

# Shining a Light at the End of the Tunnel

## **Guiding Considerations for a Safe, Accessible and Equitable COVID-19 Vaccination Framework in Ontario**

Dec. 15, 2020



*OMAThoughts*

This document was produced by staff of the Economics, Policy & Research department at the Ontario Medical Association.

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**Acknowledgements:**

We would like to acknowledge the consultation and input from multiple stakeholders.

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## Executive Summary

As COVID-19 continues to impact the lives, health and well-being of Ontarians and people around the world, the promise of vaccination in reducing the risk of contracting the disease is eagerly anticipated. Now that COVID-19 vaccines are available, the excitement of this long-awaited development must be accompanied by an awareness of the associated requirements for delivery of these vaccines, their supply and public understanding and trust in them. Ontario must prepare as soon as possible to deliver these vaccines in a safe, equitable and accessible manner.

A COVID-19 vaccination strategy needs to include defining and prioritizing populations to ensure the gradually available supply is distributed with transparent criteria that consider protecting those most vulnerable. It must also include plans and guidance for vaccine distribution and administration that consider the specifics of each different vaccine and the different avenues for administration available and/or advisable in different phases of vaccination.

Essential infrastructure in this strategy must include surveillance and evaluation to ensure:

- Ontario has the data to understand where vaccination is and is not reaching populations
- Individuals are receiving all required doses
- Monitoring and responding to adverse events
- Plans and resources for public education, such as vaccine hesitancy, that reach all segments of the population with clear and culturally appropriate information to ensure that the public feels comfortable receiving the vaccine and understands its benefits as well as its potential limitations.

While current vaccines have been shown to protect those vaccinated from experiencing signs and symptoms of the virus, it is not known if they also prevent its spread. Therefore, protective measures (such as masking, physical distancing, hand and respiratory hygiene) will remain imperative even for those vaccinated to ensure Ontarians are protected as much as possible.

This paper lays out considerations for each of these components to support the development of Ontario's COVID-19 vaccine strategy based on the insights and expertise of Ontario's physicians and informed by consultation with key health system stakeholders. These recommendations are intended to begin this important dialogue and will require refinement as more information becomes available. Responding to the pandemic and ensuring high rates of vaccination needs strong multisectoral collaboration with a nimble and transparent approach to an evolving strategy. In addition to the involvement of health system partners, community stakeholders, and industry leaders, public health units and their medical officers of health will be key leaders in COVID-19 vaccination. Provincial financial and administrative support will be essential as, for example, PHUs continue to manage the non-vaccination COVID-19 response concurrently. Provincial public health leadership from the Chief Medical Officer of Health and scientific guidance from Public Health Ontario, will also be required to provide consistent provincial guidance to ensure a co-ordinated, supported, and equitable cross-province response.

Accordingly, this document provides recommendations based on the evidence at the time of release. Certain assumptions and/or recommendations may need to adapt with changing evidence. For further detail and basis for these recommendations, please refer to the paper below.

## Key Recommendations

### Key Recommendations for Defining Populations

- The government must identify clear criteria for, as well as within, priority populations who will receive a COVID-19 vaccination first. Physicians and others with expertise should inform the clinical and risk criteria to help prioritize within groups.
- Health-care workers including doctors, nurses etc., should be in the first group of identified priority populations to receive the COVID-19 vaccine.
- Real-time data should be used to help identify geographic areas of high spread and target those areas as a priority for vaccine distribution and allocation efforts, particularly where the demand for the vaccine exceeds the supply.
- The government should begin planning now in anticipation of an approved vaccine for children (under the age of 16).
- As part of the Ministers' COVID-19 Vaccine Distribution Task Force, the government must develop and deploy educational material to provide physicians with the information they will need to talk with their patients and provide them with the confidence that the COVID-19 vaccination is safe and effective.
- The government must develop and implement a public awareness campaign to educate providers and the public regarding which populations will be prioritized during the vaccine distribution and administration process.

### Key Recommendations for Vaccine Distribution & Administration

#### Roles of Key Actors

- A key consideration is avoiding overlap in responsibilities and gaps in any plan. Clarify roles of all parties involved, including the federal government, provincial government, Public Health Ontario, public health units, health-care workers including physicians, hospitals, community clinics, long-term care and other congregate settings, and community leaders in developing and implementing the strategy for co-ordinated and safe vaccine delivery in consideration of local needs and contexts. The government should work with PHUs to support capacity for these recommendations on distribution and administration. These roles will change throughout the campaign as vaccines with different distribution characteristics are approved for use in Canada.
- Physicians, PHUs (including medical officers of health), and other primary-care providers impart public health knowledge and have experience in patient care. They must be represented at provincial tables when immunization strategy decisions are being made.

#### Administration for Priority Populations

- Bring vaccination to priority populations in settings relevant and accessible to them (e.g., in hospitals for health-care workers, in schools for school staff and students, mobile vans for individuals unable to leave home). Government and local PHUs should work with providers to investigate the desirability of various options for the vaccination of key priority groups such as community-based physicians, nurses and other workers in community health-care settings.
- Plans must be made for how and where community-based health-care workers will be vaccinated. Hospitals and other public health-led clinics in local communities should maintain capacity and co-develop plans to ensure access to the vaccine for all health-care providers, which will allow them to stay healthy to continue to care for Ontarians including those with COVID-19. Hospitals and Public Health Units seem an appropriate location for these individuals to get vaccinated.
- Clear and consistent guidance for vaccine administrators on administering the COVID-19 vaccines and the specifics of each product, including followup dose requirements, should be developed with leadership by Public Health Ontario and the Ministers' COVID-19 Vaccine Distribution Task Force in consultation and collaboration with end users. The OMA can support with knowledge translation support of guidance and dissemination to physicians.

### Administration for the General Population

- Once fridge-stable vaccines become available and widespread, and wider population vaccination is required, PHUs should work with local physician leaders and primary-care providers to design innovative collaborations to enhance access to the vaccine at places that are easily accessible to patients.
- Traditional settings for vaccine administration (physician clinics, PHU vaccination clinics, etc.) should be considered for COVID-19 vaccine administration for the general population as vaccine availability and characteristics allow.
- Distribution channels for delivering vaccine doses to physicians need to be determined (i.e., if utilizing influenza vaccine distribution channels through PHUs). These distribution channels must entail clear and timely communication to physicians with transparency around supply and a commitment to delivery timing and quantity of doses. Physicians should identify the number of doses required for their practices.
- Clear and consistent guidance for vaccine administrators on administering the COVID-19 vaccine in traditional settings and the specifics of each product that will be available, including follow up dose requirements, should be developed with leadership by Public Health Ontario and the Ministers' COVID-19 Vaccine Distribution Task Force in consultation and collaboration with end users. The OMA can support with knowledge translation support of guidance and dissemination to physicians.
- When utilizing innovative strategies, spaces (e.g., arenas, convention centres) should be secured for large-scale and/or innovative vaccination clinics, and needed health human resources, supplies, and equipment should be determined and sourced.
- PHUs should develop a roster of vaccine providers who are willing and able to administer the COVID-19 vaccine in clinics outside of primary care. PHUs should recruit vaccine providers within their regions, with the government helping where recruitment from other areas of the province may be necessary.

- Local physician leaders and other primary-care providers can set an example for peers by supporting their local vaccination delivery process through contribution of time to the efforts of vaccinating clients at various venues.
- The government should engage with industry leaders on scheduling appointments for large-scale vaccination clinics to leverage existing available technologies and expertise for planning attendance for large-scale events.

## Key Recommendations for Integrated Information Systems, Surveillance & Monitoring

### Integrated Information Systems for Patients & Providers

- The government should make available an electronic appointment, registration and record management and patient notification system for multi-dose vaccination. This should be mobile phone-enabled and aligned with each type of COVID-19 vaccine along with non-smart phone notification mechanisms to attempt to reach all patients. This system should be patient-facing and provider-facing.
- The government should use this system to allow patients to book their vaccination appointment(s) online and provide them with needed information. Additionally, it should account for patient differences in access to technology and digital literacy, ensuring that use of this system does not exclude some patients, particularly those who may be most vulnerable.
- This system must meet providers' needs, facilitating appointment booking on their end, the provision of information and needed forms, facilitating appointment reminders, notifying providers if their patients have received each dose of the vaccine outside of a patient's family physician's office, and tracking which vaccine a patient received and the specific follow up timeline. The system must be co-developed with end users to ensure that it can be seamlessly integrated into workflow. Where possible, notifications should be sent directly to the primary care provider's EMR system.
- In light of the need for multi-dose vaccination, this system must record and track which vaccine a patient has been administered for their first dose, record and ensure that a patient's follow up appointment is booked for the same vaccine, ensure that it prompts patients for follow up in the right timeline for each specific vaccine, and that it allows patients to book appointments where the vaccine they need is available. This is especially necessary for patients who receive the first and second doses from different providers.

### Information Systems for Surveillance & Monitoring

- Establish and proactively utilize vaccination surveillance and program monitoring to identify potential gaps in administration strategies. A comprehensive, centralized and accessible digital vaccine registry for data collection that aims to document each COVID-19 vaccine administered should be established at the national level. Such a system would allow vaccination rates and coverage to be easily tracked, enable the distribution of potentially scarce vaccines to be optimized, facilitate a comparison of vaccine coverage with disease rates across the provinces, and enable monitoring for effectiveness particularly in the longer term with a single database to easily know if individuals experiencing COVID-19 might already have been vaccinated.

- Collect demographic data on vaccine distribution to identify gaps in population reach and access, and monitor effectiveness and safety amongst different populations, particularly marginalized populations that have experienced a disproportionate rate of COVID-19 infection.
- Ensure that the existing AEFI (adverse effects following immunization) reporting structure has sufficient capacity to monitor reports related to C-19 vaccines, and that there is a federal-provincial-territorial strategy to monitor and act quickly on potential trends. Ensure vaccine providers including physicians have clear and efficient means to report AEFIs to their local PHUs and are resources to counsel patients around AEFIs.

### Key Recommendations for Public Education & Vaccine Hesitancy

- Clear and consistent communication/education campaigns must be developed and implemented by government with the support of stakeholders to assist in building public trust in the vaccine.
- Leaders and health-care workers should be early and visible recipients of vaccines to reassure the public of vaccine safety.
- Continuous updates/guidance on vaccine-related developments must be provided to health-care workers.
- Health professional associations and respected community-based and nongovernmental groups/organizations should be used to disseminate COVID-19 related information because this will help to build public trust in the vaccine. Targeted interventions must be developed for populations more at risk for contracting COVID-19 and groups who are more prone to vaccine hesitancy.
- Regular monitoring of vaccine confidence levels (and dissemination of data to vaccine administrators) is necessary.
- The vaccination experience should be as comfortable and convenient as possible.
- Public education for protective measures including masking, physical distancing and hand and respiratory hygiene must continue. It must encourage people who have been vaccinated to continue these other measures so they can continue protecting those not yet vaccinated.

## Introduction

As COVID-19 (C-19) vaccines begin receiving authorization and begin rolling out, it is imperative that Ontario develop a safe, accessible and equitable plan for the distribution and allocation of vaccines, including:

- The strategic prioritization of key populations;
- The logistics of administering vaccines;
- Systems for surveillance and monitoring; and,
- Public awareness, including vaccine hesitancy.

Ontario's immunization strategy must ensure effective rates of immunization; ongoing clear, consistent and transparent messaging from credible and trustworthy leadership (including physicians); and sustained disease-prevention strategies (masking, physical distancing, hand washing) as the population slowly achieves widespread vaccination.

Physicians are critical to the success of this immunization strategy along with Public Health Ontario, public health units, others in primary care, community organizations, pharmacists, employers and other vaccine providers. Further, the province must support vaccine providers with the necessary tools, resources and infrastructure to safely administer COVID-19 vaccines using traditional and innovative models at a community level.

To create and implement such a strategy, multisectoral collaboration is essential, including not only health-system partners but also industry partners with proven expertise in operations, logistics and information technology; and community stakeholders to advise on equitably and accessibly reaching all populations. The initiation of the Ministers' COVID-19 Vaccine Distribution Task Force is an important first step to ensure ethical, timely, equitable and effective distribution of COVID-19 vaccines in Ontario. The OMA and Ontario's physicians share this goal. Taking into consideration guidance from other jurisdictions and building off lessons learned from Ontario's influenza vaccine administration and its complexities during the pandemic, this document seeks to provide strategic considerations and recommendations from the perspective of Ontario's physicians and other stakeholders for the rollout of the COVID-19 vaccine in Ontario.

We must begin developing and implementing a comprehensive and coordinated COVID-19 vaccination strategy immediately, because vaccines have already begun to arrive. It must be nimble and able to adapt to changing information and availability and new considerations. These include variables such as the timing of vaccines to market; the number of vaccines approved or anticipated with differing profiles; rates of vaccine production; time required for distribution; required dose(s) to be effective; different administration schedules for different vaccines; variable effectiveness among different populations; duration of immunity after vaccination; vaccine characteristics and administration route; required cold-chain management/shelf life of vaccine; population-based risk/benefit analysis; and the COVID-19's epidemiological curve when each vaccine and its batches of supply become available. Plans for each of these unknowns must adapt to the best available evidence. As well, communication to the public should

be transparent about the limitations of planning based on these unknown factors at this time, to prepare the public for the likelihood that elements of the vaccination strategy will evolve. Accordingly, this document provides recommendations based on the currently available evidence at the time of release, and certain assumptions and/or recommendations may need to adapt with changing evidence.

Additionally and significantly, data on the currently developing vaccines focuses on whether those vaccinated are protected from the signs and symptoms of the virus, but it does not demonstrate whether these vaccines also prevent its spread (13).<sup>1</sup> This significant unknown must be acknowledged and must temper the nonetheless positive impacts anticipated by vaccine availability. The importance of protective measures will therefore continue, including masking, physical distancing and hand and respiratory hygiene, to ensure a person's contacts are protected from the virus, even if one has been vaccinated themselves.

## Key Assumptions

This paper is informed by the following key assumptions:

- The COVID vaccine(s) approved for use in Canada are safe, effective and of high quality
- Multiple vaccines are in development and different vaccines will be approved for use at different times
- Different vaccines will require different conditions for storage, distribution and use
- When COVID-19 vaccines begin to roll out, supply will be limited
- Populations must therefore be prioritized to determine who is eligible for the COVID-19 vaccine first, and a phased approach to distribution/allocation is therefore necessary.

Mindful of these assumptions, this paper will focus on: Defining Populations, Vaccine Distribution & Administration, Surveillance & Evaluation and Public Education & Vaccine Hesitancy focusing on the vital role of physicians in every step of the framework. It will discuss key challenges that may be faced by the province upon rolling out the COVID-19 vaccination program and will outline recommendations for implementation based on public health best practices. Key learnings from the COVID-19 Preparedness and Management Special Report of the Ontario auditor general, and other stakeholders and jurisdictions that have implemented vaccination programs throughout the pandemic, including lessons from Ontario's influenza response, have been considered.

## Defining Populations

With Health Canada approvals of COVID-19 vaccine candidate(s) for use across the country, we anticipate that the initial supply of a vaccine(s) will be relatively limited, and deliveries will be staggered. Given that we will have restricted resources, the province has identified key populations to vaccinate first. The National Advisory Committee on Immunization has developed an initial framework to prioritize populations (10). To implement this, clear criteria for prioritized population groups, as well as how to prioritize within groups, will need to be developed. This important work is being led by the Ministers'

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<sup>1</sup> The vaccine by AstraZeneca is the only developing vaccine with any evidence, albeit it limited and early, that its vaccine may impact somewhat on transmission (21).

COVID-19 Vaccine Distribution Task Force. It is critical that both the planning and related communication begin now, so that appropriate stakeholders can inform and support implementation plans, and the population can anticipate and understand the rationale for their relative place within the phased approach. Clear detailed lists within each group, along with principles, must be defined immediately. Specifically, it is conceivable that there will be insufficient supply to address the vaccination of an entire group, and thus clear criteria for prioritizing within groups is needed. For example, we must account for other risk factors, including, but not limited to, existing co-morbidities and age, and likelihood of exposure due to living and work arrangements. Public health data has shown the disproportionate impact of the virus on low-income and racialized Ontarians, as well as the ways in which the COVID-19 pandemic has exacerbated pre-existing health and social inequities. It is therefore apparent that equity measures (e.g., targeted outreach initiatives) must be embedded within every step of a vaccine rollout strategy to ensure that vulnerable populations are being effectively vaccinated. We must have a plan ready to implement immediately. Real-time data should be used to identify key geographic areas where high amounts of spread are occurring so that targeted approaches can be implemented rapidly and effectively.

Specifying key priority populations presents a unique set of challenges because some vaccine characteristics, clinical trial results for vaccine candidates, the number of different vaccine candidates and the number of available doses are not yet finalized (10). It should also be noted that there will be individuals who will fall into multiple key priority population groups (10). Key populations may change as emerging evidence of COVID-19 evolves, epidemiologic information changes, and vaccine characteristics and supply become clearer (10). Therefore, ongoing evaluation and monitoring are critical (see section on Surveillance & Evaluation for further details).

Health-care workers including physicians and nurses etc. must be prioritized for vaccination. Not only do health-care workers experience significantly higher than average exposure to COVID-19, but as case counts continue to rise, health-care capacity is consumed, and the backlog grows. It is imperative that health-care workers are protected as early as possible in consideration of their vital role in providing COVID and non-COVID care and for the sustainability of the health-care system. As of Dec. 13, 2020, there had been 10 476 cases among health-sector workers, representing approximately 7 per cent of all cases in Ontario (22).

We must also prepare for the likely possibility that the demand for access to vaccination even among health-care workers will exceed the available supply, at least in the early stages. Experts must convene immediately to determine how health-care workers should be prioritized. The prioritization framework should include:

Providers' age and comorbidities (a list of which should be defined by those with clinical expertise)  
Likelihood of front-line exposure, along with the areas in which these individuals live and work  
accounting for highest rates of COVID-19 infection, transmission and spread, particularly those in the red "control" and grey "lockdown" zones.

Alongside the threat of contracting the virus comes the real fear for health-care workers that they might transmit the virus to their loved ones. Prioritization of vaccination of individual health-care workers should help alleviate some of these concerns, as health-care worker inoculation should protect not only that individual, but also their family from any potential health setting exposure. Depending on vaccine

availability, vaccination of close family members at risk from those potentially shedding the virus should be considered.

Children and youth account for roughly 15 to 21 per cent of the population in Ontario (20). There is currently no approved vaccine for individuals under the age of 16. The hope is that vaccinating these children's parents, caregivers, teachers and others who are close to them will help reduce transmission and virus acuity. In addition, for children who are high risk, their parents and/or caregivers, and others who come in contact with them should be prioritized. Additional research must be done on children to develop and administer COVID-19 vaccinations. In the meantime, education of the pediatric population and their parents must begin. Consideration could be given to doing this in schools. Schools should also be considered as a place for vaccinations.

The government will need to develop a campaign to educate both health-care providers and the public about which populations will have priority for vaccines, and when.

When vaccinating Ontarians in stages, key consideration must be given to the fact that evaluation to date has focused on protection from experiencing the symptoms and signs of COVID-19 for those vaccinated but has not evaluated the impacts of the vaccine on transmission of the virus by those vaccinated. Vaccinating these priority populations must be done in tandem with clear education to recipients that standard protective measures (masks, physical distancing, hand and respiratory hygiene) are still important for them to protect others from the virus because other segments of the population will not yet be vaccinated.

- **Role of Physicians:** It is critical that the public understands that due to limited supply of vaccines, some populations will be prioritized. Even more critical is that if the public understands when it is appropriate to get a vaccine. The public will have significant questions about a phased approach once rolled out by the government, and patients turn to physicians as a trusted voice in health care. Physicians will play a substantial and critical role in the communication and public acceptance of a prioritization strategy, translating the government's plan and counselling patients on the importance of prioritizing populations for the COVID-19 vaccine, as well as in which phase each patient should expect to be included. This important work will support both patients and the health-care system. Physicians must be given adequate resources and materials to communicate with patients regarding the rationale behind the phased approach so they are equipped to explain the reasoning behind an individual's "place in line" for the vaccine. To date, there is limited information on COVID-19 vaccines and how limited doses will be prioritized and distributed. This leaves physicians ill-equipped to inform and support patients.

## Key Recommendations for Defining Populations

**Recommendation:** The government must identify clear criteria for, as well as within, priority populations to receive a COVID-19 vaccination. Physicians and others with expertise should inform the clinical and risk criteria on how to prioritize within groups.

**Recommendation:** Health-care workers, including doctors, nurses etc., should be in the first group of priority populations to receive the COVID-19 vaccine.

**Recommendation:** Real-time data should be used to help identify geographic areas of high spread and to target those areas as a priority for vaccine distribution and allocation efforts, particularly in cases where the demand for the vaccine exceeds the supply.

**Recommendation:** The government should begin planning now in anticipation of an approved vaccine for children under the age of 16.

**Recommendation:** As part of the Ministers' COVID-19 Vaccine Distribution Task Force, the government must develop and deploy educational material to give physicians the information they need to talk with their patients and give them the confidence the COVID-19 vaccination is safe and effective.

**Recommendation:** The government must develop and implement a public awareness campaign to educate providers and the public regarding which populations will be prioritized during the vaccine distribution and administration process.

## Vaccine Distribution & Administration

Developing a strategic vaccine distribution plan will be critical to the success of an effective and efficient vaccination program in Ontario. The 2020-21 influenza season shed light on the challenges Ontario faces in distributing mass quantities of vaccination in a short period of time (detailed in the Appendix). Ontario must learn from this flu season to ameliorate the hurdles, ensure vaccine distribution and administration can begin as early as possible, and instill public confidence in Ontario's vaccine preparedness and the vaccine itself. Ontario should develop a strategy that factors in the following considerations. The OMA provides these recommendations in our capacity as representing and amplifying insights and learnings from Ontario's doctors about their experiences within the health-care system and the observed experiences of their patients, as well as in our capacity as a key health-system stakeholder.

### Roles of Key Actors

The plan for administering COVID-19 vaccinations will need to be nimble, nuanced and context-specific – whether to meet regional, community or population-specific needs. To meet these needs with sufficient resources and co-ordination capacity, balanced with an understanding of local considerations and population contexts, PHUs and their medical officers of health will be key leaders in COVID-19 vaccination planning in their regions. Provincial financial and administrative support will be essential as PHUs continue to manage the non-vaccination COVID-19 response concurrently. Many facets of a vaccination strategy will require significant collaboration between the provincial government, local physicians, pharmacists, nurses, community groups and PHUs among many others. Learnings from the COVID-19 Preparedness and Management Special Report of the Ontario auditor general on the provincial response to COVID-19 should inform these roles and the collaboration between them.

Provincial public health leadership from the Chief Medical Officer of Health and scientific guidance from Public Health Ontario will be essential to provide consistent provincial guidance to support PHUs and ensure a coordinated, supported and equitable cross-province response (19).

### Key Recommendations for Roles of Key Actors

**Recommendation:** A key consideration is avoiding overlap in responsibilities and gaps in any plan. Clarify roles of all parties, including the federal government, provincial government, Public Health Ontario, public health units, health-care workers including physicians, hospitals, community clinics, long-term care and other congregate settings, and community leaders in developing and implementing the strategy for co-ordinated and safe vaccine delivery in consideration of local needs and contexts. The government should work with PHUs to support their capacity for distribution and administration. These roles will change as vaccines with different distribution characteristics are approved for use in Canada.

**Recommendation:** Physicians, PHUs (including medical officers of health), and other primary-care providers need to be represented at provincial tables where immunization strategy decisions are being made to provide input from the viewpoint of local providers of public health knowledge and patient care experience.

### Administration for Priority Populations

The vaccine should be made available to priority populations in these initial phases in ways that are accessible to them to ensure maximum uptake. This will ensure the goal of protecting these populations is met quickly. For example, by vaccination within hospitals for health-care workers and other staff who work or study in hospitals, vaccination for education workers in schools; clinics within vulnerable communities; and vaccination brought into congregate settings. Early plans will need to consider cold storage, recognizing that the vaccines do not have to be kept at extreme temperatures immediately preceding vaccination. Minimal vaccine wastage should be ensured particularly as early supply will be low (3).

Health-care workers, including physicians who work in hospitals or long-term care homes, will likely receive their vaccination at their workplace. This leaves a gap for community-based physicians and their potential to be overlooked when planning for vaccine distribution. This group of physicians must be included when identifying, prioritizing and estimating groups for priority vaccine allocation within hospitals or related health-care facilities, to ensure that providers in the community including physicians have the same access to vaccination services as their institution-based counterparts.

In defining priority populations, strategies should reflect the unique or specific vaccination and accessibility needs of each group. These strategies should be codeveloped with key relevant stakeholders, including physicians, from each relevant population and/or setting to ensure needs are met. For example, the OMA can support the crafting of a targeted delivery approach for health-care workers, including physicians, in collaboration with other relevant health-care worker associations.

Specific needs of patients should also be considered that will enable vaccination to begin more quickly once available for these populations. For example, for some people (such as some long-term care

residents), may have a substitute decision-maker. Their consent for vaccinations should be sought in advance to prevent delays and to ensure that demand is known before the vaccine supply is shipped to mitigate wastage.

Administration strategies must also factor in the need for followup doses and ensure that patients are informed how and when to get them (see section below on Integrated Information Systems for Patients & Providers for more details). It will also be important for patients to understand the potential temporary side effects they may experience from vaccination, which have been reported during vaccine trials, but which have been determined not to impact overall safety of the vaccine (16, 21).

- **Role of Physicians:** Physicians understand certain vulnerable populations' unique needs and have vaccine-provider insight and expertise. They therefore should be involved in the development of strategies to ensure these populations receive the vaccine. Physicians will play a key role in administering vaccines and contribute to triaging patients and identifying patients eligible for priority administration. Physicians can also counsel patients during this phase on the stages of rollout, and counsel those receiving the vaccine on its specifics, its potential temporary side effects and its safety.

### Key Recommendations for Administration for Priority Populations

**Recommendation:** Bring vaccinations to priority populations in settings relevant and accessible to them, as is acceptable and feasible (e.g., in hospitals for health-care workers, in schools for school staff and students, with mobile vans for individuals unable to leave the home). Government and local PHUs should work with providers to investigate the desirability of various options for the vaccination of key priority groups such as community-based physicians, nurses and other workers in community health-care settings.

**Recommendation:** Plans must be made for how and where community-based health-care workers will be vaccinated. Hospitals and other public health-led clinics in local communities should maintain capacity and co-develop plans to ensure access to the vaccine for all health-care providers, which will allow them to stay healthy to continue to care for Ontarians including those ill with COVID-19. Hospitals and public health units seem an appropriate location for these individuals to get vaccinated.

**Recommendation:** Clear and consistent guidance for vaccine administrators on administering the COVID-19 vaccines and the specifics of each product that will be available, including followup dose requirements, should be developed with leadership by Public Health Ontario and the Ministers' COVID-19 Vaccine Distribution Task Force in consultation and collaboration with end users. The OMA can support with knowledge translation support of guidance and dissemination to physicians.

### Administration for the General Population

In addition to targeted population distribution, capacity will also be required to administer the vaccine to the general population in a safe manner within a relatively short time frame in later stages. Planning and mobilizing vaccinations to large groups and the general population will require collaboration among a wide range of public and private sector partners including immunization and public health emergency preparedness programs, emergency management organizations, health-care organizations, vaccine

providers including physicians, community vaccination partners, infrastructure sectors, and policy makers.

As initial priority populations are vaccinated, careful planning should be undertaken to determine the best way to reach larger population groups and the general population. This may be through typical vaccination settings including family physicians' offices, pharmacies and public health-led vaccination clinics, as well as through other innovative and/or larger scale clinics in community settings in collaboration with other providers.

In all settings it will be important for administration strategies to factor in the need for followup doses and ensure that patients are informed how and when to do so (see section below on Integrated Information Systems for Patients & Providers for more details). It will also be important for patients to understand the potential temporary side effects they may experience, which have been reported through vaccine trials but have not been determined to impact overall safety of the vaccine (16, 21).

### **Traditional Setting Administration**

More familiar and traditional vaccines, which are expected to be available in time for Phase 3 & 4 vaccination, do not have the same extreme cold storage needs as the initial vaccines. Therefore, distribution to and administration through family physicians' offices, and other clinics, will be possible. Patients will benefit from being able to receive the vaccine in a setting in which they feel comfortable.

However, it will be essential that specific lessons are learned from the challenges experienced by family physicians and others in primary care from this and past flu seasons. These primarily centre around the need for clear and timely communication to physicians with transparency around supply and a commitment to delivery timing and quantity. Distribution channels for delivering vaccine doses to physicians will need to be determined (i.e., if utilizing influenza vaccine distribution channels through PHUs). Vaccinating during COVID-19 requires more time, space, health human resources, cleaning supplies and PPE than pre-COVID-19 (see Appendix for further details submitted by the OMA in support of influenza vaccine administration). COVID-19 vaccination will require additional education and counseling about the vaccine including about its followup dose.

In addition to in-office administration, traditional public health-led vaccination clinics will be valuable options. However, the significant burden on health units in responding to COVID-19 may necessitate provincial support for these PHUs. Additional human resources should be recruited to support these efforts, and, as their schedules permit, physicians can support and staff these clinics as vaccine providers.

- **Role of Physicians:** Vaccine providers including physicians can give vaccinations in this later stage in spaces familiar to and trusted by patients and should identify the number of doses required for their practices. Physicians may also be used to staff public health-led vaccination clinics. They will also be able to counsel patients receiving the vaccine on the stages of rollout and on how it works, its potential temporary side effects and its safety.
- **Role of the OMA:** The OMA can provide knowledge translation to physicians around the specifics of the COVID-19 vaccine and its administration and resources to be shared with patients.

## Innovative/Large Scale Clinics

In certain areas it may be valuable to consider larger-scale and/or innovative clinics to reach larger numbers of people in more centralized locations (e.g., collaborative vaccination clinics by multiple practices, public health-led large-scale clinics in community settings). The strategy in each area will likely be local in design based on resources and effective working relationships. These plans should leverage local innovative strategies developed to deliver large scale influenza vaccination during the pandemic. Using the process maps created for these successful endeavors will be helpful and avoid duplication of effort.

If non-traditional venues are to be employed, a strategic process will be necessary to decide the appropriate venues for vaccine administration, as ensuring that locations are accessible and convenient is critical to large-scale uptake of the vaccine. These venues should be secured early in planning efforts. Settings that maximize the number of people who can be vaccinated should be prioritized with consideration given to ensuring that physical distancing and other infection prevention and control procedures can be met.

For example, large indoor and outdoor (depending on time of year) community spaces such as arenas and convention centres can and should be utilized to enable mass vaccination with capacity for physical distancing, particularly to allow for a post-vaccination observation period. These venues should be secured and readied by PHUs with support from the provincial government as necessary as soon as possible and in advance of vaccine availability. Venue selection should also consider parking and transit availability, physical accessibility, access to health human resources, and a community's familiarity and comfort with the space.

Physicians and other regulated health-care providers willing and able to administer the COVID-19 vaccine must be recruited, organized and educated on the specifics of the COVID-19 vaccine well in advance of availability to ensure clinics can be operationalized as soon as administration is possible.

Mechanisms for scheduling safe and organized attendance at such clinics are necessary with sufficient staff and resources for efficient and safe registration and limited in-person wait times. Organizing specific appointment times should be considered especially by leveraging existing technological infrastructure used by industry leaders with experience in scheduling large-scale events depending on clinic size. Public health units and the provincial government should also jointly determine the need for additional vaccination settings that ensure equitable access and meet population needs that cannot be addressed within the large-scale vaccine distribution process.

Large-scale vaccination will also require significant amounts of supplies and equipment. The province should support public health units in procuring needed resources to simplify the supply chain, leverage provincial purchasing power and ensure equitable distribution of resources across the province. See Appendix for related recommendations submitted by the OMA in support of large-scale delivery of the influenza vaccine.

- **Role of Physicians:** Resources within PHUs and public health nurse capacity are stretched and limited due to the heavy burden of responding to the pandemic. Physicians can help fill this health human resource gap through staffing and/or developing vaccination clinics and tracking and communicating with patients for followup doses. Once educated themselves, physicians will serve as trusted sources and translators of knowledge and provide counselling to patients

around receiving a vaccine. To ensure that such an endeavor is successful, PHUs and those administering the vaccine or involved in discussing the vaccine with patients must be in alignment regarding vaccination processes, procedures and guidance. See the section on Public Education & Vaccine Hesitancy for further detail.

- **Role of the OMA:** The OMA can leverage its physician communication and information mechanisms to identify opportunities for physicians to support vaccination clinics. The OMA can also provide knowledge translation to physicians around the specifics of the COVID-19 vaccine and resources to be shared with patients.

## Key Recommendations for Administration for the General Population

**Recommendation:** Once fridge-stable vaccines become available and widespread population vaccination is required, PHUs should work with local physician leaders and primary care providers to design innovative collaborations to enhance access to the vaccine at places that are easily accessible to patients.

**Recommendation:** Traditional settings for vaccine administration (physician clinics, PHU vaccination clinics, etc.) should be considered as settings for COVID-19 vaccine administration for the general population as vaccine availability and characteristics allow.

**Recommendation:** Distribution channels for delivering vaccine doses to physicians need to be determined (i.e., if utilizing influenza vaccine distribution channels through PHUs). These distribution channels must entail clear and timely communication to physicians with transparency around supply and a commitment to delivery timing and quantity of doses. Physicians should identify the number of doses required for their practices.

**Recommendation:** Clear and consistent guidance for vaccine administrators on administering the COVID-19 vaccine in traditional settings and the specifics of each product that will be available, including followup dose requirements, should be developed with leadership by Public Health Ontario and the Ministers' COVID-19 Vaccine Distribution Task Force in consultation and collaboration with end users. The OMA can provide knowledge translation support of guidance and dissemination to physicians.

**Recommendation:** When utilizing innovative strategies, spaces (e.g., arenas, convention centres) should be secured for large-scale and/or innovative vaccination clinics, and needed health human resources, supplies and equipment should be determined and sourced.

**Recommendation:** PHUs should develop a roster of vaccine providers who are willing and able to administer the COVID-19 vaccine in clinics outside of primary care. PHUs should recruit vaccine providers within their regions with the government helping regions recruit from other areas of the province when necessary.

**Recommendation:** Local physician leaders and other primary care providers can set an example for peers by contributing their time vaccinating clients at various venues.

**Recommendation:** The government should engage with industry leaders on scheduling appointments for large-scale vaccination clinics to leverage existing available technologies and expertise for planning attendance for large-scale events.

## Integrated Information Systems, Surveillance & Monitoring

### Integrated Information Systems for Patients & Providers

Given the volume of patients requiring vaccination within each of the phases, an integrated information system should be utilized that can help patients book appointments, read necessary information, provide consent, be reminded of their appointment, and most importantly book a followup appointment for their second dose. The Pfizer and Moderna vaccines each require two vaccine doses three to four weeks apart and the AstraZeneca vaccine requires two doses at least one month apart (8, 9). Vaccine distribution and administration must therefore consider how to track patients for followup doses. This system should be available online and integrated with a mobile phone application for patients, with other mechanisms for reminders (e.g., automated calls to phone numbers) for those patients or their caregivers who do not have smart phones. It should account for differences in access to technology and in digital literacy, thus ensuring that this system does not exclude those who may be most vulnerable.

This system should also benefit providers, facilitating appointment booking on their end, the provision of information and needed forms, and facilitating appointment reminders. This system should advise family physicians and other primary-care providers if their patients are vaccinated by someone else. For patients who do not have a long-term primary-care provider, this system should still enable appointment and followup reminders and provide key helpful information. For the initial priority vaccination phase in which vaccination will likely take place only in certain settings outside of primary-care offices, this system will be particularly valuable. Where possible, notifications should be sent directly to the primary care provider's EMR system, potentially by OntarioMD's Health Report Manager or via integration to the Digital Health Immunization Repository.

This system must be able to account for the fact that any patient might receive each dose at two different locations and/or from two different providers. The reality of multi-dose vaccination underscores why this integrated information, and a centralized system, is so important. Patients should have to understand and utilize only one system and it is imperative that this system can record and track which vaccine a patient has been administered for their first dose, record and ensure that a patient is booked for a second dose of the same vaccine, ensure that the system prompts patients for followup doses in the right timeline for each vaccine and that it allows patients to book appointments where the vaccine that they need is available.

- **Role of Physicians:** End users including providers must be included as co-developers to ensure that this system can be seamlessly integrated into workflow, as well as provide an actual solution that enables easier facilitation and recording of information, limiting additional administrative burden. As well, if vaccinated by another provider, physicians must be aware if/when their patients are vaccinated against COVID-19. They can also inform how best to reach

patients for followup doses and will have opportunities to contribute to reminding patients and educating them on the importance of receiving each dose.

### Key Recommendations for Integrated Information Systems for Patients & Providers

**Recommendation:** The government should make available an electronic appointment, registration, record management and patient notification system for multi-dose vaccination, that is mobile phone-enabled and aligned with each type of COVID-19 vaccination, as well as with non-smart phone notification mechanisms to attempt to reach all patients. This system should be patient-facing and provider-facing.

**Recommendation:** The government should utilize this system to allow patients to book their vaccination appointment(s) online and provide them with needed information. Additionally, it should account for patient differences in access to technology and digital literacy, ensuring that use of this system does not exclude some patients, particularly those who may be most vulnerable.

**Recommendation:** This system must meet providers' needs, such as facilitating appointment booking on their end; the provision of information and needed forms; facilitating appointment reminders; notifying providers of their patients having received each dose of the vaccine outside of a patient's family physician's office; and tracking which of the vaccines a patient received and the specific followup timeline for that specific vaccine. Accordingly, the system must be co-developed with end users to ensure that this system can be seamlessly integrated into workflow. Where possible, notifications should be directly to the primary-care provider's EMR system.

**Recommendation:** In light of multi-dose vaccination, this system must record and track which vaccine a patient has been administered for their first dose; record and ensure that a patient's followup vaccination appointment is booked for a second dose of the same vaccine; ensure that patients are prompted for follow-up in the right timeline for each specific vaccine; and allows patients to book appointments where the vaccine that they need is available. This is especially necessary for patients who may receive the first and second doses from different providers.

### Information Systems for Surveillance & Monitoring

Surveillance of COVID-19 vaccine distribution and administration will be essential to monitor and ensure uptake of first and followup doses. Such surveillance information should be used proactively to advise PHUs and the provincial government where administration and communication strategies may be successful or unsuccessful. Canada lacks a centralized vaccine-tracking system that would allow government and policymakers to keep track of who is vaccinated, what vaccines have been used, where vaccine administration has taken place, and identify gaps in uptake. In the likely circumstance that there is a shortage of COVID-19 vaccinations, it is imperative that the limited number available are distributed to jurisdictions or populations with higher rates of disease transmission and spread, so that vaccine distribution can be optimized. A centralized and integrated digital vaccine registry would enable infection rates and vaccine coverage within specified areas to be tracked and compared and would allow vaccines to be distributed to areas of high need in the case of scarcity.

Further, the pandemic has demonstrated that certain populations experience COVID-19 disproportionately, such as Indigenous, racialized and lower-income individuals. The government should collect and utilize demographic information on who has received the vaccine (both the first and followup doses) to proactively identify populations that may not be getting adequate doses or messaging. This data should be monitored particularly to ensure that these populations are able to access vaccines and feel safe doing so.

In addition to the uptake of the vaccine, surveillance and monitoring of adverse events following immunization (AEFIs) is critical. This is needed for further understanding COVID-19 vaccination once implemented at a large scale. (21) Having this data is important to know if we must adjust course, to build public confidence in Ontario's vaccine strategy, and to help prioritize protection of Ontarians. The typical means of reporting AEFIs in Ontario and in Canada is a multi-level process, in which a patient's experience of an AEFI is reported to an immunization provider and/or health care provider to a local PHU to a federal/provincial/territorial immunization authority and finally to the Public Health Agency of Canada AEFI database (23). The ability and ease for AEFI reports to reach this national database is essential for the safe rollout of the COVID-19 vaccine. This will ensure a larger set of data from which to identify trends more easily and quickly and to change course on administration of a certain vaccine and/or for certain populations as necessary. But the expediency of this information pathway could potentially be inhibited by the anticipated volume of AEFI reports, not related to vaccine safety issues but to known temporary side effects of receiving a COVID-19. Temporary side effects have been reported through vaccine trials, but they have not been determined to impact overall safety of the vaccine (16, 21). While vaccine providers including physicians will be able to inform and counsel patients on these potential side effects, given the novel nature of the initial mRNA vaccines, significant volumes of AEFIs may be reported. This volume will also stem from the sheer scale of this vaccination program, intending to reach the entire population in a relatively short time frame. The government should examine the current reporting process of AEFIs and ensure there is sufficient capacity at each level to allow reports to flow smoothly and to reach the national database. This is especially important given the initial news from the United Kingdom's vaccine rollout, with two individuals to date with histories of severe allergic reactions following vaccination with the Pfizer vaccine. Risks to certain populations must be observable in Canada's AEFI reporting and surveillance structure, and in a timely manner to protect Ontarians as quickly as possible. The provincial and federal governments must have a strategy to utilize this data and to act on potentially identified trends.

- **Role of Physicians:** Physicians should be engaged if surveillance indicates that patients in their regions or communities are not accessing vaccination. Vaccine providers including physicians are also the first element of the AEFI reporting framework and play a critical role in monitoring and reporting AEFIs. They also have an important role in counselling patients on potential AEFIs. Physicians should be made aware of potential trends in AEFIs to be able to support their patients who have been vaccinated.

## Key Recommendations for Information Systems for Surveillance & Monitoring

**Recommendation:** Establish and proactively utilize vaccination surveillance and program monitoring to identify potential gaps in administration strategies. A comprehensive, centralized and accessible digital vaccine registry for data collection that aims to document each COVID-19 vaccine that is administered, should be established at the national level. Such a system would allow vaccination rates and coverage to

be easily tracked; enable the distribution of potentially scarce vaccines to be optimized; facilitate a comparison of vaccine coverage with disease rates across the province; and enable monitoring for effectiveness particularly in the longer term to easily know if individuals experiencing COVID-19 might already have been vaccinated.

**Recommendation:** Collect demographic data on vaccine distribution to identify gaps in population reach and access, then monitor effectiveness and safety among different populations, particularly marginalized populations who have experienced a disproportionate burden of COVID-19.

**Recommendation:** Ensure that the existing AEFI reporting structure has sufficient capacity at each level to monitor reports related to COVID-19 vaccines, and that there is a federal-provincial-territorial strategy to monitor and quickly act on potential trends identified. Ensure vaccine providers including physicians have clear and efficient means to report AEFIs to their local PHUs and are provided with resources to counsel patients around AEFIs.

## Public Education & Vaccine Hesitancy

In 2015, the World Health Organization Strategic Advisory Group of Experts on Immunization defined vaccine hesitancy as a “delay in acceptance or refusal of vaccination despite availability of vaccination services which can vary in form and intensity based on when and where it occurs” (12). Prior to the COVID pandemic, concerns about vaccine hesitancy were growing, with WHO identifying it as one of the Top 10 threats to global health in 2019 and identifying vaccine hesitancy and misinformation as presenting significant obstacles to achieving coverage and herd immunity (13).

Many people are also uncertain about receiving the COVID-19 vaccine due to its novelty and swift development, as well as the inconsistent and variable messages being conveyed from government and other stakeholders (14). Willingness to get a safe, effective COVID-19 vaccine has decreased in Canada (from 71 per cent in April to 61 per cent in August), with the most-reported reasons being concerns about safety and a lack of trust in a new COVID-19 vaccine (10). Anti-vaccination activists have already been campaigning against the need for a vaccine, with some even denying the existence of the virus (14). Such misinformation, disseminated through multiple channels, could have a considerable effect on the acceptance and uptake of the COVID-19 vaccine across the country. The government, public health professionals and other relevant stakeholders such as PHUs must be able to gauge public levels of willingness to receive a safe COVID-19 vaccine, then identify and address correlates of hesitancy, and build vaccine literacy so that the public will accept immunization and then large-scale distribution can occur. Any intervention must be nuanced and multifaceted to effectively address the multitude of factors that play a role in vaccine hesitancy and resistance.

To accomplish the goal of maximizing uptake and to enhance public trust in the vaccine, several measures must be taken by the provincial government. First, physicians, with support from other health-care professionals, play a critical role in planning and executing public-health education campaigns and patients turn to their physician as a trusted voice on a wide array of health issues, including vaccines. Receiving a recommendation from or being in contact with a physician is linked to increased vaccine

acceptability (15). Accordingly, the government must ensure that vaccine rollout is feasible, efficient and strategic and that providers continue to be well-informed and continuously updated on vaccine-related developments (e.g., timing, dosing, phasing of populations, etc.). This will ensure that public expectations are balanced and will enable physicians and other providers to better guide patients through the vaccination process.

Moreover, given the high degree of trust placed in the knowledge and judgment of physicians by the public, strategies that showcase these providers receiving the vaccine in a public setting and that position them as champions of the vaccine will likely be helpful in promoting public acceptance and uptake of the vaccine. Prioritizing health-care workers during early phases of the rollout will enable these professionals to lead the public by example, advocate for the vaccine within their communities, and educate and counsel their patients from a position of direct experience rather than assumption. The province should work with the OMA and other health associations to provide messaging and communication tools to health-care workers so they can leverage existing relationships with patients, answer patient questions effectively and ensure evidence-based information is easily accessible and understood.

Additionally, it is imperative that the government, in collaboration with key stakeholders who can align messages, develop a robust and comprehensive public education campaign using a public health approach, prior to the deployment of vaccines. General education and awareness campaigns regarding vaccine safety and efficacy as well as vaccination processes (when available) should be geared toward the public, with more-focused public education strategies targeted toward specific populations who are more at risk for contracting COVID-19. Education will be important to ensure that those being vaccinated understand that while this can protect them from the symptoms and signs of COVID-19, there is no information yet on whether the vaccines can help to curb transmission to those unvaccinated. Vaccination education must therefore continue to stress the importance of continued protective measures (masks, physical distancing, hand hygiene) even by those who have been vaccinated, especially as phased vaccination means certain individuals will be vaccinated while others are not. Messaging should be used across different health-care settings (e.g., hospitals, primary care clinics, influenza vaccine clinics, pharmacies, long-term care facilities, PHUs) to ensure it is disseminated to the public on a broad scale.

In any discussion of mass vaccination, the issue of mandatory inoculation, specifically as it relates to liability and consent issues is inherent. Given the questions that remain regarding the effectiveness and safety of the vaccine, the longevity and accuracy of the data surrounding it, and the rapid nature of the rollout, it is critical to consider means to ensure adequate levels of vaccine acceptance to address these concerns.

Though it may seem logical to mandate vaccination in the name of public health, there are fundamental ethical and legal restrictions on doing so. Premier Doug Ford has reiterated this sentiment, indicating his government will not mandate a vaccine (24). Moreover, medical literature demonstrates that vaccine mandates may be undermined by high levels of exemption as they fail to address underlying fears of the population, with studies demonstrating that analogous results may be achieved through strongly

recommending vaccines instead (17). In this way, the process of informed consent, and the physician's role in acting as a trusted voice to patients, is critical in ensuring the success of vaccination strategies and promoting uptake of the vaccine. This is particularly pertinent in light of widespread concerns and anxieties surrounding the efficacy and safety of the vaccine, the short vaccine development time, and global adherence to misconceptions and misinformation that surround COVID-19. All these issues have the capacity to contribute to vaccine hesitancy.

Accordingly, the process of engaging in shared decision-making with patients is of critical importance to obtaining legally valid informed consent as it enables providers to engage in an open dialogue with patients, ease anxieties, answer questions and challenge misinformation surrounding vaccination (18). It is reasonable that the public has questions surrounding the COVID-19 vaccine and thus participation in such a process allows these questions to be answered by an informed professional rather than through inaccurate and unverified sources at the least, and through sources actively spreading misinformation at the worst. Moreover, engagement in an open conversation, as part of the process of obtaining informed consent, can be used as an opportunity to discuss autonomy, not solely in the context of the individual, but also by incorporating social responsibility and ethics. Accordingly, while respecting a patient's right to assume or refuse risk, information surrounding vaccines can be provided from the individual and societal perspective. This will ensure that patients are fully informed regarding the benefits of vaccines for the individual and for society (e.g., the potential for individual and herd immunity). Within this dialogue, it is also important to communicate both known and unknown risks associated with the COVID-19 vaccination (e.g., side effects) and disclose that such immunity may not be enduring or equally efficacious across all age ranges. The risk of not receiving an inoculation must also be disseminated. While there will inevitably still be refusal and hesitancy during and after this process, such an approach will engage those who are ambivalent by combatting misinformation and promoting social unity.

Ultimately, through respecting autonomy and engaging in a process of mutual decision-making and open dialogue, trust in the vaccination process can be improved. Though this approach will require an input of additional counselling time on the part of physicians, it should be viewed in the long term as a public investment because it will assist in improving vaccine acceptance and overall trust in medical science.

- **Role of Physicians:** Ensuring that physicians are confident about the safety and effectiveness of the vaccine is critical for presenting a unified front of strong vaccination support from the medical community. Physicians, who are highly trusted by patients, will play a key role in doing the critical work of translating evidence for patients and encouraging them to safely receive a COVID-19 vaccine. Numerous studies demonstrate that physicians who talk about their personal immunization decisions play a big role in encouraging hesitant individuals to receive vaccinations. For instance, results from an Angus Reid Institute survey reveal that key factors for those willing to be immunized include trust in doctors (84 per cent agree that "we should listen to doctors who recommend vaccines").
- Governments must be continuously informed and update physicians regarding vaccine-related developments so they can effectively counsel vaccine-hesitant patients. Further, physicians should be consulted in the development of widespread public educational campaigns regarding

vaccine safety and efficacy to attain successful inoculation against the disease. Given that physicians are the most trusted advisers and influencers of vaccination decisions, a vaccine-hesitancy campaign, designed and led by physicians, with support from relevant stakeholders such as PHUs, should be considered by government with support from the OMA.

- **Role of the OMA:** The OMA can provide knowledge translation and resources to physicians as well as patient-facing resources to support physicians' communication with patients. It can also advocate for financial and operational support to address vaccine hesitancy effectively in real time.

## Key Recommendations for Public Education & Vaccine Hesitancy

**Recommendation:** Clear and consistent communication/education campaigns must be developed and implemented by government with the support of stakeholders to assist in building public trust in the vaccine.

- Transparent, clear communication regarding vaccine allocation decisions is important to maintain public trust and confidence and improve access to vaccines for key population
  - A public education campaign should include explanations regarding how vaccines work; how they are developed, from recruitment to regulatory approval based on safety and efficacy (e.g., level of effectiveness; time needed for protection (with multiple doses, if necessary); and importance of population-wide coverage to achieve community immunity
  - Professionals in the area of vaccine hesitancy should be consulted to ensure that messaging in any educational campaign is effective and that the campaign achieves its intended goals in reducing hesitancy, particularly among populations known to have low rates of vaccine uptake or high rates of hesitancy
- It is essential that the dangers of vaccine complacency (e.g., low perceived risk of contracting COVID-19) are addressed to ensure that the public understands the imperative nature of receiving the vaccination

**Recommendation:** Leaders and health-care workers should be early and visible recipients of the vaccine to reassure the public about vaccine safety.

**Recommendation:** Continuous updates/guidance on vaccine-related developments must be provided to health-care workers.

- This will enable physicians to better guide patients through the vaccine administration/rollout process assist in minimizing stress for physicians during the period of vaccine rollout

**Recommendation:** Health professional associations, respected community-based and nongovernmental groups/organizations should be utilized to disseminate COVID-19 related information because this will help to build public trust in the vaccine.

- Vaccine-hesitant individuals and refusers are often skeptical of government but trust doctors. If doctors and other health-care workers voice confidence in the vaccine, their patients and the public are more likely to do the same.
- Media portrayals depicting health-care workers, other trusted groups/individuals, or prominent public figures receiving and displaying trust in the vaccine will be helpful in increasing uptake and influencing public opinion regarding vaccines

**Recommendation:** Targeted interventions must be developed for populations more at risk for contracting COVID-19 and groups which are more prone to vaccine-hesitancy.

- E.g., parents must be educated regarding the importance of vaccinating themselves and their children (once vaccines are approved for this population)

**Recommendation:** Regular monitoring of vaccine-confidence levels (and dissemination of data to vaccine administrators) is necessary.

- Continuous and sustained monitoring allow for the detection of trends indicating a need for interventions to sustain confidence in the COVID-19 vaccine or identify populations not being vaccinated
- Provision of this data to physicians and other health-care providers to directly address patient concerns and to help explain the benefits of a vaccine in overcoming the pandemic
- Data monitoring of safety, effectiveness and coverage of vaccines in different key populations, as well as effective and efficient immunization of populations in remote and isolated communities is key to an equitable rollout of the vaccine

**Recommendation:** The vaccination experience should be as comfortable and convenient as possible.

- Ensuring that the vaccine is made easily accessible (e.g., timing, location) to the public and that pain/discomfort during administration is minimized will likely increase uptake of the vaccine and reduce fear and anxiety in individuals who are afraid of needles or potential side effects of infections

**Recommendation:** Public education for protective measures including masking, physical distancing and hand and respiratory hygiene must continue. It must encourage people who have been vaccinated to continue these other measures so they can continue protecting those not yet vaccinated.

## Additional Considerations & Next Steps

Beyond the development of this initial strategy for COVID-19 vaccination, all health system partners should collectively explore certain next steps, including security and legitimacy of vaccines, the concept of immunity passports and legal liabilities related to new vaccinations. Given the interest, value and high demand among many for the vaccine, coupled with its gradually available supply, consideration should be given to potential security issues related to the vaccine supply, ensuring that those who deliver, store and administer vaccines are protected and not put at risk. Further, consideration should be given to the potential development and distribution of counterfeit vaccines to protect Ontarians from this potential threat. Safeguarding the security of the supply chain, identifying illicit websites selling fake products and ensuring coordination between law-enforcement and health-regulatory bodies will all play a vital role in ensuring the safety of individuals and the well-being of communities.

The province should also explore and determine the best path forward on the popularly discussed notion of “immunity passports.” They should be examined from ethical and equity lenses, and in recognition of evidence gaps related to long-term immunity conferred by the vaccines. As well, while the vaccines protect individuals from the signs and symptoms of the virus, there is no conclusive evidence

yet that they prevent transmission. Finally, the province should investigate the potential legal liabilities at various levels of the health system and vaccine strategy implementation, given the novelty of these vaccines and their technology. Such investigation could include the exploration of no-fault compensation programs for those who experience serious adverse events following immunization utilized by other jurisdictions including Quebec and the G7 countries (not including Canada).

## Conclusion

As vaccines begin to come available, Ontario must quickly but thoroughly develop a strategy for safe, accessible and equitable vaccine delivery, starting with those most vulnerable and leading to the general population, while prioritizing public education and combatting vaccine hesitancy. It must also factor in the importance of multi-sectoral collaboration within and outside the health system, including community stakeholders who can assist in making vaccination accessible to different populations as well as industry leaders. Consideration must be given to the key and various roles physicians will play in developing and informing a vaccination strategy. Finally, regardless of the specifics of the strategy, it must be nimble and able to adapt to changing evidence and best practices and learn from success and challenges experienced once implemented.

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## Appendix: Excerpt of OMA Recommendations to Ministry of Health on Influenza Immunization

## Vaccine Delivery

**Issue: Physicians experience significant uncertainty around when flu vaccine doses will arrive and how many they will receive This issue is not unique this year, however, it is more challenging due to COVID 19 complexity.**

- This impacts physicians' ability to plan for when they can offer influenza vaccines to their patients and to how many and impacts their ability to schedule larger scale influenza vaccine clinics.
- This is especially problematic this influenza season when influenza vaccination clinics require significantly more advance planning and resources to account for physical distancing and infection prevention and control, and when it is especially important for patients to be vaccinated.
- Several physicians have also noted that there is inconsistent information provided across public health units.
- Some have been informed that pharmacies are being prioritized for flu vaccine this year. While that information has not been provided to the OMA, it is paramount that there be clarity in the messaging across the province, and that all have up-to-date and accurate information.
- We have heard inconsistencies within communities from vaccine providers about their delivery and ordering processes and experiences, especially in terms of ordering the high dose vaccine.

### Short-term recommendations:

- Each practice that has ordered flu vaccine should receive an update on their orders from Public Health Units/the government on:
  - Order status;
  - Expected delivery; and,
  - Expected quantity of standard dose and high dose vaccines to be received.
- The province should support public health units and facilitate this information sharing given the significant strain on public health units in responding to COVID-19.

### Long-term recommendations:

- The province together with public health units should ensure vaccine quantities and their delivery timing are known in advance and sufficient for a provider's patient population.
- The province should explore how physicians inside and outside of the M (City of Toronto) postal code region experience their different ordering and delivery processes, to ensure that primary care providers and patients across the province benefit from the most efficient and effective system for their local/regional needs. We have heard different accounts based on the reason, so to accomplish this goal, public health units across the province could share best practises in regard to the ordering and delivery of vaccinations. Pharmacies and family physicians, pediatricians, and other physicians should begin to receive communication with expected delivery dates of the flu vaccine within a consistent timeframe.

## Traditional Administration

**Issue: Due to the need for more time, more space, more staff, more cleaning supplies, and more PPE, the administration of influenza vaccines in the context of COVID-19 is considerably more resource-intensive than in past years and requires certainty that those resources such as PPE are available.**

- Flu shot delivery requires supplies of PPE and cleaning equipment to ensure infection prevention and control procedures are met.
- Patient screening and post-visit cleaning mean it takes longer to provide a flu vaccine safely.
- Many physicians have limited physical space to allow for adequate physical distancing, which further extends the amount of time required to see even the same number of patients, let alone a greater number given greater patient demand and provincial vaccination targets due to COVID-19.
- Longer hours for staff and/or more staff are required to accommodate the greater time needed per patient, greater patient demand, and higher provincial vaccination targets.
- These resources require additional costs while many physicians already struggled to stay afloat during the pandemic.

Short-term recommendations:

- The province should provide additional and adequate funding to vaccine providers to support the costs of additional staff and/or longer staff hours, of PPE, of cleaning supplies for infection prevention and control, and to account for the additional time required to administer a flu vaccine to a patient.
- One way to implement this, consistent with some other provinces, would be a temporary increase to the administration fee code.

## Innovative Administration Models

**Issue: Given the challenges of flu vaccine delivery, innovative models of delivery are needed, requiring investments of time, funding, resources and personnel.**

- With 55 per cent of vaccines administered by physicians, there is a critical need for funding and resource allocation to support these providers in delivering alternative and innovative models of administration and to support the infrastructure required for such an undertaking.
- While various models have been proposed, implementation requires local and tailored solutions that consider the context of individual providers.

Short-term recommendations:

- The province must provide adequate funding to vaccine providers to support additional staffing, PPE, and infection prevention and control resources required to support innovative models of vaccine delivery such as drive-through clinics:
  - Facilitation of administration of vaccines in outdoor setting (if weather permits), e.g., in provider's parking lot;
  - Additional refrigeration to support cold chain management;
  - Technology to support documentation;

- Establishment of mobile clinics in vans or buses to visit neighbourhoods and administer vaccinations;
  - Establishment of outdoor arenas or tents in which vaccines can be administered on a larger scale and face to face interaction and crowding is limited.
- Public health units must gather the infrastructure required to organize centralized large-scale clinics with adequate support and staffing, to assist primary care providers who are unable to develop their own clinics (e.g., several medical practices operating together to form a joint influenza vaccine clinic with dedicated space and staff).
- The province should support the development of a centralized influenza vaccine clinic database led by public health and supported/staffed by primary care providers who do not have capacity within their own practices to meet the increased demand of patients.

Long-term recommendations:

- Given that the influenza vaccine is widely available through different providers and locations, the province should ensure system supports are in place to promote inter-professional communication and information sharing.