



## COVID-19 Vaccine Boosters

Updated December 2021

### Background

As of the end of November 2021, approximately 81.3% of British Columbians and 79.8% of all Canadians aged five and older have been vaccinated with the recommended two-dose series of a COVID-19 vaccine.<sup>i</sup> Earlier in the year, officials from Pfizer-BioNTech and Moderna, two of the predominant COVID-19 vaccine manufacturers, indicated that additional doses of COVID-19 vaccines would probably become necessary to maintain strong protection against COVID-19 illness over time.<sup>ii</sup> In autumn 2021, the BC Ministry of Health announced that booster doses would soon become available to British Columbians starting in November for higher risk groups, and starting in January 2022 for the rest of the population (aged 12 and over).<sup>iii</sup>

COVID-19 booster doses are distinct from [third doses required in the primary sequence of vaccination for severely immunocompromised individuals](#), which were announced in BC in September.<sup>iv</sup> The third dose in the primary series to immunize immunocompromised individuals is to help foster a comparable level of antibody production in their systems to that of a regularly healthy individual with two doses, while a booster dose is another dose administered to a healthy person who previously received the recommended two doses in the primary series.<sup>v</sup> Provincial Health Officer Dr Bonnie Henry reminded British Columbians that in alignment with basic epidemiology, the longer interval between first and second doses leads to a longer-term immune response.<sup>vi</sup> This remains true for the interval between second doses and booster doses, and as such, British Columbians will be eligible to receive their booster doses six to eight months after the date of their second dose, starting in January 2022.<sup>vii</sup>

Currently older adults aged 70 and over, Indigenous peoples aged 18 and over, residents of independent living, assisted living, or long-term care facilities, and individuals who are considered clinically extremely vulnerable and/or immunosuppressed are eligible to receive their third doses. As well, health care professionals who received their second dose on or before March 15, 2021, and those who received the AstraZeneca vaccine for their previous doses are all invited to receive booster doses.<sup>viii</sup> The same as with second doses, in order to receive a third or booster dose, individuals must be registered in the BC [Get Vaccinated](#) system, and will be contacted when it is their turn to book their vaccination appointment.

Evidence shows that the level of antibody protection from a COVID-19 vaccine may decrease after approximately six to twelve months post-vaccination.<sup>ix</sup> This potential decrease in antibody protection depends on a number of factors including age, the interval between doses, underlying conditions, and much more. COVID-19 vaccine manufacturers Moderna and Pfizer-BioNTech have already begun clinical trials on additional COVID-19 vaccines that are aimed at further protecting against specific variants of the virus, as well as lengthening the duration of protection. Moderna has announced a new version of their mRNA vaccine that has demonstrated an increased antibody response in clinical trials in those who were previously vaccinated with two doses of the original Moderna mRNA vaccine.<sup>x</sup> Although a small study, preliminary results show that those who received the new version of Moderna's vaccine for their third dose had higher levels of antibody protection compared to those who received the original Moderna mRNA vaccine for their third shot.<sup>xi</sup> In April 2021, the CEO of Pfizer announced that it is likely that people will need to get a third dose sometime between six and 12 months after their second dose, followed by one dose annually going forward to protect against possible infection breakthrough.<sup>xii,xiii</sup>

The UK-based research program known as '[COV-Boost](#)' commenced trials in May 2021 on eight different COVID-19 vaccines when given as a third dose.<sup>xiv</sup> The study aims to determine which of the eight vaccines produce the strongest and longest-lasting immune response, and whether or not the general population, those who are immunocompromised, or those who are in other high-risk groups will need to receive any additional doses.<sup>xv</sup> There will still be some time before even initial results can be released, and the full study is expected to take at least one year.



On a more cautionary note, the World Health Organization (WHO) issued a plea to nations with respect to additional COVID-19 shots in early August.<sup>xxvi</sup> WHO Director General Tedros Adhanom Ghebreyesus called for a moratorium on booster doses until at least the end of September 2021 to enable at least 10% of the population of every country to become vaccinated.<sup>xxvii</sup> Additionally, the African Union requested nations with a surplus of vaccine to provide aid by sending some of their vaccine doses to Africa.<sup>xxviii</sup> This is especially important as in November 2021, only 6% of Africa's population of more than 1.3 billion people have been fully vaccinated, with some countries well below even 1% of the population vaccinated.<sup>xxix</sup> As BC nurses are always concerned about the global impact of health policy issues, NNPBC will continue to monitor the wider context within which local policy is being enacted.

Despite this, some international jurisdictions began administering booster doses earlier. In August 2021, the United States announced that they would begin offering booster doses for all individuals who had received their second dose at least eight months prior, beginning in September.<sup>xx</sup> US health officials noted that it is a national responsibility to maintain the maximum level of protection possible in order to stay ahead of potential new COVID-19 variants, and would commence the rollout of booster doses to high-priority groups such as older adults and health care providers, followed by the rest of the population.<sup>xxi,xxii</sup>

Israel authorized the administration of booster doses in July 2021, following preliminary studies which indicated that the effectiveness of COVID-19 vaccines decreased over time.<sup>xxiii</sup> Israel's Ministry of Health announced that the effectiveness of COVID-19 vaccines had started to diminish notably over the course of the year, however, some researchers internationally have questioned the results of this study, as it included a mix of early and late vaccinated individuals, as well as many elderly persons, immunocompromised, and other individuals with underlying health conditions.<sup>xxiv</sup>

Russia also began administering booster doses in July to individuals who had been vaccinated at least six months prior and noted that they would continue to offer boosters every six months until at least 60% of the Russian population was vaccinated.<sup>xxv</sup> This was in response to the surge in COVID-19 cases caused by the Delta variant, however, vaccination rates are extremely low in the country, with only about 16% of the population vaccinated in July 2021.<sup>xxvi</sup>

Several other countries have also reported plans for offering booster doses in the coming months.<sup>xxvii</sup> While some have stated that they will commence with offering third doses in the primary series of immunization for adults with weakened immune systems, others have noted that booster doses will follow shortly after.

While initial COVID-19 vaccination efforts remain underway across Canada, the federal government has made an agreement with Pfizer-BioNTech to receive approximately 30 million booster vaccines in 2022, 30 million in 2023, and 60 million in 2024 in anticipation of additional doses and boosters.<sup>xxviii</sup> Understanding that the science is evolving and that studies are currently underway to determine the necessity of additional COVID-19 shots, we know that the public will be reliant on nurses to help them navigate the evidence interpretation and move forward with confidence when evidence informed protocols become available. Moreover, recognizing that a global pandemic ends only when the majority of the rest of the world is protected is fundamental in global vaccine equity. As always, nurses will beat the ready, ensuring that critical information is communicated to the public, safeguarding the public interest and in recognizing the importance of global vaccine equity.

## Key Messages

- COVID-19 booster doses are different than third doses required for immunocompromised individuals, as booster doses are additional doses provided to the majority of the population who do not have underlying health conditions and have previously received two doses of a COVID-19 vaccine.
- In August 2021, the WHO called for a moratorium on providing COVID-19 vaccine booster shots until at least the end of September, so that more countries could reach at least 10% overall vaccination rates.



- BC's Ministry of Health announced the rollout of booster doses to BC residents in winter 2021/2022, with the majority of the population eligible to receive a booster dose six to eight months after their second dose, starting in January 2022.
- Older adults over the age of 70, Indigenous peoples over the age of 18, individuals living in assisted-living or independent living facilities, as well as those who are clinically extremely vulnerable are eligible to receive their third dose of a COVID-19 vaccine as of fall 2021.
- Nurses are at the forefront of vaccine delivery and will continue to safeguard the public trust by relying on evidence-based protocols, ensuring that critical information is communicated to the public, and in recognizing the importance of global vaccine equity.

### Further Reading/Resources

- [COVID-19 Vaccine Third Doses for Immunocompromised](#)
- [Mandatory Vaccination for Health Care Providers](#)
- [COVID-19 Variants of Concern & Variants of Interest](#)
- [BCCDC: Vaccine Registration and Eligibility – 3<sup>rd</sup> Doses](#)
- [NACI rapid response: Additional dose of COVID-19 vaccine in immunocompromised individuals following 1- or 2- dose primary series](#)
- [Province of BC: COVID-19 Immunization Plan](#)
- [COV-Boost: Evaluating COVID-19 Vaccine Boosters](#)

<sup>i</sup> Little, Noah. COVID-19 Tracker Canada. 2020. Updated 2021. <https://covid19tracker.ca/vaccinationtracker.html>

<sup>ii</sup> Erman, Michael, and Steenhuyzen, Julie. *Reuters*. Pfizer, BioNTech to seek authorization for COVID booster shot as Delta variant spreads. July 9, 2021. <https://www.reuters.com/business/healthcare-pharmaceuticals/pfizer-ask-fda-authorize-booster-dose-covid-vaccine-delta-variant-spreads-2021-07-08/>

<sup>iii</sup> BC Gov News. Provincewide booster dose is next step in COVID-19 immunization plan. Updated October 27, 2021. <https://news.gov.bc.ca/releases/2021HLTH0189-002044>

<sup>iv</sup> Global News. B.C. officials announce severely immunocompromised people will receive third dose of vaccine. September 13, 2021. <https://globalnews.ca/video/8188095/b-c-officials-announce-severely-immunocompromised-people-will-receive-third-dose-of-vaccine>

<sup>v</sup> Global News. *B.C. officials announce severely immunocompromised will receive third dose.*

<sup>vi</sup> Kotyk, Alyse. CTV. 3<sup>rd</sup> doses of COVID-19 vaccine may be rolling out for some B.C. residents this fall, top doctor says. September 1, 2021. <https://bc.ctvnews.ca/3rd-doses-of-covid-19-vaccine-may-be-rolling-out-for-some-b-c-residents-this-fall-top-doctor-says-1.5569581>

<sup>vii</sup> BC Gov. Get your booster dose. 2021. <https://www2.gov.bc.ca/gov/content/covid-19/vaccine/booster>

<sup>viii</sup> BC Gov. Get your booster dose. 2021. <https://www2.gov.bc.ca/gov/content/covid-19/vaccine/booster>

<sup>ix</sup> Khoury, D, Cromer, D, Reynaldi, A, Schlub, T, et al. *Nature*. Neutralizing antibody levels are highly predictive of immune protection from symptomatic SARS-CoV-2 infection. May 17, 2021. <https://www.nature.com/articles/s41591-021-01377-8>

<sup>x</sup> O'donnell, C. *Reuters*. Moderna booster increases antibodies against COVID-19 variants, early data shows. May 5, 2021. <https://www.reuters.com/business/healthcare-pharmaceuticals/moderna-booster-increases-antibodies-against-covid-19-variants-early-data-shows-2021-05-05/>



<sup>xi</sup> O'donnell, C. *Moderna booster increases antibodies against COVID-19 variants, early data.*

<sup>xii</sup> Lovelace Jr, B. *CNBC.* Pfizer CEO says third Covid vaccine dose likely needed within 12 months. April 15, 2021. <https://www.cnbc.com/2021/04/15/pfizer-ceo-says-third-covid-vaccine-dose-likely-needed-within-12-months.html>

<sup>xiii</sup> Zinken, P. *Associated Press/The Conversation.* 3 doses, then 1 each year: Pfizer, not AstraZeneca, is the best bet for the long haul. April 19, 2021. <https://theconversation.com/3-doses-then-1-each-year-why-pfizer-not-astrazeneca-is-the-best-bet-for-the-long-haul-159137>

<sup>xiv</sup> COV-Boost: Evaluating COVID-19 vaccine boosters. U Southampton. 2021. <https://www.covboost.org.uk/>

<sup>xv</sup> COV-Boost. *Evaluating COVID-19 vaccine boosters.*

<sup>xvi</sup> Mishra, Manas, and Nadeem, Dania. *Reuters.* WHO calls for halting COVID-19 vaccine boosters in favor of unvaccinated. August 4, 2021. <https://www.reuters.com/business/healthcare-pharmaceuticals/who-calls-moratorium-covid-19-vaccine-booster-doses-until-september-end-2021-08-04/>

<sup>xvii</sup> Keaten, Jamey. *Associated Press.* Head of UN health agency seeks vaccine booster moratorium. August 4, 2021. [https://apnews.com/article/health-coronavirus-pandemic-united-nations-0e7636c1bcf61e70d9e61ce70300aa78?utm\\_source=Twitter&utm\\_campaign=SocialFlow&utm\\_medium=AP](https://apnews.com/article/health-coronavirus-pandemic-united-nations-0e7636c1bcf61e70d9e61ce70300aa78?utm_source=Twitter&utm_campaign=SocialFlow&utm_medium=AP)

<sup>xviii</sup> Reuters. *Factbox – Countries weigh need for booster COVID-19 shots.*

<sup>xix</sup> Africa CDC. COVID-19 Vaccination: Latest updates from Africa CDC on progress made in COVID-19 vaccinations on the continent. Updated November 24, 2021. <https://africacdc.org/covid-19-vaccination/>

<sup>xx</sup> Associated Press. *CBC.* U.S. health officials recommending all Americans get COVID-19 booster shots. August 18, 2021. <https://www.cbc.ca/news/health/covid-19-booster-recommendation-1.6144867>

<sup>xxi</sup> Associated Press. *U.S. health officials recommending all Americans get COVID-19 booster shots.*

<sup>xxii</sup> US Health and Human Services. *CDC.* Joint Statement from HHS Public Health and Medical Experts on COVID-19 Booster Shots. August 18, 2021. <https://www.cdc.gov/media/releases/2021/s0818-covid-19-booster-shots.html>

<sup>xxiii</sup> Miller, Adam. *CBC.* Why countries are moving so quickly on COVID-19 booster shots – and what Canada should do next. August 21, 2021. <https://www.cbc.ca/news/health/covid-19-vaccine-booster-shots-canada-1.6148232>

<sup>xxiv</sup> Miller, Adam. *Why countries are moving so quickly on COVID-19 booster shots.*

<sup>xxv</sup> Ivanova, Polina, Marrow, Alexander and Kolodyazhnyy, Anton. *Reuters.* Moscow begins booster vaccine campaign as cases surge. July 1, 2021. <https://www.reuters.com/business/healthcare-pharmaceuticals/moscow-begins-booster-vaccine-campaign-russias-covid-19-cases-surge-2021-07-01/>

<sup>xxvi</sup> Ivanova, Polina, Marrow, Alexander and Kolodyazhnyy, Anton. *Moscow begins booster vaccine campaign as cases surge.*

<sup>xxvii</sup> Reuters. *Factbox – Countries weigh need for booster COVID-19 shots.*

<sup>xxviii</sup> Turnbull, S. *CTV.* Ottawa inks deal with Pfizer for millions of COVID-19 booster shots through 2024. April 23, 2021. <https://www.ctvnews.ca/health/coronavirus/ottawa-inks-deal-with-pfizer-for-millions-of-covid-19-booster-shots-through-2024-1.5399696>