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ABSTRACT

Background: The seasonal influenza illness occurs every year in the United States during the cooler months from October to April, sometimes lasting longer. Although certain populations are more susceptible to this condition, data have shown that otherwise healthy individuals have experienced alarming rates of morbidity and mortality associated with these infections. Despite the CDC's recommendation for influenza vaccination for all HCWs, compliance have been lagging among local health departments' workforce. This practice arguably exposes a wide cross section of the U.S. population to the flu, while being served in these facilities. The utilitarian approach provides a framework to examine the ethical implications to the public of mandating influenza vaccination for these employees.

Methods: A systematic review of peer-reviewed literature was conducted to address the following research questions: 1) Do local public health departments in Georgia mandate annual influenza vaccinations? 2) What are the ethical considerations for mandating influenza vaccinations for public health employees? and 3) What are the ethical considerations for mandating influenza vaccinations for the community? Twenty-five articles were included in the review.

Results: Descriptive analysis shows that there is no mandatory vaccination policy in place for state or local departments in health in the state of Georgia. Most of the literature available relates to policy implementation within acute or long-term care facilities. A systematic review of mandatory influenza vaccination for public health workers focused on four areas: theoretical approaches to increase influenza vaccination coverage and support of, opposition to, and alternative strategies for influenza vaccinations.

Conclusions: The utilitarian approach is sufficient for the influenza vaccination policy- making strategies and in the ethical approaches of mandating influenza vaccinations for local health department workforce in Georgia if need be, for vaccination targets are to be achieved.

Keywords: Mandatory influenza vaccinations, local health departments, policy, ethics, utilitarian approach
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INTRODUCTION

Influenza, or more commonly the *flu*, is a highly contagious respiratory illness occurring seasonally every year, and is caused by transmission through droplets of influenza viruses types A and B. Although symptoms can be mild and easily treated, it can also result in very serious complications and death, as is seen by this year's very active influenza season. Some members of the population such as infants, expectant mothers, older adults, and persons with certain debilitating health conditions are more susceptible to adverse outcomes. However, young and otherwise very healthy individuals have contracted influenza and have been documented to transmit it to others (Grohskopf, 2017). The Center for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) recommends the annual influenza vaccination for all individuals six months of age and older. It is also recommended for healthcare workers (HCW) with direct patient contact, and those with indirect contact who could be potentially exposed

to these viruses and spread them to other HCW and patients.

Although many hospitals have made the influenza vaccine mandatory for continued employment because of the high volume of their patient contact, several local health departments (LHDs) looking to adapt influenza mandates are forced to examine the ethical justification of this proposal because of the settings within which they administer healthcare and interface with the public. It should be noted that while their contact with patients might be more brief, LHD clinical staff come in contact with high volume of susceptible clients such as young children in immunization services, pregnant women, the elderly and those with chronic morbidities.

In applying ethics to sound decision-making, the *utilitarian approach* could be utilized in exploring this matter. This approach analyzes an issue through the lens of providing the greatest balance of good for the greatest number of persons. First, decision-makers must carefully examine all the available courses of action they have, then evaluate the

benefits and harms to be derived from each option (Velasquez, 2015). This can then be applied to determining whether or not mandating the influenza vaccine for all LHD employees, as a condition for employment, is ethical. The CDC supports that many individuals decline taking the influenza vaccine every year due to concerns of the effectiveness of the vaccine and their susceptibility for contracting influenza because they are otherwise healthy. Year after year, however, the data supports that healthy individuals without any underlying chronic conditions contract the virus and suffer severe symptoms, complications, and even death.

METHODS

Institutional Review Board Approval

All study protocols were reviewed and approved by the Georgia Southern University Institutional Review Board under Protocol H18311.

Assessment

A systematic review of peer-reviewed literature was conducted to address the following research questions: 1) Do local public health departments in Georgia mandate annual influenza vaccinations? 2) What are the ethical considerations for mandating influenza vaccinations for public health employees? and 3) What are the ethical considerations for mandating influenza vaccinations for the community?

Databases searched included Medline, ScienceDirect, Taylor and Francis Online, and PubMed. Other sources used were Center for Disease Control and Influenza Vaccination Honor Roll. The following Boolean search syntax was used: “mandatory influenza vaccination AND Georgia department of health”, “mandatory influenza vaccination AND local health department worker”, “mandatory influenza vaccination AND public health worker”, and “mandatory influenza vaccination AND public health worker AND ethics”. Of the five ethical approaches, the utilitarian approach from the Markkula Center for Applied Ethics was

used identify the various ways of action available (Velasquez, 2014).

Analysis

The criteria for inclusion were that each article must explicitly address attentions of mandating employees for influenza vaccinations, publication from 2013 to date and studies that are conducted in the USA. Six reviewers independently assessed the relevance of articles and discarded those not directly related to mandating influenza vaccinations for public health employees. The criteria for inclusion were that each article must explicitly address mandatory influenza vaccination in a healthcare setting and must report on ethical implications of said mandates. After further discussion among the reviewers, 25 articles were included in this literature review (Figure 1) (results for the first and second search syntaxes are not included in Figure 1 as they did not yield relevant results based on inclusion criteria). A single reviewer categorized the remaining articles into themes based on their relevance to the research topic.

RESULTS

According to Immunization Action Coalition (IAC), 13 national medical and public health organizations including American Public Health Association (APHA), National Association of County and City Health Officials (NACCHO), and ACIP, recommend mandatory influenza vaccination for all healthcare personnel (IAC, 2018). Nearly 700 medical and healthcare settings, representing all 50 states, Washington, DC, and U.S. territories have been recognized by IAC for their exemplary influenza mandates. These organizations are included on the IAC Influenza Vaccination Honor Roll and have established mandates requiring influenza vaccination for employees and measures to prevent transmission of influenza from unvaccinated HCW to patients (e.g., mask requirement, reassignment to non-patient-care duties, or dismissal of the employee). Ten Georgia hospitals and healthcare systems, one medical practice, and one pharmacy have such mandates in place for employees (**Table 1**).

Figure 1: Flow diagram of results of systematic review search strategy

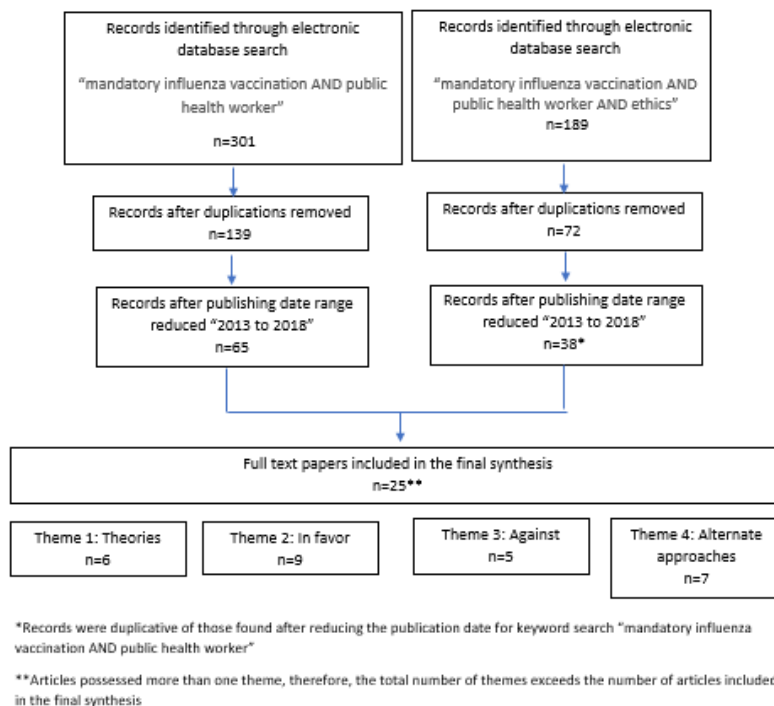


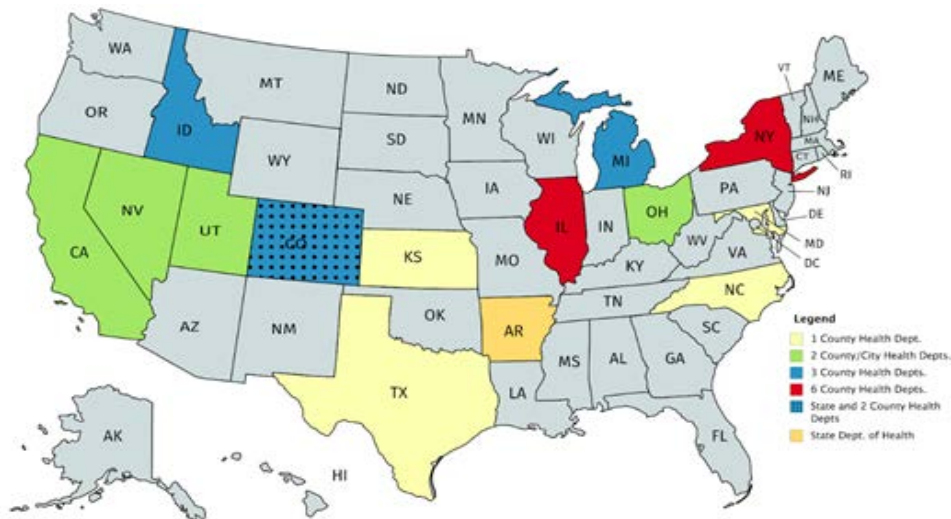
Table 1. Healthcare organizations in Georgia with a policy mandating annual influenza vaccinations for their employees (IAC, 2018)

Healthcare System/Hospital/ Practice	Implementation Year
Children's Healthcare of Atlanta, Atlanta, GA	2012
Crisp Regional Hospital, Cordele, GA	2013
Emory Healthcare, Atlanta, GA	2009
Grady Health System, Atlanta, GA	2009
MCG Health, Augusta, GA	2012
Memorial Health University Medical Center, Savannah, GA	2013
Redmond Regional Medical Center, Rome, GA	2010
Shepherd Center, Atlanta, GA	2011
Upson Regional Medical Center, Thomaston, GA	2012
WellStar Health Systems, Marietta, GA	2013
Atlanta ID Group, GA	2017
Valley Health Care, Rome, GA	2017

Expanding the influenza mandate to include LHD employees as a requirement for employment is necessary to achieve the Healthy People 2020 annual goal of 90% influenza vaccine coverage for HCW (U.S. Department of Health and Human Services [DHHS, 2011]). Of the nearly 3,000 LHDs, 37 have established influenza mandates that include the recommended employee influenza vaccination

and appropriate measures. Also, two state health departments have similar mandates for their state employees (**Figure 2**). The Georgia Department of Public Health (GDPH) does not mandate members of its workforce to have the influenza vaccine nor do mandatory influenza policies for public health workers exist.

Figure 2: States with Local departments of health that mandate annual influenza vaccinations for their personnel (IAC, 2018)



The literature review focused on mandatory influenza vaccination policies among HCW, including ethical implications, evidence to support/not support an influenza mandate, and other, non-policy effective strategies to increase HCW vaccination rates. The major themes are summarized in **Figure 1**. Several of the researchers cited in the literature formulated their own systematic literature reviews or conducted their own research on mandatory influenza vaccinations for public health workers. Much of the literature reviewed discussed the implications of such policies on HCW within acute and long-term care facilities and not LHDs.

Theoretical approach to HCW influenza vaccination coverage

Two theories were cited to influence health care worker tendency to become vaccinated against influenza each year: theory of reasoned action/theory of planned behavior (TRA/TBP) and health belief model (HBM) (Slaunwhite, 2016; Marcu, 2015; Elias, 2017; Lorenc, 2017; Nowrouzi-Kia & McGeer, 2014; Sydnor & Perl, 2014). Articles that cited TBP/TRA state that is important to consider the individual factors that will assist in lessening the resistance associated with health care worker influenza vaccination policies (Slaunwhite, 2016; Marcu, 2015). Marcu et al. (2015) posit that there a need to persuade HCW to be vaccinated in a pandemic so as to reduce ambivalence or hesitancy when advising patients to be vaccinated. Moreover, the authors suggest that several vaccinations could be framed as part of their professional role and not

simply as a personal decision. To increase influenza coverage among HCW transparent, evidence-based arguments should be provided to explain the risk of contracting pandemic influenza including vaccine production, testing, and side-effects (Marcu et al., 2015).

Four authors cited HBM as a promising tool to impact behavioral change resulting in an increase in influenza vaccination coverage among HCW (Elias, 2017; Lorenc, 2017; Nowrouzi-Kia & McGeer, 2014, Sydnor & Perl, 2014). Barriers to health care provider influenza vaccination are more complicated than other vaccines as influenza vaccination is required annually requiring HCW to make the decision each year. Common barriers include lack of perceived risk of influenza infection, concerns over vaccine safety and effectiveness, fear of injections, and unawareness of vaccine recommendations. There is debate over the role that knowledge plays in predicting the willingness of HCW to vaccinate against influenza or accept policy change and legislative levels related to influenza vaccination policy (Slaunwhite, et al., 2016; Nowrouzi-Kia & McGeer, 2014). According to Nowrouzi-Kia & McGeer (2014), physicians who are typically more educated about infectious diseases and vaccinations are more apt to comply with influenza vaccination recommendations as compared to most other healthcare personnel. The 2014 Sydnor & Perl study reported that influenza vaccination rates may improve to 75% with comprehensive vaccine programs that include educational interventions, provision of easily accessible (i.e., offered at the workplace) and free vaccines, requirement of declination statements, and system-wide

monitoring and reporting of vaccination rates. Conversely, Slaunwhite, et al. (2016) state that knowledge is an important, but insufficient predictor of willingness to accept policy change at local and legislative levels. Influencing the attitudes of the HCW patient population seems to be more effective versus focusing exclusively on increasing knowledge (Slaunwhite, et al., 2016). Perceived benefits and barriers are modifying variables of the HBM which can be modified to increase vaccination coverage (Elias et al., 2017). Hospital employees who are more likely to see patients infected with influenza are more likely to accept vaccination (Nowrouzi-Kia & McGeer, 2014). HCW vaccination behavior needs to be understood in the context of HCW relationships amongst each other and with management and their patient population. Interventions to promote vaccination should take into account both the individual beliefs of targeted HCW and the organizational context within which they are implemented (Lorenc et al., 2017).

Legal and Ethical Implications in Support of Mandatory Vaccinations

Pro-mandate literature review resulted in nine studies demonstrating legal and ethical support for mandatory influenza vaccinations for HCW. The most relevant evidence for influenza policy-making remains clinical and epidemiological studies, although mathematical modelling and ethical issues have acquired greater importance since the 2009 H1N1 pandemic (Silva et al., 2015). While the ethics of influenza mandates have been debated in the medical literature, one of the main supporting arguments for such mandates is the duty of a HCW to protect both the safety of individual patients and the health of the public (Randall, 2013). The basis of this support is grounded in professional ethics and states judicial right to protect the health and welfare of its citizens by using its “police powers” (Stewart et al., 2013).

HCW vaccination coverage benefits many, some of whom must rely on HCW to protect them. Influenza is of special concern in the healthcare setting and long-term care facilities as influenza outbreaks have been linked to unvaccinated HCW (Randall, 2013). Unvaccinated HCW can unknowingly and unintentionally transmit influenza to their patients during the incubation phase when they themselves are asymptomatic. Even those that recover quickly may inadvertently pass the influenza virus to other workers and vulnerable patients (e.g., infants, the elderly, immunocompromised) (Randall, 2013; Zimmerman, 2014).

Mandatory policies have led to higher vaccination rates among HCW in a variety of settings including hospitals and long-term care residential facilities and appear to be the most effective way to increase vaccination coverage of HCW (Apenteng, & Opoku, 2013; Hollmeyer, Mounts, Buchholz, 2013; Omer, 2013). According to Randall, Curran, & Omer (2013), a systematic review identified three (3) hospital studies that reported on programs that achieved vaccination rates of 98% or greater compared to 68.2% in hospitals with no influenza mandate in place. Other studies have seen vaccination coverage rates as high as 99.3%

(Stewart & Cox, 2014). Increased HCW coverage is estimated to save the life of one patient for every eight long-term HCW who are vaccinated against influenza (Randall, 2013). Quach et al., (2013) concluded that vaccination rates will continue to be subpar without enforced requirement measures. A model law would help increase uptake of influenza vaccine among HCW (Stewart & Cox, 2014) and ultimately protect patients receiving care in these settings.

Legal and Ethical Implications not in Support of Mandatory Vaccinations

In opposition to the mandates, authors cited loss of personal autonomy, infringement on religious freedom, injustice and lack of due process, as the primary concerns voiced (Zimmerman, 2013; Randall, 2013). Studies providing evidence contrary to vaccination mandate support do agree that while mandating vaccination may be effective, it may only result in minimal reduction in influenza transmission due to HCW vaccination (Ksienski, 2014) and may improve vaccination rates up to 70% (Zimmerman, 2013). Moreover, mandatory influenza vaccinations can also be time-consuming and expensive to uphold in certain facilities in order to meet ACIP recommendations (Stewart, 2013).

According to Stewart (2013), this is especially the case for unionized workers with a collective bargaining agreement. Health care unions and some members of the scientific community questioned vaccine efficacy and considered the mandatory vaccination policies coercive and support individuals’ decision to vaccinate without fear of punishment. Furthermore, mandatory vaccination was deemed unethical because of the potential serious adverse effects and the policy violates the freedom of rights. Ksienski (2014) cited a systematic review conducted by Johnson et al., in 2010 that determined the risk difference of vaccination to prevent influenza was only 3% (4% in the study arm versus 1% in the placebo arm).

Alternatives to Vaccination Mandate

There is debate over the effectiveness of mandatory influenza vaccinations in increasing HCW coverage; studies have both effectively provided empirical evidence and demonstrated that there was no empirical way to support the justification of mandating influenza for HCW and their ability to increase vaccination rates. Based on limited available evidence in general populations, a multi-faceted approach is necessary to persuade HCW to participate in a vaccination program, especially in areas with low coverage rates (To et al., 2016). Marckmann, Sanktjohanser, & Wicker (2013) and Heinrich-Morrison (2015) concluded that social marketing, education, and awareness were the primary drivers for increasing vaccine rates. Furthermore, it is recommended that vaccinations be encouraged and incentives offered to HCW as opposed to mandating compliance (Marckmann, Sanktjohanser, & Wicker, 2013). Further high-quality research clinical trials are required to avoid the risks of bias in methodology to test these interventions in combination further (Thomas, Jefferson, & Lasserson, 2013) to determine which of these strategies are the most effective in increasing influenza vaccinations among HCW therefore meet the CDC recommended annual

influenza vaccination for HCW, with an anticipated herd immunity rate of 90% (Stewart, 2013).

DISCUSSION

This study demonstrates the benefits of an influenza vaccination mandate among HCW employed in LHDs. Currently, Georgia LHDs do not have a policy mandating influenza vaccines for their employees. In contrast, Georgia hospitals and healthcare systems, medical practices, and pharmacies have mandates in place. In order to reach Healthy People 2020's goal of 90% coverage, the influenza mandate should be expanded to include LHD staff. LHDs provide many services to their constituents such as STD and HIV testing, surveillance, nutrition and environmental services to name a few requiring interactions with people in their respective communities. Mandating HCW to receive vaccinations would further decrease transmission of disease. Further review of their policy, implementation strategies, and employee vaccination rates can serve as a guide for Georgia LHDs.

The studies included in this review revealed two common theories used to influence influenza vaccination coverage among HCW. The studies that used the TBP/TPA approach suggested framing vaccinations as a professional responsibility instead of a personal decision (Marcu et al., 2015). Educating HCW on the benefits of receiving an annual influenza vaccine and prevention may result in increased vaccination rates. Strategies used for successful implementation should focus on informing HCW about risks, side effects, and benefits of testing to ensure optimal decision-making. Articles that used the HBM uncovered common barriers that affected vaccination uptake among HCW. Educating HCW on the importance of influenza vaccinations is effective but influencing attitudes may be even more effective (Slaunwhite et al., 2016). Promoting a population benefits view to HCW instead of an individual view may stimulate vaccination compliance. This viewpoint aligns with the utilitarian approach in that it, in this case influenza vaccinations, maximizes the greater good. The higher number of people vaccinated lowers the risk of viral infection and transmission of disease thus, sustaining a healthy population.

Mandating the influenza vaccination raises ethical concerns for Georgia LHDs. The use of the term "mandate" implies that an individual has no voice in the decision to receive or decline vaccination. The ethical concern here is whether autonomy in a person's decision-making is diminished or taken away. In order to answer the proposed research question, our study offers the utilitarian approach to assess LHD HCW influenza vaccination decision making.

Utilitarianism, developed by Jeremy Bentham and John Stuart Mill in the 19th century suggested that ethical actions are those that provide the greatest balance of good over evil (Velasquez et al., 2015). A process involving three steps is used to adequately decide whether or not a choice is ethically sound: identify various courses of action available to us; ask who will be affected by each action and decide

what benefits or harms will be derived from each; and choose the action that will produce the greatest benefits and the least harm (Velasquez et al., 2015).

Using this approach, this study shows support in mandating the influenza vaccination. Nine studies demonstrated support, standing firm in the argument that this mandate protects both the safety of the individual and health of the public (Randall, 2013). Healthcare settings, which have vulnerable populations, are of a special concern due to low patient advocacy. Influenza outbreaks have been linked to unvaccinated HCW who may have unintentionally transmitted the influenza virus to their patients (Randall, 2013). Facilities that had a mandatory policy in place had an increased vaccination rate among HCW when compared to facilities that did not. One study concluded that vaccination rates would continue to be subpar without enforcement (Quach et al., 2013).

The benefits of HCW in various settings protect the patients they come in contact with. Vaccination prevents the spread of infection, thus, decreasing overall hospital admissions and death. The vaccine is safe resulting in minimal side effects. Even persons with egg allergies, long believed to be ineligible for receiving the influenza vaccine because the vaccine virus is grown in eggs, can receive the vaccine safely (Najera, 2016).

Alternative methods such as wearing facemasks due to medical or religious exemptions could still potentially pose a threat for viral transmission if the mask does not fit properly or has been forgotten. However, providing exemptions may be necessary for implementation of this mandate so LHD HCW maintain autonomy. Other methods that could be used to encourage employees to vaccinate is social media and incentives. The demand and use of social media has increased in recent years. Many organizations in the private and public sector have used various social platforms to communicate and persuade their targeted audiences. Incentives have been used in a plethora of implementation strategies on both large and small scales. More research is needed to determine the effectiveness of social media and incentives on vaccine mandates in LHDs.

Our study sought to examine the ethical considerations regarding mandating the flu vaccination among health care workers in LHDs in Georgia. The systematic literature review permits the compilation, analysis, and synthesis of vast quantities of literature across disciplines, but it is not without limitations. Although broad search terms were used, some literature may have unintentionally been left out. The inclusion criteria consisted of literature that was published between 2013 and 2018 to ensure that the most relevant and up-to-date information was included however, literature published prior to 2013 could have been used to augment and add value to the research study.

Hospital policies on influenza mandates were used to inform the ethical decision making for the local health departments, affecting the generalizability of the study. Hospitals and LHDs serve many of the same people. The services offered

in LHDs require knowledgeable health professionals just as they do in a hospital setting. Therefore, the ethical consideration for a flu mandate follows protocol implemented in hospitals across the state. Further research is needed to evaluate the effectiveness of flu mandates as well as the ethical considerations in local health departments in other states to serve as a comparison to Georgia LHDs. Findings could then be used as best practices for employee state health during policy implementation.

HCW should be reminded that their choice to work in a healthcare setting comes with a set of ethical obligations. These obligations are: to place patients' interests above their own; "to do no harm" to protect the vulnerable, and to be an example for the public in terms of disease prevention (Dubov, 2015). Given the benefits to individual HCW and the subsequent impact on patients and costs—not to mention our professional obligation to do no harm—influenza vaccination should be mandatory for HCW (Wynia, 2007). The purpose and overarching goal of the field of public health is to promote population health. Our study has shown that mandating influenza vaccination among HCW in LHDs is beneficial for optimal population health.

CONCLUSIONS

Intervention programs created by the local and state departments will have a great benefit by enabling the HCW engage with management and have a clear understanding of the strategies to be employed and be involved in the decision making of the vaccine policies (Lorenz et al., 2017). Simple educational programs to the public and HCW on influenza vaccination may be able increase the vaccination rate targets. Having campaigns on HCW vaccinations that promote the influenza vaccine policy will fortify the safety of the health departments and reduce the chances of an epidemic of the disease. During the policy making process, another determinant to be considered is the interaction between the policy makers and the stakeholders; it should be as transparent as possible for the smooth transition and policy application (Silva et al., 2015). This will make it more collaborative and not perceived as disciplinary action. Applying the utilitarian approach, it may be used to cement the normality of the influenza vaccination process in the departments, this can be done by providing the HCW with the substantial evidence and data that shows the safety of the vaccine and encourage them to embrace influenza vaccine not as a personal endeavor but as a public concern (Marcu et al., 2015). Resistance from the HCW will remain the largest barrier of the policy implementation. A path that may be used to ease the resistance would be utilizing the labor unions and involving them during the policy making process (Slaunwhite et al., 2016). Social media may be used as a tool that may be used to filter out the false notions on the vaccine and as a positive avenue for encouraging the policy implementation (Elias et al., 2017). If all the above recommendations fail to achieve the target vaccine rates, mandatory policy procedures may be employed for the greater good.

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