COVID-19 Subvariant BA.2.86

October 2023

Background

Since the COVID-19 pandemic was first declared in 2020, we have seen many different strains circulate worldwide, each of which has posed various new threats to the health and wellness of our communities.[i] In July 2023, the earliest documented samples were collected of a new Omicron subvariant, BA.2.86, also unofficially referred to as the 'Pirola' variant, a mash-up of the Greek letters Pi and Rho.[ii] Based on its genetic structure, this subvariant is believed to have developed from the earlier Omicron BA.2 variant which was designated a variant of concern in spring 2022.[iii]

The BC Centre for Disease Control (BCCDC) identified BC's and Canada's first infection caused by subvariant BA.2.86 in August 2023.[iv] While this was the first known case in Canada, the individual had not travelled outside of the Lower Mainland region.[v] Additional infections caused by this variant in Canada have not been confirmed, however, this variant has been reported globally. At least 15 cases were reported across six countries by the end of August,[vi] a number which jumped to 33 cases across 10 countries by September 1.[vii]

The BA.2.86 subvariant is unique in that it has 34 genetic mutations within the spike protein, many of which are considered an 'evolutionary' increase in size compared to its BA.2 parent, in the same way that Omicron was evolutionary in overtaking predecessor Delta variants.[viii] At this time, it is unclear if the BA.2.86 subvariant could be more virulent or transmissible, or if it could overtake the current EG.5 or XBB variants dominating globally. Some preliminary studies conducted by the Swedish Karolinska Institute and by the Harvard Center for Virology and Vaccine Research suggest that BA.2.86 appears to be effectively neutralized by antibody response from up-to-date routine immunization.[ix] In the Karolinska study, researchers tested a BA.2.86 pseudo-virus in random blood samples collected in August 2023 and in samples from September 2022. The researchers found that the pseudo-virus was better neutralized in the more recent 2023 samples, where the individuals had received more recent, updated vaccine boosters to maintain strong antibody response.[x] Additionally, in the Harvard study, researchers tested BA.2.86 immunity response against blood samples from individuals who received a full schedule of COVID-19 vaccines including the mRNA bivalent boosters, and in samples from those who did not receive the most recent bivalent booster. Samples from those who received routine bivalent boosters showed greater protection against BA.2.86 than those who did not.[xi]

As well, preliminary data shared by vaccine manufacturers Moderna and Pfizer show that current COVID-19 vaccines will continue to offer robust, effective protection against circulating variants, including BA.2.86.[xii] Representatives from Moderna stated that the manufacturer will continue to rapidly assess and respond to COVID-19 through the use of its mRNA booster vaccines, and have submitted efficacy reports of the new vaccine to regulators and for peer review.[xiii] This vaccine was approved by Health Canada on September 12.[xiv] Similarly, Pfizer-BioNTech announced that its 2023/2024 vaccine demonstrates clinical efficacy in neutralizing against all XBB and BA circulating variants, including BA.2.86.[xv] The Pfizer-BioNTech vaccine was authorized by Health Canada on September 28.[xvi] A third COVID-19 vaccine manufactured by Novavax is also currently under review by Health Canada.

Particularly as we head into respiratory season this fall, it is important to remain vigilant when using layers of protection to help prevent against unnecessary infection from illnesses such as COVID-19. The vast majority of British Columbians and Canadians have become familiar with routine immunizations as well as wearing masks, washing hands thoroughly and regularly, physical distancing, and staying home when unwell to protect our communities against strains of COVID-19. The BCCDC and the Public Health Agency of Canada will continue to monitor for COVID-19 transmission and developments and provide pertinent resources and updates. The discovery of the BA.2.86 subvariant in BC was a result of this thorough monitoring process, which includes genomic testing, and innovative wastewater surveillance.[xvii]

As leaders in public health and immunization, nurses maintain the public's trust in providing safe, ethical, and evidence-informed care. Nurses are relied upon for the most up-to-date information about COVID-19 variants and immunization and will continue to maintain a preeminent role in COVID-19 response and prevention. As COVID-19 and other viruses circulate this respiratory season and take a toll on an already overwhelmed health system, all BC residents can do their part by using their layers of protection (hand washing, masking, physical distancing, staying home when unwell) and staying up to date with routine immunizations including COVID-19 boosters.

Key Messages

- The Omicron subvariant BA.2.86 was first sequenced in July 2023 and by September 2023 has spread globally.
- Subvariant BA.2.86 is a mutated subvariant of the earlier Omicron BA.2 which spread globally in Spring 2022.
- BC sequenced the first COVID-19 infection caused by BA.2.86 in August 2023, the first confirmed case of this subvariant in Canada.
- As this subvariant is still relatively new, further investigation is needed to determine if it could post additional threats to health and wellness beyond earlier COVID-19 variants.
- COVID-19 vaccines approved for use in Canada continue to be highly effective at providing strong, long-term protection against all variants of COVID-19.
- In addition to immunization, it's important to practice layers of protection to prevent against illness, including hand washing, wearing a mask, physical distancing, staying home when unwell, and keeping up to date with all routine immunizations including those for other viruses.
- Nurses continue to be at the forefront of COVID-19 response, providing safe, ethical, and evidence-informed care.

Resources

- NNPBC: Bivalent COVID-19 Vaccine Boosters
- NNPBC: Why It's Important to Get Your COVID-19 Vaccine Booster
- BC Centre for Disease Control: COVID-19 Variants
- BC Gov News: Joint statement on BA.2.86 variant detected in BC, first in Canada
- Public Health Agency of Canada: SARS-CoV-2 variants: Variants under Monitoring
- UBC News: New variants, new vaccines. Here's what you should know about COVID-19 going into fall.

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[iii] NNPBC. COVID-19 Omicron Subvariant BA.2. Mar 2022.

[iv] BC Gov News. Joint statement on BA.2.86 variant detected in BC, first in Canada. Aug 29, 2023.

[v] BC Gov News. *Joint statement on BA.2.86 variant detected in BC. 2023.*

[vi] Zhang, S. *The Atlantic.* How Bad Could BA.2.86 Get? Aug 29, 2023;

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[ix] Sheward, D, Yang, Y, Westerberg, M, Oling, S, et al. *bioRxiv*. Sensitivity of BA.2.86 to prevailing neutralising antibody responses. Sep 4, 2023.;

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[xi] Lasrado, N, Collier, A, Hachmann, N, Miller, J, et al. *bioRxiv. Neutralization Escape by SARS-CoV-2 BA.2.86. 2023.*

[xii] Advisory Board. *Should you be concerned about BA.2.86? 2023.*

[xiii] Moderna. Moderna Clinical Trial Data Confirm Its Updated Covid-19 Vaccine Generates Strong Immune Response in Humans Against BA.2.86. Sep 6, 2023.

[xiv] BC Gov News. Actions protect people, BC communities this respiratory illness season. Sep 28, 2023.

[xv] Pfizer. Pfizer and BioNTech Receive US FDA Approval for 2023-2024 COVID-19 Vaccine. Sep 11, 2023.

[xvi] BC Gov News. *Actions protect people, BC communities this respiratory illness season. 2023.*;

Health Canada. Health Canada authorizes Pfizer-BioNTech COVID-19 vaccine targeting the Omicron XBB.1.5 subvariant. Sep 28, 2023.

[xvii] BC Gov News. *Joint statement on BA.2.86 variant detected in BC. 2023.*