Solidarity in Pandemics, Mandatory Vaccination, and Public Health Ethics

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See also Kapadia, p. 202, and Prainsack, p. 232.

Mandatory vaccination has been a highly disputed policy for tackling infectious diseases. Here I argue that a universal mandatory vaccination policy for the general public against the COVID-19 pandemic is ethically preferable when grounded in the concept of solidarity, which is defined by Barbara Prainsack and Alena Buyx as an enacted commitment to a relevant respect recognized by a group of individuals with equal moral status. This approach is complementary to utilitarian accounts and could better address other reasonable oppositions to mandatory vaccination.

From a solidaristic account, the recognized relevant respect is to end the COVID-19 pandemic as soon as possible. This group of individuals would be willing to carry costs to assist each other in this respect, and a mandatory vaccination policy could be their institutionalized mutual assistance. The costs to be carried include both the financial costs of vaccination and the health costs stemming from potential adverse events and scientific uncertainties.

The proposed social health insurance similarity test suggests the degree of coercion the mandatory vaccination policy could undertake within each state's specific legal and judicial context. (*Am J Public Health*. 2022;112(2):255–261. https://doi.org/10.2105/AJPH.2021.306578)

Vaccination is one of the most prevalent and effective policies adopted by modern public health authorities against infectious diseases. In cases in which the pathogens are highly contagious, vaccination is a necessary policy to end disease transmission. Throughout recent history, however, hesitation, mistrust, and fear toward vaccination are also common social phenomena that have been observed across various societal and cultural contexts. A major ethical issue arises as to whether and to what extent the state could adopt a coercive vaccination policy requiring all citizens and other residents under its jurisdiction to be vaccinated, even if the policy is against the people's will. (Note that in this article, the term state refers to sovereign state, the political entity owning the sovereign power and related rights to govern, rather than any other governing entities at the subnational level.)

On one hand, mandatory vaccination is an effective disease control strategy that has been widely practiced for tackling infectious diseases among different subpopulations such as children, people of specific age groups, health care workers, and employees in other sectors with higher risks of infection.[1–3] From a utilitarian perspective aiming to maximize population health benefits, this mandate could be defended given that vaccines do work. On the other hand, it is also a highly disputed strategy, as individuals' autonomy and moral integrity are at stake.[4] Reasons ranging from conscientious objection to right to body and personal unwillingness have their merits in ethical debates. The benefits of effective control and the burdens of potential infringements are to be balanced under different circumstances.

Proponents have argued for mandatory vaccination policies for different infectious diseases among different populations. In the case of health care workers, some scholars have argued for mandatory vaccination based on utilitarian considerations and health professions' preexisting moral obligations or professional codes of ethics.[4–7] For children, Pierik has argued for mandatory vaccination from the perspective that the parents do not have the right to stop their children from being vaccinated and avoiding the spread of preventable diseases; in addition, it

is the government's duty to pursue the common good in the form of preventing vulnerable populations from being infected.[8] For the general public, Brennan has made the case that even from a libertarian perspective, mandatory vaccination is ethically warranted by the clean hands principle he proposed.[9]

Giubilini and Savulescu focused on the liberty to make autonomous decisions about taking risks and, using the analogy of the mandatory seat belt law, posited that some limits on the liberty to refuse taking the risk of adverse events from vaccination could be justified.[10] Douglas et al. made a case for mandatory vaccination with a comparative approach to other disease control constraints that are acceptable for the public.[11] Savulescu, likewise, argued for mandatory vaccination from a utilitarian account.[12]

Although these arguments for mandatory vaccination are compelling in their respects, they have different limitations regarding the situations that people are facing in this COVID-19 era. First, ordinary citizens are not held to the same moral obligations and professional codes of ethics as are health care workers; hence, the justifications for health care workers might not be applicable to ordinary citizens. However, ordinary citizens might still have some degree of obligation toward their fellow citizens.

Second, others who are defending mandatory vaccination ground their arguments largely in utilitarian accounts, which confirm that the vaccines for diseases such as measles are mature and their safety and effectiveness are largely scientifically verified. However, this is not the case for an emerging pathogen such as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This virus is not only new but also rapidly mutating. Although vaccines against this strand of virus have been developed (with adequate safety and effectiveness established to an extent), distributed, and implemented around the globe, their overall effectiveness against mutations is still under evaluation. Significant scientific uncertainties remain and indeed underpin the debate on whether to put a mandatory vaccination policy in place.[13,14]

The highly contagious, virulent, and uncertain (in terms of possible vaccine-resistant variants in the future) nature of the coronavirus further intensifies this debate, particularly in those more developed regions where public health infrastructures are considered well established and people have not suffered from such a widespread and life-changing infectious disease for almost a century. In addition to the utilitarian considerations, the concept of solidarity is one that has potential for defending policies tackling COVID-19.[15–17]

Grounded in the concept of solidarity, which is defined by Prainsack and Buyx as an enacted commitment to a relevant respect recognized by a group of individuals with equal moral status,[18] this article aims to evaluate the conditions under which a mandatory vaccination policy for the general public enforced by the state during the COVID-19 pandemic would be an ethically acceptable option. The general public refers to every person who lives under the state's jurisdiction, except those who should not be vaccinated as determined through legitimate medical reasons or the contraindications of vaccine products. This approach is complementary to utilitarian accounts and could better address other reasonable oppositions.

This issue has public health as well as clinical relevance in that, on one hand, any vaccination policy or program implemented by a government is essentially a public health intervention; on the other hand, it would affect frontline clinical practices with respect to COVID-19 patients and those who could potentially be infected by SARS-CoV-2. The proposed analysis also has potential applicability for pandemics of future emergent or resurgent (e.g., smallpox, polio) infectious diseases that have features similar to those of COVID-19. Note that the analysis focuses on solidarity within a sovereign state, given that a mandatory vaccination policy would be implemented by the national government. However, there is rising debate on and a call for global solidarity to address equitable global allocation of COVID-19 vaccines.[19,20]

For the simplicity of discussion, 2 assumptions are addressed. First, the analysis assumes that the vaccines currently available (or that will be available in the near future) for COVID-19 are generally safe and effective because, if there were no vaccines available at all, the discussion on mandates would be meaningless. In addition, the available vaccine products have different indications and contraindications for different populations such as children, youths, pregnant women, and individuals with an elevated risk of blood clots. This essay acknowledges these differences but must leave such details to clinical and epidemiological experts. However, as effectiveness is also an important factor in ethical evaluations of public health policies, this issue is still included in the analysis, with a focus on the effectiveness of mandates.

Second, the political settings of the mandatory vaccination policy are assumed to be democratic, where the people rule and are ruled in turn, and hence any legal obligations they impose

on themselves are politically legitimate. In other words, the people are not ruled by an external entity such as a monarch, an elite class or party, or an authoritarian government.

A SOLIDARISTIC ACCOUNT OF MANDATORY VACCINATION

The concept of solidarity is notoriously ill defined and has various meanings.[21–23] In this article, the concise definition of solidarity proposed by Prainsack and Buyx is adopted as it is one of the most dominant and practical versions that have been developed in the field of bioethics and applied to related policies. Solidarity is understood as a descriptive concept with normative dimensions. It refers to the practices within which a group of individuals with equal moral status and membership in a community recognize similar risks in a relevant respect and therefore are willing to carry costs to assist each other.[18] Different from values, feelings, or obligations—which could be internal sentiments or thoughts—solidarity is enacted in the sense that it requires some forms of external expression or manifestation, which are actions engaging with the real world.[18] It is "symmetry between people in the moment of enacting mutual support."[15(p126)]

In terms of formalization, there are 3 tiers of solidarity. At tier 1, solidaristic practices are expressed informally at an interpersonal level. At tier 2, some group practices appear as informal customs or social atmosphere. At tier 3, the practices are institutionalized in the forms of contract, policy, law, or other solidaristic insitutions.[15,18] For Prainsack and Buyx, solidarity is not a purely deontic concept that directs what people should do but rather a more axiological one that depends on what people are really practicing under particular contexts. Policy decisions grounded in solidaristic practices are ethically preferable because they better reflect what people value, support, and commit to and would hence lead to a more flourishing society.[18]

In a recent analysis, Prainsack demonstrated that a more strengthened tier 3 solidaristic institution is an important factor that explains the resilience of a society to tackle the COVID-19 pandemic.[15] Although she was primarily referring to publicly funded health care systems that provide accessible and affordable services for all, other types of public institutions could also be grounded in a similar account of solidarity. In this article, the mandatory vaccination policy for everyone is considered as one example of a solidaristic public institution.

In the case of a mandatory vaccination policy for COVID-19, the relevant respect that people recognize is to end the COVID-19 pandemic as soon as possible. Then, with a group of individuals with equal moral status—for instance, fellow citizens of a state who are willing to carry costs to assist each other in this respect—a mandatory vaccination policy could be viewed as institutionalized mutual assistance. The costs to be carried here include not only the financial costs of purchasing the vaccine products and administering the national-wide vaccination program but also the health costs due to potential adverse events of vaccines (even a mature vaccine product has a normal expectation of adverse events; they just might be less frequent and less severe), scientific uncertainties, and the financial and emotional costs of compensating and mourning for those who unfortunately suffer from these health costs. This inclusion of scientific uncertainties could be a complement to the usual utilitarian accounts on mandatory vaccination, which often require that the intervention be effective and safe.

Hence, the solidaristic account is specifically suitable to situations such as COVID-19 wherein many uncertainties about the nature of the disease as well as the vaccine products remain because the standard calculation of the utilitarian account might find these uncertainties unmanageable and make more conservative estimations (i.e., underestimate the benefits and overestimate the risks). This more conservative evaluation could result in policy recommendations against mandatory vaccination. People's enacted solidarity in mutual assistance to combat COVID-19 could provide the necessary sentiments supporting the policy, allowing for a more inclusive acceptance of the uncertainties.

Beyond fellow citizens, the scope of the mutually recognized community might be broader, including those noncitizen residents who have lived, worked, studied, and engaged in other forms of social cooperation within a boundary of the state's jurisdiction and social members' living experience. The similar status of everyone in the face of COVID-19 gives rise to a similar recognition of common risks that they should tackle together, despite their differences in nationality, citizenship, or other factors.

The risks of COVID-19 are more than well recognized; they are very genuine and significant in scale, and no reasonable citizen will dispute this fact. With the solidaristic account, by recognizing these similar risks, citizens and other fellow dwellers have therefore self-imposed a moral obligation to assist each other. This self-imposed obligation could be considered a preexisting moral obligation for a mandatory vaccination policy. This moral obligation of ordinary

citizens is probably not as strong as the professional code of ethics demanded for health care workers[4]; however, by the nature of the representation of the self-imposition and the recognition of each other's equal status, it carries greater weight than normally found among ordinary individuals who are not otherwise connected with each other under institutionalized solidaristic practices.

THE SOCIAL HEALTH INSURANCE SIMILARITY TEST

One issue to be considered is the extent to which this solidaristic mandatory vaccination could be coercive, in the sense that the government enforces different degrees of limitation on one's rights and behaviors against one's will. Drawing on the "intervention ladder" proposed by the Nuffield Council on Bioethics, Bradfield and Giubilini illustrated strategies with different degrees of coercion and their corresponding consequences if one refuses to take vaccines, from the most coercive "forced vaccination" (e.g., being physically captured and injected) to the least coercive "persuasion" (e.g., conducting campaigns, building infrastructures for public health activities).[4] The selection of these options depends on the particular context of the policy. The question, then, is under what degree of coercion would a solidaristic mandatory vaccination policy be justifiable?

Once solidarity practices to end the pandemic become institutionalized, they transform from moral obligations to legal ones. As a social contract to be honored and realized, mandatory vaccination acquires a degree of legality that warrants some legal enforcement. However, this does not answer the question regarding the boundaries of state coercive interventions. The answers to this question are largely subject to each state's judicial and even constitutional reviews, and each has very different contexts (for instance, consider the differences between a legal system of common law and one of civil law).

Despite this contextual limitation, a common ethical consideration is the principle of proportionality, balancing the harms and benefits that might be brought by a policy.[12,24] Here, a social health insurance (SHI) similarity test is proposed for policymakers to determine the proportionate distribution of harms and benefits and hence the acceptable degree of coercion of a mandatory vaccination policy. An SHI is a type of health system often considered to be grounded in the solidarity of mutual assistance to meet financial needs derived from health needs. This old notion of solidarity, which dates back to late–19th-century Europe, has been constantly revived in different forms such as social citizenship and later the ideal of universal health coverage.[25,26]

Based on the solid presumption of solidarity, participation in SHI is mostly mandatory and there are few or no opt-out options. Taking this analogy, an SHI similarity test implies that the acceptable degree of coercion on mandatory vaccination, which is also grounded on solidarity, should be roughly the same as the coercion on those who are not willing to participate in the SHI and contribute the social premiums of a specific state.

For instance, in the health system in Taiwan—an SHI called National Health Insurance—those who refuse to pay the premium are subject to a daily overdue charge of 0.1% of the amount payable, with a ceiling of 5% of the payment; if it becomes overdue for more than 150 days, the case may be subject to enforcement by court order.[27] According to the SHI similarity test, if a solidaristic mandatory vaccination policy were adopted in Taiwan, those who refused to be vaccinated would not be physically captured and administered the vaccine by a public health agency, but they could be subject to a daily financial penalty and (if they persisted in refusing to pay the penalty and receive the vaccination) an eventual enforcement action until the end of the pandemic.

As to how this process should be enforced and the noncompliant be sanctioned, it would depend on each state's administrative and judicial structures. To give a possible scenario here, the public health department could work with household registration departments or social security offices to establish the name list for vaccination and then identify those unwilling to take vaccines without any legitimate medical reasons. The public health department could then charge the penalty for refusal and, if necessary, move the case to court for further enforcement. Those who could prove that they are experiencing temporary financial hardship or qualify as being in poverty (as determined via a means-tested process) could apply for loans or subsidies from the government's welfare sector.[28] According to the SHI similarity test, the penalties are only financial in the illustrative case of Taiwan. There might be other possible forms of penalty with different degrees of coercion according to the test in other states.

With this penalty, those who refuse to take vaccines without legitimate medical reasons or reasons fitting the contraindications of vaccine products, although having their desires respected,

will be held accountable proportionately and will not have an easy way to buy out of their responsibility.[12] The collected penalty fund could then be used to pay for the treatment of COVID-19 patients, the administration necessary for vaccination and disease control, and compensations for those who unfortunately suffer from adverse events associated with the vaccines.

The SHI is just one type of health system; there are many other types of designs that contain a mandatory element in their financing mechanisms, as demanded by the ideal of universal health coverage, which is grounded in the human right to health on one hand and a notion of solidarity on the other. Furthermore, health systems are just one of the solidaristic institutions of a state; there might be other institutions in other policy areas that are of a coercive nature. Other tests for a proportionate coercion of mandatory vaccination could derive from the SHI similarity test, depending on each state's specific context. Therefore, the solidaristic account of mandatory vaccination is applicable to states with different social norms and cultural patterns; the degree of coercion simply may vary according to the result of the similarity test.

RESPONSES TO REASONABLE OPPOSITIONS

There are 3 major oppositions to a solidaristic mandatory vaccination policy: the direct challenge of the ethical legitimacy of the solidaristic account, the challenge of respect for autonomy, and the challenge of proportionality between harms and benefits of the policies.

First, some might argue that solidarity, according to its definition, should consist of voluntary citizen practices and hence cannot warrant mandatory and coercive state intervention against individuals' will. This argument might be valid in tier 1 and tier 2 solidarity, in which the practices exist in informal forms such as daily interactions, local customs, or social atmosphere. However, once the solidarity practices have been institutionalized in the form of a public health policy, as in tier 3, they acquire a strong political authority that could act coercively, by mandate of the group of individuals who recognize the relevant respect, to pursue the goal of mutual assistance in that respect. In other words, tier 3 solidarity practices have a retrospective ethical legitimacy that could justify the imposition of a policy that is not necessarily desired by all individuals in the group.

In addition, some might further argue that they do not recognize the relevant respect in the first place, that is, ending the COVID-19 pandemic as soon as possible; therefore, the solidarity practices imposed on them are unwarranted. In this case, the solidaristic account is weighed against the respect for autonomy. The question then would be whether and to what extent autonomous decisions of not recognizing the merit of tackling a pandemic such as COVID-19, one that took and is still taking millions of lives, are reasonable[29] and should be respected.[30]

Second, others might draw on the respect for autonomy from other perspectives; for instance, they might argue that there should be some room for individuals to suspect the scientific uncertainties of the vaccines or that individuals should enjoy certain human or civil rights and be protected against state coercion. Scientific uncertainties and normal anomalies are common in any medical technology, including vaccines. Whether to accept or suspect a product is a matter of risk perception. The solidaristic mandatory vaccination policy would allow room for reasonable suspicion (e.g., on the part of antivaxxers), as the policy would not coercively capture a person and enforce vaccination. According to the SHI similarity test, the policy would at most be as coercive as another institutionalized (tier 3) solidarity practice.

In Taiwan's case, those who refuse to be vaccinated could choose to pay the penalty to compensate for the higher risk of transmission they would cause among their fellow neighbors: in a sense, their coercion of their neighbors' autonomy.[4] This degree of coercion based on another existing solidaristic policy is ethically and politically acceptable in that particular context. A solidaristic mandatory vaccination policy in a democratic state cannot persuade everyone (not to mention some of the antivaxxers upholding unreasonable conspiracy theories) to accept the vaccines, but it offers better justification for the pursuit of protection through vaccination while in the meantime allowing for some exceptions (although with penalties), thus respecting autonomous decisions in a minimal sense.

Third, still others might argue that there are other less restrictive alternatives to mandatory vaccination. Hence, even if they are grounded on a solidaristic account with a commonly recognized aim of ending the pandemic, not all vaccination policies necessarily have to be as restrictive as a mandatory policy under the consideration of proportionality. What measures to end pandemics are most effective and at the same time least restrictive is a question subject to empirical

investigation. However, in the case of COVID-19, preliminary evidence has shown that vaccine coverage is negatively associated with the SARS-CoV-2 delta variant's mutation frequency,[31] and simulations have predicted that more equitable and rapid vaccination would lead to lowered transmission rates and mitigated antigenic evolution,[32] suggesting that universal vaccination is an effective and necessary measure against transmission. This necessity could be achieved only through a massive vaccination policy that is either supported by a majority of the population or universally mandated.

Considering the complexity of the issue and the surging vaccine hesitancy, a government could consider adopting other measures to promote willingness to be vaccinated. These seemingly less restrictive strategies might be preferable at first glance,[13,33,34] but they would also require a much longer time and resource investment (e.g., campaigns to convince partisan, conspiracy-driven, and populist antivaxxers; communicative countermeasures against misinformation and fake news; education to raise the public's scientific and health literacy; investment in public health infrastructures). Admittedly, these promotive long-term strategies are indeed necessary for public health, and it is not necessary to endorse a debate focusing on the "binary distinctions" between voluntary and mandatory vaccination.[33] However, neither these strategies nor the voluntary vaccination policy could pursue massive vaccination with the prompt timing and universal coverage that the mandatory policy could deliver, and they might eventually delay the end of the pandemic, causing larger health and social losses and even further undermining the effectiveness of other disease control measures.

In summary, although the vaccine products developed by different companies have different effects among different populations with different limitations, in general a government should consider implementing a solidaristic mandatory vaccination policy. Such a policy concurs with the utilitarian account of maximizing health, social, and economic benefits; is complementary to the utilitarian account with more inclusive consideration of uncertainties in terms of the effectiveness and safety of vaccines; and pursues universal vaccine coverage as much and as soon as possible while allowing for minimal unwillingness and autonomous decisions regarding individual vaccine refusal.

CONCLUSIONS

This article has assessed whether the state could implement a mandatory vaccination policy and extended the discussion from specific groups of people to the general population. Grounded in a solidaristic account, the article defends a mandatory vaccination policy for the general public to address the COVID-19 pandemic. Ending the pandemic is a common goal that no reasonable citizens will dispute. Given this recognition, citizens would be willing to carry the costs to take joint actions to achieve this goal. A mandatory vaccination policy as a form of tier 3 solidarity practice is hence ethically justified. The SHI similarity test is proposed for policymakers to determine the degree of coercion the policy should undertake in each state's specific context.

The tensions and tradeoffs between individual interests and public interests (or, in some senses, the common good) are part of a constant debate in the field of public health ethics, and they certainly influence practices on the frontlines. In times of pandemics, it is imperative to stop massive transmission and casualties as soon as possible, and hence it is necessary and ethically preferable to implement the solidaristic account of a mandatory vaccination policy when the volume of vaccines makes them available for all. AJPH

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CONFLICTS OF INTEREST

The author declares no conflicts of interest.

HUMAN PARTICIPANT PROTECTION

No protocol approval was needed for this research because no human participants were involved.

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