

Recommendations: High-risk Spring 2023 COVID-19 Vaccine Booster Dose Program in Ontario

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Overview

On January 11, 2023, the Ontario Immunization Advisory Committee (OIAC) met to discuss program planning considerations to help inform future planning of the 2023 COVID-19 vaccine program at the request of the Ontario Ministry of Health (MOH).¹ At that time, the OIAC did not feel that detailed recommendations for all of 2023 could be outlined, and planned to revisit this topic in February 2023.

In anticipation of the February 2023 meeting, the MOH requested OIAC address two specific questions related to a potential spring 2023 high-risk booster campaign:

1. Which high-risk groups should be included in a spring high-risk booster campaign?
2. What is the recommended interval between date of last dose or confirmed COVID-19 infection and date of a spring 2023 booster dose?

The OIAC reconvened on February 8 and 22, 2023 to review considerations and evidence to inform recommendations regarding these questions. This document provides a summary of the considerations and OIAC's recommendations.

Recommendations

1. All individuals eligible for a COVID-19 vaccine primary series who have not yet been vaccinated should be vaccinated
2. All individuals eligible for a fall 2022 booster dose who have not yet been vaccinated with their fall 2022 booster should receive it, if it has been at least six months since infection or last vaccine dose
3. In addition, an Ontario spring high-risk COVID-19 booster campaign should target the following high-risk groups:
 - a. Individuals aged 65 years and older
 - b. Residents of long-term care homes, retirement homes, Elder Care Lodges and individuals aged 18 years and older living in other congregate settings that provide assisted-living and health services
 - c. Pregnant individuals
 - d. Individuals aged 18 years and older who are moderately to severely immunocompromised

4. The Ontario Ministry of Health should consult and work in partnership with marginalized communities and groups in Ontario to improve equitable uptake and access to COVID-19 immunization services
 5. A six-month interval is recommended from previous infection or last vaccine dose for the timing of eligibility for an additional dose as part of a spring high risk program
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Summary of Considerations

The OIAC reviewed the COVID-19 vaccine program goals to minimize serious illness and deaths while minimizing societal disruption as a result of the COVID-19 pandemic outlined by the Council of Chief Medical Officers of Health (CCMOH).²

The OIAC also reviewed and discussed current Ontario COVID-19 epidemiology, including:

- variants of concern (VOC)
- risk factors for severe infection, including the importance of age
- bivalent vaccine safety and effectiveness
- hybrid immunity

Additionally, the committee reviewed Ontario COVID-19 vaccine guidance³ and booster dose uptake in the province, as well as immunization advisory committee statements from other jurisdictions, recommendations for past booster dose programs (including Ontario's spring 2022 program which focused on older adults⁴), and current recommendations across jurisdictions for spring 2023 booster doses.

Risk factors for severe disease

- Vaccination continues to play a pivotal role in reducing the risk of severe outcomes due to COVID-19.
- Increasing age continues to be the most important risk factor for hospitalization and death due to COVID-19, including among those who have been vaccinated.⁵⁻⁹ With the highest rates of severe outcomes occurring among older adults⁵, the additional protection provided from a bivalent dose this spring will have the greatest impact in this age group.
- Emerging data demonstrate a difference in vaccine protection against hospitalizations due to COVID-19, including in older adults, by history of past infection.^{10,11} Individuals who have been vaccinated and who have evidence of a past infection (i.e., hybrid immunity) have been shown to have better and more sustained protection against hospitalization relative to those who were vaccinated alone (i.e., without a past history of infection).^{10,11} Among adults in Canada, the proportion of those who have been previously infected with COVID-19 is lowest for adults over 60 years of age, relative to other age groups.¹² As such, the benefit of an additional dose in the spring of 2023 is likely to be greatest among those who have not been previously infected, in particular older adults who are also less likely to have been previously infected.

- Residents of long-term care homes, retirement homes, Elder Care Lodges and individuals living in other congregate settings that provide assisted-living and health services; adults who are moderately to severely immunocompromised; and pregnant individuals have been identified as groups at high-risk of severe outcomes and previous immunization recommendations have highlighted the importance of booster doses in these groups.^{3,6,7,13} Further, the decline in protection offered by the monoclonal antibody product Evusheld (tixagevimab and cilgavimab) in the context of current variants may be an additional consideration for a spring booster dose for immunocompromised populations.^{14,15}

Bivalent vaccine safety and effectiveness

- Bivalent mRNA vaccine products have been shown to have a similar safety profile to original mRNA vaccine formulations with similarly low frequencies of adverse events following immunization. A preliminary signal flagging a possible link between the Pfizer-BioNTech COVID-19 bivalent (BA.4/BA.5) vaccine and ischemic stroke in individuals aged 65 years and older was announced by the United States (US) Centers for Disease Control and Prevention (CDC) and Food and Drug Administration (FDA) in January 2023.^{16,17} This possible signal was based on analyses from one US data system and has not been identified in multiple other vaccine safety surveillance systems used in the US. Further, no other country, including Canada, has identified any similar increased risk of ischemic stroke following bivalent vaccines.¹⁸ The CDC has recommended no change in vaccination practice and continues to recommend that eligible individuals who have not yet received a bivalent mRNA vaccine booster dose, should receive one.¹⁶
- While the effectiveness of COVID-19 vaccines wanes with time, protection against severe outcomes such as hospitalization and death is higher and better-maintained relative to protection against infection.^{10,11,19-23} Another dose of vaccine provides additional protection after time has elapsed since the last dose; this has also been shown for bivalent booster doses.
 - Across jurisdictions, recent data have demonstrated the additional protection against hospitalization gained with a bivalent vaccine, including in periods of Omicron BA.4/BA.5 or BQ.1 dominance. In the United Kingdom, a BA.1-containing bivalent vaccine demonstrated added protection against hospitalization in those aged 50 years and older compared to those with two doses at least six months ago.²⁰ Similarly, additional protection against hospitalization was demonstrated for those receiving a BA.1 or BA.4/5-containing bivalent booster as a fourth dose relative to those who had received three doses only in a study in Nordic countries.²⁴ In the US, the vaccine effectiveness against hospitalization among those who received a BA.4/BA.5-containing bivalent booster was higher compared to those with past monovalent vaccination only.^{25,26}
 - Early estimates of BA.4/BA.5-containing bivalent boosters against XBB/XBB.1.5 symptomatic infection (the variants predicted to be dominant in Ontario in the spring of 2023²⁷) demonstrate added protection relative to those who had received monovalent vaccine doses only; these results were similar to those related to protection against BA.5 symptomatic infection.²⁸ The duration of this additional protection against XBB/XBB.1.5 is unclear, as is protection against XBB/XBB.1.5-related hospitalization.

Implementation considerations related to additional doses

- The majority of the population in Ontario over the age of five years remain eligible for their fall booster dose. As of January 29, 2023, 21.1% of those over the age of five years have received a fall booster dose (i.e., received after September 1, 2022), with uptake increasing with age.²⁹ Only half (54.9%) of those over 80 years of age in Ontario have received a fall booster dose. Overall in Ontario, the vast majority of fall booster doses (94.4%) were a bivalent vaccine product.²⁹
- Coverage within each age group declines with each additional booster dose.^{30,31} Ongoing efforts are needed to improve coverage, as well as equitable uptake and access to COVID-19 immunization services, which should include consultation and partnerships with marginalized communities and groups in Ontario.
- In alignment with immunization technical advisory groups, including Canada's National Advisory Committee on Immunization, and in keeping with immunologic principles, a six-month interval between previous infection or last vaccine dose should be used to inform the timing of spring booster doses.⁶ Extended intervals between doses of COVID-19 vaccines (or infection and vaccination) may result in an improved immune response relative to shorter intervals.^{6,32} Further, a six-month interval will facilitate alignment with a spring 2023 program as the fall 2022 COVID-19 vaccine booster program began in Ontario in September, and may also assist in alignment with any potential fall booster program recommendations that may be made in the future.

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About the Ontario Immunization Advisory Committee

The OIAC is a multidisciplinary scientific advisory body that provides evidence-based advice to Public Health Ontario (PHO) on vaccines and immunization matters including vaccine program implementation in Ontario, priority populations and clinical guidance. The focus of the OIAC's work is on publicly-funded vaccines and immunization programs in Ontario, including COVID-19 and those under consideration for new programming. For more information about the OIAC and its members contact secretariat@oahpp.ca

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