

Encouraging vaccinations through equitable strategies

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Executive Summary:

A range of strategies have been suggested to increase vaccination rates – from free donuts and lotteries to employment requirements and vaccine certificates. Wellesley Institute has conducted a rapid review of effectiveness evidence and an analysis of unintended impacts on equity-seeking groups of eleven strategies to determine which strategies could meaningfully increase vaccination rates and which should be avoided due to potential differential harms they pose to Canadians.

1. Strategies that can effectively improve vaccination rates equitably: decreasing barriers and increasing understanding

Opportunities to lower barriers to accessing the vaccine still exist across the province. Community-led campaigns that provide accurate, up-to-date information within neighbourhoods can complement these efforts and build upon the trust already established by local institutions. Examples of these types of strategies include mobile clinics for undocumented residents and town halls put on by Toronto's Black Scientists' Task Force for the Black communities. Widespread communication campaigns with specific messaging might be able to shift public opinion.

Evaluations of these strategies show high promise for improving vaccination rates. High-level reviews show offering home visits, or targeted education campaigns have had positive effects on other vaccination efforts. These types of strategies may improve trust in both the vaccine and the health system, allow for convenient uptake, and appeal to an individual's sense of a collective public health good.

Importantly, with appropriate resourcing and monitoring, these strategies could improve disparities in vaccination rates for equity-seeking groups. Community engagement must be sustained long-term to address the root causes of mistrust in the health system.

2. Strategies with uncertain effectiveness: giveaways, cash, and lotteries

There is very limited and mixed evidence about the effectiveness of strategies that aim to encourage people to get vaccinated via free giveaways of goods and services, cash, or lotteries. There is no systematic evidence available about whether lotteries improve vaccination rates. These strategies, particularly if implemented with equitable concerns in mind, did not appear likely to cause significant harms to equity-seeking groups but ultimately could be resource-intensive and contribute to further mistrust from individuals who are vaccine hesitant.

3. Strategies that have considerable potential harms and uncertain effectiveness: non-voluntary approaches

All restrictive and punitive approaches to increasing vaccinations bring significant ethical questions and equity risks. There is no existing systematic evidence about the effectiveness of

an international vaccine passport for travel, making vaccinations mandatory through fines or imprisonment, or a local vaccine ID. There is limited systematic evidence available about the effectiveness of school and workplace vaccine mandates.

Although it is possible that some mandatory approaches (such as international passports due to international pressure, or local vaccine IDs that take an equitable approach) will be employed in the short term, they should be avoided where possible. They pose significant differential harms to Indigenous, Black, and other racialized groups as well as low-income individuals who would likely be differentially targeted in enforcement. Non-voluntary approaches are also likely to contribute to further mistrust amongst individuals who are vaccine hesitant.

Conclusion

Due to long-standing systemic barriers amplified by the COVID-19 pandemic (seen in disparities of infection and vaccination rates by racial and low-income groups), every effort must be taken to reduce gaps in vaccination rates. Strategies that lower barriers and provide information on COVID-19 vaccines should be prioritized as they address equity concerns and are shown in the literature to have positive impacts. Adequate resourcing and targeted outreach will be necessary to sustain any improvements in community trust long-term.

Strategies with less well-documented evaluations, such as giveaways, cash incentives and lotteries, are not highly recommended and may be an ineffective use of public funds. Any restrictive or punitive interventions with considerable potential for harm should be avoided. Fines, local passports, or mandatory workplace policies raise significant equity and implementation concerns and lack research on effectiveness. As Canada continues to show encouraging first dose vaccination rates, aggressive strategies that limit rights are not justified.

Introduction

The COVID-19 pandemic has particularly harmed Indigenous, Black, and other racialized communities, as well as low-income groups. At times, these groups have suffered rates of infection five to ten times higher than others¹ – rates our leaders would never accept among other populations, rates that are preventable, and rates that are caused by social inequities including structural racism, unaffordable and inadequate housing, and poverty that caused, and still cause, non-COVID-19-related deaths every day.

If these inequities are to be decreased, we must ensure that these hard-hit populations get the support and protection that they need. Vaccination is one of our best defences against COVID-19. Ensuring that the vaccination roll out and vaccination rates match the needs of the hardest hit groups is vital.

Recently, the Ontario COVID-19 Science Advisory Table called for, and the government in part accepted, the need to direct vaccines to hot spot areas,² which map partially onto areas with higher proportions of low-income and racialized individuals.³ Wellesley Institute, among others, has demonstrated that although progress has been made, many racialized groups are falling behind.⁴⁻⁶ Much of the reason for difference in vaccination rates is access to vaccines, but reluctance to get vaccinated is also an issue.

This paper assesses current and potential strategies for encouraging vaccination. It provides a tool to assess future resource allocation, as well as possible new steps to encourage vaccination, that could be put in place by the federal, provincial, or municipal governments.

The goal of vaccination strategies

The goal of vaccination is to reduce the spread of COVID-19 and its devastating impacts of severe illness, hospitalization, and death. Vaccination provides both direct protection against — COVID-19 for those who have been vaccinated and can offer indirect protection to others by reducing the spread of the virus. Reducing the spread is particularly important for people who are ineligible for the vaccine such as children, are unable to get the vaccine because of medical reasons or who have an impaired immune response.⁷

The federal and provincial governments are beginning to provide guidance and to reduce public health restrictions that are benchmarked to vaccination rates – for example, Ontario proposed to require that 70-80 per cent of adults have one dose before it moved to the third phase of its three-step reopening plan,⁸ and the Public Health Agency of Canada issued guidance that indoor restrictions could be loosened once 75 per cent of those eligible are fully vaccinated.⁹

Equity and vaccination rates

Differences in rates of vaccination between groups has been driven by inequities in access. Areas with higher rates of COVID-19 have not received an allocation of vaccines linked to their needs, and sufficient resources to ensure equitable access have not been made available.

In addition, getting a vaccine in Ontario has been far from convenient and barrier-free. There are considerable systemic barriers to using the main provincial online booking system, which is only available in English and French, requires internet access and digital literacy, and an Ontario health card number (even though this is not a requirement to be eligible for a vaccine). The majority of vaccines (70 per cent) have been administered through hospital and mass immunization clinics, with only a minority delivered through settings that may be more local and trusted.^{10, 11.}

The result is that ICES have reported that there are lower vaccination rates in refugee and immigrant groups¹¹ and Wellesley Institute found that vaccination rates in Toronto continue to be lower in neighbourhoods with higher populations of Black and Southeast Asian residents.⁶

A further reason for differences in vaccination rates is vaccine hesitancy.

Understanding vaccine hesitancy

Vaccine hesitancy has been described by the World Health Organization (WHO) as the “delay in acceptance or refusal of vaccines despite availability of vaccine services.”¹² Prior to the COVID-19 pandemic, the WHO classified vaccine hesitancy as one of the ten threats to global health in 2019.^{13.}

Vaccine hesitancy is complex. Because it is not always linked to the vaccine itself, vaccination hesitancy might be a better term. There are many different issues that lead to reluctance to being vaccinated or low vaccination rates in groups. There are several theoretical models or frameworks that have been suggested in the literature. The theoretical model used throughout the paper is the “5C Model.”¹⁴

The 5C’s of vaccine hesitancy¹⁵ are described as:

- *Confidence*: “Trust in 1) the effectiveness and safety of vaccines; 2) the system that delivers them [...] and 3) the motivations of the policy-makers who decide on the needed vaccines.”¹²
- *Complacency*: “Where perceived risks of vaccine-preventable diseases are low and vaccination is not deemed a necessary preventive action.”¹²
- *Convenience*: “Measured by the extent to which physical availability, affordability and willingness-to-pay, geographical accessibility, ability to understand (language and health literacy) and appeal of immunization services affect uptake.”¹²
- *Calculation*: An individuals’ engagement in extensive information searching and subsequent cost-benefit calculation of vaccination.
- *Collective responsibility*: Willingness to protect others by one’s own vaccination.

These factors are context-dependent, may be more or less prominent for a specific disease, within different communities, and may change over time. Larger systems of oppression, such as systemic racism and ableism, have directly informed the lived experiences of marginalized communities as it pertains to the 5Cs.

Numerous studies have reported that racialized populations in Canada have higher rates of vaccination hesitancy. Black populations have the highest rate of hesitancy in Canada.¹⁶ Black, Indigenous, and other racialized communities in Ontario have well-informed reasons to mistrust the health care system, government, and pharmaceutical companies rooted in historic and present-day realities of systemic racism and discrimination.¹⁷ This is likely to compound inequities in vaccination access.

Methods

This paper presents a preliminary analysis of the potential effectiveness, possible differential impacts on equity-seeking groups, and implementation considerations of a range of interventions that have been suggested to increase COVID-19 vaccination rates in Toronto, Ontario, or Canada.

The following strategies were assessed:

- 1) widespread public education,
- 2) community-based or led education,
- 3) supportive or barrier-free access to vaccines,
- 4) giveaways,
- 5) cash incentives,
- 6) lotteries,
- 7) local vaccine IDs or certificates,
- 8) international vaccine passports,
- 9) mandatory vaccination,
- 10) employment consequences, and
- 11) denial of access to schools.

Each intervention was reviewed using the following analytical framework.

A. Effectiveness: Could this intervention work?

We start by assessing the effectiveness of each strategy in achieving its objective, in this case increasing vaccine uptake, as recommended by the National Collaborating Centre for Healthy Public Policy's Framework for Analyzing Public Policies.¹⁸ Our analysis of available evidence is intentionally limited to systematic and rapid reviews, as well as reviews of reviews. This allows for a high-level synthesis of scientific evidence assessing the effectiveness of included interventions.

The COVID-19 Evidence Network to support Decision-making (COVID-END) database and Cochrane Library were searched using a combination of the following keywords: “vaccine,” “vaccination” and “immunization;” “intervention,” “strategy,” “incentive” and “mandate,” and “hesitancy,” “uptake” and “acceptance.” Results were restricted to reviews published after 2000 and in English. Titles and abstracts were screened for relevance to the research topic and interventions included. The relevant results were reviewed and synthesized according to intervention on a 5-point scale: (1) very unlikely to increase vaccine uptake; (2) unlikely to increase vaccine uptake; (3) potential to increase vaccine uptake; (4) likely to increase vaccine uptake; and (5) very likely to increase vaccine uptake.

We also considered the potential impact an intervention could have on vaccination hesitancy. To do this, the three authors independently considered and came to a consensus about whether each intervention could plausibly impact the “5 C” factors of vaccine hesitancy:¹⁴

B. Equity: How could this intervention positively or negatively impact different groups?

To avoid furthering inequity, interventions must be examined to ensure they take into account equitable concerns. We used the Ministry of Health’s Health Equity Impact Assessment (HEIA) to assess impacts on equity.¹⁹ We undertook a rapid analysis based on two steps of a HEIA: Scoping and Potential Impacts. Our analysis considers whether each intervention could help narrow gaps in vaccine access, whether the intervention would be accessible, and whether enforcement would have differential impacts.

C. Implementation and Policy Recommendations

We briefly assess whether each intervention is likely to be technically feasible given practical and legal concerns. We raise privacy, ethical, and cost effectiveness considerations where relevant. We then provide implementation and policy recommendations informed by the effectiveness and equity analysis.

Results

Review of strategies to boost vaccine acceptance

1. Widespread public education and campaigns

Description

Governments have undertaken efforts to educate the public about COVID-19 vaccines, including television, radio, and social media advertising, and communications during public briefings and social media use – one example being Toronto’s VaxTO campaign.²⁰

A. Effectiveness

Scientific Evidence

The evaluations of widespread public education in the literature show a potential for increasing vaccine uptake. One systematic review²¹ found that knowledge and awareness building initiatives had the greatest increases in vaccine uptake among evaluated interventions. Another review²² reported less certainty in their findings but also found that information campaigns in low and middle-income countries may increase uptake. From the reviews we considered, mixed or negligible effects were found when using mass mailings²³ or digital media²⁴ as well as when campaigns were used in isolation of other vaccination strategies.²⁵

Effectiveness Assessment based on 5C Model

When assessed against the 5C model, widespread public education and campaigns had potentially positive effects. It was assessed to impact **confidence** by improving trust in the vaccine. Similarly, campaigns could increase the amount of readily available information on the benefits of vaccination, potentially improving factors related to **complacency** and **calculation**. Depending on content, the campaigns may also appeal to the **collective responsibility** of the public. There was no assessed impact on **convenience**.

B. Preliminary Equity Analysis

On its own, widespread public education does not meaningfully address systemic barriers to getting a vaccine. While mass communication campaigns could help share information and address misinformation, attention needs to be paid to ensure that these efforts do not reproduce or widen inequities (e.g. by reaching English speakers only). Targeted and community-based education are more likely to address specific barriers and concerns to vaccine uptake that various communities, age groups, etc. have.

C. Implementation and Policy Recommendations

Mass communications could be useful to address remaining and emerging questions about, for example, safety for younger age groups or in pregnancy, safety, and efficacy of mixing vaccines, as well as to address misinformation and to raise awareness about the need for second doses for most COVID-19 vaccines. Because vaccination rates for specific groups and communities are lagging, these widespread communications, with new, focused goals, should be used in tandem with targeted and community-based education because those efforts can be tailored to address specific barriers and concerns to vaccine uptake that various communities or age groups, for example, may have.

Another approach that may have been underutilized is that of recognizing legitimate concerns about vaccination.²⁶ There are also communities that have experienced injustices that contribute to present-day feelings of mistrust towards government, pharmaceutical companies, the health system, or all three, including in particular Black and Indigenous populations. Although we are not aware of jurisdictions in which this has been attempted, governments could examine alongside those leaders whether mass communications should recognize the historical damage done to confidence in these institutions. As recommended by Toronto's Black Scientists' Task Force on Vaccine Equity, this could include acknowledging the discriminatory

impact of, and efforts to address, the pandemic to repair these relationships and increase vaccine confidence.¹⁷

2. Community-based or led education

Description

Various system actors have established community-based or led education programs to undertake vaccination outreach. This has included work by local organizations, notably Community Health Centres and community centres, to work with their communities. In Toronto, Engagement Teams have been funded for each of ten geographic clusters, as well as one each for newcomer and Black populations.²⁷

A. Effectiveness

Scientific Evidence

The evaluations of community-based or community-led education in the literature show that these interventions likely increase vaccine uptake within their settings. Systematic reviews on HPV,²⁸ DTP3^{29, 30} and unspecified vaccine³¹ coverage all found that community-based education had a positive effect on vaccine uptake. While there is an extensive history of engaging influential individuals as a vaccination strategy, the reviews were mixed; one review²¹ found this to be effective while another found inconclusive evidence.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, community-based or community-led education had potentially positive effects on all factors. It was assessed to impact **confidence** by improving trust in both the vaccine and the health system (when delivered by well-known institutions). Similarly, interventions could increase the amount of vaccine information specific to communities' cultural and linguistic context (**convenience**). This increase of unbiased information could positively improve **complacency** and the risk/benefit analysis individuals make (**calculation**). Finally, these interventions could appeal to the safety of the community (**collective responsibility**).

B. Preliminary Equity Analysis

Community-based and led education efforts have the potential to meaningfully address vaccine hesitancy and acceptance in a targeted and equitable way. However, education alone does not address significant barriers to getting vaccinated (e.g., geographic, financial, linguistic). Unless combined with strategies that make getting vaccinated more accessible, education efforts may be unhelpful for people who face barriers, such as women with caregiving responsibilities, lower-wage workers without paid time off, and people with mobility constraints.

Furthermore, if community-based education efforts do not adequately understand and respond to local needs and questions about vaccination through trusted individuals, groups, and agencies, they will be ineffective and could contribute to further vaccination inequities.

Unlike more punitive strategies reviewed later in this paper, this approach does not raise concerns about potential unintentional harms to individuals who cannot get the vaccine due to medical reasons. In fact, education campaigns can provide clear information about the narrow reasons why an individual would be unable to get vaccinated due to medical reasons.

C. Implementation and Policy Recommendations

Community outreach efforts are necessary to reach people not reached by mass campaigns, and to offer new voices that hopefully improve confidence and reduce complacency. Current efforts to fund community outreach are laudable and should continue.

Granular, neighbourhood-level data about vaccinations could be utilized by public health units to inform targeted outreach based on local needs. Funding for the community-based initiatives could be targeted to neighbourhoods and communities with lower vaccination rates. Education efforts should be tailored to address specific needs and context and delivered via trusted community sources, and health equity assessments should be integrated to program development and rollout to address specific barriers.

There are system actors who have not yet been fully engaged in vaccine outreach, and whose efforts could help. Elected officials have experience in how to reach individuals, and involving them in outreach may be helpful – and in Toronto, councillors have been provided with tools to reach out to their communities. Additionally, it may be worth considering whether larger door-to-door campaigns could be funded and facilitated across the province. Religious leaders may be underutilized in education efforts so far and may be particularly helpful in understanding and alleviating the concerns of the faith groups they lead.²¹

3. Supportive or barrier-free access to vaccines

Description

Public health units as well as other health system and community actors have stepped forward to offer supportive or barrier-free access to vaccines. This has meant, for example, creating clinics in specific target areas, going door-to-door in social housing or along specific employment routes, vaccination clinics led by people from and who work with Black populations, Access without Fear^a clinics, city outreach in shelters, city- or privately provided transportation options, assistance provided by many actors to book appointments, providing outreach in multiple languages, and EMS-led homebound vaccination. Some employers have also been able to offer clinics.³³

^a For migrant and undocumented residents

A. Effectiveness

Scientific Evidence

The evaluations of supportive or barrier-free access to vaccines in the literature shows that these interventions very likely increase vaccine uptake within their settings. Systematic reviews found that interventions such as home visits,³⁴ expanding access to pharmacies³⁵ and outreach by health care professionals³⁶ were effective in increasing uptake. Fewer reviews found little to no effects of using these types of interventions.³⁷

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, supportive or barrier-free access to vaccines had potentially positive effects on all factors. It was assessed to impact **confidence** by improving trust in both the vaccine and the health system (when delivered by well-known institutions). Similarly, interventions would increase access to the vaccine and thus the appeal (**convenience**). Interventions that increase contact with health care professionals (such as home visits) can additionally improve the risk/benefit analysis individuals make (**complacency** and **calculation**). There was no assessed impact on **collective responsibility**.

B. Preliminary Equity Analysis

There are well-documented systemic barriers to booking and going to a vaccine appointment. By nature, these strategies should aim to address these systemic barriers to booking and going to a vaccine appointment to effectively reduce current inequities in vaccination rates.

The current provincial online booking system excludes individuals who do not speak English and French, those without internet or who do not have digital literacy, those without a valid Ontario health card, and those with significant time constraints. Booking and getting to vaccine appointments is likely more challenging for lower-income workers without paid-time off, women and individuals with caregiving responsibilities, people with mobility limitations or who lack of transportation, and newcomers without familiarity of the health care system.

Where and how vaccines are given can undermine equity goals. Single day pop-up clinics are unlikely to reach lower-wage workers without paid time off or control over their schedules and families with child or elder care responsibilities. Clinics that do not implement anti-racism and Access Without Fear (for undocumented and migrant residents) training and policies are likely to present barriers and further mistrust.^{38, 39} Shifting to vaccine delivery only through primary care providers and pharmacies is likely to further disadvantage various groups such as newcomers without primary care providers and hot spot neighbourhoods with lower numbers of pharmacies offering vaccines. At the same time, offering vaccines only through mass immunization clinics and hospitals will continue to create barriers for homebound individuals and lower income individuals with limited transportation options.

C. Implementation and Policy Recommendations

Given the high numbers of persons indicating they are willing to accept a vaccine, making it as easy as possible to be vaccinated is an important approach.

Current steps have involved community and system efforts, and they must continue. They must also be funded to adequate levels to ensure they are not reducing the ability of system actors to provide other services. Health equity goals need to guide the resourcing and development of these initiatives to ensure that they do not unintentionally widen vaccine gaps. Funding should be targeted and sustained beyond single day pop-up clinics to reach neighbourhoods, age groups, and population groups with lower vaccination rates.

Clinics should continue to be designed and carried out in ways and locations that are convenient, accessible, and safe (e.g., in schools, in homes for individuals with mobility constraints). Clinics should implement Access without Fear principles to ensure that migrants and undocumented residents, who do not have a health card and are currently eligible for the vaccines but excluded due to systemic barriers, can get vaccinated.^{38, 39} Clinics can provide clear information and education about who is medically exempt from the vaccine, and thus do not raise concerns about unintended harm to populations who cannot be vaccinated.

There are a number of efforts that could still be added to the current mix. Efforts to offer vaccines door-to-door in particular areas and employer-by-employer have begun but should continue, as they represent the lowest possible barrier. If privacy concerns can be managed, engaging health care professionals such as doctors⁴⁰ (who will now have access to lists of patients who are unvaccinated),⁴¹ nurse practitioners, and pharmacists to reach out to their patients may be helpful in encouraging vaccination.^{42, 43} Depending on the timing of approvals for vaccines for those under 12, as well as potential booster shots, school-based campaigns represent another opportunity to keep barriers low.

4. Giveaways

Description

Giveaways include a range of free goods and services that vaccinated individuals can receive, offered by corporations or governments. One early incentive effort came from Krispy Kreme Donuts in the United States, who offered a free donut to individuals who showed a valid vaccination card.⁴⁴ Some governments, including the city of New York, are providing free weekly MetroCards, Citi Bike passes, and free tickets to some of the city's attractions.⁴⁵

A. Effectiveness

Scientific Evidence

There are a limited number of evaluations on giveaways, however this intervention does show a potential to increase vaccine uptake. One systematic review⁴⁶ showed an increase in vaccination rates using rewards, such as food vouchers or gift cards, in studies on influenza, DTP3 and other childhood vaccines.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, giveaways had mixed impacts. It was assessed to potentially impact **confidence** negatively by undermining public trust in the health system or roll-out due to corporate involvement. However, it has the potential to positively

impact **convenience** as it increases the appeal of vaccination. No impact was assessed towards **complacency, calculation, or collective responsibility**.

B. Preliminary Equity Analysis

While these giveaway strategies could potentially increase awareness and appeal of vaccination efforts, giveaways alone do not meaningfully address systemic barriers to getting vaccinated (e.g., technological, and linguistic barriers to booking, historical mistrust of and mistreatment by the health care system). If, as a result, these strategies are more effective with individuals who do not face systemic barriers, they could widen vaccine inequities. Unless accommodated, individuals who are unable to get vaccinated due to medical reasons would be excluded from these benefits.

C. Implementation and Policy Recommendations

Overall, smaller giveaways are less costly and less coercive than other incentive-based measures, particularly if they do not draw on public funds. It is worth considering that a “one size fits all” approach to giveaways will not appeal to everyone – not all incentives will appeal to individuals of all ages, genders, religions, areas, and abilities.

Companies should be encouraged, at least, people who are medically unable to get the vaccine can access the program as well, to avoid further damaging their equitable treatment based on ability. Unless regulated, giveaway strategies do raise privacy concerns, as individuals are invited to provide personal health information (i.e., their vaccination record) to private businesses, and governments should monitor and be prepared to step in if necessary.

5. Cash Incentives

Description

American pundits have suggested payments of \$1 000 or \$1 500 and seen their proposals endorsed by well-known experts and politicians.⁴⁷ These strategies would presumably mean that in exchange for becoming vaccinated, residents would be paid.

A. Effectiveness

Scientific Evidence

The evaluations of monetary incentives are mixed, and it is uncertain what effects this intervention would have on vaccine uptake. One review³¹ which looked at the effect of monetary incentives on a range of recommended vaccines showed a high impact of this intervention. Another review²² showed little to no effect of this intervention on childhood immunisation in low- and middle-income countries.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, monetary incentives had mixed impacts. It was assessed to potentially impact **confidence** negatively by undermining public trust in the health system or roll-out. However, it has the potential to positively impact

convenience as it increases the appeal of vaccination. No impact was assessed towards **complacency, calculation, or collective responsibility**.

B. Preliminary Equity Analysis

In addition to incentivizing vaccination, providing cash could meaningfully offset some of the indirect costs that may prohibit lower-income residents from getting vaccinated (e.g., taking time off work, caregiving, transportation). However, with any economic incentive, particularly significant amounts of money, it is important to consider how these payments could harm and compromise the choices of individuals who experience considerable material hardship and deprivation (e.g., individuals who are homeless or have very low-income). Additional attention would be needed to ensure individuals provide informed consent to vaccination.

If these incentives require that individuals apply separately to receive them (rather than automatically being given money when vaccinated), then there will very likely be barriers to access for individuals with time constraints (e.g. low income workers with multiple jobs, women caring for children or dependents) and/or linguistic and technological barriers to navigating bureaucratic process. Again, unless accommodated, individuals who are unable to get vaccinated due to medical reasons would be excluded from these material benefits.

C. Implementation and Policy Recommendations

Payments raise questions about fairness for those who were already vaccinated in advance unless included. Direct payments may be expensive, difficult to administer, may go to many who do not need them (either economically, or because they will choose to be vaccinated regardless), may fail to reach low-income, Indigenous, Black, and other racialized persons, and raise ethical questions about undue influence on vaccine decision making. It is unclear whether cash incentives are effective and they could unintentionally contribute to further vaccine mistrust. Although mitigation strategies may be possible, other efforts should be pursued.

While cash could help offset indirect costs of getting vaccinated for lower-income residents, these barriers could be addressed more directly by efforts such as providing more generous paid days off and more geographically accessible mobile, workplace and door-to-door clinics and outreach.

6. Lotteries

Description

The American state of Ohio launched a one million dollar a week lottery that those who have been vaccinated are eligible for and other states are following suit. The government of Manitoba is also entering all persons vaccinated by two dates into a draw for \$1.9 million in prizes,⁴⁸ and Alberta is offering a \$1 million prize to a random person who is vaccinated before the province reaches a 70 per cent vaccination level.⁴⁹

A. Effectiveness

Scientific Evidence

There were no evaluations of lotteries assessed, thus it is uncertain what effects this intervention would have on vaccine uptake.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, lotteries had mixed impacts. It was assessed to potentially impact **confidence** negatively by undermining public trust in the health system or roll-out. However, it has the potential to positively impact **convenience** as it increases the appeal of vaccination. No impact was assessed towards **complacency**, **calculation**, or **collective responsibility**.

B. Preliminary Equity Analysis

Like giveaway strategies, lotteries on their own do not meaningfully address systemic barriers to getting vaccinated, and therefore run the risk of widening inequities in vaccination rates.

In addition, lotteries may exclude or see diminished uptake amongst members of religious and faith communities that prohibit or discourage gambling.

As with other incentive-based strategies, if this is an opt-in program (i.e. individuals need to sign-up or apply to be entered into the lottery), it is likely that residents will not evenly be aware and able to access this lottery. Governments often fail to adequately reach lower income and racialized groups who face barriers to accessing government programs due to inadequate outreach and awareness, restriction eligibility, and onerous sign-up processes.⁵⁰

Unless accommodated, this approach would exclude individuals who are not able to be vaccinated due to medical reasons from entering. A lottery would likely exclude and not be considered appropriate for children under 18 who are not currently permitted to be sold lottery tickets in Ontario under the *Gaming Control Act*.

C. Implementation and Policy Recommendations

Lotteries may achieve additional publicity and put time pressure on people who have not been vaccinated to come forward, but do not help those who have not been vaccinated due to barriers to access.

The evidence that lotteries are effective is not yet available. Lotteries do not raise significant concerns about unintended harms, although there may be some pushback about state-endorsement of gambling.

7. Local Vaccine IDs or Certificates

Description

What may be framed as incentives but are in fact defined by the WHO as representing a vaccine mandate or restriction, include “passports” or “proof of vaccination cards.” The US Centers for Disease Control and Prevention has provided vaccination records and

Israel designed a digital passport (which they are now phasing out).⁵¹ These require that residents prove they have been vaccinated in order to access incentives or to avoid exclusion from businesses. The Israeli program required individuals to show a QR code to establish they had been fully vaccinated, had recovered from COVID-19, or were children who had completed a rapid test within the last 72 hours.^{51, 52} Manitoba has recently introduced “Immunization Cards” to allow residents (but only those with health cards) to visit loved ones in long term care⁵³ or hospitals and will include both digital versions with QR codes and physical cards upon request.⁵⁴ At the time of publishing, Manitoba is the only provincial government to implement such a measure.

A. Effectiveness

Scientific Evidence

There were no evaluations of local vaccine IDs assessed, thus it is uncertain what effects this intervention would have on vaccine uptake.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, local vaccination IDs had mixed impacts. It was assessed to potentially impact **confidence** negatively by undermining public trust in policymakers. It would however positively impact **complacency** as it may increase the perceived need to get vaccinated. No impact was assessed towards **convenience**, **calculation**, or **collective responsibility**.

B. Preliminary Equity Analysis

This strategy does not address systemic barriers to vaccine access or mistrust. This approach, at its core, excludes individuals from certain private or public services if they are not vaccinated. It would very likely result in harms to populations that face systemic barriers to getting vaccinated, by further excluding them from services and social participation more broadly. It would likely further marginalize individuals who are homeless and face barriers to obtaining and keeping identification and documents.

There is the potential that a vaccine certificate would be differentially applied and enforced in ways that target Black, Indigenous and racialized Ontarians who have already been disproportionately hard hit by the pandemic. This also raises questions about who would be responsible for enforcement, along with potential risks if enforcement is implemented at the discretion of individual business owners and other parties.

Unless accommodated, individuals who are unable to be vaccinated due to medical reasons would be harmed by vaccine certificate policy and excluded from any impacted services. Attention would need to be paid to ensure individuals with medical exemptions could easily access vaccine certificates and that certificates would not result in disclosure of any of their personal health information.

The UK Parliament's Public Administration and Constitutional Affairs Committee have considered a domestic vaccine certificate program for entry into large sporting and entertainment events and has warned against it stating it would "by its very nature, be discriminatory" on the basis of race, religion, socio-economic status (due to inequities in vaccination rates), and age (due to phased rollout of the vaccine by age group).⁵⁵

C. Implementation and Policy Recommendations

Vaccine IDs raise significant practical and equity questions and should be approached extremely cautiously, if at all. They should not be used to encourage vaccination, but rather limited to where there is public health evidence that they are significantly contributing to safety and are necessary. Given countries including Israel and the United Kingdom, which were ahead of Canada in vaccination rates, dropped their requirements at higher levels of vaccinated (with at least one shot) individuals than Canada has achieved, it seems unlikely the public health need could be demonstrated, or that practical concerns could be successfully addressed. It is worth noting that Israel was able to at least attempt to reduce inequitable impacts by providing rapid testing options to replace its pass – and Ontario has not, to date, established a significant rapid testing program.

This would also raise significant practical and privacy concerns – for example, it would mean requiring (or allowing businesses to require) personal health information (i.e., vaccine status) be provided.

Any type of vaccine ID would have to be enforced, whether by police, public health, or bylaw officers. All of these raise significant concerns around differential enforcement against Black and other racialized individuals, as well as low-income individuals. Police enforcement should absolutely be avoided, as it would very likely create significant public pushback and would potentially push the very communities who have lower rates of vaccination to fall further away from confidence in the system generally.

In order to avoid differential racial impact in terms of access to care settings or businesses, it would be crucial, were these IDs to be necessary at all, to ensure the current significant gaps in vaccination rates between racialized and non-racialized groups are greatly narrowed. Not only would this raise human rights and constitutional questions, it could further alienate those whose confidence needs to be bolstered. It would also be morally and rhetorically indefensible.

Governments should not impose local vaccine IDs. They may, however, be forced to step in to prevent the private sector from imposing them on their own. To protect health privacy and prevent the enforcement and differential impact concerns raised above, governments may need to consider prohibiting their use.

8. International Vaccine Passports

Description

There has also been public discussion around the possibility of international “vaccination passports” that require travellers provide proof of vaccination to travel by air or other method.

A. Effectiveness

Scientific Evidence

There were no evaluations of international vaccine passports assessed, thus it is uncertain what effects this intervention would have on vaccine uptake.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, global vaccine passports had mixed impacts. It was assessed to potentially impact **confidence** negatively by undermining public trust in policymakers. It could however positively impact **complacency** as it may increase the perceived need to get vaccinated. No impact was assessed towards **convenience, calculation, or collective responsibility**.

B. Preliminary Equity Analysis

Besides the equity considerations for Canadians, vaccine passports would severely favor wealthier countries, including the United States, United Kingdom, European Union countries, and Canada who were able to obtain enough supply to vaccinate their population. WHO has highlighted that almost all COVID-19 vaccination rollout has been in medium to high income countries. In the face of limited global vaccine availability and considerable global vaccine inequity, the WHO has warned that vaccine travel restrictions have the potential to further hamper global distribution of vaccines to countries with the most need.⁵⁶

Locally, an international travel passport does not address systemic barriers to vaccine access and thus has the potential to widen inequities by excluding individuals with mistrust or barriers to access to travel, unless paired with strategies to improve access. Furthermore, accessing passport documentation would need to be low cost and accessible to reduce burden on low-income residents. Restrictions on travel to and from Canada are likely to disproportionately burden new immigrants, refugees, and temporary migrants, such as temporary foreign workers and international students, who are entering the country or reuniting with family; these burdens should be mitigated. Unless accommodated in an accessible way, passports would be exclusionary and discriminatory for individuals unable to get vaccinated due to medical reasons. This means making it easy to establish they are medically exempt from vaccination to receive their vaccine passport. Additional requirements should only be imposed if strictly required to ensure public health.

C. Implementation and Policy Recommendations

Unlike local vaccine IDs, international vaccine passports may not be completely within the control of governments in Canada. However, the enormous international equity issues they raise must be considered and addressed. To do so, Canada should continue to donate as many

vaccines as possible to countries in need – and recognize that those countries are in need, in part, because Canada has vaccinated Canadians first. It must also ensure that any such passports are carefully regulated (with particular attention to privacy), affordable, and subsidized for access by low-income persons in Canada, some of whom may have been waiting for over a year now to see family members in other countries – for them, the cost of the plane ticket is more than barrier enough.

Further, although our leaders may feel Canada must allow our citizens to receive their proof of vaccination in order to travel, that does not mean we must require it of visitors. Requiring travellers to Canada to prove vaccination should only be considered if there is very clear public health evidence that it is necessary. Other measures, including rapid testing for all travellers, may better address concerns about travel-related COVID-19 transmission given international vaccine inequity.

Canada must also consider refugees, immigrants, and migrant workers. These populations should not be required to prove vaccination, but rather should be invited to participate in Canada's vaccination program.

9. Mandatory Vaccination

Description

Unvaccinated persons, without medical, or perhaps religious or philosophical exemption, could be required, on pain of fine or imprisonment, to receive a vaccination. This approach raises extremely serious concerns around democracy and civil liberties and would doubtless be subject to legal challenges under the *Charter of Rights and Freedoms*. Though not mandatory, Australia's policy for other vaccines is to withhold tax benefits and credits from parents whose children are not vaccinated.⁵⁷

A. Effectiveness

Scientific Evidence

There are a limited number of evaluations of mandatory vaccinations, and it is uncertain what effects this intervention would have on vaccine uptake. One review⁵⁸ found insufficient evidence to support policies that would deny social assistance to families with unvaccinated children.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy mandatory vaccination policies had mixed impacts. It was assessed to potentially impact **confidence** negatively by undermining public trust in policymakers. It would however positively impact **complacency** as it may increase the need to get vaccinated. No impact was assessed towards **convenience**, **calculation**, or **collective responsibility**.

B. Preliminary Equity Analysis

There is a high certainty of significant inequitable harms that would come with a mandatory and criminalized approach to vaccination uptake via fines and imprisonment. Involvement in the criminal justice system has devastating, long-term impacts on individuals and their families' health and futures.

This approach would not address systemic barriers to vaccine access or mistrust amongst Indigenous, Black, and racialized communities that are rooted in historic and present-day systemic racism and colonization. A coercive and criminalization approach is very likely to further this mistrust and be applied and enforced in a way that disproportionately targets, criminalizes, and harms these communities. Individuals with low income would be more unlikely to be able to pay a fine, and more likely to be imprisoned due to non-payment and as a result of systemic barriers to justice in our legal system.

Australia's approach of withholding tax credits and benefits to families with unvaccinated children also raises considerable equity concerns in Canada, as tax benefits such as the Canada Child Benefit are critical anti-poverty measures. Withholding benefits would disproportionately harm low-income families by reducing their ability to meet basic needs such as housing and food.

C. Implementation and Policy Recommendations

There are very good reasons why past vaccinations have not been made mandatory for the general public and there does not yet seem to be any evidence that this will be necessary for COVID-19. The democratic, constitutional, and equity problems created by such a move would be enormous. Enforcement would also be a serious problem, in terms of privacy and unequal enforcement against low-income populations and Black and other racialized communities. Other restrictive approaches, such as withholding tax benefits, would disproportionately harm low-income Canadians and should not be considered.

10. Employment Consequences

Description

Through policy, legislation, or government inaction, individuals' employment could be put at risk if they are unvaccinated. This includes leaving the current legal status quo, in which some legal experts believe employers can dismiss an employee who is unvaccinated, though not for cause,⁵⁹ while others believe that may be possible in certain workplaces.⁶⁰

The government of Ontario has recently taken a step in this direction by mandating long term care home workers who are neither vaccinated nor have a health issue precluding vaccination to complete an "educational program" on vaccination safety and benefits.⁶¹ It is also possible that personal protective equipment could be (or be purported to be) required for those who are unvaccinated.

A. Effectiveness

Scientific Evidence

There are a limited number of evaluations on employment restrictions, however this intervention does show a potential to increase vaccine uptake. One review²¹ found an increase in influenza vaccination rates using mandatory vaccination policies at workplaces.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, employment restrictions had mixed impacts. It was assessed to potentially impact **confidence** negatively by undermining public trust in policymakers. It would however positively impact **complacency** as it may increase the need to get vaccinated for workers. No impact was assessed towards **convenience, calculation, or collective responsibility**.

B. Preliminary Equity Analysis

In isolation, work-based restrictions do not meaningfully address systemic barriers that would make it easier for workers to get vaccinated (e.g., paid time off, trust in vaccines, quick and simple vaccine booking, geographically, culturally, and linguistically accessible clinics), and thus could contribute to further inequities and exclusion for workers who face systemic barriers. Currently, these restrictions will likely disproportionately impact workers who are unable to work from home, which in Toronto are more likely to be low-income and newcomer workers who face barriers to vaccine access.

Requirements to be vaccinated to work reduce the voluntary nature of vaccination and will be disproportionately coercive for low-wage workers who cannot afford to risk their employment and for foreign temporary workers whose employment is tied to their ability to work in Canada (i.e. employers could decide to deport them or not rehire them).

There are concerns about discriminatory treatment if employees are forced to disclose their medical exemptions to their employer.

C. Implementation and Policy Recommendations

Employment consequences are extremely serious threats to an individual's health. They also raise significant privacy concerns. The governments of Canada and Ontario should consider moving to ensure that private actors do not "take this into their own hands" by amending the *Canada Labour Code* and *Employment Standards Act* to prohibit termination based on non-vaccination.

Requirements for personal protective equipment raise the same privacy concerns, and potential issues of stigmatization. However, in some workplaces they may be necessary based on expert-advised, proven health and safety needs. Where needed, those policies should follow normal disciplinary practices.

11. Denial of Access to Schools

Description

Finally, as with some other vaccines, unvaccinated children could be denied access to public education.⁶² Currently in Ontario, routine childhood vaccinations against nine diseases are required for children to access public school; parents can access exemptions for medical, religious, or philosophical reasons.⁶³

A. Effectiveness

Scientific Evidence

The evaluations of mandates for school attendance in the literature shows that these interventions likely increase vaccine uptake among children. Two reviews^{64, 65} show an increase among students after implementation of a mandatory vaccination policy.

Effectiveness Assessment based on 5C Model

When assessed against the 5C model of vaccine hesitancy, mandates for school attendance had mixed impacts. It was assessed to potentially impact **confidence** negatively by undermining public trust in school administrators and policymakers. It would however positively impact **complacency** as it may increase the need to get vaccinated for parents of school-age children. No impact was assessed towards **convenience**, **calculation**, or **collective responsibility**.

B. Preliminary Equity Analysis

This intervention does not meaningfully reduce barriers to vaccine access (e.g., linguistic and geographic access, mistrust, lack of paid time off work) and runs the risks of further burdening families with barriers to access, unless paired with strategies that reduce these barriers for students and families such as school and community-based clinics. For example, in the past Toronto Public Health has run local immunization clinics in an effort to reduce barriers to vaccination, and thus student suspension, as a result of mandatory vaccination under Ontario's *Immunization of School Pupils Act (ISPA)*; these clinics likely had positive equity impacts as they were disproportionately used by families without health cards, without a primary care provider or who had arrived in Canada in the last three years.⁶⁶

This strategy raises significant equity concerns if parents' decisions about vaccination result in the exclusion of their children from school, particularly because it could further socially exclude groups with barriers to care and historic and current mistrust of the health system as a result of systemic racism (e.g., Indigenous peoples, Black communities, and racialized communities). This would also exclude children who are not vaccinated due to religious beliefs. Currently, under *ISPA*, medical, philosophical, and religious exemptions are permitted, which would mitigate concerns about outright exclusion from school. Children who have medical exemptions would need to be supported and have low barrier ways to prove their exemption without disclosing personal health information to schools.

C. Implementation and Policy Recommendations

Young children do not make health decisions for themselves and should not be penalized based on the decisions of their parents. Furthermore, the WHO has cautioned against mandatory COVID-19 vaccinations for school-aged children given the emergency nature of the vaccines. However, the safety of children in the school who cannot be vaccinated does need to be considered. Policy makers should consider strategies that improve access to information and vaccines via school-based vaccination campaigns and clinics, rather than mandating vaccines for students. Exclusion from public school should only be considered in narrow cases where for short-term public health reasons the objection to the vaccine cannot be accommodated, such as during an outbreak.

Discussion

Ontario needs to achieve a vaccination rate reasonably likely to protect us against future outbreaks of the COVID-19 virus. We may also need ongoing booster shots as the virus mutates. Ontario's vaccination campaign has been successful so far, if frustrating, at least for those with advantages such as time off work, income, English or French language skills, and digital literacy, and a reasonably high numbers of Canadians are open to vaccination. However, our campaign is leaving low-income persons, Black and other racialized individuals, and new Canadians behind.^{4-6, 67}

Widespread public education, community-led outreach, and lowering barriers are all intended to enhance understanding and access, and therefore equity. They are unlikely to reduce confidence in vaccines, and should be well-funded, in as many languages as possible, and reach Ontario residents through as many vectors as possible.

Given the inequitable vaccination levels between low- and high-income groups and racialized and non-racialized communities, Ontario has already reached the point at which these efforts should be more narrowly targeted. Working with communities with lower vaccination rates to determine how they can best be supported, and investing in outreach, are the most promising ways forward.

Education, outreach, and barrier-lowering efforts must be exhausted before any other efforts to encourage vaccination are offered or imposed. The following approaches are risky, need more study by governments to ensure they will not worsen the situation, and are not recommended at this time.

All incentives carry risks of coercion, and of reducing confidence in governments or public health. They should only be considered if all possible efforts to educate, reach out, and lower barriers have failed. To ensure equity, it is essential that, if put in place, individuals who are medically unable to access vaccines are included, and that programs are not "opt-in," but rather targeted to all vaccinated individuals. Research should also be undertaken to ensure that in Ontario's specific context and the specific context of this stage of COVID-19 vaccine

knowledge, any of these efforts will not further alienate those who are not confident in the vaccine program.

No restrictions should be put in place, with the sole caveat that a passport for international travel may prove to be a necessity, due to global pressure, for individuals to travel for family, immigration, or essential business reasons. All restrictions bring significant ethical questions and equity risks. When low-income and Black and other racialized individuals have rates so much lower than others, the burden of any restrictions will disproportionately and unacceptably fall on those whom the pandemic has already harmed, and the burden of enforcement can be expected, based on repeated and current history, to fall on them.

New restrictions also take two risks that could not be evaluated based on currently available evidence, but which are potentially significant. First, much of the “anti-vaxx” and “anti-lockdown” narrative which is currently believed to be driving some vaccine hesitancy is focused on the government’s use of restrictions; punitive and restrictive measures could further this mistrust. Second, it is possible that persons in Canada may at this point be approaching points of “restriction fatigue,” which may lead to lower willingness to comply with public health advice or orders, and to lower trust in government and experts (which might further erode confidence).

All efforts to increase Ontario’s vaccination rate should be evaluated for effectiveness. Not only is this a key opportunity to learn about vaccinations in Ontario more generally, but also the possibility that additional rounds of vaccinations (“booster”) will be needed in the future makes efforts to understand what works crucial.

Ontario can be proud of its overall progress and should be guided by evidence and equity as it works to vaccinate as many persons as possible – incentives and coercive measures should not be necessary and may be counterproductive. We can and should achieve our vaccination needs through hard work to educate, build trust, and lower barriers – all efforts that will improve equity for everyone in Ontario.

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