Ethical Considerations of Mandatory COVID-19 Vaccination Among Healthcare Workers in Hong Kong

CHEUNG Ka Yuet Kylie

Introduction and Background

Healthcare workers are one of the most important subsets of the population for COVID-19 vaccination strategies due to their increased occupational exposure to high-risk patients and their potential risk of transmission within the hospital environment. This population includes personnel who have prolonged contact with patients, which puts them at potential risk of acquiring and transmitting infections. [1] As of December 2021, over 96% of staff in the Hong Kong Hospital Authority have been vaccinated [2] compared to the much lower 78.4% of the general population with the first dose. [3]

In Hong Kong, vaccination amongst healthcare workers is not mandatory (as of the writing of this essay). However, proposed vaccine mandates among frontline healthcare workers in other countries such as the United Kingdom [4] and France [5] have led to vocal opposition and calls for retraction from some. Vaccine hesitancy is also an issue in Hong Kong's healthcare workers, with more than half of the nurses in a Hong Kong study having moderate or higher level of vaccine hesitancy against the Influenza vaccine. [6] Thus, the age of COVID-19 and its massive disruptions to the healthcare system and the economy have called for renewed discussions about the ethics of such policies. Is there a need for vaccine mandates? What are the ethical arguments for and

against vaccine mandates in this specific subset of the population? Does the current policy of the Hospital Authority consider all ethical arguments? This essay will discuss some of the key points regarding the ethics of vaccine mandates with an emphasis on vaccine hesitancy in the context of Hong Kong.

Determinants of Vaccine Hesitancy in Hong Kong

Vaccine hesitancy is defined as the "delay in acceptance or refusal of vaccination despite availability to vaccination services" [7] and was defined by the World Health Organization as one of the top threats to global health in 2019. [8] There is an established theoretical model of vaccine hesitancy and acceptance which can explain the causes of a low vaccine uptake in a named population. This includes the 5Cs - "**c**onfidence, **c**omplacency, **c**onvenience, risk **c**alculation, and **c**ollective responsibility." [9] In the context of COVID-19, the reasons for vaccine hesitancy are multi-fold. Firstly, the main driver against vaccination is the fear of potential long-term effects and adverse reactions from the vaccination, with myocarditis [10] and thromboembolic events [11] being widely reported in the media. This is perpetuated by the fact that the COVID-19 mRNA-based vaccines had an immensely accelerated development and rollout due to the rapid global demand and funding. Although research into mRNA vaccines have indeed existed for decades, [12] the BioNTech-Pfizer vaccine, which is currently available in Hong Kong alongside the more traditional, inactivated virus vaccine CoronaVac, was one of the first to be mass produced and approved. [3] Another common sentiment that relates to a cause of vaccine hesitancy is complacency. As Hong

Kong has mostly seen success in the implementation of the Zero- COVID policy (as of early January 2022), mass infections in the community have not been seen yet compared to countries that have adopted a "Living with COVID" approach. Thus, complacency towards the vaccine developed in the general population due to the perceived lack of urgency.

Ultimately, vaccine hesitancy in Hong Kong is prevalent and a similar sentiment amongst healthcare workers may threaten the safety of patients and their families, ultimately risking the safety of society.

The Argument for Vaccine Mandate

It is important to preface the following ethical discussion with an understanding of what mandatory vaccinations entail. They are not strictly compulsory, but rather defined by *"direct or indirect threats of imposing restrictions in cases of non-compliance."* [13] Thus, even though opting out of a vaccine mandate is legal per se, gross personal or financial consequences may be placed on the unvaccinated individual. However, exceptions are also made for individuals who have absolute medical contraindications to vaccinations.

Mandates have undoubtedly been controversial throughout history. A notable example is smallpox. In fact, the first vaccine mandate occurred in 1809 in Massachusetts, requiring smallpox vaccination for the general population after a series of experiments proved the efficacy of the vaccine. [14] This eventually spread to other states and eventually was authorized by the U.S. Supreme Court in 1905. [14] Similar policies were eventually also implemented in other countries

such as Canada. A historical example of vaccine mandates among healthcare workers is that all admitted students of Toronto General Hospital School for Nurses [15] were required to submit proof of vaccination prior to the commencement of their programme, which is akin to the requirements for students in the HKU Faculty of Medicine today.

There are several ethical arguments that support vaccine mandates in Hong Kong healthcare workers. Under the principle of beneficence and non-maleficence, vaccination can greatly reduce the risk of disease transmission, which will benefit the patients and families that are directly or indirectly under the care of these healthcare professionals. Further, protecting patients from these infections is of utmost importance due to the presence of underlying comorbidities, where an infection could lead to severe disease. The Hippocratic Oath reinforces the principles of doing no harm that all healthcare professionals should abide by. From a Utilitarian point of view, a fully vaccinated workforce can build a protective barrier by preventing the spread of virus, sustain the available healthcare staff in the already overburdened healthcare system, and prevent the development of variants of concern (VOCs), which is more likely amongst the immunocompromised population. [16] Enforcing a vaccine mandate would therefore be beneficial to the majority, including both the healthcare workers themselves and the wider community.

Prior to the COVID-19 pandemic, mandatory vaccines for healthcare workers have existed as outlined by the "*2017 Summary Statement on Vaccination Practice for Health Care Workers*" in Hong Kong. [1] For example, Hepatitis B is endemic in this locality and can be transmitted by blood

products and infected bodily fluids, making healthcare workers an especially high-risk group. Combined with the highly efficacious vaccine, it is therefore strongly recommended that healthcare workers with no or unknown history of receiving hepatitis B vaccination should receive a three-dose regimen. [1] Thus, a similar policy enacted for the current pandemic is in-line with practices for other viral epidemics.

The Argument Against Vaccine Mandate

Vaccine mandates have been riddled with controversies as some see it as undermining the autonomy of the individual. Although vaccine mandates are not strictly compulsory, the unwanted consequences of opting out may indirectly pressure these individuals into vaccination. This therefore does not fully satisfy the "voluntary" component of valid consent, where an informed and competent individual should have the right to decline potentially life-saving medical treatment even if it not in their best interests. To counteract this argument, Mill's Harm Principle can explain the ethical reasoning for these types of public health policies, where the "*only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others.*" [17] This statement, in the context of COVID-19, implies that an unvaccinated individual is essentially a threat to the wider community, justifying the implementation of vaccine mandates and thereby restricting the autonomy of these healthcare workers.

Adverse effects against vaccines, as mentioned previously, are also a major cause of vaccine hesitancy. The principle of nonmaleficence could in fact oppose a vaccine mandate if they have a potential to cause these harmful reactions in healthcare workers. Mild adverse effects including injection site events and systemic effects like fever and malaise are common, with approximately 50% to 90% of recipients experiencing some form of adverse effect. [18] However, true serious adverse effects such as anaphylaxis are incredibly rare, occurring in currently an estimated 2.5 to 11.1 cases per 1 million doses with most of these cases having a significant medical history of allergies. [19] However, the proven safety profile of the vaccines and low reported cases of true adverse effects would prove this argument to be invalid.

While vaccine mandates would address the problem of disease transmission in the healthcare environment, it is important to examine whether less restrictive anti-epidemic measures might accomplish the same goals of reduced disease transmissibility. For example, could ensuring a high rate of *voluntary* COVID-19 vaccination already drastically reduce the risk of disease transmission without the need for a vaccine mandate? Furthermore, does enhancing more conservative measures such as wearing personal protective equipment, adequate social distancing within hospital compounds, and screening for COVID-19 in all hospital admissions, achieve the same goal? If the answers to the above questions are yes, then the harm principle mentioned above would be drastically weakened. However, if voluntary vaccination rates remain low, more drastic measures such as vaccine mandates may be more justified simply based on the harm principle.

Ensuring Ethical Implementation of a Vaccine Mandate

In terms of the current policy implemented by the Hospital Authority, Hong Kong healthcare workers are strongly recommended to receive the COVID-19 vaccination. However, employers in Hong Kong have no statutory right to direct an employee to undergo vaccination. Opting out due to medical contraindications or other personal reasons is possible but these individuals are required to get tested once every three days via the polymerase chain reaction-based nucleic acid (PCR) test. [2] While there are no legal consequences in opting out, the stringent testing may be seen as a major inconvenience for many. Overall, the high uptake of vaccines among healthcare workers in Hong Kong is acceptable at more than 96%. While there are no studies which definitively ascertain the reasons for opting out in the remaining 4%, various actions can be recommended to further increase this number. These strategies can eventually be applied to the general population, safeguarding the health of society, and controlling the spread of the epidemic. As healthcare workers serve as role models, it is important for this high-risk group to be targeted first before branching out to increase vaccine uptake in the community, which may prove to be a much more difficult task.

The 5Cs of vaccine hesitancy [9] can be tackled to increase vaccine uptake. Firstly, confidence in the vaccine must be instilled by educating and distributing evidence-based information about the proven safety and low risk of serious adverse effects. This can empower the healthcare workers to make an informed decision and give them the information needed to

have true valid informed consent. More importantly, anti-vaccination and other sources of misinformation must be tackled to reduce the potential effect of poor calculation from the risk risk-averse population. Secondly, the importance of vaccination to prevent the development of complacency and normalizing vaccination is a means of helping the greater good. Thirdly, convenience can be achieved in the form of accessible vaccination centers distributed across the city. Finally, the collective responsibility of healthcare workers in safeguarding the health of the society must be disseminated.

Ultimately, a unified vaccination which tackles these aspects of vaccine hesitancy as well as respects the autonomy of the individual can increase uptake and reduce hesitancy in healthcare workers.

Conclusion

Vaccine hesitancy is a complex topic which is especially relevant in the age of COVID-19. The key points discussed in this essay include providing an overview of the underlying determinants of vaccine hesitancy in the form of the 5Cs, critically analysing the most pertinent arguments in favour of and against vaccine mandates, and ethical considerations of implementing an effective vaccine mandate.

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