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COVID-19 differentiated measures for unvaccinated individuals: The need for clear goals and strong justifications



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ABSTRACT

Numerous countries and jurisdictions have implemented differential COVID-19 public health restrictions based on individual vaccination status to mitigate the public health risks posed by unvaccinated individuals. Although it is scientifically and ethically justifiable to introduce such vaccination-based differentiated measures as a risk-based approach to resume high-risk activities in an ongoing pandemic, their justification is weakened by lack of clarity on their intended goals and the specific risks or potential harms they intend to mitigate. Furthermore, the criteria for the removal of differentiated measures may not be clear, which raises the possibility of shifting goalposts without clear justification and with potential for unfairly discriminatory consequences. This paper seeks to clarify the ethical justification of COVID-19 vaccination-based differentiated measures based on a public health risk-based approach, with focus on their deployment in domestic settings. We argue that such measures should be consistent with the principal goal of COVID-19 vaccination programmes, which is to reduce the incidence of severely ill patients and associated healthcare burdens so as to protect a health system. We provide some considerations for the removal of vaccination-based differentiated measures based on this goal.

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1. Introduction

As COVID-19 vaccination increases worldwide, many jurisdictions are implementing vaccination-based differentiated measures (VDMs) [1]. In domestic contexts, VDMs have been used to restrict access to certain activities and locations to those with proof of COVID-19 vaccination and (in some settings) unvaccinated individuals with proof of a negative COVID-19 test or previous SARS-CoV-2 infection [2,3,4]. Some employers are also requiring vaccination to access workplaces or retain employment, with varying dispensation for unvaccinated individuals who undergo regular virological testing [5,6].

The World Health Organization recommends that VDMs should not be implemented in settings with limited vaccine access that would adversely affect those who have yet to be offered vaccination, or if they restrict access to basic necessities for unvaccinated individuals [7]. Even if VDMs satisfy these conditions, they are ethically controversial, as they impose highly restrictive measures on

specific groups that risk wrongful discrimination. The introduction of VDMs has also resulted in protests, violence and abuse against services implementing them, and legal action [8–11]. This is compounded by a lack of clarity from policymakers regarding the public health goals of VDMs and the specific risks they are intended to mitigate.

VDMs have been justified as creating “safer environments to work, shop, recreate, and travel, as they represent a less restrictive alternative to current public health measures [broad societal-wide restrictions]. Unvaccinated individuals have no right to impose risks on others, thus impeding a return to normal activities” [12]. However, such statements are vague as to how VDMs would promote public health safety over alternatives or what specific risks they would prevent unvaccinated individuals from imposing on others.

Here, we examine the ethical justification for COVID-19 VDMs in domestic (non-travel related) contexts. We argue that although vaccines are highly effective against severe COVID-19, their current limitations in preventing infection and transmission mean that VDMs are inadequate as a form of individual risk stratification for accessing high-risk activities. Importantly, VDMs should be

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consistent with the principal goals of COVID-19 vaccination programmes, which are to reduce the burden of severe COVID-19 and strain on health systems. Additionally, implementation of VDMs should be linked to clear criteria for determining when they are no longer needed, to minimise the possibility of shifting goalposts without clear justification and potential for unfairly discriminatory consequences. We conclude with some considerations for the removal of VDMs based on protecting the resources and functions of health systems.

2. Discussion

2.1. VDMs as a risk-based approach

A risk-based approach means that where risks are higher, decision-makers should deploy more resources or measures to mitigate those risks [13]. Examples include mandatory mask-wearing for high-risk indoor activities, virological testing requirements for participation in large gatherings, and school or workplace closures to curb community transmission. VDMs have similarly been introduced as risk reduction measures, with varying rationales. In some Canadian jurisdictions, VDMs were introduced under existing public health legislation giving the Chief Medical Officer of Health authority to “prohibit a person from attending a location for any period and subject to any conditions that I consider appropriate, where I have determined that the person engaging in that activity could transmit an infectious agent” and to “take whatever other steps that are [...] necessary in order to lessen the impact of the public health emergency” [14]. In Austria, a “selective lockdown” specifically required unvaccinated people to stay at home and leave only for basic necessities, aiming to reduce “contact between the unvaccinated and vaccinated to a minimum, and also contact between the unvaccinated” [15]. In Singapore, VDMs were initially introduced with the rationale of “protecting the unvaccinated” [16]. The range of justifications for VDMs merits examination because VDMs place crucial weight on the act of vaccination; granting more freedoms or imposing greater restrictions based on individuals’ vaccination status means that VDM policies should be consistent with the aims of vaccination and vaccination programmes.

Risk-based justification of VDMs addresses criticisms of wrongful discrimination: treating individuals differently based on vaccination status is not necessarily objectionable if significant differences in risk exist between vaccinated and unvaccinated individuals [17]. Conversely, imposing equal restrictions on these two groups could violate the least restrictive means principle – given a set of possible and effective measures to achieve a public health goal, policymakers should select one that least restricts individual freedoms [18]. Restrictions on vaccinated individuals are less ethically justified if these individuals pose less public health risk.

There is an important caveat. Although reasonable arguments exist for collectively easing restrictions on those who are vaccinated, use of vaccination status alone to stratify individuals according to the public health risks they pose has little scientific or ethical justification. Vaccination alone is not a sufficiently reliable indicator of the risk an individual poses to others or themselves at any given time. Current evidence indicates that although most COVID-19 vaccines are highly effective at preventing severe illness and death [19], they provide variable and incomplete protection against infection and transmission, particularly against the more recent Delta and Omicron variants [20–24]. Vaccinated individuals can still infect others, even if their probability of doing so is much lower than if they were unvaccinated. Indeed, in highly vaccinated populations, a large fraction of transmission could occur from vaccinated individuals. VDMs may themselves

contribute to this, by selectively easing restrictions on social contacts in higher-risk settings for vaccinated individuals. Additionally, some individuals mount insufficiently robust immunity to vaccination, particularly older individuals and those with certain medical conditions. Different vaccines also vary in how much protection they offer against disease, infection and transmission, and against different virus variants [25]. There is also mounting evidence of decreased vaccine effectiveness over time, with numerous countries implementing booster doses to counteract waning population immunity [26].

VDMs aimed at individualised risk stratification thus raise fairness considerations. For example, requiring proof of vaccination or a negative virological test to access a space or service implies that these two forms of documentation signify comparably low risks, when in fact they say very different things about the individuals bearing them: VDMs require vaccinated individuals to certify receipt of an accepted vaccination course, but require unvaccinated individuals to prove through virological testing that they are not infectious at that moment in time. In doing so, they allow vaccinated individuals to access higher-risk settings in which they may be exposed to infectious individuals or potentially expose others if infectious but allow unvaccinated individuals to do this only if they themselves are not infectious. Consequently, VDMs make it implicitly more acceptable for vaccinated individuals to infect others than for unvaccinated individuals to do so. This weakens the ethical justification for VDMs based on individualised risk reduction, particularly as unvaccinated individuals are more likely to suffer serious consequences from infection. VDMs may also discriminate against individuals who are unvaccinated through lack of choice. In Singapore, for example, VDMs apply to minors aged 12–17 years of age, who are eligible for vaccination but may not have all the requisite parental consent to do so [27].

Additionally, VDMs have undesirable societal consequences, since they result in social segregation based on vaccination status. Such segregation may occur even within family units if some family members are unvaccinated. The onus is also on business operators to enforce vaccination and testing requirements, which in many settings has resulted in violence and abuse directed at employees. In some instances, businesses have modified their operations to avoid providing differential service based on customers’ vaccination status, despite impact on revenue [28]. In other settings, VDMs have restricted access to services for groups who, despite being vaccinated, lack adequate documentation to prove their identity or the means for electronically verifying vaccination status [29]. VDMs in the workplace to ensure occupational health and safety may also affect the employability of unvaccinated workers who need to be on site. As transmission is a continuous risk which can occur in any setting, employers may, in consideration of such a risk, extend VDMs to lower-risk settings [30,31], even though there is little scientific and ethical justification for this.

2.2. Goals and justification

Given their individual and societal consequences, VDMs should be clearly and strongly justified as a measure to restore specific freedoms in an ongoing pandemic. A key question is whether justifications for VDMs are consistent with the aims of vaccination. Because COVID-19 vaccines do not provide the same type of sterilising, long-lasting immunity as vaccines against other viruses such as measles, the principal aim of vaccination is to protect individuals against severe illness rather than interrupt transmission. Indeed, transmission persists even in populations with very high vaccination coverage, including Singapore, which has vaccinated >85% of the total population [32] and has extensive social distanc-

ing, testing, contact tracing, case isolation and universal masking policies in place.

Although some COVID-19 vaccines reduce the likelihood of transmission, uncertainty regarding the extent of this reduction in different contexts makes it difficult to justify VDMs for reducing “contact between the unvaccinated and vaccinated to a minimum, and also contact between the unvaccinated” or “protecting the unvaccinated” [15,16]. Such justifications are arguably objectionably paternalistic, restricting unvaccinated individuals’ freedoms for their own health interests. Whether such paternalism is justifiable is beyond the scope of this paper, but we argue that paternalistic rationales, as distinct from broader goals of public health protection, are unnecessary to justify VDMs.

A stronger, less controversial justification for VDMs is the protection of health systems, which can quickly become overwhelmed when community transmission rises [33,34]. Notably, unvaccinated individuals, particularly those who are older or have certain medical conditions, have much higher risks of hospitalisation and death compared with vaccinated individuals, and COVID-19 in unvaccinated individuals results in disproportionately high use of healthcare resources, including limited intensive care facilities [35]. Strain on health systems has broader consequences for others, as non-essential services and procedures may need to be deferred or cancelled [36,37]. These have been periodic concerns during successive waves of COVID-19, including recent widespread transmission of Delta and Omicron variants [38]. Implementation of VDMs with the goal of protecting the health system, while restoring certain individual and collective freedoms, is thus a much more defensible rationale for the differential treatment of vaccinated and unvaccinated individuals. The evidence is much stronger for the ability of vaccines to prevent severe illnesses, hospitalisations and deaths that result in substantial healthcare usage and broader disruption to healthcare provision. Correspondingly, there is much stronger justification for the deployment of VDMs to restrict unvaccinated individuals’ access to environments where they are at significantly higher risk of infection that could result in disproportionate and avoidable need for healthcare resources. Since unvaccinated individuals are collectively and quantifiably much more likely to need acute or critical care if infected, the specific risks they “impose on others” are indirect harms through increased strain on healthcare resources and reducing the health system’s capacity to meet the collective needs of a community.

Linking VDM justifications to health system capacity also enables development of clear and more objective criteria for determining when VDMs are no longer needed. These could be based on clearly communicated metrics of actual and projected intensive care usage or human resource constraints in healthcare settings, together with modelled assumptions regarding virus transmissibility, social behaviour and insufficiency of alternative control measures at a given time point. This would provide a stronger, evidence-based justification for VDMs, while allowing for better monitoring of their effectiveness for achieving pre-determined public health goals. It would also enable policymakers to communicate the rationale for VDMs clearly so as to garner adequate public support.

In contrast, lack of consistency between the aims of vaccination and the declared goals of VDMs raises the possibility of increasingly punitive VDMs being progressively introduced without clear justifications or criteria for their removal. The Singapore government, for example, recently announced that the cost of treatment for COVID-19, which has been free for all patients, would no longer be fully covered for individuals who are “unvaccinated by choice”, as a strong signal to “urge everyone to get vaccinated if you are eligible” [39]. And despite reaching vaccination coverage of >90% of the eligible population in France, the French government announced that it would limit “as much as possible... [unvacci-

nated individuals’] access to activities in social life” [40]. The implicit goal is thus to incentivise the remaining eligible individuals to become vaccinated.

Independent of the protection of health systems, it is notable that VDMs have also been implemented as a pragmatic way of increasing vaccine uptake. While there is some evidence that VDMs can help to increase uptake [41], the effectiveness of this approach may be context-dependent, and there are important questions regarding the adequacy of this approach relative to alternatives that more directly address the reasons for individuals’ delaying or refusing vaccination [42,43], particularly as the long-term societal impacts of VDMs are unclear. Importantly, if the public health goal is to achieve complete vaccination coverage irrespective of individuals’ vaccination choice, then it is arguably more defensible to make vaccination mandatory for all eligible individuals or high-risk subgroups, with appropriate sanctions (e.g. fines) for individuals who choose not to be vaccinated [44]. Mandatory vaccination more directly addresses the desired goal of complete vaccination coverage and would also be fairer, as it applies equally to all eligible individuals, would not adversely affect the majority of individuals who choose to be vaccinated, and would not impose additional burdens on employers and businesses to implement VDMs.

One objection against mandatory vaccination is its coercive nature, as it violates individual autonomy. A mandatory vaccination policy would therefore require policymakers to justify why complete vaccination coverage is necessary, while providing a stronger signal to individuals regarding their social and legal responsibility. VDMs, while not being directly coercive, nonetheless impose significant restrictions on unvaccinated people by limiting access to places, services or employment to which they are normally entitled. There may therefore be little practical difference between the “privileges” [45] afforded by vaccination and the coercive force of mandatory vaccination. VDMs also devolve responsibility for implementation to a broad range of societal actors, including employers, retailers, healthcare providers and service operators, which raises issues of consistency in implementation of VDMs, increases burdens on these actors and potentially makes them liable for inadequate enforcement.

Our intention is not to argue for the relative merits of mandatory vaccination versus VDMs, but to emphasise that given the breadth of their implementation and far-reaching consequences, use of VDMs must be clearly and strongly justified. Based on the above arguments we find health system protection the strongest scientific and ethical justification for VDMs, a framing that allows for greater transparency in monitoring the continuing need for such measures. Indeed, subsequent discourse on VDMs in Singapore emphasised their need in order “to protect unvaccinated individuals and reduce the strain on our healthcare system” [46], the latter being more consistent with the rationale for broader physical distancing measures implemented throughout the pandemic. Additionally, even if VDMs result in increased contact and risk of infection in vaccinated individuals, this is justifiable if the resulting risk to the health system is within an acceptable threshold, given that infected vaccinated individuals are collectively much less likely to experience severe illness resulting in substantial healthcare usage.

One objection to using VDMs to prevent strain on the health system is that many individuals become ill and consume healthcare resources partly through lifestyle choices such as smoking, inadequate diet and exercise, and other risk-related behaviours. Should vaccination be treated differently from other lifestyle choices? A key distinction is that the COVID-19 pandemic is a severe public health emergency for which health systems were not set up or financed. In such an emergency, measures must be taken that involve increasing support for the health system and imposing cer-

tain justifiable restrictions on individual behaviour to protect this important good.

2.3. Considerations for removal of VDMs

If VDMs ultimately aim to protect health systems, their necessity should cease if a health system has sufficient capacity to deal with surges in demand. VDMs are therefore less justified in settings with good access to and uptake of vaccines, and adequate health system capacity for COVID-19 care or the ability to expand this capacity. Governmental obligations to expand such capacity are not based on the need to remove VDMs but on the need to build a resilient health system to deal with an evolving pandemic and future public health emergencies [47]. However, the societal burdens and costs of VDMs are additional reasons to expand health system capacity, to avoid prolonged need for these measures.

Health system capacity can also be reduced by addressing demand. This includes proactive and culturally safe and appropriate promotion of vaccination, social distancing and other infection prevention measures, and improving access to timely and accurate virological testing. Demand for acute and critical care services can also be significantly optimised by setting clear criteria for hospital admission and, where appropriate, providing access to community treatment facilities for mild and recovering cases.

So long as a substantial fraction of the population remains unvaccinated, VDMs may still be needed to reduce the risk to the health system. However, vaccination coverage is only one consideration for removing VDMs. Other key considerations include the effectiveness of vaccines for preventing severe disease from emerging variants and the availability and effectiveness of treatment options. Early evidence suggests that new oral antivirals are highly effective for reducing risks of hospitalisation and death in unvaccinated individuals, if taken early in the disease course [48,49]. Prioritising early testing and access to safe, effective and affordable treatments will be crucial for protecting public health and health systems in the next pandemic phase, while obviating the need for contentious VDM policies.

3. Conclusion

As a risk-reduction approach targeted at unvaccinated individuals, VDMs affect their important interests by reducing their opportunities for participation in civil, social and economic life, and result in divisive segregating effects and other undesirable social consequences. Use of VDMs must therefore be clearly justified, evidence-based, linked to specific, quantifiable public health goals, be time limited, and include measurable criteria to determine when they are no longer necessary. We have argued here that use of VDMs should be consistent with the principal goal of COVID-19 vaccination: to reduce the burden of severe COVID-19 and strain on health systems. VDMs should no longer be necessary when risks to the health system are sufficiently mitigated by the considerations outlined above.

4. Contributor statement

TCV and CCT initiated the paper. All authors contributed to the paper's outline. AZHL assisted TCV with the literature review. TCV and CCT wrote the first draft. All authors contributed to the subsequent intellectual development and drafting of the paper.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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