From:	Michelle Driedger
To:	Henry, Bonnie HLTH:EX; Roussin, Brent (HSAL); jreimer4
Cc:	Young, Amy (HSAL); Thompson, Laurel HLTH:EX; Cindy Jardine; Jordan Tustin
Subject:	RE: COVID 19 Research Project
Date:	August 27, 2021 1:55:34 PM
Attachments:	Project Updates August 2021.docx Focus Groups with Manitobans living with Disabilities_Summary report.pdf Focus Groups with MBs living in Southern Health Region_Summary Report.pdf

Good afternoon to you all,

Please find attached some updates from our COVID-19 research project.

Some very high level take-home messages from our current activities:

s.13; s.17

Attachment 1 – gives you a high-level overview of what we are doing relative to the last report.

Project Updates – August 27, 2021

CIHR 2020-2022: The paradox of Precaution: Examining Public Health COVID-19 Outbreak Management Strategies. Study team: Michelle Driedger, Cindy Jardine, Jordan Tustin, Julianne Sanguins; Knowledge Users: Bonnie Henry (BC), Brent Roussin (MB), Frances Chartrand (Manitoba Metis Federation), Margaret Haworth-Brockman (National Collaborating Centres for Infectious Diseases)

s.13; s.17

s.13; s.17

One paper has been accepted for publication (and will share PDF once we have page proofs):

> Capurro, G, Jardine, CG, Tustin, J, and Driedger, SM. Moral panic about "COVIDidiots" in Canadian newspaper coverage of COVID-19. *PLOS ONE* Accepted August 25, 2021.

Another paper is under review with *Health Communication*.

> Capurro, G, Jardine, CG, Tustin, J and Driedger SM. Communicating scientific uncertainty in a rapidly evolving situation: A framing analysis of Canadian coverage in early days of COVID-19. *Health Communication*. Submitted August 2021 [Had been under review with *Science Communication,* but was rejected. We used reviewer feedback in version submitted to *Health Communication.]*

s.13; s.17

> Publication has been drafted, but is being circulated among co-authors before submitting for peer review.

The Paradox of Precaution: Examining Public Health COVID-19 Outbreak Management Strategies

Focus Groups with Manitobans Living with Disabilities, July 2021

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Research Team

- Dr. S. Michelle Driedger (University of Manitoba; michelle.driedger@umanitoba.ca)
- Dr. Cindy Jardine (University of the Fraser Valley)
- Dr. Jordan Tustin (Ryerson University)
- Dr. Julianne Sanguins (Manitoba Metis Federation)
- Dr. Christine Kelly (University of Manitoba)

Knowledge Users

- Minister Frances Chartrand (Manitoba Metis Federation)
- Dr. Brent Roussin (Provincial Health Officer for Manitoba Health)
- Dr. Bonnie Henry (Provincial Health Officer for BC Ministry of Health)
- Dr. Margaret Haworth-Brockman (National Collaborating Centres for Infectious Diseases)

Study Staff

- Mx. Jennifer Sebring
- Ms. Elizabeth Tingey

Research Funders

This research was funded by a grant from the Canadian Institutes of Health Research (OV6 – 170370).

Research Ethics

Approval for this research was granted by the University of Manitoba Research Ethics Board (Reference number: H2020:510, Linked with H2020:164) and through Ryerson University Research Ethics Board (REB 2020-445).

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Some useful resources and information

In response to some of the questions that participants raised, below is a bit of a summary that was provided at the end of some groups, when time permitted to address some misinformation. It also includes some materials that have been developed by the federal, provincial governments or national/provincial bodies that participants may find helpful.

How vaccines are approved in Canada

Several participants expressed concerns that the vaccines seemed to be developed too fast. In Canada, vaccine approval must undergo a rigorous regulatory process. Health Canada's independent drug review process is recognized globally for its high standards and review based on solid scientific and medical evidence on vaccine safety and effectiveness (how well the vaccine works). The currently approved COVID-19 vaccines in Canada (Pfizer_BioNTech, Moderna, AstraZeneca, Janssen (Johnson&Johnson)) underwent this rigorous review and are approved as safe and effective. The Moderna, AstraZeneca and Janssen vaccines are approved for use in Canadians 18 years of age and older, and the Pfizer-BioNTech vaccine is now approved for Canadians 12 years of age and older.

It is true that developing a new vaccine, and its subsequent approval can take years. However, the time to approval for COVID-19 vaccines progressed more quickly for several important reasons: 1) Advances in science and technology; 2) Extensive international collaboration among scientists, industry, researchers, health professionals and government; and 3) Increased dedicated funding in vaccine development and processes. Health Canada implemented more dedicated scientific resources and a fast-track review process to assess COVID-19 vaccines. The review processes were able to begin immediately and review of any new evidence occurred as soon as it became available, as opposed to waiting for completed studies. This fast-tracked process was done following all the usual rigorous regulatory processes and approval decisions were based on independent evaluation of the scientific data that show the vaccine: 1) is safe, effective and of good quality; and 2) demonstrates that the benefits outweigh the risks.

Large clinical trials are required to determine if vaccines are safe and effective, and there are strict evidence requirements that must be met. Typically, the vaccine development process involves a number of clinical trial phases. For potential COVID-19 vaccines, processes have been fast-tracked to decrease the time between trial phases (thus speeding up development and approvals) without compromising vaccine safety and effectiveness.

There are two categories of COVID-19 vaccines approved in Canada: mRNA and viral vector vaccines. Both the Pfizer-BioNTech and Moderna vaccines are mRNA. These are new types of vaccines that teach our cells to make antigen proteins and trigger an immune response where our bodies will make antibodies and other immune responses once exposed to the virus. mRNA vaccines do not change your body's DNA. The AstraZeneca and Janssen vaccines are viral vector vaccines. A viral-vector vaccine uses a harmless virus, in this case the adenovirus, as a delivery system. Adenoviruses are viruses that cause the common cold. Adenoviruses have been used by vaccine scientists as the delivery mechanism to instruct our body to produce spike proteins responses to the SARS-CoV-2 virus. Spike proteins produced by either mRNA or viral-vectors do not contain the virus and you cannot get infected with COVID-19 from either vaccine type.

Based on evidence from clinical trials on a large number of people, the Moderna vaccine was 94% and Pfizer-BionNtech vaccine was 95% effective in preventing COVID-19 after two doses , For the viral vector vaccines Astrazeneca/COVISHEILD vaccine was 64% after two doses and the Janssen (Johnson &Johnson) vaccine was 66% after one dose. The high efficacy of the vaccines in clinical trials was seen among people of diverse age, sex, race and ethnicity categories and among people with underlying medical conditions. Evidence in older adults (e.g. 85 years and older) and in long-term care facilities is more limited. It is important to note that clinical trials are done differently and cannot be compared to each other, and there is no reason to be concerned about the differences in efficacy among the vaccines. Globally and in Canada, early data suggest the vaccines provide a high level of protection against COVID-19, particularly for severe outcomes such as hospitalization and death. As with any new vaccine, the effectiveness of the vaccines in real-world settings will only be known after widespread use of the vaccine, and the time of protection will not be known for several years and likely vary by vaccine, age, and pre-existing medical conditions. Studies are ongoing to determine the duration of vaccine efficacy and effectiveness. Thus, the degree to which these vaccines provide long-term immunity, and the need (or not) for additional booster vaccines, will be studied and determined in the future.

In Canada, the National Advisory Committee on Immunization (NACI), comprised of various vaccine experts, advises health authorities on the use and safety of vaccines. NACI is evaluating all of the evidence based on ongoing studies on the mixing of COVID-19 vaccines. Based on principles of sound vaccinology, NACI has stated the mRNA vaccines (Moderna and Pfizer) are interchangeable (i.e. can be mixed and matched) as they function in the same way and have very similar efficacy and side effects. Furthermore, there is no reason to believe that mixing/matching of the vaccines would produce any additional safety issues or reduce

protection. NACI has also recommended that those who received AstraZeneca for the first dose should receive an mRNA vaccine for the second dose as preliminary data indicates a stronger immune response from mixing the two vaccines than from two doses of Astrazeneca; however those with two doses of Astrazeneca are considered fully immunized and do not need an additional dose. NACI is currently monitoring the evidence on mixing COVID-19 vaccines and will update any recommendations as needed. Of note, interchanging vaccines is not a new concept and vaccines from different manufacturers have been used in the past for other diseases (e.g. influenza, hepatitis A, etc) when the vaccine supply and/or public health program has changed. *NOTE: If you are interested in reading more on the evidence on mixing doses, there are some references at the bottom.*

Vaccine Safety

The clinical trials found that side effects from the vaccines were mild or moderate, and similar to side effects with other vaccines. These could include symptoms such as pain at the site of injection, body chills, fatigue and mild fever, that do not pose a major risk to health. Health Canada's rigorous review of the COVID-19 vaccines did not identify any major safety concerns. Serious side effects are very rare with any vaccine, but could include an allergic reaction.

Health Canada has processes in place to monitor any real-world adverse effects (for all approved vaccines and medications). Health Canada, along with the Public Health Agency of Canada, the provinces and territories, and vaccine manufacturers closely monitor the safety of COVID-19 vaccines and immediately respond to and assess any safety issues. If any risks arise, Canadians will be informed. For the COVID-19 vaccine rollout, Health Canada has increased: 1) the monitoring and assessment of any emerging safety issues, and 2) Collaboration and information sharing with partners across Canada and globally. The government of Canada is releasing weekly online public reports on any investigations of potential adverse events following immunization (AEFI) that Canadians may have experienced after receiving a COVID-19 vaccine. Very rare serious side effects can be suspected to occur from vaccines in certain populations. As they are very rare, these safety signals are typically not detected until the vaccine has been administered to a significant proportion of that population. If a vaccine is suspected to cause a rare serious side effect, health authority experts conduct a thorough investigation and evaluation of the vaccine and evidence. This can lead to measures such as suspending the use of the vaccine or specific lots of the vaccine while the risk is investigated. Current monitoring data show that the benefits of the vaccines outweigh the risks. This weekly report if found here: https://health-infobase.canada.ca/covid-19/vaccine-safety/.

Evidence on mixing doses (referencing the Spanish and German trials on the topic)

- Summary article from Nature: https://www.nature.com/articles/d41586-021-01359-3
- Summary article from Science Magazine: https://www.sciencemag.org/news/2021/06/mixing-covid-19-vaccines-appears-boost-immune-responses
- Summary article from the Canadian Medical Association Journal: https://www.cmaj.ca/content/193/25/E967

Other Information Resources

Here are some other resources you may find useful.

- **Digital content available for download, printing and sharing**:
  COVID-19: How vaccines are developed (video)
  What you need to know about the COVID-19 vaccine for Canada (fact sheet - multiple languages)
  Vaccine development and approval in Canada (infographic)

- **Key Web-based information in Canada.ca** for overview and detailed information:
  Coronavirus disease (COVID-19) vaccines
  COVID-19 vaccines and Indigenous peoples
  Moderna COVID-19 vaccine: what you should know
  Pfizer-BioNTech COVID-19 vaccine: what you should know
  AstraZeneca COVID-19 vaccine: what you should know
  Janssen COVID-19 vaccine: what you should know
  COVID-19 Vaccine Safety in Canada (online weekly reports)

- **Relevant Manitoba based content**
  Province of Manitoba COVID-19 website (Protectmb.ca)
  Doctors Manitoba website (which has a lot of COVID related information, including an "Ask a doctor a question" feature).

Other helpful sources

- **CanVax is the Canadian Vaccination Evidence Resource and Exchange Centre** which has some COVID-19 resources including some FAQs on the COVID-19 vaccines for healthcare professionals. The content isn't always plain language for general consumption, but for those wanting a greater understanding of the science and what information is being provided health professionals, might find this interesting. https://canvax.ca/covid-19-resources

- **McGill University** is routinely updating a vaccine tracker page about COVID-19 vaccines approved in Canada and elsewhere. https://covid19.trackvaccines.org/vaccines/

Tell us what you think!

If you have any comments that you want to share, things you feel we may not have captured well enough, or even thoughts on the links above that we have shared, please do not hesitate to reach out to the study lead - Dr. Michelle Driedger at the University of Manitoba (michelle.driedger@umanitoba.ca).

Manitoba Southern Health Region Perspectives of COVID-19:
Summary Report of Focus Groups conducted June/July 2021
August 26, 2021
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Research Study Team:

- Dr. Michelle Driedger, Project Lead, Professor, Department of Community Health Sciences at the University of Manitoba
- Dr. Cindy Jardine, Professor, Faculty of Health Sciences, University of the Fraser Valley
- Dr. Jordan Tustin, Assistant Professor, School of Occupational and Public Health, Ryerson University

Principle Knowledge Users

- Dr. Brent Roussin, Chief Provincial Public Health Officer, Manitoba Ministry of Health, Seniors and Active Living
- Dr. Bonnie Henry, Chief Provincial Health Officer, British Columbia Ministry of Health
- Minister Frances Chartrand, Health & Wellness Department, Manitoba Metis Federation
- Dr. Julianne Sanguins, Health and Wellness Department, Manitoba Metis Federation
- Dr. Margaret Haworth-Brockman, Program Senior Manager National Collaborating Centres for Infectious Diseases

Study Staff:

- Dr. Gabriela Capurro, Postdoctoral Fellow, Department of Community Health Sciences, University of Manitoba
- Ms. Rachel Ringgold, MSc student and Graduate Student Research Assistant, Department of Community Health Sciences, University of Manitoba
- Ms. Bethany Berard, PhD Candidate and Graduate Student Research Assistant, School of Journalism and Communication Studies, Carleton University
- Mr. Ryan Maier, Qualitative Research Analyst, Department of Community Health Sciences, University of Manitoba

Research Funders: This research was funded by a grant from the Canadian Institutes of Health Research (OV6 – 170370).

Research Ethics: Approval for this research was granted by the University of Manitoba Health Research Ethics Board (H2020:510 linked to H2020:164) and the Research Ethics Board of Ryerson University (2020:445).

Report Citation: Driedger, SM, Jardine, CJ, and Tustin, J. 2021. *Manitoba Southern Health Region Perspectives of COVID-19: Summary Report of Focus Groups*. Winnipeg: University of Manitoba. For more information contact: michelle.driedger@umanitoba.ca

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Other Information Resources

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s.13; s.17

Apologies for the long message on a Friday afternoon. I hope you are all able to enjoy a bit of a rest this weekend.

Michelle

S. Michelle Driedger (wiya/she/her/elle), PhD
Professor
Department of Community Health Sciences
Max Rady College of Medicine
Rady Faculty of Health Sciences
University of Manitoba
S113-750 Bannatyne Avenue
Winnipeg, MB R3E 0W3

Tel: 204-789-3936

Daañ lii Michif leu teeraeñ d'niikinaahk eekwaa Daañ lii Anishinaabeg, lii Krii, lii Oji-Krii, lii Syoo pi lii Dene nishtam leu peeyii, lii kampoos d'yuniversitii di Manitoba ashteewa.

The University of Manitoba campuses are located on original lands of Anishinaabeg, Cree, Oji-Cree, Dakota, and Dene peoples, and on the homeland of the Metis Nation.

Project Updates – August 27, 2021

CIHR 2020-2022: The paradox of Precaution: Examining Public Health COVID-19 Outbreak Management Strategies. Study team: Michelle Driedger, Cindy Jardine, Jordan Tustin, Julianne Sanguins; Knowledge Users: Bonnie Henry (BC), Brent Roussin (MB), Frances Chartrand (Manitoba Metis Federation), Margaret Haworth-Brockman (National Collaborating Centres for Infectious Diseases)

Focus Groups:

Web-Evaluation of Public Health Vaccine Communication

In July 2021 – we have started conducting an evaluation of web-based public health communication with participants. We started in Winnipeg. While we learned a great deal from the experience, it involved people who had already made a decision to get a vaccine.

So we have pivoted our focus for Toronto and Vancouver to tap into vaccine hesitant participants, to see how helpful these websites in terms of providing information that these participants may be looking for. We are specifically targeting:

- Parents who have not yet opted to have their age-eligible child between 12-17 to get a first dose of vaccine
- People between the ages of 18-39 that have not yet opted to get a first dose
- We will also incorporate in these groups an assessment of a smaller number of people who have accepted COVID-19 vaccines.

Websites to be reviewed:

Winnipeg, MB:

- Government of Manitoba COVID site - https://protectmb.ca;
- Doctors Manitoba COVID site - https://www.manitobavaccine.ca;
- A public facing US site (https://getvaccineanswers.org/);

Toronto, ON:

- Government of Ontario COVID site - https://covid-19.ontario.ca/index.html;
- Toronto Public Health COVID site - https://www.toronto.ca/home/covid-19;
- A public facing US site (https://getvaccineanswers.org/)

Vancouver, BC:

- Government of BC COVID page - https://www2.gov.bc.ca/gov/content/covid-19/info/response;
- Immunize BC - https://immunizebc.ca;
- A public facing US site (https://getvaccineanswers.org/);

Public Perspectives of COVID-19 Public Health Management and Attitudes to Vaccines

In June and July 2021 – we conducted gender and age segregated (18-34, 35-54, 55+) focus groups in the Southern Health Region. A copy of this summary report with executive summary is attached with this update.

In May and July 2021 – we conducted focus groups with men and women living with disabilities in Manitoba. We recruited broadly for a diverse set of disability experiences (visually impaired, hearing

impaired including d/Deaf, cognitive impairments, physical impairments, mental health conditions). Groups were not segregated by disability, although one focus group was advertised with American Sign Language (ASL) translation to ensure that participants requiring ASL selected that group. A copy of this summary report with executive summary is attached with this update.

In December 2020, we did age-segregated (18-34, 35-54, 55+) gender balanced focus groups in 4 cities: Vancouver, Winnipeg, Ottawa, Toronto. These occurred between Dec 8-22. A copy of this summary report with executive summary was shared in March 2021.

Metis Engagement:
With COVID, we aim to have Manitoba Metis be invited to participate in a survey (using the citizenship database at the Manitoba Metis Federation), with opportunities to self-select to participate in future focus groups or individual interviews. Engagement has been ongoing since July 2020 and working through Data Sharing Agreements. **Update –** We now have a fully executed data sharing agreement and can begin data collection.

Media Analysis (Only minor updates since last report in March)
Summary: we have been reviewing news media (Globe & Mail, National Post, Vancouver Sun, Winnipeg Free Press, Toronto Star, Ottawa Citizen, Montreal Gazette) in Wave 1 to look at how the issue of scientific uncertainty was managed by the media across 6 topics: travel and quarantine, social distancing, face masks, epidemiological modeling, testing, and airborne transmission.

One paper has been accepted for publication (and will share PDF once we have page proofs):

> Capurro, G, Jardine, CG, Tustin, J, and Driedger, SM. Moral panic about "COVIDidiots" in Canadian newspaper coverage of COVID-19. *PLOS ONE* Accepted August 25, 2021.

Another paper is under review with *Health Communication*.

> Capurro, G, Jardine, CG, Tustin, J and Driedger SM. Communicating scientific uncertainty in a rapidly evolving situation: A framing analysis of Canadian coverage in early days of COVID-19. *Health Communication*. Submitted August 2021 [Had been under review with *Science Communication,* but was rejected. We used reviewer feedback in version submitted to *Health Communication.]*

Last, on the media analysis front, we are analyzing the visual communication messaging through YouTube videos of press briefings – where we are examining how news media are working with concepts of scientific uncertainty discussed during briefings and then filtered through news reporting. We are also looking at different communication styles by the dominant communicators in BC, MB, ON and federally, particularly concerning epidemiological modeling data.

> Publication has been drafted, but is being circulated among co-authors before submitting for peer review.

RE: Second Dose

From: Brodkin, Elizabeth Dr. [FH] <Elizabeth.Brodkin@fraserhealth.ca>
To: Penny Ballem <pballem@telus.net>, Henry, Bonnie [EXT] <bonnie.henry@gov.bc.ca>, Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>, XT:Ballem, Penny HLTH:IN <pballem@telus.net>, Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Cc: Liz Iseli <liz.iseli@outlook.com>
Sent: September 20, 2021 4:01:36 PM PDT

Hi Penny,

Our AEFI team will reach out to the family, take a history and enter the information into Paris then review the case through the usual mechanisms and issue a recommendation. We will prioritize the follow-up based on the run-around they have already experienced. However the team has asked me to flag that there is a well-established process in BC for following up AEFI's and getting a recommendation for future doses, starting with reporting by the primary care provider, following the process outlined on the BCCDC COVID resource page. It is disappointing that none of the people the family reached out to were able to point them in the right direction (including some within FH). Anything we can do to promote this existing process?

EB

Dr. Elizabeth Brodkin, MD, FCFP, MHSc, FRCPC
Vice President Population Health and Chief Medical Health Officer
Fraser Health
Phone: (604) 307-4928

Executive Assistant
Courtney.Morimoto@fraserhealth.ca

We recognize Fraser Health provides care on the unceded and traditional homelands of the Coast Salish and Nlaka'pamux Nations

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From: Penny Ballem <pballem@telus.net>
Sent: Saturday, September 18, 2021 9:08 PM
To: Brodkin, Elizabeth Dr. [FH] <Elizabeth.Brodkin@fraserhealth.ca>; Henry, Bonnie [EXT] <bonnie.henry@gov.bc.ca>; Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>
Cc: Liz Iseli <liz.iseli@outlook.com>
Subject: RE: Second Dose

Thanks Elizabeth – can you let me know what happens so we can close the file – thanks very much pb

Penny Ballem MD FRCP FCAHS
Mobile s.17

From: Brodkin, Elizabeth Dr. [FH] <Elizabeth.Brodkin@fraserhealth.ca>
Sent: Saturday, September 18, 2021 10:28 AM
To: Henry, Bonnie [EXT] <bonnie.henry@gov.bc.ca>; Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>
Cc: XT:Ballem, Penny HLTH:IN <pballem@telus.net>
Subject: RE: Second Dose

We will reach out to the family.

Dr. Elizabeth Brodkin, MD, FCFP, MHSc, FRCPC
Vice President Population Health and Chief Medical Health Officer
Fraser Health
Phone: (604) 307-4928

Executive Assistant
Courtney.Morimoto@fraserhealth.ca

We recognize Fraser Health provides care on the unceded and traditional homelands of the Coast Salish and Nlaka'pamux Nations

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From: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent: Saturday, September 18, 2021 9:29 AM
To: Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>; Brodkin, Elizabeth Dr. [FH] <Elizabeth.Brodkin@fraserhealth.ca>
Cc: XT:Ballem, Penny HLTH:IN <pballem@telus.net>
Subject: Fwd: Second Dose

Could someone follow up with this family?
Thanks

Dr Bonnie Henry
Provincial Health Officer
Ministry of Health
Bonnie.henry@gov.bc.ca
s.17; s.19

Begin forwarded message:

> **From:** s.22 >
> **Date:** September 18, 2021 at 9:18:53 AM PDT
> **To:** "Henry, Bonnie HLTH:EX" <Bonnie.Henry@gov.bc.ca>
> **Subject: Second Dose**
>
> [EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.
>
> Hi Dr. Henry,
>
> The reason I am emailing you is in regards to my daughter, s.22 .
>
> s.22
>
> At the time, we were advised not to get the second dose for s.22 but now that recommendation seems to have changed because of the required passports.
>
> I've called our family doctor, Get Vaccinated, the Covid Hotline, local Health Units, 811, Urgent Primary Care, Healthlink BC, Fraser Health, a walk-in clinic, a pharmacy, and the family vaccine

clinic at BC Children's Hospital. We also went to the Covid facility in s.22 and they turned us away. Nobody has been able to give us an answer as to what to do for s.22 which is why I am sending you this email.

How should we handle this situation?

Please let me know.

Thank you,
s.22

Sent from my iPhone

From: Naus, Monika [BCCDC]
To: Henry, Bonnie HLTH:EX
Cc: Gustafson, Reka HLTH:IN; Lavoie, Martin HLTH:EX
Subject: myocarditis differential b/w Pfizer and Moderns in BC data and national CAEFISS data
Date: September 20, 2021 4:37:27 PM
Attachments: Agenda+item+4_DATA2021_09_16_Myocarditis.pptx

Hi Bonnie

In the interest of keeping you informed about the differential rates we are seeing in the AEFI data with respect to myocarditis reports following the mRNA vaccines, I've enclosed the most recent information presented to the Vaccine Vigilance Working group (vaccine safety F/P/T group) by PHAC, which is showing in the national CAEFISS data an emerging large differential with higher rates among Moderna recipients compared to Pfizer. Pfizer rates are tracking BELOW expected based on background rates of myocarditis, while Moderna are appreciably above, with a higher rate after dose 2. Slide 5 has a graphic illustration of the rates in males by age group and product, and slide 6 the same information for females. PHAC are planning to write this up for publication.

Our BC rates based on passive surveillance data to last week are below, and we will continue to update this information. The events below are as reported (i.e., physician diagnosed) and while we are doing Brighton case definition leveling for the purpose of reporting in the weekly report, all reported cases associated with mRNA vaccines were used for the tables below. About 63% of reported cases meet Brighton levels 1-3 (for one of: myo/peri/myoperi).We are seeing the same pattern as evident in the national and Ontario /other data sets with higher rates for males, 2nd dose, Moderna, although our numbers (given our population) are small and our confidence intervals wide. Similar information is evident in the analysis of the administrative data linked to the immunization registry data (summarized for PHEC last week, not shown below) which we will continue to refine.

We don't expect that there will be solid information on this for the 5-11 yos at the time the vaccines are approved for this age, and are engaged with others about studies to examine severity and long term outcomes as these will be important considerations informing the benefit/ risk discussion, regardless of which mRNA vaccine is considered.

BC Centre for Disease Control

Number of Myocarditis/Pericarditis reports

accine / Dose		Age (years)					
		12-17	18-24	25-29	30-39	40+	All Ages
erna mRNA-1273	**N (% Total)**	**0**	**9 (10.2%)**	**5 (5.7%)**	**7 (8%)**	**13 (14.8%)**	**34 (38.6%)**
Dose 1	N (% Total)	0	2 (2.3%)	1 (1.1%)	3 (3.4%)	5 (5.7%)	11 (12.5%)
Dose 2	N (% Total)	0	7 (8.0%)	4 (4.5%)	4 (4.5%)	8 (9.1%)	23 (26.1%)
mRNA BNT162b2	**N (% Total)**	**9 (10.2%)**	**9 (10.2%)**	**3 (3.4%)**	**9 (10.2%)**	**24 (27.3%)**	**54 (61.4%)**
Dose 1	N (% Total)	5 (5.7%)	3 (3.4%)	1 (1.1%)	7 (8.0%)	17 (19.3%)	33 (37.5%)
Dose 2	N (% Total)	4 (4.5%)	6 (6.8%)	2 (2.3%)	2 (2.3%)	7 (8.0%)	21 (23.9%)

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Canada

Update on Myocarditis/Pericarditis in Canada
CONFIDENTIAL

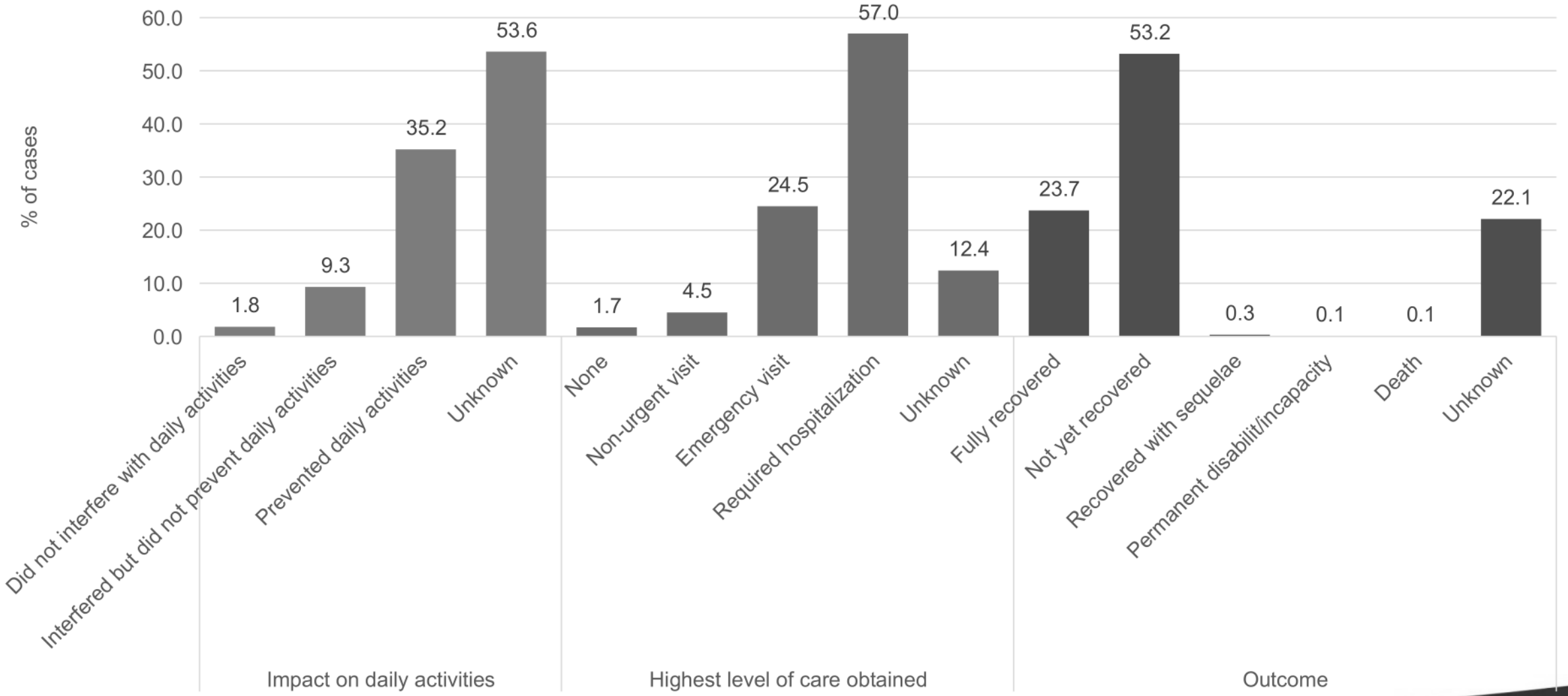
September 16, 2021Vaccine Safety Surveillance Division

PROTECTING AND EMPOWERING CANADIANS
TO IMPROVE THEIR HEALTH

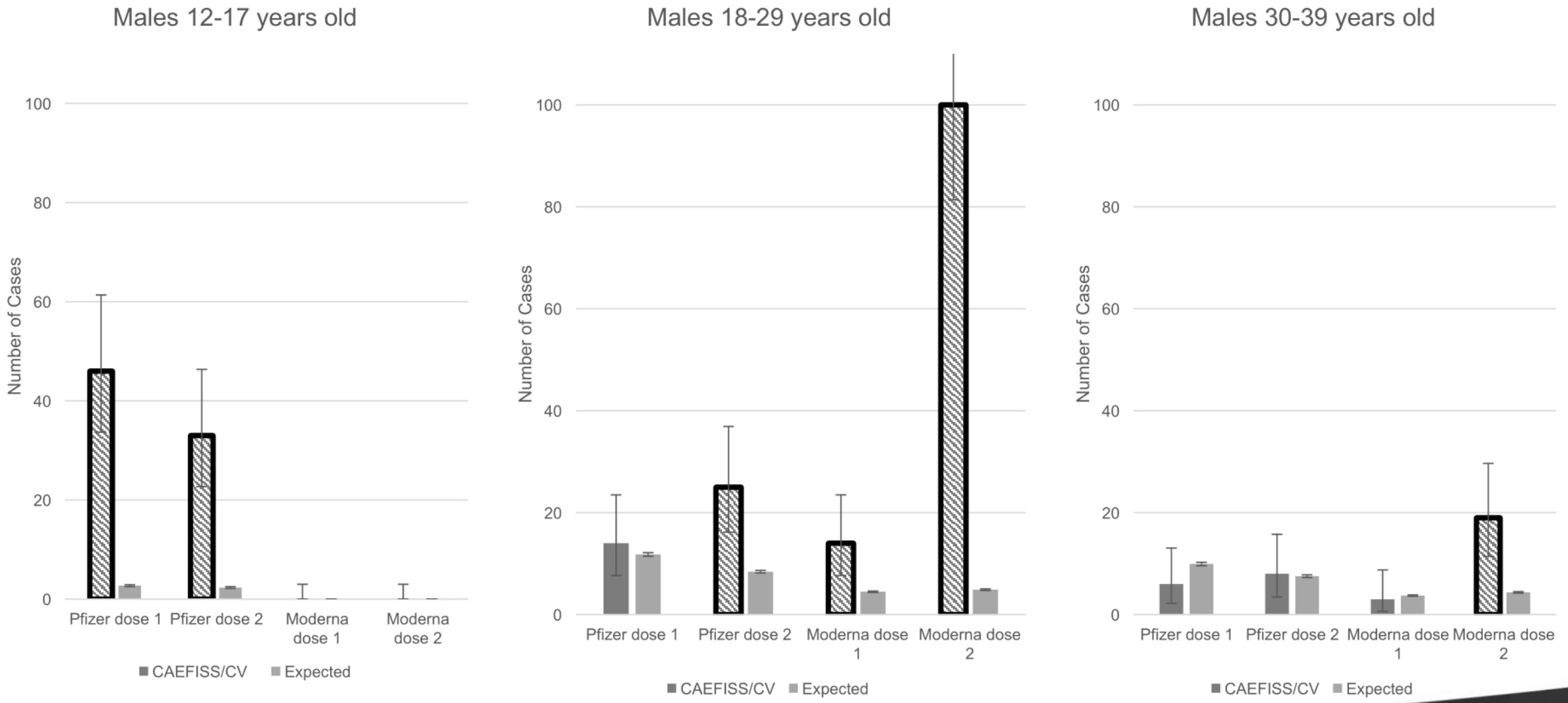
Myocarditis/pericarditis in Canada *up to September 10, 2021*

	All cases		Time at risk = 7 days		Time at risk = 21 days	
	Number of cases	**Rate per 100,000 doses administered**	**Observed**	**Expected**	**Observed**	**Expected**
Pfizer/BioNTech	176 following dose #1183 following dose #2Total: 408 cases	0.87 for dose #1 1.06 for dose #21.08 for both doses	230 (201.23 - 261.72)	245.75 (237.35 - 254.4)	303 (269.84 - 339.11)	729.87 (704.95 - 755.52)
Moderna	59 following dose #1199 following dose #2Total: 290 cases	1.04 for dose #12.66 for dose #22.17 for both doses	**232 (203.10 - 263.85)**	**89.27 (86.32 - 92.3)**	260 (229.35 - 293.60)	264.95 (256.19 - 273.94)
COVISHIELD/ AstraZeneca	15 following dose #13 following dose # 2Total: 18 cases	0.68 for dose #10.53 for dose #20.65 for both doses	8 (3.45 - 15.76)	20.17 (19.51 - 20.85)	13(6.92-22.23)	60.49 (58.5 - 62.53)
Unknown	**2 cases**	NA	NA	NA	NA	NA

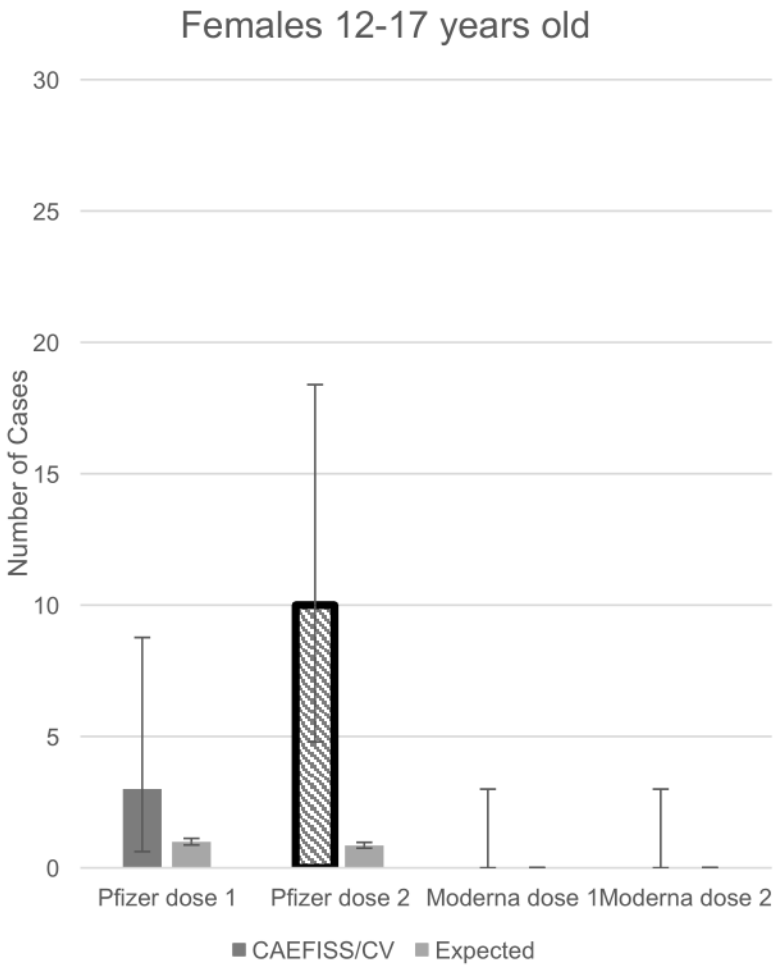
Impact, care obtained and outcomes of myocarditis/pericarditis in Canada *up September 10, 2021*

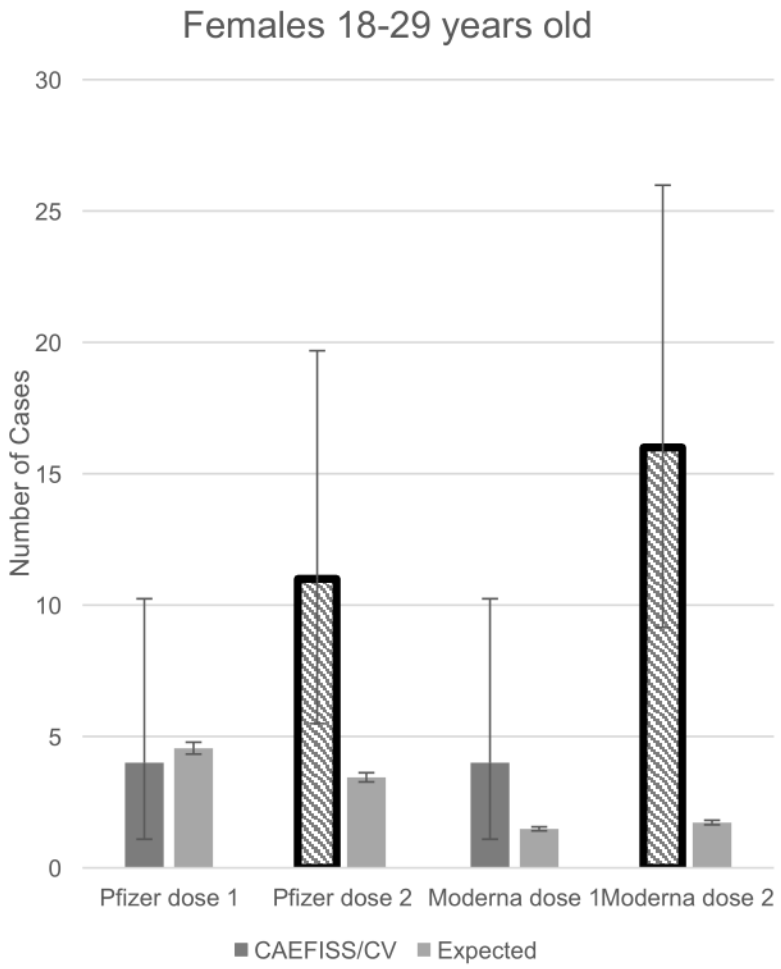


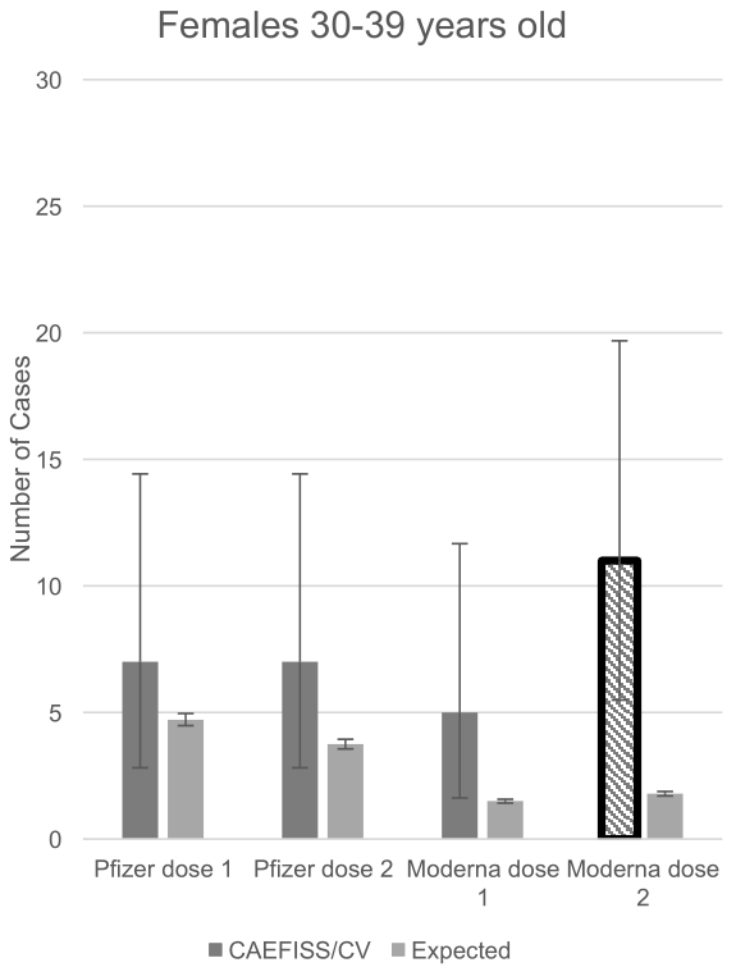
Observed Expected Analysis for Myocarditis/Pericarditis in Males by Age - 7 day time at risk



Observed Expected Analysis for Myocarditis/Pericarditis in Females by Age - 7 day time at risk







Summary

- The observed number of reports of myocarditis/pericarditis cases following Pfizer-BioNTech vaccination is lower than expected for 7 and 21 days at risk for all ages/sexesHowever, rates are significantly higher than expected for:Males 12 to 17 following dose #1 (7days) Males and Females 12 to 17 following dose #2 (7 and 21 days)Males and Females 18 to 29 following dose #2 (7 days)The observed number of reports of myocarditis/pericarditis following Moderna vaccination is significantly higher than expected for all ages/sexes for 7 days at risk only (not 21 days at risk)As well, rates are significantly higher than expected: Males 18 to 29 following dose #1 (7 days)Males and Females 18 to 29 following dose #2 (7 and 21 days)Males and Females 30 to 39 following dose #2 (7 days)Manuscript in process to have results more widely available

Acknowledgements

Vaccine Safety Surveillance:Natalia AbrahamSarah SpruinTheresa ProcterChristine BlaserTanya RossiAnita AmpaduKarin JohnsonShinthuja WijayasriHana OgasawaraNACI secretariatJoseline Zafack

Footnotes for Observed Expected analysis

- Only cases with vaccine trade name, age, sex, and time to onset were included in the observed counts. Reports were excluded if time to onset was greater than 7 days for a time at risk of 7 days. Consumer reports with a BCD level of 4 (n=40) were excluded. Based on broad observed/expected definition. Broad definition includes the following ICD-10-CA codes: I01.0 (Acute rheumatic pericarditis), I01.2 (Acute rheumatic myocarditis), I09.0 (Rheumatic myocarditis), I09.2 (Chronic rheumatic pericarditis), I30.x (Acute pericarditis), I31.x (Other diseases of the pericardium), I32.x (Pericarditis in disease classified elsewhere), I40.x (Acute myocarditis), I41.x (Myocarditis in disease classified elsewhere),I51.4 (Myocarditis, unspecified).Most recent doses administered data as of September 4, 2021. For the dose specific analyses, doses administered from QC as of September 5, 2021 were used. The doses administered used for the dose-specific analyses may be underreported as the following doses were excluded: 1. Doses with missing age and/or sex. 2. Doses administered by the CAF or CSC. Observed data as of September 10, 2021 95% confidence intervals for observed events were calculated using the Poisson exact method. MaxSPRT methods were run on cells where the observed count was found to be significantly greater than the expected count at the 5% significance level in order to account for the sequential nature of the analysis. Bolded bars indicate when the observed count is significantly greater than the expected count and this difference holds at the 1% significance level using MaxSPRT.Please note: Parts of this material are based on data and information compiled and provided by CIHI. However, the analyses, conclusions, opinions and statements expressed herein are those of the author, and not necessarily those of CIHI.Source: Discharge Abstract Database and National Ambulatory Care Reporting System, Canadian Institute for Health Information, Fiscal years 2014-2019; Canadian COVID-19 Vaccination Coverage Surveillance System (CCVCSS); INSPQ; CAEFISS database, Canada Vigilance database.

Total	**N (% Total)**	**9 (10.2%)**	**18 (20.5%)**	**8 (9.1%)**	**16 (18.2%)**	**37 (42%)**	**88 (100%)**

Total = 88 reports of myocarditis/pericarditis. Data taken from Panorama up until 14th September, 2021.

Rates of Myocarditis/Pericarditis Reports:

Vaccine / Age Group (years)	Overall Reporting Rate* (95% CI)	
Pfizer	**Dose 1**	**Dose 2**
12-17	20.6 (9.1-42.2)	19.4 (7.9-42.5)
18-24	11.4 (4.1-27.4)	27.3 (12.8-53.1)
25-29	4.6 (1.1-16.8)	10.7 (3.3-29.8)
30-39	16 (7.9-29.9)	5.3 (1.7-14.9)
40+	9.9 (6.2-15.2)	4.8 (2.3-8.9)
Moderna	**Dose 1**	**Dose 2**
12-17	0 (0-0)	0 (0-0)
18-24	20.8 (6.4-58.1)	88.4 (43.6-164.9)
25-29	12 (2.9-44.3)	56.2 (22.8-123.1)
30-39	17.1 (6.2-41.2)	26.8 (10.9-58.8)
40+	8.2 (3.6-16.8)	13.6 (7-24.6)

* Rates calculated per 1 million doses administered. Data taken from Panorama up until 14th September, 2021. These rates were calculated from reports of myocarditis/pericarditis without accounting for Brighton Collaboration levels. The latest BCCDC Weekly COVID-19 AEFI Report (on September 9, 2021) specifies that ninety-four percent of myocarditis reports met the Brighton Collaboration diagnostic criteria for level 1, 2, or 3. Forty-six percent of pericarditis reports met the Brighton Collaboration diagnostic criteria for level 1, 2, or 3. And sixty-eight percent of myopericarditis reports met the Brighton Collaboration diagnostic criteria for level 1, 2, or 3 for either myocarditis or pericarditis.

Thank you,
Monika

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I gratefully acknowledge that I live on the territory of the Coast Salish Peoples.

BC Weeky ADVERSE Reactions To Covid19 Jabs

From:	s.22
To:	Bonnie.Henry@gov.bc.ca, ProvHlthOffice@gov.bc.ca, Adrian Dix <HLTH.Minister@gov.bc.ca>, John Horgan.MLA <John.Horgan.MLA@leg.bc.ca>, Ravi Kahlon.MLA <Ravi.Kahlon.MLA@leg.bc.ca>, Prov Hlth Office HLTH:EX <ProvHlthOffice@gov.bc.ca>, Horgan.MLA, John LASS:EX <John.Horgan.MLA@leg.bc.ca>, Kahlon.MLA, Ravi LASS:EX <Ravi.Kahlon.MLA@leg.bc.ca>, Minister, HLTH HLTH:EX <HLTH.Minister@gov.bc.ca>, Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent:	September 25, 2021 7:25:30 AM PDT
Attachments:	COVID19_AEFI_Weekly_Report_2021-09-23.pdf

http://www.bccdc.ca/Health-Info-Site/Documents/COVID-19_vaccine/AEFI_reports/COVID19_AEFI_Weekly_Report_2021-09-23.pdf

British Columbia Report

Adverse Events Following Immunization with COVID-19 Vaccines

December 13, 2020 to September 18, 2021

This report summarizes the reports of COVID-19 vaccine adverse events following immunization (AEFI) reported to the BC Centre for Disease Control up to and including September 18, 2021. Please refer to the BCCDC website for reporting guidelines.[1] Events can be reported even when there is no certainty of a causal association. Please refer to the Data Notes section at the end of this report for additional information on the source data.

Summary

The COVID-19 vaccines demonstrated safety in clinical trials prior to authorization for use and in worldwide use.[2-4] During post-marketing surveillance, larger numbers of individuals are vaccinated, and this allows for detection of rare events undetected in clinical trials.

Anaphylaxis and allergic events are the most frequently reported events following all of the COVID-19 vaccines. About half of the cases managed as anaphylaxis had lower level of diagnostic certainty and may reflect events such as anxiety or pre-syncopal (fainting) events managed as anaphylaxis out of an abundance of caution.

In association with the mRNA vaccines, Canada and BC are monitoring the occurrence of myocarditis and pericarditis. This association was first recognized in Israel and the USA in young adults and adolescents, and has now also been seen in other countries.[5-7,22,23]

There have been four reports of thrombosis with thrombocytopenia syndrome reported in BC to date in association with over 350,000 doses of the ChAdOx1 (chimpanzee adenovirus vector vaccines AstraZeneca/COVISHIELD) administered. This syndrome was identified in March in Europe in association with the AstraZeneca vaccine, with a small number of cases accumulating in Canada associated with use of these vaccines; the rate of occurrence has been estimated at about 1 in 67,000 recipients following the first dose and 1 in 500,000 following the second dose.[8,9,22]

Background

AEFIs are reportable by health care providers to the local medical health officer under the regulations of the Public Health Act. Detailed reporting guidelines are available in the BC Immunization Manual.[10] When an AEFI report is received at a local public health unit, it is reviewed and reported in the public health information system aligned with the immunization registry which contains the information about the vaccine(s) administered on a specific date. Recommendations for further assessment and future doses are made by the medical health officer or designated public health professional. Expected side effects such as pain, redness, and swelling at the injection site which are commonly observed with many vaccines are not reportable as AEFI unless these meet specific severity thresholds.

AEFI reports are further investigated provincially with particular focus on serious AEFI and detection of potential safety signals (e.g., clusters of events, event rates occurring at a higher than expected frequency compared to background rates, or rare events with previously unknown association with vaccination). Additionally, BC submits AEFI reports to the Canadian Adverse Event Following Immunization Surveillance System where additional review and analysis for potential safety signals is performed at the national level.[11] The Public Health Agency of Canada also produces a weekly COVID-19 AEFI report.[12]

Definitions

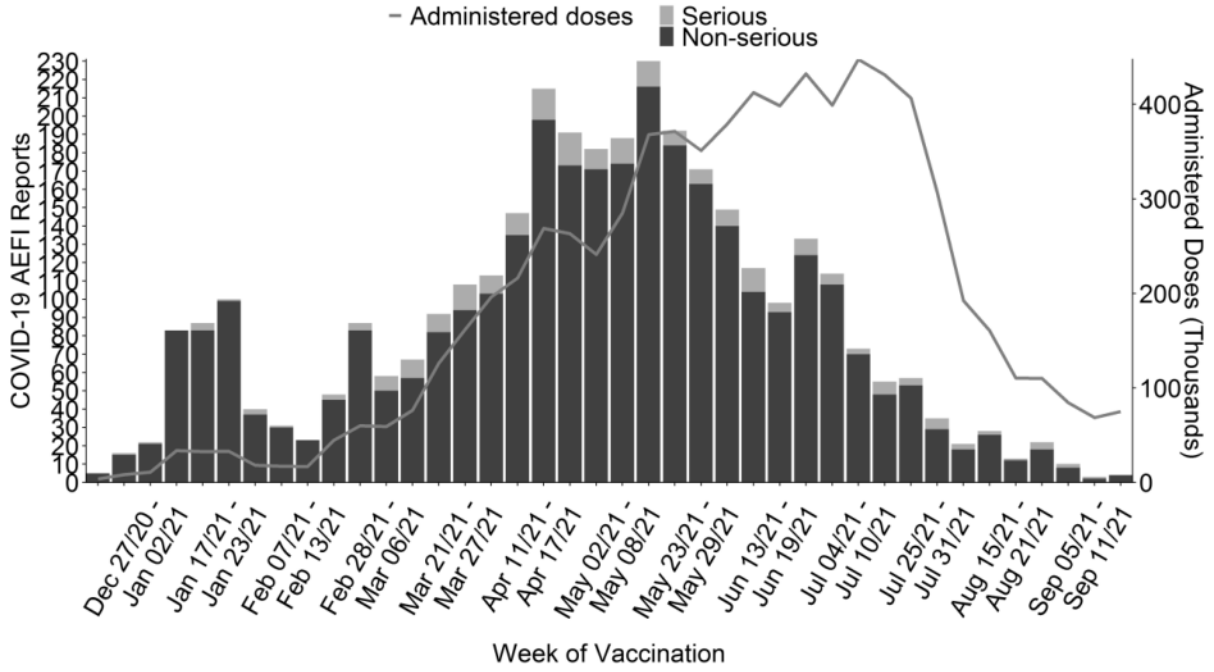
1. **Adverse event following immunization (AEFI)** - Any untoward medical event following immunization that is temporally (i.e., occurs within a biologically plausible timeframe after receipt of vaccine) but not necessarily causally associated.[13]
2. **Serious AEFI** - For the purpose of this report, a serious AEFI is one that resulted in hospitalization or a prolongation of hospitalization, permanent disability/incapacity, or death.

Key Findings

- As of September 18, 2021, there have been 7,679,036 COVID-19 vaccine doses administered in BC and 3,428 COVID-19 AEFI reports (44.6 reports per 100,000 doses administered)
- 247 reports (7.2%) met the serious definition, for a rate of 3.2 per 100,000 doses administered
- The most frequently reported events were other allergic event, anaesthesia/paraesthesia, and injection site pain/swelling/redness

Summary of AEFI Reports

Figure 1: Adverse event reports following receipt of a COVID-19 vaccine by week of vaccination, BC, Dec. 13, 2020 - Sep. 18, 2021 **(N=3,428)**



COVID-19 vaccinations of British Columbians began the week of December 13, 2020, and up to and including September 18, 2021, a total of 7,679,036 doses have been administered. During this period, there have been 3,428 AEFI reports following a COVID-19 vaccine, for a reporting rate of 44.6 reports per 100,000 doses administered (Table 1). Reports are delayed beyond the week of vaccination because of time to onset that varies by event and associated time to receive, investigate and process a report for submission. Weekly report counts, especially for recent weeks, are expected to increase over time as these are submitted, but Figure 1 shows that reports have declined as the immunization campaign has progressed, even as the doses administered have continued to increase. This is because the AEFI reporting rate associated with second doses of all COVID-19 vaccines administered has been substantially lower than the rate associated with the first dose.

Table 1: Description of adverse event reports following receipt of a COVID-19 vaccine, BC, Dec. 13, 2020 - Sep. 18, 2021 **(N=3,428)**

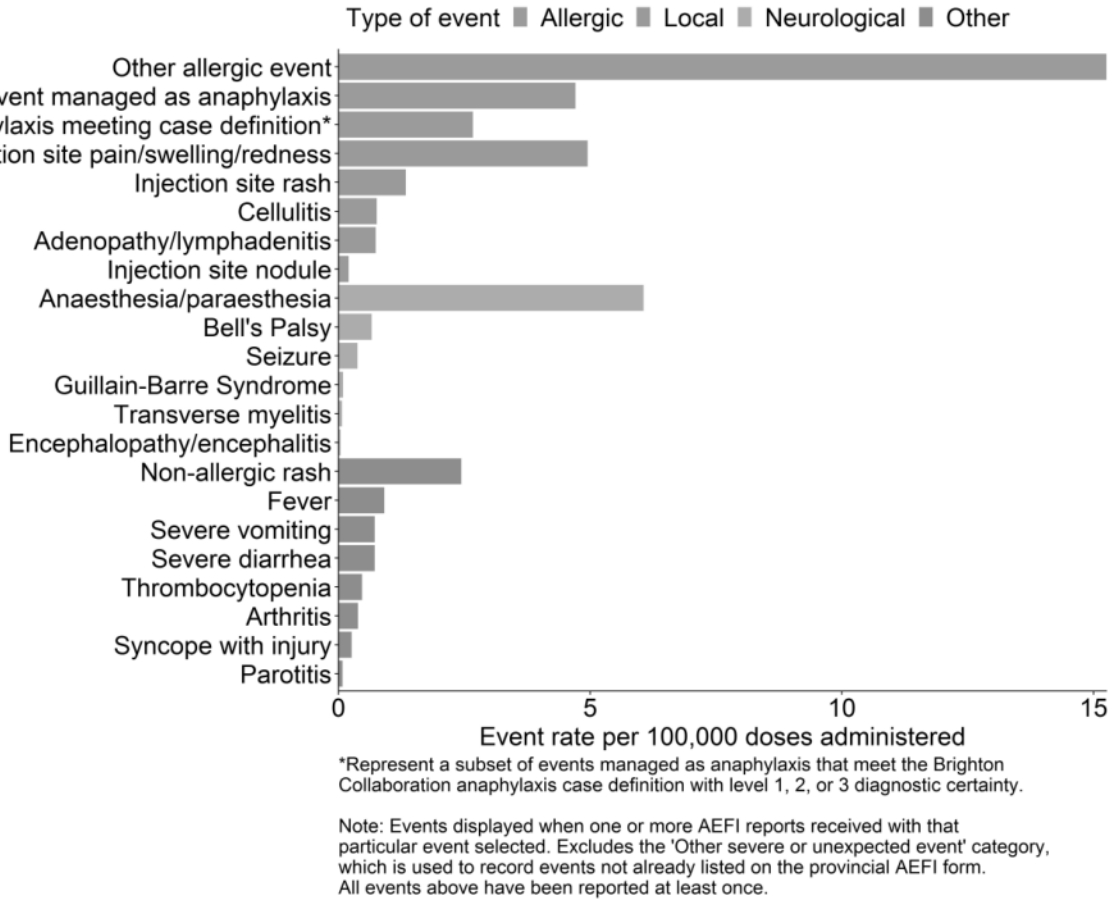
		COVID-19 Vaccine*			
	All COVID-19 Vaccines	**AstraZeneca**	**COVISHIELD**	**Moderna**	**Pfizer**
Total reports	**3428**	**246**	**66**	**1084**	**2032**
Non-serious reports	3181	218	60	1010	1893
Serious reports	247	28	6	74	139
Proportion serious	7.2%	11.4%	9.1%	6.8%	6.8%
Dose 1 reports	2781	222	65	862	1632
Dose 2 reports	645	24	1	222	398
Total doses administered	**7,679,036**	**323,979**	**67,434**	**1,883,353**	**5,404,270**
Dose 1 administered	4,175,758	222,561	59,116	979,744	2,914,337
Dose 2 administered	3,503,278	101,418	8,318	903,609	2,489,933
Total reporting rate	**44.6**	**75.9**	**97.9**	**57.6**	**37.6**
Serious rate	3.2	8.6	8.9	3.9	2.6
Dose 1 rate	66.6	99.7	110.0	88.0	56.0
Dose 2 rate	18.4	23.7	12.0	24.6	16.0

Note: Rates calculated per 100,000 doses administered

Summary of Reported Events

A single AEFI report may contain one or more adverse events. Reported events are temporally associated with vaccination (i.e., occur after vaccination within a biologically plausible timeframe) but not necessarily causally associated. The 3,428 AEFI reports received up to September 18, 2021 contained a total of 4,332 adverse events for a ratio of 1.3 events per COVID-19 AEFI report. The most frequently reported events were other allergic events (e.g., allergic rash, hives, pruritus, and gastrointestinal symptoms), anaesthesia/paraesthesia, and events managed as anaphylaxis (Figure 2).

Figure 2: Adverse events following receipt of a COVID-19 vaccine, British Columbia, Dec. 13, 2020 - Sep. 18, 2021 **(N=4,332)**



Event Descriptions

Three hundred sixty-two reports were received for events managed as anaphylaxis (i.e., the client received epinephrine for a suspected anaphylactic reaction). Of these, 205 (57%) met the Brighton Collaboration definition for anaphylaxis with diagnostic certainty levels of 1, 2, or 3.[14] Upon further review of these reports, many may reflect events such as anxiety or pre-syncopal (fainting) events.

Fifty-eight reports of cellulitis were received. Although most of these reports specified that antibiotics were provided, many appeared to represent a delayed onset local inflammatory reaction, a reaction described by “others”, rather than cellulitis.[15]

Ninety-nine reports contained a diagnosed neurological event. Fifty-one individuals experienced Bell’s palsy within 30 days following COVID-19 vaccination. Three individuals were admitted to hospital and diagnosed with transverse myelitis, including one with a history of multiple sclerosis. An additional two individuals were reported as having transverse myelitis, however, one had a clinical diagnosis unconfirmed by diagnostic imaging and the other’s workup was inconsistent with transverse myelitis. Twenty-nine individuals were reported with

seizures, including 13 with a history of a seizure disorder. Three individuals were admitted to hospital for an intracerebral hemorrhage, one of whom had a subsequent encephalopathy. One individual was hospitalized for aseptic meningitis and another for encephalitis presumed to be viral in nature. One individual developed encephalopathy attributed to a workplace toxin exposure and was hospitalized; this event was reported because of its coincidental temporal association to COVID-19 vaccine receipt. There were seven reports for individuals hospitalized with Guillain-Barre Syndrome (GBS), now all discharged. Three of these reports followed AstraZeneca vaccine. A possible infectious cause of GBS was not identified in five cases but followed an illness compatible with recent infection of unknown cause for the other two cases. GBS cases following COVID-19 vaccines have been identified in Canada and internationally, but rarely.[12,16,17] Finally, there have been three reports of sudden hearing loss verified by audiology testing. Two individuals had a sensorineural hearing loss (SNHL), and the other had either sensorineural or conductive hearing loss. Two individuals recovered their hearing with treatment and the third individual's hearing was still improving at the time of this report. One U.S. study has looked at an association between COVID-19 vaccines and SNHL and found rates after vaccination did not exceed background rates in the general population.[18]

There were 36 reports of thrombocytopenia without concurrent thrombosis. Two occurred in individuals with a single low platelet count followed subsequently by normal results; in both, the low platelet counts were assessed as due to laboratory error. The majority of reports were in individuals who had a previous history of thrombocytopenia or who had a concurrent condition (e.g., known infection, sepsis, cancer) or medication associated with thrombocytopenia. There were eleven reports of idiopathic thrombocytopenia (i.e., thrombocytopenia without a known cause). Seven of these were following the AstraZeneca vaccine, and in one case, the individual tested positive for the anti-platelet factor 4 antibody often observed with TTS. This individual did not meet the TTS definition as they had no signs or symptoms of thrombosis, and all imaging studies for a thrombus/thromboembolism were negative.7,8

Serious events:
Two hundred forty-seven reports (7.2%), including some of the events described above, were considered **serious** (refer to serious AEFI definition above). Of these, 231 individuals were admitted to hospital. These included 13 individuals hospitalized after anaphylaxis, 107 for circulatory system events (including 24 for stroke, 19 for pulmonary embolism, 15 for myocardial infarction, 47 for myopericarditis, and two for an arrhythmia), 21 for a neurological diagnosis (including three for transverse myelitis, six for seizure, two intracerebral hemorrhage with one associated encephalopathy, another separate encephalopathy, one encephalitis, one meningitis, and seven Guillain-Barre Syndrome), and 3 for a respiratory condition (one respiratory distress, and two for exacerbation of idiopathic pulmonary fibrosis). Two hospitalizations occurred for rhabdomyolysis, one of which was also suspected of having myocarditis. One hospitalization each occurred for a pregnancy related complication, and capillary leak syndrome. Nineteen hospitalizations were for thrombocytopenia alone or associated with a concurrent condition, of which four were for thrombosis with

thrombocytopenia syndrome (described further below). The remaining reports were for individuals who were hospitalized for monitoring of allergic, neurological, or cardiac symptoms but without a medically diagnosed event.

Death is reportable as an adverse event when it occurs within 30 days of vaccination and no other clear cause of death has been established.[10] Death may also be recorded as the outcome of a specific reportable event. Sixteen serious AEFI reports were received for individuals who died within 30 days of receiving a COVID-19 vaccine.

- For five of the deaths, vaccination was not considered to be a contributing factor by the health care provider or coroner who attended and investigated the death and considered the individuals' medical history.
- One death occurred in a long term care resident following deterioration with reduction in oral intake, without a clear underlying cause of death identified.
- In six individuals, death was the outcome of cardiac arrest. Five of these were elderly individuals, many with multiple underlying medical conditions, while the other had cardiac risk factors and was hospitalized for a myocardial infarction.
- Two deaths occurred in elderly individuals following a stroke and hospital admission. Both had previous history of stroke along with other medical conditions.
- One death occurred in an individual with metastatic cancer who had been hospitalized for complications of thrombocytopenia and hemolytic anemia.
- One death occurred in an elderly individual who suffered from multiple serious comorbidities, with completion of a coroner's investigation pending.

'Other serious' events:

Some events may be reported as an "other serious" event when they do not have their own discrete event on the provincial AEFI report form. These are outlined in this section; some of these events have been described above in the **serious events** section. Amongst these events, 113 were for various thrombotic/ thromboembolic conditions. These included 25 strokes and one cerebral venous sinus thrombosis without thrombocytopenia (i.e., not a TTS case), 15 myocardial infarctions, 29 pulmonary emboli, 36 deep vein thromboses, and seven superficial vein thromboses. None of these events met the TTS criteria as none were associated with new onset thrombocytopenia.[8,9]

One "other serious" report was received for an individual with capillary leak syndrome with onset five weeks after AstraZeneca vaccine. Capillary leak syndrome is a very rare condition associated with the AstraZeneca vaccine. By June 2021 only six cases had been identified in Europe following over 78 million doses of AstraZeneca vaccine administered.[19] Health Canada has issued an advisory for this condition and its association with AstraZeneca/COVISHIELD vaccines.[20]

There have been four non-fatal confirmed cases of TTS reported in BC to date, three of which were adults in their 30s or 40s and the fourth was in their 60s. The first had onset four days

after receipt of the AstraZeneca vaccine with a low platelet count found upon presentation for care, and a diagnosis of pulmonary embolism. The second case had abdominal symptoms that progressed the week after receiving the AstraZeneca vaccine, with a diagnosis of abdominal venous thrombus and thrombocytopenia. The third case also had symptoms develop in the week after AstraZeneca vaccine. Upon presentation to care, thrombocytopenia was detected. The individual was assessed for possible TTS, and identification of an abdominal venous thrombus was made in hospital. All three of these individuals followed the first dose of AstraZeneca and had a positive anti-platelet factor 4 antibody test. The fourth individual suffered a stroke a week after the second dose of the AstraZeneca vaccine. Thrombocytopenia was identified in hospital; the anti-platelet factor 4 antibody test was negative.

There have been 97 reports of pericarditis/myocarditis. Forty-nine individuals were diagnosed with pericarditis alone, twenty with myocarditis alone, and 28 with myopericarditis. Ages ranged from 14 to 95 with a median of 40.4 years, and 63 were male. Thirty-six had received Moderna vaccine, 55 received Pfizer vaccine, and six received AstraZeneca/COVISHIELD. Forty-six of these events occurred after a second dose (22 Pfizer and 23 Moderna). Some had alternate explanations including rheumatic diseases or a genetic syndrome associated with cardiac disorders. Eighteen (out of 20) of the myocarditis cases met the diagnostic criteria for level 1, 2, or 3 of the Brighton Collaboration case definition. Twenty-three (out of 49) pericarditis cases met the diagnostic criteria for level 1, 2, or 3 of the Brighton Collaboration case definition. Eighteen (out of 28) myopericarditis cases met the diagnostic criteria for level 1, 2, or 3 of the Brighton Collaboration case definition for either myocarditis or pericarditis.[21] These conditions are being investigated as a possible safety signal after mRNA vaccines, with an association seen in several countries including the US and UK as well as in Ontario, especially in adolescent and young adult males and with the 2nd dose.[5-7,12]

Table 2: Number of Myocarditis/Pericarditis reports following receipt of an mRNA COVID-19 vaccine, British Columbia, Dec.13, 2020 – Sep. 18, 2021 **(N=91)**

Vaccine / Dose		Age (years)					
		12-17	18-24	25-29	30-39	40+	All Ages
Moderna mRNA-1273	N (% Total)	**0**	**9 (9.9%)**	**6 (6.6%)**	**8 (8.8%)**	**13 (14.3%)**	**36 (39.6%)**
Dose 1	N (% Total)	0	2 (2.2%)	2 (2.2%)	4 (4.4%)	5 (5.5%)	13 (14.3%)
Dose 2	N (% Total)	0	7 (7.7%)	4 (4.4%)	4 (4.4%)	8 (8.8%)	23 (25.3%)
Pfizer mRNA BNT162b2	N (% Total)	**9 (9.9%)**	**10 (11%)**	**3 (3.3%)**	**9 (9.9%)**	**24 (26.4%)**	**55 (60.4%)**
Dose 1	N (% Total)	5 (5.5%)	3 (3.3%)	1 (1.1%)	7 (7.7%)	17 (18.7%)	33 (36.3%)
Dose 2	N (% Total)	4 (4.4%)	7 (7.7%)	2 (2.2%)	2 (2.2%)	7 (7.7%)	22 (24.2%)
Total	N (% Total)	**9 (9.9%)**	**19 (20.9%)**	**9 (9.9%)**	**17 (18.7%)**	**37 (40.7%)**	**91 (100%)**

Data Notes

Data on COVID-19 AEFI reports and doses administered were extracted from Panorama, the provincial public health information system, on September 22, 2021. Only AEFIs reported and doses administered up to September 18, 2021 were included in this report. Any AEFI report with a status of “Does not meet reporting criteria” or “Disregard - Entered in error” was excluded.

Delays exist between the time an AEFI occurs, is reported to public health, and is entered into Panorama. As AEFI investigations progress from draft version to being submitted for review and finally completed, there may be changes to the data, or reports may be removed from analysis if reflective of events that are not reportable (e.g., expected local reaction). This may lead to fluctuations in AEFI counts and rates, and subsequent weekly reports cannot be directly compared to previous reports of AEFI reported in BC.

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Summary of COVID-19 vaccine AEFI reports received in Saskatchewan | COVID-19 Vaccine Details | Government of Saskatchewan

From: s.22

To: Bonnie.Henry@gov.bc.ca, ProvHlthOffice@gov.bc.ca, Adrian Dix <HLTH.Minister@gov.bc.ca>, John Horgan.MLA <John.Horgan.MLA@leg.bc.ca>, Ravi Kahlon.MLA <Ravi.Kahlon.MLA@leg.bc.ca>, Prov Hlth Office HLTH:EX <ProvHlthOffice@gov.bc.ca>, Horgan.MLA, John LASS:EX <John.Horgan.MLA@leg.bc.ca>, Kahlon.MLA, Ravi LASS:EX <Ravi.Kahlon.MLA@leg.bc.ca>, Minister, HLTH HLTH:EX <HLTH.Minister@gov.bc.ca>, Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>

Sent: September 25, 2021 7:36:33 AM PDT

https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.saskatchewan.ca%2Fgovernment%2Fhealth-care-administration-and-provider-resources%2Ftreatment-procedures-and-guidelines%2Femerging-public-health-issues%2F2019-novel-coronavirus%2Fcovid-19-vaccine%2Fcovid-19-vaccine-information%2Fcovid-19-vaccine-details%2Fsummary-of-covid-19-vaccine-aefi-reports-received-in-saskatchewan&data=04%7C01%7Cbonnie.henry%40gov.bc.ca%7C764bea5904ad46acc53d08d98031e05c%7C6fdb52003d0d4a8ab036d3685e359adc%7C0%7C0%7C637681774220006014%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C2000&sdata=Hc43amIZqxfsIeQJlKIJFej74JatIP5p41uWfrGIBCg%3D&reserved=0

From: Henry, Bonnie HLTH:EX
To: "Naus, Monika [BCCDC]"; Gustafson, Reka HLTH:IN
Cc: XT:Amos, Heather HLBC:IN
Subject: RE: BCCDC COVID vaccine AEFI summary report frequency
Date: September 27, 2021 10:58:12 AM

That makes sense, thanks Monika.
Bonnie

Dr Bonnie Henry
Provincial Health Officer
Office of the PHO
Ministry of Health
s.15; s.19
Mailing address: PO Box 9648, STN PROV GOVT
Victoria, BC
V8W 9P4
Bonnie.henry@gov.bc.ca

Phone: s.17; s.19

I gratefully acknowledge that I live and work on the traditional unceded territory of the Lekwungen Peoples, specifically the Songhees and Esquimalt First Nations. Hay'sxw'qu Si'em

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From: Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>
Sent: September 27, 2021 10:30 AM
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>; Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>
Cc: XT:Amos, Heather HLBC:IN <heather.amos@bccdc.ca>
Subject: RE: BCCDC COVID vaccine AEFI summary report frequency

Hello Bonnie and Reka

I'd like to suggest that if I don't hear back from you by end of tomorrow on this, we will move to q2 weeks which means that we will not produce a report this week, but will produce one next week.
Even with the rollout of the 3rd dose in LTCF, this will be overall small numbers and these investigations take a while to conclude. The daily report will continue to be posted for public health in the SharePoint.
We can step this up to weekly when the pediatric program rolls out.

Thank you,
Monika

. . . . . .
Monika Naus MD FRCPC
Medical Director, Communicable Diseases & Immunization Service
Medical Head, Immunization Programs & Vaccine Preventable Diseases
BC Centre for Disease Control
monika.naus@bccdc.ca
Tel 604.707.2540
Cell s.17
Assistant: Jessica Taylor (Monday - Wednesday) and Esther Cummings (Thursday/Friday)
mnds.assist@bccdc.ca Tel 604 707 2519

I gratefully acknowledge that I live on the territory of the Coast Salish Peoples.

From: Naus, Monika [BCCDC]
Sent: Monday, September 20, 2021 3:29 PM
To: Bonnie Henry (bonnie.henry@gov.bc.ca) <bonnie.henry@gov.bc.ca>; Gustafson, Reka [BCCDC] <reka.gustafson@phsa.ca>
Cc: Amos, Heather [BCCDC] <heather.amos@bccdc.ca>
Subject: RE: BCCDC COVID vaccine AEFI summary report frequency

Hello Bonnie and Reka

I'd like your agreement with this please i.e., going to q2 weeks. We can always step up the frequency to weekly again if we rollout a pediatric program.

Thank you,
Monika

. . . . . .
Monika Naus MD FRCPC
Medical Director, Communicable Diseases & Immunization Service
Medical Head, Immunization Programs & Vaccine Preventable Diseases
BC Centre for Disease Control
monika.naus@bccdc.ca
Tel 604.707.2540
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Assistant: Jessica Taylor (Monday - Wednesday) and Esther Cummings (Thursday/Friday)
mnds.assist@bccdc.ca Tel 604 707 2519

I gratefully acknowledge that I live on the territory of the Coast Salish Peoples.

From: Amos, Heather [BCCDC] <heather.amos@bccdc.ca>
Sent: Friday, September 17, 2021 11:19 AM
To: Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>
Subject: RE: BCCDC COVID vaccine AEFI summary report frequency

This makes sense to me but I think it needs to be Bonnie or Reka to give the Ok.

From: Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>
Sent: Wednesday, September 15, 2021 8:53 PM
To: Henry, Bonnie [EXT] <bonnie.henry@gov.bc.ca>; Gustafson, Reka [BCCDC]

<reka.gustafson@phsa.ca>; Amos, Heather [BCCDC] <heather.amos@bccdc.ca>
Subject: BCCDC COVID vaccine AEFI summary report frequency

Hi Bonnie, Reka and Heather,

We would like to drop the frequency of this public facing report down to every 2nd week instead of weekly. Please let me know if you agree to this.

The number of AEFI reports have declined as the number of doses administered has declined and interestingly enough with the higher proportion of dose 2s administered, and this would take a load off and allow us to focus on some subanalyses. We are still down one epidemiologist on our team.

Last week's report is here: http://www.bccdc.ca/Health-Info-Site/Documents/COVID-19_vaccine/AEFI_reports/COVID19_AEFI_Weekly_Report_2021-09-09.pdf
The page where these are located is here: see 'BC's weekly …' (which we will change to adjust the frequency)
http://www.bccdc.ca/health-info/diseases-conditions/covid-19/covid-19-vaccine/vaccine-safety

The daily report that is posted to SharePoint and available to all BCIC members, all members of the Vaccine Safety working group, and the MHOs, will continue to be produced. It is available here, and in case you don't have access Bonnie (we have firewalls between us and the Ministry, while HA accounts are not a problem) it is enclosed, fyi.

Thank you,
Monika

. . . . . .
Monika Naus MD FRCPC
Medical Director, Communicable Diseases & Immunization Service
Medical Head, Immunization Programs & Vaccine Preventable Diseases
BC Centre for Disease Control
monika.naus@bccdc.ca
Tel 604.707.2540
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Assistant: Jessica Taylor (Monday - Wednesday) and Esther Cummings (Thursday/Friday)
mnds.assist@bccdc.ca Tel 604 707 2519

I gratefully acknowledge that I live on the territory of the Coast Salish Peoples.

Updated October 4, 2021

Media Lines | Infocapsule

Reports of myocarditis and pericarditis following immunization with mRNA COVID-19 vaccines | Signalements de cas de myocardite et de péricardite après l'administration de vaccins contre la COVID-19 à ARNm

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Key Messages

- Vaccination is one of the most effective ways to protect yourself, your family and community from getting and spreading serious diseases such as COVID-19.
- All COVID-19 vaccines authorized by Health Canada continue to be safe and effective at protecting them against COVID-19.
- COVID-19 vaccines are subject to the same rigorous scientific reviews, quality standards, testing and post-market surveillance as all other vaccines that are approved for use in Canada.
- The benefits of vaccination with a COVID-19 vaccine approved in Canada outweigh potential risks of COVID-19.
- NACI currently recommends that a complete series with an mRNA COVID-19 vaccine should be offered to all eligible individuals, including adolescents, without contraindications to the vaccine. Informed consent should include a discussion about the risk of myocarditis and/or pericarditis following vaccination.
- As the Delta-driven wave continues, it remains important for all eligible people, including younger eligible age groups, to get fully vaccinated as soon as they are able.
- Health Canada and PHAC are actively monitoring reports of myocarditis and/or pericarditis following immunization with COVID-19 vaccines in Canada.
- Reports of myocarditis or pericarditis following vaccinations continue to be rare. The available data indicate that the majority of affected individuals, even if hospitalized, experience relatively mild illness, respond well to conservative treatment and recover quickly.
- More than 54 million doses of COVID-19 vaccines have been administered in Canada. Of those doses, 774 reports of myocarditis or pericarditis have been reported up to and including September 17, 2021, giving the overall Canadian reporting rate of 1.4 myocarditis/pericarditis cases per 100,000 doses administered.

From:	McDonald, Alexa (PHAC/ASPC) on behalf of CCMOH SECRETARIAT / CMHC (PHAC/ASPC)
To:	Auger, Julie A (PHAC/ASPC); Barbara Yaffe; Henry, Bonnie HLTH:EX; Dr. Brent Roussin; Dr. Catherine Elliott; Dr. Cristin Muecke; Dr. Deena Hinshaw; Dr. George Giovinazzo; Dr. Horacio Arruda; Dr. Howard Njoo; Dr. James Worthington; Dr. Janice Fitzgerald; Dr. Jennifer Russell; Dr. Kieran Moore; Dr. Michael Patterson; Dr. Robert Strang; Dr. Saqib Shahab; XT:McDonald, Shannon HLTH:IN; Dr. Shelley Deeks; Dr. Supriya Sharma; Dr. Theresa Tam; Dr. Tom Wong; Heather Morrison; Kami Kandola; Kerry Robinson; Marie-France Raynault; Pamela Ponic; Gustafson, Reka HLTH:IN; Rosann Seviour; Vincent Beswick-Escanlar
Cc:	Auger, Julie A (PHAC/ASPC); Robinson, Kerry (PHAC/ASPC); PHN Comms; CCMOH SECRETARIAT / CMHC (PHAC/ASPC); Mitra, Debjani (PHAC/ASPC); Bedward, Cristina (PHAC/ASPC); McGarr, Holly (PHAC/ASPC); Holubowich, James (PHAC/ASPC); Alatorre-Hinojosa, Samuel (PHAC/ASPC)
Subject:	For reference: MLQAs - Reports of myocarditis and pericarditis following immunization with mRNA COVID-19 vaccines | Signalements de cas de myocardite et de péricardite après l'administration de vaccins contre la COVID-19 à ARNm
Date:	October 6, 2021 7:02:01 AM
Attachments:	PHAC_MLQA_Myocarditis mRNA_2021-10-04_1430_FINAL(clean).docx

Good morning CMOHs,

For your reference as needed, please find attached bilingual MLQAs to accompany our *CCMOH Statement on vaccines and myocarditis/pericarditis*, released last Saturday, October 2nd.

Thank you,
SAC Secretariat

****

From: Davies, Stephanie (PHAC/ASPC) <stephanie.davies@phac-aspc.gc.ca> **On Behalf Of** CCMOH SECRETARIAT / CMHC (PHAC/ASPC)
Sent: 2021-10-02 10:00 AM
To: SAC
Subject: Live Links: CCMOH Statement: Update on COVID-19 Vaccines and the Risk of Myocarditis and Pericarditis | Déclaration du CMHC: Mise à jour sur les vaccins contre la COVID-19 et le risque de myocardite et de péricardite

Dear CMOH's

Further to the email below, please be advised that the *CCMOH statement on vaccines and myocarditis/pericarditis* is now live and you can view a copy by clicking on the links below.

MLQA to follow.

EN
https://www.canada.ca/en/public-health/news/2021/10/statement-from-the-council-of-chief-medical-officers-of-health-ccmoh-update-on-covid-19-vaccines-and-the-risk-of-myocarditis-and-pericarditis.html

Media Lines | Infocapsule

Reports of myocarditis and pericarditis following immunization with mRNA COVID-19 vaccines | Signalements de cas de myocardite et de péricardite après l'administration de vaccins contre la COVID-19 à ARNm

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Key Messages

- Vaccination is one of the most effective ways to protect yourself, your family and community from getting and spreading serious diseases such as COVID-19.
- All COVID-19 vaccines authorized by Health Canada continue to be safe and effective at protecting them against COVID-19.
- COVID-19 vaccines are subject to the same rigorous scientific reviews, quality standards, testing and post-market surveillance as all other vaccines that are approved for use in Canada.
- The benefits of vaccination with a COVID-19 vaccine approved in Canada outweigh potential risks of COVID-19.
- NACI currently recommends that a complete series with an mRNA COVID-19 vaccine should be offered to all eligible individuals, including adolescents, without contraindications to the vaccine. Informed consent should include a discussion about the risk of myocarditis and/or pericarditis following vaccination.
- As the Delta-driven wave continues, it remains important for all eligible people, including younger eligible age groups, to get fully vaccinated as soon as they are able.
- Health Canada and PHAC are actively monitoring reports of myocarditis and/or pericarditis following immunization with COVID-19 vaccines in Canada.
- Reports of myocarditis or pericarditis following vaccinations continue to be rare. The available data indicate that the majority of affected individuals, even if hospitalized, experience relatively mild illness, respond well to conservative treatment and recover quickly.
- More than 54 million doses of COVID-19 vaccines have been administered in Canada. Of those doses, 774 reports of myocarditis or pericarditis have been reported up to and including September 17, 2021, giving the overall Canadian reporting rate of 1.4 myocarditis/pericarditis cases per 100,000 doses administered.

Principaux messages

- Parce qu'elle vous empêche de contracter et de transmettre des maladies graves comme la COVID-19, la vaccination est l'un des meilleurs moyens de vous protéger, de protéger votre famille et de protéger votre collectivité.

- Les vaccins contre la COVID-19 homologués par Santé Canada demeurent sûrs et efficaces dans leur protection contre la COVID-19.

- Les vaccins contre la COVID-19 sont soumis aux mêmes examens scientifiques, normes de qualités, activités de surveillance post-commercialisation et tests rigoureux que tous les autres vaccins dont l'utilisation est autorisée au Canada.

- Les bienfaits de la vaccination au moyen d'un vaccin contre la COVID-19 homologué au Canada l'emportent sur les risques possibles de la COVID-19.

- Le Comité consultatif national de l'immunisation (CCNI) recommande actuellement d'offrir une série complète de vaccins contre la COVID-19 à ARNm à toutes les personnes admissibles, y compris les adolescents, qui n'ont pas de contre-indications aux vaccins. Les risques de myocardite ou de péricardite suivant la vaccination devraient être mentionnés lors des discussions pour l'obtention d'un consentement éclairé.

- Alors que la vague d'infections causées principalement par le variant Delta se poursuit, il demeure important que toutes les personnes admissibles, dont les plus jeunes, se fassent entièrement vacciner dès qu'elles le peuvent.

- Santé Canada et l'ASPC surveillent déjà activement les signalements de myocardite ou de péricardite suivant l'administration de vaccins contre la COVID-19 au Canada.

- Les signalements de myocardite et de péricardite suivant la vaccination demeurent rares. Selon les données connues, la majorité des personnes touchées, même celles qui sont hospitalisées, ont des symptômes relativement bénins, répondent bien aux traitements conservateurs et se rétablissent rapidement.

- Plus de 54 millions de doses de vaccins contre la COVID-19 ont été administrées au Canada. Pour ce nombre de doses, il y a eu 774 signalements de cas de myocardite ou de péricardite en date du 17 septembre 2021; le taux général de signalement de cas de myocardite ou de péricardite suivant la vaccination contre la COVID-19 est donc de 1,4 cas de myocardite ou de péricardite par 100 000 doses administrées au Canada.

Supplemental messages

- Myocarditis can also be a complication in people infected with SARS-CoV-2 (COVID-19). A recent U.S. study found myocarditis rates after a confirmed COVID-19 infection to be as high as 450 cases per million infections in young males 12 to 17 years of age.

- Health Canada and PHAC are working closely with global and domestic partners to understand these cases as there are many potential causes (both infection and non-infectious) for myocarditis and pericarditis.

Messages complémentaires

- La myocardite peut également être une complication de l'infection à SRAS-CoV-2 (COVID-19). Selon une récente étude menée aux États-Unis, les taux de myocardite suivant un diagnostic de COVID-19 confirmé peuvent atteindre 450 cas par million d'infections chez les 12 à 17 ans de sexe masculin.

- Santé Canada et l'ASPC collaborent étroitement avec des partenaires au pays et dans le monde pour comprendre ces cas, parce que la myocardite et la péricardite ont de nombreuses causes possibles (infections et autres).

NACI recommendations for the use of COVID-19 vaccines in Adolescents

- NACI notes that there are post-market safety data from the U.S. and Canada that suggest relatively higher reporting rates of myocarditis/pericarditis after receipt of Moderna Spikevax compared to Pfizer-BioNTech Comirnaty, particularly in young males. However, NACI does not currently make a differential recommendation between Pfizer-BioNTech Comirnaty and Moderna Spikevax.

- NACI also notes that some provinces/territories may decide to continue using only Pfizer-BioNTech Comirnaty for adolescents 12 to 17 years of age, because there is more experience to date with Pfizer-BioNTech Comirnaty in this age group, and there is the possibility of a lower rate of myocarditis and/or pericarditis with this vaccine.

Recommandations du Comité consultatif national de l'immunisation (CCNI) sur l'administration de vaccins contre la COVID-19 aux adolescents

- Le CCNI note que selon des données de surveillance post-commercialisation de l'innocuité des vaccins aux États-Unis et au Canada, les taux de signalement de myocardite ou de péricardite sont relativement plus élevés suivant l'administration du vaccin Spikevax de Moderna comparativement au vaccin Comirnaty de Pfizer-BioNTech, en particulier chez les jeunes de sexe masculin. Le CCNI ne fait toutefois pas pour l'heure de recommandations différentes pour le vaccin Comirnaty de Pfizer-BioNTech et le vaccin Spikevax de Moderna.

- Le CCNI note aussi que certaines provinces et certains territoires peuvent décider de continuer d'administrer seulement le vaccin Comirnaty de Pfizer-BioNTech aux adolescents de 12 à 17 ans parce que ce vaccin a été plus utilisé jusqu'à maintenant pour ce groupe d'âge et en raison de la possibilité d'un plus faible taux de myocardite ou de péricardite suivant l'administration de ce vaccin.

Ongoing Surveillance

- Health Canada and PHAC are ensuring that Canadians and health care professionals have access to the latest information to make informed decisions and be aware of symptoms, including regular Adverse Events Following Immunization (AEFI) reporting, regular updates during CPHO pressers, and web content.

- As part of the COVID-vaccine authorization, companies are obligated to monitor and submit safety data to Health Canada for review. The product labelling of the mRNA vaccines (Pfizer-BioNTech Comirnaty and Moderna Spikevax) was updated to reflect the risk of myocarditis and pericarditis following vaccination with an mRNA vaccine. A public advisory on this risk was issued on June 30, 2021. Health Canada will continue to review safety data from companies including domestic and international reports.

- Health Canada collaborates with international regulators on a regular basis, including on the information around myocarditis and pericarditis. Further analysis is underway to investigate the relationship between these conditions and the vaccines.

- International cases of myocarditis and/or pericarditis following vaccination indicate that these conditions seem to be occurring more often than expected in some populations and situations, such as:
    - in adolescents and young adults;
    - in males;
    - following the second dose;
    - typically shortly after vaccination; and
    - symptoms appear to be mild and individuals tend to recover quickly.

Surveillance permanente

- Santé Canada et l'ASPC veillent à ce que les professionnels de la santé et la population canadienne aient accès à l'information la plus récente – y compris des rapports de surveillance des effets secondaires suivant l'immunisation, des mises à jour régulières pendant les conférences de presse de l'administratrice en chef de la santé publique et du contenu Web – pour prendre des décisions éclairées et connaître les symptômes.

- Dans le contexte de l'homologation des vaccins contre la COVID-19, les entreprises ont l'obligation de surveiller les données concernant l'innocuité des vaccins et de présenter ces données à Santé Canada à des fins d'examen. L'étiquetage des vaccins à ARNm (vaccin Comirnaty de Pfizer-BioNTech et vaccin Spikevax de Moderna) a été mis à jour pour que le risque de myocardite ou de péricardite suivant l'administration d'un vaccin à ARNm y apparaisse. Un avis public sur ce risque a été publié le 30 juin 2021. Santé Canada continuera d'examiner les données relatives à l'innocuité fournies par les entreprises, dont les signalements au pays et dans le monde.

- Santé Canada collabore régulièrement avec des organismes de réglementation internationaux, y compris en ce qui a trait à l'information concernant la myocardite et la péricardite. D'autres analyses sont en cours pour faire enquête sur la relation entre ces problèmes de santé et les vaccins.

- Selon les cas de myocardite et de péricardite suivant la vaccination signalés à l'international, ces problèmes de santé semblent se produire plus souvent que prévu au sein de certaines populations et dans certaines situations, notamment :
    - chez les adolescents et les jeunes adultes;
    - chez les personnes de sexe masculin;
    - après l'administration de la deuxième dose;
    - habituellement peu après la vaccination.
    - Les symptômes semblent être bénins, et les personnes touchées ont tendance à se rétablir rapidement.

If pressed on outcomes

- Two deaths in individuals over the age of 65 years have been reported where myocarditis was noted. Investigation results are pending.

Si l'on insiste quant aux résultats

- Deux personnes de plus de 65 ans chez qui une myocardite a été observée sont décédées. Nous attendons les résultats d'enquête.

***

Questions and Answers

Q1. How many cases of myocarditis/ pericarditis have been reported in Canada to date?

As of September 17, 2021, there have been 774 reports of myocarditis/pericarditis following vaccination.

- 445 reports followed vaccination with Pfizer-BioNTech Comirnaty (reporting rate: 1.17 per 100,000 doses);
- 306 reports followed vaccination with Moderna Spikevax (reporting rate: 2.27 per 100,000 doses);
- 19 reports followed vaccination with AstraZeneca Vaxzevria/COVISHIELD (reporting rate: 0.68 per 100,000 doses); and
- four reports where the vaccine name was unspecified.

These reports do not necessarily imply that a causal relationship between the event and the vaccine has been established.

Q2. What is the rate of myocarditis/pericarditis with mRNA COVID-19 vaccines in Canada?

As of September 17, 2021, there have been 774 reports of myocarditis/pericarditis reported to PHAC or Health Canada.

In Canada, a myocarditis/pericarditis event is occurring at a rate of:

- 2.27 per 100,000 doses administered for Moderna;
- 1.17 per 100,000 doses administered for Pfizer-BioNTech COVID-19; and
- 0.68 per 100,000 doses administered for COVISHIELD/AstraZeneca.

This gives an overall Canadian reporting rate of 1.4 myocarditis/pericarditis cases per 100,000 doses administered.

These events are reported more often than would be expected for male and female adolescents and young adults, in particular in males following the second dose. The data show that the overall reporting rate of myocarditis/pericarditis following the Moderna COVID-19 vaccine is approximately two times higher than the rate following a Pfizer COVID-19 vaccine. PHAC is continuing its analysis to verify and understand this difference.

While Canada's myocarditis/pericarditis rates are based on information that is received by the Agency and Health Canada, there are also limitations to reporting practices such as under-reporting, missing information, and differing adverse event reporting practices across jurisdictions in Canada. That is why rates may vary slightly depending on the jurisdiction.

Q3. Are there different observations seen with each mRNA vaccine and myocarditis in Canada?

Yes, differences have been observed with the two mRNA vaccines used in Canada. With Pfizer-BioNTech (Comirnaty), just over half of myocarditis cases are after the second dose (51.8%), whereas with Moderna (Spikevax) most cases are after the second dose (75.9%).

With Pfizer-BioNTech (Comirnaty), just over half the cases are males (63.4%), with an average age of 28 years. The number of reports of myocarditis/pericarditis following the Pfizer-BioNTech Comirnaty COVID-19 vaccine is higher than what would be expected in the general population of males and females less than 30 years of age and following the second dose.

With Moderna (Spikevax) the majority of cases are males (72.9%) with an average age of 28 years. The number of reports of myocarditis/pericarditis following the Moderna Spikevax COVID-19 vaccine is higher than what would be expected in the general population, particularly among males and females less than 40 years of age and following the second dose.

Health Canada and PHAC continue to monitor the use of all COVID-19 vaccines closely and examine and assess any new safety concerns.

Q4. If there are differences in the rate of myocarditis and/or pericarditis between Moderna and Pfizer-BioNTech COVID-19 vaccines, will NACI continue to consider mRNA vaccines as interchangeable?

NACI continues to recommend that the same mRNA COVID-19 vaccine product should be offered for the subsequent dose in a vaccine series started with an mRNA COVID-19 vaccine. However, when the same mRNA COVID-19 vaccine product is not readily available, or is unknown, another mRNA COVID-19 vaccine product recommended for use in that age group can be considered interchangeable and should be offered to complete the vaccine series.

Vaccine interchangeability is not a new concept. Similar vaccines from different manufacturers are used when vaccine supply or public health programs change. Different vaccine products have been used to complete a vaccine series for influenza, hepatitis A, and others.

In making its recommendation on mixed vaccine schedules NACI reviewed all available evidence from ongoing studies and will continue to do so. NACI continues to monitor the safety and effectiveness of mRNA vaccines and will update recommendations as needed.

Q5. Have any jurisdictions preferentially used one type of MRNA vaccine over another?

While most jurisdictions have not preferentially used one type of mRNA vaccine, as of October 4, the situation is that:

- three provinces and two territories (Quebec, Nova Scotia, Ontario, Yukon, and Nunavut) are using only Pfizer-BioNTech Comirnaty in adolescents 12 to 17 years of age;
- three provinces (Prince Edward Island, Manitoba and Alberta) will only offer Moderna by request or in particular settings; and
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Q6. If a jurisdiction decides that adolescents should only get Pfizer vaccine because it is more safe than Moderna, why is NACI's advice different?

Provinces and territories are responsible for designing and delivering their immunization programs. Provincial and territorial governments consider NACI advice but determine the best ways to manage their program based on their unique needs and circumstances, including local epidemiology, local vaccine supply and rollout logistics, and other public health considerations.

Provinces and territories may decide to continue using the Pfizer-BioNTech Comirnaty vaccine for their adolescent program because there is more experience to date with the Pfizer-BioNTech Comirnaty vaccine in this age group and there is the possibility of a lower rate of myocarditis and/or pericarditis with this vaccine. The Public Health Agency of Canada, Health Canada and NACI recommend that people follow the advice and direction of their provincial/territorial authorities as they implement their vaccination programs for adolescents aged 12-17 years of age. Evidence into the association between myocarditis/pericarditis and mRNA vaccines is evolving, and investigations into the mechanism of action and potential risk factors are ongoing in Canada and abroad.

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- Informed consent should include a discussion about the rare cases of myocarditis and/or pericarditis following immunization with an mRNA COVID-19 vaccine.
- As a precaution, all recipients should be advised to seek immediate medical attention if they develop symptoms including chest pain, shortness of breath, or the feeling of a fast, pounding or fluttering heartbeat.
- As a precaution, people who experienced myocarditis and/or pericarditis after a first dose of an mRNA vaccine should wait to get their second dose until more information is available.
- People who have a history of myocarditis unrelated to mRNA COVID-19 vaccination should consult their health care provider for individual considerations and recommendations.

- People previously diagnosed with myocarditis, but who are no longer being followed by a medical professional for heart issues, should receive the vaccine.

Q7. How are Health Canada and PHAC collecting information on the rate of cardiovascular events occurring in Canada?

Health Canada is committed to protecting the health and safety of Canadians and has a rigorous scientific review system in place to assess vaccines for safety and effectiveness in preventing the diseases they target.

Health Canada and PHAC receive reports of adverse events following immunization with COVID-19 vaccines in Canada through the Canada Vigilance program and the Canadian Adverse Events Following Immunization Surveillance System (CAEFISS). Adverse events following immunization are routinely monitored and information on adverse events following immunization with COVID-19 vaccines, including breakdowns of reports by vaccine name, age and sex, are published on the Government of Canada website on a weekly basis. These reports do not necessarily imply that a causal relationship between the event and the vaccine has been established. It can be expected that other, unrelated medical events will occur by chance after immunization, particularly when millions of people are being vaccinated.

Health Canada has updated the product monographs for both Moderna and Pfizer COVID-19 vaccines to include information around these risks. Health Canada and PHAC continue to monitor the evolving information regarding the association between myocarditis/pericarditis and mRNA vaccines.

Health Canada works closely with international regulatory partners to rapidly share emerging safety information, evidence and analysis, and will take appropriate action if needed. Further information on authorized vaccines, including post-market updates, can be found in the COVID-19 vaccines and treatments portal.

PHAC and Health Canada continue to monitor the safety and effectiveness of all authorized COVID-19 vaccines in collaboration with provinces and territories, the manufacturers and international partners. The system is working, and we are committed to ongoing transparency and providing Canadians with the information they need to make informed decisions.

Q8. What are Health Canada and PHAC doing to implement the priority actions that have been identified in the report of Chief Science Advisor about COVID-19 Vaccine-Associated myocarditis and pericarditis?

Health Canada and PHAC continue to monitor and publish adverse events following COVID-19 vaccinations, including reports of myocarditis and pericarditis. Side effects reported to the Canada Vigilance Program of Health Canada and to the Canadian Adverse Events Following Immunization Surveillance System (CAEFISS) of the Public Health Agency of Canada are routinely monitored and reviewed.

In addition to this, Health Canada and PHAC sent health professionals a communiqué in early June, providing guidance regarding case investigations, heightened vigilance, and reporting of these cases as adverse events and PHAC has consulted with expert cardiologists to understand this syndrome. COVID-19 vaccine related information is communicated via the monthly

InfoWatch newsletter; the June version included an article specifically on myocarditis/pericarditis and other communication channels including Public Advisories, Health Product Risk Communications and the Government of Canada websites.

Health Canada also collaborates with international regulatory authorities on an ongoing basis to leverage global safety information for rapid risk identification and risk mitigation measures. Should new safety issues be identified, necessary actions will be taken.

FR
https://www.canada.ca/fr/sante-publique/nouvelles/2021/10/declaration-du-conseil-des-medecins-hygienistes-en-chef--mise-a-jour-sur-les-vaccins-contre-la-covid-19-et-le-risque-de-myocardite-et-de-pericardite.html

Please do not hesitate to reach out should you have any questions.

Kind Regards,
SAC Secretariat

Principaux messages

- Parce qu'elle vous empêche de contracter et de transmettre des maladies graves comme la COVID-19, la vaccination est l'un des meilleurs moyens de vous protéger, de protéger votre famille et de protéger votre collectivité.

- Les vaccins contre la COVID-19 homologués par Santé Canada demeurent sûrs et efficaces dans leur protection contre la COVID-19.

- Les vaccins contre la COVID-19 sont soumis aux mêmes examens scientifiques, normes de qualités, activités de surveillance post-commercialisation et tests rigoureux que tous les autres vaccins dont l'utilisation est autorisée au Canada.

- Les bienfaits de la vaccination au moyen d'un vaccin contre la COVID-19 homologué au Canada l'emportent sur les risques possibles de la COVID-19.

- Le Comité consultatif national de l'immunisation (CCNI) recommande actuellement d'offrir une série complète de vaccins contre la COVID-19 à ARNm à toutes les personnes admissibles, y compris les adolescents, qui n'ont pas de contre-indications aux vaccins. Les risques de myocardite ou de péricardite suivant la vaccination devraient être mentionnés lors des discussions pour l'obtention d'un consentement éclairé.

- Alors que la vague d'infections causées principalement par le variant Delta se poursuit, il demeure important que toutes les personnes admissibles, dont les plus jeunes, se fassent entièrement vacciner dès qu'elles le peuvent.

- Santé Canada et l'ASPC surveillent déjà activement les signalements de myocardite ou de péricardite suivant l'administration de vaccins contre la COVID-19 au Canada.

- Les signalements de myocardite et de péricardite suivant la vaccination demeurent rares. Selon les données connues, la majorité des personnes touchées, même celles qui sont hospitalisées, ont des symptômes relativement bénins, répondent bien aux traitements conservateurs et se rétablissent rapidement.

- Plus de 54 millions de doses de vaccins contre la COVID-19 ont été administrées au Canada. Pour ce nombre de doses, il y a eu 774 signalements de cas de myocardite ou de péricardite en date du 17 septembre 2021; le taux général de signalement de cas de myocardite ou de péricardite suivant la vaccination contre la COVID-19 est donc de 1,4 cas de myocardite ou de péricardite par 100 000 doses administrées au Canada.

Supplemental messages

- Myocarditis can also be a complication in people infected with SARS-CoV-2 (COVID-19). A recent U.S. study found myocarditis rates after a confirmed COVID-19 infection to be as high as 450 cases per million infections in young males 12 to 17 years of age.

- Health Canada and PHAC are working closely with global and domestic partners to understand these cases as there are many potential causes (both infection and non-infectious) for myocarditis and pericarditis.

Messages complémentaires

- La myocardite peut également être une complication de l'infection à SRAS-CoV-2 (COVID-19). Selon une récente étude menée aux États-Unis, les taux de myocardite suivant un diagnostic de COVID-19 confirmé peuvent atteindre 450 cas par million d'infections chez les 12 à 17 ans de sexe masculin.

- Santé Canada et l'ASPC collaborent étroitement avec des partenaires au pays et dans le monde pour comprendre ces cas, parce que la myocardite et la péricardite ont de nombreuses causes possibles (infections et autres).

NACI recommendations for the use of COVID-19 vaccines in Adolescents

- NACI notes that there are post-market safety data from the U.S. and Canada that suggest relatively higher reporting rates of myocarditis/pericarditis after receipt of Moderna Spikevax compared to Pfizer-BioNTech Comirnaty, particularly in young males. However, NACI does not currently make a differential recommendation between Pfizer-BioNTech Comirnaty and Moderna Spikevax.

- NACI also notes that some provinces/territories may decide to continue using only Pfizer-BioNTech Comirnaty for adolescents 12 to 17 years of age, because there is more experience to date with Pfizer-BioNTech Comirnaty in this age group, and there is the possibility of a lower rate of myocarditis and/or pericarditis with this vaccine.

Recommandations du Comité consultatif national de l'immunisation (CCNI) sur l'administration de vaccins contre la COVID-19 aux adolescents

- Le CCNI note que selon des données de surveillance post-commercialisation de l'innocuité des vaccins aux États-Unis et au Canada, les taux de signalement de myocardite ou de péricardite sont relativement plus élevés suivant l'administration du vaccin Spikevax de Moderna comparativement au vaccin Comirnaty de Pfizer-BioNTech, en particulier chez les jeunes de sexe masculin. Le CCNI ne fait toutefois pas pour l'heure de recommandations différentes pour le vaccin Comirnaty de Pfizer-BioNTech et le vaccin Spikevax de Moderna.

- Le CCNI note aussi que certaines provinces et certains territoires peuvent décider de continuer d'administrer seulement le vaccin Comirnaty de Pfizer-BioNTech aux adolescents de 12 à 17 ans parce que ce vaccin a été plus utilisé jusqu'à maintenant pour ce groupe d'âge et en raison de la possibilité d'un plus faible taux de myocardite ou de péricardite suivant l'administration de ce vaccin.

Ongoing Surveillance

- Health Canada and PHAC are ensuring that Canadians and health care professionals have access to the latest information to make informed decisions and be aware of symptoms, including regular Adverse Events Following Immunization (AEFI) reporting, regular updates during CPHO pressers, and web content.

- As part of the COVID-vaccine authorization, companies are obligated to monitor and submit safety data to Health Canada for review. The product labelling of the mRNA vaccines (Pfizer-BioNTech Comirnaty and Moderna Spikevax) was updated to reflect the risk of myocarditis and pericarditis following vaccination with an mRNA vaccine. A public advisory on this risk was issued on June 30, 2021. Health Canada will continue to review safety data from companies including domestic and international reports.

- Health Canada collaborates with international regulators on a regular basis, including on the information around myocarditis and pericarditis. Further analysis is underway to investigate the relationship between these conditions and the vaccines.

- International cases of myocarditis and/or pericarditis following vaccination indicate that these conditions seem to be occurring more often than expected in some populations and situations, such as:
    - in adolescents and young adults;
    - in males;
    - following the second dose;
    - typically shortly after vaccination; and
    - symptoms appear to be mild and individuals tend to recover quickly.

Surveillance permanente

- Santé Canada et l'ASPC veillent à ce que les professionnels de la santé et la population canadienne aient accès à l'information la plus récente – y compris des rapports de surveillance des effets secondaires suivant l'immunisation, des mises à jour régulières pendant les conférences de presse de l'administratrice en chef de la santé publique et du contenu Web – pour prendre des décisions éclairées et connaître les symptômes.

- Dans le contexte de l'homologation des vaccins contre la COVID-19, les entreprises ont l'obligation de surveiller les données concernant l'innocuité des vaccins et de présenter ces données à Santé Canada à des fins d'examen. L'étiquetage des vaccins à ARNm (vaccin Comirnaty de Pfizer-BioNTech et vaccin Spikevax de Moderna) a été mis à jour pour que le risque de myocardite ou de péricardite suivant l'administration d'un vaccin à ARNm y apparaisse. Un avis public sur ce risque a été publié le 30 juin 2021. Santé Canada continuera d'examiner les données relatives à l'innocuité fournies par les entreprises, dont les signalements au pays et dans le monde.

- Santé Canada collabore régulièrement avec des organismes de réglementation internationaux, y compris en ce qui a trait à l'information concernant la myocardite et la péricardite. D'autres analyses sont en cours pour faire enquête sur la relation entre ces problèmes de santé et les vaccins.

- Selon les cas de myocardite et de péricardite suivant la vaccination signalés à l'international, ces problèmes de santé semblent se produire plus souvent que prévu au sein de certaines populations et dans certaines situations, notamment :
    - chez les adolescents et les jeunes adultes;
    - chez les personnes de sexe masculin;
    - après l'administration de la deuxième dose;
    - habituellement peu après la vaccination.
    - Les symptômes semblent être bénins, et les personnes touchées ont tendance à se rétablir rapidement.

If pressed on outcomes

- Two deaths in individuals over the age of 65 years have been reported where myocarditis was noted. Investigation results are pending.

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Expert Panel on AEFIs?

From: Miller, Haley HLTH:EX
To: Monika Naus <Monika.Naus@bccdc.ca>
Sent: October 13, 2021 11:35:32 AM PDT

Hi Monika,

Brian and I are working through the vaccination exemption review process for health care workers and are wondering if you still convene or are part of a committee / group of physicians who review serious AEFIs? Some of the exemptions we are receiving may benefit from a review through such a panel, so I was asked to see if this group still meets?

Thanks kindly!
Haley

Haley Miller
Project Director | Office of the Provincial Health Officer
BC Ministry of Health

I acknowledge with gratitude that I live and work in the traditional territory of the Lekwungen peoples, today represented by the Songhees and Xwsepsum (Esquimalt) Nations.

FW: DRAFT K-12 School Monthly Report for Feedback

From: Henry, Bonnie HLTH:EX
To: Machell, Aileen GCPE:EX <Aileen.Machell@gov.bc.ca>, Ferrier, Jeffrey GCPE:EX <Jeffrey.Ferrier@gov.bc.ca>
Cc: XT:Lambrechts, Nicola GCPE:IN s.22
Sent: October 18, 2021 4:42:51 PM PDT
Attachments: DRAFT October School Report Slides for PHO.pptx, FINAL SitRep_K-12 OCtober 18 2021.docx

Hot off the presses from BCCDC, the school report and draft slides for tomorrow.
My best,
Bonnie

Dr Bonnie Henry
Provincial Health Officer
Office of the PHO
Ministry of Health
s.15; s.19
Mailing address: PO Box 9648, STN PROV GOVT
Victoria, BC
V8W 9P4
Bonnie.henry@gov.bc.ca

Phone: s.17; s.19

I gratefully acknowledge that I live and work on the traditional unceded territory of the Lekwungen Peoples, specifically the Songhees and Esquimalt First Nations. Hay'sxw'qu Si'em

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From: Mckee, Geoffrey [BCCDC] <geoffrey.mckee@bccdc.ca>
Sent: October 18, 2021 4:36 PM
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Cc: Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>
Subject: Re: DRAFT K-12 School Monthly Report for Feedback

Hi Bonnie,

Here are some slides highlighting the key findings of the report. I left them unformatted as I know you usually have your team use the lemonade formatting for your briefings. If you need me to format them to BCCDC templates please let me know.

I also left out the exposure notification figure from the report as I figure it is less reflective of the actual risks in schools and more of an operational and communication issue.

Cheers,

Geoff

From: Mckee, Geoffrey [BCCDC]
Sent: October 18, 2021 3:55 PM
To: Henry, Bonnie [EXT]
Cc: Gustafson, Reka [BCCDC]
Subject: Re: DRAFT K-12 School Monthly Report for Feedback

Hi Bonnie,

Just finalizing some of the slides and will send soon. Please find attached the final draft of the the report. We will pdf and post to the website tomorrow aligned with the timing of your media briefing.

Cheers,

Geoff

From: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent: October 18, 2021 12:49 PM
To: Mckee, Geoffrey [BCCDC]
Cc: Gustafson, Reka [BCCDC]
Subject: RE: DRAFT K-12 School Monthly Report for Feedback

The figures that we presented last time: 1, 3,4
And the infographics like figure 13 from IH that help put school notification/exposures in perspective.
What do you think?
b

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I gratefully acknowledge that I live and work on the traditional unceded territory of the Lekwungen Peoples, specifically the Songhees and Esquimalt First Nations. Hay'sxw'qu Si'em

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From: Mckee, Geoffrey [BCCDC] <geoffrey.mckee@bccdc.ca>
Sent: October 18, 2021 12:40 PM
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Cc: Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>
Subject: Re: DRAFT K-12 School Monthly Report for Feedback

Hi Bonnie,

Happy to pull together a few slides. Are there particular figures you are interested in from the draft?

Cheers,

Geoff

From: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent: October 18, 2021 12:19 PM
To: Mckee, Geoffrey [BCCDC]
Cc: Gustafson, Reka [BCCDC]
Subject: RE: DRAFT K-12 School Monthly Report for Feedback

Can we please pull together a few summary slides from this that I can present tomorrow?
Thank you!

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From: Mckee, Geoffrey [BCCDC] <geoffrey.mckee@bccdc.ca>
Sent: October 14, 2021 5:51 PM
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Cc: Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>
Subject: DRAFT K-12 School Monthly Report for Feedback
Importance: High

Hi Bonnie,

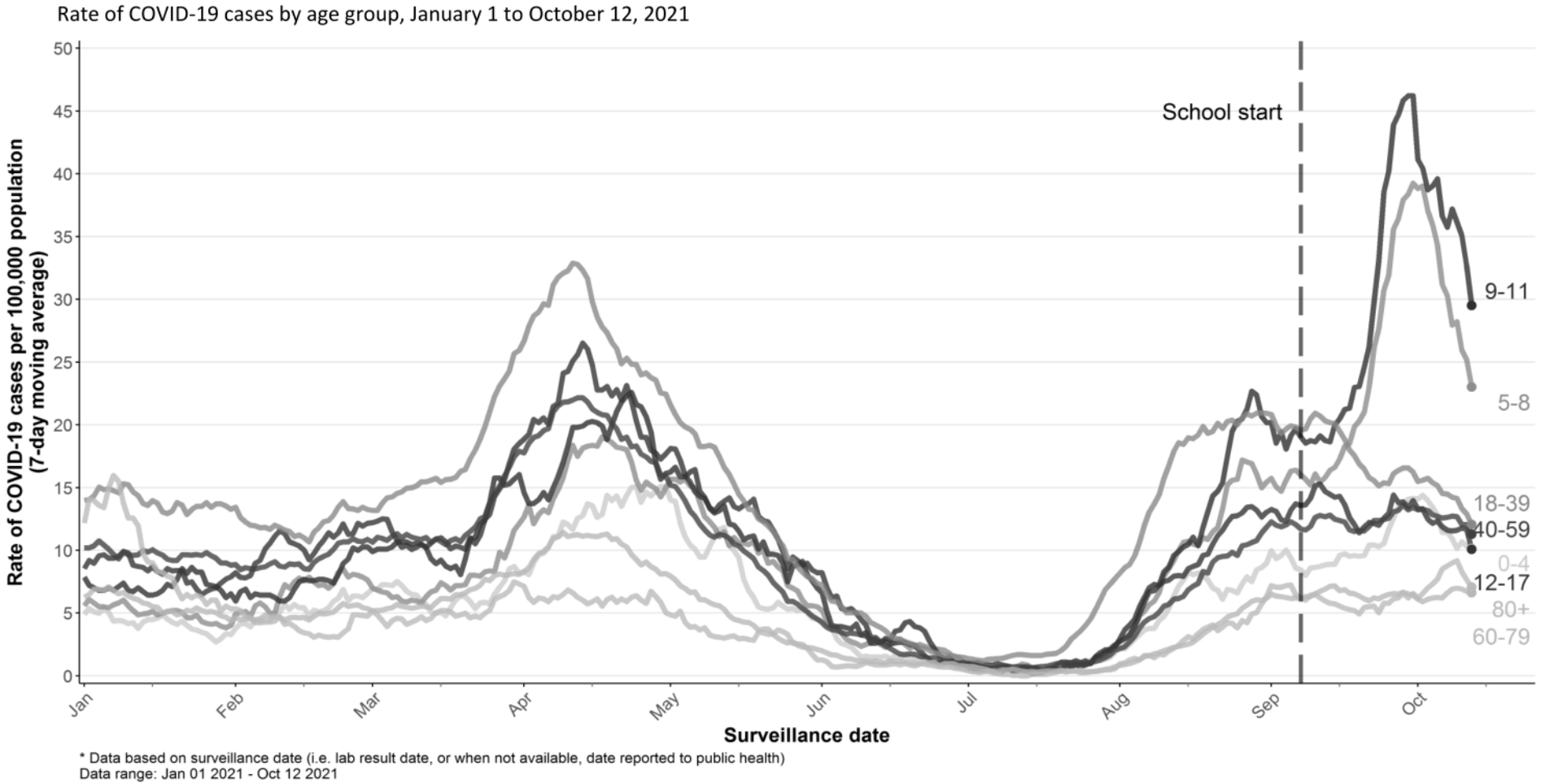
Our epi team finalized a draft of the monthly report on K-12 schools today and we are working towards getting it reviewed by RHAs and the province before getting final approvals. Since some of the interpretation is new (particularly the IH regional analysis) and there is a risk of misinterpretation from some of the data, I would like to make sure our review process is thorough and gets as many eyes on it as possibly before release. I wanted to check with you whether it is feasible to release early next week, possibly on Tuesday? This will generally meet the timeline you messaged in your press briefing of mid-October. I doubt the report will change much, but this would allow us to get it thoroughly reviewed by the RHAs and your office, as well as Education. We usually brief the Minister of Education at the beginning of the week and this would allow us to review it with her before public release.

As part of the process of developing this report, we have also identified other datasets which will allow us to do an even more comprehensive report in November. We also hope to have the provincial school cluster reporting system up and running by then.

Thanks,

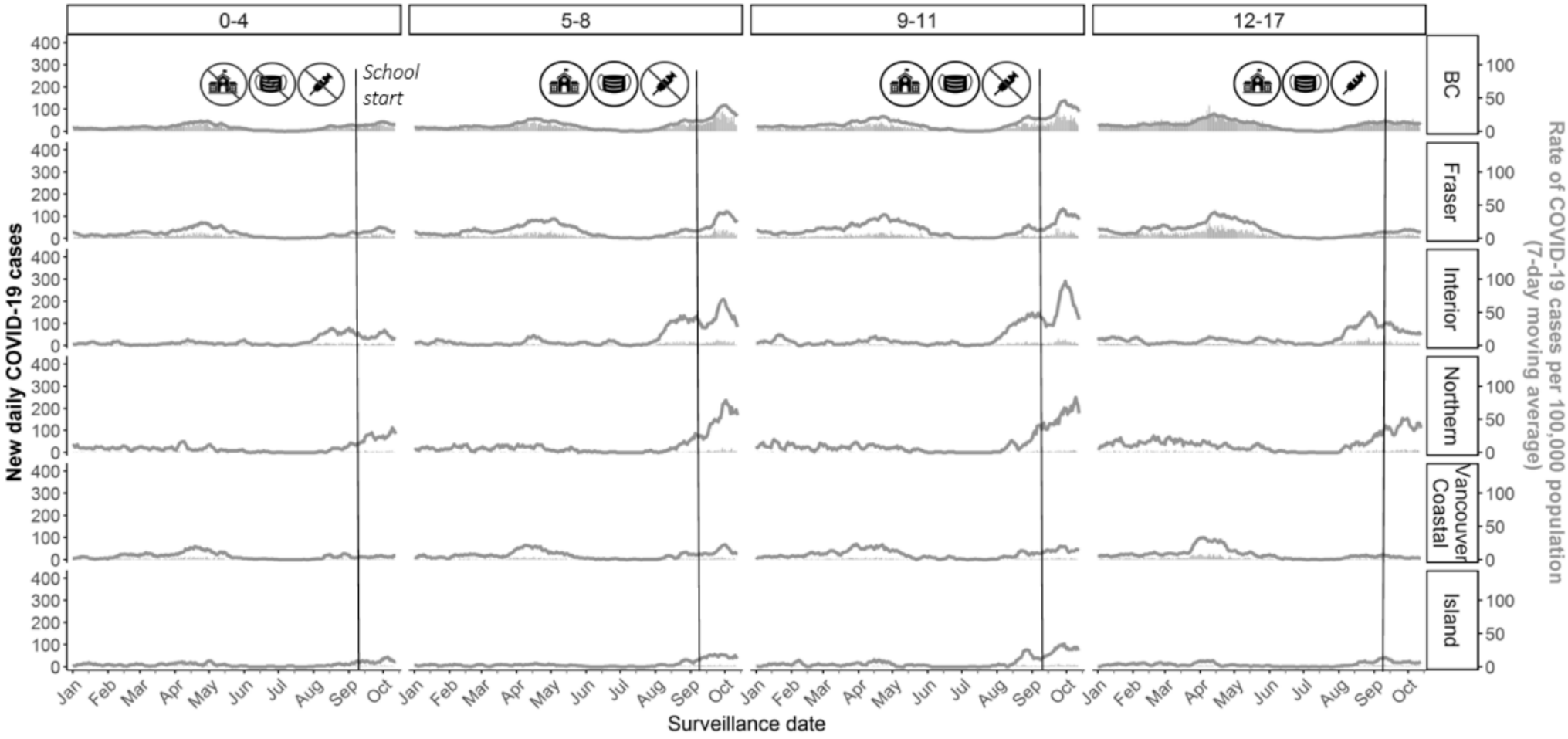
Geoff

- Monthly report from the BCCDC providing data related to the impact of COVID-19 on children and K-12 schools
- First report released today on the BCCDC website
- Next report to be released mid-November



Diagnosed cases of COVID-19 increased among 5-11 year-olds in British Columbia (BC) during the first two weeks of the school year, primarily in regions with lower community vaccine coverage. The incidence within these younger age groups peaked in late September and is now trending downward.

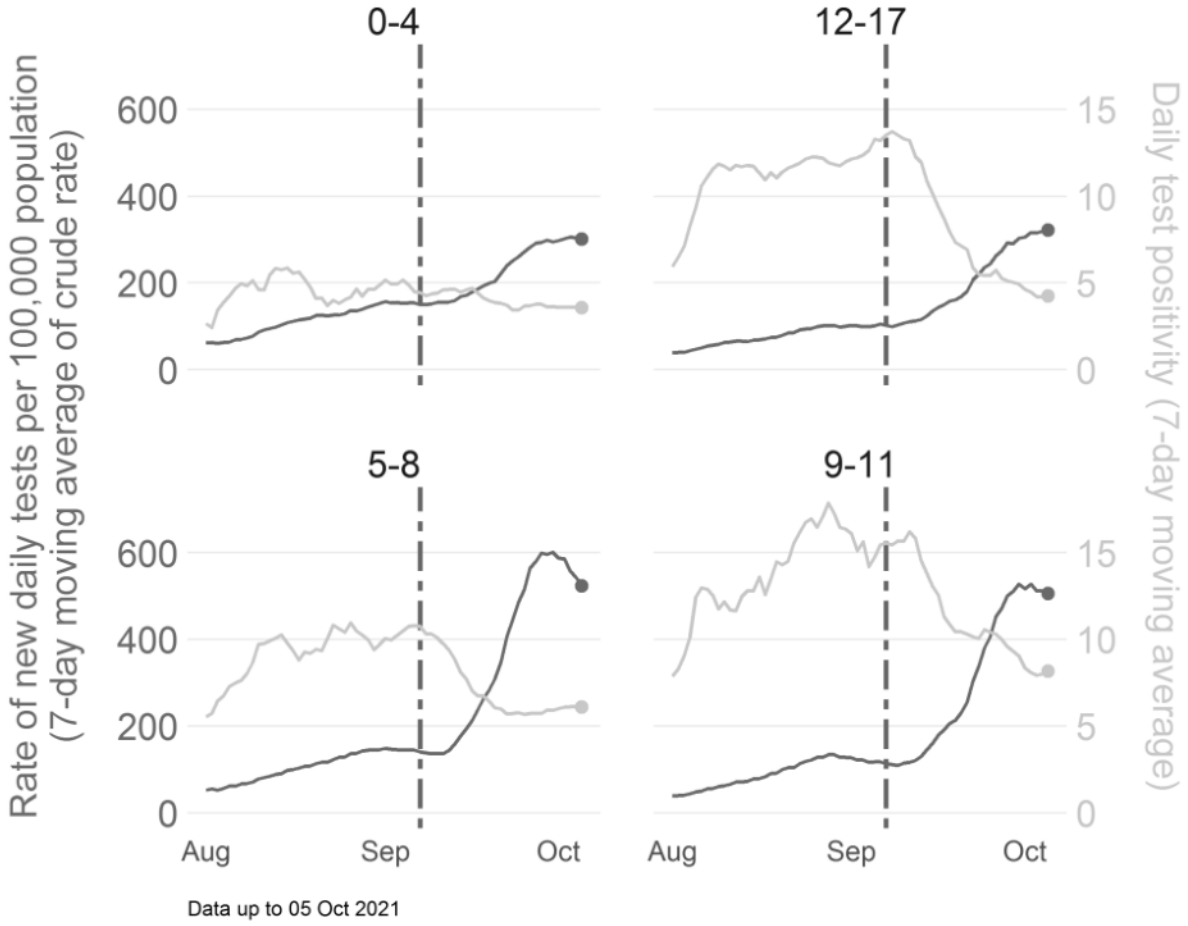
New daily COVID-19 cases and rates by HA and by age group, January 1 to October 12, 2021



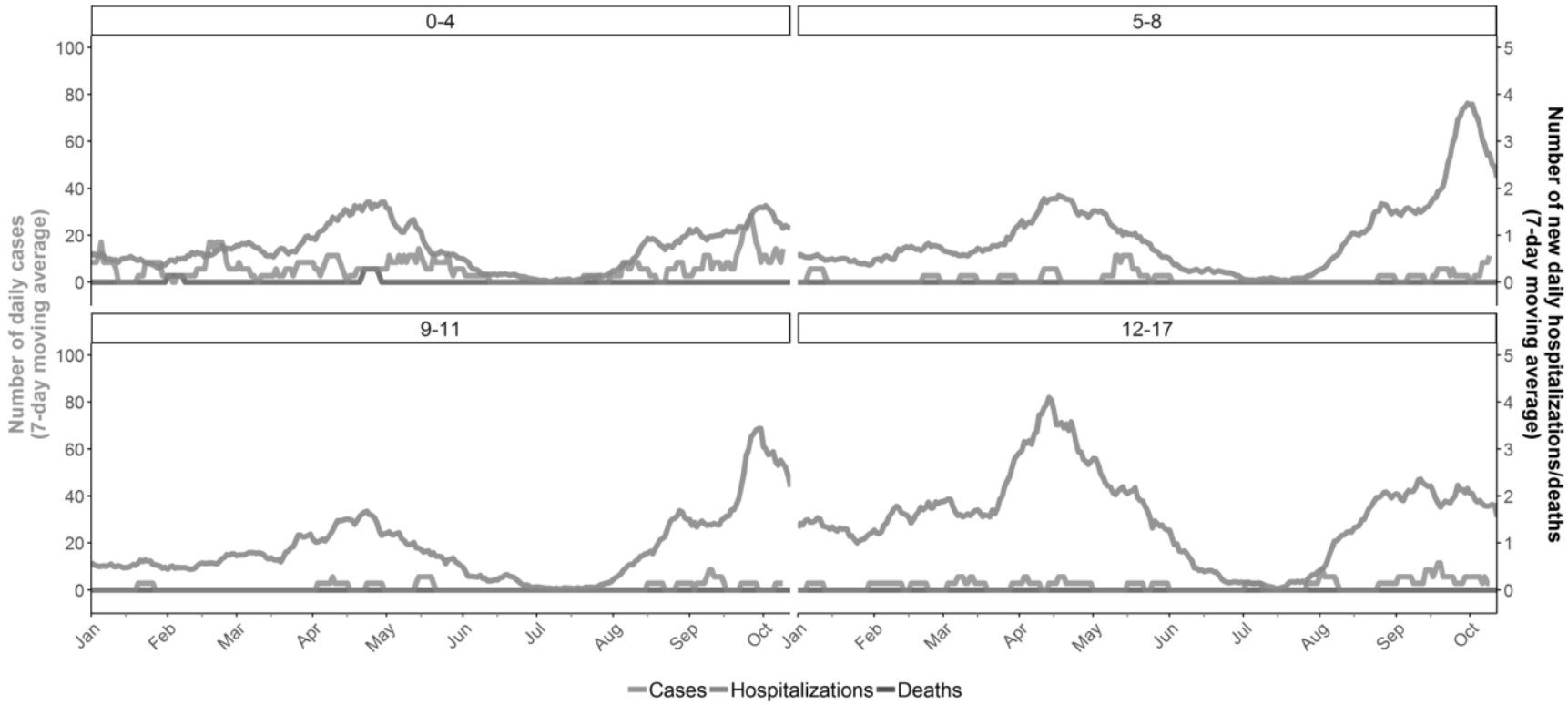
Date range: Jan 01 2021 - Oct 12 2021
Data source: PHRDW Oct-13-2021

The increase of COVID-19 cases in September was strongly associated with a significant increase in testing among children.

COVID-19 rate of daily testing and test positivity (%) by pediatric age group, August 1 to October 5, 2021



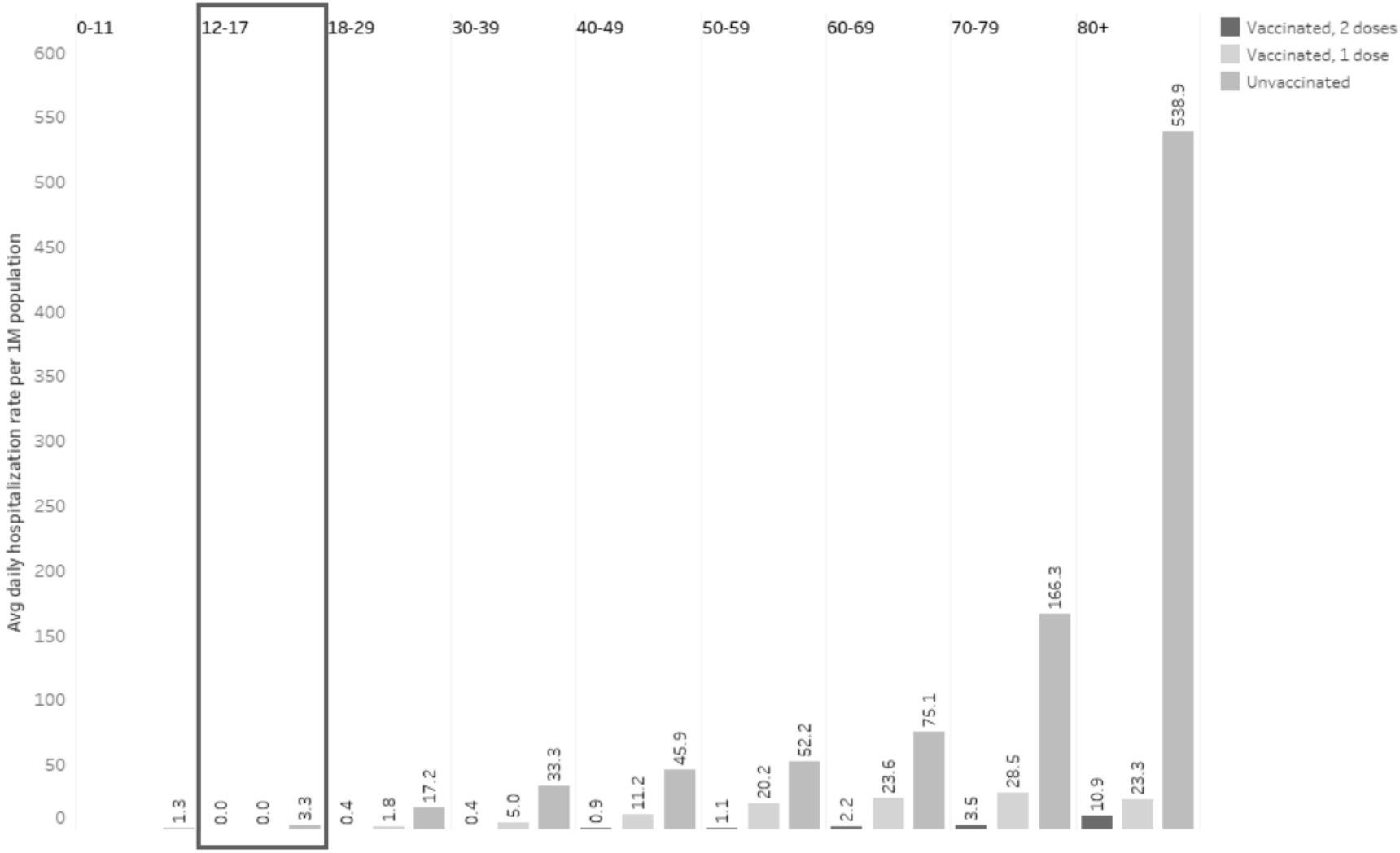
New daily COVID-19 cases, hospitalizations and deaths by pediatric age groups, January 1 to October 12, 2021



* Data are by surveillance date for cases and deaths, and admission date for hospitalizations
Data source: PHRDW + BCCW Oct-13-2021

Serious outcomes from COVID-19 infections continue to be rare among all school-age children (5-17 years old) in BC. There have been no deaths in this age group in BC.

Hospitalization rate of COVID-19 by vaccination status and age group, BC, September 8 to October 7, 2021



Among 12-17 year-old children who are eligible to be vaccinated, hospitalization is less common in youth who have at least 1 dose of vaccine compared to those who are unvaccinated.

Interior Health Authority (IHA) reported 80 clusters where COVID-19 transmission may have occurred in the K-12 school setting during the first five weeks of the 2021-2022 school year.

A total of 314 cases were linked to these clusters, representing 28% of the 1,123 COVID-19 cases among K-12 students and school staff in the region during this period.

The clusters, which consist of two or more cases, were reported in 46 (12%) K-12 schools within IHA.

Most of these clusters (median of 3 cases) were slightly larger than the average cluster size during the 2020-2021 school year.

COVID-19 clusters in K-12 schools in the Interior Health Region, September 7 to October 12, 2021

British Columbia COVID-19 Situation Report for K-12 Schools

October 2021 Update

Key Findings

- Diagnosed cases of COVID-19 increased among 5-11 year-olds in British Columbia (BC) during the first two weeks of the school year, primarily in regions with lower community vaccine coverage. The case incidence within these younger age groups peaked in late September and is now trending downward.
- The increase of COVID-19 cases in September was strongly associated with a significant increase in testing among children. The increase in testing may be attributed, at least in part, to an increase in circulation of other respiratory viruses with similar symptom presentation.
- Serious outcomes from COVID-19 infections continue to be rare among all school-age children in BC. Among 12-17 year-old children who are eligible to be vaccinated, hospitalization is less common in youth who have at least 1 dose of vaccine compared to those who are unvaccinated. There have been no deaths in this age group in BC.
- Vaccination coverage among 12-17 year-old children continues to increase throughout BC, although there are differences across regions. By October 14, 2021, one-dose coverage among 12-17 year-old children was 82% and two-dose coverage was 73% provincially.
- Expanded public posting of potential exposures in Kindergarten to Grade 12 (K-12) schools was initiated for all regional health authorities on September 28, 2021. There have been 1,388 postings among 510 (27%) of schools provincially between September 7 and October 9, 2021 (some notifications were added retrospectively).
- **Regional Analysis:** Interior Health Authority reported 80 clusters where COVID-19 transmission may have occurred in the classroom setting during the first five weeks of the 2021-2022 school year. The clusters, which consist of two or more cases, were reported in 46 (12%) K-12 schools. Most of these clusters (median of 3 cases) were slightly larger than the average cluster size during the 2020-2021 school year.

Age group: 0-4		Age group: 0-4		Age group: 0-4		Age group: 0-4		K-12 Schools	
4,920	total cases	103	ever hospitalized	11	ever in critical care	2	total deaths	1388	total notifications
204	new this week	3	new this week	1	current this week	0	new this week	507	new this week
Age group: 5-11		**Age group: 5-11**		**Age group: 5-11**		**Age group: 5-11**			
12,132	total cases	44	ever hospitalized	3	ever in critical care	0	total deaths		
877	new this week	1	new this week	0	current this week	0	new this week		
Age group: 12-17		**Age group: 12-17**		**Age group: 12-17**		**Age group: 12-17**			
11,575	total cases	45	ever hospitalized	7	ever in critical care	0	total deaths		
267	new this week	2	new this week	1	current this week	0	new this week		

o New cases and new deaths are net new between October 6 and October 13, 2021.
o New hospitalizations and critical care census numbers are as of October 12, 2021.
o School notifications are from September 7 to October 9, 2021, new this week is from October 3 to October 9, 2021.

Figure 1: Current summary of pediatric COVID-19 cases and school notifications in BC as of October 2021

Contents

A. Introduction

When COVID-19 spreads in a community, there is a risk that it will be introduced in the schools in that community. COVID-19 cases in schools typically reflect the number of cases in their communities.

The risk of COVID-19 in BC K-12 schools looks different this year: there are new variants of the virus that spread more easily, but there are also highly effective vaccines that are widely available to those aged 12 and older.

Increasing COVID-19 vaccine coverage among all eligible individuals aged 12 years and older is the most effective strategy to reduce the risk in K-12 schools during the 2021-2022 school year. While the majority of the eligible BC population has been vaccinated (89% first dose, 12+ years; and 83% both doses, 12+ years as of October 14, 2021), there are communities where immunization is much lower than the BC average. Evidence continues to demonstrate the strong protection provided by two doses of the COVID-19 vaccines available in BC, both against infection and severe disease. Not only does vaccination help protect the individual, it can also help protect others in the community, including younger children who are not yet eligible to be vaccinated.

Schools provide essential support for student academic, social, and emotional development. A previous report from the BCCDC outlined the importance of schools remaining open to support child and family wellbeing during the pandemic. According to the 2020 BC COVID-19 Speak survey, 60% of households with children reported increased child stress, while 79% of households with children report decreased connection with friends amidst school closures and other pandemic response measures.

While there have been some changes to the public health guidance for K-12 schools for the 2021-2022 school year, many public health measures from last school year remain in effect. As of August 25, 2021, the Provincial Health Officer mandated people 12 years and older to wear masks in indoor public settings, regardless of vaccination status. In response to increasing rates of COVID-19 among children under 12 years, the province updated its public health and communicable disease guidance for K-12 schools to require masks for kindergarten to Grade 3 students, effective October 4, 2021. As of October 12, 2021, the provincial indoor masking requirement was extended to anyone aged 5 years and older. Enhanced measures have also been recommended in some regions with higher rates of COVID-19, such as Fraser Health, Interior Health, and Northern Health.

During the 2020-2021 school year in BC, most cases of COVID-19 among students and staff were acquired outside of school, in their community or household. COVID-19 exposures at schools did not typically result in transmission. When they did, it was usually one or two other cases. While the experience from the last school year provided insight into how COVID-19 spread within the K-12 school environment, the emergence of the more transmissible Delta variant over the summer means that it is important to continue to monitor and respond as necessary to reduce the spread of COVID-19 in schools.

The purpose of this report is to provide a situational update on COVID-19 in BC K-12 schools since the start of the 2021-2022 school year.

B. Vaccination

Vaccine Coverage

Vaccines are the most effective way to reduce the risk of COVID-19. As part of the BC vaccination strategy, starting May 2021, everyone 12 years and older became eligible to receive the vaccine. For those 12-17 years-old, as of October 14, 2021, the second dose coverage for BC was 73%, while first dose coverage was 83%. There was regional variation for second doses: Vancouver Coastal Health reported the highest health authority coverage (84%) while Northern Health reported the lowest (50%). There was greater variation among coverage rates at the Local Health Area level (LHA) within Northern Health and Interior Health compared to other health authorities (Figure 2).

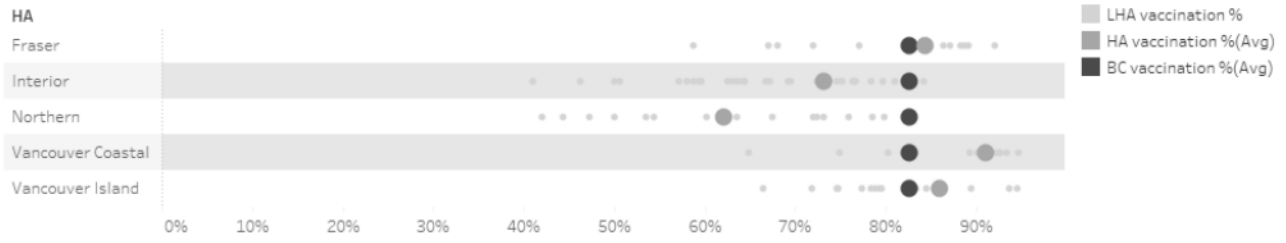


Figure 2: COVID-19 first dose vaccination coverage for 12-17 year-olds by Health Authority (HA) and Local Health Area (LHA), as of October 14, 2021

There are over 500,000 children under 12 years-old in BC who are ineligible to receive the COVID-19 vaccine at this time. In early October 2021 Pfizer submitted initial trial data for the use of its COVID-19 vaccine in children aged 5-11 to Health Canada. Registration is currently open for parents to register children aged 5-11, who may soon become eligible for vaccination.

Vaccine Safety

The COVID-19 mRNA vaccines available to youth in BC (Moderna Spikevax and Pfizer Comirnaty) are very safe and side effects are generally mild. Health Canada, the Public Health Agency of Canada, the provinces and territories, and manufacturers continue to closely monitor the safety of all COVID-19 vaccines through provincial and national reporting of adverse events.

Within Canada, there were 451 adverse events following immunization[1] (AEFI) with COVID-19 vaccines (e.g., tingling or prickling, vaccination site pain, headache) reported among 12-17 year-olds as of October 1, 2021, which represents 12

[1] AEFI general definition: any untoward medical occurrence which follows immunization and which does not necessarily have a causal relationship with the use of a vaccine.

reports per 100,000 doses administered. The 12-17-year age group experienced the lowest number and rate of reported AEFIs of any age group. Among all AEFIs reported to Health Canada, the majority were not serious.[2]

In BC, as of October 13, 2021, 13 cases of myocarditis/pericarditis have been reported among 12-17 year-olds following receipt of Pfizer Comirnaty, representing 27 cases per 1,000,000 Pfizer Comirnaty doses administered (95% confidence interval: 15.9-43.6).

C. Cases and Testing

Case Incidence

At the provincial level, the 7-day moving average COVID-19 case incidence rate among children under 12 years increased sharply in early September 2021, peaked during the week of September 26, 2021, and is now declining (Figure 3).

The case rates among the pediatric age groups have continued to trend down in recent weeks. The 5-8 and 9-11 year-old age groups have experienced the steepest decline compared to all other pediatric and adult age groups (Figure 3).

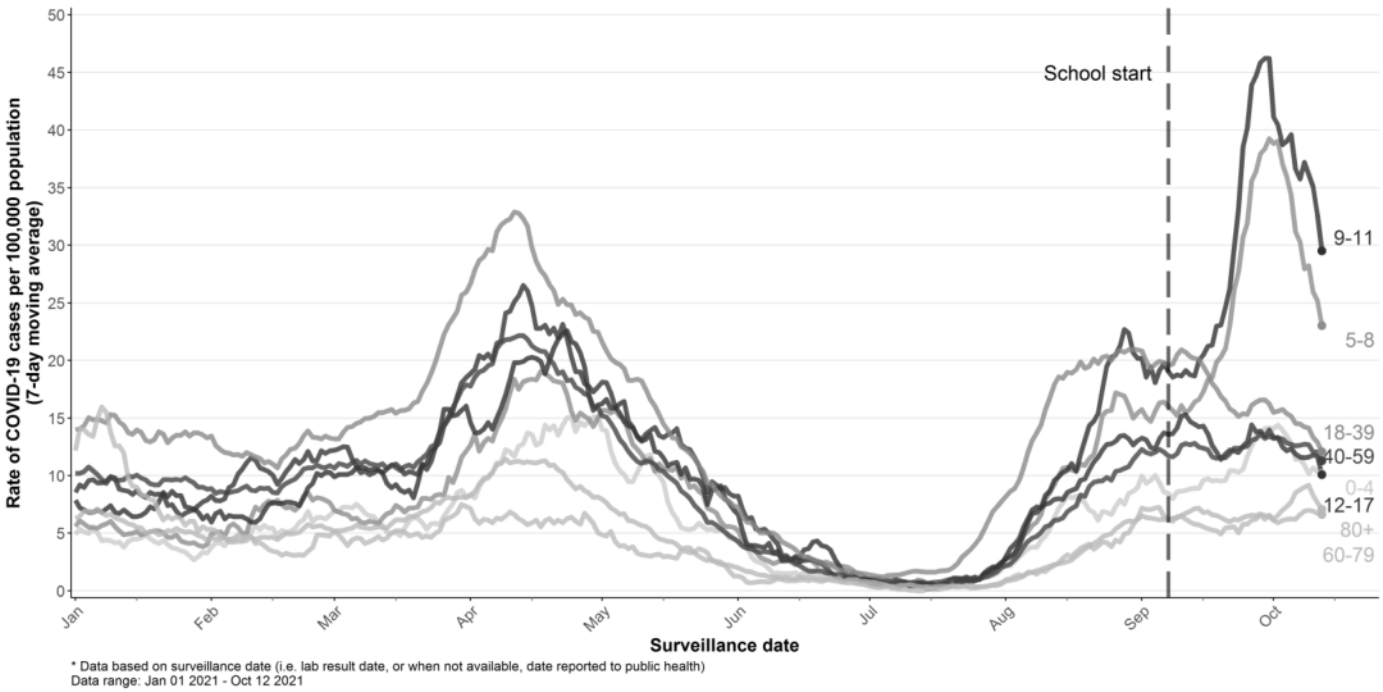
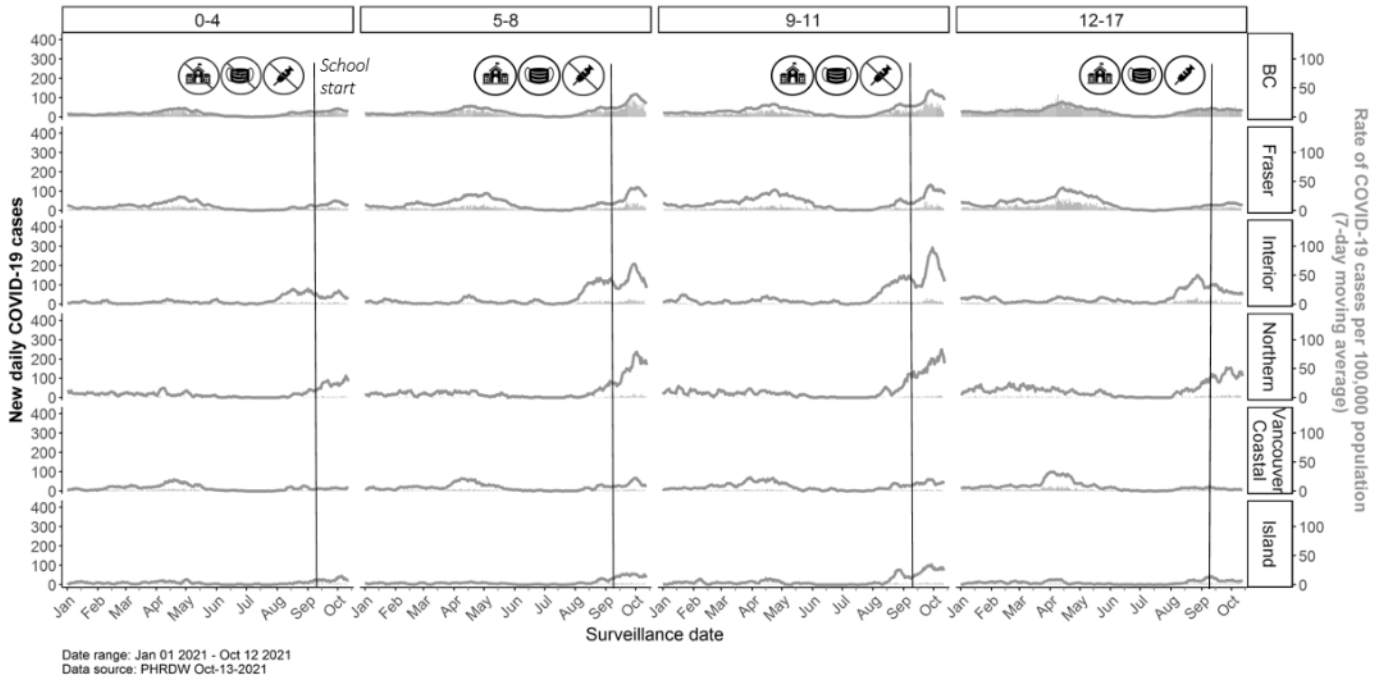


Figure 3: Rate of COVID-19 cases by age group, January 1 to October 12, 2021

[2] Serious AEFI: an AEFI that meets one or more of the following criteria: life-threatening, results in hospitalization, prolongation of an existing hospitalization, persistent or significant disability/incapacity, is a congenital anomaly/birth defect, fatal outcome. Any medical event which requires intervention to prevent one of the outcomes listed above may also be considered as serious.

Recent changes in case incidence rates among children differ by health authority and age group (

). Such regional differences reflect community vaccination coverage as well as community prevalence: regions with higher vaccination rates among eligible individuals, such as Vancouver Costal Health, experience lower case rates among children.



o Note: The mask mandate for K-3 students became effective October 4, 2021.

Figure 4: New daily COVID-19 cases and rates by HA and by age group, January 1 to October 12, 2021

Masking requirements were introduced for K-3 classes (approximately 5-8 years-old) on October 4, 2021, though case incidence rates within these age groups had already started to decline. Masks can provide an added layer of protection against COVID-19 transmission; however, it is difficult to assess the impact of mask wearing among younger grades. There are many factors that contribute to risk of COVID-19 infection, including rates in the community, vaccination coverage, and contact with others through social networks. The fact that rates are higher among 9-11 year-olds does not mean that there is not any benefit to masking, rather it suggests that there are numerous factors related to risk.

Testing Volumes and Positivity

A steep incline in COVID-19 testing began within days of school starting (

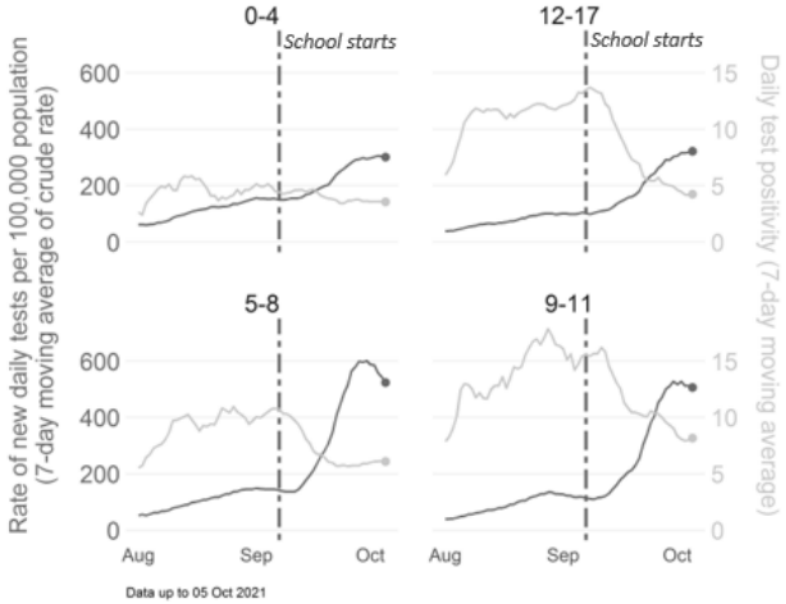


Figure 5). By the end of September, the testing rate among 5-8 year-olds had quadrupled from four weeks prior, reaching ~600 tests per 100,000 population. This was the highest testing rate of any age group and the highest ever during this pandemic. The increased testing in the pediatric and adolescent populations may be related to other circulating respiratory viruses causing similar symptoms to COVID-19 that often become more common following the start of school. Test positivity, the percentage of all tests performed that are positive, among 9-11 and 12-17 year-olds has continued to decline.

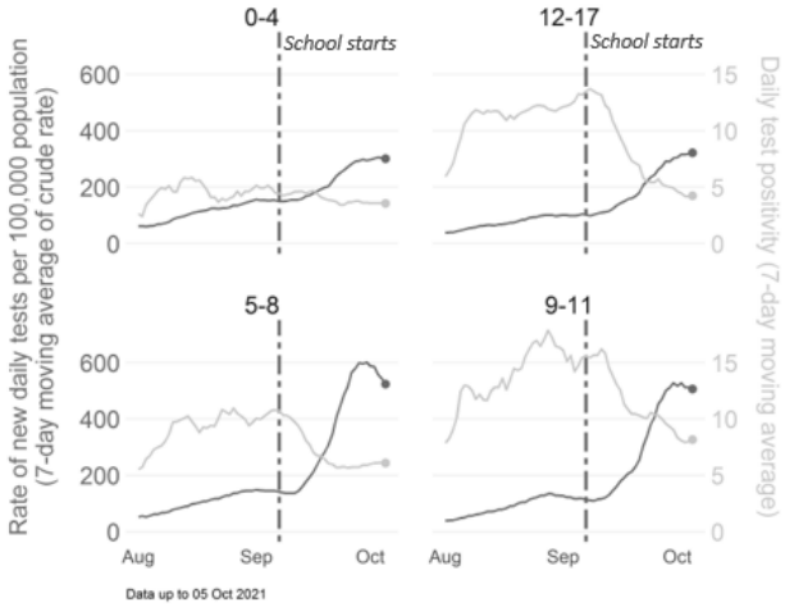


Figure 5: COVID-19 rate of daily testing and test positivity (%) by pediatric age group, August 1 to October 5, 2021

Impact of Vaccination

The effectiveness of COVID-19 vaccines at preventing infection is evident when comparing the case incidence among vaccinated and unvaccinated eligible adolescents. Among 12-17 year-olds, unvaccinated individuals are 24 times more likely to acquire COVID-19 when compared to their two-dose vaccinated counterparts (Figure 6).

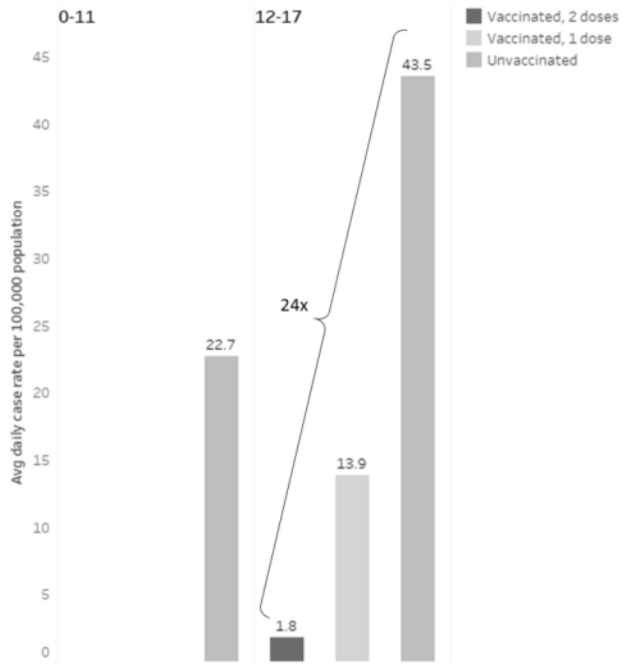


Figure 6: Average daily COVID-19 case rate per 100,000 by pediatric age group and by vaccination status, September 12 to October 11, 2021

D. Severe Outcomes

Hospitalization and Deaths

Most children are at low risk for acquiring COVID-19 and, if they do, they most commonly have mild or no symptoms. Among 5-17 year-olds in BC, there have been 94 hospitalizations, 10 critical care admissions, and no deaths from January 2020 to October 12, 2021. Rising case rates among children in BC since late summer 2021 have not translated into a significant increase in hospitalizations (Figure 7 and Figure 8).

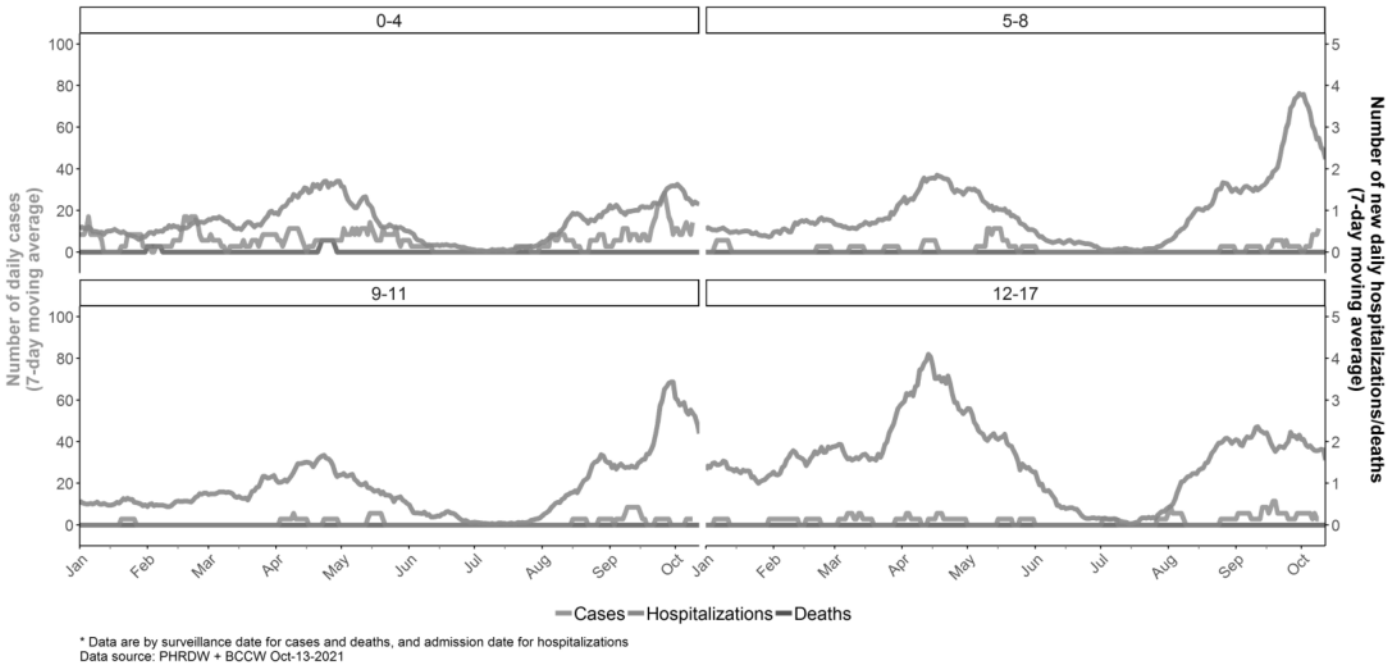


Figure 7: New daily COVID-19 cases, hospitalizations and deaths by pediatric age groups, January 1 to October 12, 2021

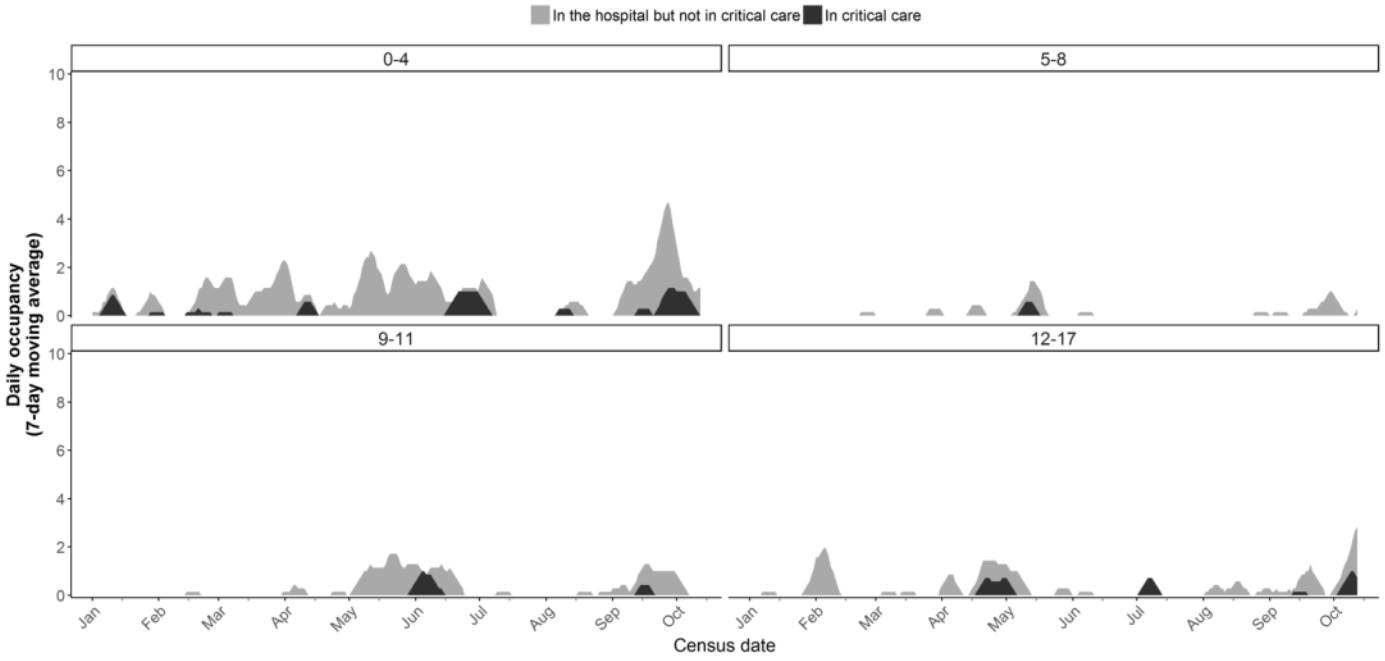


Figure 8: Current COVID-19 hospitalizations by pediatric age groups, January 1 to October 12, 2021

The hospitalization rate for children has remained low and stable throughout the pandemic. Children and youth (0-19 years) have consistently experienced the lowest hospitalization rate of all age groups (Figure 9).

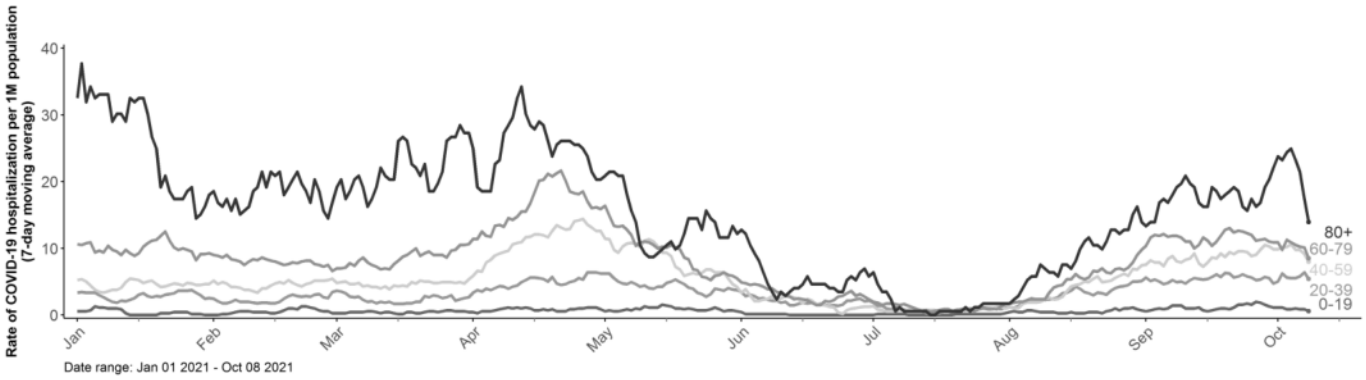


Figure 9: Trends in number and rate of new hospitalizations due to COVID-19 by age group, BC, January 1 to October 8, 2021

A recent analysis of Canadian data showed an incidental finding of COVID-19 infection is common (~40%) among children admitted to hospital. This means that it is possible that some proportion of hospitalizations among children who are positive for COVID-19 may not be directly due to the infection and children were admitted for other reasons.

Cases and hospitalizations continue to be higher among individuals who are unvaccinated. Within the 12-17 year-old age group, hospitalization is less common among those who are fully vaccinated (0 per 1,000,000 people) compared to those who are unvaccinated (3.3 per 1,000,000 people) (Figure 10).

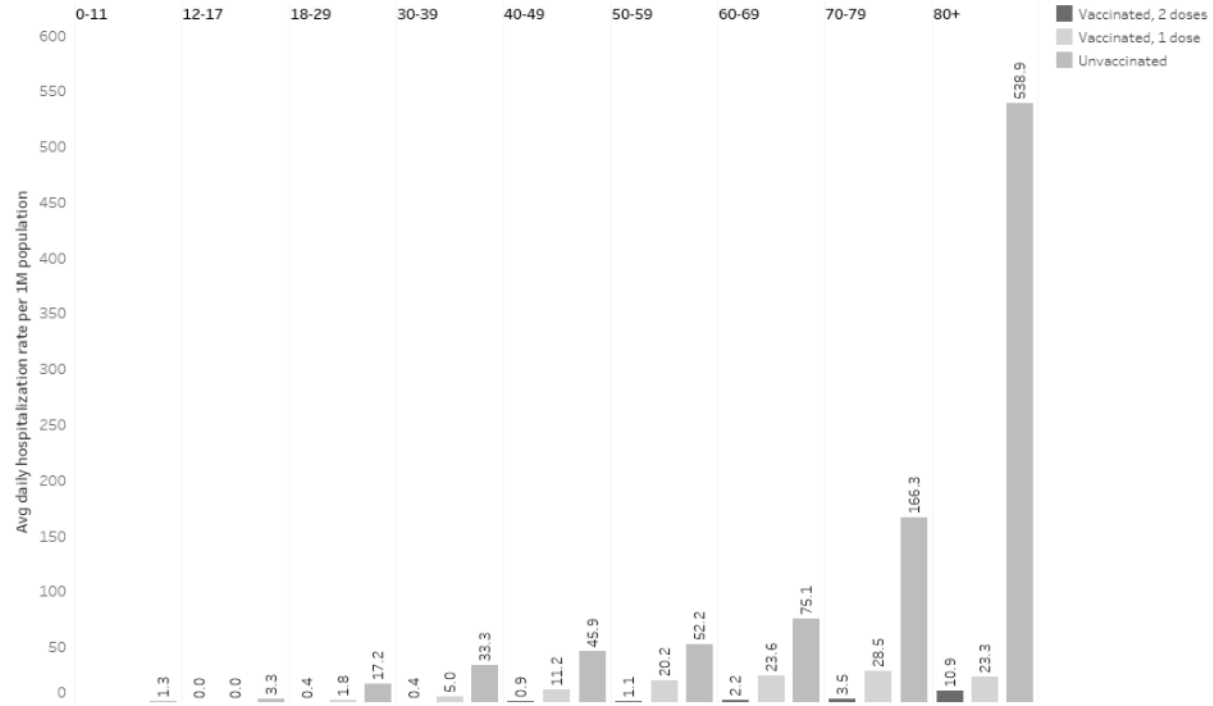


Figure 10: Hospitalization rate of COVID-19 by vaccination status and age group, BC, September 8 to October 7, 2021

Multi-system Inflammatory Syndrome (MIS-C)

Multi-system Inflammatory Syndrome in children and adolescents (MIS-C) is a rare inflammatory syndrome affecting those who have had COVID-19. Cumulatively, there have been 17 confirmed cases of MIS-C in BC from January 1, 2020 to September 25, 2021. The median age of these cases is 8 (range 1-15) years. All cases have recovered or are recovering.

E. Public Notifications of Potential Exposures in K-12 Schools

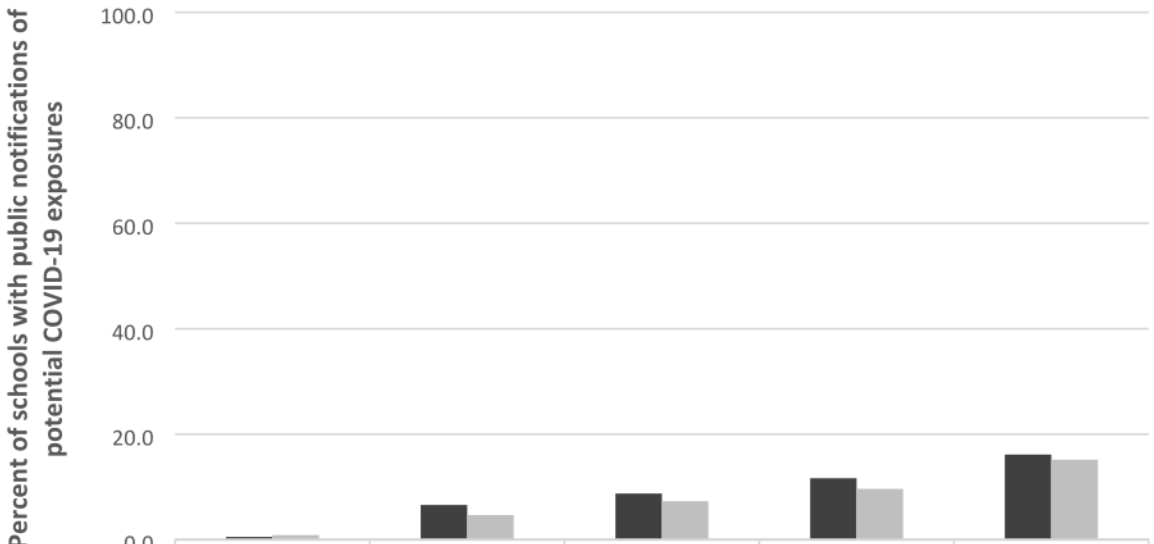
When a student or staff member of a K-12 school receives a positive COVID-19 test, public health contact tracing and investigation are triggered. If they attended school while infectious and public health staff identify a risk of onward transmission of COVID-19 to the groups they were a part of, regional health authorities will post a notification of a potential exposure to their website. Notification of a potential exposure does not mean disease transmission in the classroom or learning environment has occurred.

As of October 9, 2021, there have been 1,388 public notifications of potential COVID-19 exposures among 510 K-12 schools[3] in BC for the 2021-2022 school year (schools may have had more than one public exposure notifications during this period). This represents 69 (or 20%) of independent schools and 441 (or 29%) of public schools in BC (Table 1). Overall, during this period the percentage of public and independent schools with potential exposure notifications increased with the case incidence rate (Figure 11).

Table 1: Percentage of public and independent schools with public notifications of potential COVID-19 exposures, September 7 to October 9, 2021

School Type	Schools with public exposure notice	Total number of schools	Percent schools with public exposure notice
Independent	69	343	20.1
Public	441	1519	29.0
Total	**510**	**1862**	**27.4**

[3] Facility types included: standard, alternate, continuing education; facility types excluded: district distance education, long term Provincial Resource Program, summer school, youth custody.



	Week starting September 5, 2021	Week starting September 12, 2021	Week starting September 19, 2021	Week starting September 26, 2021	Week starting October 3, 2021
Public	0.5	6.6	8.8	11.7	16.1
Independent	0.9	4.7	7.3	9.6	15.2

Figure 11: Percentage of BC public and independent schools with public notifications of potential COVID-19 exposures by epi week and school type, September 5 to October 9, 2021

F. Regional Analysis of Interior Health Authority K-12 School COVID-19 Case Clusters

In-depth reviews of COVID-19 cases among students and staff in K-12 schools within regional health authorities can help us understand what transmission looks like in the school setting.

Through review of contact tracing records and linkage to vaccination data, Interior Health looked at the COVID-19 cases reported since the beginning of the 2021-2022 school year among students and staff in K-12 schools. The analysis assessed where the individual may have acquired the virus as well as any transmission that may have occurred in the school setting.

Located in the southern interior of BC, Interior Health is home to a population of over 810,000 in 2020. There are 321 public and 56 independent K-12 schools in the region, serving an estimated school-age (5-17 years) population of 98,959 children.

Throughout late summer 2021, Interior Health had the highest overall COVID-19 case incidence rate in BC, requiring implementation of additional public health measures across the region. As of October 14, 2021, the two-dose vaccination rate in Interior Health for the vaccine-eligible population (age 12 years and older) is 77%, which is lower than the provincial average of 83%. There is also wide variation in two-dose vaccination rate across the region, with the lowest in Enderby (63%) and the highest in Revelstoke (85%).

COVID-19 cases among the school-age pediatric population make up a very small proportion of overall cases in Interior Health. They generally follow community trends and reflect community COVID-19 activity (Figure 12).

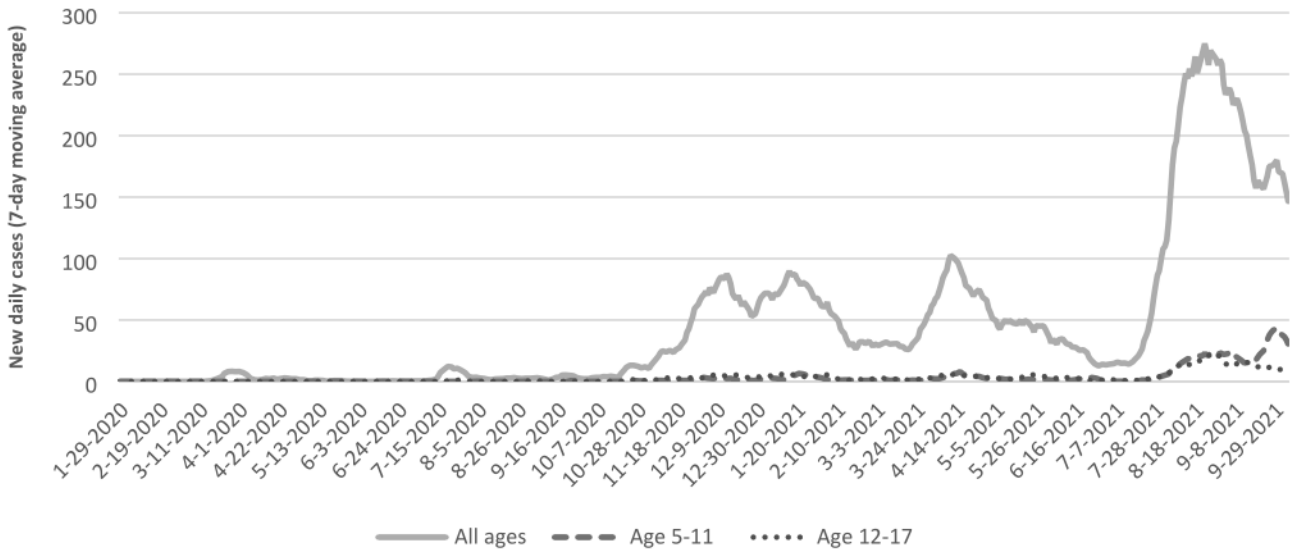


Figure 12: New daily cases of COVID-19 in Interior Health, all and school age (5-17 years), January 1, 2020 to October 6, 2021

Since September 1, 2021, a total of 1,123 reported COVID-19 cases were among people who worked at or attended school[4] in the Interior Health region. Among those cases who were eligible for vaccination, most were not fully immunized (Table 2).

Table 2: Number of cases among people that work at or attend school in Interior Health, by age group and immunization status (% of total within age group), September 1 to October 12, 2021

Vaccination Status	<12 years	12-19 years	Adults (including staff)	Total
Unimmunized	738 (99.9%)	186 (76.9%)	70 (49.3%)	994 (88.5%)
Partially immunized	1[†] (0.1%)	31 (12.8%)	11 (7.7%)	43 (3.8%)
Fully Immunized	0 (0%)	25 (10.3%)	61 (43%)	86 (7.7%)
Total	**739 (100%)**	**242 (100%)**	**142 (100%)**	**1123 (100%)**

o Fully Immunized: An individual with ≥14 days* after receiving their second dose of a two-dose COVID19 vaccine series
o Partially Immunized: An individual with ≥21 days* after receiving their first dose of a two-dose COVID-19 vaccine series
o Unimmunized: An individual who is either unvaccinated OR vaccinated and <21 days* since the first dose of COVID-19 vaccine. Individuals <12 years of age are not eligible for immunization at this time.
*Note: The number of days from first and second dose are counted from the date of dose administration to the illness episode date (symptom onset otherwise date reported to public health)

[†]People born in 2009 or earlier are eligible for COVID-19 vaccination in BC. Some in the vaccine eligible age group may not have yet turned 12 years old at the time this report was prepared.

[4] K-12 specified or missing school type.

Of all cases reported in Interior Health K-12 schools, 831 (74%) attended school while infectious. This does not necessarily mean that the infection was acquired in a school setting, nor does it mean they transmitted it within a school setting. Further analysis of contact tracing records allows the identification of transmission dynamics and school case clusters.

Notes about school case clusters:

- **School clusters** are defined as two or more cases that were reported within a 14-day period where transmission was likely within the school or where transmission in the classroom setting cannot be ruled out.
    - This means that, where contact tracers could not identify a specific source of transmission, out of an abundance of caution, these cases were considered to have acquired COVID-19 at school.
- One school may have more than one cluster at any given time.
- A cluster status transitions from **active** to **closed** when no additional case is linked to the cluster for 14 days after the last reported case.
- **All the data related to case clusters in this report include cases among both students and staff in the school community**.

Between September 7 and October 12, 2021, there have been 80 identified COVID-19 clusters in 46 schools in Interior Health. A total of 314 cases were linked to these clusters, representing 28% of the 1,123 COVID-19 cases among K-12 students and school staff in the region during this period. As of October 12, 2021, 50 clusters in 32 schools remained active. Overall, for both active and closed clusters, cluster size ranged from 3 to 11 cases with a median of 3. A median cluster size of 3 cases was consistent between closed and active clusters. No COVID-19 case clusters have been identified among 331 (or 88%) of the 377 schools within Interior Health since the beginning of the 2021-2022 school year (Figure 13).

Figure 13: COVID-19 clusters in K-12 schools in the Interior Health Region, September 7 to October 12, 2021

During the previous (2020-2021) school year, Vancouver Coastal Health and Fraser Health both released comprehensive analyses of COVID-19 transmission within K-12 school settings in their regions.

- By analyzing K-12 school cases reported between September 10 and December 18, 2020, Vancouver Coastal Health identified 26 school case clusters with evidence of school-based transmission with a median cluster size of 2.5 cases.
- Similarly, the analysis of K-12 school cases reported between January 1 and March 7, 2021 by Fraser Health identified 115 school case clusters with a median cluster size of 2 cases.
- Both the Vancouver Coastal Health and Fraser Health regional analyses were conducted before the Delta variant was circulating widely in BC.

In summary, COVID-19 cases within schools make up a small proportion of overall cases in Interior Health. Among the cases reported in K-12 schools who were eligible for vaccination, most were not fully immunized. Most of the K-12 school clusters reported in the region during the first five weeks of the 2021-2022 school year were slightly larger than the median cluster size reported in the previous school year by Vancouver Coastal Health and Fraser Health and involved a median of 3 cases. A provincial K-12 school cluster reporting system is currently under development, and data are expected to be available in subsequent reports.

G. Data Sources and Notes

Data sources include: HA case line list data, laboratory PLOVER data, PHSA Provincial Immunization Registry (PIR), Ministry of Health Immunization Population Coverage Report, hospital data PHSA Provincial COVID-19 Monitoring Solution (PCMS), Panorama, and the Ministry of Health's Health Sector Information, Analysis and Reporting (HSIAR) vaccine coverage data.

Daily cases are reported by surveillance date. For epi-linked cases, this is the date it was reported to public health. For all lab-confirmed cases, the lab result date is used. If a lab result date is not available, then the date the case was reported to public health is used.

Population estimates for case incidence, hospitalization, and death rates are from PEOPLE 2020.

Vaccination coverage is estimated using the Client Roster for the denominator as of March 12, 2021. Age is calculated as age as of December 31, 2021.

Laboratory data include Medical Service Plan (MSP) funded (e.g. clinical diagnostic tests) and non-MSP funded specimens (e.g. screening tests).

Public exposure notifications data were provided by the BC Ministry of Education.

Data may be corrected over time as additional data flow into the system.

Data for the regional analysis was generated by staff of the Interior Health Epidemiology and Surveillance Unit and Communicable Disease Unit Schools Team.

H. Additional Resources

Case Definitions

COVID-19 Case Definition

K-12 School Guidance

Public Health Communicable Disease Guidance for K-12 Schools

Provincial COVID-19 Dashboards

BCCDC COVID-19 Dashboard – Daily provincial and health authority level reporting of case incidence, death, hospitalization and laboratory data.

BCCDC Regional Surveillance Dashboard – Regional reporting of case and vaccine data.

BCCDC COVID-19 Epi App – Case incidence, death, hospitalization, laboratory and limited vaccine data for regional and global comparisons

Weekly adverse events to covid jabs increasing

From: s.22

To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>, Prov Hlth Office HLTH:EX <ProvHlthOffice@gov.bc.ca>, Minister, HLTH HLTH:EX <HLTH.Minister@gov.bc.ca>, OfficeofthePremier, Office PREM:EX <Premier@gov.bc.ca>, Horgan.MLA, John LASS:EX <John.Horgan.MLA@leg.bc.ca>, Kahlon.MLA, Ravi LASS:EX <Ravi.Kahlon.MLA@leg.bc.ca>, Carla Qualtrough <carla.qualtrough@parl.gc.ca>

Sent: October 23, 2021 7:36:37 AM PDT

Take a look

http://www.bccdc.ca/Health-Info-Site/Documents/COVID-19_vaccine/AEFI_reports/COVID19_AEFI_Fortnightly_Report_10212021.pdf

https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.publichealthontario.ca%2F-%2Fmedia%2Fdocuments%2Fncov%2Fepi%2Fcovid-19-aefi-report.pdf&data=04%7C01%7Cbonnie.henry%40gov.bc.ca%7Cc148c8093bd04e9caec608d9963286be%7C6fdb52003d0d4a8ab036d3685e359adc%7C0%7C0%7C637705966276840766%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=ZuwP3%2F8iPUW%2F8trEdcM2u4Hvw6IzIkIFy%2Fn%2F%2BbhiT9U%3D&reserved=0

The non and serious Adverse reactions to all the covid 19 jabs keep increasing daily and seen weekly. How many more people, including CHILDREN, have to die or be severally injured by soliciting this poison!

You are guilty of crimes against humanity, may God have mercy on your soul.

BC Covid 19 AEFI weekly report

From: s.22

To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>, Prov Hlth Office HLTH:EX <ProvHlthOffice@gov.bc.ca>, Minister, HLTH HLTH:EX <HLTH.Minister@gov.bc.ca>, OfficeofthePremier, Office PREM:EX <Premier@gov.bc.ca>, Horgan.MLA, John LASS:EX <John.Horgan.MLA@leg.bc.ca>, Kahlon.MLA, Ravi LASS:EX <Ravi.Kahlon.MLA@leg.bc.ca>, Carla Qualtrough <carla.qualtrough@parl.gc.ca>

Sent: October 30, 2021 6:26:00 AM PDT

Attachments: COVID19_AEFI_Fortnightly_Report_10212021.pdf

http://www.bccdc.ca/Health-Info-Site/Documents/COVID-19_vaccine/AEFI_reports/COVID19_AEFI_Fortnightly_Report_10212021.pdf

You are fantastic at your "models", data, misinformation, and lies.

Do you actually look at the actual adverse reactions weekly data to any covid 19 jab?

Maybe you should and see that all covid 19 jabs are dangerous to people's health and that taking the jab does not stop or slow "the spread".

You are guilty of crimes against humanity, shame on you!

British Columbia Report

Adverse Events Following Immunization with COVID-19 Vaccines

December 13, 2020 to October 16, 2021

This report summarizes the reports of COVID-19 vaccine adverse events following immunization (AEFI) reported to the BC Centre for Disease Control up to and including October 16, 2021. Please refer to the BCCDC website for reporting guidelines and to the Data Notes section at the end of this report for additional information on the source data.[1] Events can be reported even when there is no certainty of a casual association.

Summary

The COVID-19 vaccines demonstrated safety in clinical trials prior to authorization for use and in worldwide use.[2-4] During post-marketing surveillance, larger numbers of individuals are vaccinated, and this allows for detection of rare events undetected in clinical trials.

Anaphylaxis and allergic events are the most frequently reported events following all of the COVID-19 vaccines. About half of the cases managed as anaphylaxis had lower level of diagnostic certainty and may reflect events such as anxiety or pre-syncopal (fainting) events managed as anaphylaxis out of an abundance of caution.

In association with the mRNA vaccines, Canada and BC are monitoring the occurrence of myocarditis and pericarditis. This association was first recognized in Israel and the USA in young adults and adolescents, and has now also been seen in other countries.[5-7,22,23]

There have been four reports of thrombosis with thrombocytopenia syndrome reported in BC to date in association with over 350,000 doses of the ChAdOx1 (chimpanzee adenovirus vector vaccines AstraZeneca/COVISHIELD) administered. This syndrome was identified in March in Europe in association with the AstraZeneca vaccine, with a small number of cases accumulating in Canada associated with use of these vaccines; the rate of occurrence has been estimated at about 1 in 67,000 recipients following the first dose and 1 in 500,000 following the second dose.[8,9,22]

Background

AEFIs are reportable by health care providers to the local medical health officer under the regulations of the Public Health Act. Detailed reporting guidelines are available in the BC Immunization Manual.[10] When an AEFI report is received at a local public health unit, it is reviewed and reported in the public health information system aligned with the immunization registry which contains the information about the vaccine(s) administered on a specific date. Recommendations for further assessment and future doses are made by the medical health officer or designated public health professional. Expected side effects such as pain, redness, and swelling at the injection site which are commonly observed with many vaccines are not reportable as AEFI unless these meet specific severity thresholds.

AEFI reports are further investigated provincially with particular focus on serious AEFI and detection of potential safety signals (e.g., clusters of events, event rates occurring at a higher than expected frequency compared to background rates, or rare events with previously unknown association with vaccination). Additionally, BC submits AEFI reports to the Canadian Adverse Event Following Immunization Surveillance System where additional review and analysis for potential safety signals is performed at the national level.[11] The Public Health Agency of Canada also produces a weekly COVID-19 AEFI report.[12]

Definitions

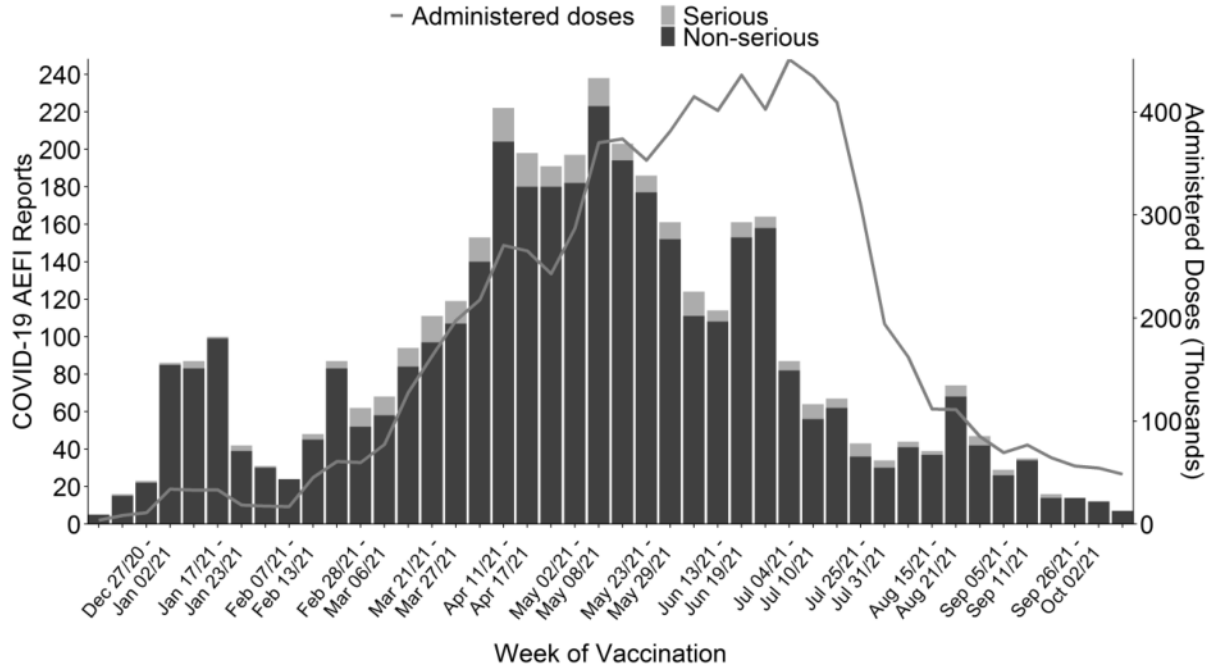
1. **Adverse event following immunization (AEFI)** - Any untoward medical event following immunization that is temporally (i.e., occurs within a biologically plausible timeframe after receipt of vaccine) but not necessarily causally associated.[13]
2. **Serious AEFI** - For the purpose of this report, a serious AEFI is one that resulted in hospitalization or a prolongation of hospitalization, permanent disability/incapacity, or death.

Key Findings

- As of October 16, 2021, there have been 7,963,048 COVID-19 vaccine doses administered in BC and 3,927 COVID-19 AEFI reports (49.3 reports per 100,000 doses administered)
- 276 reports (7%) met the serious definition, for a rate of 3.5 per 100,000 doses administered
- The most frequently reported events were other allergic event, anaesthesia/paraesthesia, and injection site pain/swelling/redness

Summary of AEFI Reports

Figure 1: Adverse event reports following receipt of a COVID-19 vaccine by week of vaccination, BC, Dec. 13, 2020 - Oct. 16, 2021 **(N=3,927)**



COVID-19 vaccinations of British Columbians began the week of December 13, 2020, and up to and including October 16, 2021, a total of 7,963,048 doses have been administered. During this period, there have been 3,927 AEFI reports following a COVID-19 vaccine, for a reporting rate of 49.3 reports per 100,000 doses administered (Table 1). Reports are delayed beyond the week of vaccination because of time to onset that varies by event and associated time to receive, investigate and process a report for submission. Weekly report counts, especially for recent weeks, are expected to increase over time as these are submitted, but Figure 1 shows that reports have declined as the immunization campaign has progressed, even as the doses administered have continued to increase. This is because the AEFI reporting rate associated with second doses of all COVID-19 vaccines administered has been substantially lower than the rate associated with the first dose.

Table 1: Description of adverse event reports following receipt of a COVID-19 vaccine, BC, Dec. 13, 2020 - Oct. 16, 2021 **(N=3,927)**

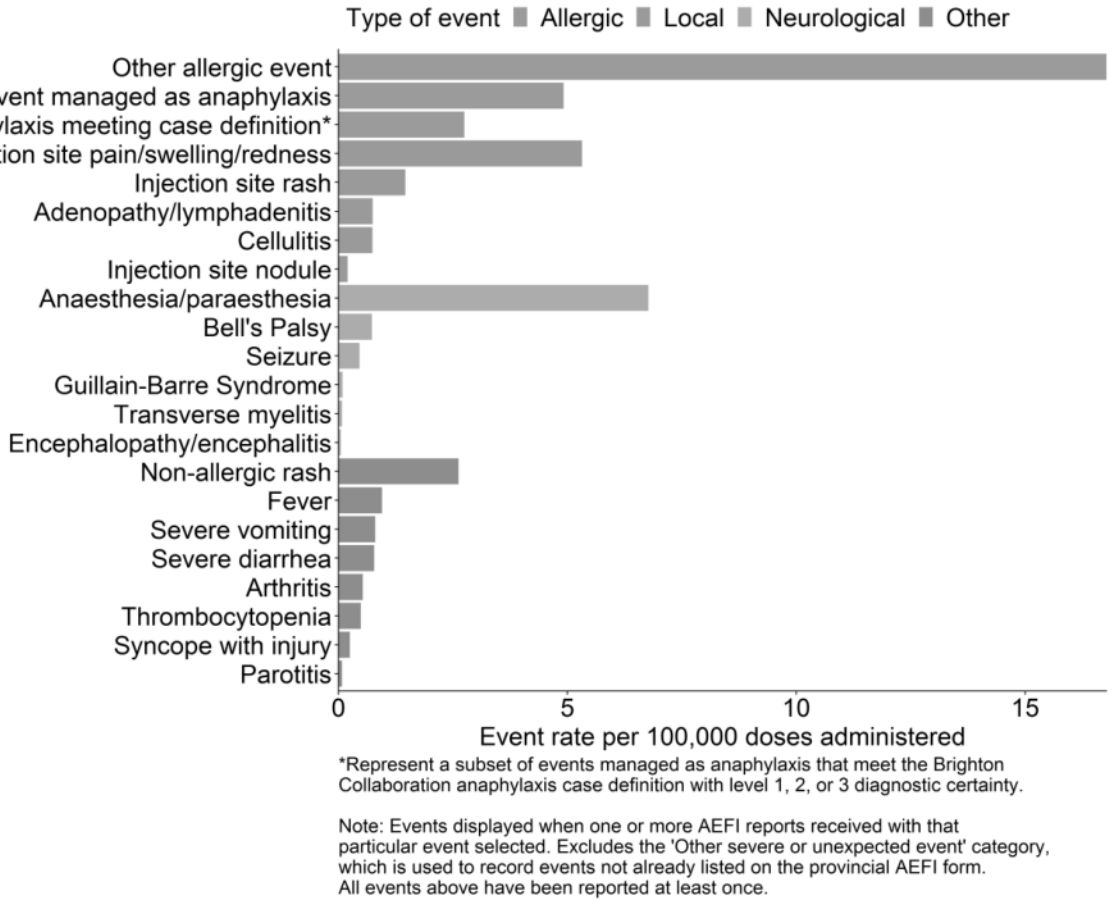
		COVID-19 Vaccine*			
	All COVID-19 Vaccines	**AstraZeneca**	**COVISHIELD**	**Moderna**	**Pfizer**
Total reports	**3927**	**257**	**67**	**1297**	**2306**
Non-serious reports	3651	228	61	1213	2149
Serious reports	276	29	6	84	157
Proportion serious	7%	11.3%	9%	6.5%	6.8%
Dose 1 reports	3145	233	66	1009	1837
Dose 2 reports	773	24	1	281	467
Total doses administered	**7,963,048**	**328,542**	**71,329**	**1,973,336**	**5,589,841**
Dose 1 administered	4,280,720	225,294	61,220	1,010,842	2,983,364
Dose 2 administered	3,682,328	103,248	10,109	962,494	2,606,477
Total reporting rate	**49.3**	**78.2**	**93.9**	**65.7**	**41.3**
Serious rate	3.5	8.8	8.4	4.3	2.8
Dose 1 rate	73.5	103.4	107.8	99.8	61.6
Dose 2 rate	21.0	23.2	9.9	29.2	17.9

Note: Rates calculated per 100,000 doses administered

Summary of Reported Events

A single AEFI report may contain one or more adverse events. Reported events are temporally associated with vaccination (i.e., occur after vaccination within a biologically plausible timeframe) but not necessarily causally associated. The 3,927 AEFI reports received up to October 16, 2021 contained a total of 4,976 adverse events for a ratio of 1.3 events per COVID-19 AEFI report. The most frequently reported events were other allergic events (e.g., allergic rash, hives, pruritus, and gastrointestinal symptoms), anaesthesia/paraesthesia, and events managed as anaphylaxis (Figure 2).

Figure 2: Adverse events following receipt of a COVID-19 vaccine, British Columbia, Dec. 13, 2020 - Oct. 16, 2021 **(N=4,976)**



*Represent a subset of events managed as anaphylaxis that meet the Brighton Collaboration anaphylaxis case definition with level 1, 2, or 3 diagnostic certainty.

Note: Events displayed when one or more AEFI reports received with that particular event selected. Excludes the 'Other severe or unexpected event' category, which is used to record events not already listed on the provincial AEFI form. All events above have been reported at least once.

Event Descriptions

Three hundred ninety-two reports were received for events managed as anaphylaxis (i.e., the client received epinephrine for a suspected anaphylactic reaction). Of these, 219 (56%) met the Brighton Collaboration definition for anaphylaxis with diagnostic certainty levels of 1, 2, or 3.[14] Upon further review of these reports, many may reflect events such as anxiety or pre-syncopal (fainting) events.

Fifty-nine reports of cellulitis were received. Although most of these reports specified that antibiotics were provided, many appeared to represent a delayed onset local inflammatory reaction, rather than cellulitis.[15] None of these reports were confirmed by microbial testing.

Two hundred seventy-six reports (7%), including some of the events described above, were considered **serious** (refer to serious AEFI definition above). Of these, 260 individuals were admitted to hospital, including 5% of cases reported as anaphylaxis.

One hundred and eighteen reports contained a diagnosed neurological event. Fifty-eight individuals experienced Bell's palsy within 30 days following COVID-19 vaccination. Four

individuals were admitted to hospital and diagnosed with transverse myelitis, including one with a history of multiple sclerosis. An additional two individuals were reported as having transverse myelitis, however, one had a clinical diagnosis unconfirmed by diagnostic imaging and the other's workup was inconsistent with transverse myelitis. Thirty-seven individuals were reported with seizures (21.6% of which were hospitalized), including 13 with a history of a seizure disorder. Four individuals were admitted to hospital for an intracerebral hemorrhage, one of whom had a subsequent encephalopathy. One individual was hospitalized for aseptic meningitis and another for encephalitis presumed to be viral in nature. One individual developed encephalopathy attributed to a workplace toxin exposure and was hospitalized; this event was reported because of its coincidental temporal association to COVID-19 vaccine receipt. There were seven reports for individuals hospitalized with Guillain-Barre Syndrome (GBS), now all discharged. Three of these reports followed AstraZeneca vaccine. A possible infectious cause of GBS was not identified in five cases but followed an illness compatible with recent infection of unknown cause for the other two cases. GBS cases following COVID-19 vaccines have been identified in Canada and internationally, but rarely.[12,16,17] Finally, there have been three reports of sudden hearing loss verified by audiology testing. Two individuals had a sensorineural hearing loss (SNHL), and the other had either sensorineural or conductive hearing loss. Two individuals recovered their hearing with treatment and the third individual's hearing was still improving at the time of this report. One U.S. study has looked at an association between COVID-19 vaccines and SNHL and found rates after vaccination did not exceed background rates in the general population.[18]

There were 35 reports of thrombocytopenia without concurrent thrombosis. Two occurred in individuals with a single low platelet count followed subsequently by normal results; in both the low platelet counts were assessed as due to laboratory error. The majority of reports were in individuals who had a previous history of thrombocytopenia or who had a concurrent condition (e.g., known infection, sepsis, cancer) or medication associated with thrombocytopenia. There were thirteen reports of idiopathic thrombocytopenia (i.e., thrombocytopenia without a known cause). Seven of these were following the AstraZeneca vaccine, and in one case, the individual tested positive for the anti-platelet factor 4 antibody often observed with TTS. This individual did not meet the TTS definition as they had no signs or symptoms of thrombosis, and all imaging studies for a thrombus/thromboembolism were negative.[7,8] Collectively, thrombocytopenia cases lead to 20 hospitalizations (52.6% of cases).

Death is reportable as an adverse event when it occurs within 30 days of vaccination and no other clear cause of death has been established.[10] Death may also be recorded as the outcome of a specific reportable event. Sixteen serious AEFI reports were received for individuals who died within 30 days of receiving a COVID-19 vaccine.

- For five of the deaths, vaccination was not considered to be a contributing factor by the health care provider or coroner who attended and investigated the death and considered the individuals' medical history.

- One death occurred in a long term care resident following deterioration with reduction in oral intake, without a clear underlying cause of death identified.

- In six individuals, death was the outcome of cardiac arrest. Five of these were elderly individuals, many with multiple underlying medical conditions, while the other had cardiac risk factors and was hospitalized for a myocardial infarction.

- Two deaths occurred in elderly individuals following a stroke and hospital admission. Both had previous history of stroke along with other medical conditions.

- One death occurred in an individual with metastatic cancer who had been hospitalized for complications of thrombocytopenia and hemolytic anemia.

- One death occurred in an elderly individual who suffered from multiple serious comorbidities, with completion of a coroner's investigation pending.

'Other serious' events:
Some events may be reported as an "other serious" event when they do not have their own discrete event on the provincial AEFI report form. These are outlined in this section; some of these events have been described above in the **serious events** section. Amongst these events, 119 were for various thrombotic/ thromboembolic conditions. These included 27 strokes (96.3% of which were hospitalized) and one cerebral venous sinus thrombosis without thrombocytopenia (i.e., not a TTS case), 15 myocardial infarctions (all hospitalized), 31 pulmonary emboli (67.7% hospitalized), 38 deep vein thromboses, and seven superficial vein thromboses. None of these events met the TTS criteria as none were associated with new onset thrombocytopenia.[8,9]

One "other serious" report was received for an individual with capillary leak syndrome with onset five weeks after AstraZeneca vaccine. Capillary leak syndrome is a very rare condition associated with the AstraZeneca vaccine. By June 2021 only six cases had been identified in Europe following over 78 million doses of AstraZeneca vaccine administered.[19] Health Canada has issued an advisory for this condition and its association with AstraZeneca/COVISHIELD vaccines.[20]

There have been four non-fatal confirmed cases of TTS reported in BC to date, three of whom were adults in their 30s or 40s and the fourth was in their 60s. The first had onset four days after receipt of the AstraZeneca vaccine with a low platelet count found upon presentation for care, and a diagnosis of pulmonary embolism. The second case had abdominal symptoms that progressed the week after receiving the AstraZeneca vaccine, with a diagnosis of abdominal venous thrombus and thrombocytopenia. The third case also had symptoms develop in the week after AstraZeneca vaccine. Upon presentation to care, thrombocytopenia was detected. The individual was assessed for possible TTS, and identification of an abdominal venous thrombus was made in hospital. All three of these individuals followed the first dose of AstraZeneca and had a positive anti-platelet factor 4 antibody test. The fourth individual suffered a stroke a week after the second dose of the AstraZeneca vaccine. Thrombocytopenia was identified in hospital; the anti-platelet factor 4 antibody test was negative.

There have been 114 reports of pericarditis/myocarditis. Fifty-six individuals were diagnosed with pericarditis alone, 30 with myocarditis alone, and 35 with myopericarditis. Ages ranged from 14 to 95 with a median of 38.3 years, and 78 were male. Forty-three had received Moderna Spikevax vaccine, 71 received Pfizer Comirnaty vaccine, and seven received AstraZeneca/COVISHIELD. Fifty-seven of these events occurred after a second dose (30 Pfizer Comirnaty and 26 Moderna Spikevax). Some had alternate explanations including rheumatic diseases, a genetic syndrome associated with cardiac disorders, or viral infection. Twenty-seven (out of 30) of the myocarditis cases met the diagnostic criteria for level 1, 2, or 3 of the Brighton Collaboration case definition. Twenty-seven (out of 56) pericarditis cases met the diagnostic criteria for level 1, 2, or 3 of the Brighton Collaboration case definition. Twenty-two (out of 35) myopericarditis cases met the diagnostic criteria for level 1, 2, or 3 of the Brighton Collaboration case definition for both myocarditis and pericarditis.[21] These conditions have been seen in association with the mRNA vaccines in several countries including the US and UK as well as in Canada, especially in adolescent and young adult males and with the 2nd dose.[5-7,12]

Table 2: Number of Myo/Pericarditis reports following receipt of an mRNA COVID-19 vaccine, British Columbia, Dec.13, 2020 – Oct. 16, 2021 **(N=114)**

Vaccine / Dose		Age (years)					
		12-17	18-24	25-29	30-39	40+	All Ages
Moderna Spikevax	N (% Total)	**0 (0%)**	**10 (8.8%)**	**9 (7.9%)**	**10 (8.8%)**	**14 (12.3%)**	**43 (37.7%)**
Dose 1	N (% Total)	0 (0%)	2 (1.8%)	4 (3.5%)	5 (4.4%)	6 (5.3%)	17 (14.9%)
Dose 2	N (% Total)	0 (0%)	8 (7%)	5 (4.4%)	5 (4.4%)	8 (7%)	26 (22.8%)
Pfizer Comirnaty	N (% Total)	**14 (12.3%)**	**12 (10.5%)**	**3 (2.6%)**	**14 (12.3%)**	**28 (24.6%)**	**71 (62.3%)**
Dose 1	N (% Total)	6 (5.3%)	3 (2.6%)	1 (0.9%)	12 (10.5%)	19 (16.7%)	41 (36%)
Dose 2	N (% Total)	8 (7%)	9 (7.9%)	2 (1.8%)	2 (1.8%)	9 (7.9%)	30 (26.3%)
mRNA Vaccines	N (% Total)	**14 (12.3%)**	**22 (19.3%)**	**12 (10.6%)**	**24 (21.1%)**	**42 (36.9%)**	**114 (100%)**

Total = 114 reports of myocarditis/pericarditis following an mRNA COVID-19 Vaccine (6 reports following AstraZeneca Vaxzevria/Verity COVISHIELD vaccine were omitted from this table). Data taken from Panorama up until 16th October, 2021

Table 3: Rates of Myo/Pericarditis reports following receipt of an mRNA COVID-19 vaccine, British Columbia, Dec.13, 2020 – Oct. 16, 2021. Stratified by sex, age groups, vaccine trade name, and dose **(N=114)**

Vaccine / Age Group	Reporting Rate† (95% CI)					
	Males			Females		
Moderna Spikevax	Dose 1	Dose 2	All Doses	Dose 1	Dose 2	All Doses
12-17	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)
18-24	18.5 (4.5-68.2)	150.9 (74.4-281.5)	79.6 (41-143.5)	20.8 (5-76.7)	22.2 (5.4-82.1)	21.5 (6.6-59.9)
25-29	**83.5 (33.9-183)**	**118.2 (52-242.1)**	**99.8 (53.1-174.7)**	0 (0-0)	0 (0-0)	0 (0-0)
30-39	40.5 (16.4-88.8)	34.8 (12.6-83.8)	37.9 (18.7-70.6)	11.4 (2.8-42)	24.6 (7.6-68.5)	17.7 (6.4-42.7)
40+	12.7 (5.1-27.8)	13.2 (5.4-28.9)	12.9 (6.6-23.3)	6.4 (2-17.8)	12.6 (5.1-27.5)	9.5 (4.5-18.5)
All Ages	25.1 (14.8-40.4)	**39.6 (25.5-59.4)**	**32.1 (22.8-44.1)**	8.1 (3.3-17.8)	14.4 (7.1-26.9)	11.2 (6.3-18.8)
Pfizer Comirnaty	Dose 1	Dose 2	All Doses	Dose 1	Dose 2	All Doses
12-17	38.6 (17-79.1)	51.6 (24.2-100.4)	44.8 (25.2-74.8)	7.9 (1.9-29.3)	17.6 (5.4-48.9)	12.5 (4.5-30.1)
18-24	21.7 (7.9-52.1)	51.1 (24-99.3)	35.1 (18.7-61.6)	0 (0-0)	23.7 (8.6-57.2)	11.1 (4-26.8)
25-29	**8.8 (2.1-32.4)**	**10.2 (2.5-37.6)**	**9.4 (2.9-26.3)**	0 (0-0)	9.4 (2.3-34.9)	4.5 (1.1-16.4)
30-39	40.8 (21.7-71.4)	5.2 (1.3-19.2)	24.2 (13.3-41.4)	12.7 (4.6-30.5)	4.7 (1.1-17.5)	8.9 (3.6-19.6)
40+	8.6 (4.3-16.1)	5.7 (2.3-12.6)	7.3 (4.1-12.2)	12.8 (7.4-20.9)	6 (2.7-12.4)	9.6 (6-14.7)
All Ages	17.6 (12-25.2)	**14.7 (9.3-22.2)**	**16.3 (12.1-21.5)**	10.2 (6.3-15.8)	8.7 (5-14.2)	9.5 (6.6-13.3)

mRNA Vaccines	Dose 1	Dose 2	All Doses	Dose 1	Dose 2	All Doses
12-17	38.1 (16.8-78.0)	51.2 (24.0-99.5)	44.2 (24.9-74.0)	7.8 (1.9-28.9)	17.4 (5.4-48.5)	12.4 (4.5-29.8)
18-24	20.8 (8.4-45.5)	79.3 (46.7-127.9)	47.7 (29.9-72.9)	5.2 (1.3-19.3)	23.4 (9.5-51.2)	13.8 (6.1-28.3)
25-29	30.9 (13.6-63.4)	42.7 (20-83.1)	36.4 (20.5-60.9)	0 (0-0)	6.9 (1.7-25.4)	3.3 (0.8-12.1)
30-39	40.7 (23.9-65.6)	14.4 (5.8-31.5)	28.4 (17.8-43.5)	12.3 (5.0-27.0)	10.3 (3.7-24.7)	11.3 (5.6-21.2)
40+	9.8 (5.5-16.3)	8 (4.1-14.4)	8.9 (5.7-13.4)	11.2 (6.7-17.7)	7.9 (4.2-13.8)	9.6 (6.4-13.9)
All Ages	19.6 (14.3-26.4)	21.7 (15.8-29.3)	20.6 (16.5-25.5)	9.7 (6.3-14.4)	10.2 (6.5-15.2)	9.9 (7.3-13.3)

† Rates calculated per 1 million doses administered. Data taken from Panorama up until 16th October, 2021. These rates were calculated from reports of myocarditis/pericarditis without accounting for Brighton Collaboration levels.

Table 3 shows the rates for Myo/Pericarditis following either dose (or both doses combined) of Moderna Spikevax in BC are higher than those following the respective dose(s) of the Pfizer Comirnaty vaccine for males between 25 and 29 years old. The rates following a second dose (and both doses combined) of Moderna Spikevax are also higher for males of all ages combined. No significant difference in rates was observed by product for females.

Data Notes

Data on COVID-19 AEFI reports and doses administered were extracted from Panorama, the provincial public health information system, on October 20, 2021. Only AEFIs reported and doses administered up to October 16, 2021 were included in this report. Any AEFI report with a status of “Does not meet reporting criteria” or “Disregard - Entered in error” was excluded.

Delays exist between the time an AEFI occurs, is reported to public health, and is entered into Panorama. As AEFI investigations progress from draft version to being submitted for review and finally completed, there may be changes to the data, or reports may be removed from analysis if reflective of events that are not reportable (e.g., expected local reaction). This may lead to fluctuations in AEFI counts and rates, and subsequent weekly reports cannot be directly compared to previous reports of AEFI reported in BC.

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RE: For Approval by 3PM TODAY - CCMOH Statement on Pediatric Vaccination

From: Deena Hinshaw s.17; s.19

To: Deeks, Shelley <Shelley.Deeks@novascotia.ca>, Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>, Shahab, Saqib HE0 <Saqib.Shahab@health.gov.sk.ca>, CCMOH SECRETARIAT / CMHC (PHAC/ASPC) <ccmoh.secretariat-cmhc@phac-aspc.gc.ca>, Auger, Julie A (PHAC/ASPC) <julie.a.auger@phac-aspc.gc.ca>, Barbara Yaffe <barbara.yaffe@ontario.ca>, Dr. Brent Roussin <brent.roussin@gov.mb.ca>, Dr. Catherine Elliott <Catherine.elliott@yukon.ca>, Dr. Cristin Muecke <dr.cristin.muecke@gnb.ca>, Dr. George Giovinazzo <george.giovinazzo@cic.gc.ca>, Dr. Horacio Arruda <horacio.arruda@msss.gouv.qc.ca>, Dr. Howard Njoo <howard.njoo@canada.ca>, Dr. James Worthington <dr.james.worthington@csc-scc.gc.ca>, Dr. Janice Fitzgerald <janicefitzgerald@gov.nl.ca>, Dr. Jennifer Russell <jennifer.russell@gnb.ca>, Dr. Kieran Moore <kieran.moore1@ontario.ca>, Dr. Michael Patterson <mpatterson@gov.nu.ca>, Strang, Robert <Robert.Strang@novascotia.ca>, XT:McDonald, Shannon HLTH:IN <Shannon.McDonald@fnha.ca>, Galus, Dianne (PHAC/ASPC) <dianne.galus@phac-aspc.gc.ca>, Heather Morrison <hgmorrison@gov.pe.ca>, Kami Kandola <kami_kandola@gov.nt.ca>, Marie-France Raynault <marie-france.raynault@umontreal.ca>, Njoo, Howard (PHAC/ASPC) <howard.njoo@phac-aspc.gc.ca>, Ponic, Pamela (PHAC/ASPC) <pamela.ponic@phac-aspc.gc.ca>, Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>, Romano, Anna (PHAC/ASPC) <anna.romano@phac-aspc.gc.ca>, Rosana Salvaterra <s.17; s.19 >, Sharma, Supriya (HC/SC) <supriya.sharma@hc-sc.gc.ca>, Tam, Dr.Theresa (PHAC/ASPC) <theresa.tam@phac-aspc.gc.ca>, Tom Wong <Tom.Wong@sac-isc.gc.ca>, Vincent Beswick-Escanlar <VINCENT.BESWICK-ESCANLAR@forces.gc.ca>

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Sent: November 19, 2021 9:35:20 AM PST

s.13

Hope that helps.

Deena

Dr. Deena Hinshaw
Chief Medical Officer of Health, Alberta Health
Associate Clinical Professor, Department of Medicine, University of Alberta
Clinical Assistant Professor, Department of Community Health Sciences, Cumming School of Medicine, University of Calgary
s.17; s.19

Classification: Protected A

From: Deeks, Shelley <Shelley.Deeks@novascotia.ca>
Sent: Friday, November 19, 2021 10:23 AM
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>; 'Shahab, Saqib HE0' <Saqib.Shahab@health.gov.sk.ca>; 'CCMOH SECRETARIAT / CMHC (PHAC/ASPC)' <ccmoh.secretariat-cmhc@phac-aspc.gc.ca>; Auger, Julie A (PHAC/ASPC)

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Subject: RE: For Approval by 3PM TODAY - CCMOH Statement on Pediatric Vaccination

Hi all

The rationale for NACI's coadministration recommendation was really from a precautionary perspective, as I noted yesterday and is clearly noted in the statement. This is a new formulation of a vaccine with relatively limited safety data and it is really about being able to assist with clarity if AEFIs are reported. We know how challenging and time consuming the safety signals that have been associated with viral vector and mRNA have been to assess (reflecting on time delays with both the VITT and myocarditis signals particularly), and co-administration adds complexity to this assessment.

Thanks
Shelley

Shelley Deeks, MD, MHSc, FRCPC, FAFPHM
Deputy Chief Medical Officer of Health
Department of Health and Wellness

From: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent: November 19, 2021 1:13 PM
To: 'Shahab, Saqib HE0' <Saqib.Shahab@health.gov.sk.ca>; 'CCMOH SECRETARIAT / CMHC (PHAC/ASPC)' <ccmoh.secretariat-cmhc@phac-aspc.gc.ca>; Auger, Julie A (PHAC/ASPC) <julie.a.auger@phac-aspc.gc.ca>; Barbara Yaffe <barbara.yaffe@ontario.ca>; Dr. Brent Roussin <brent.roussin@gov.mb.ca>; Dr. Catherine Elliott <Catherine.elliott@yukon.ca>; Dr. Cristin Muecke <dr.cristin.muecke@gnb.ca>; Dr. Deena Hinshaw <s.17; s.19 >; Dr. George Giovinazzo <george.giovinazzo@cic.gc.ca>; Dr. Horacio Arruda <horacio.arruda@msss.gouv.qc.ca>; Dr. Howard Njoo <howard.njoo@canada.ca>; Dr. James Worthington <dr.james.worthington@csc-scc.gc.ca>; Dr. Janice Fitzgerald <janicefitzgerald@gov.nl.ca>; Dr. Jennifer Russell <jennifer.russell@gnb.ca>; Dr. Kieran Moore <kieran.moore1@ontario.ca>; Dr. Michael Patterson <mpatterson@gov.nu.ca>; Strang, Robert <Robert.Strang@novascotia.ca>; XT:McDonald, Shannon HLTH:IN <Shannon.McDonald@fnha.ca>; Deeks, Shelley <Shelley.Deeks@novascotia.ca>; Galus, Dianne (PHAC/ASPC) <dianne.galus@phac-aspc.gc.ca>; Heather Morrison <hgmorrison@gov.pe.ca>; Kami Kandola <kami_kandola@gov.nt.ca>; Marie-France Raynault <marie-france.raynault@umontreal.ca>; Njoo, Howard (PHAC/ASPC) <howard.njoo@phac-aspc.gc.ca>; Ponic, Pamela (PHAC/ASPC) <pamela.ponic@phac-aspc.gc.ca>; Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>; Romano, Anna (PHAC/ASPC) <anna.romano@phac-aspc.gc.ca>; Rosana Salvaterra <s.17; s.19 >; Sharma, Supriya (HC/SC) <supriya.sharma@hc-sc.gc.ca>; Tam, Dr.Theresa (PHAC/ASPC) <theresa.tam@phac-aspc.gc.ca>; Tom Wong <Tom.Wong@sac-isc.gc.ca>; Vincent Beswick-Escanlar <VINCENT.BESWICK-ESCANLAR@forces.gc.ca>
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Subject: RE: For Approval by 3PM TODAY - CCMOH Statement on Pediatric Vaccination

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We have already said coadministration is ok so do not believe we will change that. Especially being able to give influenza at the same time.
We have also moved to 8 weeks minimum for most except for extenuating circumstances so don't expect that to change.
b

Dr Bonnie Henry
Provincial Health Officer
Office of the PHO
Ministry of Health
s.15; s.19

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I gratefully acknowledge that I live and work on the traditional unceded territory of the Lekwungen Peoples, specifically the Songhees and Esquimalt First Nations. Hay'sxw'qu Si'em

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From: Shahab, Saqib HE0 <Saqib.Shahab@health.gov.sk.ca>
Sent: November 19, 2021 9:07 AM
To: 'CCMOH SECRETARIAT / CMHC (PHAC/ASPC)' <ccmoh.secretariat-cmhc@phac-aspc.gc.ca>; Auger, Julie A (PHAC/ASPC) <julie.a.auger@phac-aspc.gc.ca>; Barbara Yaffe <barbara.yaffe@ontario.ca>; Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>; Dr. Brent Roussin <brent.roussin@gov.mb.ca>; Dr. Catherine Elliott <Catherine.elliott@yukon.ca>; Dr. Cristin Muecke <dr.cristin.muecke@gnb.ca>; Dr. Deena Hinshaw <s.17; s.19 >; Dr. George Giovinazzo <george.giovinazzo@cic.gc.ca>; Dr. Horacio Arruda <horacio.arruda@msss.gouv.qc.ca>; Dr. Howard Njoo <howard.njoo@canada.ca>; Dr. James Worthington <dr.james.worthington@csc-scc.gc.ca>; Dr. Janice Fitzgerald <janicefitzgerald@gov.nl.ca>; Dr. Jennifer Russell <jennifer.russell@gnb.ca>; Dr. Kieran Moore <kieran.moore1@ontario.ca>; Dr. Michael Patterson <mpatterson@gov.nu.ca>; Dr. Robert Strang <robert.strang@novascotia.ca>; XT:McDonald, Shannon HLTH:IN <Shannon.McDonald@fnha.ca>; Dr. Shelley Deeks <shelley.deeks@novascotia.ca>; Galus, Dianne (PHAC/ASPC) <dianne.galus@phac-aspc.gc.ca>; Heather Morrison <hgmorrison@gov.pe.ca>; Kami Kandola <kami_kandola@gov.nt.ca>; Marie-France Raynault <marie-france.raynault@umontreal.ca>; Njoo, Howard (PHAC/ASPC) <howard.njoo@phac-aspc.gc.ca>; Ponic, Pamela (PHAC/ASPC) <pamela.ponic@phac-aspc.gc.ca>; Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>; Romano, Anna (PHAC/ASPC) <anna.romano@phac-aspc.gc.ca>; Rosana Salvaterra <s.17; s.19 >; Sharma, Supriya (HC/SC) <supriya.sharma@hc-sc.gc.ca>; Tam, Dr.Theresa (PHAC/ASPC) <theresa.tam@phac-aspc.gc.ca>; Tom Wong <Tom.Wong@sac-isc.gc.ca>; Vincent Beswick-Escanlar <VINCENT.BESWICK-ESCANLAR@forces.gc.ca>
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Subject: RE: For Approval by 3PM TODAY - CCMOH Statement on Pediatric Vaccination

Lots of questions coming from vaccine teams. Please advise if any province will:

- Permit co administration in extenuating circumstances

- Permit 2nd dose earlier than 8 weeks on request and with informed consent

I assume 2nd pediatric tranche will also come with the 8 week interval in mind with the risk that if too many children get 2nd doses earlier there may not be enough for first doses for children presenting later in January

Some of this should be managed by CIC ie supply logistics but also consistent communications across PT's also key

Dr Saqib Shahab FRCPC
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From: Davies, Stephanie (PHAC/ASPC) <stephanie.davies@phac-aspc.gc.ca> **On Behalf Of** CCMOH SECRETARIAT / CMHC (PHAC/ASPC)
Sent: Friday, November 19, 2021 10:23 AM
To: CCMOH SECRETARIAT / CMHC (PHAC/ASPC) <ccmoh.secretariat-cmhc@phac-aspc.gc.ca>; Auger, Julie A (PHAC/ASPC) <julie.a.auger@phac-aspc.gc.ca>; Barbara Yaffe <barbara.yaffe@ontario.ca>; Dr. Bonnie Henry <bonnie.henry@gov.bc.ca>; Dr. Brent Roussin <brent.roussin@gov.mb.ca>; Dr. Catherine Elliott <Catherine.elliott@yukon.ca>; Dr. Cristin Muecke <dr.cristin.muecke@gnb.ca>; Dr. Deena Hinshaw s.17; s.19 Dr. George Giovinazzo <george.giovinazzo@cic.gc.ca>; Dr. Horacio Arruda <horacio.arruda@msss.gouv.qc.ca>; Dr. Howard Njoo <howard.njoo@canada.ca>; Dr. James Worthington <dr.james.worthington@csc-scc.gc.ca>; Dr. Janice Fitzgerald <janicefitzgerald@gov.nl.ca>; Dr. Jennifer Russell <jennifer.russell@gnb.ca>; Dr. Kieran Moore <kieran.moore1@ontario.ca>; Dr. Michael Patterson <mpatterson@gov.nu.ca>; Dr. Robert Strang <robert.strang@novascotia.ca>; Shahab, Saqib HE0 <Saqib.Shahab@health.gov.sk.ca>; Dr. Shannon McDonald <shannon.mcdonald@fnha.ca>; Dr. Shelley Deeks <shelley.deeks@novascotia.ca>; Galus, Dianne (PHAC/ASPC) <dianne.galus@phac-aspc.gc.ca>; Heather Morrison <hgmorrison@gov.pe.ca>; Kami Kandola <kami_kandola@gov.nt.ca>; Marie-France Raynault <marie-france.raynault@umontreal.ca>; Njoo, Howard (PHAC/ASPC) <howard.njoo@phac-aspc.gc.ca>; Ponic, Pamela (PHAC/ASPC) <pamela.ponic@phac-aspc.gc.ca>; Reka Gustafson <reka.gustafson@phsa.ca>; Romano, Anna (PHAC/ASPC) <anna.romano@phac-aspc.gc.ca>; Rosana Salvaterra s.17; s.19 >; Sharma, Supriya (HC/SC) <supriya.sharma@hc-sc.gc.ca>; Tam, Dr.Theresa (PHAC/ASPC) <theresa.tam@phac-aspc.gc.ca>; Tom Wong <Tom.Wong@sac-isc.gc.ca>; Vincent Beswick-Escanlar <VINCENT.BESWICK-ESCANLAR@forces.gc.ca>
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Subject: For Approval by 3PM TODAY - CCMOH Statement on Pediatric Vaccination

Dear CMOHs

Thank you to everyone for your feedback and comments on the draft CCMOH Statement on Pediatric Vaccination. Attached, please find the revised final statement, with the following changes made to reflect input received (in yellow highlight):

- Paragraph 3: nuanced that we are referring to **school-aged children**, since there is no vaccine approved for children under the age of 5
- Paragraph 7, 1st bullet: added a reference to the benefits of vaccination related to reduced time away from school and activities, with positive impacts on mental and physical health of children as a whole

- Paragraph 8: added that it is essential for parents of young children to be supported in a **culturally safe manner** as they decide on vaccination for their children
- Paragraph 8: added examples of trusted sources of information, including information specific to Indigenous Peoples

We are grateful for your final review and approvals, for those we have not heard from, by **3:00PM EST today**. We will then consider this version as final for release on Monday, November 22. A NIL response will be considered as approval.

Kind Regards
SAC Secretariat

From: Davies, Stephanie (PHAC/ASPC) <stephanie.davies@phac-aspc.gc.ca> **On Behalf Of** CCMOH SECRETARIAT / CMHC (PHAC/ASPC)
Sent: 2021-11-18 3:44 PM
Subject: For PT Response by 10 AM Friday, November 19th, 2021 - Draft CCMOH Statement on Pediatric Vaccination

Dear CMOHs

Further to today's CMOH-only review of *the draft CCMOH Statement to support common messages and communication on pediatric vaccination*, we kindly ask that you share any track change comments you may have, on the attached statement, with the SAC Secretariat by 10 AM tomorrow, Friday, November 19th, 2021. Final approval will be sought shortly after with a target release day of Monday, November 22, 2021.

Kind Regards
SAC Secretariat

RE: 5-11 presser November 23 2021 - 755 pm version Nov 22 .pptx

From: Ferrier, Jeffrey GCPE:EX <Jeffrey.Ferrier@gov.bc.ca>
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>, XT:Lambrechts, Nicola GCPE:IN <nicola@nlkstrategies.ca>, XT:Ballem, Penny HLTH:IN <pballem@telus.net>
Cc: Lizette Parsons Bell <lizette@umbrellastrategies.ca>
Sent: November 22, 2021 9:09:53 PM PST
Attachments: image002.jpg, 5-11 presser November 23 2021 - 908 pm version Nov 22.pptx

Good evening,

Here is the updated deck reflecting your edits Dr. Henry. I have added a new Slide 13 as directed, and I added two new resources on the resources page – a link to the Health Canada approval and a link to the FNHA's website on vaccine information for children and youth.

Cheers

Jeffrey Ferrier (he/him/his)
Executive Director, Health Communications, Government of British Columbia

604-362-6109 | jeffrey.ferrier@gov.bc.ca

I gratefully acknowledge that I live and work on the traditional unceded territory of the Lekwungen Peoples, specifically the Songhees and Esquimalt First Nations.

From: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent: November 22, 2021 8:22 PM
To: Ferrier, Jeffrey GCPE:EX <Jeffrey.Ferrier@gov.bc.ca>; XT:Lambrechts, Nicola GCPE:IN s.22
XT:Ballem, Penny HLTH:IN <pballem@telus.net>
Cc: Lizette Parsons Bell s.22 >
Subject: RE: 5-11 presser November 23 2021 - 755 pm version Nov 22 .pptx

Getting there!
I have made a few changes highlighted in yellow. s.13
s.13

Then start the logistics on the next slide and I can turn over to Penny.
Does that work?

Also we need to include Indigenous support references: Covid-19 and Indigenous peoples and the FNHA website

b

Dr Bonnie Henry
Provincial Health Officer
Office of the PHO
Ministry of Health

s.15; s.19

Mailing address: PO Box 9648, STN PROV GOVT
Victoria, BC
V8W 9P4
Bonnie.henry@gov.bc.ca

Phone: s.17; s.19

I gratefully acknowledge that I live and work on the traditional unceded territory of the Lekwungen Peoples, specifically the Songhees and Esquimalt First Nations. Hay'sxw'qu Si'em

---

From: Ferrier, Jeffrey GCPE:EX <Jeffrey.Ferrier@gov.bc.ca>
Sent: November 22, 2021 8:06 PM
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>; XT:Lambrechts, Nicola GCPE:IN <nicola@nlkstrategies.ca>; XT:Ballem, Penny HLTH:IN <pballem@telus.net>
Cc: Lizette Parsons Bell <lizette@umbrellastrategies.ca>
Subject: 5-11 presser November 23 2021 - 755 pm version Nov 22 .pptx

Here is the updated revised deck. I think I have added the slides you want Dr. Henry. You'll want to review the order I've inserted them to ensure it's the right flow given what you would like to say.

Jeff

COVID-19 IN BC

COVID-19 Update: School Report and Immunization of Children 5 to 11

November 23, 2021

Stay Informed Via These Resources:
gov.bc.ca/Covid-19 | bccdc.ca | 1-888-COVID19

Symptom Self-Assessment:
covid19.thrive.health

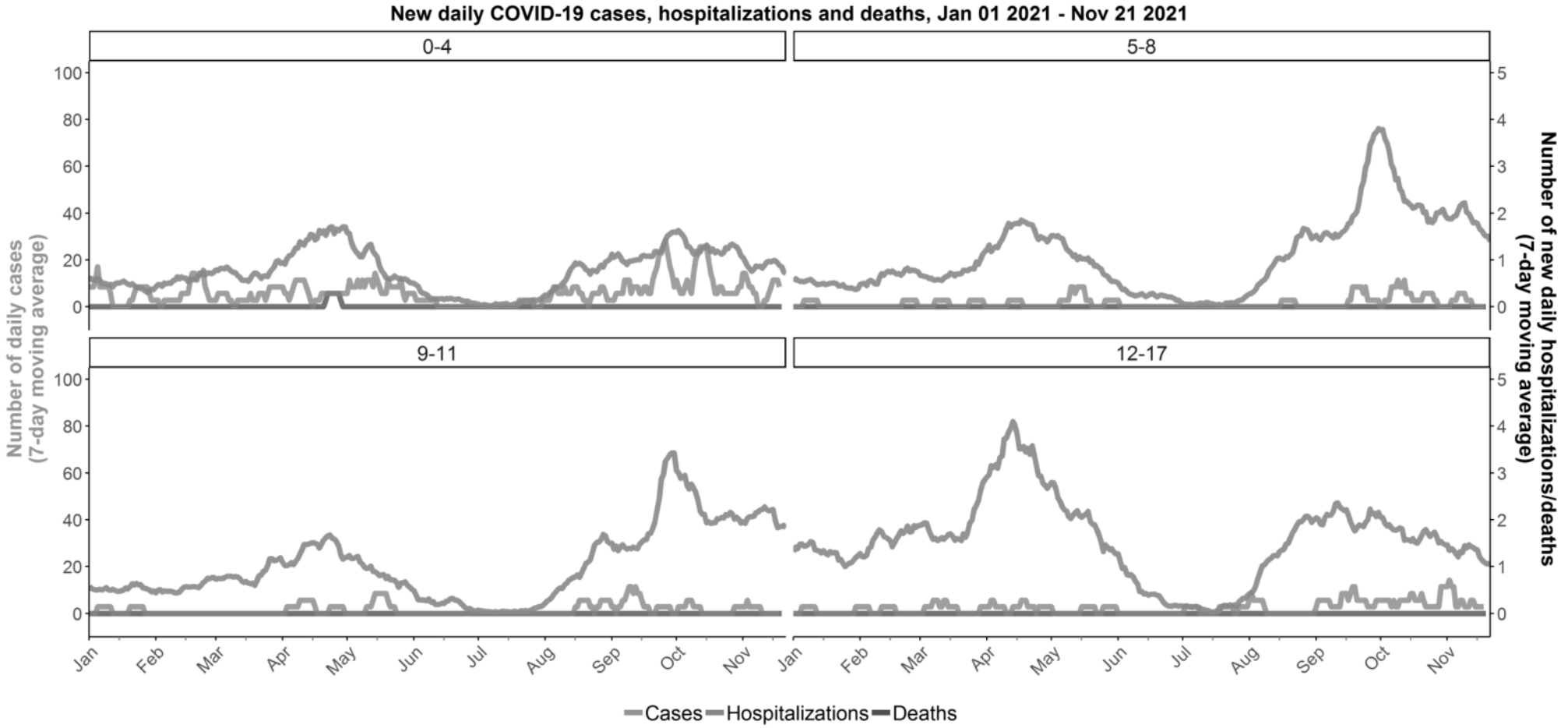
BRITISH COLUMBIA

Nov 16 to Nov 22: Pediatric COVID-19 Profile

Age group: 0-4		Age group: 0-4		Age group: 0-4		Age group: 0-4	
5,888	total cases	123	ever hospitalized	12	ever in critical care	2	total deaths
111	new this week	0	new this week	0	new this week	0	new this week
Age group: 5-11		**Age group: 5-11**		**Age group: 5-11**		**Age group: 5-11**	
15,917	total cases	60	ever hospitalized	5	ever in critical care	0	total deaths
457	new this week	0	new this week	0	new this week	0	new this week
Age group: 12-17		**Age group: 12-17**		**Age group: 12-17**		**Age group: 12-17**	
12,929	total cases	54	ever hospitalized	8	ever in critical care	0	total deaths
153	new this week	0	new this week	0	new this week	0	new this week

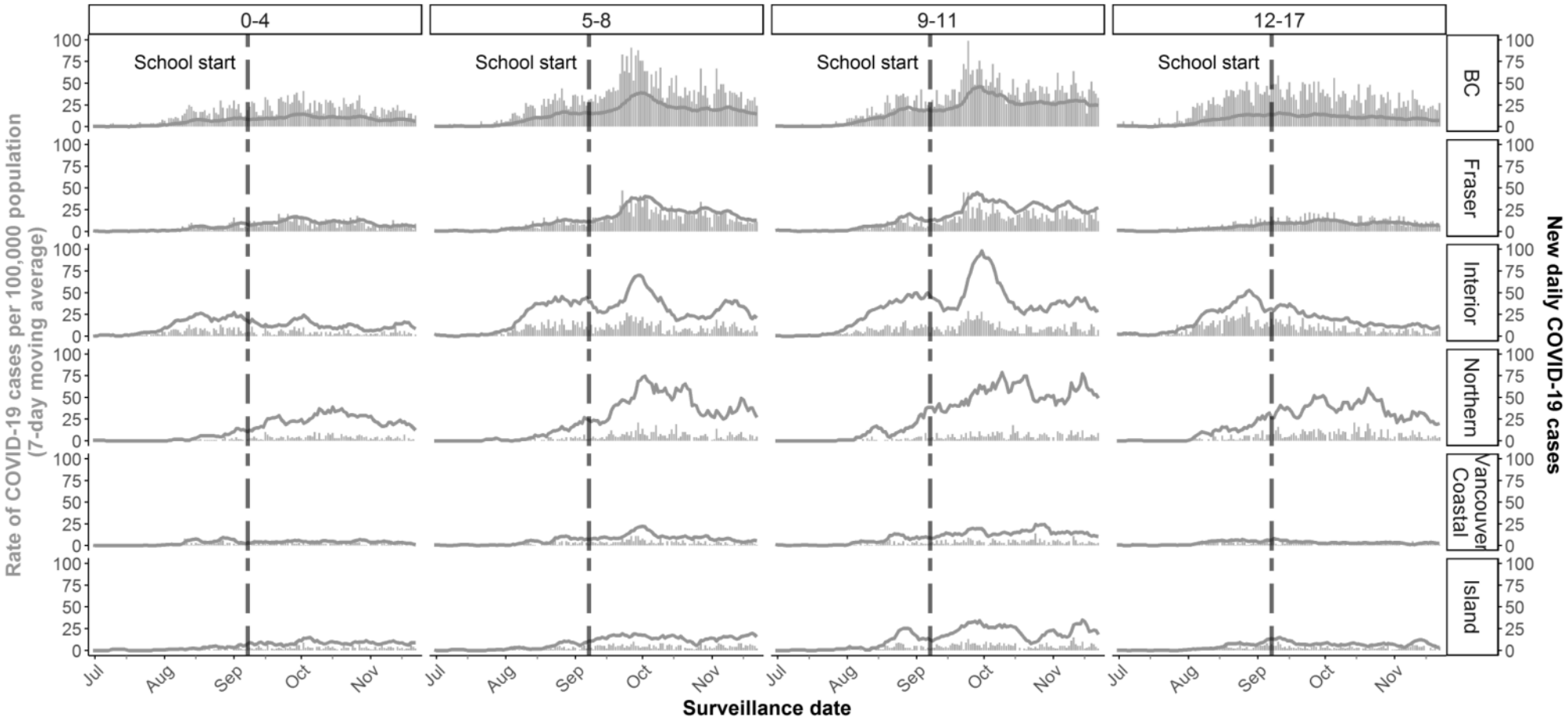
* New hospitalizations and critical care census numbers are as of Nov 19 2021
* New cases and new deaths are net new between Line lists of Nov 15 and Nov 22

Case/hosp/deaths, Jan 01 2021 – Nov 21 2021



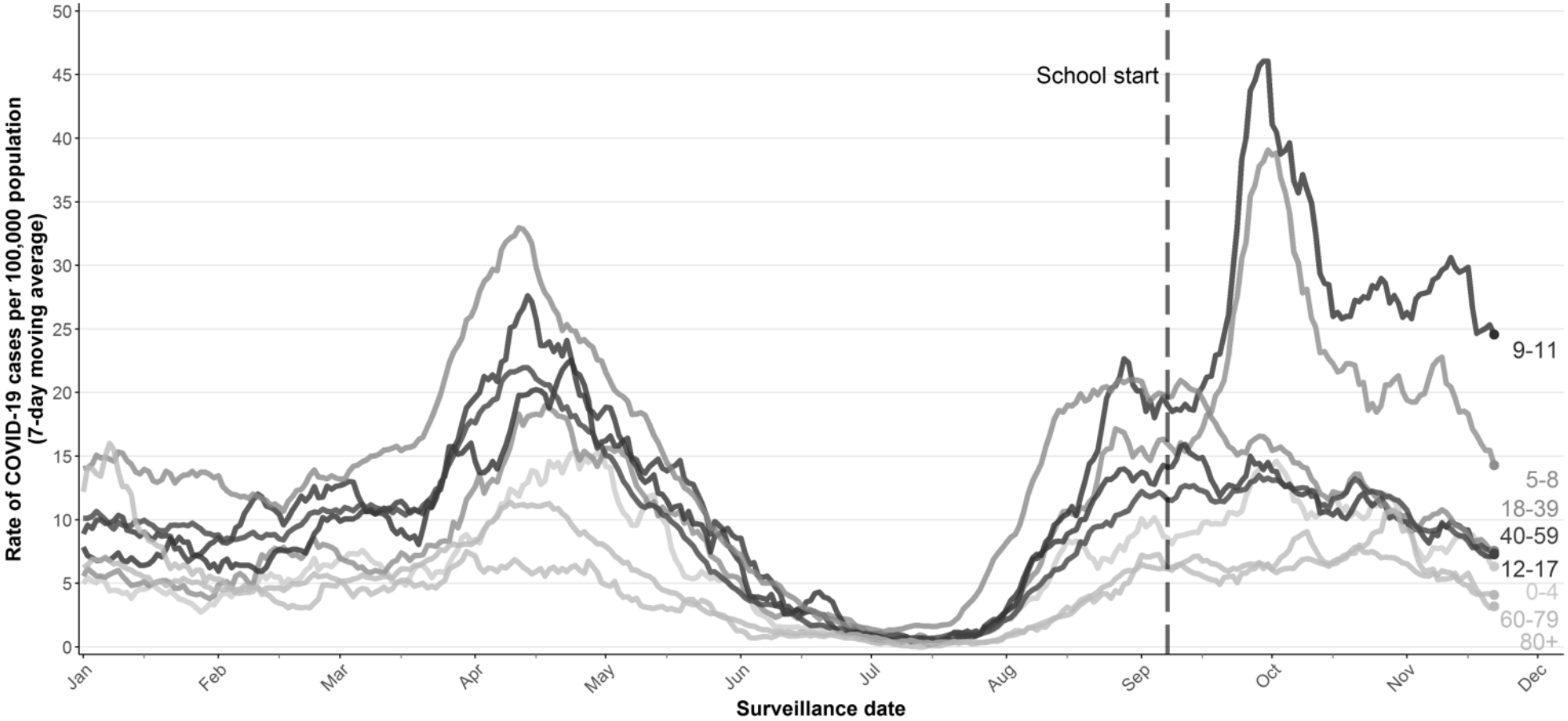
* Data are by surveillance date for cases and deaths, and admission date for hospitalizations
Data source: PHRDW + BCCW Nov-22-2021

New daily cases by HA, Jul 01 2021 – Nov 21 2021



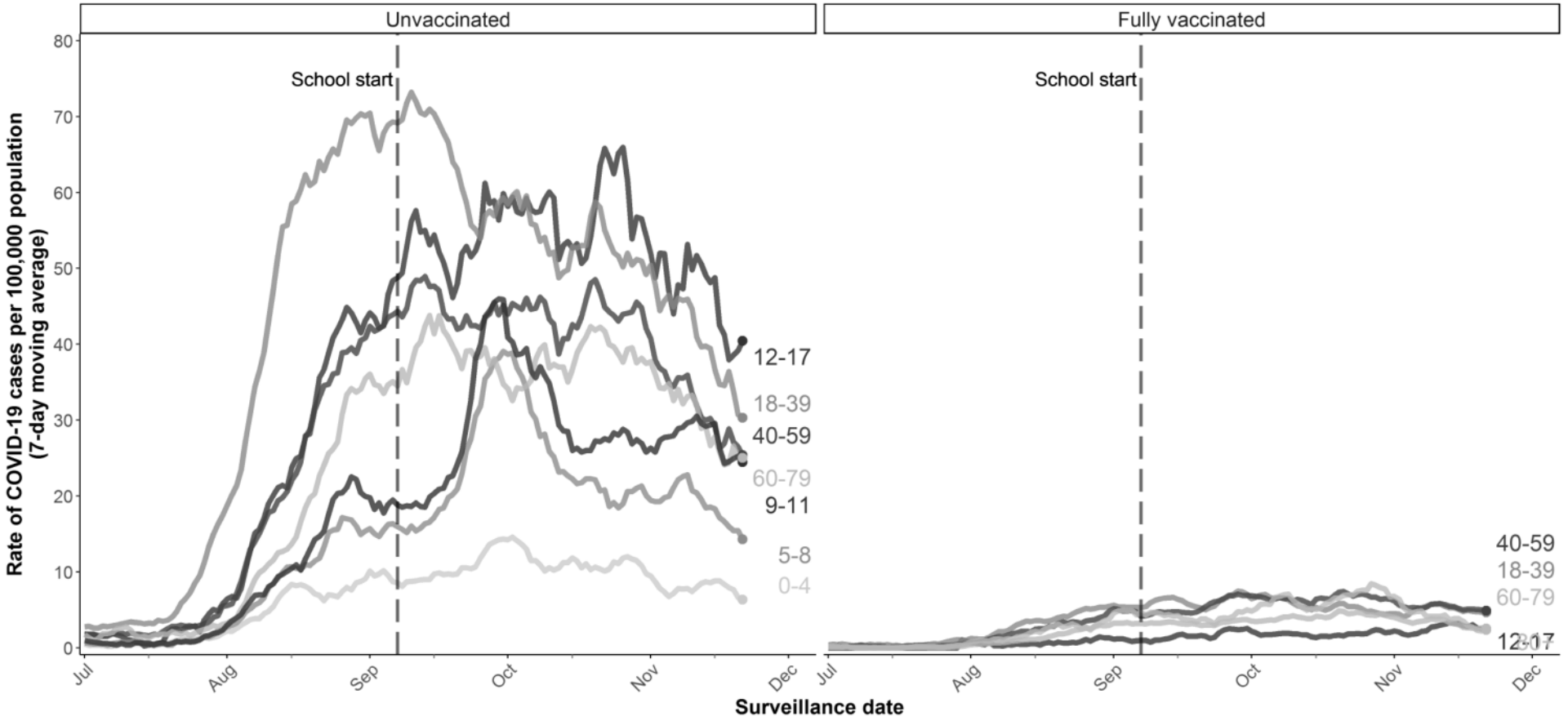
* Data based on surveillance date (i.e. lab result date, or when not available, date reported to public health)
Date range: Jul 01 2021 - Nov 21 2021
Data source: PHRDW Nov-22-2021

Rate of case by Age, all age groups, Jan 01 2021 – Nov 21 2021



* Data based on surveillance date (i.e. lab result date, or when not available, date reported to public health)
Data range: Jan 01 2021 - Nov 21 2021
Data source: PHRDW Nov-22-2021

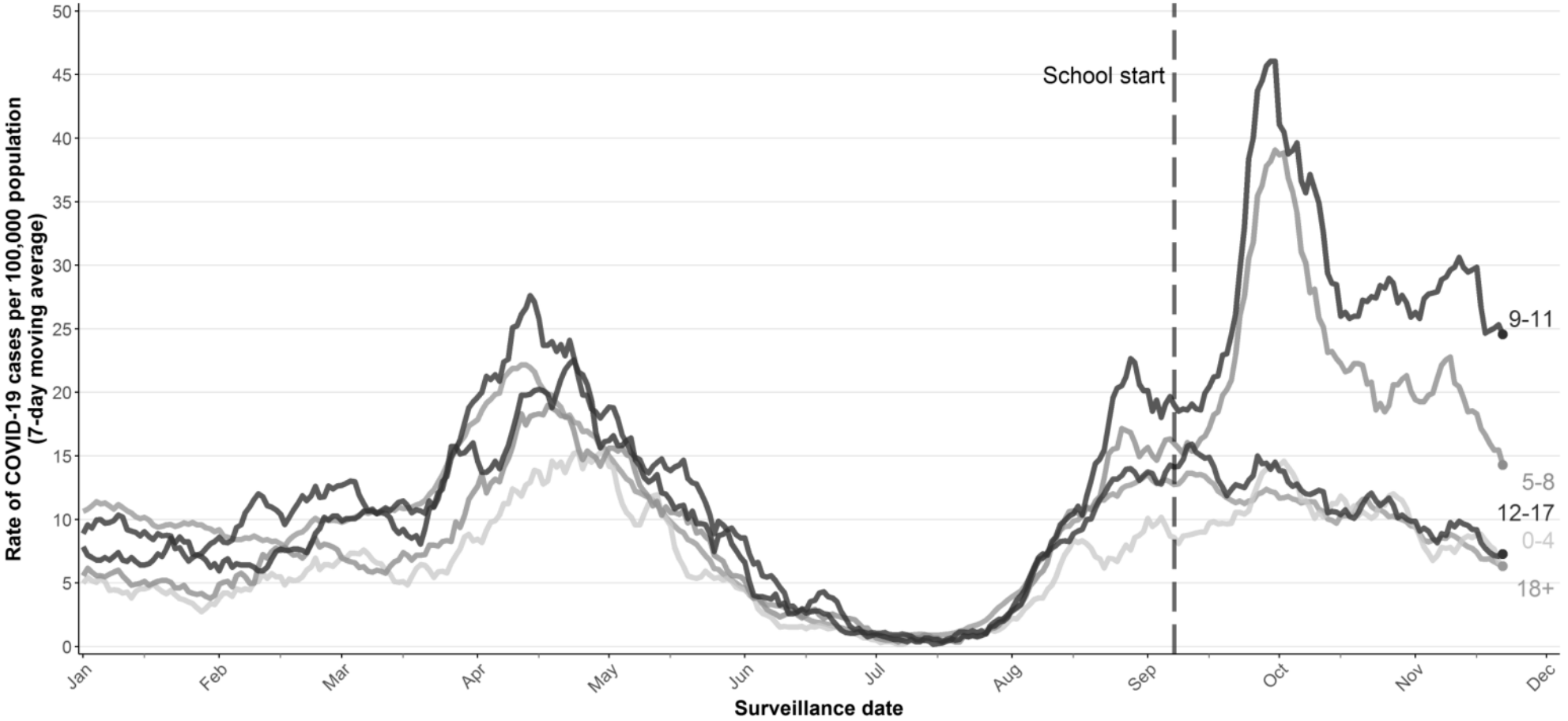
Rate of case by Age and Vax status, all age groups, Jul 01 2021 – Nov 21 2021



* Data based on surveillance date (i.e. lab result date, or when not available, date reported to public health)
Date range: Jul 01 2021 - Nov 21 2021
Data source: PHRDW Nov-22-2021

** 80+ is excluded in unvaccinated panel*

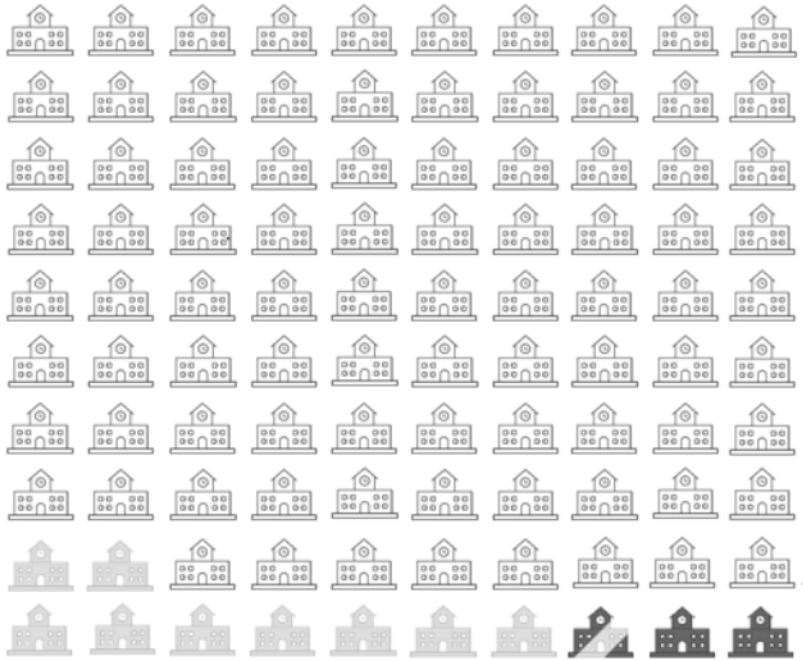
Rate of case by Age, pediatric age groups and 18+, Jan 01 2021 – Nov 21 2021



* Data based on surveillance date (i.e. lab result date, or when not available, date reported to public health)
Data range: Jan 01 2021 - Nov 21 2021
Data source: PHRDW Nov-22-2021

COVID-19 case clusters BC K-12 schools, September 7 to November 6, 2021

School-age population	647,843
K-12 Schools	1,862



No clusters

Affected schools	181 (10%)
Closed clusters	307
Total cases	1,187
Cluster size	2 to 18
	• Median: 3

A school may report multiple clusters. Some clusters may be active while others may be closed.

Affected schools	55 (3%)
Active clusters	75
Total cases	280
Cluster size	2 to 13
	• Median: 3

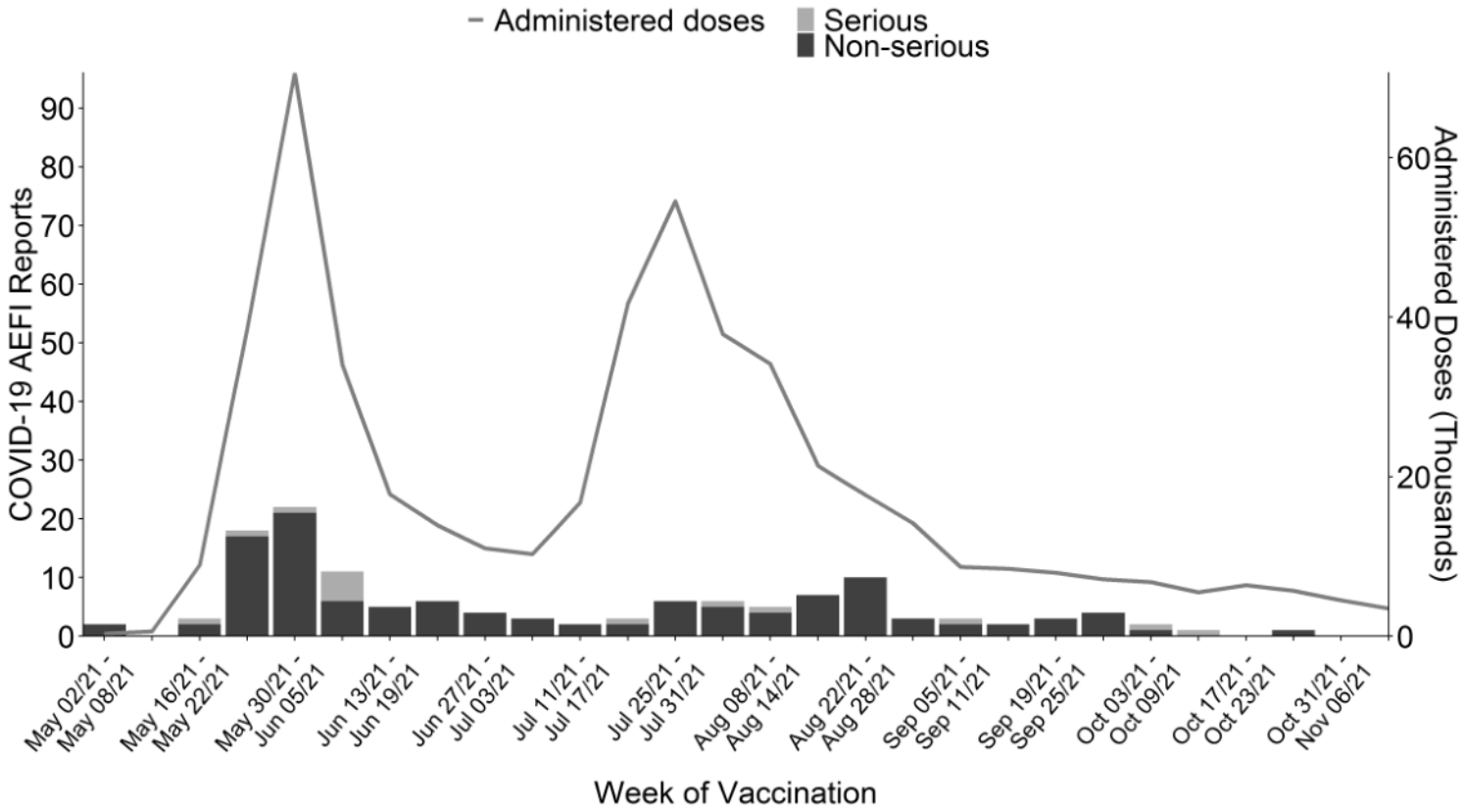
COVID-19 illness-related risks compared with COVID-19 vaccine-related risks, 12-17 year-olds, BC

Risk of…	Among unvaccinated	Among partially or fully vaccinated
Getting COVID-19[1] (per 100,000 population)	4,476.5	351.7
Being hospitalized due to COVID-19[1] (per 100,000 population)	37.3	No hospitalizations to date
Experiencing a serious adverse event after immunization[2] (per 100,000 doses administered)	Not applicable	2.7

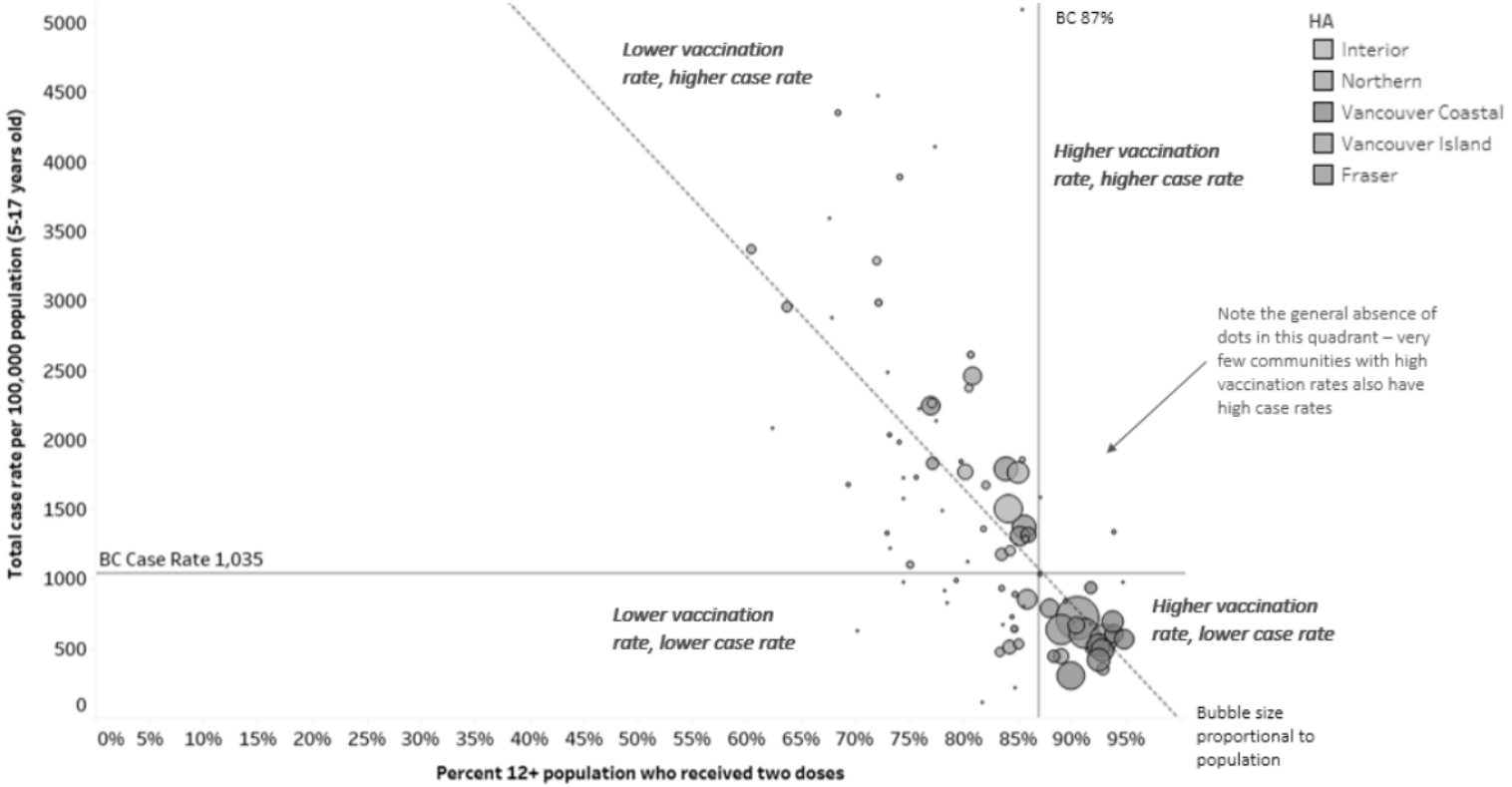
[1] Data are from July 18 to November 16, 2021.

[2] Data are from May 1 to November 13, 2021. Serious AEFI: an AEFI that meets one or more of the following criteria: life-threatening, results in hospitalization, prolongation of an existing hospitalization, persistent or significant disability/incapacity, is a congenital anomaly/birth defect, fatal outcome. Any medical event which requires intervention to prevent one of the outcomes listed above may also be considered as serious.

COVID-19 vaccine administration and adverse event reports following receipt of a COVID-19 vaccine by week of vaccination, 12-17 year-olds, BC, May 1 to November 13, 2021



COVID-19 case rate per 100,000 population, 5-17 year-olds, by Local Health Area (LHA) vs. percentage population 12 years and older who received a second dose of COVID-19 vaccine, BC, August 20 to November 19, 2021



Vaccines for children aged 5-11

Health Canada confirms pediatric vaccine safe and effective

- Health Canada has approved the pediatric vaccine for use in Canada
- The rigorous, independent, scientific review confirms that this first vaccine formulated for younger children is safe and it works
- All children aged 5 to 11 are now eligible to receive the pediatric COVID-19 vaccine
- Vaccination of children is important to protect them from COVID-19 which continues to spread, with the fourth wave affecting more children than ever before
- The vaccine will help children and families safely get back to many important activities that positively benefit children's physical and mental health
- The vaccine also reduces the risk of transmission to children's close contacts who may be at higher risk of severe illness because of age or underlying medical conditions

Children 5 to 11 Pediatric Vaccination Program - Key Elements

- 350,000 children across BC in the 5 to 11 age cohort
- Pediatric experts recommend moving ahead quickly to vaccinate children 5 to 11
- Verbal consent from parent/legal guardian required at time of vaccination
- Pediatric Pfizer vaccine formulated for children aged 5 to 11
- Age rules:
  - Children must be at least five years old; have turned five years old
  - 11 year olds will receive pediatric vaccine and when they turn 12 they will receive the adult vaccine
- Dose 1-2 Interval: minimum of 8 weeks recommended between Dose 1 and Dose 2
- Children must be registered in *"Get Vaccinated BC"* in order to be invited (currently have 87,000 registered)
- Clinics will be child-friendly

Getting your child vaccinated is safe, simple and easy

Step 1 – Register (Under way)

Step 2 – Book when invited (Invitations start to roll out November 29)

- Invitations will be delivered in the same order that children were registered
- Appointments mandatory. No drop-ins.

Step 3 – Get vaccinated

- Families can bring all their eligible children to the clinic at the same time, provided each family member is booked at the same clinic at some time during the day

Convenient vaccination clinics across British Columbia

Clinic types

1 – Family clinics

2 – 12 + clinics

3 – All age clinics

Locations

1 – Health authority clinics – for 5-11 and all ages

2 – Pharmacies – for 12+ only

Keeping children safe and comfortable

- Highly-trained health care providers
  - Trained and experienced in childhood vaccinations including measles, mumps, flu
- On-site supports for children
  - We are working with community and stakeholder groups to ensure we reach out to families and organizations that serve children with special needs
- Calm private space for families who need it
  - Some children require a quiet place with their parents to get vaccinated
  - Some children need help with their needle anxiety

For Children in Remote and or Small Communities

- In remote First Nations communities, FNHA and the local health authority will come to the community to offer pediatric vaccination to children 5 to 11. This will often be done at the same time boosters are being offered to adults 18+ and first and second doses for anyone over 12.
- In other small and/or remote communities, the health authority will be offering boosters to adults 18+ as well as Dose 1 pediatric vaccine to children 5 to 11
- Health authorities are developing their schedules for these community clinics, known as whole of community clinics (visit your local health authority website)

Getting parents the vaccine information they need

- Province-wide public information campaign will inform parents about:
  - How vaccination is the best protection for children aged 5-11
  - How the pediatric vaccine is safe and effective for children
  - The steps being taken to make clinics child-friendly
  - Steps parents can take to make vaccination a positive experience
  - The steps needed to get their children vaccinated
- Joint effort of B.C. Public Health, B.C. Ministry of Health, Health Authorities, the BCCDC, and health care providers and community partners across B.C.

Resources for Parents/Guardians of Children 5 to 11

COVID-19 vaccination information for parents

There are many resources from all over Canada for parents and children, these include:

- Children and COVID-19 Vaccination: http://www.bccdc.ca/health-info/diseases-conditions/covid-19/covid-19-vaccine/vaccines-children
- Health Canada authorizes use of COVID-19 vaccine in children 5 to 11
- FAQs for children 5-11 years: https://immunizebc.ca/COVID-19-vaccines-FAQ-5-to-11
- First Nations Health Authority COVID-19 vaccine information for children and youth
- How to Handle Your Shots Like a Champ | Kids Boost Immunity
- Respire COVID-19 Vaccination Support
- How to Do Calm Breathing (anxietycanada.com)
- When Kids Are Afraid of Needles


I'M COVID-19 VACCINATED
Vancouver CoastalHealth
I'M COVID-19 VACCINATED
Vancouver CoastalHealth
I'M COVID-19 VACCINATED
Vancouver CoastalHealth
I'M COVID-19 VACCINATED
Vancouver CoastalHealth

RE: Personal Severe Reaction to the COVID Vaccine

From: Benusic, Michael <Michael.Benusic@islandhealth.ca>
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>, Emerson, Brian P HLTH:EX <Brian.Emerson@gov.bc.ca>, Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>
Cc: Stanwick, Richard (Dr) <Richard.Stanwick@islandhealth.ca>
Sent: December 1, 2021 2:08:58 PM PST

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hi Bonnie -

This s.22 has gone through the AEFI process (and has also submitted an exemption request to your office). I have included my AEFI recommendations at the bottom of this email.

I've spoken with s.22 and provided information on the one-off exemption process, but they are seeking exemptions from the BC Vaccine Card in general as they expressed to me that it's not the 'one-off' events they are interested in but moreso the regular societal activities like indoor dining, gyms, taking kids to settings where adults need to be vaccinated, etc.

I think s.22 concerns will be addressed when the proof of vaccination exemption process that Brian brought to PHEC today comes into effect.

AEFI recommendation:

Recommendations: defer to patient - support either seeking 2nd dose of COVID-19 mRNA vaccine, receiving AstraZeneca as 2nd dose, or receiving no further COVID-19 vaccines

Rationale: s.22 who experienced an adverse event following COVID-19 mRNA vaccination. This AEFI was initially managed by s.22 has also seen s.22 immunology. Both of their notes are in Panorama.

In short, s.22 experienced delayed onset of bullous lesions and mucosal desquamation of the s.22 and oral mucosa with onset 14 days following the first dose of COVID-19 mRNA vaccine (Pfizer). s.22 provided a differential diagnosis of erythema multiforme, Stevens-Johnson syndrome, and pemphigus vulgaris. Symptoms were described as severe and debilitating. This is not a commonly reported adverse event following COVID-19 vaccination, and these conditions are not reported in provincial surveillance (http://www.bccdc.ca/health-info/diseases-conditions/covid-19/covid-19-vaccine/vaccine-safety), but 24 cases of erythema multiforme are reported in national surveillance (https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fhealth-infobase.canada.ca%2Fcovid-19%2Fvaccine-safety%2F&data=04%7C01%7CBonnie.Henry%40gov.bc.ca%7C8796cfe5408d4a1bb4e108d9b5172ee7%7C6fdb52003d0d4a8ab036d3685e359adc%7C0%7C0%7C637739933445917280%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=%2FQmjlQ0GkMdlc03Mi3YyoscrG2y13v9x7xtf8Z2UxcE%3D&reserved=0). There are few case reports of Stevens-Johnson syndrome following COVID-19 vaccination (https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ncbi.nlm.nih.gov%2Fpmc%2Farticles%2FPMC8288232%2F&data=04%7C01%7CBonnie.Henry%40gov.bc.ca%7C8796cfe5408d4a1bb4e108d9b5172ee7%7C6fdb52003d0d4a8ab036d3685e359adc%7C0%7C0%7C637739933445917280%7CUnknown%7CTWFpbGZsb3

d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=Vj95qntkml tx7StwzFC9LFN5wSyCTkk8EVAeWKdRKIA%3D&reserved=0 , https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fpubmed.ncbi.nlm.nih.gov%2F34081806%2F&data=04%7C01%7CBonnie.Henry%40gov.bc.ca%7C8796cfe5408d4a1bb4e108d9b5172ee7%7C6fdb52003d0d4a8ab036d3685e359adc%7C0%7C0%7C637739933445917280%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=kaGJJiMJ7QemaHBXQm81wpz9HmO9fO%2Bq47%2FsMAGZ8fk%3D&reserved=0).

In circumstances such as this, my recommendations are based on the potential benefits and potential risks of subsequent vaccination. In regards to the potential benefits, there would likely be significant incremental benefit in protection from acquisition and harm from COVID-19 with a second dose as the client was vaccinated more than 230 days ago. This second dose could be with a mRNA COVID-19 vaccine, which is inline with recommendations by immunology. The second dose could be with a viral vector vaccine, of which AstraZeneca is available in BC through https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.bcpharmacy.ca%2Fresource-centre%2Fcovid-19%2Fvaccination-locations&data=04%7C01%7CBonnie.Henry%40gov.bc.ca%7C8796cfe5408d4a1bb4e108d9b5172ee7%7C6fdb52003d0d4a8ab036d3685e359adc%7C0%7C0%7C637739933445917280%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000&sdata=2vucoNmSkaHy7vwKHG4VSRNUlrav56TdoPvBEqW%2FJ1E%3D&reserved=0 . As this is a different type of COVID-19 vaccine, there may be a decreased risk of recurrence of symptoms with this type of vaccine compared to mRNA vaccine. This vaccine carries a risk of Thrombosis with Thrombocytopenia Syndrome (TTS) with an estimated incidence of 1 in 50,000 vaccine recipients (see http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%202%20-%20Imms/Part4/COVID-19_Vaccine_ChAdOx1-S_AstraZeneca_Verity.pdf). In regards to the potential risks, I agree with immunology that subsequent COVID-19 vaccination is not absolutely contraindicated. Erythema multiforme appears to me to be the more likely diagnosis based on this being identified in national surveillance, and long term complications of this condition are rare. Stevens-Johnson syndrome seems less likely but has not been ruled out, which carries both acute and long-term risks. From a risk-benefit perspective, I would recommend subsequent COVID-19 vaccination with a viral vector vaccine. Ultimately, however, my recommendation is to defer the decision on subsequent COVID-19 vaccination to s.22 based on this information and previous immunology consult. If s.22 chooses to defer subsequent COVID-19 vaccination, this letter can be used to support vaccination exemption processes. The exemption process to the vaccination requirement as a s.22 is outlined at https://www2.gov.bc.ca/assets/gov/health/about-bc-s-health-care-system/office-of-the-provincial-health-officer/covid-19/covid-19-exemption-guidelines-request-for-reconsideration.pdf . With a single dose of vaccine, the patient meets the criteria of the BC Vaccine Card until October 24. Currently there is no medical exemption process in place for the BC Vaccine Card. If either s.22 or care provider team have any questions about this, I am available to discuss and a virtual appointment can be made by calling my office at s.22 .

Sincerely,

Mike

Mike Benusic MD MPH FRCPC
Medical Health Officer, Island Health
Physician Lead, COVID-19 Vaccination
Office: 250-519-3406

-----Original Message-----
From: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>

Sent: Wednesday, December 01, 2021 13:53
To: Emerson, Brian P HLTH:EX <Brian.Emerson@gov.bc.ca>; Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>; Benusic, Michael <Michael.Benusic@islandhealth.ca>
Subject: FW: Personal Severe Reaction to the COVID Vaccine

Is this one reported as an AEFI? Seems unusual given 2 weeks after vaccine? We have not yet put in a process for medical exemptions to the Vaccine card but can do one offs.
Thoughts?
b

Dr Bonnie Henry
Provincial Health Officer
Office of the PHO
Ministry of Health
Mailing address:
PO Box 9648, STN PROV GOVT
Victoria, BC
V8W 9P4

I gratefully acknowledge that I live and work on the traditional unceded territory of the Lekwungen Peoples, specifically the Songhees and Esquimalt First Nations. Hay'sxw'qu Si'em

-----Original Message-----
From: s.22 >
Sent: December 1, 2021 1:35 PM
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Subject: Personal Severe Reaction to the COVID Vaccine

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Dear Dr. Henry,

My name is s.22
s.22 I am writing this email to outline my personal severe adverse reaction to my first dose of the Pfizer COVID vaccine this past spring in the hope that you will consider advocating for me in the setting of the provincial mandate that requires mandatory COVID vaccination to access many services. I initially emailed Dr. Emerson at the end of August when these restrictions were announced and have been patiently waiting. With no action being seen in regards to this, I feel compelled to further advocate for myself and others who have had a legitimate reaction to this vaccine.

s.22 completely healthy, active and fit person with no medical issues or allergies of any kind and have received many vaccinations in my lifetime including the annual flu shot with no adverse reactions. I have no personal or family history of any autoimmune disorders.

In brief, 2 weeks after receiving the vaccine at the end of February, I developed s.22
s.22 A week later, I developed complete desquamation of my mouth, pharynx and esophagus coupled with

significant facial swelling, pain, fevers and oral discharge. I had to abruptly stop work and have my colleagues fill in for me. I couldn't eat, sleep or care for my children. I was assessed by my GP and a GP dermatologist. All swabs and labs were normal, including autoimmune markers, with the exception of an elevated CRP which eventually did normalize. My mouth could not even be biopsied because there was no normal mucosa which apparently is required to diagnose autoimmune conditions. Over the next 2 weeks, I lost weight due to my inability to eat, but slowly improved. Unfortunately, however, I then developed severe unilateral muscular neck pain such that I could s.22 or drive comfortably which then manifested in massive, painful, unilateral cervical lymphadenopathy. More labs were performed which were again normal. In total, I experienced 6 weeks of the symptoms I have described to you.

I have been reviewed by s.22 who diagnosed this reaction as Erythema Multiforme or Steven Johnsons Syndrome. Dr. Benusic, MHO Island Health, has kindly advocated for me in regards to s.22 s.22 . Both agree that my reaction constitutes an exemption to the vaccine passport, however there is no exemption process despite other provinces clearly having one from the beginning.

Fortunately I have fully recovered and have no lasting effects and certainly no recurrence of any of these symptoms. However, there is no way I could chance going through this again. The toll it took on myself and my family was very significant. I am sure most people would have been hospitalized. When I read about the new vaccine passport in the news, s.22 Having these restrictions imposed affects my life personally, in regards to my family, as well as s.22 I have already missed out on opportunities pertaining to my children's activities.

I really cannot believe that my rare however clinically very significant reaction is equivalent to those who "are unable to be vaccinated due to health or religious reasons". I find it highly offensive that public health and the government would not acknowledge that there are exceptional situations that do require allowance. My reaction is not speculative or based on a possible exacerbation of a preexisting health condition but something that did happen and for the sake of my health, cannot happen again.

Thank you for taking the time to read this. If you would like to contact me for any additional information please do not hesitate to do so, s.22

Sincerely,

s.22

RE: s.22 : 3rd request: Report Of Adverse Events Following Immunization (AEFI)

From: Miller, Haley HLTH:EX
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>, Emerson, Brian P HLTH:EX <Brian.Emerson@gov.bc.ca>
Sent: December 8, 2021 1:36:58 PM PST

I'll follow up!

-----Original Message-----
From: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent: December 8, 2021 1:36 PM
To: Emerson, Brian P HLTH:EX <Brian.Emerson@gov.bc.ca>; Miller, Haley HLTH:EX <Haley.Miller@gov.bc.ca>
Subject: FW: s.22 3rd request: Report Of Adverse Events Following Immunization (AEFI)

Not sure where this should go?
b

Dr Bonnie Henry
Provincial Health Officer
Office of the PHO
Ministry of Health
Mailing address:
PO Box 9648, STN PROV GOVT
Victoria, BC
V8W 9P4

I gratefully acknowledge that I live and work on the traditional unceded territory of the Lekwungen Peoples, specifically the Songhees and Esquimalt First Nations. Hay'sxw'qu Si'em

-----Original Message-----
From: s.22
Sent: December 8, 2021 12:00 PM
To: Feedback [FH] <feedback@fraserhealth.ca>; s.22 ; Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Subject: s.22 3rd request: Report Of Adverse Events Following Immunization (AEFI)

[EXTERNAL] This email came from an external source. Only open attachments or links that you are expecting from a known sender.

Hi all.
Following up on this as I have still not heard anything back in regards to follow up or next steps since September 24th.
Please advise

s.22

On Dec 6, 2021, at 10:54 AM, s.22 wrote:

Hi,
Adding my family doctor, s.22 And Dr Bonnie Henry.

Who would I need to engage to seek a medical exemption on having to risk a 2nd dose until the issues can be quantified and assurance of not further exasperating the side effects?
Again, I was all for becoming fully vaccinated earlier this year until I experienced these lasting side effects.
I have also submitted the issue to Pfizer and am part of the Tinnitus vaccine group to try to learn of any steps being conducted in other countries to help reverse and prevent.

Sincerely
s.22

On Dec 1, 2021, at 9:27 AM, Feedback [FH] <feedback@fraserhealth.ca> wrote:

Hello s.22

Thank you for your email and for taking the time to write. Can you please provide the city that you live/see your doctor in, as well as your phone number? This will allow us to assist you best.

Best regards,
Erika
Fraser Health Feedback

From: s.22
Sent: November 30, 2021 8:45 PM
To: Feedback [FH]
Subject: Report Of Adverse Events Following Immunization (AEFI)

Hello.
I have been waiting as per my doctor for someone to get back to me regarding the adverse effects I experienced after my 1st vaccine shot.
I have still not yet heard back from anyone.
My doctor just told me to wait but it has been 7 months since my 1st vaccine and almost 4 months since the forms were submitted.

Please advise.
Thank you.
s.22

Concerns from a fellow physician

From: s.22
To: Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent: January 26, 2022 4:20:58 PM PST

Hello Dr. Henry,

I am a s.22 I am extremely concerned about the ongoing lack of medical exemptions from the provincial vaccine mandate. I am being affected by this myself. As s.22 I have been s.22 last year, and with the Omicron wave currently. I got Covid myself. After getting the 1st dose of vaccine, I have developed chronic joint pain and am under the care of a specialist, who filled out a deferral form, and an AEFI. Based on these, I was given a temporary exemption which allows me to keep working. However, it seems that BC has not give any exemptions for the Provincial vaccine mandate, even for medical reasons. This is extremely concerning, as I know there are others out there, who like me, are not able to get 2 doses of vaccine for reasons out of our control. Many of these people tried to do their part and got the 1st dose of the vaccine, but have legitimate reasons for not proceeding with a 2nd dose. It is unacceptable that we are being treated this way. The ongoing vaccine mandate especially makes little sense in light of Omicron, as we know that 2 doses of vaccine does little to prevent people from catching and transmitting Omicron. I understand the difficult role you are in, and that you do not impose these restrictions lightly. However, your resistance to giving exemptions to those who have medical contraindications to the vaccine is concerning. Your resistance to acknowledge natural immunity is concerning. Your resistance to decreasing restrictions in light of new information regarding vaccine efficacy is concerning.

Thanks,

s.22

Fw: Draft March 2022 update of K-12 Schools Report

From:	Mckee, Geoffrey [BCCDC] <geoffrey.mckee@bccdc.ca>
To:	Zbar, Ariella [FH] <ariella.zbar@fraserhealth.ca>, XT:HLTH Dawar, Meena <meena.dawar@vch.ca>, XT:Mema, Dr. Silvina HLTH:IN <Silvina.Mema@interiorhealth.ca>, Docking, Christie M EDUC:EX <Christie.Docking@gov.bc.ca>, Hoyano, Dee (Dr) [VIHA] <dee.hoyano@islandhealth.ca>, XT:Kling, Rakel HLTH:IN <rakel.kling@northernhealth.ca>, Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>, Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>, McCrea, Jennifer EDUC:EX <Jennifer.McCrea@gov.bc.ca>
Cc:	Zhang, Rita [BCCDC] <Rita.Zhang@bccdc.ca>, Chu, Scally [PHSA] <Scally.Chu@bccdc.ca>, Relova, Sharon <sharon.relova@bccdc.ca>, Weatherall, Kristin [BCCDC] <kristin.weatherall@bccdc.ca>, XT:Amos, Heather HLBC:IN <heather.amos@bccdc.ca>
Sent:	April 6, 2022 1:37:58 PM PDT
Attachments:	SitRep_K-12_March2022.pdf

Hi everyone,

Please find attached the near final draft of the March School Monthly report we plan to post tomorrow. This is likely to be the last report in this format, but have kept it open ended in case we want to release additional school data as we transition through the rest of the school year.

Cheers,

Geoff

British Columbia COVID-19 Situation Report for K-12 Schools

March 2022 Update

Key Findings

- **Vaccination coverage:** By March 28, 2022, provincial-level one-dose COVID-19 vaccination coverage among 5-11 year-olds and 12-17 year-olds was 56% and 89%, respectively. Two-dose coverage was 37% and 85%, respectively. Booster dose coverage among 12-17 year-olds was 33% across BC. There is variation in vaccination coverage across communities in BC.
- **Adverse events following immunization:** As of March 26, 2022, there have been 27 (9 reports per 100,000 doses administered) and 177 (28 per 100,000 doses administered) reported adverse events following a COVID-19 vaccine among 5-11 and 12-17 year-olds, respectively. Among all adverse events reported among 5-17 year-olds, 20 were considered serious enough to involve hospitalization and all have been discharged.
- **Cases:** Due to changes in testing strategies in BC, reported cases based only on PCR tests since late December are an underestimate of the true incidence of COVID-19 cases. The reported case incidence among 5-11 year-olds in BC overall was elevated with the emergence of the Omicron variant and it has been decreasing since the end of January. The COVID-19 case incidence among 12-17 year-olds has continued a declining trend since peaking in early January.
- **Outcomes:** Between December 21, 2021 and March 26, 2022, the hospitalization rate among unvaccinated 5-11 and 12-17 year-olds was 3.3 and 3.8 times higher than their vaccinated counterparts, respectively. Critical care admissions from COVID-19 continue to be rare (29 admissions since January 2020) among all school-age children in BC. There have been no COVID-19 deaths among school-age children in BC.

		Ages 0-4 No school	Ages 5-11 Elementary school	Ages 12-17 Secondary school
VACCINATIONS As of March 28, 2022	have 1 dose	*Not eligible for vaccination*	56%	89%
	have 2 doses		37%	85%
	have booster dose		*Not eligible*	33%
CASES As of March 29, 2022	new this report	526	309	251
	new this school year	8,671	15,671	7,775
	total cases	12,844	24,841	18,161
HOSPITALIZATIONS As of March 29, 2022	new this report	61	13	26
	new this school year	216	79	119
	ever hospitalized	299	117	153
CRITICAL CARE As of March 29, 2022	new this report	9	3	2
	new this school year	25	11	9
	ever in critical care	33	13	16
DEATHS As of March 29, 2022	new this report	0	0	0
	new this school year	0	0	0
	total deaths	2	0	0

- New this report for cases, hospitalizations, critical care, and deaths are net new since February 16, 2022; new this school year numbers are since September 7, 2021.

Figure 1: March 2022 summary of BC pediatric COVID-19 vaccine coverage, cases, and outcomes

Please note that the content of this report may change as more information becomes available. Links to the most recent available reports, dashboards and other resources are included in section G. Additional Resources.

Contents

A. Introduction

There have been significant changes to BC's public health measures throughout the 2021-2022 school year in line with the level of risk of acquiring COVID-19. The emergence of the Omicron variant and the rapid increase in COVID-19 cases in December and January resulted in additional strain on BC's health care and public health systems. Changes in the characteristics of the virus necessitated changes to the province's testing, case management, and contact tracing strategies, which were announced on January 7, 2022.

In response to these changes, there have been adjustments to public health guidance specific to the school setting. Public health measures implemented in BC schools since the beginning of the 2021-2022 school year have included the mandating of masks in schools in October 2021, the availability of vaccination to 5-11 year-olds in November 2021, and the dissemination of rapid tests in schools starting in February 2022.

Since early January there has been a steady decline in the number of COVID-19 cases in the province. Changes to the Provincial COVID-19 Communicable Disease Guidelines for K-12 Settings were announced on March 10, 2022 and state that students would no longer be required to wear masks in K-12 schools following their return from spring break.

Increasing COVID-19 vaccine coverage among all eligible individuals remains the most effective strategy to reduce the risk in K-12 schools for the remainder of the 2021-2022 school year. Not only does vaccination help protect the individual, particularly against severe outcomes, it can also help protect others in the community who are not able to be vaccinated.

Schools provide essential support for students' academic, social, and emotional development. A previous report from the BCCDC outlined the importance of schools remaining open to support child and family wellbeing during the pandemic. According to the 2020 BC COVID-19 SPEAK survey, 60% of households with children reported increased child stress, while 79% of households with children reported decreased connection with friends amidst school closures and other pandemic response measures.

The purpose of this report is to provide a situational update on COVID-19 in BC K-12 schools since the start of the 2021-2022 school year. School reporting will transition over the remainder of the school year in line with other COVID-19 data products. Much of the data in this report continues to be found in other surveillance products on the BCCDC COVID-19 Data webpage. More details about actions being taken to reduce risk in schools are included in section E. Looking Forward.

B. Vaccination

Vaccine Coverage

Vaccination is the most effective way to protect against severe illness, hospitalization, and death from COVID-19. The primary series (first and second dose) of mRNA vaccines provides protection against hospitalization caused by COVID-19. The protection against infection and severe illness improves after receiving a booster dose. A report from the CDC estimated that for individuals aged 12-18 years-old, the effectiveness of two doses of Pfizer Comirnaty vaccines against multisystem inflammatory syndrome in children (MIS-C) was 91%.

As part of the BC vaccination strategy, starting May 2021, everyone 12 years and older became eligible to receive the vaccine. Booster doses are available to individuals 12 years and older six months after the date of their second dose. Effective November 29, 2021, eligibility of the primary series was expanded to children 5-11 years-old with an eight-week interval between first and second dose. Parents and guardians can register their children aged 5 years and above with Get Vaccinated, and invitations to book appointments are delivered by text and/or email.

As of March 28, 2022 (**Figure 2**, **Figure 3**),

- For children 5-11 years-old (elementary school),
  - First dose coverage is 56% across BC.
    - The coverage rate for the same age group in Canada is 57% as of March 27.[1]
    - Coverage ranges from 37% in Northern Health to 71% in Vancouver Coastal Health.
    - There is greater variation among coverage rates at the Local Health Area (LHA) level within Northern Health compared to other health authorities.
  - Second dose coverage is 37% across BC.
    - The coverage rate for the same age group in Canada is 40% as of March 27.[1]
    - Coverage ranges from 21% in Northern Health to 53% in Vancouver Coastal Health.
- For youth 12-17 years-old (secondary school),
  - First dose coverage is 89% across BC.
    - The coverage rate for the same age group in Canada is 88% as of March 27.[1]
    - Coverage ranges from 72% in Northern Health to 96% in Vancouver Coastal Health.
    - There is greater variation among coverage rates at the LHA level within Interior Health compared to other health authorities.
  - Second dose coverage is 85% across BC.
    - The coverage rate for the same age group in Canada is 85% as of March 27.[1]
    - Coverage ranges from 67% in Northern Health to 93% in Vancouver Coastal Health.
  - Booster dose coverage is 33% across BC.
    - The coverage rate for the same age group in Canada is 15% as of March 27.[1]
    - Coverage ranges from 18% in Northern Health to 46% in Vancouver Coastal Health.

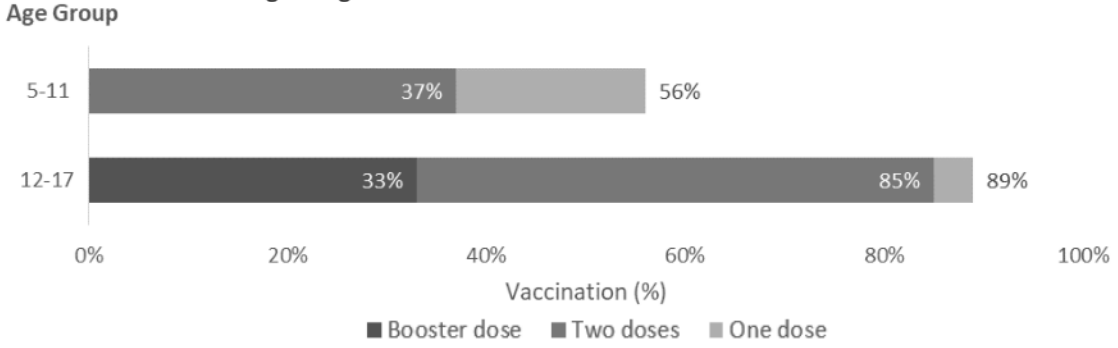


Figure 2: COVID-19 first, second, and booster dose vaccination coverage by age group, 5-11 and 12-17 year-olds, BC, March 28, 2022

[1] COVID-19 vaccination in Canada, data up to and including March 27, 2022.

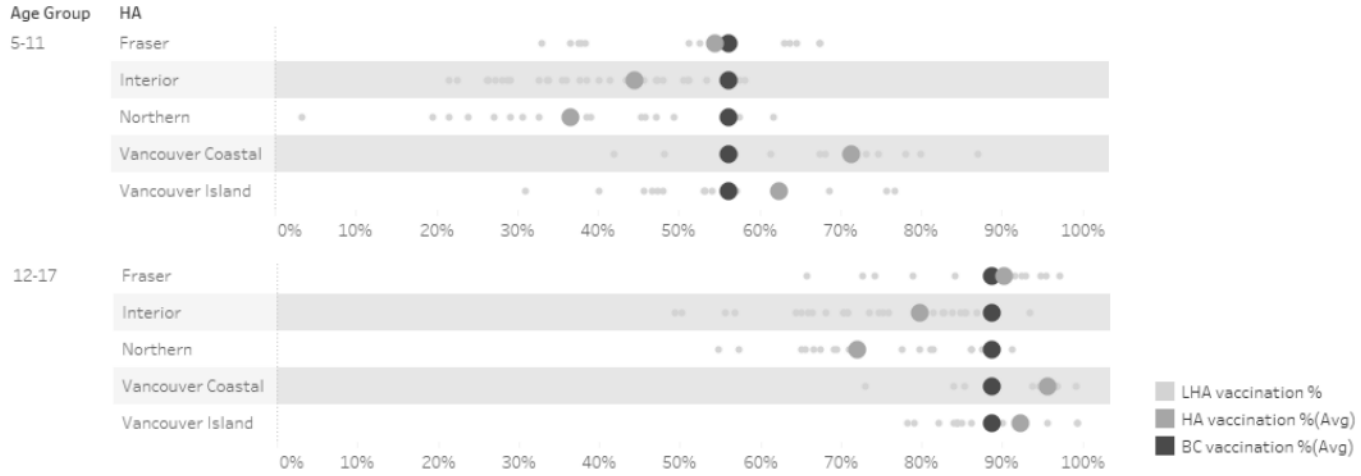


Figure 3: COVID-19 first dose vaccination coverage by BC Health Authority (HA) and Local Health Area (LHA), 5-11 and 12-17 year-olds, March 28, 2022

Vaccine Safety

The COVID-19 mRNA vaccines available to youth aged 12-17 years and children aged 5-11 years (Pfizer Comirnaty is approved for 5-11 year-olds and Moderna Spikevax is approved for 6-11 year-olds) in BC are very safe. Common side effects after vaccination are generally mild, including redness, soreness, and swelling at the injection site, fatigue, headache, chills, mild fever, muscle aches, and joint pain. In a recent CDC report, out of eight million doses of Pfizer Comirnaty administered to 5-11 year-olds in the United States, there have been 11 verified reports of myocarditis (inflammation of a heart muscle), a very rare occurrence. There was also no causal association between any reported deaths and COVID-19 vaccination. The Society of Obstetricians and Gynaecologists of Canada issued a statement indicating that there was no evidence to suspect COVID-19 vaccines cause fertility issues.

Adverse events following immunization (AEFI) are defined as any untoward medical occurrence which follows immunization, and which does not necessarily have a causal relationship with the use of a vaccine. A single AEFI report may contain one or more adverse events.

Serious AEFI meets one or more of the following criteria: life-threatening, results in hospitalization, prolongation of an existing hospitalization, persistent or significant disability/incapacity, is a congenital anomaly/birth defect, fatal outcome. Any medical event which requires intervention to prevent one of the outcomes listed above may also be considered as serious.

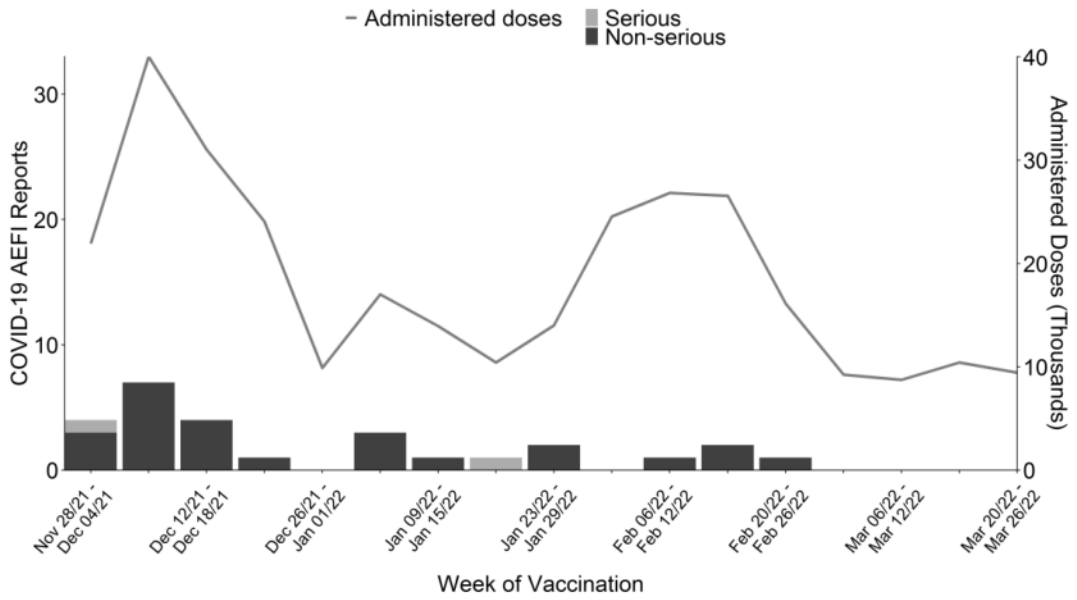
Health Canada, the Public Health Agency of Canada, the provinces and territories, and manufacturers continue to closely monitor the safety of all COVID-19 vaccines through provincial and national reporting of adverse events. The risk of adverse events following immunization (AEFI) is lower among the pediatric population when compared to the entire population.

Reports of adverse events are often delayed after vaccination as the time to onset varies by event, as well as the time it takes to receive, investigate, and process a report for submission. While reported events are associated with the timing of vaccine administration (i.e., occur after vaccination within a biologically plausible timeframe), the investigation may find that they were not caused by the vaccine.

Weekly report counts, especially for recent weeks, are expected to increase over time as these are submitted, but **Figure 4** and **Figure 5** show that reports have declined as the immunization campaign has progressed.

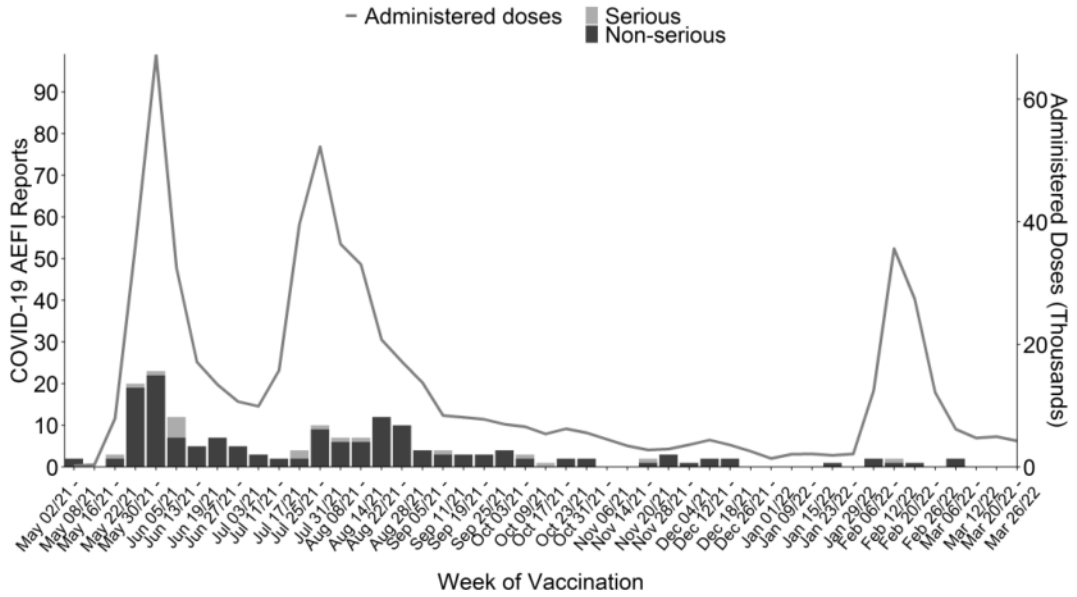
As of March 26, 2022,

- 314,402 first and second doses have been administered among 5-11 year-olds since November 2021 (**Figure 4**).
  - There have been 27 AEFI reports following a COVID-19 vaccine in this age group, for a reporting rate of 9 reports per 100,000 doses administered.
  - These reports contained 33 adverse events, with the most frequently reported event as 'other allergic events' (e.g., allergic rash, hives, pruritus, and gastrointestinal symptoms) (n = 13; 39%).
  - There were 2 adverse events reported that were considered serious, all of whom were admitted to hospital and have since been discharged.
- 626,348 first, second and booster doses have been administered among 12-17 year-olds since May 2021 (**Figure 5**).
  - There have been 177 AEFI reports following a COVID-19 vaccine in this age group, for a reporting rate of 28 reports per 100,000 doses administered.
  - These reports contained 212 adverse events, with the most frequently reported events as 'other allergic events' (n=64; 30%), 'events managed as anaphylaxis' (n=15; 7%), and 'anaesthesia/paraesthesia' (n=9; 4%).
  - There were 18 adverse events reported that were considered serious, all of whom were admitted to hospital and have since been discharged.



- COVID-19 AEFI reports are based on the date of when the AEFI was reported, not the date when the AEFI occurred.

Figure 4: COVID-19 vaccine administration and adverse event reports following receipt of a COVID-19 vaccine by week of vaccination, 5-11 year-olds, BC, November 28, 2021 to March 26, 2022



- COVID-19 AEFI reports are based on the date of when the AEFI was reported, not the date when the AEFI occurred.
- Ten reports of 11 year-olds who received the same dosage as 12-17 year-olds are included in this graph.

Figure 5: COVID-19 vaccine administration and adverse event reports following receipt of a COVID-19 vaccine by week of vaccination, 12-17 year-olds, BC, May 1, 2021 to March 26, 2022

While adverse events following immunization do occur, these events are uncommon and are vastly outweighed by the risks associated with COVID-19 (**Figure 6**).

- For children 5-11 years-old,
  - Between December 21, 2021 and March 26, 2022, unvaccinated children were 3.3 times more likely to be hospitalized for COVID-19 compared to their vaccinated counterparts.
  - Between May 1, 2021 and March 26, 2022, the rate of a serious AEFI, which includes hospitalizations, was 0.6 per 100,000 doses administered.
  - There have been no deaths in this age group regardless of vaccination status to date.
- For youth 12-17 years-old,
  - Between December 21, 2021 and March 26, 2022, unvaccinated youth were 3.8 times more likely to be hospitalized for COVID-19 compared to their vaccinated counterparts.
  - Between May 1, 2021 and March 26, 2022, the rate of a serious AEFI, which includes hospitalizations, was 2.9 per 100,000 doses administered.
  - There have been no deaths in this age group regardless of vaccination status to date.

	5-11 year-olds		12-17 year-olds	
Rate of…	**Among unvaccinated**	**Among partially or fully vaccinated**	**Among Unvaccinated**	**Among partially or fully vaccinated**
Being hospitalized due to COVID-19[1] (per 100,000 population)	16.3	4.9	70.2	18.5
Experiencing a serious adverse event after immunization[2] (per 100,000 doses administered)	Not applicable	0.6	Not applicable	2.9

[1] Data are from December 21, 2021 to March 26, 2022. For fully vaccinated 5-11 year-olds, data are from February 13, 2022 to March 26, 2022 due to an eight-week interval between first and second dose.
[2] Data are from May 1, 2021 to March 26, 2022.

Figure 6: Rates of COVID-19 illness and serious adverse event after immunization by vaccination status, 5-11 and 12-17 year-olds, BC

The risk of experiencing a serious AEFI is rare when compared to other general risks, such as being hospitalized for a mental disorder (38 per 100,000 children aged 5-9 years; 321 per 100,000 youth aged 10-14 years; and 922 per 100,000 youth aged 15-17 years[2]) or dying from a motor vehicle crash (0.8 per 100,000 population aged <15 years; 6.2 per 100,000 population aged 15-24 years[3]).

C. Cases

Case Incidence

Due to changes in testing strategies in BC driven by the Omicron variant, case counts and rates reported since late December are based only on PCR tests and underestimate the true incidence of COVID-19 cases in BC. However, the general trends are supported by other measures of COVID-19 prevalence in BC, such as wastewater surveillance.

At the provincial level, the 7-day moving average of COVID-19 case incidence among children aged 5-11 years was elevated with the introduction of the Omicron variant in December and it has been decreasing since the end of January. The COVID-19 case incidence among youth aged 12-17 years has followed similar trends to most adult age groups, where incidence has continued a declining trend since peaking in early January (**Figure 7**). Since the Omicron variant first appeared in various parts of the province at different points in time, there may be geographic variation in the timing of the case incidence peak.

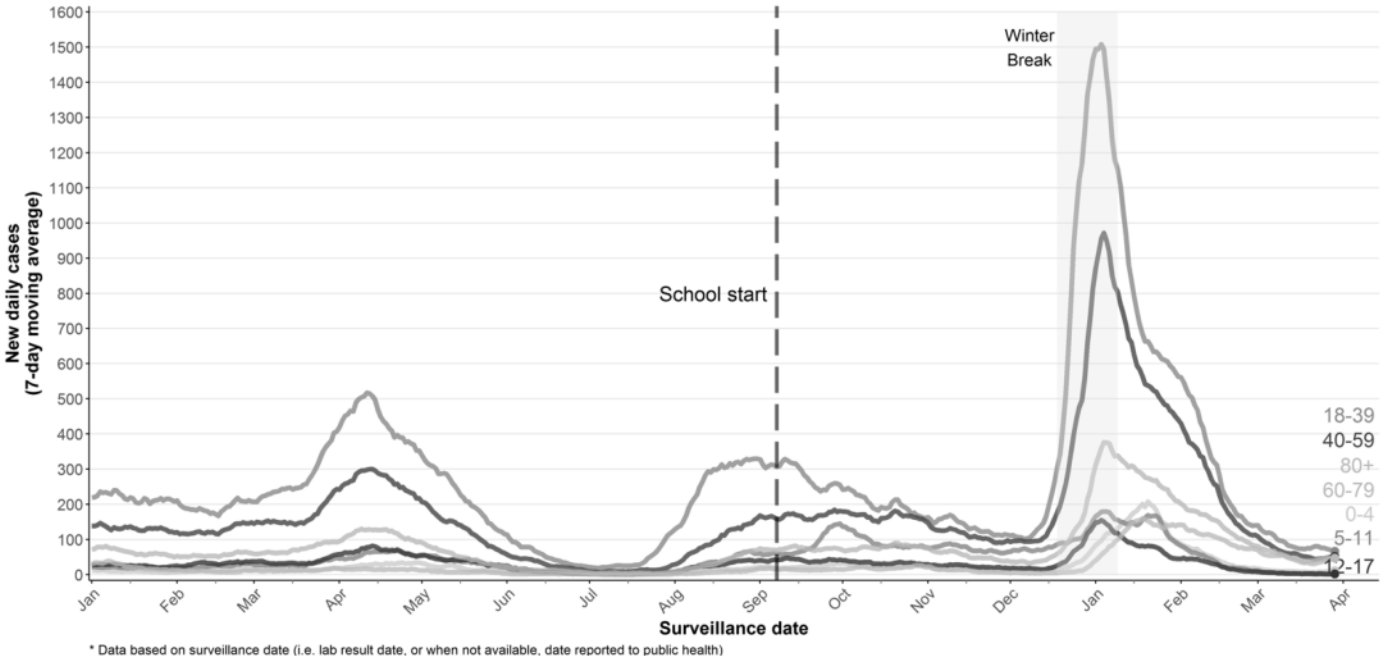


Figure 7: COVID-19 cases by age group, BC, January 1, 2021 to March 29, 2022

There are many factors that contribute to the risk of COVID-19 infection, including rates in the community, vaccination coverage, and contact with others through social networks. Regional differences in case incidence rates among children reflect community vaccination coverage as well as community prevalence (**Figure 8**).

[2] Canadian Institute for Health Information, British Columbia, 2018/19
[3] Ministry of Public Safety and Solicitor General, British Columbia, 2021

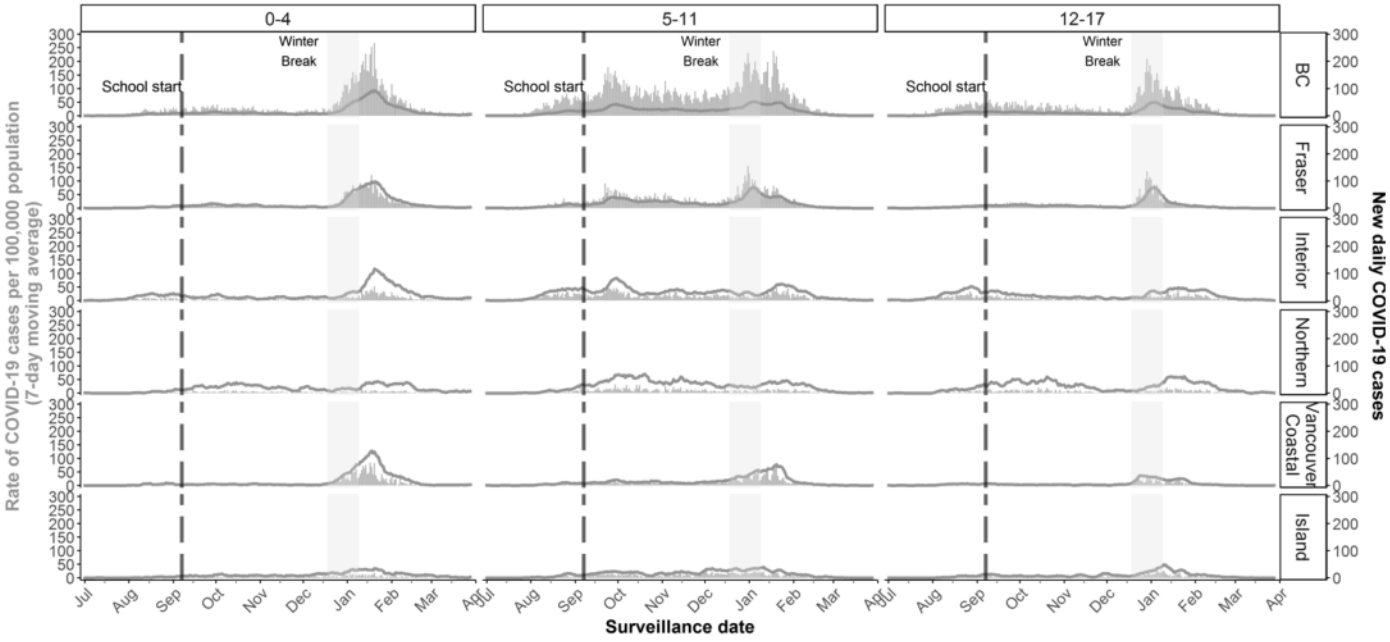
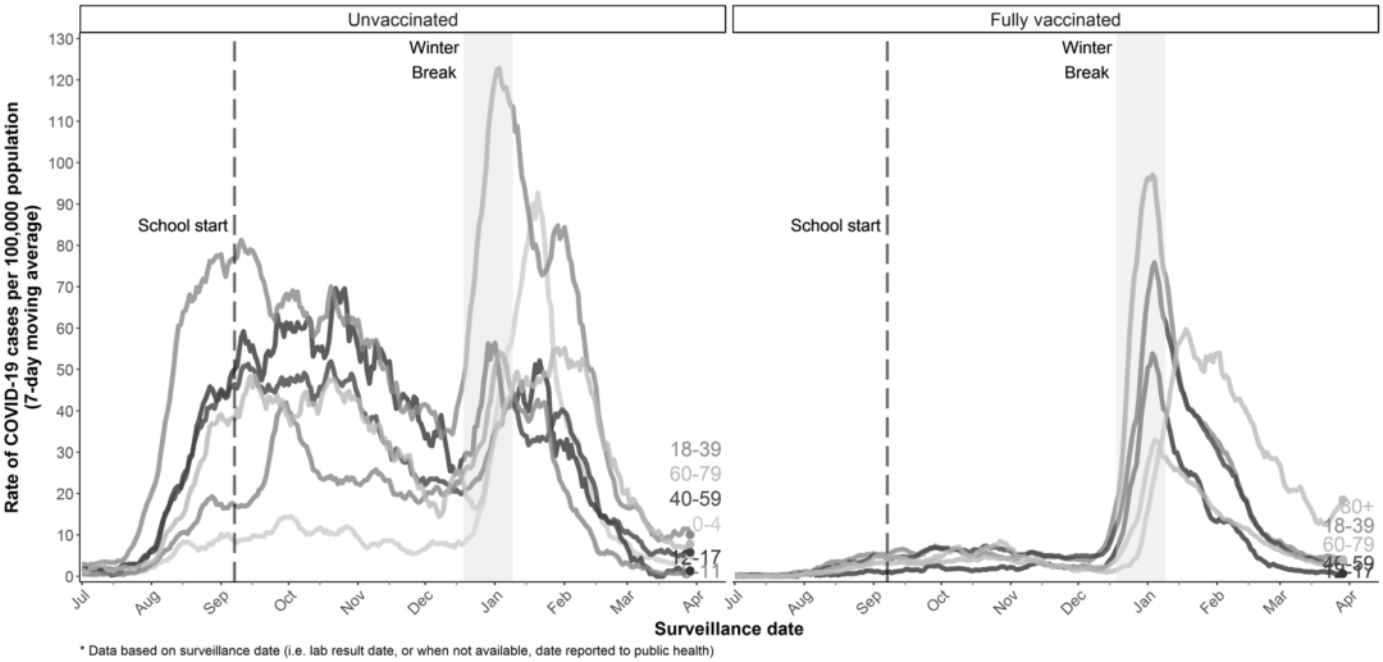


Figure 8: Count and rate of COVID-19 cases by BC Health Authority and age group, 0-17 year-olds, July 1, 2021 to March 29, 2022

Case incidence rates among the unvaccinated population show that children under 12 years-old are generally at lower risk of infection than other age groups. Case incidence among fully vaccinated individuals remained low compared to unvaccinated individuals across all age groups until the emergence of the Omicron variant in mid-December 2021, when case incidence increased among all individuals regardless of vaccination status (**Figure 9**). However, the risk of severe outcomes remains lower for fully vaccinated individuals (see section D. Severe Outcomes).



- The case incidence rate for fully vaccinated children aged 5-11 is suppressed because it is based on a very small number and is therefore an unreliable measure at this time.

Figure 9: Case rate of COVID-19 by age and vaccination status, BC, July 1, 2021 to March 29, 2022

Testing Volumes and Positivity

COVID-19 testing among 5-17 year-olds has been on general decline across all pediatric age groups since peaking in late September 2021 (**Figure 10**). The increased testing in the pediatric and adolescent populations during early fall may be related to other circulating respiratory viruses causing similar symptoms to COVID-19 that often become more common following the return to school and respiratory season. Lower testing volumes since late December are in part due to changes in testing strategies in BC.

Test percent positivity, the percentage of all tests performed that are positive, declined since early February in all pediatric age groups and began showing signs of uptick among 0-11 year olds in late March 2022.

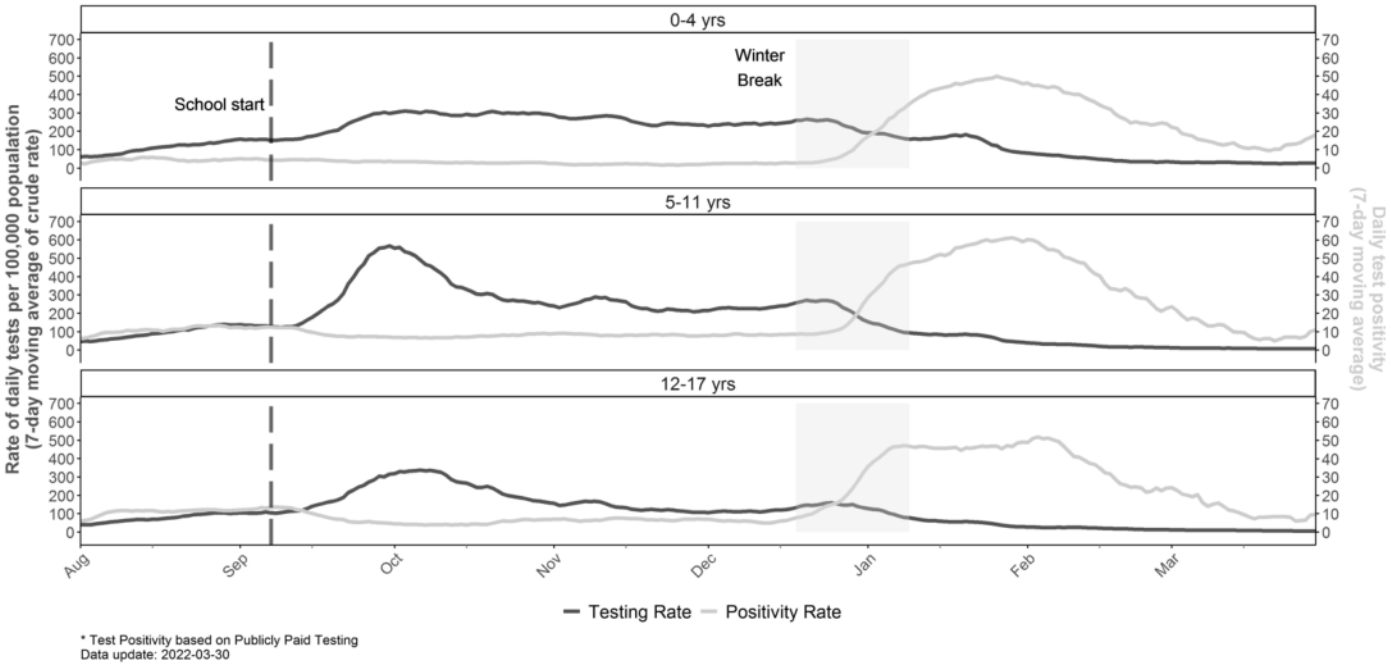


Figure 10: COVID-19 rate of daily testing and test positivity (%) by pediatric age group, 0-17 year-olds, August 1, 2021 to March 30, 2022

D. Severe Outcomes

Hospitalization and Deaths

Most children are at lower risk of acquiring COVID-19 and, if they do, they most commonly have mild or no symptoms.

> From January 1, 2020 to March 29, 2022, among 43,002 cases in 5-17 year-olds in BC, there were:
> - 270 hospitalizations, including 29 critical care admissions
> - 0 deaths

The number of hospital and critical care admissions for children and youth aged 0-17 have been consistently low in comparison to other age groups throughout the pandemic. Rising case incidence among children and youth in BC due to the emergence of the Omicron variant led to an increase in hospitalizations and a slight increase in critical care admissions starting in January 2022; both hospital and critical care admissions have generally declined since the beginning of February. Critical care admissions continue to be rare among children (**Figure 11**). Additional hospitalization and critical care numbers can be found in the COVID-19 Regional Surveillance Dashboard.

A recent analysis of hospitalizations among December COVID-19 cases residing within the Vancouver Coastal Health region revealed that nearly half were incidental hospitalizations – people who were in hospital for reasons unrelated to COVID-19 but tested positive during screening. More work is underway to understand and quantify incidental hospitalizations specific to children.

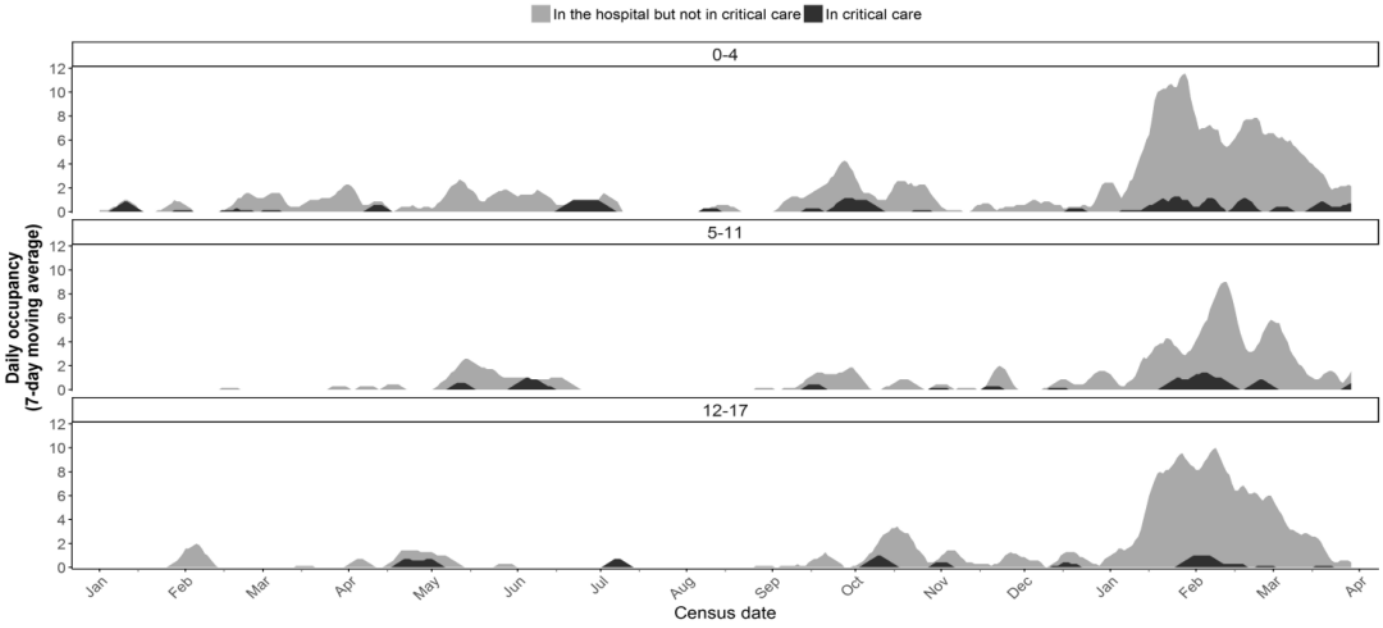
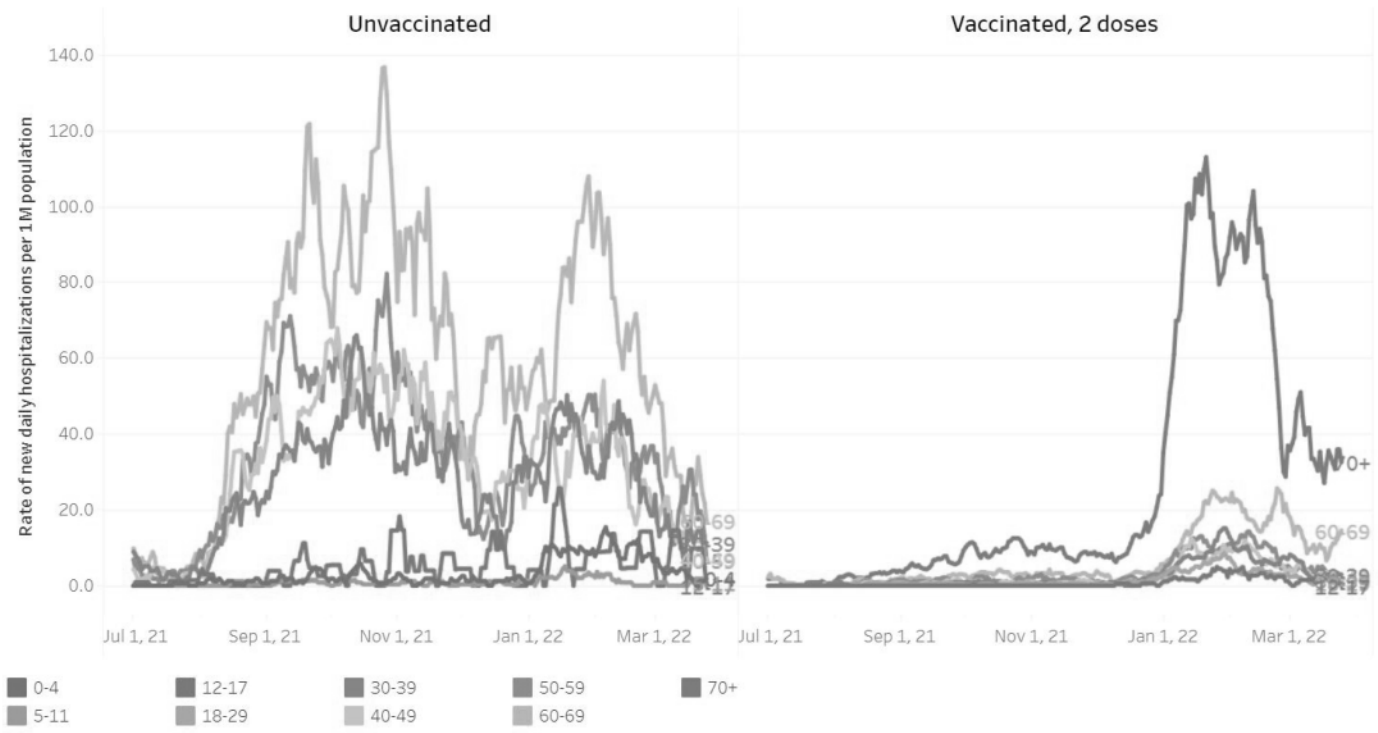


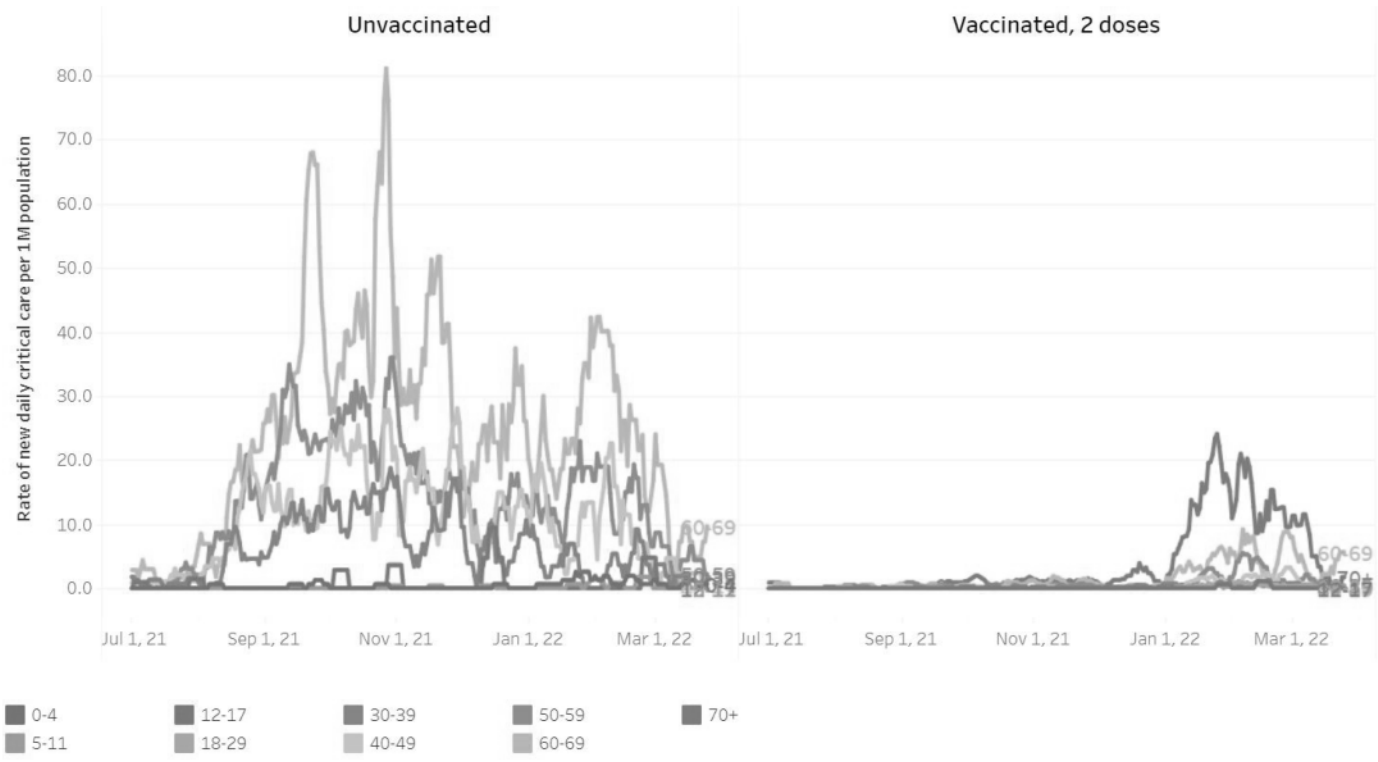
Figure 11: Daily hospital and critical care occupancy by pediatric age groups, 0-17 year-olds, BC, January 1, 2021 to March 29, 2022

The hospitalization and critical care rates among fully vaccinated individuals are lower compared to unvaccinated individuals across most age groups and time, regardless of the dominant circulating strain of COVID-19. Hospitalization and critical care rates among the unvaccinated population show that children under 12 years-old are generally at lower risk of hospitalization than other age groups (**Figure 12**, **Figure 13**). In general, fully vaccinated individuals with COVID-19 are much less likely to need hospital and/or ICU care, or to die from COVID-19. Research also shows that a booster dose can provide more protection against infection from the Omicron variant.



- The hospitalization rate for unvaccinated individuals aged 70 years and over is suppressed because it is based on a very small number of people and is therefore an unreliable measure.

Figure 12: Hospitalization rate of COVID-19 by age and vaccination status, BC, July 1, 2021 to March 25, 2022



- The critical care rate for unvaccinated individuals aged 70 years and over is suppressed because it is based on a very small number of people and is therefore an unreliable measure.

Figure 13: Critical care rate of COVID-19 by age and vaccination status, BC, July 1, 2021 to March 25, 2022

E. Looking Forward

Students benefit from in-person learning. By layering public health measures with the vaccination strategy and through the actions and engagement of the entire school community, BC ensured that in-person learning remained open and that COVID-19 transmission was limited in the K-12 setting. This approach has been informed through ongoing monitoring of provincial COVID-19 surveillance data and focussed investigations into local school-specific data, such as analyses by Vancouver Coastal Health and Fraser Health.

At this time, and in the foreseeable future, COVID-19 will continue to circulate in the population, including within K-12 schools. However, with broad immunization coverage as well as emerging treatment options for people at higher risk of serious disease, BC is transitioning to managing, monitoring, and reporting on COVID-19 in a way that is similar to other communicable diseases.

Updated on March 10, 2022, the Public Health Communicable Disease Guidance for K-12 Schools continues to recommend a number of preventive actions for individuals in the school community to reduce the risk of COVID-19 and other communicable diseases. These actions include getting all recommended doses of COVID-19 vaccines, staying home when feeling unwell, and practicing hand hygiene and respiratory etiquette. In addition, the choice among staff and students to practice additional personal prevention measures, including mask wearing, should be respected. The Guidance, including recommendations for individuals and for school settings, will continue to be modified as needed as the province transitions from an emergency response to the COVID-19 to the recovery and readiness phases.

School reporting will transition over the remainder of the school year in line with other COVID-19 data products. Data will continue to be updated on the BCCDC website, including the BCCDC Regional Surveillance Dashboard to provide provincial and regional data on cases, hospitalization, critical care, and vaccination, and the BC COVID-19 Situation Report to provide an in-depth look at COVID-19 epidemiology, underscoring data and key trends, including information on MIS-C.

F. Data Sources and Notes

Data sources include: HA case line list data, laboratory PLOVER data, PHSA Provincial Immunization Registry (PIR), Ministry of Health Immunization Population Coverage Report, hospital data PHSA Provincial COVID-19 Monitoring Solution (PCMS), and the Ministry of Health's Health Sector Information, Analysis and Reporting (HSIAR) vaccine coverage data.

Cases are reported by surveillance date. For epi-linked cases, this is the date it was reported to public health. For all lab-confirmed cases, the lab result date is used. If a lab result date is not available, the date the case was reported to public health is used.

Population estimates for case incidence, hospitalization, and death rates are from PEOPLE 2021.

Vaccination coverage is estimated using the Client Roster for the denominator as of March 12, 2021. Age is calculated as age as of December 31, 2021.

Laboratory data include Medical Service Plan (MSP) funded (e.g. clinical diagnostic tests) and non-MSP funded specimens (e.g. screening tests).

Data may be corrected over time as additional data flow into the system.

G. Additional Resources

Provincial COVID-19 Dashboards

BC COVID-19 Dashboard –Provincial and health authority level reporting of case incidence, death, hospitalization and laboratory data.

BCCDC Regional Surveillance Dashboard – Provincial and regional reporting of case, hospitalization, critical care, and vaccine data, including interactive maps.

BCCDC COVID-19 Epi App – Case incidence, death, hospitalization, laboratory and limited vaccine data for regional and global comparisons.

COVID-19 Updates

BC COVID-19 Situation Report - Provides a more in-depth look at COVID-19 epidemiology, underscoring data and key trends. This report includes information on MIS-C.

BC COVID-19 Pandemic Update – Regular COVID-19 updates from the BC Ministry of Health.

BC COVID-19 Situation Report for K-12 Schools – Previous situational updates on COVID-19 in BC K-12 schools during the 2021-2022 school year.

Case Definitions

COVID-19 Case Definition

BC K-12 School Guidance

COVID-19 Safe Schools – Information and guidance related to K-12 schools.

Public Health Communicable Disease Guidance for K-12 Schools *(Updated March 10, 2022)* – Outlines the prevention measures recommended for public, independent, and First Nations K-12 schools in BC to reduce the risk of communicable diseases, including COVID-19 in K-12 schools.

Provincial COVID-19 Communicable Disease Guidelines for K-12 Settings *(Updated March 10, 2022)* – Outlines focused actions and additional prevention measures BC public and independent K-12 schools must implement in response to COVID-19.

COVID-19 Protocols for School & District Administrators and Staff: Management of School-Associated Activity *(January 7, 2022)* – This resource provides K-12 school and district staff and administrators with information on roles and responsibilities in managing school-associated COVID-19 activity.

BC Surveillance Bulletin of Influenza and Other Respiratory Viruses

BC Influenza Surveillance Reports – Provides surveillance analysis of the activity of influenza as well as other non-influenza respiratory viruses in BC.

RE: AEFI COVID

From: Penny Ballem <pballem@telus.net>
To: Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>, XT:Flatt, Alexandra HLTH:IN <aflatt@phsa.ca>
Cc: Gustafson, Reka HLTH:IN <reka.gustafson@phsa.ca>, Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Sent: April 9, 2022 2:53:16 PM PDT

Thanks so much for this Monika – it would be good to see this by HA and CHSA and also by our subgroups which are identifiable in ImmsBC and PIR - can we have access to the file in order to answer these questions – I can get Shar to do the analysis and then send it back to you when done for your review and sign off – the other thing is to know how many of these folks have gone on to have another dose of vaccine – that is really important as there are likely quite a number who stopped their series – it would be good to discuss this and get some data while we are in a bit of a lull so that I can get the allergists and others to review them and also so we can target the info re Novavax to them – thanks so much pb

Penny Ballem MD FRCP FCAHS
Mobile[s.17]

From: Naus, Monika [BCCDC] <Monika.Naus@bccdc.ca>
Sent: March 29, 2022 7:41 AM
To: Flatt, Alexandra [PHSA] <AFlatt@phsa.ca>; Penny Ballem <pballem@telus.net>
Subject: Re: AEFI COVID

Hi Lexie and Penny

Our reports are on this page:

http://www.bccdc.ca/health-info/diseases-conditions/covid-19/covid-19-vaccine/vaccine-safety

See BC's reports on adverse events

These were weekly (older reports are archived) but now we are issuing q2weeks and are working on a 'final' end of campaign report.

Penny if you have specific questions let me know.

Thank you,
Monika

. . . . . .

Monika Naus MD FRCPC
Medical Director, Communicable Diseases & Immunization Service
Medical Head, Immunization Programs & Vaccine Preventable Diseases
BC Centre for Disease Control
monika.naus@bccdc.ca
Tel 604.707.2540
Cell[s.17]
Assistant: Jessica Taylor (Monday - Wednesday) and Esther Cummings (Thursday/Friday)
mnds.assist@bccdc.ca Tel 604 707 2519

I gratefully acknowledge that I live on the territory of the Coast Salish Peoples.

From: AFlatt@phsa.ca
Sent: March 28, 2022 18:24
To: Monika.Naus@bccdc.ca
Subject: AEFI COVID

Hi Monika,
Do you have anything that summarizes the AEFI's for COVID this year? Penny is looking for a report.
Thanks,
Lexie

Alexandra Flatt (she/her)
Vice-President, Pandemic Response &
Chief Data Governance & Analytics Officer
Provincial Health Services Authority

1333 West Broadway
Vancouver, British Columbia V6H 4C1
C: s.15 **O: 604-875-7327**
aflatt@phsa.ca

I acknowledge with gratitude that my place of work is within the unceded land of the xʷməθkwəy̓əm (Musqueam), Sḵwx̱wú7mesh Úxwumixw (Squamish), and səlilw̓ətaɁɬ (Tsleil-Waututh) Nations

Leadership Council Agenda April 20 2022

From:	Penny Ballem <pballem@telus.net>
To:	XT:Ulrich, Cathy HLTH:IN <cathy.ulrich@northernhealth.ca>, XT:Brown, Susan PSA:IN <susan.brownCEO@interiorhealth.ca>, XT:Lee, Victoria HLTH:IN <victoria.lee@fraserhealth.ca>, XT:HLTH Eliopoulos, Vivian <Vivian.Eliopoulos@vch.ca>, XT:MacNeil, Kathryn HLTH:IN <Kathryn.MacNeil@islandhealth.ca>, XT:byres, david HLTH:IN <david.byres@phsa.ca>, XT:Jock, Richard HLTH:IN <richard.jock@fnha.ca>, Henry, Bonnie HLTH:EX <Bonnie.Henry@gov.bc.ca>
Cc:	Brown, Stephen R HLTH:EX <Stephen.Brown@gov.bc.ca>, Dube, Jonathan HLTH:EX <Jonathan.Dube@gov.bc.ca>, XT:ODonnell, Maureen HLTH:IN <modonnell@phsa.ca>, XT:Ballem, Penny HLTH:IN <pballem@telus.net>, Rush, Brian HLTH:EX <Brian.Rush@gov.bc.ca>, Lizette Parsons Bell <lizette@umbrellastrategies.ca>, Sedun, Jeanne HLTH:EX <Jeanne.Sedun@gov.bc.ca>, Moulton, Holly HLTH:EX <Holly.Moulton@gov.bc.ca>
Sent:	April 19, 2022 11:42:20 PM PDT
Attachments:	Progress Report LC April 19 2022.pptx

hi all here is the agenda and progress update - see you tomorrow pb

- PHO update
- Progress update
- LTC/AL reporting re D4
- Profile of unvaxed
- s.13
- AEFI update
- other

--

Penny Ballem MD FRCP FCAHS
pballem@telus.net
Mobile s.17

COVID-19 IN BC

Progress Report

Leadership Council April 19 2022

Stay Informed Via These Resources:
gov.bc.ca/Covid-19 | bccdc.ca | 1-888-COVID19

Symptom Self-Assessment:
covid19.thrive.health

BRITISH COLUMBIA

Agenda

- PHO update
- Progress update
- LTC/AL reporting re D4
- Profile of unvaxed
- s.13
- AEFI update
- other

Progress Update

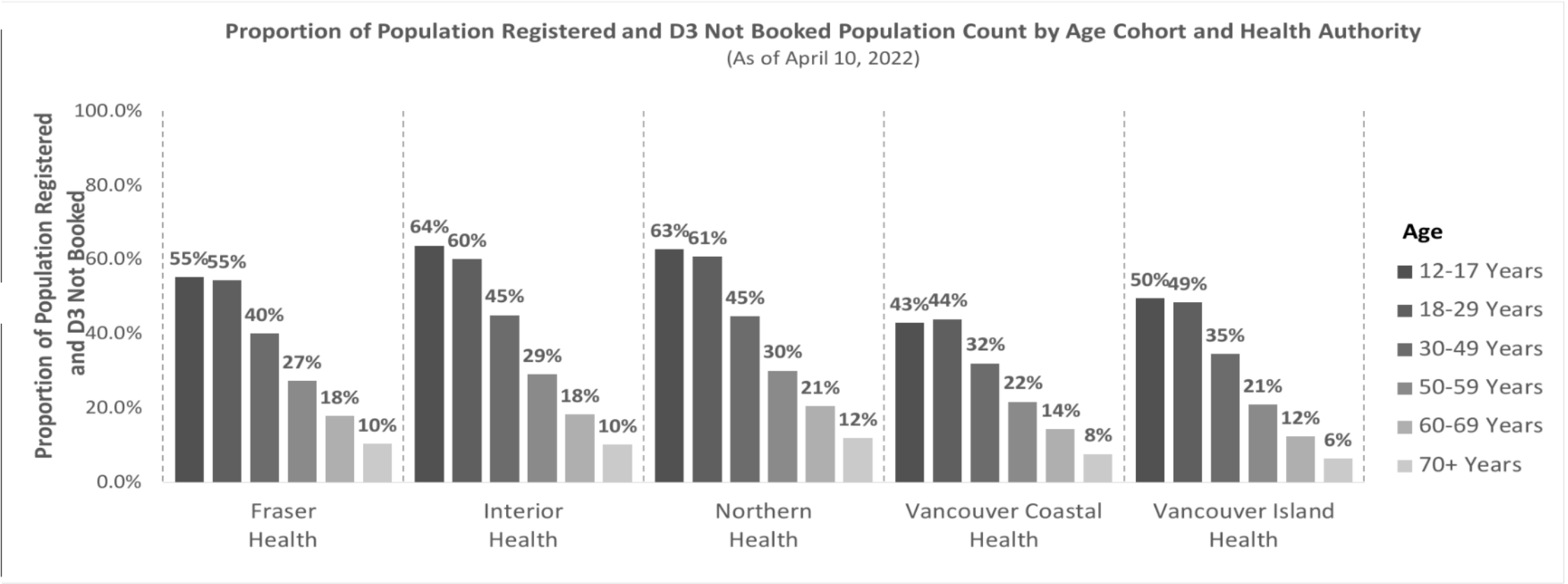
- 8994 bookings for D4 between last Thursday and Today
- Total Dose 4 administered: 16,852 (CEV, LTC, 70+)
- LTC - data due tomorrow am - key details requested - next slide
- Novavax - immunizations started - total demand - 2982
- s.13

LTC Report Data Required

Date of Report: End of Day *April 19 2022*	**Total LTC/AL Sites**	**Total LTC/AL Residents**	**# Sites D4 Complete**	**% Sites D4 Completed**	**# Residents Received D4**	**% D4 Uptake**
FHA						
VCH						
VIHA						
IHA						
NHA						
Total/average						

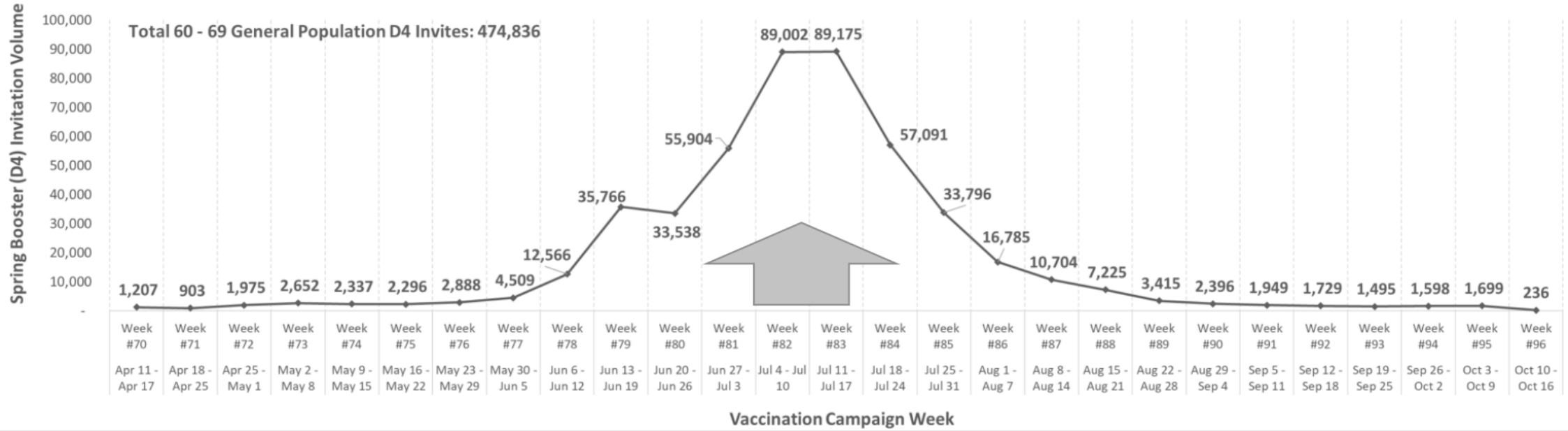
First Booster Results - Registered but Not Booked or Vaxed (to date)

Proportion of Population: Registered and D3 Not Booked Population Count by Age Cohort and Health Authority (data as of April 10, 2022)



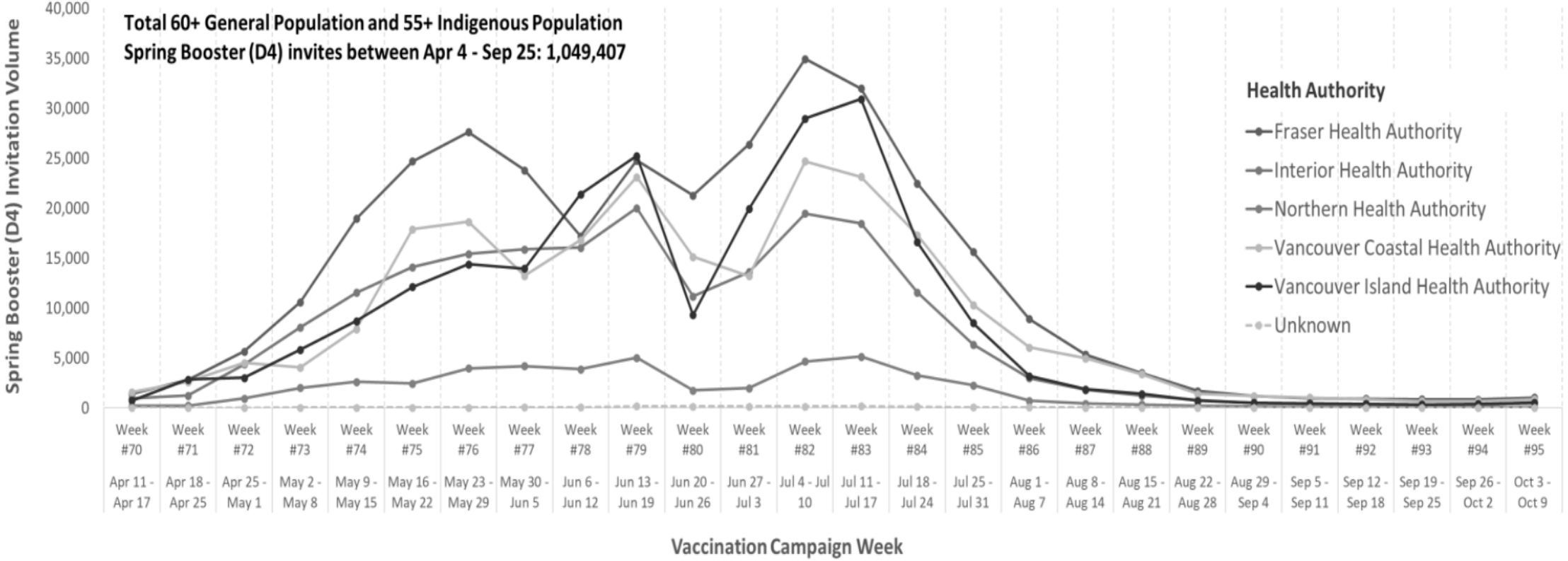
Absolute Counts: Registered and D3 Not Booked Population Count by Age Cohort and Health Authority (data as of April 10, 2022)

Risk Assessment: Expended Spring Booster General Population Ages 60 – 69



July 4-17

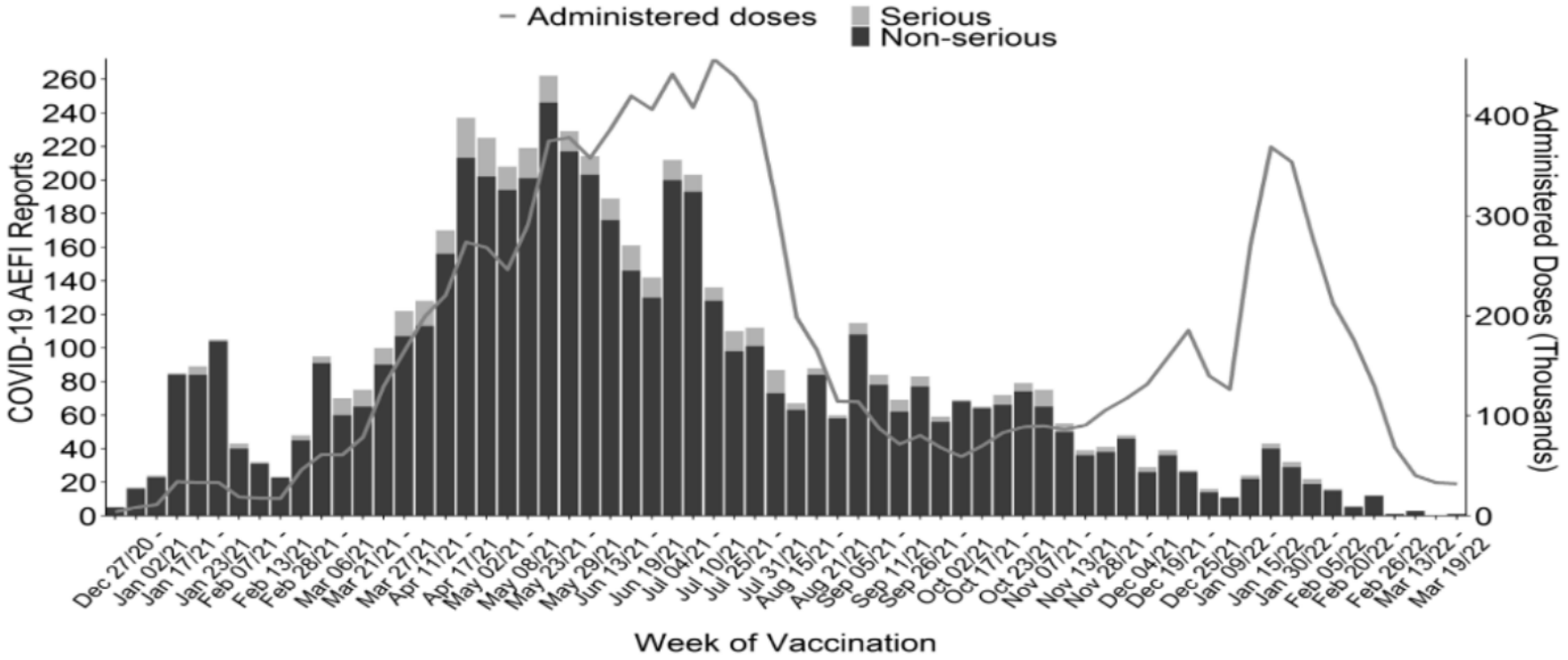
Risk Assessment: Spring Booster Expansion to General Population by Health Authority:



Adverse Events from COVID Vaccines

Summary of AEFI Reports

Figure 1: Adverse event reports following receipt of a COVID-19 vaccine by week of vaccination, BC, Dec. 13, 2020 - Mar. 19, 2022 **(N=5,627)**



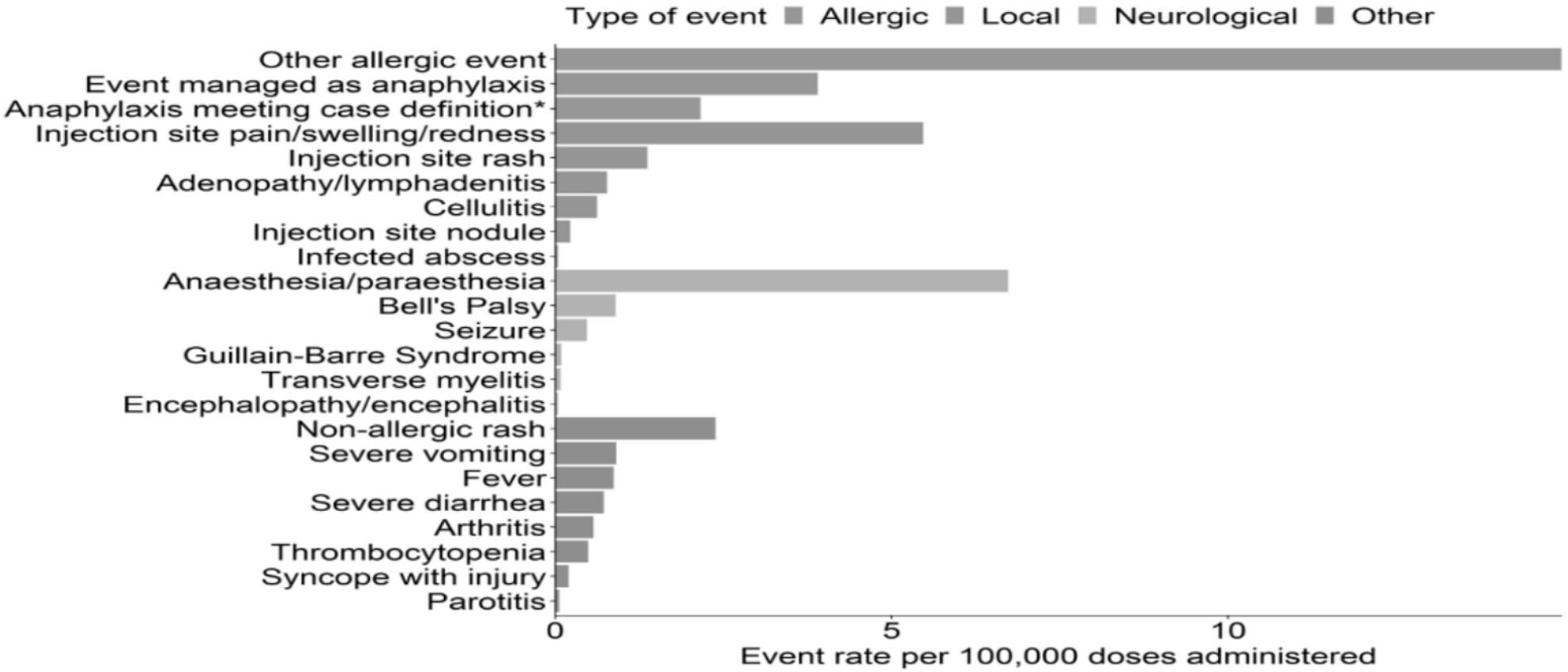
AEFIs to March 20 2022

Key Findings

- As of March 19, 2022, there have been 11,417,292 COVID-19 vaccine doses administered in BC and 5,627 COVID-19 AEFI reports (49.3 reports per 100,000 doses administered)
- 416 reports (7.4%) met the serious definition, for a rate of 3.6 per 100,000 doses administered
- The most frequently reported events were other allergic event, anaesthesia/paraesthesia, and injection site pain/swelling/redness

Event Rates for Adverse Events following COVID Vaccine

Figure 2: Adverse events following receipt of a COVID-19 vaccine, British Columbia, Dec. 13, 2020 - Mar. 19, 2022 **(N=7,151)**



Other Events

There have been 204 reports of myocarditis/pericarditis. Fifty-nine individuals were diagnosed with myocarditis, 92 with pericarditis, and 53 with myopericarditis. Ages ranged from 14 to 95 with a median of 37.8 years, and 131 (64.2%) were male. Eighty had received Moderna Spikevax, 117 received Pfizer-BioNTech Comirnaty, and seven received AstraZeneca Vaxzevria/Verity COVISHIELD. Ninety-seven of these events occurred after a second dose (44 Moderna Spikevax and 52 Pfizer-BioNTech Comirnaty) and twelve occurred after a third dose (9

There have been six non-fatal confirmed cases of TTS reported in BC to date, four of whom were adults in their 30s or 40s and two were in their 60s. The first had onset four days after

175 other thrombotic events including stroke[illegible], sinus thrombosis, DVT, coronary thrombosis