like the CDC recommend annual seasonal influenza vaccination of HCP, HCP have consistently remained low since 2002 (Caban-Martinez et al., 2010). On average, only 50% of HCP are annually vaccinated against influenza (Pearson et al., 2006). Even still, in one study, HCP had the highest uptake rate of the influenza vaccine in comparison to influenza vaccine uptake rates of other surveyed professions, such as white collar workers (24.7%) and farm workers (11.7%) (Caban-Martinez et al., 2010). HCP training in how infectious diseases spread and the relative efficacy of influenza vaccines (while inconsistent from season to season).[not a sentence, something got lost?] The question of why HCP influenza vaccine rates are so low

therefore arises, given HCP education in infection control in combination with regular institutional recommendations.

CHAPTER 3: INFLUENZA VACCINATION POLICY TOWARD HCP

Institutional Recommendations

Current policy regarding HCP influenza vaccination does not sufficiently promote the high HCP influenza vaccination uptake necessary to generate herd immunity protection against the influenza virus. Such policy is formulated in goals and recommendations that are non-mandatory, and therefore non-enforceable. Several governmental and non-governmental societies have been consistently recommending HCP uptake of the influenza vaccine for over thirty years. Some of these organizations, include the Advisory Committee On Immunization Practices, which first recommended annual influenza vaccination in 1984 (Babcock et al., 2010). The Society for Healthcare Epidemiology, the Association for Professionals in Infection Control, and the Infectious Disease Society of America also heavily endorse HCP influenza vaccination (Babcock et al., 2010). These endorsements led the 2010 US National Health objectives to include a HCP influenza vaccination rate of 60% (Babcock et al., 2010).

In 2010, the Director of the National Vaccine Program Office (NVPO) (who was also Assistant Secretary of the U.S. Department of Health and Human Services (DHHS)) requested that the National Vaccine Advisory Committee (NVAC) investigate low uptake rates of influenza vaccination, and recommend strategies to achieve the *Healthy People 2020* goal of 90% influenza vaccination coverage among HCP (Caplan et al., n.d.). The Director of the NVPO or the Assistant Secretary of DHHS is in charge of implementing such goals and recommendations. The NVAC

implemented the request February 2012 (Caplan et al., n.d.). Implementation of this recommendation resulted from a Health Care Personnel Influenza Vaccination Subgroup, a subgroup of the NVAC Adult Immunization Working Group, who presented to the NVAC on the consequences of low HCP influenza vaccination uptake and benefits of HCP influenza vaccination to the NVAC (National Vaccine Advisory Committee, 2013).

After their presentation, NVAC members voted on and approved the implementation of an investigation regarding low HCP uptake of the influenza vaccine in an effort to achieve the *Healthy People 2020* goal of 90% influenza vaccination coverage among HCP. This respective goal bolstered debate on policies that can successfully and sustainably increase HCP influenza vaccination uptake, given that recommendation and encouragement from the employer, governmental organizations, and non-governmental institutions is seemingly not enough.

Opt-in Influenza Vaccination Campaigns

Government and institutional recommendations do not appear to have substantial influence in promoting vaccination uptake among HCP. Voluntary influenza vaccination “opt-in” workplace policies, which generally provide the influenza vaccine to HCP for free of charge, have not sustained high HCP coverage rates (McLennan & Wicker, 2010). Multi-faceted quality-improvement initiatives, usually in the form of educational and interaction-focused opt-in vaccination campaigns, have variable success within healthcare institutions in raising HCP vaccination rates above 60% (Ajenjo et al., 2010). Other healthcare-providing settings find it difficult and/or impossible to reach and maintain coverage above 75% (Thompson et al., 2013). This is partially due to their status as incentivized recommendations: institutions have no power to enforce the campaigns’ agenda of

influenza vaccinations. Additionally, because HCP have to ‘opt-in’ to participate, they usually have to take time out of their work schedules, or cut into their personal time, to participate.

Mandatory Influenza Vaccination Policies

Mandatory influenza vaccination policies are employment-conditioned. In 2005, The Society for Healthcare Epidemiologists of America (SHEA) was among the first societies to published a white paper, titled “Influenza Vaccination of Healthcare Workers and Vaccine Allocation for Healthcare Workers During Vaccine Shortages”, encouraging mandatory influenza vaccination (Bridges et al., 2005). SHEA views influenza vaccination of HCP as “a *core patient and HCP safety practice* with which noncompliance should not be tolerated” (Talbot et al., 2010). Healthcare facilities do have responsibilities to take “reasonable measures” to ensure that their care is as safe and effective as possible (Tilburt et al., 2008). Therefore, the necessity of mandatory HCP influenza vaccination, is clear.

SHEA’s 2005 white paper recommendations for implementing mandatory vaccination policies are:

1. For the safety of HCWs (healthcare workers/HCPs) and patients, all HCWs should receive influenza vaccine annually unless they have a contraindication to the vaccine or actively decline vaccination.
2. All healthcare facilities should provide annual multifaceted programs to actively promote vaccination of HCWs.
3. Influenza vaccination programs should contain the following elements:
 - a. Targeted education about the severity of influenza illness, particularly in high-risk patients.

- b. Targeted education about vaccine efficacy and safety as well as dispelling of vaccine myths.
 - c. Administrative support and leadership.
 - d. Provision of vaccine at no cost to HCWs.
 - e. Improved access to vaccine (eg, via mobile carts and off-hours clinics).
 - f. Active declination policy for HCWs who do not want or cannot receive influenza vaccine.
4. All healthcare facilities should accurately track and record HCW vaccination rates, including vaccinations obtained outside of the formal facility program, to assess the effectiveness of the vaccine program. These data should include compliance for individual HCWs and unit-specific rates.
5. Each facility should have a surveillance system for healthcare-associated influenza to assess the impact of its vaccination program.

The 2005 SHEA position paper also outlines necessary components of successful mandatory vaccination programs, including but not limited to, programmatic principles that allow the policy to be comprehensive and provide ready access to vaccination, inclusive to vaccination free to HCP, employing targeted education that emphasizes the rationale for a mandatory policy, a strong leadership commitment, and steady resources (Bridges et al., 2005). Mandatory vaccination policies geared toward HCP are more than black-and-white regulations that require influenza vaccination without accounting for potential initial or sustained rebuttal and/or objection. In order to improve influenza control programs, SHEA recommends incorporating diverse strategies that provide those medically unable to participate in

mandatory vaccination or the minority that personally refuse vaccination. These include using vaccination rates as a measure of the facility's safety and quality program, requiring unvaccinated HCP to wear a mask during influenza season, and using signed declination statements for HCP who refuse vaccination (Bridges et al., 2005). Additionally, targeting and addressing previously identified barriers to HCP vaccination uptake, such as concerns of cost and access, may aid in softening the strict nature of mandatory vaccination policies (Anikeeva, Braunack-Mayer, & Rogers, 2009).

Mandatory HCP influenza vaccination policies significantly increases HCP uptake of the influenza vaccine (>90%) (Thompson et al., 2013) and therefore aids in influenza prevention. The first healthcare system to implement such a mandatory influenza vaccination policy among HCP was the Virginia Mason Medical Center (VMMC) in Seattle, Washington. Suboptimal vaccination rates in August 2004 prompted hospital decision-makers to implement this policy, which applied also to all non-VMMC employees working within the medical center, such as community physicians, vendors, students, and volunteers (Talbot et al., 2010). The initial policy, implemented in 2005, was extremely strict for a first-time mandatory policy regarding HCP influenza vaccination. Declination statements and appeals, which are usually written into the mandatory policy as a way to maintain HCP autonomy and self-dignity, were not accepted from any HCP without medical contraindications (Talbot et al., 2010). While there was notable initial resistance to the policy, potentially rooted in employer coercion of the employee and disruption of the employer-employee relationship, no significant literature exists supporting this claim (Talbot et al., 2010).

Since the implementation of the VMMC mandatory vaccination policy, influenza vaccination rates of over 5,000 HCP have been sustained above 98%

(Talbot et al., 2010). Following the example of VMMC, the following healthcare institutions implemented mandatory vaccination policies and have since sustained comparable success to that of VVMC (Johnson & Talbot, 2011):

- BJC Healthcare (Barnes-Jewish-Christian Healthcare) in St. Louis, Missouri
- CHOP (Children’s Hospital of Philadelphia) in Philadelphia, Pennsylvania
- HCA (Hospital Corporation of America) in Nashville, Tennessee
- MedStar Health in Columbia, Maryland

The Department of Defense (DOD) expanded the mandatory vaccination policy of all DOD HCP providing direct patient care in military facilities to apply to all contract and civilian HCP working in similar capacities (Talbot et al., 2010). In 2009, the State of New York initiated a short-lived HCP mandatory influenza vaccination policy within its state-licensed healthcare facilities (Randall et al., 2013). As of 2013, Rhode Island was the only state that had a mandatory HCP influenza vaccination policy in place (Randall et al., 2013). However, more than non-state instituted 200 hospitals, nursing homes, and health systems within the United States had HCP influenza vaccination mandates in place as of 2013 (Caplan et al.)¹.

Babcock et al. conducted an extensive study of BJC’s implementation of mandatory influenza vaccination for BJC HCP in 2008 (Babcock et al., 2010). Within BJC’s plan, temporary (one year) or permanent medical or religious exemptions could be requested. Premedical condition exemptions, reviewed by occupational health

¹ Updated lists of mandatory influenza vaccination policies are available via the Immunization Action Coalition, www.immunize.org (“Immunization Action Coalition (IAC): Vaccine Information for Health Care Professionals,” n.d.).

nurses and their directors, included hypersensitivity to eggs, prior hypersensitivity reaction to the influenza vaccine, and a history of Guillain-Barre syndrome (Babcock et al., 2010). Medical exemptions also required a letter from a licensed physician (MD or DO) stating the HCP's medical contraindication to influenza vaccines. Religious exemptions required the requesting HCP to send a letter to Human Resources, explaining their opposing religious conviction to vaccination (Babcock et al., 2010). BJC granted or denied religious exemptions within five days of letter submission. While it was not enforced, BJC encouraged exempted HCP to wear isolation masks while caring for patients during the influenza season. Employees who did not meet either medical or religious criterion for exemption were welcome to express concerns to BJC occupational health nurses and/or medical directors (Babcock et al., 2010).

Free vaccines were available as of October 15, 2008, and all employees who were not vaccinated or exempted by December 15, 2008 were suspended from work without pay (Babcock et al., 2010). Those who were vaccinated before January 15, 2009 could return to work; however, those who were still not vaccinated or exempted by January 15, 2009 were terminated from their positions due to failure to meet employment conditions (Babcock et al., 2010). BJC's mandatory vaccination campaign is subsequently considered to be stringent among the spectrum of mandatory vaccination campaigns. Even still, some practicing physicians at BJC are not direct BJC employees, and therefore were not covered by the policy, even if it did influence their influenza vaccination decision. Of almost 26,000 active BHC employees, 98.4% were vaccinated against influenza. 1.24% were medically exempt and 0.35% were religiously exempt. 99.96% of employees complied with policy regulations (vaccinated or exempt), with only 8 employees (0.03%) terminated for policy noncompliance (Babcock et al., 2010). 100% of BJC-employed physicians,

including about 900 residents and fellows, received their influenza vaccination (Babcock et al., 2010). Most terminated HCP did not submit an exemption request. Only 21 employees (0.08%) reported a possible adverse reaction to the influenza vaccine, with the majority of cases unable to be objectively linked to the influenza vaccine due to many other potential antecedent triggers (Babcock et al., 2010).

Babcock et al.'s study illustrates the overwhelming efficacy of mandatory vaccination employment policies in increasing HCP vaccination uptake to over 90%. Efforts leading up to the implementation of the mandatory vaccination campaign, including free and easy access to the vaccine, incentives, and leadership support repeatedly resulted in suboptimal uptake rates (Babcock et al., 2010). The program was established as a patient safety initiative, and benefitted from strong leadership support, solid infrastructure, and timely and consistent communication between all parties involved in its execution (Babcock et al., 2010). For this reason, the success of BJC's mandatory HCP vaccination campaign, while similar to that of VVMC, should not be superimposed onto different locations. Nevertheless, the achievements of mandatory influenza HCP vaccination policies in these respective environments strongly support the overall feasibility and resulting success of mandatory HCP influenza vaccination.

Only 3.6% of surveyed healthcare facilities within the United States have employment-conditioned mandatory influenza vaccination policies in place (Miller et al., 2011). A study of HCP at a tertiary hospital found that 70% of HCP believed HCP mandatory influenza vaccination policies should be implemented (Douville, et al., 2010), while another study found that 59.3% of Mayo Clinic inpatient nurses supported HCP mandatory vaccination given the option to submit signed declinations for religious and medical reasons (Poland et al., 2008; Talbot et al., 2010). The

proportion of institutions that implement mandatory vaccination policies is remarkably low: only 3.6% of responding hospitals within a 2010-2011 study required influenza vaccination as a condition of employment or work duty (Miller et al., 2011) Nevertheless, there is a national shift within healthcare institutions to require HCP to actively state whether they are declining or receiving the influenza vaccine: 55.6% of hospitals did so within the same 2010-2011 survey (Miller et al., 2011). Even within institutions that do not enforce mandatory vaccination, consequences to vaccination refusal exist. These consequences, to which nonmedical exemptions were are commonly accepted, include wearing a mask during work and terming/identifying unvaccinated HCP (Miller et al., 2011). Additionally, when HCP sign declination forms to allow them to continue working without vaccination, the declination forms frequently remind the HCP of the risks of not being vaccinated, including both personal risk and risk of transmission to patients (Miller et al., 2011). For these reasons, among others, mandatory influenza vaccination is feasible and beneficial.

Mandatory HCP influenza vaccination policies work and warrant implementation. The nonexistent success of alternative interventions such as governmental recommendations and opt-in vaccination campaigns support this claim; however, mandatory influenza vaccination policies consistently prove their value. Poland et al. of the Mayo Clinic in Rochester, Minnesota, summarizes realistic consequences, good and bad, of mandatory influenza vaccination within HCP, in their paper, “Requiring influenza vaccination for health care workers: seven truths we must accept”. Their “truths” are as follows (Poland et al., 2005):

1. Influenza infection is a serious illness causing significant morbidity and mortality adversely [??] affecting the public health on an annual basis.

2. Influenza-infected health care workers can transmit this deadly virus to their vulnerable patients.
3. Influenza vaccination of health care workers saves money for employees and employers and prevents workplace disruption.
4. Influenza vaccination of health care workers is already recommended by the CDC and is the standard of care.
5. Immunization requirements are effective and work in increasing vaccination rates.
6. Health care workers and health care systems have an ethical and moral duty to protect vulnerable patients from transmissible diseases.
7. The health care system will either lead or be lambasted.

Thus far, my discussion of the relationship between HCP and influenza vaccination addressed largely agrees with Poland et al.'s conclusions. Conclusions not sufficiently addressed in my analysis up to this point include Poland et al.'s last two take-aways, numbers 6 and 7, addressing the ethical and moral duty that HCP owe to their patients, and themselves, to receive their influenza vaccination, and the state of the health care system in relationship to mandatory HCP influenza vaccination. I do not intend to address number 7. However, Poland's sixth conclusion regarding ethical consequences of mandatory vaccination of HCP plays a crucial role in my objective of investigating whether or not HCP perceive and act towards influenza vaccination in line with their professional duties.

Individual objections to mandatory influenza vaccination policy among HCP are overruled by ethical responsibility to the population to prevent and lower

influenza infections. Therefore, mandatory vaccination of healthcare personnel (HCP) ethically justified and necessary. I unpack this ethical discussion in the next section.

CHAPTER 4: ETHICAL JUSTIFICATIONS FOR MANDATORY HCP INFLUENZA VACCINATION POLICY

In Favor of Mandatory HCP Influenza Vaccination Policy

I complete my case for mandatory vaccination of HCP by displaying how mandatory vaccination of HCP is ethically permissible. Influenza vaccination mandated for all healthcare professionals is ethically justifiable based on four key principles: (1) the professional duty to prioritize patients' interests above all else, (2) the obligation to 'do no harm', (3) the requirement to protect those who cannot protect themselves; and (4) the obligation to set a good example for the public (Caplan et al., n.d.). Caplan et al., in their white paper, "The Ethics of Vaccination Mandates for Healthcare Personnel", elaborate on ethical reasoning for mandatory HCP flu vaccination (Caplan et al.):

We believe that influenza vaccination mandated for all healthcare professionals is ethically justifiable based on four key principles:

- 1) the professional duty to prioritize patients' interests above all else;
- 2) the obligation to 'do no harm';
- 3) the requirement to protect those who cannot protect themselves; and
- 4) the obligation to set a good example for the public.

The moral argument for shifting to an 'opt out' vaccination policy as a condition of employment in healthcare settings includes the following justifications:

- 1) the various codes of ethics by which all healthcare professionals and personnel are bound to abide all state very clearly that patients' interests must be prioritized over providers' interests, thus healthcare worker flu vaccination is required to honor the commitment to patients' best interests;
- 2) all health care workers are obligated to honor the core medical ethics principle of 'Do No Harm';
- 3) healthcare workers have a distinct duty toward those who are especially susceptible to flu who cannot protect themselves through vaccination; and
- 4) there may be a perception among HCPs (and others) about the impact of mandates for influenza vaccine given the flu vaccine's efficacy as compared to other vaccines. The predictably poor response to influenza vaccine in the medically fragile presents an important rationale for healthcare worker vaccination, to prevent transmission to individuals who are unlikely to benefit from direct vaccination themselves. While the influenza vaccines that are currently available are far from perfect with respect to disease protection, they pose very little harm to recipients and will be most effective when herd immunity benefits can be attained.

Beneficence, non-maleficence, and justice are guiding principles of medical practice (Tilburt et al., 2008). All HCP are expected to uphold the core medical ethics requirement of "First Do Not Harm". According to Caplan, mandatory influenza vaccination policies are therefore ethically defensible via referencing overwhelming

evidence that “vaccination prevents disease transmission to the vulnerable and maintains the health of HCP which allows them to work”, justifying the “most fundamental moral requirement in all of health care – that those in care-giving roles treat influenza vaccination as obligatory” (Caplan et al., 2011). The same obligation also lies in the hands of HCP employers (healthcare and medical-providing institutions) in order to establish a workplace culture of influenza vaccination. The viewpoints of both employers (healthcare facilities) and employees (HCP) contribute to the multi-layered complexity of the ethical debate surrounding HCP mandatory influenza vaccination policies.

Patients expect that healthcare facilities and their employees (HCP) take “reasonable measures to ensure that their care is as safe as possible (non-maleficence)” (Tilburt et al., 2008). Under this expectation lies the anticipation that HCP take all reasonable measures to prevent the transmission of communicable, infectious diseases such as influenza (Tilburt et al., 2008). Tilburt et al. exclaims that these measures exist in the form of safe, effective vaccines; however, counterarguments may suggest other influenza-prevention methods are equally sufficient in fulfilling expected “reasonable measures”. Even still, the majority of ethical appeals to HCP mandatory influenza vaccination policies are rooted in claims of personal autonomy and right-to-choice violations (Quach et al., 2013), motivating my exploration into whether the HCP perceptions of influenza vaccination subsequently translate into actions (getting vaccinated), or inactions (not getting vaccinated) that uphold their professional “duty” to their patients.

Challenges to Mandatory HCP Influenza Vaccination Policy

Anti-mandatory vaccination of HCP ethical arguments are rooted in claims of personal autonomy infringement and professional responsibility. However, I

demonstrate that these arguments do not stand against the overwhelming benefits and respectful nature of mandatory vaccination policies. Mandatory influenza vaccination policies are employment-contingent policies that are still highly courteous towards HCP autonomy via medical and religious exemptions. For the purposes of this paper, autonomy is defined as acknowledging a person's right to make choices and decisions regarding their body, including what they put into their body (McLennan & Wicker, 2010). However, in light of HCP's professional duty to provide the best care possible to their patients at all time, some argue that autonomy claims are overridden by vaccination as the best-available influenza prevention method, despite inconclusive statistical support. Additionally, mandatory vaccination policies maintain bodily and personal respect by including medical and religious exemption clauses.

In Quach et al.'s study of the positives and challenges of voluntary and mandatory policies of HCP influenza vaccination, HCP elaborated on their opinions toward influenza vaccination in the context of personal autonomy (Quach et al., 2013):

“I have a real ethical problem with that [mandatory immunizations]. The nurse in me says it should be mandatory. But then the citizen in me says what happened to free choice? It's a conflict. And why should it be mandatory for health care workers and not mandatory for the person who works in my bank who can cough on me and infect me or other people?”

“We [senior management] thought that some of them [HCWs] would really get their backs up. People don't like to be told what to do and some who might actually take it [the vaccine] wouldn't take it just because we were trying to force them into it. ...I don't believe you can force somebody to do something just because they're a health care worker. Is it best practice? Sure. Should people do it? Sure. But everybody has their own choice...”

Nevertheless, autonomy is only one of many moral considerations that must be weighed in when ethically evaluating mandatory influenza vaccination of HCP. The compelling case for mandatory HCP influenza vaccination in the name of protecting

vulnerable patients could be justified; however, such autonomy infringement may not be so easily justified regarding HCP that deal with less-vulnerable patients (McLennan & Wicker, 2010). Still, drawing the line between what constitutes a “vulnerable” and “less-vulnerable” patient is subjective.

Professional responsibility anti-mandatory vaccination stances appeal to private choice, viewing vaccination as an action demanded by HCP’s profession that could intrude their private (mental and bodily) sphere of HCP (van den Hoven & Verweij, 2013). Professional responsibility ethical arguments raise responses in the form of private choice, given that vaccination is viewed as a professional responsibility that could intrude the private (mental and bodily) sphere of HCP and responses that are not clear in exactly how vaccination promotes the health among HCP and patients (van den Hoven & Verweij, 2013). As a policy compromise, opt-out vaccination policies are available for HCP who do not wish to receive an influenza vaccine. Nevertheless, success of vaccination uptake resulting from opt-out campaigns is incomparable (60% uptake) to that of mandatory vaccination campaigns (almost 100%) (Norton et al., 2008).

Non-mandatory opt-out vaccination policies are usually implemented in the form of providing non-agreeable HCP with declination forms. If HCP do not wish to be vaccinated, they simply “opt-out”, and therefore their personal autonomy to refuse medical treatment is respected (McLennan & Wicker, 2010). A major consequence of this “softer” policy, in comparison to mandatory vaccination, is that HCP compliance to influenza vaccination is not guaranteed, and therefore vulnerable patients still hold a significant risk of harm (McLennan & Wicker, 2010). Therefore, declination forms are incomparable to mandatory vaccination policies in terms of potential achievable influenza uptake rates among HCP (Norton et al., 2008). Policies which prioritize

HCP autonomy over patient safety, like opt-in campaigns, renders ethical objections to mandatory influenza vaccination of HCP to be sub-par. Perhaps a policy that implement restricted mandatory vaccination in conjunction with opt-out declination forms could offset such sub-par success (McLennan & Wicker, 2010). Tilburt et al. and Gostin's argument that HCP mandatory influenza vaccination policies are ethically justifiable, and therefore merit implementation, when a compelling institutional threat of influenza demands HCP influenza vaccine uptake that cannot be achieved through opt-in programs (Godin et al., 2010; Tilburt et al., 2008) Opt-in policies are "softer" policies have "softer" success in comparison to mandatory campaigns (60% uptake vs. 90%+ uptake). Today, the compelling institutional threat of influenza is strong, and current voluntary vaccination policies are not sufficiently increasing HCP flu vaccine uptake. Therefore, mandatory influenza vaccination policies directed toward HCP are warranted.

Other ethical concerns to mandatory vaccination exist, but do not hold up. Nonprofessional HCP, constituting 56.2% of wage and salary workers in healthcare according to the U.S. Bureau of Labor Statistics (n.d.), are not bound by the same "professional" duties as HCP in "professional and related occupations, and therefore do not have the same "moral duty" to their patients (Antommara, 2013). Nevertheless, Caplan effectively counter-argues this this observation by stating that HCP "have an absolute duty to do what can be done to ensure they do not transmit diseases to those at grave risk who cannot protect themselves", providing influenza vaccination as an important behavior in fulfilling this obligation to the vulnerable (Caplan et al., 2011). Additionally, Caplan et al. emphasizes that autonomous concerns surrounding compromised informed consent as a result of mandatory influenza vaccination are not persuasive. Morally, opting-in is equally as justifiable as

opting-out. Informed consent and respect for choice remains satisfactorily protected under HCP mandatory influenza mandates, given valid individual exemptions usually based on medical and religious terms and alternative (although less effective) protecting measures such as masking (Caplan et al.). Given the little risk associated with influenza vaccination and option for religious and medical exemptions, mandatory influenza vaccination policies directed toward HCP are not only ethically permissible, but exemplary.

Head to Head

In order to better demonstrate the ethical debate surrounding HCP mandatory vaccination policy, I profile the 2008 and 2013 “Head to Head” column within *The BMJ* focusing on the question: “Should influenza vaccination be mandatory for all health care workers?” (Helms et al., 2008; Behrman et al, 2013). The column allows for side-by-side comparison of HCP-provided arguments, on both sides of the ethical debate surrounding mandatory HCP influenza vaccination policy implementation. In 2008, Charles Helms and Philip Polgreen of the University of Iowa Carver College of Medicine argue in favor of mandatory influenza vaccination policies while David Isaacs and Julie Leask of the Children’s Hospital at Westmead, University of Sydney, Australia are in the opposition. I summarize this debate because it places names and faces on both sides of the previously described ethical implications of mandatory HCP influenza vaccination policies, therefore better illustrating the complexity of the debate. In both columns, those in favor of mandatory HCP influenza vaccination provide stronger arguments and clearly win.

Published in November 2008, Charles Helms and Philip Polgreen of the University of Iowa Carver College of Medicine argue that mandatory immunization is necessary in order to generate enough vaccine uptake to result in adequate herd

immunity among HCP to prevent influenza infection. Their case centers around the insufficiency of voluntary HCP influenza vaccination initiatives in addition to the benefits influenza vaccination overwhelmingly outweighing potential resulting harms. Helms and Polgreen emphasize how voluntary vaccination policies will never compete with the uptake rates resulting from mandatory vaccination policies, citing the overwhelming success of the VMMC initiative in achieving almost 100% HCP vaccination. This conclusion is drawn from a study of over 22 American hospitals in which only modest increases in HCP influenza vaccination uptake occurred when with implemented voluntary vaccination programs. Additionally, in “this era when healthcare institutions and healthcare professions publicly acknowledge their responsibility for patient safety”, HCP influenza vaccination objections based on autonomy become less persuasive. Overall, Helms and Polgreen not only agree with my justifications for mandatory influenza vaccination for HCP, but stand by its necessity.

David Isaacs and Julie Leask of the Children’s Hospital at Westmead, University of Sydney, Australia oppose mandatory influenza vaccination policy, arguing that the infringements of autonomy that mandatory influenza vaccination commits could backfire. Issacs and Leask reference John Stuart Mill as the basis of their ethical argument: “The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will it to prevent harm to others. Mill’s quote, according to Issacs and Leask, therefore invalidates any policy immunizing HCP against their will, including mandatory influenza vaccination policies. However, in reality, Mill’s quote functions against their argument, for influenza vaccination is the best way to “prevent harm”, in the form of influenza, from themselves, their coworkers, and their patients alike.

The foundation of their argument centers around their apprehension towards the potential for psychosocial harm (not necessarily the relatively little physical harm) resulting from influenza vaccines based on personal autonomy infringements. According to Isaacs and Leask, “vaccines are invasive so there is greater infringement of liberty than from other public health mandates which infringe autonomy, such as seatbelts”. As a result, mandatory influenza vaccination could alienate opposing staff, therefore damaging employee morale and creating polarization among HCP. I already proved that this is simply untrue, not only from a philosophical standpoint, but also in the eyes of HCP. Isaacs and Leask acknowledge that non-mandatory influenza vaccination policies cannot compete with uptake rates resulting from mandatory policies, referencing an influenza vaccine uptake rate of 75% among nurses in British Columbia, in which the vaccine access was made extremely convenient. While 98% coverage is more ideal than 75%, they argue that the “benign paternalistic” infringement upon civil liberty and autonomy that mandatory vaccination commits cannot be overlooked in favor of higher HCP influenza vaccination uptake rates. In my opinion, the numbers speak for themselves.

The debate resurfaced in 2013, five years later. The thoughts of pro-mandatory HCP vaccination policy believer Amy Behrman of the University of Pennsylvania Health System are contrasted with the anti-mandatory vaccination stance of Will Offley of Vancouver General Hospital.

Behrman’s states that HCP have an “ethical imperative” to protecting their patient, and that should be motivation enough to get vaccinated. Even still, studies consistently show self-protection as the leading motivation among HCP to receive the influenza vaccination (Hoffman et al., 2006; Hollmeyer et al., 2009). This necessity, in combination with self-protection interests, ethically justifies mandatory HCP

influenza vaccination policies Behrman focuses on the principle of “do no harm” by citing the protection of vulnerable patients in supporting mandatory vaccination. She has little mercy for claims of autonomy infringement within Offley’s anti-mandatory vaccination argument, including vaccine efficacy concerns.

Acknowledging that providing consistent, statistical support for influenza vaccine efficacy is difficult due to suboptimal vaccination rates, variable viral severity and vaccine effectiveness, evolving laboratory diagnostics, and confounding effects of different infectious disease interventions, Behrman is faithful in the influenza vaccine due to extended research conducted in long-term care facilities supporting the ability of HCP influenza vaccination to improve patient outcomes. By placing heavy emphasis on HCP’s “ethical imperative to prevent harm to patients”, Behrman claims that, “ideally, healthcare workers will take full responsibility for being immunized”. She even goes as far to suggest that when HCP are not individually motivated to get immunized, “healthcare institutions have an ethical obligation to intervene, just as they do to optimize hand washing and minimize surgical site errors”. To Behrman, HCP must vaccinate in order to “do no harm”.

Behrman provides a personal institutional example of why she supports mandatory influenza vaccination among HCP. In 2003, within the 18,000 HCP working under the University of Pennsylvania Health System, the influenza vaccine was voluntary, offered for free, and offered annually; however, the vaccination uptake rate was <40%, rising only to 45% after two years of “flu fairs” with educational materials. In 2009, the system began to realize the limits of non-mandatory immunization despite maximal promotion of the vaccine. In an anonymous survey, 85% of the HCP within the University of Pennsylvania Health System supported mandatory immunization, with 90% agreeing that HCP have an “ethical obligation” to

be annually vaccinated. Based on these survey results, a mandatory influenza vaccine policy was implemented, and 99% of HCP were vaccinated that season. Since the policy's implementation, medical and religious exemptions have remained at <2%.

Offley stresses how the inconsistent efficacy of the influenza vaccine is not sufficient in overriding HCP right to choose. In his opinion, the central question in compulsory influenza vaccination does not revolve around individual autonomy, like Isaacs and Leask, but rather whether “current scientific evidence justifies over-ruling the right to informed consent to an invasive and imperfect medical procedure”. Offley's attempt to degrade the ethos of influenza vaccine is not rooted in best available scientific evidence, and therefore ineffective. He additionally questions the authority of the CDC and the Association of Medical Microbiology and Infectious Disease Canada because they recommend influenza vaccination of HCP in order to prevent influenza outbreaks in healthcare settings. I welcome criticism of public health authorities, but his challenge is not warranted. Given his position as a casualty nurse, his doubts in such prominent public health institutions on the basis of influenza vaccine ineffectiveness speaks more to his questionable character as a nurse, not the questionable nature of the CDC or the Association of Medical Microbiology and Infectious Disease Canada. Offley's failure to successfully defend his anti-mandatory HCP influenza vaccination claim, stacked against Behrman's strong argument in favor of mandatory HCP influenza vaccination, falls flat.

For these reasons, mandatory influenza vaccination of HCP is ethically justified and necessary. Mandatory vaccination is the only policy intervention that will substantially and sustainably increase HCP influenza vaccination uptake in an ethical and effective manner. HCP, patients, and policy-makers alike must be aware of this.

CHAPTER 5: PRACTICAL CASES FOR MANDATORY HCP INFLUENZA VACCINATION

Factors Contributing HCP Retrieval of Influenza Vaccine

In order to develop workable plans for mandatory vaccination, it is important to understand factors that contribute to the plans' success. The relative importance of attitudes and perceptions of HCP toward influenza vaccination in predicting behaviors remains unclear (Thompson et al., 2012). I am unsatisfied with this "unclear" conclusion. We are currently unable to state with a high degree of confidence with what percentage the influenza vaccine is effective. However, we are able to confidently state, based on best available scientific knowledge, that the influenza vaccine is generally effective in achieving its goal of influenza prevention. Degrees of uncertainty exist in all decision-making. I accept these degrees of uncertainty when I choose to receive my influenza vaccine every year, and it is particularly concerning that the professionals in whom I trust my life seemingly do not. As an HCP, uncertainty is addressed on a regular basis, for nothing in medicine is guaranteed. No treatment, medicine, procedure, or surgery is always 100% effective. For this reason, HCP skepticism of influenza vaccine due to the vaccine's "inconsistent, ambiguous effectiveness" is not a satisfactory justification for the consistent overwhelming low influenza vaccination rates among HCP over the last twenty years.

Do HCP take different considerations into account when deciding to receive the influenza vaccine because of their professional status as compared to "normal" adults? This question is one of many that motivates me to further investigate this disconnect not by trying to convince readers that the influenza vaccine is 100% effective, but that it is "effective enough". For this reason, mandatory HCP influenza vaccination policies are necessary. The first step toward clarifying the value of

studying attitudes and perceptions of HCP, and ultimately illuminating the root causes of low HCP influenza vaccination rates in an effort to initiate more effective influenza prevention interventions in the form of mandatory vaccination policies, is to place HCP attitudes, perceptions, and actions towards influenza vaccination in line with their assumed roles and responsibilities as HCP.

Different Categories of HCP

In this section, I break down the average HCP influenza vaccination statistic of 50% (Pearson, Bridges, & Harper, 2006) uptake in order to display slight variations in uptake based on HCP career. Vaccination uptake must be maximized in order for vaccines to best protect against disease, and for this reason, information presented in this section supports the necessity for mandatory influenza vaccination policy within HCP.

The highest reported vaccination rates were among health diagnosing and treating practitioners (52.3%), while the lowest uptake rates (32.0%) were among healthcare support occupations such as birth attendants, morgue attendants, phlebotomists, and patient transporters (Caban-Martinez et al., 2010). Upward and downward trends of influenza vaccination within specific HCP groups were insignificant (Caban-Martinez et al., 2010).

Walker et al, in their study results of over 84,000 HCP in 1997 and 2002, suggest that varying vaccination rates within different groups of HCP exist. Walker et al. investigated these differing vaccination rates in heightened detail a few years before Caban-Martinez et al. surveyed uptake rates of extended HCP categories. In 2002, the vaccination rates of different categories of HCP were as follows: (1) health diagnosing [physician, dentist, optometrist, veterinarian, podiatrist, etc.]: 35.8%; (2) assessment and treating [pharmacist, registered nurse, physician assistant, dietician,

physical/other therapists]: 41.5%; (3) health technologist/lab technician [licensed practical nurse, clinical lab technologist/technician, dental hygienist, etc.]: 44.6%; health service [dental assistant, health aide, nursing aide, orderly, attendant]: 29.4%; non-healthcare occupation in healthcare industry: 37.0% (Walker et al., 2006). Like Caban-Martinez et al. reported, Walker et al. did not find any significant upwards or downward trends in influenza vaccination rates among any of the groups HCP.

Nevertheless, Walker et al. observed further potential contributing factors that increase the HCP influenza vaccination. Such factors are related to demographics and access to care. Higher odds of influenza vaccination were connected to being over the age of 50, non-Hispanic white race, family income at or greater than the poverty threshold, receipt of at least some college education, receipt of employer-provided health insurance, a visit to the office of a healthcare professional in the past year, and having a usual place for medical care (Walker et al., 2006). Additionally, an HCP who was a hospital employee, works at a facility of 100 or more employees, and has been with the same employer for more than ten years was more likely to be vaccinated against the flu than HCP without such characteristics (Walker et al., 2006). Walker et al. also observed clinical influences that motivated HCP to get vaccinated, including: a history of diabetes, history of pneumococcal vaccination, a history of hepatitis B vaccination, or being aged between 18 and 64 with one or more high-risk medical conditions. However, after controlling for these variables, Walker et al. found that sex, a present medical condition, higher education level, higher family income, health insurance, having a usual place for medical care, number of employees within a workplace or years on the job, and healthcare occupation are not significantly associated with HCP vaccination. While there was an extremely strong significance between race and receipt of the hepatitis B vaccine ($P < .01$), odds of influenza vaccine

did not fluctuate among differing races/ethnicities of HCP that received the hepatitis B vaccine (Walker et al., 2006). Rather, odds varied among HCP who had no history of hepatitis B vaccination—non-Hispanic black persons were less likely to receive influenza vaccines versus non-Hispanic white persons (Walker et al., 2006).

Godin et al. found results opposite from Caban-Martinez et al. and Walker et al. In Godin et al.'s study, influenza rates did not significantly vary among hospitals, work categories, work shifts, or age groups (Godin et al, 2010). Overall, one of the most significant influenza vaccination determinants within Godin et al.'s study was past vaccination history. This conclusion suggests that implementing interventions to get HCP vaccinated against influenza for the “first time” is potentially the only step needed to making seasonal influenza vaccination a habit (Godin, Vézina-Im, et al., 2010). Mandatory influenza vaccination programs do just this.

HCP Perceptions of Influenza Vaccination

Analyzing HCP perceptions of influenza vaccination are important because while vaccination as a prevention method for influenza is logically sound, individual actions are not always logically rooted. Individual perceptions of influenza vaccination result from many different influences, including personal experience, knowledge, experience, surrounding communities, media, and accessible educational materials. HCP are not exempted from being swayed by such influences when making the decision to receive an influenza vaccine or not. However, due to their professional positions as HCP, they have increased exposure to educational materials and vaccination campaigns within their place of work, as compared to non-medical professionals (Quach et al., 2013). As previously discussed, healthcare settings (especially hospitals and acute-care settings that attract high-influenza contraction risk patients such as: those with weakened immune systems, the elderly, and children) are

environments that are particularly vulnerable to influenza outbreaks (Quach et al., 2013). Due to this workplace environment, HCP have to consciously make a decision regarding whether or not they will receive the influenza vaccine at least annually—especially because their workplace is trusted with the responsibility not only to be the place where influenza can be treated, but also cured.

With respect to inconsistent HCP influenza vaccine uptake rates explained in previous sections, and deeper ethical/philosophical considerations that may be taken as a result of their profession (which will be unpacked later), it is now appropriate to delve into how HCP perceive flu vaccines. While Weinstein et al. suggests that the anticipation of regret of not being vaccinated in combination with risk perception is motivation enough to persuade an HCP to get vaccinated against the flu, each individual HCP has different motivations in deciding whether or not to be vaccinated against influenza. These motivations are often specific to their profession – such as how the vaccine will affect work absenteeism, workplace and individual pressures for and against vaccination, and how the regular exposure of HCP to high-risk patients can affect HCP vulnerability in disease contraction (Wilde et al., 1999). Other times, the motivations are nonprofessional, stemming from personal desire (or lack thereof), medical needs, or religious status.

This analysis will focus on Hofmann et al.'s extended analysis of literature published up to 2004 on MEDLINE/PubMed databases using keywords related to influenza immunization and the perception and coverage among HCP. The uptake rate of the influenza vaccine among HCP in Hofmann et al.'s study increased to 38% from 21% after unvaccinated HCP were asked why they did not receive the vaccine (Hofmann, Ferracin, Marsh, & Dumas, 2006). This suggests that initially

unvaccinated HCP in workplaces with vaccination campaigns did not pay that much attention to opt-in influenza vaccination campaigns.

HCP motivations to receive the influenza vaccine included to protect oneself, to protect patients, the free cost and convenience of vaccination, previously being vaccinated, and following peer-set examples (Hofmann et al., 2006). Protecting oneself was the strongest motivation (33%-93%) even among non-vaccinated HCP (Hofmann et al., 2006), suggesting that even if HCP chose not to be vaccinated, they did so in the spirit of self-protection from influenza, just as HCP who got vaccinated acted. HCP who did not get vaccinated for the purposes of self-protection may have low levels of trust in the influenza vaccine. Getting vaccinated in an effort to provide protection to patients was a secondary motivation in most cases (2%-98%) (Hofmann et al., 2006). Important to note is HCP placed patient protection before self-protection only in two studies (Hofmann et al., 2006). This observation will play a crucial role in the forthcoming sections regarding whether HCP have an “ethical responsibility” to vaccinate against influenza for the sake of their patients (Behrman & Offley, 2013). The “ideal” job description of HCP may ideally put patients before personal wishes. However, Hofmann et al.’s findings of consistent HCP prioritization of self-care over patient well-being when weighing whether to vaccinate against influenza challenges the reality of such “ideally”-phrased HCP roles and responsibilities.

Ideas preventing influenza vaccination, according to Hofmann’s study, include fear of adverse effects resulting from the vaccine, the misconception that “vaccination can cause influenza”, HCP believing that they “aren’t at risk”, inconvenient times and locations of vaccination administration, doubt that influenza is a “serious” disease and therefore non-threatening, inefficacy of the vaccine, and fear of injections. The most potent deterrent among HCP against influenza vaccination across 17 studies was the

fear of adverse effects (8%-54%), followed closely by inconvenient administration times and locations (6%-59%). The prominent doubt that influenza is a serious disease (2%-32%) in combination with 6%-58% of HCP respondents expressing that they are not at high risk of contracting influenza raises serious concerns among influenza education among HCP (Hofmann et al., 2006). In contrast, a strictly European study found that the most important concern held by European HCP against influenza vaccination is vaccine safety (Karafillakis et al., 2016).

Hofmann et al. states that influenza vaccination campaigns can only have long-term success and sustainability when HCP accurately understand their relationship to influenza transmission and prevention as a direct result of their workplace and if vaccination is convenient and free. Mandatory influenza vaccination campaigns accomplish these requirements, and therefore result in sustainable success. The place of HCP perceptions towards influenza vaccination, according to Hofmann et al., is central in raising HCP vaccination uptake. They therefore suggest integrating a survey of HCP attitudes and beliefs as a routine campaign component in order to have a successful campaign the following year (Hofmann et al., 2006). Such adjustments are easily implementable into mandatory HCP influenza vaccination policies.

Additionally, some HCP fear potential side effects of the vaccine and perceive a low risk of contracting influenza (Abramson & Levi, 2008). Unvaccinated HCP also frequently call for alternatives to mandatory influenza vaccination policies. However, this plea is not rooted in best available information. Alternatives to increasing HCP flu vaccination uptake rates may exist, but reports continuously suggest mandatory vaccination the most effective intervention in increasing HCP influenza vaccination rates when compared to other intervention methods (Lytras, Kopsachilis, Mouratidou,

Papamichail, & Bonovas, 2016). Nevertheless, there are many challenges to getting more, or ideally most, HCP vaccinated. Visible leadership via performance evaluations and “leading by example” is crucial to obtaining necessary participation rates. Additionally, programs must have an adequate allocation of resources, including but not limited to financial resources and personnel, as well as preparedness plans for vaccine allocation in the event of vaccine shortages (even though shortages are expected to be less frequent in comparison to the past) (Babcock et al., 2010). Not all HCP employers are equipped to take on and maintain such commitment and responsibility. However, HCP support for mandatory influenza vaccination policies and the overwhelming historical success of increasing HCP uptake of the influenza vaccine via mandatory initiatives will foster necessary leadership and therefore resources.

International Perspectives

Even though literature up until this point has mostly focused on the United States, we can learn a lot from international environments as well. For example, in a study conducted in Jerusalem, Israel, when non-vaccinated HCP are asked what external influences contributed to their decision not to be vaccinated, 78% cited no external influence (Abramson & Levi, 2008). Most HCP that did not vaccinate did not do so due to general objection to vaccination, fear that the vaccination would cause influenza, and a lack of time (Abramson & Levi, 2008). 92.5% of immunized HCP indicated that their primary motivation for vaccination was self-protection from influenza (Abramson & Levi, 2008).

The Jerusalem study led me to ask further questions about the reasons HCP have for not getting vaccinated. In order to further unpack HCP actions and perceptions toward influenza vaccination, and not totally rely on literature review, I

gathered anecdotal data as part of a larger study between Ben-Gurion University of the Negev in Beer Sheva, Israel, the CDC, University of Michigan, and Clalit Health Services (Israel's largest HMO). This testimony largely supported conclusions derived from literature on perceptions and actions of HCP toward influenza vaccination, but must be taken within Israeli cultural and social context. I disclaim this because most of the literature on HCP perceptions and actions toward influenza vaccination report on studies conducted within the United States. I utilize my focus group data while keeping in mind that my focus groups address the perceptions and actions of HCP in a particular country (Israel), and therefore are situated within a particular professional, cultural and legal environment.

Nonetheless, the focus group testimony from Israel HCP provides support for American conclusions favoring mandatory vaccination, and I advocate for universal implementation of mandatory influenza vaccination among HCP. I recognize that implementation of mandatory HCP influenza vaccination policy is dependent on location. For this reason, I will adjust my analysis to flag and acknowledge that things that may apply in Israel but may not apply in different countries. Similarly, I may observe things that are specific to this particular professional/cultural/legal environment that matter. On the same note, risks of medical malpractice litigation (and therefore HCP may have different worries regarding getting sued by someone who contracts the flu from them) differ geographically, and different countries may place more or less emphasis on individual civil rights or skepticism of state-mandated public health measures.

In short, national and cultural specificity might be a way to point out how other, apparently unrelated things, inform what HCPs think and do in a particular medical-social-legal-cultural environment. These similarities and differences between

such environments are important in the implementation, not in the justification, of mandatory influenza vaccination policies directed towards HCP. While I do not focus on how to implement universal mandatory HCP influenza vaccination policy, data stemming from my Israeli focus groups upholding conclusions from American literature on influenza vaccination and HCP support the premise of universal mandatory HCP influenza vaccination policy.

The testimony that I analyze below was unanticipated because the project's primary research objectives are not to investigate the perceptions and actions that HCP take toward influenza vaccination, but rather to analyze the effectiveness of the influenza vaccine within HCP. I was in charge of focus group execution in order to understand motivations and barriers to HCP participation in such an intensive, hands-on study. We received Institutional Review Board (IRB) and Ethics Committee (Helsinki) approval before executing any focus groups. Focus groups took place in Soroka Hospital in spring 2014, were conducted in Hebrew, lasted about one hour long, and consisted of anywhere between six and ten HCP.

These focus groups are relevant in contributing to perceptions and actions of HCP toward influenza vaccination because of the conversations that steered *off* topic. In translating and transcribing the focus groups, I found that while our discussions were generally related to HCP participating in our study on influenza vaccines, our focus group participants seemed to often misinterpret the question. However, HCP present during these sessions were not shy in addressing the intentions of the focus groups in addition to providing their opinions and personal anecdotes relating to influenza vaccination. For example, one HCP said:

I think that to everyone, even those who don't get vaccinated, there is a potential to join in the research – it really just depends on how you frame it. There is something to loaded subjects. Research regarding flu vaccines will be

more difficult to sell, but research regarding the transport of vaccines could perhaps be easier to recruit folks.

This quote implies that vaccinations have a “negative” connotation among HCP, which could be a potential contributing factor to low vaccination rates among HCP.

As I mentioned in the introductory section of this paper, this Israeli focus group testimony displays similar HCP perceptions and actions towards influenza found in American studies. It therefore upholds the feasibility of mandatory HCP influenza vaccination not only in an American context, but also in Israel.

Nevertheless, my focus group analysis should be interpreted with caution. My results may be specific to the cultural, professional, and legal environment that my HCP focus group participants participate within. National and cultural specificity may also play a significant part in informing HCP perceptions and actions towards influenza vaccination in a medical, social, legal, and cultural environment, and so be pertinent to policy and ethics. Important to note is mandatory conscription of all Israeli citizens after high school. In a study of the willingness of Israeli HCP to risk their lives for patients during the peak of the 2009 influenza A H1N1 pandemic, results suggest that investing resources in increasing the safety of HCP significantly increased the chances of HCP attending work during pandemic avian flu (Bar-Dayan et al., 2011). Trust in colleagues and HCP willingness to risk their lives for others suggest a correlation to the military maxim, “one for all and all for one”: when soldiers are willing to risk their lives for their peers because they know that their peers would do it for them (Bar-Dayan et al., 2011). Applying this axiom to HCP decision-making is surely novel, but not out of the ordinary. After all, many similarities between military preparedness and healthcare disaster preparedness exist within Israeli society (Bar-Dayan et al., 2011).

Respective of Israeli societal context, data resulting from my focus groups supports the feasibility of mandatory HCP vaccination policy, in spite of anticipated challenges. I am aware that the analysis that I provide following each focus group participant quote may be relevant even just within HCP that are employed at Soroka Hospital, or the small HCP focus group participant sample. Even still, focus group participant responses consistently echoed HCP perceptions and actions published in American literature, and for this reason, I am confident in using this focus group data to support not only mandatory HCP influenza vaccination policy within America, but globally.

Testimony

Every year we bring flu vaccines to our staff. But I once had a super negative experience with the influenza vaccine [due to bad side effects]. I got a super hard flu that lasted about a week. And because of this, I don't vaccinate. However, to all of our nurses – they receive vaccines for free. However, only a small percentage actually receives the vaccine – and I don't understand why. Perhaps it is because they don't understand vaccines themselves...maybe it is necessary to focus on explaining what exactly vaccines are.

The previous quote comes from a nurse that works at a government-provided mother-child clinic, Tipat Halav (“A Drop of Milk”) within a Bedouin village in the Negev. Her personal commentary demonstrates her belief, trust, and support in the efficacy of influenza vaccination within HCP, despite her personal choice not to get vaccinated based on her past experience contracting the flu that she believes was a direct result of receiving the influenza vaccine. She does not understand why the majority of her fellow nursing staff does not get vaccinated against influenza, hypothesizing that perhaps they do not understand how vaccines work at all. Her suppositions discount the possibility of her fellow co-workers being properly educated on influenza vaccines, or the possibility that they had a similar experience as her. She demonstrates a form of disconnect within HCP regarding their perceptions and educational

background on influenza vaccination (her deep understanding and support of influenza vaccine suggests that she would be a vaccinator), and how they actually act (despite her trust in vaccines, her one personal experience of contracting influenza shortly after getting vaccinated prevents her from receiving an influenza vaccine for the rest of her life).

Nurse [to Doctor]: Do you get vaccinated [against influenza]?

Doctor: Yes.

Nurse: There are many HCP who don't get vaccinated. So I don't think that many HCP would agree to the study simply because they don't believe in vaccines – they are not interesting to them. If they don't believe in vaccines, why should they at all contribute their time?

In this dialogue, the nurse checks with the doctor about his influenza vaccination habits due to their observation that “there are many HCP who don't get vaccinated”. They seem to correlate HCP decision not to vaccinate to their “non-belief” in the vaccine. The nurse does not appeal to the doctor's professional position as a doctor, or HCP's professional status as HCP when discussing whether or not HCP get vaccinated. The nurse implies that the decision to receive the influenza vaccination is an individual, personal one, based on “beliefs”. This quote does not particularly support the notion that HCP have a unique decision-making process regarding the question to vaccinate against influenza due to their career.

I've never gotten vaccinated, that is personal. However, that isn't related to participating in the research. The complications of the vaccine scare me more than the disease itself, that's why I don't get vaccinated.

The same “personal” factor is invoked in this focus group participant's response to a question regarding incentivizing vaccines in an effort to promote their uptake rates. Potential negative side effects of the influenza vaccine—which studies have displayed to be insignificant and generally without occurrence (G. A. Poland et al., 2005)—not contracting influenza itself, deter this specific HCP from seasonal influenza

vaccination. This statement supports Norton et al.'s claim that HCP are not adequately and properly trained on influenza vaccines. As a result, HCP develop inaccurate perceptions of the vaccine and subsequently do not act in accordance with best available knowledge. Undertones of self-prioritization (at any cost, even at the cost of decision-making based on inaccurate information) also permeate this testimony.

HCP Attitudes Towards Influenza Vaccination

My understanding of HCP perceptions of influenza vaccination motivates analysis regarding HCP attitudes and actions toward influenza vaccination. While Weinstein et al. suggests that the anticipation of regret of not being vaccinated in combination with risk perception is motivation enough to persuade an HCP to get vaccinated against the flu, each individual HCP has different motivations in deciding whether or not to be vaccinated against influenza. These motivations are often specific to their profession – such as how the vaccine will affect work absenteeism, workplace and individual pressures for and against vaccination, and how the regular exposure of HCP to high-risk patients can affect HCP vulnerability in disease contraction (Wilde et al., 1999). Other times, the motivations are nonprofessional, stemming from personal desire (or lack thereof), medical needs, or religious status.

Past influenza vaccinations behaviors and resulting experiences contribute to HCP perceptions of influenza vaccination and the disease itself. Past and present influenza vaccination behaviors and actions of HCP, in combination with their perceptions of the vaccine, create a feedback loop that directly influences their decision to get the flu vaccine or not. The results of case studies presented in this section do not provide conclusive insight into which “kinds” of HCP, based on their individual professions, socioeconomic/racial backgrounds, and medical history, are

more likely to receive the influenza vaccine. Due to such inconclusiveness regarding their vaccination uptake behaviors, and overall low uptake rates given their profession and healthcare-centric work settings, I analyze how HCP perceive the influenza vaccine in an effort to uncover why inconsistencies in HCP actions toward influenza vaccination exist. My combined analysis of HCP perception and action toward influenza vaccination, in light of contemporary ethical and policy debate on mandatory influenza vaccination HCP, overwhelmingly supports of the necessity of mandatory HCP influenza vaccination policies.

Given HCP perceptions of influenza vaccination, HCP's do not always get vaccinated. Low, inconsistent HCP uptake rates of the influenza vaccine could be due to a variety of factors, including general and personal doubts about influenza vaccine efficacy and a dearth of literature, or "proof", suggesting that the influenza vaccine is particularly worth receiving specifically because of their occupation status as HCP. Reason for non-HCP receipt of the influenza vaccine can be broadly categorized into two categories. The first group surrounds knowledge and attitudes toward influenza vaccination from the point of view of the individual HCP, and the other group may be termed "perpetual barriers" (Hollmeyer et al., 2009). These "perpetual barriers" are subsequently broken down into three subsections: the perceived relevance of influenza to HCP, knowledge about the vaccine itself including efficacy doubts and safety concerns, and general objections to immunization and medication with an emphasis on the inconvenience of intramuscular injections (Hollmeyer et al., 2009).

In 2009, Hollmeyer et al. published results of their study, which analyzed 1998-2008 literature from PubMed computerized databases resulting from searches using keywords related to influenza, influenza vaccine, healthcare personnel, knowledge, attitude(s), belief(s), practice(s), etc. The study is very similar to that of

Hofmann et al. Hollmeyer et al.'s review included 21 studies from nine different countries, 9 (43%) from America, but the most dominant HCP reasons for nonvaccination among HCP included: lack of concern, lack of perception of own risk, doubts of vaccine efficacy, fear of adverse reactions, self-perceived contra-indications, dislike of injections, avoidance of medications, lack of availability, and inconvenient delivery (Hollmeyer et al., 2009). Self-perceived contra-indications, which was a justification for non-vaccination not mentioned by Hofmann et al, included statements such as "I had an allergy", "I was breast feeding during the vaccination campaign", "I was pregnant", "I felt ill on the day when the vaccine was offered", etc. (Hofmann et al., 2006). Many of the stated contra-indications are not rooted in best available information. For example, it is safe to receive a flu shot when pregnant – the CDC even recommends it ("Vaccine Effectiveness - How Well Does the Flu Vaccine Work?", n.d.). The CDC also released a statement saying that there is no negative effects resulting from receiving the flu vaccine observed within breastfeeding mothers ("Vaccine Effectiveness - How Well Does the Flu Vaccine Work?", n.d.).

Hollmeyer et al.'s paper does something that is missing in Hofmann et al.'s work: they provide detailed descriptive statistics, which therefore illuminate the heterogeneity of responses given by HCP that did not receive the influenza vaccine (Hollmeyer et al., 2009). Unique observations resulting of Hollmeyer et al.'s analysis include the fact that no justification for non-vaccination in any included study was mentioned by more than 60% of participants, no category of reasons was mentioned by every study, and that every reason was mentioned as a top "demotivator" for not receiving the influenza vaccine, except for "dislike of injections" (Hollmeyer et al., 2009). American HCP never provided "lack of availability" as a deterrent to

vaccination (Hollmeyer et al., 2009). Additionally, only two of the justifications (“inconvenient access” and “lack of availability”) are an immediate responsibility of HCP employers: health care institutions (Hollmeyer et al., 2009). Overall, as Hofmann observed, reasons HCP non-uptake of the influenza vaccine are vast and heterogeneous, suggesting that the complexity of the decision may be specific to cultural setting or subgroups of HCP (despite earlier analysis suggesting inconsistent takeaways regarding trends within HCP subgroups) (Hollmeyer et al., 2009). After all, in Karafillakis et al.’s study of the perceptions that European HCP have toward the flu vaccine, they stress the widely assumed impact that anti-vaccination campaigns have over listeners of the European media. However, when looking more closely to French websites, they found that while some websites are indeed largely critical of vaccines, not all are (Karafillakis et al., 2016).

Reasons of influenza vaccine acceptance among HCP, according to Hollmeyer et al.’s study, once again uncovered similar HCP motivations to Hofmann et al. for receiving influenza vaccination. The top justification among all studies except for two was also self-protection, then followed by protection of patients, protection of family members or colleagues, convenient access, work ethic, trust in the vaccine, free vaccine (cost), compliance with recommendation, and setting an example for patients (Hollmeyer et al., 2009). Even still, there were significant differences in motivation placed on self-protection, patient protection, and the remaining justifications. Setting an example for patients, or in order to “please the public”, is also referenced as a motivator among HCP (nurses specifically) to receive the influenza vaccines “so that patients will feel more comfortable, since they like to see healthy people taking care of them” (Willis & Wortley, 2007). Concern for work productivity also arose within nurse concerns about non-influenza vaccine uptake: “a few committed people think

that if they don't come to work because they are sick, things won't go on as needed" (Willis & Wortley, 2007). This same logic is utilized in justifying coming to work when either expressing influenza symptoms or when actually diagnosed.

According to Hollmeyer's study, a typical HCP influenza vaccine recipient was usually in the habit of annual influenza vaccination and was older than those not vaccinated (Hollmeyer et al., 2009). The low-reported pull of recommendation compliance further motivates later discussion for the potential value (or lack thereof) that policy may play in HCP influenza vaccination decision-making. After all, a potential independent positive predictor for HCP influenza vaccine receipt could also be tied to being a member of a risk group, not necessarily due to adherence to national or workplace recommendations (Hollmeyer et al., 2009). This raises doubts about just how much influence vaccination campaigns (and HCP employers in general) have over HCP action to receive influenza vaccines. In this instance, the the place of policy, which will be addressed in later sections, arises if it is true that education that workplace-provided awareness and education of influenza vaccines are not enough to change HCP influenza vaccine uptake rates.

Taking into account the repeated importance that HCP place on the ease of access, cost, and time commitment of influenza vaccines in formulating their opinions of the vaccine and ultimately deciding whether or not to get vaccinated, I highlight Norton et al.'s cross-sectional study of HCP coverage, refusal, and factors of acceptance towards influenza vaccination. In an effort to alleviate these concerns, Norton et al. offered free, on-work location influenza vaccines to nursing staff during influenza season via a multi-component vaccine campaign including intense promotional activities. Almost 76% (895/1182) of eligible nurses were vaccinated in the program, with an overall uptake rate of 78% (924/1182) due to external site

vaccination (Norton et al., 2008). Given that the vaccine refusal reasons of time consumption, cost, and inaccessibility were eliminated, HCP that remained unvaccinated throughout the campaign cited lack of personal need (30%) due to lack of “personal benefit”, their status as being “young”, “healthy”, and therefore “not at risk”, and never becoming ill with the flu or “sufficiently ill” to warrant vaccination (Norton et al., 2008). Concerns about adverse effects also arose, including minor concerns about vaccine components and preservatives (Norton et al., 2008).

Healthcare settings value maximum protection influenza virus contraction and propagation. Influenza vaccination is scientifically proven to reduce the contraction, spread, and severity of influenza. Leaving HCP with the decision to vaccinate against influenza is therefore a huge risk on behalf of healthcare institution safety. HCP perceptions, attitudes, and actions toward influenza vaccination show us that many influences contribute to HCP forming opinions and deciding how to act regarding influenza vaccination. Some influences are encouraging and others are discouraging, but all influences affect each individual HCP differently. Mandatory HCP influenza vaccination policies avoid this risk by guaranteeing high uptake rates of the influenza vaccine (>90%) while respecting HCP perceptions and attitudes toward influenza vaccination via the incorporation of medical and religious exemption clauses.

CHAPTER 6: CONCLUSIONS

In forming vaccination laws, methods of persuasion and coercion are both necessary, for neither is sufficient (Colgrove, 2016). To what extent each intervention should be implemented is circumstantial, based on disease severity, disease prevalence, vaccination uptake rate, and population. In this paper, I have advocated for a mandatory (coercive) policy approach to influenza vaccination among healthcare

personnel (HCP) based on the present threat of influenza within healthcare settings today. This threat results from insufficient contemporary HCP influenza vaccine rates (<50%) due to largely persuasive policies regarding influenza vaccination and HCP currently in place.

I have shown that influenza is a significant, existent threat to healthcare settings. HCP work in healthcare settings, and therefore have increased exposure to at-risk patients: those with weakened immune systems, the elderly, and children. I have demonstrated that influenza vaccination is the only influenza prevention method rooted in best available scientific evidence. I have argued that influenza vaccinations of HCP are effective in preventing HCP-contracted influenza infection. Even still, seasonal HCP influenza vaccination uptake is consistently low, averaging around 50% HCP uptake of the seasonal influenza vaccine annually (Pearson et al., 2006).

Current policy regarding HCP influenza vaccination is formulated in goals and recommendations that are non-mandatory, and therefore non-enforceable. I have shown that such policy does not sufficiently promote the high HCP influenza vaccination uptake necessary to generate herd immunity protection against the influenza virus. On the same note, I have argued that government and institutional recommendations do not appear to have substantial influence in promoting vaccination uptake among HCP. Voluntary influenza vaccination “opt-in” workplace policies, which generally provide the influenza vaccine to HCP for free of charge, have not sustained high HCP coverage rates (McLennan & Wicker, 2010). On the other hand, mandatory influenza vaccination policies are employment-conditioned, and therefore significantly increase HCP uptake rates of the influenza vaccine (>90%) (Thompson et al., 2013). Despite mandatory HCP influenza vaccination policies consistently achieving HCP influenza uptake rates over 90% and being widely

supported by HCP, they are not currently frequently implemented. Because mandatory influenza vaccination works in preventing influenza infection incidence among HCP better than current policy alternatives, I have advocated for the implementation of mandatory HCP influenza vaccination policies.

I have ethically justified and upheld mandatory HCP influenza vaccination based on four key principles: (1) the professional duty to prioritize patients' interests above all else, (2) the obligation to 'do no harm', (3) the requirement to protect those who cannot protect themselves; and (4) the obligation to set a good example for the public (Caplan et al., n.d.). However, anti-mandatory vaccination of HCP ethical arguments are rooted in claims of personal autonomy infringement and professional responsibility. Professional responsibility anti-mandatory vaccination stances appeal to private choice, viewing vaccination as an action demanded by HCP's profession that could intrude their private (mental and bodily) sphere of HCP (van den Hoven & Verweij, 2013). Therefore, I have shown that mandatory HCP influenza vaccination is ethically good in addition to effective.

Still, I have investigated such individual objections to influenza vaccination via analyzing HCP perceptions, actions, and attitudes towards influenza vaccination. This is important because while vaccination as a prevention method for influenza is logically sound, individual actions are not always rooted in best available knowledge regarding disease prevention. Similar patterns and themes within HCP responses from all around the world regarding their perceptions, actions, and attitudes toward influenza vaccination suggest that we can learn a lot from international environments when making a case for mandatory HCP influenza vaccination.

There is a time and place for coercive and persuasive influenza vaccination interventions. I have shown today's necessity of coercive policies regarding HCP and

influenza vaccination in order to raise HCP influenza vaccine uptake to levels that can generate herd immunity and lower influenza incidence in healthcare settings. I have provided scientific, policy, ethical, and sociological support for the implementation of mandatory HCP influenza vaccination policies within today's healthcare settings.

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